

Unedited White Cover Version

MSITS 2010 Compilers Guide

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Foreword

The United Nations Statistical Commission adopted¹ in 2010 at its 41st session the *Manual on Statistics of International Trade in Services 2010* (MSITS 2010), while urging the Task Force² on Statistics of International Trade in Services (TF-SITS) to give high importance to the development of corresponding compilation guidance. TF-SITS discussed the outline of the Compilers Guide for MSITS 2010 as early as March 2010, but the actual work on it started only in late 2011 to ensure close coordination with the ongoing work of the International Monetary Fund (IMF) on its compilation guidance for the *Balance of Payments and International Investment Position Manual, 6th edition* (BPM6). TF-SITS was supported in its work by the UN Expert Group on compilation of SITS, which was especially established for the purpose of developing the Compilers Guide.

The Compilers Guide is aligned with the international statistical standards in the field of economic statistics, in particular *the System of National Accounts 2008* (2008 SNA), the BPM6, *the OECD Benchmark Definition of Foreign Direct Investment, 4th edition 2008*, as well as the *International Recommendations for Tourism Statistics, 2008*.

The preparation of the Guide was organized through four virtual meetings and one face-to-face meeting. The members of the UN Expert Group, including all members of the TF-SITS, participated actively in these meetings. This group of about 70 experts from various national agencies of developed and developing countries exchanged hundreds of inputs in numerous iterations of successive drafts of the chapters. The Guide benefited from strong cooperation among the international organizations, the advice of consultants, the invaluable input of a large number of member countries' experts and the many comments received during the successive worldwide consultations and online discussion forums, conducted under the auspices of the Task Force.

The Guide serves the purpose of harmonizing and improving the ways in which statisticians at the national level collect, compile and disseminate trade in services statistics. While the international standards in economic statistics³ are in the process of being implemented, this Guide comes timely, providing the statistical community with guidelines, best practices, case studies, and practical advice on the compilation of the trade in services statistics. These statistics consist of transactions between residents and non-residents in services classified by the Extended Balance of Payments Services (EBOPS) categories and by the country of residency; they also include foreign affiliates statistics (FATS) and statistics on modes of supply. The overarching aim of this Guide is to increase the availability and quality of these statistics in order to fulfil the urgent needs and demands for such data by policy makers, researchers, market analysts and the public in general.

The Guide is first of all intended for use by statisticians of national statistical offices, central banks and ministries of trade and investment, or other agencies engaged in the compilation of trade in services statistics. We commend it to countries for their progressive implementation, taking into account their national information needs, priorities and resources. The Guide will not only be available as a printed publication, but as a living document in electronic format

¹ See Decision 41/104 of the 2010 Commission Report, E/CN.3/2010/34.

² In March 2014, the Task Force on SITS merged with the Task Force on International Merchandise Trade Statistics.

³ *System of National Accounts 2008*, United Nations et al., 2009, and *Balance of Payments and International Investment Position Manual, Sixth Edition*, Washington, D.C.: International Monetary Fund, 2009.

on the TF-SITS website. On the website, further country examples and practices can be regularly added or updated, especially as new compilation techniques become available over time.

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Already in the beginning of the process, national statistical agencies, national central banks, international and regional organizations were consulted on the annotated outline of the Compilers Guide through world-wide consultation. Based on this consultation, initial drafts of each chapter were produced and reviewed during four consecutive virtual meetings in 2012 and early 2013, involving an extended Expert Group, and one face-to-face meeting of the actual UN Expert Group in June 2013. In addition to those meetings the Task Force also met separately on the development of the guide in meetings in 2012, 2013 and 2014. The consultation, reviews, and virtual and in-person meetings were coordinated by UNSD, OECD and WTO. The process benefited immensely from the advice (and country examples) received during the various meetings.

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List of acronyms

AMNE	activities of multinational enterprises
BD4	Fourth edition of the <i>OECD Benchmark Definition of Foreign Direct Investment</i>
BPM6	Sixth edition of the <i>Balance of Payments and International Investment Position Manual</i>
CAPI	computer assisted personal interviewing
CATI	computer assisted telephone interviewing
CAWI	computer assisted web interviewing
CIF	cost, insurance, freight
CPC	Central Product Classification
EBOPS	Extended Balance of Payments Services Classification
Eurostat	Statistical Office of the European Union
FATS	foreign affiliates statistics (as used in this <i>Manual</i>)
FDI	foreign direct investment
FDIR	Framework for Direct Investment Relationships
FISIM	financial intermediation services indirectly measured
FOB	free on board
FTE	full-time equivalent
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
HS	Harmonized Commodity Description and Coding System
ICFA	ISIC, Rev.4 Categories for Foreign Affiliates in services
ICSE	International Classification of Status in Employment (International Labour Organization)
ICT	information and communication technology
IDC	internet data collection
ILO	International Labour Organization
IMF	International Monetary Fund
IMTS	International Merchandise Trade Statistics
IRTS	International Recommendations for Tourism Statistics
ISCO	International Standard Classification of Occupations (International Labour Organization)

ISIC	International Standard Industrial Classification of All Economic Activities
ITRS	International Transactions Reporting Systems
MFN	most-favoured-nation (treatment)
MNE	multinational enterprise
NPISH	non-profit institution serving households
NPO	non-profit organization
OECD	Organisation for Economic Co-operation and Development
RSIM	recommendations on statistics of international migration
SBR	statistical business register
SNA	System of National Accounts
SPEs	special-purpose entities
TFSITS	Task Force on Statistics of International Trade in Services
TRIPS	Agreement on Trade-related Aspects of Intellectual Property Rights
TSA	tourism satellite account
UCI	ultimate controlling institutional unit (used in respect of foreign affiliates)
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
W/120	Services Sectoral Classification List (see World Trade Organization document MTN.GNS/W/120)
XBRL	Extensible Business Reporting Language reporting

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Introduction

1. Rapid technological advances in the past few decades in transport, computing, and telecommunications, including the development of the internet and electronic commerce, have allowed enterprises to avail themselves of resources for production at more distant locations than ever before and have enabled them to import or export services from ever wider markets. This trend towards globalization, reinforced by liberalization policies and the removal of regulatory obstacles to economic activities, has fuelled the steady growth of multinational enterprises, international investment and trade in goods and services. Better communication and transport have also facilitated the movement of people for the purposes of tourism, migration, employment and trade. The result has been a growing economic interdependency among countries, be it through international trade, multinational enterprises, global value chains or the outsourcing of business functions. Particularly in the field of trade in services, which are increasingly becoming the focus of trade liberalization agreements, market access deregulation, and other policy initiatives, statisticians face a growing challenge to produce statistics that measure these complex global transactions in a clear, accurate, and timely manner.

2. The services sector accounts for the largest share of business activity, employment, and economic growth in most economies, yet the role of services trade, particularly in designing policies and negotiating regional agreements, continues to be poorly understood. A major reason for this disconnect is the absence of abundant, high-quality data on trade in services that is comparable across economies – making it difficult to measure the impact of services trade on the economy and provide useful information for negotiators and policy makers incoming up with market access or policy tools that could facilitate trade in services.

3. In this context the United Nations Statistical Commission adopted⁴ in 2010 at its 41st session the *Manual on Statistics of International Trade in Services 2010* (MSITS 2010) and endorsed the implementation plan, while urging the Task Force on Statistics of International Trade in Services (TF-SITS) to give high importance to the development of corresponding compilation guidance. To ensure close coordination with the work of the International Monetary Fund (IMF) on the compilation guidance for BPM6, the actual work on this Compilers Guide for MSITS 2010 started late in 2011 with the support of a UN Expert Group established for this purpose. The MSITS 2010 Compilers Guide aims to help the compilers while staying consistent with the recommendations in MSITS 2010, related statistical recommendations and the compilation guidance, which has been developed for the Balance of Payment and International Investment Position Manual (BPM6).⁵

4. MSITS2010 Compilers Guide serves the purpose of harmonizing and improving the ways in which statisticians at the national level collect, compile and disseminate statistics of international trade in services. The aim is to increase the availability and quality of such statistics in order to fulfill the urgent needs and demands for statistics reflecting modalities through which services may be supplied by policy makers, researchers, market analysts and the public in general. While the international standard in economic statistics of the 2008 System of National Accounts (SNA 2008)⁶ and the BPM6 are in the process of being implemented, this Compilers Guide is meant to provide the statistical community with guidelines, best practices, case studies, and practical advice on the compilation of data in compliance with the MSITS 2010 framework for compilation of statistics on the international supply of services.

⁴ See Decision 41/104 of the 2010 Commission Report, E/CN.3/2010/34.

⁵ *Balance of Payments and International Investment Position Compilation Guide*. Available at: <http://www.imf.org/external/pubs/ft/bop/2007/bop6comp.htm>.

⁶ *System of National Accounts 2008*, United Nations et al., 2009.

Box 1. Uses of terms *statistics of international trade in services* and *statistics on the international supply of services*

The information needs described in the Manual on Statistics of International Trade in Services 2010 touch upon a multi-purpose field of statistical work. As described in the box I.2 of the Manual, the conceptual framework introduced in it covers a broad range of statistical domains including (1) statistics on services transactions between residents and non-residents (or resident/non-resident trade in services statistics) broken down by detailed service categories, partner countries and modes of supply, (2) foreign affiliates statistics (FATS) covering supply of services through commercial presence broken down by type of services and partner countries and related data on foreign affiliates (e.g., employment, value added etc.) as well as (3) additional monetary and non-monetary indicators for analysing the international supply of services. Therefore, the information needs described in the MSITS2010 go beyond the concept of international services transactions or trade in services as covered in the balance of payments or in the rest of the world account of the SNA.

However, the exact terminology to refer to this complete set of statistical domains differs across various statistical fora and users. In particular, compilers should note that the term *statistics of international trade in services* is an umbrella term which should be used in the broad sense as outlined above. Indeed, these combined components of the MSITS2010 are recognized by the UN Statistical Commission as a separate field of statistical activity under this title. The broad use of the term initially referred to the fact that in the mid-90s trade agreements were increasingly covering services as well as goods. The most well-known and wide-reaching agreement that triggered information needs as described in the MSITS2010 is the General Agreement on Trade in Services (GATS).

The term *statistics of international trade in services* is often interpreted by users to refer only to statistics on services transactions between residents and non-residents (i.e. as covered in the balance of payments goods and services account). Therefore, the statistical framework developed in MSITS2010 in order to compile information on the modes of services supply uses the term *statistics on the international supply of services* to make it more explicit that also components covered by the extended scope of international trade in services are covered. For the purposes of this Guide, and in line with the MSITS2010 (in particular with the more substantive chapters 3, 4 and 5), the term *statistics of international trade in services* (or *trade in services statistics*) is used in more general contexts to describe the wide statistical domain, and the term *statistics on the international supply of services* is used when explicit emphasis is placed on the inclusion of FATS and additional monetary and non-monetary indicators for measuring the international supply of services.

A. Background

A.1. The GATS: an overview

5. In 1994 the Uruguay round of trade negotiations was completed by signing the Agreement establishing the World Trade Organization (WTO). Annex 1B to the Agreement contains General Agreement on Trade in Services known as the GATS.⁷ The GATS established a set of rules and disciplines governing the use by the WTO members of measures affecting trade in services. The trade in services was defined in Article I of the GATS as “the supply of a service”. The same article defined also four different ways in which a service can be supplied by a natural and juridical person (service supplier) from the territory one of the WTO members to a service consumer in the territory of another WTO member. Article XXVIII provided the elaboration of the meaning of the main of GATS concepts for use in international negotiations⁸ on liberalizing trade in services and related analytical work.

6. The term “service” is not defined in the Agreement. However, the scope of services with which the GATS is concerned was clarified by the GATT Secretariat in the document MTN.GNS/W/120 entitled “Services Sectoral Classification List” (W/120). The list was based on the

⁷ Available at http://www.wto.org/english/docs_e/legal_e/26-gats_01_e.htm.

⁸ The regional economic integration agreements take their inspiration from the GATS definitions. However, some of these agreements may define the modes in a somewhat different way. The compilers should be aware of this while interpreting data on value of the services supplied under different modes in a regional context.

consultations with the WTO Members and issued in 1991. W/120 identifies relevant sectors and subsectors and enabled members to undertake specific commitments. It should be noted that the WTO Members have tended to avoid any major changes in the list to ensure the stability and comparability of commitments over time, even though related international statistical classifications have been revised (see Chapter 1, Section B for details).

7. The GATS created a need in specific data leading eventually to establishing of a special statistical domain – statistics of international trade in services. In view of a fundamental importance of the GATS conceptual framework for these statistics its key elements are described in Chapter 1 (Section B) of this Guide.

A.2. *GATS related data needs*

8. The GATS negotiators and trade in services policy makers as well as business community, research institutions and public at large need detailed and internationally comparable statistical information on the supply of services by mode, type of service and trading partner. The policy makers require such data to ensure an informed decision making process leading to specific commitments, comparison of national commitments and a conduct of efficient negotiations as well as to assess the extent of liberalisation reached in specific sectors/markets and to provide statistical background for the settlement of disputes.

9. The availability of timely and comparable data reflecting the international supply of services would greatly benefit business community as such data would significantly facilitate the evaluation of the importance of each type of internationally traded service and understanding of how those services are provided in the respective economies thus helping to realize the competitive advantages in a globalized world. The research institutions and public at large are also interested in obtaining such data to assess the role of services in economic and social developments both in their respective countries and globally and to participate more effectively in the formulation of their countries' trade policies.

10. The conceptual and practical issues related to the compilation of data on value of internationally supplied services occupy the most of the Guide. However, it is necessary to stress that statistical needs related to the GATS go beyond the value of services as various non-monetary indicators of modes of supply are critically important for assessing their economic and social impact. Chapter 16 of the Guide is specifically focused on the conceptual and data compilation issues related to the compilation of such indicators.

A.3. *MSITS as a statistical response to the GATS related data needs*

11. The GATS has highlighted that the scope of supply of services which is of a primary interest to trade negotiators and trade policy makers is far broader than what statistics conventionally measure (e.g., includes supply of services by commercial presence) thus making the statistical community aware of an informational gap which had to be filled. Dealing with this issue was a serious challenge as the GATS conceptual framework differs from statistical frameworks adopted internationally for economic statistics. To meet this challenge successfully it was necessary to conceptualize the supply of services by modes in a statistical context.

12. In response to this challenge the UN Interagency Task Force on Statistics of International Trade in Services drafted *Manual on Statistics of International Trade in Services* (MSITS) and the United Nations Statistical Commission (UNSC) adopted it at its thirty-second session in March 2001. The Manual established the statistical framework based on which measurement of supply of services was made possible. The Manual was revised by the Task Force less than a decade after its adoption to take into account publication of the revised international statistical standards including BPM6, SNA 2008, CPC version 2, ISIC Rev.4, IMTS 2010, IRTS 2008 and others as well as the necessity of further elaboration of the modes of supply measurement. The revised version of the Manual was

adopted by the UNSC in 2010 and provides a clearer, more detailed and more comprehensive statistical framework, which once implemented, will result in data crucial for statistical and economic analysis of international supply of services and evidence-based decision making.

13. The MSITS 2010 statistical framework was developed utilizing two main building blocks: (i) BPM6 concepts and definitions describing transactions between residents and non-residents of different economies and (ii) concepts and definitions developed in Foreign Affiliates Statistics (FATS) on the basis of BPM6 and the OECD 4th edition of the *Benchmark Definition of Foreign Direct Investment*. The use of these two building blocks was necessitated by the following consideration. Interpreting supply of services between natural and juridical persons located in the territories of different WTO members in terms of the services transactions between residents and non-residents of different economies made possible not only estimation of value of supply of services by all modes except for commercial presence, but also to provide details of such supply by service categories and trading partners. However, since the BPM6 conceptual framework cannot cover supply of services through commercial presence of service suppliers in the economy of service consumers a new statistical framework for measuring the supply of services through that mode had to be established. Such a framework was developed as part of foreign affiliates statistics. It should be underlined that that framework, once implemented, will not only generate information needed for the GATS related purposes, but also will result in statistics indispensable for a better understanding the overall dynamics of the global economy and for assessing of the impact of globalization on individual countries. Chapter 1 contains an overview of the main elements of these two components of MSITS 2010 statistical framework as well as the main concepts underlying the compilation of additional monetary and non-monetary indicators relevant for analyzing the international supply of services. The rest of the Guide deals with various data collection, data compilation and data dissemination issues.

14. While stressing the importance of the MSITS 2010 conceptual framework it should not be overlooked that MSITS recommendations and guidelines on the compilation of statistics by modes of supply are laid out only for statistical purposes. They do not imply any attempt to interpret the GATS.⁹ In this connection MSITS 2010 recognizes that a comprehensive statistical treatment of modes of supply that would fully mirror the GATS legal definition and other GATS articles is beyond its scope¹⁰. The same limitation applies to the present Guide.

A.4. *MSITS 2010 and the Compilers Guide for MSITS 2010*

15. Although the original version of the Manual was released in 2002, the international statistical community did not produce compilation guidance to accompany its recommendations. However, with the adoption of the 2010 edition of the Manual the UNSC specifically requested that the Task Force develop appropriate compilation guidance. This is the reason why UNSD, with the assistance of the Task Force, established in December 2011 an Expert Group on compilation of trade in services statistics (EG-CSITS) to assist in the preparation of the Compiler's Guide for MSITS 2010. The expert group included all members of the interagency Task Force, as well as compilers from developing and developed economies, and was convened by UNSD. The guide represents the result of the work of both Task Force and the Expert Group.

16. EG-CSITS was established to ensure active country involvement in the development of the Compilers Guide. In March 2012, the first meeting of EG-CSITS was held through virtual discussion. The main objective of the meeting was to review the annotated outlines of all chapters of the compilers guide and to define the scope of the Guide and the content of each of the chapters. A revised annotated outline was thereafter circulated for worldwide consultation in July 2012 and first draft chapters were prepared as well. The outcome of the worldwide consultation and the draft chapters were being discussed in a virtual meeting in October 2012. Further draft chapters were

⁹ MSITS 2010, paragraph 5.32.

¹⁰ *Ibid.*, paragraph 5.27.

discussed at a third virtual meeting in March 2013. In all three meetings about 65 representatives of countries and international organizations actively participated. At the end of June 2013, the expert group came together for a face to face meeting in Geneva to discuss the first full draft of the compilers guide. A fully edited version of the draft Guide was subsequently prepared and presented to the Task Force at its meeting in October 2013 and was discussed electronically by the Expert Group during November 2013. The unedited draft version of this Guide was submitted to, and adopted by, the Statistical Commission at its forty-fifth session, held in March 2014. The Task Force finalized the draft guide over the course of 2014.

B. Purposes and scope of the Guide

17. The main purpose of the Guide is to assist countries in the production of high quality official statistics on international trade in services in compliance with MSITS 2010. The Guide strives to achieve this by (i) clarification and elaboration of a number of more difficult conceptual issues and (ii) identification of good practices in the implementation of MSITS 2010¹¹. Further, the Guide is intended to better integrate the compilation of statistics of international trade in services in the context of a global statistical work and, therefore, recognizes importance of not only such pillars as BPM6 and SNA2008, but also of the UNSC recommendations for other related statistical domains as well as its guidance contained in *Guidelines on Integrated Economic Statistics*¹² and *National quality assurance framework*.¹³

18. In particular, the Guide aims to complement the BPM6 compilation guidance on balance of payments statistics, focusing on the compilation of data by EBOPS 2010 categories, trading partner and mode of supply. Also, it includes more detailed compilation guidelines for FATS as far as it relates to the international supply of services, and provides guidance on how to compile statistics on the modes of supply on the basis of the framework laid down in Chapter V of MSITS 2010. It is expected that an increasing number of countries will begin compiling services data by modes of supply following the good practices provided in the Guide. Further, the Guide recognizes the importance of data quality, metadata and the use of IT tools in the statistical production process and contains guidance and advice relevant to those areas of statistical work. In addition, the Guide is intended to promote trade in services statistics by making available to users a comprehensive source of information on its methodological foundations and on data compilation practices. This will enable users to understand better the nature of these statistics and, consequently, to interpret and use them correctly and more effectively.

19. As it is not possible to present a single best practice applicable in all cases the Guide outlines various options that may be suitable depending on a country circumstances and resources. For countries that have well-developed compilation systems, the Guide contains criteria against which these compilation systems may be compared and evaluated. For countries that may need to improve parts of their compilation systems, the Guide presents examples of good practices and related country experiences. For countries that do not have well-developed systems, the Guide contains advice on good practices and other guidance that can be used as a starting point to develop appropriate data collection and data compilation procedures. It should be noted that the identification of good practices described in the Guide benefited from the input of national compilers which have gone through the process of implementing the recommendations contained in MSITS 2010. The Guide focuses on the main features of the relevant international recommendations and good practices, while some more technical and country specific details are available on the dedicated UNSD website.

¹¹ It should be noted that clarification of the conceptual issues implies (i) explanation of the terms used in the definitions of particular concepts and (ii) operationalization of the definitions by relating them to the statistical procedures which might be used to obtain anticipated data. The term “good practice” is to be understood as a set of activities contributing to the implementation of recommendations contained in MSITS 2010 and resulting in production and dissemination of high quality SITS.

¹² Available at: <http://unstats.un.org/unsd/nationalaccount/ies/GuidelinesIES.pdf>.

¹³ Available at: <http://unstats.un.org/unsd/dnss/QualityNQAF/nqaf.aspx>.

20. Scope of the Guide was determined by the tasks which the trade in services compiler typically has to deal with. These tasks range from the operationalisation of the conceptual framework and defining the set of variables to be compiled to the setting in place effective institutional arrangements, identification of appropriate data sources, data collection and data compilation procedures, and to the organization of efficient quality assurance and data dissemination programmes. The Guide elaborates challenges and good practices in the above areas of work, provides numerous country experiences and provides guidance on how those practices can be applied under different country circumstances.

C. Organization of the Guide

21. The organization of the Guide largely follows the logic of the statistical process beginning with an overview of general frameworks underlying compilation of trade in services statistics followed by the description of data collection and data compilation issues, good practices, data and metadata dissemination and concluding with the elaboration of several key cross-cutting topics.

22. Part I of the Guide provides an overview of general frameworks, namely conceptual frameworks (Chapter 1), legal frameworks (Chapter 2) and institutional arrangements (Chapter 3), which underpin statistics of international trade in services.

23. Part II focuses on data collection and starts off with an introduction and overview of data sources within the modes of supply framework (Chapter 4), which is followed by elaboration of registers and survey frames (Chapter 5), enterprise and establishment surveys (Chapter 6), surveys of persons and households (Chapter 7), international transaction reporting system (Chapter 8), administrative records (Chapter 9) and other data sources (Chapter 10). Part II is concluded by comparing data sources (Chapter 11).

24. Part III elaborates various issues of data compilation. It begins with an introduction and overview of data compilation within the modes of supply framework (Chapter 12) and elaboration of challenges and good practices in the integration of data from different sources (Chapter 13). Specific issues and good practices relevant to the compilation of particular data sets are elaborated in the subsequent chapters as follows: resident/non-resident trade in services statistics (Chapter 14), compilation of FATS and the international supply of services (Chapter 15), compilation of additional indicators on the international supply of services (Chapter 16). Guidance on estimation and modeling of missing data, forecasting or back-casting is contained in the concluding Chapter 17.

25. Part IV focuses on cross-cutting topics and consists of four chapters which provide guidance on metadata (Chapter 18), quality management (Chapter 19), data and metadata dissemination (Chapter 20), and on use of information and communication technology (Chapter 21).

26. The Guide has a number of Annexes which will be provided in the final version.

Part I General Frameworks

Scope. The *Manual on Statistics of International Trade in Services 2010*¹⁴ provides an overarching statistical framework to compile data required for measurement of the international supply of services and elaborates the relationships between various components of that framework. This Compilers Guide accompanies this reference publication. Part I contains an overview of the conceptual frameworks (Chapter 1), the legal framework (Chapter 2) and the institutional arrangements (Chapter 3). Part II and Part III focus on data sources/collection and data compilation. Part IV deals with cross-cutting issues.

Chapter 1 Conceptual frameworks

1.1. *Scope.* This chapter introduces the conceptual frameworks identified in MSITS 2010 (section A); describes the General Agreement on Trade in Services (GATS), modes of supply and the statistical frameworks (section B); and then provides an overview of concepts relating to statistics on resident/non-resident transactions in services (section C), foreign affiliates statistics (section D) and additional indicators for analysing the international supply of services (section E). The chapter concludes with a description of the guidelines on integrated economic statistics (section F).

A. Introduction

1.2. The General Agreement on Trade in Services (GATS) has been a driving force in the drafting of MSITS, both for the first version of the Manual at the end of the 90s and its current 2010 edition. The GATS establishes a set of rules and disciplines that govern the use of measures affecting trade in services by the World Trade Organization (WTO) members. Under the GATS, WTO members are committed to entering into successive rounds of trade liberalizing negotiations, which are conducted by type of service and by mode of supply. Economic Integration Agreements at the regional or bilateral level follow the same approach. Consequently, availability of statistics on the international supply of services detailed by the services type, mode of supply and by partner country is highly important for trade in services policy making and related analysis.

1.3. Chapter II of MSITS 2010 focuses on conceptual framework for the development of statistics of international trade in services and explains how existing statistical systems and classifications can be used to progressively build these statistics to provide the necessary information for measuring the international supply of services. It is consistent with concepts and definitions included in the 2008 System of National Accounts (2008 SNA) and the sixth edition of the Balance of Payments and International Investment Position Manual (BPM6). The compilation guidance provided for these frameworks should be used as a starting point and this Guide should be read as an extension of that guidance intended to cover specific compilation needs in the context of MSITS2010 implementation.

1.4. As the relevant conceptual frameworks are outlined in MSITS2010 and are detailed on other international manuals, this chapter only briefly introduces the basic elements of these frameworks – those that are essential in the context of compiling trade in services statistics, and makes reference to relevant material in the manuals. It clarifies the information needs, in particular those of the GATS, and links this with the compilation of statistics on:

¹⁴ MSITS 2010 is available at:

[https://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/docs/MSITS%202010%20M86%20\(E\)%20web.pdf](https://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/docs/MSITS%202010%20M86%20(E)%20web.pdf).

- i. Services transactions between residents and non-residents, broken down by services type (according to Extended Balance of Payments Services Classification 2010 (EBOPS 2010)), partner, by modes of supply (mainly 1, 2 and 4) and by relation between the parties (trade between affiliated firms and between unaffiliated firms);
- ii. Foreign Affiliates Statistics (FATS), focusing on the variables and breakdowns of interest in the context of the international supply of services while being consistent with the frameworks described in the Organization for Economic Co-operation and Development (OECD)'s Benchmark Definition of Foreign Direct Investment 4th edition and OECD's Handbook on Economic Globalisation Indicators; and
- iii. Additional monetary and non-monetary (quantitative) indicators relevant for the assessment of the importance various modes of supply (in particular, modes 2 and 4) in an economic context.

B. GATS, modes of supply and the statistical frameworks

1.5. The MSITS2010 describes the structure and guiding principles of GATS and its scope. For making commitments in GATS negotiations, WTO members often make reference to the MTN.GNS/W/120 entitled "Services Sectoral Classification List" (hereinafter referred to W/120). This list should be viewed as an optional classification system of services sectors for negotiating purposes, rather than a statistical classification like EBOPS 2010¹⁵ which is used to compile and publish resident/non-resident trade in services statistics.¹⁶

1.6. Following the GATS, the international supply of services can take place through four different modes of supply which depend on the territorial presence of the supplier and the consumer at the time of the transaction. The four modes can be described as follows:

- i. **Mode 1 (cross-border supply):** the supply of services from the territory of one Member into the territory of any other Member;
- ii. **Mode 2 (consumption abroad):** the supply of services in the territory of one Member to the service consumer of any other Member;
- iii. **Mode 3 (commercial presence):** the supply of services by a service supplier of one Member, through commercial presence, in the territory of any other Member; and
- iv. **Mode 4 (presence of natural persons):** the supply of services by a service supplier of one Member, through the presence of natural persons of a Member in the territory of any other Member.¹⁷ Mode 4 is further described in Box 1.1.

1.7. Existing statistical frameworks can be used as a basis for the production of data to satisfy the GATS information needs regarding modes of services supply. For example, the value of the international supply of services of a country can be established once statistics on the output of foreign controlled affiliates have been developed for the services sector to accompany the BoP services statistics. The combination of both datasets would cover all four modes, provided compilers ensure that appropriate breakdowns are delivered (i.e., service type, mode of supply, partner country and exchanges between related and unrelated trade). As MSITS 2010 explains, to

¹⁵ MSITS 2010 Annex 1.

[https://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/docs/MSITS%202010%20M86%20\(E\)%20web.pdf](https://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/docs/MSITS%202010%20M86%20(E)%20web.pdf).

¹⁶ A correspondence table has been developed between W/120 and EBOPS 2010 (See also MSITS2010 paragraphs 2.11-2.23).

¹⁷ A natural person of a Member is defined as a national of that Member or to a non-national who has the right to permanent residence in that Member. See article XXVIII of the GATS for further information.

produce a complete picture of the international supply of services, additional data, including both monetary and non-monetary indicators, are still necessary.

Box 1.1: Clarifying mode 4 from a statistical perspective

The MSITS 2010 chapter V introduces mode 4 in a statistical context, based on the description of GATS article 1 and the Annex on the Movement of Natural Persons under the Agreement. Mode 4 can, in general, be described as covering foreign natural persons entering the host economy to:

- (i) fulfil directly service contracts (contractual service suppliers): this covers self-employed persons (independent professionals) or employees of a foreign service supplier;
- (ii) work in a foreign affiliate that delivers services (intra-corporate transfer or directly recruited by the affiliate); or
- (iii) negotiate a service contract (services sellers), negotiate the constitution/acquisition of an establishment supplying services (persons responsible for setting up commercial presence), market a service etc.

The purpose of stay under mode 4 is to provide services under a service contract. Therefore, persons crossing the borders to access the employment market and persons present for the production of goods or for the provision of services supplied under governmental authority are excluded. Also, permanent migration is excluded from the mode 4 movements (the GATS does not apply to measures affecting residence, citizenship or employment on a permanent basis).

Persons covered by mode 4 are, therefore, not limited to foreign persons directly involved in the rendering of services (as indicated in (i) above), but include also those persons whose presence abroad is instrumental to the provision of a service (items (ii) and (iii)). Therefore, data to be compiled in connection with mode 4 of supply of services cover:

a. The value of services supplied directly by persons moving under the mode 4 commitments as indicated under (i) above– that is the value which, in general, would be measured as trade in services in the balance of payments. The exception would be for services supplied by self-employed persons staying more than a year (still in the context of a service contract). However, normally such persons will represent a small proportion of the mode 4 population. In addition, although in principle the residence of the persons would change, it may be difficult in practice for compilers to identify (or even consider) that the residence has changed if the length of stay is just for a few months more (e.g. 2-3 months) and the value of supplied services would still be recorded under services in the balance of payments. Compiling the mode 4 value of services is not relevant for persons entering the host economy to perform activities described in points (ii) and (iii) above. In fact, work of persons covered by point (ii) is considered instrumental to the output of foreign affiliates which supply services through commercial presence (mode 3). Persons covered by point (iii) are not producing or delivering a service to consumers at the time of their presence in clients' country. They are rather engaged in negotiations for an eventual future supply of services.

b. Non-monetary (quantitative) data on the number of natural persons crossing borders to supply services (or the number of trips of such persons) for the all three categories described above (see chapter 16 of this Guide).

See MSITS 2010 Chapter 5 for more information.

1.8. For the compilation of data on the value of the international supply of services, MSITS 2010 develops a phased approach which includes (a) the compilation of resident/non-resident trade in services statistics in the context of the Balance of Payments (suggesting a breakdown of transactions according to EBOPS2010, by partner country, by mode of supply (mainly referring to modes 1, 2 and 4) and by the relationship between the trading parties) and (b) the development of foreign affiliates statistics (FATS), exclusively referring to mode 3. FATS should include data on output (or sales/turnover if output is not possible) broken down by service type (or service activity if type is not possible), by partner country (i.e., country of operation of affiliate for outward FATS, or of the ultimate controlling unit (UCI) for inward FATS), and identifying to whom output is sold, with a particular interest in the output sold within the country of establishment of the controlled affiliate.

1.9. MSITS 2010 also recommends the compilation of other indicators of interest to users (both monetary and non-monetary), including other FATS variables (employment, value added, number of enterprises etc.); non-monetary quantitative indicators for mode 4 (*i.e.* number individuals crossing borders and temporarily abroad to provide services in the context of services contracts) and mode 2 (individuals going abroad to consume services); and indicators such as foreign direct investment (FDI), services sectoral indicators or services trade by enterprise characteristics.

1.10. For services negotiations, especially within the GATS framework, users need comprehensive information on the international rendering of services and on their mode of supply, as well as on the operators taking part in these operations and their main features. This need has led to the development of the statistics on the international supply of services which goes beyond the primary objective of the Balance of Payments. Proper legal and institutional arrangements are extremely important for the development of statistics needed for analysis of the international supply of services. In most cases, the compilation of such statistics is a cooperative effort of several agencies such as the National Statistical Office, the Central Bank, the Ministry of Economy and the national agency in charge of trade negotiations. This calls for a better coordination of data collection and data compilation between different institutions (see chapters 2 and 3 for details).

1.11. In order to maximally exploit the potential of combining and comparing statistics on the international supply of services within and between countries, compilers are encouraged to use internationally-accepted concepts and methods and classification systems when developing their data collection and compilation systems. In the case of trade in services, these concepts include the MSITS2010 and related international statistical systems and frameworks, such as BPM6, SNA2008 and BD4. For modes of supply, compilers should align with the framework developed in chapter V of MSITS 2010. In terms of classifications for BOP services transactions, FATS, and mode 4 (and mode 2) quantitative indicators, compilers should, to the extent possible, use the EBOPS2010 classification for service categories, the ISIC Rev.4 for activities and the partner country data classifications used in the Balance of Payments Data Structure Definition, which was prepared in the context of the Statistical Data and Metadata Exchange (SDMX) initiative sponsored by seven international organizations – Bank for International Settlements (BIS), the European Central Bank (ECB), Eurostat, the International Monetary Fund (IMF), OECD, UN and World Bank).¹⁸

1.12. If compilers deviate from these concepts, for example in order to reflect specificities of their economies or to take into account certain statistical frameworks adopted in their countries, they are encouraged to develop classification systems that are compatible with those listed above and construct the appropriate conversion tables to international systems.

C. Statistics on resident/non-resident transactions in services

1.13. Concepts recommended for use in statistics on services transactions between residents and non-residents are based on the MSITS2010 chapter III, which in turn utilizes the BPM6 chapter 10.¹⁹ Statistics compiled following these concepts and definitions reflect the value of services mainly supplied via modes 1, 2 and 4. The collection of such data is, in general, the responsibility of a country's balance of payments compilation agency. In many countries this agency will be the Central Bank, but in others this responsibility is given to the agency in charge of compiling economic statistics (usually the national statistical office (NSO)). Alternatively, some countries have opted for a division of tasks (e.g., with the statistical office collecting trade in services data and the central bank compiling and disseminating them). The collection and compilation of

¹⁸In the Area Dimension (CL_Area) of the Balance of Payments DSD, individual country coding follows the ISO 3166 standard. The latest version of the BOP DSD is available on the SDMX website (http://sdmx.org/?page_id=1747).

¹⁹ BPM6, Chapter 10.

resident/non-resident services transactions are further discussed in chapters 5, 6, 7, 8, 9, 10, 11, 13 and 14 of this Guide.

1.14. For producing these statistics, compilers should:

- i. Follow the general BPM6 principles regarding institutional units, residence, centre of predominant economic interest, economic transactions, valuation, market prices, accrual accounting, gross recording, etc.), and, of course, the definition of services;²⁰
- ii. Breakdown of services transactions by EBOPS 2010 (on a step-by-step basis, according to the needs of the compiling economy); compilers should be aware that EBOPS 2010 is completely consistent with the BPM6 classification of services but provides a more detailed breakdown, and also suggests a number of complementary groupings for compilation given the interest in particular sectors;
- iii. Breakdown of value of services by trading partner (again, to be implemented gradually and in line with the needs of the compiling country), determined according to the economy of residence of the respective trading partner;²¹
- iv. Identify or estimate the modes of supply related to the services transactions; and
- v. Specify the relationship between the parties involved in the services transactions.

1.15. When compiling statistics on the international supply of services as specified above, the following considerations should be taken into account. The prices at which exchanges between affiliated firms are valued may not represent market prices. However, the concept of market prices is particularly important given that increased globalization is paired with (and often driven by) enterprises headquartered in one country that establish affiliates in other countries to produce and distribute goods and services -- see Boxes 1.2 and 1.3. International trade in services between such parents and their foreign affiliates has rapidly increased. Therefore, within the framework of statistics on the international supply of services, identification of trading partners in transactions between parents and foreign affiliates has an important analytical value.

²⁰ MSITS 2010, paragraph 3.41.

²¹ See above footnote on partner country classification.

Box 1.2 Transfer and market prices

In some cases, the values against which transactions between affiliated enterprises are priced internally may not represent market prices. In general, when there is an international transaction between two affiliated firms, it is expected that the value of the transaction to the exporting affiliate will be equal to the value of the transaction for the importing affiliate and hence they will cancel out, leaving the multinational enterprise (MNE)'s overall profits unchanged, no matter what price it chooses to use to value the transaction. However, in a world where there are taxes on international transactions and where the rates of business income taxation differ across countries, the multinational enterprise will have definite financial incentives to *choose strategically* the "transfer price" to minimize the amount of tax paid to both jurisdictions. Transfer prices are the prices at which an enterprise transfer physical goods and intangible property or provide services to associated enterprises. Because transfer pricing might result in transactions between affiliated enterprises being under or over invoiced compared to unrelated party transaction, adjustment should be made when these exchange values do not represent market prices.

The OECD Transfer Pricing Guidelines state that, for income taxation and customs valuation purposes, enterprises follow the arm's length standard, i.e., set the transfer price equal to the price that two unrelated parties would negotiate when trading the same or substantially similar products under the same or substantially similar circumstances. The OECD guidelines propose five methods to adjust transfer prices by arm's length standard, which are based on the comparability of the transactions. Transactions are considered comparable when their "economically relevant characteristics" are the same, or if they differ, the differences have no material impact on the results. In practice internal and external transactions are unlikely to be exactly comparable, therefore the OECD Guidelines recommend that material differences are identified, quantified and adjusted for in determining the arm's length transfer price. Moreover, since transfer pricing is not an exact science, the Guidelines recommend that transfer prices be set inside a range of acceptable arm's length prices, called the arm's length range.

See the OECD Transfer Pricing Guidelines at <http://www.oecd.org/ctp/transfer-pricing/transfer-pricing-guidelines.htm> for more information.

Box 1.3 Trade in value added

With the increase of international fragmentation of production, intra- and inter industry trade, creating so-called Global Value Chains (GVCs), has increased dramatically. Conventional measures of international trade do not always reflect the flows of goods and services within these chains, and are unable to answer policy questions related to the economic (and employment) impact of their country's embeddedness in GVCs. In response, OECD and WTO have developed an analytical data set on trade in value added (TiVA), in order to provide insight into the value that is added by each country in the production of goods and services that are consumed worldwide.

The estimates are based on a global input output table constructed from official national Supply and Use tables (or input-output tables) and bilateral trade statistics (goods and services) made consistent with national accounts data. Since TiVA combines national statistics to develop a global analytical toolkit requires high quality input data from national compilers, including information on bilateral trade in services (by EBOPS category) and on the characteristics of the firms involved in services trade (notably their industry classification). The first aspect requires balance of payments compilers to develop trade in services statistics by partner, the second aspect involves the development of data sets by national compilers that allow for the analysis of services trade companies by economic characteristics (known as services trade by enterprise characteristics (STEC)). These statistics are developed through linking trade and business registers which allows identifying which firms are responsible for trade in services.

1.16. The identification of trading partners is especially important in the case of service items, such as manufacturing services on physical inputs owned by others, research and development, computer services, audio-visual services, charges for the use of intellectual property n.i.e. and professional and management consulting services, which are provided within global production and marketing networks. It is recognized, however, that compiling these statistics by trading partner is resource-intensive and difficult, owing to issues related to disclosure and incompleteness of information (the issues related to the identification of trading partner are further discussed in the context of data collection Part II and data compilation Part III).

1.17. A second consideration relates to the bundling of services with other services or with goods (such as in the tourism sector). Some arrangers will bundle various types of services and goods and the final client will only make one payment for a package (which will also cover the service fee for arranging these products).²² In principle the payments for related services (or goods) should be unbundled,²³ but if this unbundling is not possible, it may be a strong indication that the bundling has resulted in the creation of a new product that is supplied to client (i.e. the client is buying a different product). In this case, an appropriate classification has to be found for such a product.

1.18. A final consideration is the strong link between intellectual property products and services trade. Services related to intellectual property rights, for example, creative services such as computer or audio-visual services, take an ever increasing importance in today's business world; therefore, information on these services becomes progressively more important for economic analysis. Chapter 14 addresses the relevant EBOPS 2010 services components in one group, including services related to intellectual property products and other business/personal services (covering charges for the use of intellectual property n.i.e., telecommunication, computer, and information services, other business services, and personal, cultural, and recreational services). MSITS 2010 also suggests some relevant complementary groupings within EBOPS2010: Computer software transactions, audio-visual transactions and cultural transactions.

D. Foreign Affiliates Statistics

1.19. MSITS 2010 focuses on the foreign controlled subset of affiliates. The key concepts of FATS (as described in MSITS 2010 chapter IV) are based on foreign direct investment relationships and control, which are consistent with those specified in the BPM6, the OECD Benchmark Definition of Foreign Direct Investment 4th edition²⁴ and the OECD Handbook on Economic Globalisation Indicators.²⁵ Details of FATS collection and compilation are discussed in Chapters 5, 6, 10, 11, 13 and 15 of this Compiler's Guide.

1.20. A number of variables are recommended for compilation: sales/turnover or output, employment, value added, trade, number of enterprises etc. Output is the variable recommended

²² BPM6 (paragraph 3.17) does not refer specifically to services transactions, but it recommends to unbundle two or more different transactions that appear as a single transaction from the perspective of the parties involved.

²³ Travel agencies and tour operators function in that way. Besides the treatment of transactions of travel agents which is described, BPM6 and MSITS 2010 do not provide further information on unbundling. However both manuals propose an alternative presentation of travel by type of products consumed which would encourage the unbundling of transactions. This is actually supported by tourism statisticians in the context of the Tourism Satellite Accounts, and more generally to better link the information with the needs for establishing supply/use and input-output tables.

²⁴ MSITS 2010 and this Guide adopt the definition of foreign direct investment as provided in the 4th edition of the Benchmark Definition of Foreign Direct Investment (BDM4). Available at:

<http://www.oecd.org/fr/daf/inv/statistiquesetanalysesdelinvestissement/fdbenchmarkdefinition.htm>.

²⁵ These definitions are further described and adapted to the EU context in the Eurostat FATS Recommendations Manual, available at <http://ec.europa.eu/eurostat/en/web/products-manuals-and-guidelines/-/KS-RA-12-016>.

for measuring the supply of services through mode 3, but sales or turnover can be used in the absence of data on output. Variables should be broken down to the extent possible as follows: type of service provided (if possible using a classification compatible with EBOPS 2010 definitions and identifying the provision of services in the country of operations), by main economic activity, by country of operation of affiliates for outward FATS and by country of the UCI for inward. The BPM6 basic principles also apply as relevant in FATS: residence, determining control which is necessary for determining the FATS universe, recording of information on an accrual basis and for monetary information valuation at market prices. The valuation of transactions between affiliated firms may not represent market prices. This question is further discussed in Box 1.3.

1.21. Given that at the time of writing this Guide, FATS is still a relatively new statistical domain, it is suggested that compilers develop a FATS compilation system in stages. MSITS 2010 recommends, as an initial priority, that FATS be compiled on an activity basis, because this is required for the compilation of some variables, as well as since data are currently most widely available on that basis. However, as compilation of data on a product basis is recognized as a longer-term goal, compilers are encouraged to work towards providing product detail for those variables that lend themselves to this basis of attribution (namely, sales (turnover) and/or output, exports and imports). If this level of specificity cannot be achieved, compilers may wish to disaggregate sales or output in each industry between sales/output of goods and sales/output of services, as a first step towards achieving a product basis.

1.22. Inward FATS find often their place in structural business statistics (SBS), traditionally compiled by NSOs, but they can also be collected through means used to collect foreign direct investment statistics (or in conjunction with those, such as a dedicated survey). Outward FATS can be produced within the scope of the foreign direct investment statistics (FDI or dedicated survey). FATS can also be compiled from administrative records of a public agency in the economic or commercial area related to foreign direct investment. For both inward and outwards FATS, analysing the relationships between different data collection and compilation options yields a number of advantages, including reduction of reporting burden and cost effectiveness. FATS compilers may also consider accessing surveys based on a framework taken from business registers of international groups prepared by supranational bodies.²⁶ The current interest in the phenomenon of economic globalisation and the new approach of international trade statistics in terms of value added, and their relation to global value chains, have revealed the importance of reinforcing these statistics.

E. Additional indicators for analysing the international supply of services

1.23. MSITS 2010 also recommends the compilation of additional indicators in order to further analyse the international supply of services beyond the value of such transactions. These indicators are needed in order to respond to the numerous information needs of trade negotiators and other users. Some of these indicators are directly related to the (GATS) negotiations, as they support comparison of commitments, provide background information for the settling of disputes, or can be used more generally for an in depth analysis of the international supply of services. The other indicators range from data on the number of persons/trips relevant to modes 2 and 4, the use of data on services production, prices, employment or sectoral indicators (e.g., tourism, telecommunications, etc.). All of these additional sets of statistics do not require the development of new statistical frameworks, but rather refer to existing ones. Their compilation particularly indicates the potential offered by the linking of trade in services statistics and business registers. Data collection and compilation of these other indicators are described in Chapters 6, 7, 9, 10, 11, 13 and 16.

1.24. Frameworks of particular interest are those related to the movements of individuals across borders; i.e., tourism and migration statistics, whether for supplying services (mode 4) or for

²⁶ See, for example, the Eurostat Euro Groups Register.

consuming services (mode 2). Obtaining information on the characteristics of these movements and on the individuals involved is highly important for trade policy making and monitoring, for the analysis of global supply of services, as well as broader tourism and migration policy, in particular for mode 4. Data on the movement of natural persons should include detailed information on the characteristics and activities of such persons as well as on the service they are rendering or consuming while abroad.

F. Integrated economic statistics

1.25. At its thirty-seventh session in 2006, the UN Statistical Commission (“the Commission”) recommended the operational use of an integrated approach to economic statistics in national economic statistics programmes to ensure the efficiency of the statistical process.²⁷ The Commission subsequently developed the Guidelines for Integrated Economic Statistics,²⁸ as it recognized the significance of an integrated approach for increasing the consistency and coherence of economic statistics. It enhances the quality and analytical value of short-term, annual and benchmark economic statistics and macroeconomic statistics.²⁹

1.26. The guidelines for integrated economic statistics are based on internationally adopted standards, including the System of National Accounts 2008 (2008 SNA), the Balance of Payments Manual, sixth edition (BPM6) and more specialized technical manuals, such as those on the measurement of prices, sectoral and business statistics and FDI. The guidelines use the methodological standards, the recommendations and the emphasis on policy-relevant data in those manuals as the basis for the organizing principles and detailed practices for preparing integrated economic statistics.³⁰ The main characteristics of this integrated approach are described in Box 1.4.

²⁷ Based on the report of the Secretary-General on integrated economic statistics (E/CN.3/2006/5).

²⁸ United Nations Publication, *Guidelines for Integrated Economic Statistics*. ST/ESA/STAT/SER.F/108. <http://unstats.un.org/unsd/nationalaccount/docs/IES-Guidelines-e.pdf>.

²⁹ *Ibid.*, preface.

³⁰ *Ibid.*, p. 1.

Box 1.4 An Integrated approach to economic statistics

Guidelines on integrated economic statistics identified the following features of an integrated approach:

- i. Common concepts, definitions and classifications. The use of harmonized terminology, definitions, concepts, standards and classifications is necessary in a national statistical system so that the various data collections are comparable and can be related to each other;
- ii. Business registers and frames. Business registers have a central role in integrated economic statistics in providing a central sampling frame for all business surveys.
- iii. Standardization of surveys. Integration should be comprehensive and encompass survey design, sample frame, and questionnaire design;
- iv. Administrative data. Administrative source data can be integrated for statistical purposes; concepts need to be matched with statistical records. The advantage of using administrative records and various government data is to promote a more efficient use of data collections, and reduce the burden of the respondents;
- v. Data editing, linkage and integration. Documentation of the editing process and transparency are indispensable to ensure that the resulting data can be used by various statistical domains and will be widely accepted and understood by users;
- vi. Dissemination and communication. Integration may facilitate providing user-friendly presentations of data, explanations of concepts, ensure consistent format across publications, electronic sources and websites.

Chapter 2 Legal framework

2.1. *Scope.* This chapter outlines the need for and importance of legal framework that regulates activities of the institutions involved in the data collection and data compilation of in accordance with the statistical framework recommended in MSITS 2010 for measurement of the international supply of services, as well as the content of data sources and confidentiality of provided information. The chapter consists of the following sections: summary of good practices (section A); the importance of the legal framework (Section B); legal acts governing content and availability of data sources (section C); legal acts regulating institutional arrangements (section D); legal acts protecting confidentiality of reported data (section E); and country practices (section F).

A. Summary of good practices

2.2. It is a good practice that national laws and regulations be established to define the rights and responsibilities of all agencies involved in the collection, exchange, processing, compilation and dissemination of data on services transactions between residents and non-residents, foreign affiliates statistics and additional monetary and non-monetary indicators for analysing the international supply of services, so that those agencies will be in a better position to establish the necessary institutional arrangements detailing their involvement in the statistical process. More specifically, such laws should give the compiler a clear mandate to collect necessary data from relevant sources and to compile and disseminate these statistics in the formats deemed appropriate by the responsible agency. This Guide encourages compilers to actively participate, whenever appropriate, in the preparation of the necessary modifications to national legislation or relevant administrative regulations. Moreover, it is a good practice that international recommendations for trade in services statistics are properly reflected in national laws or regulations.

2.3. It is further advised that additional legal acts establish more specific provisions for the data content or the specific circumstances under which the data must be reported to other national agencies as well as the frequency of dissemination. A legal basis for surveys related to resident/non-resident trade in services statistics and FATS should also be well-established and should be cited on the survey forms themselves. In the case of outward FATS, where the relevant company is located abroad, the legal acts should provide a mandate for statistical compilers to require information from domestic companies on their foreign affiliates located in other countries. The statistical compilers should also be well aware of the contents of the legal provisions underpinning the international bank transaction reporting system (ITRS) implemented in the country and make full use of them. It is further advised that the national statistical act establishes a reminder and penalty system, including the possibility to impose fines on data reporters, in cases of non-compliance in reporting required information.

2.4. Finally, it is of extraordinary importance that the legal framework includes provisions guaranteeing the protection of individual data, restricting the use of such data to official statistical purposes only, and preventing identifiable enterprise-specific information from being disclosed in the disseminated statistics.

B. The importance of the legal framework

2.5. The legal framework promoted by this Guide consists of the laws and legally-binding regulations that govern the data provision relationship between members of the national statistical system and data reporters as well as all aspects of data compilation and dissemination.

2.6. A well-established legal framework is the foundation of an effective and well-functioning national statistical system, because it:

- i. Gives the statistical compiler a clear mandate to collect data and to compile and disseminate the statistics, and makes relevant information (e.g., supplementary data sources) available to the compiler. In view of the multiplicity of data sources necessary for compilation

of statistics on the international supply of services, a strong and comprehensive legal authority to collect data is of special significance.

ii. Identifies and defines the national competent authority and the roles other governmental agencies should play in particular statistical domains. (see also Chapter 3).

iii. Is a prerequisite for establishing a high-quality system of official statistics. For example, the first element of the quality assurance framework recommended by the UN Statistical Commission calls for the availability of a sound legal framework³¹, as does the IMF Data Quality Assessment Framework (DQAF) for Balance of Payments and International Investment Position Statistics.³²

iv. Is likely to increase public trust in the confidential treatment of reported data and thereby to facilitate obtaining higher response rates and the submission of accurate information. Statistical confidentiality is a key element in collecting, storing, and disseminating statistics and related micro-data. Thus, the legal framework should include provisions guaranteeing the protection of individual data and restricting the use of such data to official statistical purposes only.

v. Assists in the implementation of an integrated approach to statistics of trade in services between residents and non-residents and FATS, as only well-coordinated efforts of several agencies may guarantee a successful compilation and dissemination of such statistics. The stronger the legal powers of coordination at the center of the statistical system, the greater the chance of integrating the statistics effectively.³³

vi. Provides the possibility to impose penalties on data reporters, including enterprises, in cases of non-compliance in reporting required information (including delays in reporting, missing or unreported data, and errors, etc.).

2.7. Legal acts relevant for statistics of international trade in services exist at different levels and include legal acts regulating the collection, processing and dissemination of statistics; the working relations of the concerned agencies; and the legal acts protecting the confidentiality of information. The structure of the legal framework can vary from country to country. Often there is a national statistical act establishing the mandate of the national statistical authority and governing general statistical issues, such as establishment of a reminder and penalty system for enterprises failing to comply with the reporting obligation. The national act could also identify statistical areas that are part of the mandate. In addition to the general act, additional acts can establish more specific provisions for a single statistical area like trade in services or FATS, for the data content or for the specific circumstances under which the data must be reported to other national agencies and/or defining the valid media and frequency of reporting and dissemination.

2.8. If a country becomes a party to an international convention or adopts international recommendations, it then needs to incorporate the binding provisions and non-binding recommendations of those conventions in its national laws and regulations. In this connection, it should be noted that in the field of international trade, many international agreements exist to govern transactions in goods and services. For example, the results of the Uruguay Round of Multilateral Trade Negotiations contain numerous legal obligations of the WTO members and are incorporated in the national legislation. In a similar sense, international recommendations for statistics on the international supply of services should be properly reflected in national laws or regulations. The international recommendations, including the *MSITS2010*, the *Balance of Payments and International Investment Position Manual*, and associated implementation guidelines, provide the foundation for the

³¹ NQAF, page 9. <https://unstats.un.org/unsd/dnss/docs-nqaf/2012-13-NQAF-E.pdf>.

³² IMF, DQAF for Balance of Payments and International Investment Position Statistics (2012), page 1. http://dsbb.imf.org/images/pdfs/dqrs_bop.pdf.

³³ Guidelines on IES, paragraph 4.5.

data to be collected. These recommendations must be supported by national legal acts in order to give the statistical office a clear mandate for collecting the necessary data elements.

2.9. In some regions there may exist legally-binding regional agreements that impact the national definition and/or scope of statistics on the international supply of services and regulations pertaining to the national agencies involved in the statistical process. Sometimes there are separate acts regulating different areas of statistics. For example, in the European Union, “Regulation (EC) No 184/2005 of the European Parliament and of the Council of 12 January 2005 on Community statistics concerning balance of payments, international trade in services and foreign direct investment”³⁴ regulates the data to be submitted to Eurostat on trade in services between residents and non-residents and “Regulation (EC) No 716/2007 of the European Parliament and of the Council of 20 June 2007 on Community statistics on the structure and activity of foreign affiliates”³⁵ regulates the FATS data to be submitted to Eurostat.

2.10. In many instances, the introduction of necessary improvements to the quality of official statistics may be significantly facilitated by developing appropriate legal provisions, or, if such provisions already exist, by amending them with regards to the collection of administrative data to be used for statistical purposes. The national agency or agencies responsible for the overall compilation and dissemination of statistics on the international supply of services should, whenever appropriate, actively participate in the discussion of respective national legislation or relevant administrative regulations in order to establish a solid foundation for the high quality and timeliness of these statistics.

C. Legal acts regulating institutional arrangements

2.11. As often more than one national institution is involved in the compilation of data in accordance with the statistical framework recommended in MSITS 2010 for measurement of the international supply of services, it is either the national statistical office or the central bank that is the responsible national authority for coordination of such activities as well as for data dissemination. In many countries, a statistics act or formal legal arrangement exists which determines the national authority for data collection (for instance through surveys), for data compilation and for data dissemination. In some economies countries, these responsibilities may be shared among two or more agencies. For example, central banks may have responsibility for obtaining data from financial institutions, while the national statistical agency has responsibility for collection from other institutes and for the data compilation and dissemination. Or, an investment approval agency or a financial supervisor may be a very important source of information about cross-border transactions in services. Under such circumstances, it is important that the legal or other arrangements are in place allowing the agency responsible for the compilation of a particular data set to receive or get access to the relevant data sources.

2.12. When the compiling statistical authority is dependent upon other national institutions for data, close cooperation and coordination is needed. Such cooperation is facilitated by the appropriate legislation. In this context, it is a good practice that compilers actively participate, whenever appropriate, in the necessary modifications to national legislation or relevant administrative regulations in order to establish a solid foundation for enhancing the quality and timeliness of the statistics. It is a good practice that the national laws and regulations define the rights and responsibilities of all agencies involved in the collection, exchange, processing, compilation and dissemination of the statistics, so that those agencies will be in a better position to establish the necessary institutional arrangements detailing their involvement in the statistical process. For instance, if adequate legal provisions are in place, the responsible agency could establish, faster and more efficiently, a working arrangement with the organizations keeping records relevant to statistics

³⁴ Regulation No 184/2005.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:035:0023:0055:EN:PDF>.

³⁵ Regulation No 716/2007.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:171:0017:0031:EN:PDF>.

on the international supply of services. See chapter 3 for further discussion of institutional arrangements.

D. Legal acts governing content and availability of data sources

2.13. If the statistics are based on administrative records, it is advisable to include a paragraph in the legal text that gives the statistical office a legal right to access these data sources. Such language would facilitate the cooperation between the institutions involved, thereby contributing to timely data deliveries and ensuring transparency.

2.14. One of the administrative sources relevant to trade in services statistics is customs records. The World Customs Organization (WCO) is the international platform at which countries reach legal agreements on customs regulations, including those relevant to compilation of data on international freight and insurance related to the transportation and customs clearance of goods. Among the most relevant WCO conventions is the revised international convention on the simplification and harmonization of customs procedures (known as the revised Kyoto Convention),³⁶ which provides standards for various customs procedures (for example, procedures on inward and outward processing of goods which have to be understood when compiling, for example, such items as manufacturing services on physical inputs owned by others). The WCO also participates in setting legal provisions for the customs valuation of goods, which has significant consequences on the valuation of the related international transactions in services. In this context, it should be noted that it is the WTO's responsibility to formally adopt such provisions and amend them as necessary.³⁷

2.15. Much of the data need for measuring the international supply of services come from statistical surveys or from ITRS, formerly known as foreign exchange record systems. Most ITRS evolved as by-products of foreign exchange control acts which were, and in many instances still remain, legally binding. The statistical compilers should be well aware of the contents of the legal provisions underpinning the national ITRS and make full use of them. Also, as countries are increasingly planning to remove certain legal obligations, statistical compilers should prepare themselves well in advance to make necessary adjustments in their data collection arrangements.

2.16. The importance of a well-established legal basis for statistical surveys is recognized and promoted by all concerned international and regional organizations. For example, according to the IMF, good legal authority needs to state that reporting of statistical information is mandatory, especially for large enterprises.³⁸ It is a good practice to explicitly refer to such legislation in the resident/non-resident trade in services statistics and FATS survey forms.

2.17. Compared to outward FATS, inward FATS is often easier to collect because the relevant enterprises are present in the compiling economy. Often only information about the foreign-owned share of a domestically-located enterprise needs to be collected, which, in turn, can be linked to existing information in the national business statistics. In the case of outward FATS, where the relevant economic entity is located abroad, the legal acts should provide a mandate for statistical compilers to require information from domestic enterprises on their foreign affiliates located in other countries. This aspect might cause difficulties for compilers because of the limited data availability and sensitivity to reporting such data. In either case, it is important that the compilers have a clear legal mandate for collecting the data.

³⁶ The International Convention on the Simplification and Harmonization of Customs procedures entered into force in 1974. The revised Kyoto Convention (RKC) was adopted in June 1999. The provisions contained in the RKC aim at the facilitation of trade but at the same time make customs records a highly standardized and reliable data source for trade statistics across countries. The RKC comprises a Body, a General Annex and Specific Annexes.

³⁷ Statistical compilers should take note of the WTO Agreement on Customs Valuation; see IMTS 2010, Annex D.

³⁸ See BPM6 Compilation Guide, paragraphs 2.5.

E. Legal acts protecting confidentiality

2.18. According to the UN fundamental principles of official statistics, individual data collected by statistical agencies for statistical compilation are to be strictly confidential and used exclusively for statistical purposes (UN Statistical Commission, 14 April 1994).³⁹ Statistical confidentiality is a key element in producing reliable statistics as it is important to gain the trust of the data providers. Thus, legal provisions should be established to ensure confidentiality and proper use of data and prevent identifiable enterprise-specific information from being obtained in the disseminated statistics.

2.19. The legal acts on confidentiality should also address the use of administrative data for official statistical purposes. In particular, it is important that legal acts state that administrative data forwarded to the statistical authority become statistical data upon receipt, which implies that data validated and edited by the statistical agency should not be shared with the administrative authority which initially provided the administrative data. Examples of legal acts on data confidentiality are provided in boxes 2.1 and 2.2.

2.20. *Confidentiality of customs declarations.* In general, customs declarations are not subject to the same level of confidentiality measures as are other statistical instruments. By design, customs declarations are used to assess tariffs, fees and taxes, and to enforce multiple agencies' requirements for admissibility of goods into the country or to enforce the country's exports laws and regulations. Once transmitted to the agency responsible for the compilation of international trade statistics, in many cases, that agency treats the information as confidential. However, in most cases, the compiling agency does not subject all data to rigorous disclosure reviews, and rather applies 'passive disclosure' methods by which importers/exporters inform the agency of possible situations for investigation and for some form of statistical suppression. This fact should be well noted by the statistical compilers while considering access to customs declarations for obtaining, for example, information on cross-border trade in services.

2.21. The compiling agency may also establish appropriate regulation to safeguard confidentiality in the exchange of basic information among agencies. However, regardless of the legal status of confidential information, whether personal or commercial, this information should not be excluded from the statistics and should be reported in aggregate form so that the confidential aspects of these operations cannot be identified (see Chapter 20). It is further desirable that national legislation defines rights and responsibilities regarding access to the micro-data, highlighting the appropriate principles and procedures. The responsible agency should cooperate with the national legislature to establish such laws.

³⁹ UN Statistical Commission, 14 April 1994. <http://unstats.un.org/unsd/dnss/gp/fundprinciples.aspx> and <http://unstats.un.org/unsd/dnss/gp/FP-New-E.pdf>. In addition, the General Assembly adopted Resolution A/RES/68/261 entitled "Fundamental Principles of Official Statistics (without a vote) thereby endorsing the Fundamental Principles of Official Statistics, as adopted by the Statistical Commission in 1994 and reaffirmed in 2013, and endorsed by the Economic and Social Council in its resolution 2013/21". The draft text, which was adopted without any changes, can be found in A/68/L.36 and at http://www.un.org/en/ga/search/view_doc.asp?symbol=A/68/L.36.

Box 2.1 The Confidentiality Act of the Philippines

Confidentiality of data in the Philippines is based on provisions of the Commonwealth Act 591, Section 4. The Act states, inter alia, that data furnished to the National Statistics Office by an individual, corporation, partnership, institution or business enterprise shall not be used in any court or in any public office either as evidence for or against the individual, corporation, association, partnership, institution or business enterprise from whom such data emanates; nor shall such data or information be divulged to any person except authorized employees of the National Statistics Office, acting in the performance of their duties; nor shall such data be published except in the form of summaries or statistical tables in which no reference to an individual, corporation, association, partnership, institution or business enterprise shall appear. Any person violating the provisions of this section shall, upon conviction, be punished by a fine or by imprisonment, or by both.

See: <http://www.census.gov.ph/content/commonwealth-act-no-591>

Box 2.2 Legal act on confidentiality - example of the European Union

Member States of the European Union have to comply with the regulation on European Statistics (Regulation (EC) No 223/2009 of the European Parliament and of the Council) which contains provisions on data confidentiality in its Article 20. The article states, in particular, that confidential data obtained exclusively for the production of European statistics shall be used by the NSIs and other national authorities and by the Commission (Eurostat) exclusively for statistical purposes unless the statistical unit has unambiguously given its consent to the use for any other purposes” (Article 20, point 2), and that statistical results which may make it possible to identify a statistical unit may be disseminated by the NSIs and other national authorities and the Commission (Eurostat) in the following exceptional cases: (a) Where specific conditions and modalities are determined by an act of the European Parliament and of the Council acting in accordance with Article 251 of the Treaty and the statistical results are amended in such a way that their dissemination does not prejudice statistical confidentiality whenever the statistical unit has so requested; or (b) Where the statistical unit has unambiguously agreed to the disclosure of data”. (Article 20, point 3 and 3(a))

See: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:087:0164:0173:en:PDF>

F. Country experiences

F.1. Country experience: the United States

2.22. The authority to collect statistics of international trade in services in the United States is ultimately delegated to the Bureau of Economic Analysis (BEA), a statistical agency within the U.S. Department of Commerce. The primary legal provision enabling BEA to collect information in a timely manner from relevant institutions is known as the International Investment and Trade in Services Survey Act ("the Act") (P.L. 94-472, 90 Stat. 2059, 22 U.S.C. 3101-3108, as amended)⁴⁰. Provisions in the Act ensure that US entities (i.e., businesses, universities, hospitals, etc.) engaged in international investment and trade in services are required to report their international transactions on a periodic basis to the BEA. The Act specifies that the survey data may only be used for statistical and analytical purposes. Access to the data is limited to officials and employees (including consultants and contractors and their employees) of government agencies that are designated by the President to perform functions under the Act. Certain other government agencies may be granted access to the data under the Foreign Direct Investment and International Financial Data Improvements Act of 1990, but only for limited statistical purposes. BEA is prohibited from granting another agency access to the data for tax, investigative, or regulatory purposes. BEA cannot publish or otherwise release the data collected on its surveys in a form that would allow the transactions of an individual reporter to be identified.

2.23. The other primary legal provision governing the collection of resident/non-resident trade in services statistics and FATS data is the Paperwork Reduction Act of 1995. By provisions of this act, US government surveys must undergo an approval process in which the agency in charge of collecting the data is required to demonstrate to the approving authority (the Office of Management and Budget)

⁴⁰ See *A Guide To BEA's Services Surveys*; available at: <http://www.bea.gov/surveys/pdf/surveysu.pdf>

the following three conditions: (1) the intended data are necessary, (2) they cannot be obtained from an existing source, and (3) their collection does not place an unreasonable burden on respondents. As part of the survey design and clearance process, BEA publishes notices about proposed surveys in the Federal Register. In these notices, BEA requests comments from users and respondents on all aspects of the data collection, including BEA's estimate of the burden imposed by the reporting requirements. BEA considers all comments before making final decisions on the scope and design of its surveys. BEA makes every effort to balance the needs of data users for complete, accurate, detailed, and timely data and the concerns of respondents about the burden imposed by the reporting requirements. By convention, approval of a given survey must be renewed within 3 years.

F.2. Country experience: Costa Rica

2.24. In Costa Rica, trade in services statistics are compiled and disseminated in accordance with the terms and conditions of the National Statistical System (SEN) Law No. 7839 of November 4, 1998 and the Central Bank of Costa Rica (BCCR) Organic law 7558 of November 3, 1995 (with subsequent revisions). The Central Bank of Costa Rica (BCCR)'s Organic Law does not specifically assign the task of compiling trade in services statistics to the BCCR. Article 15(d) of the INEC/SEN law officially assigns to the BCCR the task of preparing the basic statistics needed to prepare the national accounts and other macroeconomic accounts. However, the BCCR has no legal basis to request information from the non-financial private sector in order to compile trade in services statistics. Thus, it is not permitted to impose sanctions on entities that do not provide data. In view of this limitation, staff of External Sector Statistics Area (AESE) and the Economic Surveys Area (AEE) have adopted procedures to motivate data providers to report their information, including letters explaining to respondents the importance of providing the requested data and sending them reports based on the statistical contribution as well as periodical consultations when visiting the companies. The average level of response to surveys is 90 percent.⁴¹

F.3. Country experience: India

2.25. In India, the collection of data foreign liabilities and assets (FLA) of Indian companies is mandated by the Foreign Exchange Management Act (FEMA) of 1999. It is mandatory for Indian companies which have received foreign direct investment (FDI) and/or made overseas investment in any of the previous year(s), including the current year, to submit an annual return on FLA to the Reserve Bank of India (RBI).⁴² Non-filing of the return before the due date is treated as a violation of FEMA.

2.26. Initially, the objective has been to collect comprehensive information on the operations of Indian companies having foreign participation in equity capital, including counterparty country information for India's participation in the IMF's annual global Co-ordinated Direct Investment Survey (CDIS). However, beginning in 2012, the scope of FLA has been extended to collect information for the compilation of inward Foreign Affiliates Trade Statistics (FATS).

⁴¹ International Monetary Fund's Special Data Dissemination Standards website for Costa Rica <http://dsbb.imf.org/Pages/SDDS/CtyCtgList.aspx?ctycode=CRI>.

⁴² Further information on Reserve Bank of India's FLA return is available here <http://www.rbi.org.in/scripts/FAQView.aspx?Id=95>.

Chapter 3 Institutional arrangements

3.1. *Scope.* This chapter describes the need for and purposes of institutional arrangements in the context of the implementation the statistical framework recommended in MSITS 2010 for measuring the international supply of services. It elaborates on characteristics of effective institutional arrangements and on good practices in setting up such arrangements under different country circumstances. The chapter consists of the following sections: summary of good practices (section A); the need and purposes of institutional arrangements (section B); characteristics of effective institutional arrangements (section C); and country practices (section D).

A. Summary of good practices

3.2. It is a good practice that agencies involved in collection and compilation of data on the international supply of services establish institutional arrangements that involve the key producers and data users, properly reflecting the country's needs, priorities and resources. Such institutional arrangements should present a clear division of responsibilities and work between the agencies involved in the compilation of statistics on services transactions between residents and non-residents, FATS as well as additional monetary and non-monetary indicators for analysing the international supply of services. It is essential that appropriate channels of communication and mechanisms of coordination.

3.3. This Guide underscores that institutional arrangements lay the groundwork for effective process management, from the identification of data sources to the dissemination of output and for promoting communication between the staff of the different institutions involved. Institutional arrangements should be based on the legal framework and elaborate upon it as necessary. Institutional arrangements should be periodically reviewed and improved as necessary to keep them relevant. An advisory committee, or a similar body, should be established in order to support sound decision-making and to take into account the interests of stakeholders.

B. The purpose and types of institutional arrangements

3.4. The production of official statistics typically requires the participation of several agencies and, consequently, the establishment of institutional arrangements. In the area of trade in services statistics, agencies that may be involved in the statistical process may include the National Statistical Office (NSO), the Central Bank (CB), the Ministry of Trade, the Ministry of Economy, the Ministry of Finance, the Tax authorities, Immigration authorities, the National Tourism Administration, Border protection agencies, Customs administration, Financial markets regulators, Chambers of Commerce and Investment promotion bodies.

3.5. The institutional arrangements are generally understood as a set of agreements on the division of the responsibilities between the agencies involved in the collection, compilation and dissemination of data pertaining to a given statistical domain. These arrangements ensure that official statistics meet users' needs, follow quality standards and are compiled and disseminated in the most efficient way. Meeting users' needs is especially important in a relatively young and wide statistical domain like statistics of international trade in services. The scope of institutional agreements may range from determining the complete process of the statistical production and dissemination to regulating certain parts of this process.

3.6. National statistical systems are organized on the basis of the statistical and other applicable national laws and regulations, which, to different degrees, specify the rights and responsibilities of the involved agencies thus defining main features of the country's statistical system. Usually, two main types of national statistical systems are differentiated - centralized and

decentralized statistical systems⁴³. A national statistical system is referred to as centralized if the management and operations of the statistical programmes are predominantly the responsibility of a single autonomous government agency. A national statistical system is commonly referred to as decentralized if the statistical programmes are managed and operated under the authority of different institutions with coordination normally provided by a single body.

3.7. Institutional arrangements should ideally complement the legal framework (*see* chapter 2). Especially in cases in which the legal framework is weak, institutional arrangements can play an important role in improving it and addressing the current constraints. Different types of institutional arrangements can equally provide for statistics on the international supply of services that follow internationally recognized methodological guidelines, utilize all available statistical sources in an efficient way and apply appropriate compilation procedures. Practical examples from countries with different statistical systems are provided to help in setting up institutional arrangements in a most effective way at the end of this chapter.

C. Characteristics of effective institutional arrangements

3.8. Institutional arrangements should involve the key producers and users of the statistics and can be set up in different ways depending on each country's needs, priorities and resources. They should contribute to establishing appropriate channels of communication and mechanisms of coordination to ensure efficiency in statistical production. Pre-existing institutional arrangements in related statistical domains (e.g. in international merchandise trade and tourism statistics) should be taken into account and built upon when possible.

3.9. As part of the balance of payments, resident/non-resident trade in services statistics are important to monetary policy analysis and, together with the national accounts and other economic statistics, describe a country's economic development. Therefore, NSOs and CBs often share responsibilities for the collection and compilation of these statistics.

3.10. Another important analytical aspect of which statistical compilers should be aware is the need of countries' economic agencies (such as Ministries of Economic Affairs and the Chambers of Commerce, among others) to conduct assessments of the competitiveness of countries and economic sectors for the design of economic policies and international trade negotiations based on GATS. Furthermore, the compilation of statistics on the international supply of services in some areas coincides with other mandatory regulations. For example, Financial Market Authorities are typically responsible for banking and insurance supervision. Moreover, NSOs, NCBs, and other institutions may play very important roles in collecting, producing and disseminating foreign affiliate statistics (FATS), in accordance with the legal mandate in the statistics area assigned to each institution.

3.11. The success of the institutional arrangements, in most cases, depends on the existence of a clear division of the responsibilities and mutually beneficial cooperation between NSOs and CBs (and possibly other agencies involved), which have historically developed in different ways. In view of the growing need for information going hand in hand with rising cost consciousness, NSOs and CBs should seek cooperation in focusing on their respective expertise, making use of existing data and ensuring consistency in statistical production.

3.12. This process is further stimulated by the planned expiration in many countries of the bank settlements systems (traditionally the main data source of central banks for balance of payments statistics, which cover trade in services). These systems are generally being gradually replaced by enterprise surveys as the main data source for the compilation of trade in services statistics. This transition leads to a more evident need for closer cooperation and coordination between the CBs and

⁴³ For details see: *Guidelines on Integrated Economic Statistics*, United Nations publication, ST/ESA/STAT/SER.F/108, 2013, paragraphs 3.33 – 3.39.

the NSOs, as the latter are normally conducting enterprise surveys and maintaining the business registers.

3.13. NSOs and CBs should also look for close cooperation with the Chamber of Commerce (or other representatives of a country's private sector) to get support in producing high-quality data. On the one hand, Chamber of Commerce and/or other representatives of a country's private sector can inform enterprises about the importance of timely and accurate reporting, the use of electronic media and support the communication between statistics producers and enterprises in survey design as well as in the interpretation of results. On the other hand, NSOs as well as NCBs can make customized datasets available to the representatives of private sector which would reflect their specific economic interests.

3.14. CBs and Financial Market Authorities work closely together in fulfilling their respective tasks for financial market stability, sometimes centralized in a single institution. Therefore, they normally cooperate closely in mutual assistance and no additional legal act is needed for the sharing of information. However, besides institutional arrangements, CBs as well as NSOs should ensure they have legal access to administrative data on banking and insurance transactions that are collected for supervisory purposes.

3.15. The characteristics of effective institutional arrangements are as follows:

- i. They should take account of the respective responsibilities of the institutions involved that cover all stages of the statistical process – from the identification of user needs and the collection of raw data through data compilation, dissemination and evaluation;
- ii. The rights and responsibilities of the institutions involved should be clearly defined to avoid misunderstandings, duplication of work or omission of significant elements of work;
- iii. The terms of cooperation should be laid out in a legal document so that any changes to administrative procedures or statistical processes that could affect data compilation become an integral part of the terms of cooperation and could be dealt with in advance;
- iv. At the same time, institutional arrangements should leave room for necessary flexibility in every-day statistical production;
- v. Given the legal foundations of the cooperation of various agencies, one institution (the national statistical office, the central bank or a specially established interagency body) should have a clear mandate to monitor and coordinate aspects of the production process of statistics on the international supply of services, as well as disseminate the data and keep in contact with international organisations and other data users;
- vi. The main user groups should be included in the institutional arrangements and their needs should be accounted for given the legal obligations and resource restrictions of the institutions that produce statistics.

3.16. Further, the characteristics of effective cooperation can be described as:

- i. Operationalization of the relevant international statistical standards and good country practices;
- ii. Development and implementation of the work programme for collection and compilation of data in accordance with the statistical framework for describing the international supply of services, including establishment of appropriate interagency data compilation arrangements;

- iii. Establishment of close contact and regular consultations with the user community to guarantee the analytical and policy relevance of the data compiled and disseminated;
- iv. Promotion of an integrated approach to data compilation as well as of appropriate quality management to ensure that high-quality data on the international supply of services meet ever-increasing user demands and are made available to users despite limited resources;
- v. Dissemination of easily accessible and detailed statistics on the international supply of services to users, both domestically and internationally, and
- vi. Consultations with enterprises on questions concerning reconciliation and exchange of data.

3.17. Finally, some guidelines for creating effective institutional arrangements and terms of cooperation are:

- i. Adopt a strategic approach to multi-level planning for advancing the integration of economic statistics;
- ii. Implement effective process management from the identification of data sources to the dissemination of outputs;
- iii. Periodically review institutional arrangements and initiate necessary adjustments in order to keep them relevant in the light of evolving user needs and emerging new data sources;
- iv. Establish an advisory committee so that the interests of all stakeholders are taken into account and the committee members assist in the development of data by supporting sound decision-making;
- v. Promote communication between the staff of the different institutions involved to develop an understanding of the entire production process of statistics compiled within the framework for describing the international supply of services as recommend in MSITS 2010.

D. Country experiences

D.1. Country experience: Austria

3.18. *Statistics on resident/non-resident transactions in services.* In Austria, the Oesterreichische Nationalbank (OeNB) is legally responsible for compiling and disseminating of resident/non-resident trade in services statistics (Foreign Exchange Act 2004 § 6 (1)). In order to keep the costs of data compilation low – both in reporting for as well as producing statistics, the OeNB opted for a close cooperation with Statistics Austria. The two institutions have signed a basic cooperation framework agreement to guide their cooperation in all fields of statistics related to the Austrian economy and based on international and/or national legislation. The basic principle of cooperation is that both institutions concentrate on their respective expertise and data access, which governs the determination of specific areas of activity. The basic agreement defines the compilation of services trade statistics as an area of “intensive cooperation” as the OeNB and Statistics Austria work jointly on a single statistical product, in contrast to areas of “vital interest,” where one party is responsible for data production and the other is a main user of the data. The details of cooperation in this area are laid down in an individual service contract where one institution provides input for a statistical product for which the other institution bears the legal obligation and responsibility. The contract mainly specifies: (a) individual production stages, dates and interfaces, (b) classifications, revisions and quality measures, (c) access to non-published data, (d) utilization and reconciliation of existing registers and administrative data, (e) evaluation of new statistical, technical, financial and legal requirements as well as (f) coordination of the stance to be taken in national, EU- and international bodies.

3.19. *FATS*: In contrast to resident/non-resident trade in services statistics, the NSO is responsible for compiling and disseminating *FATS* in Austria. These statistics are compiled in close cooperation with the OeNB, which has a service provider contract with the NSO. Concerning Inward *FATS*, the OeNB determines which enterprises are foreign-controlled and the NSO collects the respective variables as part of the structural business statistics. Concerning Outward *FATS*, the respective variables are collected by the OeNB as part of the survey on FDI. By applying this approach, *FATS* can be compiled with minimal additional reporting burden for enterprises in Austria.

3.20. In addition to regular information sharing in the course of statistics production, the OeNB and Statistics Austria have set up a committee consisting of at least two higher voting members of each institution. The committee meets at least once each quarter to monitor the joint activities and recommend enhancements where possible. It further initiates extensions and updates to the existing areas of cooperation including the prolongation and amendments to the basic cooperation framework agreement.

3.21. With the introduction of direct reporting in compiling external statistics the OeNB also initiated close cooperation with the Austrian Chamber of Commerce to support contacts with the business sector. The two institutions decided to enter into a basic cooperation framework agreement with the main focus on enhancing efficiency in producing and dissemination of up-to-date and relevant statistical information. On the one hand, the OeNB aims at minimizing costs of statistical production on both sides – in the data reporting by enterprises as well as in the Central Bank – by making utmost use of administrative and register information. On the other hand, the OeNB makes efforts to disseminate easily accessible and detailed statistical information in order to cut costs of accessing the data. The Chamber of Commerce assists the OeNB in fulfilling its tasks by supporting communication with enterprises in various ways; e.g., by offering access to internal media and events and by arguing for the importance of statistical information in general. At the same time, the Chamber of Commerce fosters the use of administrative and existing statistical information to keep reporting obligations to a minimum and advocates the simplification of reports; e.g., by using electronic media.

D.2. Country experience: Malaysia

3.22. In Malaysia all statistics collected and published by the Department of Statistics Malaysia (DOSM) are governed by the Statistics Act, 1965 (Revised 1989). Under the terms of this Act, DOSM has the independence to determine the coverage, contents, methodology and periodicity of data collection. For the collection, compilation and dissemination of trade in services statistics (including *FATS*), DOSM has the lead responsibility. Memoranda of Understandings (MOUs) were established between DOSM and the Central Bank of Malaysia (BNM) and Tourism Malaysia (TM) to facilitate and improve cooperation with these agencies. BNM, through its Statistical Services Department, is responsible for compiling BOP statistics from International Transactions Reporting Systems (ITRS), while Tourism Malaysia collects tourism-related data to be used for statistics on the international supply of services. In addition to these agencies, there are 14 other agencies that also contribute.

3.23. To coordinate the dissemination of trade in services statistics, DOSM chairs the quarterly meetings of the Inter-Agency Planning Group (IAPG) to brief members on the data prior to publication. The members include the Economic Planning Unit (EPU), Treasury, BNM, Ministry of International Trade and Industry (MITI), the Malaysia External Trade Development Corporation (MATRADE) and the Malaysia Industrial Development Authority (MIDA). Technical meetings with BNM and other agencies are held as necessary. In addition, The high-level committee structure of the Industrial Master Plan for Malaysia includes a Working Group on Services Statistics (WGSS) particularly to monitor the development of trade in services statistics.

D.3. Country experience: Spain

3.24. In Spain, the Bank of Spain (BE) is responsible for the compilation and dissemination of the resident/non-resident trade in services statistics and the National Institute of Statistics (INE) is responsible for production and dissemination of FATS. The BE estimates travel services transactions between residents and non-residents based on information from surveys developed by the different institutions, including INE and the Institute of Tourism Studies (IET). A Cooperation Agreement between INE, IET and BE was established to outline the exchange of information needed to estimate the Travel item. For its part, the BE estimates the Other Services item of the BoP on the basis of a bank settlements system combined with direct reporting for some large declarants.

3.25. The planned expiration (set for 2014) of the bank settlements system currently used by BE for compiling the Other Services item of BoP led to a 2004 agreement with INE for the joint design of the International Trade in Services Survey (ITSS). INE is responsible for the design of the sample, the fieldwork and the tasks subsequent to data collection (i.e., editing, imputing and grossing-up of the sampling data), while BE contributes the main framework of the survey and the reporters of international services transactions obtained from its bank settlements system. In 2004 BE signed an agreement with INE for the joint design of the International Trade in Services Survey (ITSS). INE is responsible for the design of the sample, the fieldwork and the tasks subsequent to data collection (i.e., editing, imputing and grossing-up of the sampling data), while BE contributes the main framework of the survey and the reporters of international services transactions obtained from its bank settlements system.

3.26. Since 2004 INE also has had a Cooperation Agreement with the Spanish Tax Administration Agency (AEAT), which annually forwards the micro-data of VAT records for international goods and services transactions to INE as well as the micro-data of VAT records specifically on services transactions within the EU. Within this Agreement, INE also receives annually the micro-data on the INTRASTAT/EXTRASTAT operators that dispatch or bring in goods for processing or repair, which is useful for identifying the population that engages in the processing and repair services category of EBOPS 2010.

3.27. For the compilation of Outward FATS, INE has a Cooperation Agreement with the Ministry of the Economy and Competitiveness under which every year the latter forwards micro-data of the Foreign Investments Register (FIR) to INE, which means that there is no need for a specific survey.

3.28. Inward FATS are compiled based on the business structural surveys conducted by INE in relation to the industrial, services and R&D sectors, to which is added information from the Ministry of Development on the construction sector, information from the Ministry of the Economy and Competitiveness (DG for Insurance and Pension Funds) on the insurance sector, and BE information on the financial sector. There are no *ad hoc* cooperation agreements with these administrative bodies for this exchange of information.

Part II Data Collection

Scope. Part II focuses on data collection, while Part III deals with data compilation. It is recognized that the boundary between data collection and data compilation is not always clearly defined. However, efforts were made to discuss in this part main aspects of data collection, such as data sources, their advantages and shortcomings, as well as various aspects of data collection process. Part II begins with an introductory Chapter 4 providing an overview of data sources used within the modes of services supply framework, which is followed by the description of registers and survey frames (Chapter 5) and continues with elaboration of enterprise and establishment surveys (Chapter 6), surveys of persons and households (Chapter 7), international transaction reporting system (Chapter 8), administrative records (Chapter 9), and other data sources (Chapter 10). Part II is concluded by a comparison of various data sources (Chapter 11).

Chapter 4 Introduction and overview of data sources within the modes of services supply framework

4.1. *Scope.* This chapter serves as an introduction to the other chapters of Part II by briefly describing the main data sources which countries are encouraged to use in collecting information necessary for the compilation of statistics on services transactions between residents and non-residents, FATS and additional indicators on the international supply of services. Part II is followed by Part III, which focuses on the data compilation issues.

A. Data sources and data collection: an overview

4.2. Part II describe the main data sources used for compiling statistics of international supply of services. While the international transaction reporting system was in the past the most prevailing data source of information for resident/non-resident trade in services statistics, it is being increasingly supplemented by other sources of data as more detailed information on services categories and trading partners is required. Nevertheless, for the balance of payments services statistics, the ITRS remains an important data source in many countries and it should be utilized. Increasingly, statistical business registers, which serve both as a source of information and the basis for the organization of various surveys, are being recognized for their central role in the implementation of an integrated approach of statistics and are a prerequisite for building a forward-looking programme of data collection in this statistical domain. The use of administrative sources and other sources is another essential part of such a programme, as these sources can complement statistical surveys and/or provide information when, for example, surveys are not cost effective or difficult to organize.

4.3. Possible data sources for compilation of statistics, according to the recommendations of MSITS2010, and their definitions are listed below (each data source is covered more in depth in each of the corresponding chapters cited):

- i. *Statistical business registers (chapter 5).* The statistical business register (SBR) is commonly understood as a register of economic entities active in the national economy. If various types of those entities and their characteristics are taken into consideration then the definition can be further elaborated.⁴⁴
- ii. *Survey (sampling) frame (chapter 5).* The survey frame (also called the sampling frame) is the statistical tool used to gain access to the target population that is to all economic entities

⁴⁴ See Eurostat publication *Business registers: Recommendations manual* at: <http://unstats.un.org/unsd/EconStatKB/Attachment174.aspx>.

which are intended to be surveyed. There are two types of frames: list frames and area frames. The frame is the backbone of the statistical system.⁴⁵ It represents what must be regularly measured by the statistical system. Its coverage must be as complete as possible and reflect the organizational structure of all statistical units of the economy.

iii. *Enterprise and Establishment Surveys (chapter 6)*. These surveys can be one of the following types:

- i. *Census*: Includes all members of the population;
- ii. *Partial coverage collection survey*: Includes all enterprises above a certain threshold measured in terms of their dimensions (e.g. nominal capital) or other variables (e.g., significant cross-border activity);
- iii. *Random sample survey*: Includes enterprises that are preferably selected according to rigorous sampling procedures, with the results “grossed up” for the whole population;
- iv. *Stratified random sample*: groups population components according to the size of selected activity so that enterprises within different strata have different probabilities of selection. Usually, this is a combination of the partial coverage and random sample options but is more sophisticated and might produce a high level of coverage while remaining relatively cost-effective.
- iv. *Surveys of Persons and Households (chapter 7)*. Surveys of individuals or households, with household being defined as a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food.⁴⁶
- v. *International Transactions Reporting System (chapter 8)*. A system of collecting data of individual international settlements and/or transactions from banks, enterprises and individuals. In most countries that maintain ITRS, the reporting is mandatory and settlement data have been collected.
- vi. *Administrative records (chapter 9)*. Administrative records are compiled for regulatory purposes or to support and document the administration of various government programmes (such as immigration regulation, social security benefits, education, and health).
- vii. *Other data sources (chapter 10)*. These sources may include: credit card records, mobile phone records, records of business associations, financial statements of companies, reports of chambers of commerce, records of investment promotion agencies, private databases and data compiled by trading partners. Some of these sources are part of the body of information referred to as Big Data.

4.4. Chapters 5-10 describe the roles and characteristics of these data sources (such as their design and maintenance); how they can be used in the context of data collection of resident/non-resident trade in services, FATS and modes of supply; their advantage and limitations, when relevant; and country experiences in using such sources in statistical compilation.

⁴⁵ Guidelines on IES, paragraph 5.69.

⁴⁶ SNA 2008, paragraph 24.12.

4.5. In the case of enterprise surveys, chapter 6 describes specific types of surveys used for compilation of certain service categories are discussed in detail, including transportation surveys, manufacturing services, insurance and financial corporations, R&D surveys, surveys of tourism activities, construction surveys, structural business surveys for FATS collection, foreign direct investment surveys in the context of FATS (by incorporating key FATS variables), and separate foreign affiliates surveys. Country experiences are also presented on the use of enterprise surveys to collect data for modes of supply, manufacturing services, construction, education, computer software and IT services, and FATS, among others.

4.6. In the case of surveys of persons and households, chapter 7 highlights specific types of surveys and how they can be used to collect data on the international supply of services. In particular, population censuses can be used to gather benchmark information (in particular for compiling outgoing mode 4 data) or used for household sampling; household and border surveys can be used to collect data related to international travel, consumption of other services (e.g., internet purchase/consumption of services, mode 4), and international provision of services of members of households, in particular for self-employed persons (modes 1 or 4); and labour force surveys can be used to collect information on the mode 4 variable “number of persons or trips” and on outbound business travel.

4.7. Chapter 8 highlights the advantages and limitations associated with using an ITRS to compile trade in services statistics. It also presents issues to consider regarding ITRS reporting thresholds (different approaches for dealing with missing values due to ITRS thresholds are discussed in chapter 17 in Part III of this Guide).

4.8. Administrative records covered include tax records, customs records for estimating value of trade related transport and insurance services, Immigration records and entry/departure cards, work permits collected by the immigration authority, and population records. Administrative records or commercial database on foreign affiliates are also useful for FATS but their forms and questionnaires cannot be easily designed to provide data useful for statistical and analytical purposes. Thus, they could rather be used as supplements to the survey on foreign affiliates. The chapter on administrative records (chapter 9) also covers in detail how such sources can be used to collect data on modes 2 and 4.

4.9. Chapter 10 on other data sources discusses the potential uses of Big Data; payment card data; mobile phone data; external party sources; and linked microdata. The chapter also presents country experiences in exploring the potential uses of such data sources to compile trade in services statistics.

4.10. *Compiling statistics by partner country.* There are a number of external sources that may also provide information by partner country to which the compiler will have access, which can in particular be useful to improve the quality of compiled statistics. These sources include bilateral data compiled by compilers in other economies that represent the counterparts to transactions of residents of the compiling economy.⁴⁷ A similar approach can be adopted for other sets of data covered in this compilers guide, such as for FATS.

4.11. When other sources are used, the compiler should make every effort to ensure that partner country information is classified correctly. The compiler must also decide on the principle of classification and the list of countries or country groupings to be shown. The country classification should be based on the country of residence of the provider and the recipient of the service.⁴⁸ The same country classification should be used across all sources of data collection. If it is not possible to obtain correctly classified data from the source, the compiler should, at least in significant cases, investigate alternative sources to obtain supplementary information.⁴⁹ If countries provide and/or

⁴⁷ Ibid., A5.21.

⁴⁸ Ibid., A5.3.

⁴⁹ Ibid., A5.23.

receive services from international organizations a separate partner group – international organizations – should be used as such organizations are resident in an economic territory of their own, and not the economy in which they are physically located (see MSITS 2010, paragraph 3.28).

B. Sources for modes of supply data

4.12. When considering sources for modes of supply data, compilers should carefully evaluate how residence is defined in their country, be aware of the laws and regulations in place for migration and trade in services, and assess how this can be used in a statistical context. Mode of supply data for trade in services can be either collected through a direct reporting (surveys) or be estimated/modelled. In many cases a combination of the two approaches should be used to obtain the required aggregates. Using surveys to collect modes of supply data has the advantage that the compiler has a significant control over the data that can be obtained and that they can be tailored to answer specific policy questions. Modes of supply data are unlikely to change significantly in the short-term, so these extra questions may not need to be included each time the survey is run. However, this advantage needs to be weighed against other considerations, such as cost, respondent burden, and difficulty in implementing the survey (such as respondents understanding the concepts so that they will report correctly).

4.13. Sources for mode 2 movements of persons are likely the same as those used for the collection of travel information, such as household, border, and labour surveys. For incoming mode 2 persons, specific surveys targeting students, medical personnel and tourists could be used as well as border surveys. Values calculated from household surveys need to have sufficient metadata accompanying them as there are likely to be large sample errors associated with such numbers. Often the data will need to be combined with other sources, such as administrative data on border counts or entry and departure cards, to obtain relevant data on the number of mode 2 movements/persons.

4.14. Regarding mode 4 types of persons, border and household surveys, enterprise surveys, and potentially inward FATS surveys (if they include variables measuring exports and import of services of the foreign affiliate) are an important source both for incoming and outgoing employees and of self-employed providing services under a contract. As for mode 2, the data will most probably need to be combined, in particular for compiling breakdowns, to obtain relevant data on the number of mode 4 movements/persons, e.g. through the use of data on characteristics sourced from surveys of persons or households, combined with counts of those crossing borders. Use of data from partner countries may also be relevant, in particular that it may be easier to capture the relevant information for sending countries.

4.15. For compilers using an International Transaction Reporting System (ITRS), modelling the relevant mode of supply may be the only option. Data on Mode 3 (commercial presence) will need to be collected in addition to existing data on resident/non-resident services trade as this mode of services supply falls outside the scope of service transactions measured under the Balance of Payments framework.

C. Comparing data courses

4.16. Chapter 11 provides comparison tables on the advantages and disadvantages of each type of data source in the context of compiling specific service categories, FATS and the number of mode 2 and mode 4 movements. The chapter addresses the coverage of each data source, the accuracy of reporting, the timeliness and frequency of the source, the relevance, and the burdens of reporting and processing the data involved. In guiding compilers in determining which data sources are most appropriate to use on a case-by-case basis, the chapter also lays the foundation for the discussion of integration of data from different sources, which is introduced in Part III: Data Compilation in chapter 13. Integrating data from different sources is advised as the principle way to ensure the production of more detailed and more comprehensive statistics, as well as to reduce the burden on survey respondents. Compilers are advised, therefore, to keep this goal in mind when reading Part II.

Chapter 5 Statistical business registers and survey frames

5.1. *Scope.* A Statistical Business Register (SBR) is commonly understood as a register of economic units resident in the national economic territory. An SBR is established and maintained for statistical purposes; for example it provides a central sampling frame for business surveys and plays a central role in the integrated collection and compilation of economic statistics, from which detailed and interlinked indicators can be derived. This chapter focuses on how business registers and survey frames can be used in the context of data collection of resident/non-resident trade in services, FATS and modes of supply. It consists of four main parts: a summary of good practices (section A), roles and characteristics of SBRs and survey frames (section B), a satellite register for trade in services and use of business registers to identify potential mode 4 self-employed service suppliers (section C), and some country examples (section D).

A. Summary of good practices

5.2. Compilers of data in accordance with the statistical framework for measurement of the international supply of services are advised to use SBR as the central sample frame for their survey programme in order to obtain better coverage, harmonisation of surveys, integration of trade in services statistics with other economic statistics, reduction of costs, reduction of response burden, prevention of double counting of statistical information, and above all, better quality and more coherence in official trade in services statistics. A high-quality SBR helps to improve the efficiency and coherence of the national statistical system.

5.3. International guidelines for statistical business registers have recently been developed and are being continuously updated⁵⁰. Compilers are advised to refer to these guidelines for more detailed information on setting up and maintaining a business register. This Compilers Guide focuses mainly on the role of SBR as a central sample frame for surveys related to international trade in services.

5.4. The maintenance and development of SBR should be well coordinated. It is a good practice to have a clear agreement on the responsibilities of the agencies involved in the maintenance and development of the SBR in the national statistical system. It should be noted that in some countries this process is handled by one dedicated unit in the national statistical system, instead of several units within the various substantive areas. This Guide advises that an appropriate legal framework is put in place for enabling statistical authorities to access and use administrative records, especially tax and social security records, to maintain SBR.

5.5. It is a good practice that the SBR maintenance process is based for a large part on the use of administrative sources such as the administrative company register, register of sole proprietors, register of government units, the VAT register, tax records and records of the social security administration. To ensure that SBR provides a solid basis for collection of data needed for measuring the international supply of services, it is further advised to update SBR should be based also on sources such as the settlements and international payments databases; trade registers; the FDI register; balance sheet information; and other specific registers available from trade associations or regulatory bodies.

5.6. It is very important that SBR uses the SNA 2008 definitions for its statistical units. To ensure more efficient collection of data on the international supply of services by various modes, this Guide advises to include in SBR additional indicators providing information on international transactions of the registered entities, as well as on turnover, economic activity, number of employees, balance sheet

⁵⁰ See *Guidelines on Integrated Economic Statistics*, United Nations publication, ST/ESA/STAT/SER.F/108, 2013, Chapter 5, section C; see also materials available on the website of the UNECE the Task Force established to draft international guidelines on statistical business registers at: http://www.unece.org/task_force_business_registers.html

variables, and data on foreign ownership, in order to properly carry out selection and stratification of the statistical units, sampling and estimation. It is also a good practice to use SBR to identify the mode 4 self-employed population as merchants and small manufacturers (including self-employed and one-man companies) should be registered in it.

5.7. While it is a good practice that the national statistical system aims at maintaining one multipurpose SBR, in practice, it may be useful to have a tailored-made satellite register consisting of all enterprises which are engaged in the international supply of services. If established, it is a good practice that such a satellite register is maintained by a dedicated unit within the agency responsible for the compilation of trade in services statistics. Such a unit should, in particular, systematically update this satellite register using the information available in the central SBR and actively participate in the harmonization of the contents of these two registers.

B. Statistical Business Registers

B.1. Roles of the SBR

5.8. The UN Statistical Commission recommends the SNA 2008 to obtain a comprehensive and coherent set of statistics of the national economy. Implementation of SNA 2008 begins with setting up a basic data collection system for all economic activities. This effort goes hand in hand with setting up a system for integrated economic statistics, which is based for a large part on using an SBR as the central frame for all business surveys. Therefore, a number of regional and international agencies have been actively engaged in establishing and improving SBRs, especially in Africa⁵¹, Asia and Europe. These improvements will benefit the collection of data by means of business survey (and some administrative data as well) for the compilation of trade in services statistics.

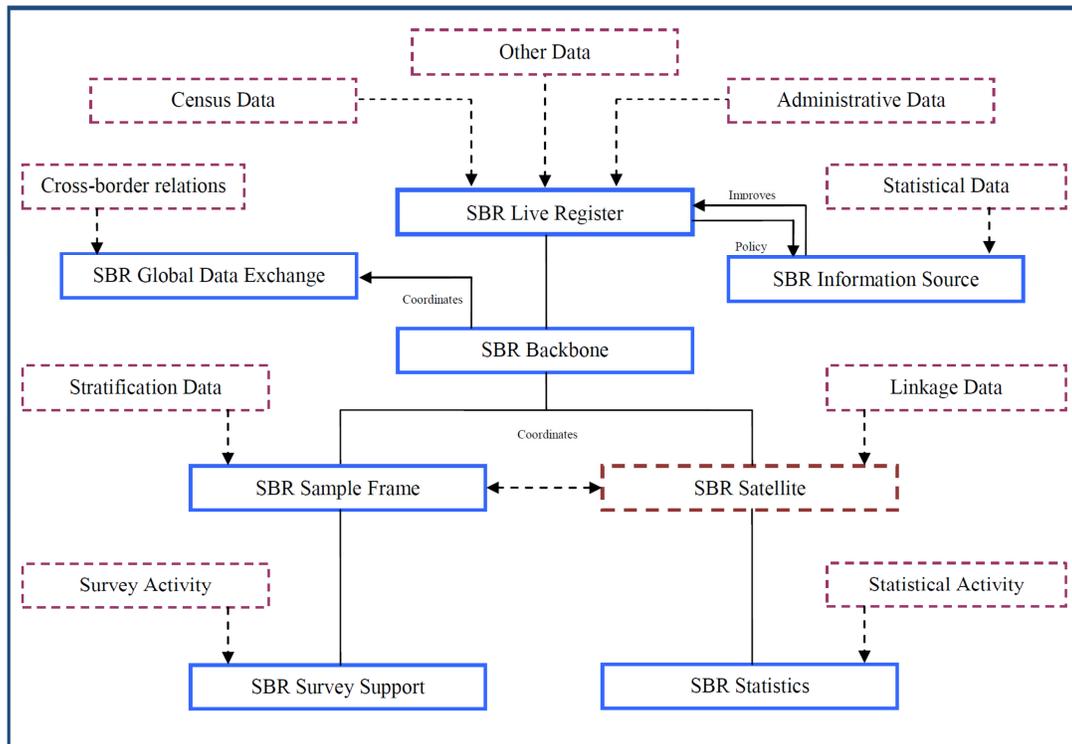
5.9. The SBR is a means to an end rather than an end in itself. As such, it is a vital component of an integrated program of economic surveys. The ultimate goal is the production of comprehensive, coherent, and high-quality economic statistics. Figure 5.1 illustrates the various roles of the SBR. An important role of the SBR is to maintain and keep track of the changes of statistical units and their characteristics due to real life events (see Section B.3 for details). This is a continuous process in which constant modifications of a collection of statistical units occur in time and space. The frequency of modifications depends on the update strategy of the SBR. In this respect the SBR can be considered as a kind of ‘Live Register’ in which the composition of units constantly changes over time⁵².

⁵¹ *Guidelines for Building Statistical Business Registers in Africa: Laying the foundation for the harmonization of economic statistics programs*, African Development Bank.

<http://www.afdb.org/en/knowledge/publications/guidelines-for-building-statistical-business-registers-in-africa/>

⁵² Further details on the European experience in this respect can be found in the Eurostat manual on business registers available at: <http://ec.europa.eu/eurostat/ramon/statmanuals/files/KS-32-10-216-EN-C-EN.pdf>

Figure 5.1 The roles of the Statistical Business Register



B.2. The SBR as the central sample frame

5.10. The primary benefits of maintaining one sample frame are better coverage, harmonisation of surveys, integration of survey data, reduction of costs, reduction of response burden, prevention of double counting of statistical information, and above all better quality and more coherence in official statistics. Of course, these benefits can only be realized when one central register is used to derive a sample frame.

5.11. There are three reasons why construction and use of an SBR as the central sample frame is desirable. First, if survey frames are independently created and maintained, there is no means of guaranteeing that they are harmonized. As a result there may be unintentional duplication and/or omission of activities. Second, an SBR enables practical application of standard statistical units and their classifications, which is a crucial requirement for survey outputs to be integrated. Third, it is more efficient for a single organizational unit to maintain the SBR as a source of frames for all business surveys than for each survey team to be independently maintaining its own frame.

5.12. An up-to-date survey frame is required for each repetition of a regularly conducted survey. It is more efficient to maintain a frame so that it can support the sequence of repetitions of a survey than it is to create the frame afresh with each repetition. This is particularly true in the case of sub-annual surveys, where overlap of sampled units from period to period is essential. Survey frame maintenance is best achieved through the development of a single statistical business register (SBR) and its use as the source of frames for all business surveys.

5.13. The SBR serves also as the basis for grossing up the results from these surveys to produce estimates for the entire business population, and is the main source for data on business populations and their demography. The SBR should preferably cover as much national economic activity as possible. However, the high cost-benefit ratio involved in covering the smallest units means that some

sort of cut-off is usually applied in practice. In addition to its role as sampling frame, a high-quality⁵³ SBR can also improve the efficiency of the national statistical system by coordinating and spreading the samples of the various statistical surveys, which should help reduce the response burden, and improve coverage and congruence of the survey results. Finally, a comprehensive and up-to-date SBR has a central role in achieving integration of economic statistics, and is essential for the full coordination of source data that use the same basic information about business units⁵⁴.

B.3. Characteristics of a SBR

5.14. The SBR typically list the *economic entities* that are of interest for economic statistics. Economic entities have numerous characteristics, but some of the most important ones include their classification by (a) institutional sector (as defined in SNA 2008), (b) economic activity (as defined in ISIC, Rev.4) and (c) location. Most countries provide laws that enable economic entities to define and register themselves as *legal entities* - entities that are recognized by law or society, independently of the persons or institutions that own them. A legal entity can own goods or assets, incur liabilities and enter into contracts. The legal entity (or unit) always forms, either by itself or sometimes in combination with other legal units, the basis for the *statistical unit*⁵⁵. A statistical unit defined as an entity about which information is sought and for which statistics are ultimately compiled. It is the unit that provides the basis for statistical aggregates and to which tabulated data refer.⁵⁶ These may be identifiable legal or physical entities or statistical constructs.

5.15. The SNA 2008 provides the standard definitions of the statistical units which are recommended by the UN Statistical Commission for use in setting up data collection in all economic areas⁵⁷ As mentioned before, the MSITS conceptual framework is grounded in SNA 2008. The SNA 2008 definitions of the statistical units should therefore be used for trade in services statistics purposes as well. Box 5.1 lists and briefly defines main types of statistical units. The statistical units used in an SBR should be described by at least three sets of variables and characteristics, namely:

- i. *Identifier variables*: identity number, name, address (including postcode), telephone and fax numbers, electronic mail address and information to permit electronic collection of data, value added tax (VAT) registration number or other administrative identity numbers.
- ii. *Economic/stratification characteristics*: These characteristics are related to activity classification (principle and secondary), size (e.g. number of persons employed, turnover, value added) and location variables .e.g. country of global decision centre (UCI), countries where enterprises or local units are located, information on whether or not the unit is engaged in international trade.
- iii. *Demographic characteristics*: recording calendar dates for important events like commencement of activities, termination of activities, and joining or ceasing to be part of an enterprise (group) permit an initial demographic analysis of the population of enterprises, local units and enterprise groups.

⁵³ Overall quality is not easy to measure, though several of its specific aspects of it can be used as indicators, e.g. coverage, accuracy of the data held, frequency of updates and consistency of processes (see also chapter 20).

⁵⁴ Guidelines on IES, paragraph 3.29.

⁵⁵ See International Recommendations for Industrial Statistics 2008 (IRIS 2008), the UN publication ST/ESA/STAT/SER.M/90, paragraph 2.15.

⁵⁶ IRIS 2008, paragraph 2.12

⁵⁷ In addition to SNA 2008 and IRIS 2008 and ISIC, Rev.4 the compilers may wish to consult the UNSD web – publication *Statistical Units*, available at: http://unstats.un.org/unsd/industry/docs/stat_2008_6.pdf.

Box 5.1 Different types of statistical units

The *institutional unit* is an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities. Two main types of units may qualify as institutional units: persons or groups of persons in the form of households, and legal or social entities.

An *enterprise* is an institutional unit in its capacity as a producer of goods and services. An enterprise is an economic transactor with autonomy in respect of financial and investment decision-making, as well as authority and responsibility for allocating resources for the production of goods and services. Enterprises under the control of the same owner form an *enterprise group* to achieve economic advantages such as economies of scale, control of a wider market and an increase in domestic productivity through more effective business management.

An *establishment* is an enterprise or part of an enterprise that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added. Note that the SNA 2008 also defines industries in terms of establishments.

There are two *other statistical units* that are often referred to in data sources relevant for statistics on the international supply of services: A *kind-of-activity unit* is an enterprise or part of an enterprise that engages in only one kind of productive activity or in which the principal productive activity accounts for most of the value added; and a *local unit* which is defined as an enterprise or a part of an enterprise (for example, a workshop, factory, warehouse, office, mine or depot) which engages in productive activity at or from one location.

Source: based on the definitions provided in SNA 2008 and IRIS 2008

B.5. Creation and maintenance of a statistical business register

5.16. The circumstances and factors, within which SBRs are built, can clearly be vastly different across countries. The legal frameworks for acquiring data, as well as the access to human, financial and technical resources will ultimately determine how countries can proceed. There are however some key themes that recur, including:

- i. The need to build effective partnerships with data suppliers, funding providers and the users of the SBR by first making sure that the critical role of the SBR in delivering a coherent and reliable national economic statistics programme is well recognized, and second by putting in place governance structures and partner engagement mechanisms that are robust;
- ii. The need to manage the implementation and operation of the SBR in a manner that allows it to focus on and achieve its mission-critical purpose, which is to identify the population of businesses of a country so that they can be surveyed to acquire useful economic data. There are other secondary yet highly desirable roles that an SBR can fulfil, such as acting as a data collection management and tracking tool. The original design and implementation plan should allow for adding in these components, but only once the SBR has fully matured in its role as a quality statistical frame;
- iii. Generally, the approach should be to maintain simplicity to the extent possible. Conceptual and technical complexities should be added in only when they serve a practical purpose, and they should never detract the SBR from meeting its larger goals.

5.17. Even though the primary purpose of SBR is to provide a central frame for economic surveys across statistical programmes the longer-term vision, however, should allow for adding features and components that will further enhance the SBR's value-added. For example:

- i. SRB can serve as a source of register-based statistics. This requires seamless integration of administrative data, adequate quality assurance, raw data treatment and programming resources;

- ii. A module to track respondents and response burden can be added. This module requires human IT resources to develop and maintain server and database resources. This module may or may not be efficient or necessary when using SBR in the early stages, since population coverage remains limited and resources are directed towards the economic entities that have the largest impact;
- iii. A receptacle for tracking survey collection outcomes and response rates and a “survey feedback” mechanism can be established to facilitate analysis of the survey efficiency and results as well as to update the SBR on a more regular basis.

The IT professionals who will architect the data structures and larger system design will in particular benefit from having this longer-term vision clearly pre-defined, thereby facilitating the addition of these modules as the SBR evolves. To re-iterate, the SBR must first and foremost be a solidly reliable listing of businesses from which statistical surveys can accurately measure the economic trends of a country. Creating it will be a challenging task, as will keeping it up to date once it is in use. The challenges entailed by the creation and on-going maintenance will be greatly facilitated by adhering to the following principles.

5.18. *Do not over-extend resources in the early stages by trying to cover all types of business.* While a highly developed SBR may cover a vast amount of the economic population, a new SBR must focus on covering the population that is both most important and that can be most reliably captured and reflected. The need to maximize limited human and technological resources, and to use available funding efficiently, should limit the scope of the initial SBR population. Reflecting the informal economy, which is highly diversified and for which no administrative data exist, cannot be a focus of the SBR development project. Typically, for the macroeconomic indicators that are the driving objective for the statistical programmes to be served, acceptable margins of statistical error can be obtained by excluding the numerous businesses that are at the smallest end of the size spectrum. Including the ‘micro’ businesses would add large volumes of records to be maintained, while adding only very small increments to the statistical aggregates (such as GDP or balance of payments main components) being produced. This is not to say that having these businesses will not be useful, as they can inform important policy analysis pertaining to business formation strategies, small-business financing and other micro-economic issues. This again is a desirable feature that is worth adding, but only once the core objective of adequately supporting the key indicators produced by the national accounts and balance of payments has been met.

5.19. *Plan for a system that provides both live and snapshot versions of the register.* It will likely be necessary to have two instances of SBR: (1) a ‘live’ version, which can be used to receive updates so that the updating of records entailed by on-going frame maintenance activities can be instantly recorded, and (2) a ‘snapshot’ version produced from the live instance on a monthly, quarterly or annual basis that survey programmes, which can be used to create their particular sample files. The snapshot also provides a basis for period-to-period comparison of frame quality.

B.6. Governance of SBR

5.20. Governance and organizational structure is very important — not only for developing the SBR programme itself, but even more so for the SBR ongoing maintenance and support for its users. SBR should be, where possible, an independent entity with a dedicated manager. It is a good practice that the manager’s unit assumes the following responsibilities:

- i. define and document all concepts, in line with international, national, and local statistical offices standards;
- ii. plan and direct the development of SBR system processes and functionalities;
- iii. plan and implement a quality assurance program for the SBR with the goal of
 - a. assessing the quality and ensuring the frame’s continued integrity

- b. defining and producing quality measures for the SBR
- c. identifying system improvements, or recommending adjustments to the training program or procedures, if required;
- iv. profile businesses to delineate those that are larger and more complex, to properly represent their production output;
- v. ensure that businesses are classified within the proper standard industry classification;
- vi. assign or derive statistical indicators, or create statistical units, from the administrative registers to create a complete and unduplicated SBR aligned with the needs of the System of National Accounts and basic economic statistics;
- vii. validate new development strategies, specifications and procedures;
- viii. develop and deliver the courses and material to educate t SBR users such as: profilers, survey frame specialists, analysts, data coders, staff of survey divisions and collection units/areas (training could follow a certification process so that those wishing to access the register must first complete the appropriate level of instruction);
- ix. support the SBR data users e.g., by providing assistance in evaluating their needs for their survey design;
- x. provide direction and support on legal aspects related to the survey frame such as access to the SBR and dissemination of the SBR based data;
- xi. maintain a dedicated group tasked with producing files for users and processing all files related to updating the frame;

5.21. The creation and maintenance of a unified comprehensive statistical business register is a long-term objective and a challenging task,⁵⁸ and it is recognized that resources devoted to that purpose vary between countries. In spite of this, a number of common issues remain that many national statistical office may encounter in assessing the suitability of a business register for trade in services statistics purposes.⁵⁹ For instance, a legal framework should be in place to allow access and use of these administrative records for the purpose of the business register. In the maintenance process as many administrative sources as possible should be used to update the register, including, for example, the administrative company register, register of sole proprietors, register of government units, register of non-profit units, tax information e.g. corporate tax, value added tax and social security information.

5.22. Ideally, there should be a unit in the national statistical office responsible for developing and maintaining the statistical business register. Decentralized systems may want to begin by developing a system for reconciling the more significant inconsistencies in the data produced by multiple business registers, to improve the accuracy of the data through more consistent classification of key enterprises and the elimination of overlaps and gaps in coverage.

B.7. Maintenance of SBR

5.23. The statistical business register needs to be continuously updated to reflect changes in the population of economic entities as accurately as possible. In particular, the number and characteristics of economic units engaged in trade in services are normally shifting very rapidly, which means that

⁵⁸ Guidelines on IES, paragraph 5.67.

⁵⁹ Compilers interested in learning more about the detailed aspects involved in the establishment of an effective SBR should consult the Eurostat publication *Business registers: Recommendations manual. Business registers: Recommendations Manual*. <http://unstats.un.org/unsd/EconStatKB/Attachment174.aspx>.

the SBR data may age fast and soon become useless. The register should be updated at least annually to record unit creations and deletions, as well as changes in address and stratification variables.

5.24. New enterprises should be recorded in the business register as soon as information about them is available, preferably before they start trading, so that information about investment in new buildings and plant can be collected. Changes in the data necessary for the conduct of surveys, such as addresses of reporting units, should obviously be reflected in the register in the most fast way as well.⁶⁰

C. A satellite register for trade in services and use of business registers to identify potential mode 4 self-employed service suppliers

C.1. A Satellite Register for Trade in Services (TIS-R)

5.25. A satellite register of SBR is a register which covers a sub-population of the SBR with specific characteristics. For instance, a satellite register for trade in services (TIS-R) consists of all economic units which are engaged in the international supply of services. This sub-population is identified by linking SBR with data from other sources, which helps the statistician to determine the target sub-population when indicators are published. Subsequently, survey samples can be drawn from this satellite register.

5.26. It is a good practice that TIS-R is maintained by a dedicated unit within the agency responsible for the compilation of trade in services statistics in the country. However, it is strongly advised that the core information on the economic units in TIS-R is automatically updated from the central SBR and its content is harmonised with SBR. The harmonization of TIS-R and SBR includes forwarding the information on the statistical units identified as engaged in the international supply of services but not yet included in SBR to the SBR managers. For example, TIS-R can include and provide to SBR information on units, which are identified by the central bank as being active in resident/non-resident services transactions but not yet registered in SBR. International supply of services is, in principle, a possible activity for all units in an economy. Therefore, drawing efficient samples requires including in the sample frame all those units which supply service internationally and excluding those which are not engaged in this activity. In this context, in practice, it is useful to have tailored-made satellite register for trade in services.

C.2. Objectives of TIS-R

5.27. The objectives of TIS-R can be described as follows:

i. The TIS-R needs to enumerate all the resident economic units having had in the recent past international transactions in services. Ideally, the services sub-register should enable an immediate differentiation of its population by major kinds of services and distinguish the population of services exporters from that of importers insofar as these populations may have significantly different features.

ii. The TIS-R needs additional indicators providing information on international transactions (generally not included in SBR). The SBR is a necessary but not a sufficient source to determine the TIS population.

iii. The selection of the population of economic units which are of interest to statistics on the international supply of services will be an extract of this register. It generally includes all big players and SMEs selected for participation in a sample survey. So we are distinguishing three sets of economic units: the overall population of SBR, the subset population of TIS-R and the sample of TIS-R which is surveyed.

⁶⁰ Eurostat publication *Business registers: Recommendations Manual*, paragraph 4.4, page 23.

5.28. *Variables.* Various economic information like turnover, economic activity, number of employees, balance sheet variables, foreign trade data and data on foreign ownership are necessary auxiliary variables to carry-out the selection, the stratification of economic units, sampling and estimation. It is also a good practice to use business registers to identify the self-employed population that could be potentially supplying their services through mode 4, because merchants and small manufacturers (including self-employed and one-man companies) should be registered in them. An indication of cross border trade activities might be also available and should be reflected.

5.29. *Sources.* The different sources used to build and update the TIS-R must be considered under two aspects: the identification of the population and the variables that should be used to identify the population and to select the enterprises to be surveyed (see the diagram above). Here are some potential sources to be carefully tested:

i. *The general SBR* lists the businesses active in the country, whatever their activity (domestic and/or international). It may contain relevant information for building and updating the TIS-R: identification variables, stratification variables relating to the activity and size of the enterprises, demographic variables and relationships variables (links between units);

ii. *The settlements and international payments databases* exist in many countries and contain the detail that can be derived from an ITRS on the resident units carrying out international payments through accounts held in resident banks with an item breakdown (including trade in services);

iii. *The trade registers* include a list of resident operators involved in international trade in goods. Generally a link can be established between trade in goods and trade in services (e.g., through information on international freight);

iv. *VAT registers* are used as a major source for updating other registers existing in the country. The basic information in the VAT register includes, in general, the variables like turnover, employment, main activity and total goods and services exports and imports which may be useful for TIS registers;

v. *Other sources* are the register of partial direct reporting companies, FDI register, balance sheet information, specific registers available from trade associations or regulatory bodies (insurance companies, postal and telecommunication operators, trusts, securities dealers, press and other media).

C.3. Using Business registers to identify potential mode 4 self-employed service suppliers

5.30. In some countries foreign individuals must apply to a supervision office. All new entries and changes are recorded and could eventually be published nationally. This means that potential mode 4 persons could be observed if this information feeds the business register and subsequently linked to the trade in services variable. Therefore, demographics of the businesses including in relation to mode 4 can be derived.

5.31. In those countries where the compilers have a direct access to the business register or can link their own BoP register with the business register, the self-employed category could be accessible. For example, in the EU, very small enterprises should be included in the business registers. Therefore, it is recommended that this legal type (that is physical persons acting on the basis of small business authorization) and size class (micro enterprises) be used as a first indication of potential mode 4 self-employed persons.

5.32. For example, chapter 7 of the Eurostat business registers manual stipulates which legal units must be recorded in business registers in the EU member states, while chapter 8 provides relevant information for mode of supply in section 8D (External sourcing of ancillary services) and section 8E

(Activities of workers under exclusive contracts). There are many activities that involve the services of workers under exclusive contracts: “Commercial representatives, travelling salesmen, insurance agents. Such workers may or may not be treated as employees of the enterprise, depending on the nature of the contract binding them to the enterprise”. Therefore, for countries interested in self-employed mode 4, it is advised to take into account the EU experience and incorporate similar information in their registers and to enable compilation of supply of services by mode 4 persons.

D. Country experiences

5.33. This section contains descriptions of three country cases, each of which represents specific practice adopted by a given country. The experience of Italy shows that a persistent difficulty with the access to general statistical register and other statistical problems with obtaining a survey frame relevant for cross-border phenomena may lead to a decision to create a specific, statistical business register to support the compilation system for the external sector accounts and how it can be done. The case of Spain demonstrates the complexity of issues which have to be overcome to build a tailor-made TIS register when the general statistical business register traditionally used as the statistical frame for almost all business surveys does not contain variables needed for the direct identification of exporters and importers of services. The Uruguay experience proves that sustained efforts can result in developing a register which can provide a basis for compilation of statistics on the international supply of services under the circumstances the developing countries usually have to face.

D.1. Country experience: Italy

5.34. In the period 2007-2011, the Bank of Italy modernized its BOP system. The business register developed by the Bank of Italy plays a central role in the new system. It is used particularly to facilitate direct reporting via surveys covering different parts of the BOP and the IIP. Although the use of a single national business register across all domains of economic statistics (not just BOP) would be ideal, the Bank of Italy had to create its own statistical business because, despite intense statistical cooperation between the national statistical institute (ISTAT) and the central bank, due to legislative constraints, the Bank of Italy cannot access the national statistical institute’s (ISTAT) business register.⁶¹

5.35. The Bank of Italy register contains information for the entire corporate sector (about 1.5 million units), with the exception of small one-man-owned firms (individual firms). The coverage of the register in terms of turnover is near 90 per cent, and even higher for cross-border operations.⁶² Given the tight deadline for the production of BOP data, timeliness is a particularly critical factor for the Bank of Italy’s business register. The register is therefore updated daily, with online data transmissions. This allows to timely account for changes in the population of firms, which in some cases may significantly affect the external sector statistics (especially FDI). An always up-to-date business register also contributes to the smooth running of back-office activities (e.g., help desk, formal communications to enterprises and sanction procedures).

5.36. Enterprises that engaged in cross-border transactions are flagged in the register; based on information from quarterly bank reports on firms that carried out cross-border settlements. This integration of sources significantly improves the efficiency of sample selection. The Bank of Italy’s business register is built by aggregating various source data (mostly received from external data providers) and converting them into normalised tables. The latter are integrated, forming a relational database, through a “bridge table” which contains all the identification keys used by the various data providers. The relational database consists of three tables: a *structural data table*, which contains

⁶¹ At the time of writing of this Guide, the two institutions are working together to overcome the mentioned legal obstacles.

⁶² In terms of number of enterprises the coverage of the BoI business register is about 33 per cent. The apparently low percentage is explained by the fact that the numerous “individual firms” are excluded. In other words, the true population frame of the register is actually the corporate sector, for which the coverage is complete (100 per cent). In any case the cross-border transactions of individual firms are covered through tax authority’s data; their cross-border transactions represent about 5% of the total in the “other services” aggregate.

information such as firm's name and address; a *quantitative data table*, with balance sheet data and the flag for the presence of cross-border payments; and an *FDI table*, concerning enterprise ownership features.

5.37. The final *population list* used for direct reporting purposes is extracted from the business register according to well-defined criteria. The complete population list is usually too large to be used efficiently in a survey strategy. Therefore, a threshold is applied, according to which only the firms with total assets or turnover greater than 1 million of euro are included in the subpopulation. In Italy's direct reporting system, the business register not only allows for the identification of the target population, but it also contributes auxiliary information and is used to reduce the population (with a cut-off strategy), to stratify the population in homogeneous clusters and to derive model-based estimators directly in the estimation process.

D.2. Country experience: Spain

5.38. Since 2005, the National Institute of Statistics (INE) has been entrusted to conduct the International Trade in Services Survey (ITSS), with the aim of helping the Bank of Spain (BE) to estimate Other Services item of the balance of payments. The ITSS is sent out to enterprises sampled from the business registers of various institutions because the INE's Central Business Register does not contain a variable to identify exporters and importers of services. Populations that are considered are obtained from different registers, including regular declarants of foreign services transactions enterprises from the monthly VAT records of Large Companies, and a sample of enterprises (with 10 employees or more) from the Central Business Register (DIRCE); care is taken to exclude double counting of the same units. More detail on these populations is available in the on-line version of the guide.

5.39. The results obtained by the ITS survey between 2005 and 2012 showed significant differences in level (but not in trend) from those obtained by the Bank of Spain settlements system. From 2013 onwards, the populations and statistical frameworks used in the surveys remain very diverse. The intention is, however, to reduce to the maximum the number of survey respondents who may state in the questionnaire that they do not carry out such transactions. In the new sampling design, the Central Business Register (DIRCE) does not form a statistical frame by itself. Instead, its main function is to characterize the companies of the different populations by main economic activity and size, to enable to sub-stratify each stratum by these two variables.

5.40. *FATS*. The set of INWARD FATS statistics is compiled from the INE structural business surveys, the majority of which use the DIRCE. DIRCE records the "group of enterprises" as a statistical unit. The system is updated on a yearly basis in a way similar to the other statistical units. The maintenance processes affect both the basic features of the groups and the units forming them. In this process access to a complete set of both administrative (corporation tax groups) and private (Dun & Bradstreet database or INFORMA/IBERINFORM shareholder database) is absolutely crucial.

5.41. For each DIRCE company, whether it operates independently or under a group of companies and the nationality are available variables, which identify the INWARD FATS population. The set of OUTWARD FATS statistics is obtained directly from an administrative register from the Ministry of the Economy and Competitiveness called the Foreign Investments Register (RIE). The main variables include: identification of the company, its legal status, its main business activity, number of employees, turnover, and other economic variables, % of foreign participation and country, and % of Spanish participation, among others.

D.3. Country experience: Uruguay

5.42. The National Statistics Institute (INE Uruguay) is in charge of the creation and maintenance of the national business register. Information sources used for the maintenance of the business are divided into administrative sources (such as the tax authority, social security agencies, internal economic surveys and information from other ministries) and other sources (including phone

directories, web pages, members of commercial chambers, and press releases and other information on publicly traded companies). The enterprises directory was created in its initial version after the economic census of 1996. In 2007, a new agreement between INE, the tax authority (DGI) and the Social Security Agency (BPS) resulted in a new version of the business register with these institutions being main source data providers. In addition, the Ministry of Tourism provides data on hotel occupation. Information from companies operating under the free zone regime is obtained through a census of these companies.

5.43. In this new version of the register, INE includes information on foreign ownership and on involvement in trade (in services), following the guidelines designed in the Inter-American Development Bank (IADB) project for Latin American Business Register and the Manual on Statistics of International Trade in Services 2010. The business register in Uruguay will serve as the main tool for detecting enterprises engaged in international trade in services. As part of its new design, information on main and secondary activities, goods and services produced, and the destination of the sales (national or foreign and country of destination), the origin of capital (national or foreign) and foreign ownership will also be included. A new survey will subsequently be designed to better estimate international trade in services and FAT statistics. More information on the definition of statistical units used in the Uruguay business register is available online.

Chapter 6 Enterprise and Establishment Surveys

Introduction

6.1. *Scope.* This chapter describes enterprise and establishment surveys, which are needed to collect data for the compilation of statistics on resident/non-resident transactions in services and FATS. The Chapter promotes an integrated approach to the organization and conduct of the surveys, keeping the response burden as low as possible and linking trade in services and business statistics. The Chapter consists of the following sections: General description of enterprise or establishment surveys (Section A), Surveys of resident/non-resident services transactions (Section B), foreign affiliate statistics and the international supply of services (Section C), and trade in services surveys with links to FATS and FDI (Section D).

A. Summary of good practices

6.2. Enterprise and establishment surveys can be used to provide data for the full range of resident/non-resident services transactions, as well as for FATS and for additional indicators on the international supply of services. Such surveys should always be based on clearly defined objectives, sound sampling framework and collection methodology, and a well-established legal basis. Compilers are advised to take into account the set of steps for developing and conducting an enterprise survey described in Box 2.1 of Chapter 2 of the BPM6 Compilation Guide, as well the suggestions for the creation and updating of the survey frame, and the model survey forms provided in Annex 8 of the IMF BPM6 Compiler's Guide. It is a good practice to provide clear and simple instructions/explanatory notes to respondents on the information to be submitted.

6.3. Compilers can conduct general enterprise or establishment surveys, which usually cover most or all services that can potentially be delivered or consumed by enterprises, but it is a good practice to consider the need for, and use of, focused surveys for specific service categories, such as manufacturing services, transportation, R&D and finance and insurance. Such focused surveys allow the compiler to capture a great level of information detail for a specific service category and related transactions without imposing response burden on those enterprises or establishments that are not involved in a particular service. In such focused surveys, compilers are suggested to ensure that forms take into account the specificities of individual service categories (such as mode of transport for transportation services).

6.4. For FATS compilers it is suggested to collect data via SBS (inward FATS only), FDI or designated FATS surveys, weighing their respective costs and benefits as described in chapter 15, and to include in their survey forms at least the main FATS variables of interest as identified in the MSITS 2010 (including revenues or turnover, employment and value added). Given that output is a preferred measure to sales or turnover, it is also important to consider that relevant information is collected to enable the compilation of this item. Compilers should ensure that the data sources enable as a minimum the relevant breakdowns of information by (services) activities and country of origin or destination of control. In addition compilers should consider for revenues (or output) that services products (at least a total) and destination of sales in the country of establishment of the affiliate can be separately identified. For those compilers for whom it is difficult to implement the collection of all these details when starting the collection of FATS, it is important to establish a gradual approach, first focusing on the information of primary interest to the economy.

6.5. Compilers should consider that for certain services sectors, it may be logical to use a single survey to respond to various information needs (e.g., trade in services and FDI/FATS). This could be applicable in particular for construction activities.

B. General purpose and description of enterprise or establishment surveys

6.6. Business surveys can be conducted at the establishment level or the enterprise level and can provide coverage across the full range of services. They have proven successful for the collection of trade in services data and FATS in many countries. Detailed descriptions of the types of surveys, their design, sampling techniques as well as related data editing and data compilation procedures are described in a number of publications⁶³, most notably Chapter 2 and Chapter 3 of the BPM6 Compilation Guide which compilers are advised to consult when developing enterprise or establishment surveys for trade in services and BOP purposes⁶⁴. Compilers also are advised to make sure that the national definitions of the statistical unit (see chapter 5) comply with the standard definitions and document any deviations in metadata.

6.7. One of the first decisions to be made in collecting data is whether to undertake a census or to compile data from a sample survey that balances data quality with other considerations such as reporting burden (see Chapter 11 for the comparison of data sources). In determining the reporting population, various approaches are possible, including a census, a partial coverage collection survey, a random sample survey and a stratified random sample survey. In practice, compilers in many countries use a combination of two or three approaches when collecting data from enterprises, benefiting from their respective different advantages.⁶⁵

6.8. Surveys should always be based on clearly defined objectives, sound collection methodology, and a well-established legal basis. Properly designed collection forms, full coverage of the population, well-defined data structures and classifications, and effective data validation and aggregation procedures are also required.⁶⁶ The principles of survey design include:

- i. Specify the objectives and coverage;
- ii. Establish the sampling unit and the information to be collected;
- iii. Determining the appropriate sample size, if a sample will be used;
- iv. Developing a sampling frame, i.e. an exhaustive list from which sampled units are selected;
- v. Developing the sample design, i.e. how the sample is selected from the frame;
- vi. Determining the method of collection (paper form, electronic, interview, etc.).

6.9. *Sampling techniques and contacts with respondents.* Compilers can choose from a wide variety of sampling techniques, generally either probabilistic or non-probabilistic. Under *probability sampling*, every unit in a population has a calculable probability of being selected in the sample. This approach is objective and defensible. There is a theoretical basis for the process of extending the sample results back to the population. Under this approach, estimates of sampling error can be calculated and inferential statistics can be derived. *Non-probability sampling* methods should be used with caution because there is no way to measure their precision. The only way to address the quality of the survey data produced under non-probability sampling is to compare the results of the survey to some known information about the population. A frequently used non-probability sampling method is cut-off sampling (see more detail in box 6.1).

6.10. Whether selecting a sample using probability or non-probability techniques, compilers must define the universe (population) from which they will sample, that is, in practical terms, construct a sampling frame. In most countries it is possible to define the population using various lists of enterprises (business registers), compiled for administrative purposes. For more information on sampling techniques, sample frame, sample structure and sample allocation (how to allocate the data

⁶³ For example in the Eurostat *Handbook on the design and implementation of business surveys*, available at : http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/CA-09-97-818/EN/CA-09-97-818-EN.PDF and Eurostat publication *Survey sampling reference guidelines: Introduction to sample design and estimation techniques (2009)*, available at: <http://ec.europa.eu/eurostat/ramon/statmanuals/files/KS-RA-08-003-EN.pdf>. Many countries published their guidelines as well.

⁶⁴ Draft BPM6 Compilation Guide (BPM6 CG).

⁶⁵ See BPM6 CG (p.13-14) for a more detailed explanation about survey forms and their advantages and disadvantages.

⁶⁶ BPM6 Compilation Guide, Chapter 2, paragraph 2.3.

collection between the strata), compilers are suggested to consult the Producer Price Index Manual (Chapter 5)⁶⁷. While the Manual focuses on price collection, much of the information can be applied more generally to enterprise or establishment surveys.⁶⁸

6.11. The collaboration with respondents to surveys is essential for the production of good quality statistics, as explained in more detail in the BPM6 Compilation Guide (Chapter 2). Compilers are suggested for example to hold consultation meetings to make respondents aware of the purpose of the survey and to help the statistical agency design the survey.⁶⁹

Box 6.1 Cut-off sampling

Cut-off sampling is a strategy frequently used by countries to select samples. In this approach, a predetermined threshold is established with all units at or above the threshold included in the sample (selected with certainty) and units below the threshold level not included (zero probability of selection). Cut-off sampling is a common technique in economic surveys in cases when most economic activity is generated by the largest firms. It can be used to reduce the number of firms required to report in non-benchmark years, thus reducing the burden on excluded firms and reducing processing costs.

Cut-off sampling generally results in a high degree of coverage among a small number of prospective units. This occurs because the distribution of the selection variable (for example, production or sales) is concentrated in a small number of large establishments. Limiting the target population enables the exclusion of small enterprises and/or enterprises that are not primarily engaged in providing services. This method is resource efficient and ensures large firms are included. However, there is no way to determine if firms that fall below the cut-off behave in similar ways to the firms in the survey.

Sample frame cut-offs are reevaluated regularly. If benchmark surveys are conducted, cut-offs are typically left unchanged between benchmark surveys and are often increased at each benchmark, for a number of reasons. First, since cut-offs are set in nominal terms, inflation will eventually cause enterprises that did not grow in real terms to exceed cut-offs. Therefore, small enterprises may face a higher reporting burden due simply to price changes. Second, industry consolidation may increase the share of economic activity originating from the largest firms. Therefore, it may be possible to increase thresholds without significant loss of coverage.

Compilers must consider resources when using cut-off sampling. Lower cut-offs reduce the amount of data that needs to be estimated. Since more enterprises are required to respond, a greater share of the estimates are actual data from reports. Estimates with lower cut-offs are likely to be more precise. However, lower cut-offs also impose a number of costs on respondents as well as the compiling agency. Requiring more firms to respond imposes a burden on respondents since firm employees must devote time and effort to gathering information and filling out forms (and these costs are proportionally higher at small firms compared to large firms). Once a report is received, it requires substantial effort by editors to process. Processing more reports is more costly and slows the issuance of data. Cut-off sampling significantly reduces the costs of a survey by reducing the number of both reports and items filled out and processed.

C. Enterprise and establishment surveys for trade in services statistics purposes

6.12. Enterprise or establishment surveys are often used to collect data needed for the compilation of resident/non-resident trade in services statistics. They may take various forms, such as an extensive survey covering many or all services (often excluding most of the data needed to compile transport, travel and government goods services n.i.e.), or a specialised survey which may be developed for various reasons, e.g. to avoid unnecessary burden on firms that are not likely engaged in trading some specific services, or for sectors that are important enough to develop a dedicated survey for e.g.

⁶⁷ <https://www.imf.org/external/pubs/ft/ppi/2010/manual/ppi.pdf>

⁶⁸ Likewise, the Eurostat Survey Sampling Reference Guidelines provide more detailed information on this topic.

⁶⁹ BPM6 Compilation Guide, paragraph 2.29.

manufacturing services, business process outsourcing services. Existing enterprise surveys such as structural business surveys or research and development surveys may also be used to collect some trade in services data.

6.13. Surveys that collect data on trade in services covers the value of exports (credits) and imports (debits) of services, broken down by type of service (at least for the services sectors of primary interest to the compiling economy), with an identification of the country of the counterpart in the transaction (i.e. partner country). Other recommended elements for data collection of the value of exports and imports of services cover the identification of trade between related parties (intra-firm trade) and an identification of the way these services were traded (mode of supply).

6.14. Various options exist for collecting data according to these dimensions via surveys.. Given the complexities surrounding trade in services, surveys should always be accompanied by explanatory notes to help respondents understand the type of information required. The frequency of the data collection (and associated levels of details) will depend on the needs identified before the data collection is established (see chapter 3 on institutional arrangements). While this chapter covers the aspects more directly related to trade in services data collection, readers can also refer to the BPM6 Compilation Guide for further information. In particular the model survey forms shown in Annex 8 provide useful guidance as to the type of information and questions to be included in trade in services survey forms. The model forms of interest include: International Trade in Services, Manufacturing services, Resident Transport Operators, Transactions with Nonresident Transport Operators, Construction, International Insurance Transactions and International Pension Services.

6.15. In all surveys, questions should be clearly phrased, using wording that businesses understand, while ensuring that these will fit the EBOPS 2010 definitions, including complementary groupings, that the data can be used in the subsequent compilation of trade in services statistics. In some instances, such as for insurance or financial services, the information to be collected cannot be the value of the service rendered itself but will have to be deducted from data reported in the survey forms (often derived from some accounting records e.g. insurance premiums and claims). This would also apply if for some services categories a more detailed list than EBOPS 2010 is included in questionnaires.⁷⁰ When elaborating survey forms and notes, this guide strongly encourages compilers to refer to the CPC to define the service items in terms of levels of details or for the explanatory notes. A correspondence table between EBOPS 2010 and CPC Version 2 is provided in an on-line annex to MSITS 2010.⁷¹

6.16. This section first presents general guidance on the use of generic trade in services surveys (B.1), and then describes the use of some specific surveys, namely, transportation surveys (B.2), manufacturing services surveys (B.3), surveys to insurance and financial corporations (B.4), R&D and innovation surveys (B.5), Surveys of tourism related activities (B.6), construction surveys (B.7), and other specific surveys (B.8) that can be used to also derive trade in services information.

C.1 Generic trade in services surveys

6.17. A generic trade in services survey is a survey that usually covers most or all services that can potentially be delivered or consumed by enterprises. It usually does not cover the data on services transactions that correspond to imports of services by households or individuals (e.g. travel related transactions), or some specialised services where the number of transactors may be more limited (e.g. exports of transport services, construction) and a more targeted survey may be more efficient. A generic trade in services survey is a survey of enterprises with potential relevant balance of payments transactions with non-resident households, corporations, and governments. Enterprise trade in services surveys have traditionally been used to capture data used for the compilation of the balance of

⁷⁰ This would be particularly relevant for specific services surveys.

⁷¹ <http://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/ebops2cpc.htm>.

payments and IIP,⁷² but they should to the extent possible also serve the more detailed needs as identified in MSITS 2010. In particular it can be used to collect data by service type, by counterpart country as well as by relation between the parties (affiliated and unaffiliated trade). They can also be useful to identify the mode of supply in resident/non-resident transactions, to develop modes of supply estimates.

6.18. The organization and conduct of generic trade in services surveys is a complex task which countries approach depending on their needs and circumstances. Some countries had to develop the survey systems in view of lack of necessary information from banks' records on payment transactions (settlement system). The experiences of France and Austria, which are provided below, provide valuable lessons for compilers which might decide to develop new or improve existing surveys for collecting trade in services data. It is a preferred practice for compilers to take into account the set of steps for developing and conducting an enterprise survey described in Box 2.1 of Chapter 2 of the BPM6 Compilation Guide, as well the suggestions for the creation and updating of the survey frame.⁷³ A model survey questionnaire is available in Annex 8 of the IMF BPM6 Compiler's Guide (Form 6). To respond to the trade in service information needs such a model questionnaire will have to be amended with some additional breakdowns/questions. Box 6.2 illustrates how such additional information could be collected. The different dimensions, content and design (as well as formulation of questions) of the survey forms will have to be chosen according to the needs identified.

Box 6.2 Sample questions for collecting trade in legal services data broken down by partner, affiliated/non-affiliated trade and mode of supply

	Revenue for year __			
	Country A	Country B	Country C	Other countries
Legal services				
- Of which to related parties				
- How were your legal services delivered (% of total)?				
From your territory to a non-resident overseas	%	%	%	%
To a non-resident customer temporarily in your territory	%	%	%	%
Delivered to non-resident customer by a resident employee, temporarily working abroad	%	%	%	%

6.19. Compilers looking to incorporate mode-of-supply data in generic trade in services surveys are suggested to first consider what the costs, burden and priorities are for such a breakdown as compared to other needs (e.g., partner country, etc.), and if this is needed for all services items or for a selection of these. Decisions could be made using a step-by-step approach, e.g. in light of policy needs, priority may be given to breaking down *exports* of services by mode of supply (for all items, or in first instance for a selection of aggregates); imports of services by mode might be done in the second stage of the survey development. Alternatively some simplification rules could be used such as described in chapter 5 of MSITS 2010, i.e. a service transaction can be associated to one or two dominant modes. Only the identification of one (or two) mode(s) may therefore be requested, assuming that the residual may be derived from the information provided.⁷⁴ Another option could be to simply ask respondents to identify one dominant mode in a service transaction (e.g. by ticking a box).

6.20. It is good practice to provide clear and simple instructions/explanatory notes to respondents on the information to be submitted, in particular on how to determine the modes of supply if relevant questions are included in the forms. In electronic surveys, prompts and restrictions can be used to help improve the accuracy of the reported data. For example, asking the respondent to confirm their answer if they enter a mode of supply that is unlikely to be associated with a particular service type. It should

⁷² BPM6 Compilation Guide, paragraph 2.2.

⁷³ Ibid., page 11.

⁷⁴ For example a systematic identification of the proportion of mode 4, assuming that the residual will be either be mode 1 or mode 2 depending on the type of service considered.

be considered that respondents are generally more comfortable to estimate proportions of the value already provided, than giving exact monetary values by mode of supply.

6.21. While processing survey results, imputations should be part of the work. Compilers can use table 5.2 of MSITS 2010 as the basis (for lower value answers), or by contacting respondents directly for clarifications (for higher value answers). Experience shows that respondents are very likely to be able to provide mode of supply information when contacted directly.

6.22. It is also important to note that trade in services enterprise surveys can be the source for mode 4 (contractual service supply) and quantitative indicators (i.e., number of persons or trips). Firms normally keep staff records (although not necessarily in the same department as the ones that report data on transactions; i.e., personnel versus accounting departments), which may include information on the type of work performed and/or whether the staff member received special compensation for working abroad. Such information could serve the needs for mode 4. Within enterprise surveys, and if deemed relevant, one could also consider including explicitly mode 4-related questions along the lines proposed in the trade in services surveys, or other questions designed to identify mode 4 activities.

C.2. Country experiences⁷⁵

C.2.a. Country experience: Austria

6.23. In Austria, the Oesterreichische Nationalbank (OeNB) is responsible for compiling and disseminating information on trade in services between residents and non-residents. Since 2006, trade in services statistics have been compiled by taking samples from enterprises, institutional investors and banks (not including households), instead of the ITRS system that was previously used. To keep the costs of data collection low and make utmost use of existing data, the OeNB works in close cooperation with Statistics Austria such that the OeNB concentrates on the financial corporations while Statistics Austria focuses on the real economic sector.

6.24. On behalf of the OeNB, Statistics Austria compiles quarterly data on service exports and imports from non-financial corporations. The survey covers information on individual partner countries and all business activities according EBOPS 2010, except for travel which is measured separately. The survey is also supplemented with information obtained from public institutions (on cross-border government services), and from 120 non-profit organizations (on e.g. international aid services such as education and health services).

6.25. The survey collects data from a stratified sample within the scope of the Structural Business Survey (SBS). The sample is drawn from the total population of enterprises engaged in trade in services. To identify this population, Statistics Austria conducts a survey on services exports and imports in the enterprise sector every five years, and complements this information with former settlement data (for unit-non-response) and estimates of values below survey thresholds. Since OeNB decided that the regular survey should cover at least 90% of service exports and imports in every two-digit NACE division, approximately 4,800 non-financial enterprises were selected (reflecting an initial reporting threshold of EUR 200,000 for both annual services exports and imports). From 2013, the reporting threshold was raised to EUR 500,000 after administrative data sources have become available within the European Union (the Value added Tax Information Exchange System).

6.26. The OeNB conducts the surveys in the financial sector. The report on service exports and imports by Austrian banks as well as imports by insurance companies mirrors the enterprise report run by Statistics Austria and covers all EBOPS 2010 items. In addition, the OeNB makes use of administrative data from the Financial Market Authority (FMA) on insurance service exports in particular. Quarterly data are reported to the OeNB on premiums and claims from insurance service exports, whereas yearly data include financial claims and liabilities from insurance transactions and insurance technical reserves. FMA also gathers mirror data from other EU countries on insurance

⁷⁵ Extended country examples are available on the UNSD Compiler's Guide website.

service imports in Austria. These data become available only with some delay, but they are especially important for the calculation of life insurance imports.

C.2.b. Country experience: New Zealand - Collecting data on modes of supply

6.27. Most of New Zealand's trade in services data comes from surveys. Modes of supply data (for exports) was collected directly through the 2011 Census of International Trade in Services and Royalties, which collects data on 55 different service types excluding transportation, travel, insurance, and government services. Respondents were asked to estimate the proportion of their services exports that were delivered through mode 1, mode 2, or mode 4. A detailed guide accompanied the Census to provide further help, along with examples.

6.28. Respondents were asked to report their services exports in the upper sections of the survey, and then asked to estimate the percentage of the value that was delivered through mode 1, mode 2, and mode 4. It was felt that the respondents would be more comfortable estimating proportions of the value already provided, rather than giving exact monetary values by mode of supply – fewer respondents should leave this section blank this way. Testing showed that most respondents understood the modes of supply concepts, although feedback suggested the guide was helpful as well.

6.29. For policy reasons, New Zealand's Ministry of Foreign Affairs and Trade was mainly interested in exports of services, which is why only exports data was collected for modes of supply. However, modes of supply information could be compiled for imports of services in the same way.

C.3. Transportation surveys

6.30. Enterprise and establishment surveys of resident and non-resident carriers are important sources of transport services data. Often the agents of the operators will have to be approached to collect relevant data, in particular for imports of transport services. When considering data collection it is important to note that MSITS 2010 follows BPM6 in recommending a cross-classification of transport services by mode of transport and by kind of service. There are different modes of transport to consider such as maritime/sea, air, rail, road, or internal waterway transport. The types of services covered are the transport of passengers, freight and other supporting and auxiliary transport services. Some modes of transport, given the smaller number of operators or agents, may be easier to survey (air, maritime, rail or inland waterway transport) than others (road). In addition, given their specific nature, special forms or enquiries may need to be designed for space or pipeline transport, as well as for electricity transmission. For these three sectors, the number of entities to which the surveys should be addressed is also often limited.

6.31. An important point to consider is that operators, which are the providers of the transport service, in many cases differ from the owner of the transport equipment. In addition, when defining the residence of the operator, the country of registration of ships and aircraft may also differ from that of the operator (or the owner). Charters or vessels *without* crew (i.e. operational leasing services) also need to be differentiated from charters of vessels *with* crew (i.e. transport services). Such considerations render the collection of data complex, but clear notes referring to relevant information can be collected. Specific surveys should be sent to the operators (i.e. as the providers/exporters of the transport service) of each category of modes of transport and if relevant with a distinction between transport of passengers and goods. Exports of such services are identified in resident operators' activities, while imports are identified in non-residents' operators' activities. Compilers may face difficulties in getting a representative coverage of the non-resident carriers' activities. However, when transport is regulated in a country (air transportation being the best example), non-resident carriers have to be registered to operate and they typically establish branches or agents in that country. Such entities in principle know or have access to the information necessary to the compilers. Thus, compilers could send survey questionnaires to those branches/agents to collect information on imports of services. Transport surveys often are used to also gather related information such as on auxiliary and supporting services, leasing services or on fuels and provisions provided to carriers (goods). The BPM6 Compilation guide proposes model forms 8 and 9 (Appendix 8) that could be used as a guide

for designing survey forms related to transport services. See BPM6 Compilation Guide paragraphs 3.21-3.52 for more information. In designing the survey forms it will also be necessary to factor in the country of residence of clients (for exports) and of operators (for imports), as well as other dimensions if identified as necessary.

6.32. Many users, in particular for GATS purposes, would need information on the real value of international freight transport services contracts (i.e. with no adjustment for either the FOB/FOB valuation of goods in the BOP, or the FOB/CIF valuation in merchandise trade statistics). This is in fact the data that are collected in transport surveys. Compilers are encouraged to use the raw data that may be collected from freight transportation companies (or their agents) to make publicly available some supplementary estimates of the "real" trade in freight transport services taking place between residents and non-residents.⁷⁶

C.3.a. Country experience: Chile

6.33. Data on international transport services are collected by the Central Bank of Chile (CBCH) through quarterly questionnaires to resident sea and air international transport companies and to the agencies or representatives of foreign companies in Chile. The transportation questionnaires are prescribed by the "Compendium of International Exchange Regulations (CIER)." The response to the transportation questionnaires is mandatory and data are directly reported in US dollars.⁷⁷

6.34. Both the questionnaires addressed to Chilean resident companies and those addressed to agencies or representatives of foreign companies in Chile request information on all acts or conventions that create, modify or extinguish obligations payable in foreign currency. In general, transport services accompanying settlements in foreign currency are distinguishable in resident companies' commercial accounting as it distinguishes revenues and expenses in foreign currency from those in national currency for income statement purposes companies. In the case of agencies or representatives of foreign companies, their purchases' books or expenses' books distinguish transport services accompanying settlements in foreign currency.

6.35. The first block of information in the questionnaire includes general backgrounds which are used to identify the enterprises, the reporting period, and the name of the responsible of the information (to be able to consult respondents about the reported data). The second block inquires about incomes and expenses related to international transport business. Most of the information collected in this section is used in estimating transport services, but is also used for the estimation of certain other services categories. For example, rentals of transportation equipment without crew or major repairs abroad are used to estimate "operational leasing services" in "other business services" and "repair of goods", respectively (see details in the elaborated example online).

C.4. Manufacturing services surveys

6.36. Manufacturing services on physical inputs owned by others (or manufacturing services in short) include activities such as processing, assembly, labelling and packaging, undertaken by enterprises without ownership of the goods. The BPM6 Compilation Guide model form 7 provides a sample questionnaire on manufacturing services.

6.37. If imports of manufacturing services are important for the compiling economy, a survey can be used to collect data from the owners of the goods on the processing fee they paid to non-resident processors (which may incur cost of materials procured by the processors for use in the production). In addition, data on the costs and origins of materials supplied by the resident enterprises (owners) to the non-resident enterprises (processors) for outward processing should also be collected. This covers

⁷⁶ See Chapter 14 and MSITS 2010, paragraphs 3.107-3.110.

⁷⁷ The instructions to complete the questionnaires and forms are set out in the Chapter VIII, annex 1.1 and 1.2 of the CIER and are available on the CBCH website: <http://www.bcentral.cl/normativa/cambio-internacional/manual-procedimiento/pdf/capviiiianexo1.pdf>.

both cases where owners' materials are sent to the processor's economy directly from a third economy and from the owners' home economy. It may be difficult to identify the population involved in such activities. To identify enterprises possibly involved in processing activities, exports declarations (when sending goods for processing) or import declarations (when receiving processed goods) from the customs authorities could be used. The identified enterprises can then be surveyed to collect various data on the fee and the goods involved in outward processing.

6.38. The enquiries also need to identify the cases where processed goods do not enter or return the economy of the owner (i.e. they are sold in the economy of the processor or to a resident of a third economy). If relevant, the survey could go beyond manufacturing services and also cover merchanting as well as other trading type activities (where there may be some processing component or not). The sales values and various cost components of the goods for different types of global production arrangements could therefore be captured for all different cases, including when such transactions with non-residents are completed offshore.⁷⁸

6.39. For *exports* of manufacturing services on goods owned by non-residents, the data collection has to cover at least the processing fee as well as the identification of the country of the client, as well as the costs and origins of materials procured by the resident processors. If it is available, information on the destination of the processed goods would be useful. In principle a survey of processors should be easier to establish as (i) the number of service providers should be small and (ii) many of these are often located in special zones such as export processing zones, and are generally subject to special tax regimes. The survey will have to distinguish the rendering of manufacturing services to non-residents from manufacturing on the processors' own account and that for other residents.

C.4.a Country experience: Hong Kong, China

6.40. Hong Kong's outward processing activities (processing of goods, which are owned by the Hong Kong residents, by the non-residents) are substantial and are predominantly carried out in Mainland China. The goods processed in Mainland China may be sold in Hong Kong but are also frequently sold directly to other markets. To support the collection of data on manufacturing services and related activities, the monthly survey on trade involving outward processing in Mainland China (OPS) and the annual survey on imports and exports of services (ASIES) have been enhanced and a new quarterly survey on merchanting and other trading activities (QSMTA) has been launched. Two main cases are identified:

Case I: Outward processing in Mainland China with processed goods returned to Hong Kong

6.41. The OPS survey uses the import/export declarations of Hong Kong's trade with Mainland China as the unit of observation. The declarations are stratified by trade types (including domestic exports and re-exports to Mainland China, and imports from Mainland China) and by commodity groups. For cases pertaining to imports (from customs-based perspective) from Mainland China which involve outward processing of goods under "processing and assembling" arrangement, data are collected on a) the value of raw materials/semi-manufactures sent from Hong Kong to Mainland China; b) the value and origin of raw materials/semi-manufactures purchased and delivered directly from places other than Hong Kong to Mainland China; and c) the value of manufacturing services on goods owned by Hong Kong, distinguishing between the processing fees paid by Hong Kong; and the value of raw materials/semi-manufactures procured directly by Mainland China processors.

6.42. A significant proportion of OPS respondents are logistics companies (rather than the owners of imported processed goods) which generally do not have readily available information pertaining to the additional data required. Therefore, efforts have been made in establishing rapport with major logistics companies, so that these companies can now either acquire the relevant information from the

⁷⁸ For a more elaborate discussion and guidance, see the UNECE Guide on Global Production and the handbook on the Impact of Globalization in the National Accounts.

goods owners themselves or provide the contact details of the goods owners for subsequent follow-up. This practice has successfully reduced the non-response rate.

Case II: Offshore trade activities involving outward processing with processed goods sold offshore

6.43. Some of the offshore trade activities involve outward processing in which goods owned by Hong Kong companies are processed in Mainland China (or elsewhere) before they are sold offshore directly to non-residents. These offshore trade activities cannot be collected from import/export declarations and are captured through ASIES and QSMTA.

6.44. In ASIES, offshore trade activities involving outward processing are distinguished from conventional merchanting activities. For manufacturing services and related activities, data are collected on similar items as in the OPS survey, as well as on the sales value and cost of processed goods sold offshore by origin, destination and commodity group.

6.45. The values and destinations of exports of manufacturing services on goods possessed by companies abroad (inward processing of goods by Hong Kong) is also collected in ASIES. The new QSMTA survey collects similar data at quarterly intervals to support the timely compilation of relevant macroeconomic aggregates (namely BOP and GDP).

C.5. Surveys of insurance and financial corporations

6.46. *Surveys of insurance corporations.* The collection and compilation of data relating to insurance are described in Annex 2 of the BPM6 CG. In order to obtain source data for insurance services, in particular for exports of such services, surveys on insurance corporations represent the preferred source. To ensure an appropriate coverage of the domestic insurance sector, a survey frame should be available including a list of insurance companies. Insurance agents and brokers are usually required to register with insurance authorities; therefore, a list of these businesses should be readily available from official sources. Surveys of insurance corporations could also be used to capture information of exports and imports of reinsurance services.

6.47. The insurance service provided to residents and nonresidents is derived by determining the output of the insurance in a way that mimics the accounting practices based on premiums earned and losses incurred pertaining to the accounting period. An extended model form can be found in BPM6 CG Appendix 8 (form 12). For a survey to insurance companies to be useful for compiling TIS statistics, it should include amongst other things questions about premiums written to, premiums earned from, and claims paid to, non-residents for different insurance categories (i.e. life insurance), and to specify also reinsurance ceded to and accepted from non-resident issuers (and vice-versa). Information on technical reserves dues to non-resident policyholders is also necessary.

6.48. The export of freight insurance can be identified by surveys of insurance corporations, though small insurers or small lots of export might not be fully captured. It is important to note that premiums payable on internationally traded goods before they reach the customs frontier of the economy of the exporter are included in the FOB price of the goods. Freight insurance premiums payable subsequent to the departure of the goods from the customs frontier of the exporter's economy are treated as payable by the importer. This means that relevant detailed questions need to be included in forms so that the compiler can derive the freight insurance services which should be included in the compiling economy's balance of payments to compile relevant estimates of the exports of insurance services.

6.49. The export of freight insurance can be identified by surveys of insurance corporations, though small insurers or small lots of export might not be fully captured. In contrast, the import of freight insurance is often estimated from the price of imported goods, in conjunction with the estimation of transportation services (see Chapter 14. B (iii)).

6.50. *Surveys of financial corporations.* In order to obtain source data for financial services, their exports in particular, conducting surveys of financial corporations is very useful. In this respect, it is

often financial intermediaries that are engaged in international transactions. Mandatory reports of assets and liabilities of these corporations may be required for countries' prudence policy. However, such call reports may not contain sufficient information on international trade of financial services.⁷⁹ The BPM6 CG contains a model survey form (form 17 (part E in particular) in appendix 8) with questions that can be useful to ask financial corporations to obtain information on financial services. To estimate FISIM, it is useful to ask information on positions and interest payments related to loans to and deposits from (exports) and loans from and deposits to (imports) non-resident non-banks (see BPM6 CG page 368).

6.51. To ensure an appropriate coverage, a survey frame should be based on a list of financial intermediaries. In this respect, depository corporations and securities dealers are usually required to register with supervisory authorities; therefore, a list of these businesses should be readily available from official sources. In contrast, a list of other financial intermediaries other than depository corporations and securities dealers, such as securitisation companies, may not be available in some countries. In this case, it is important to develop country's business profile so that such intermediaries are identified. A full list of financial intermediaries will make it easier to conduct surveys for specific businesses in the financial sector.

C.5.a. Country experience: the United States collection of insurance data

6.52. The main source of U.S. exports and imports of insurance services is a survey of U.S. insurance enterprises, "Quarterly Survey of Insurance Transactions by U.S. Insurance Companies with Foreign Persons (BE-45)."⁸⁰ This survey, conducted by the Bureau of Economic Analysis (BEA), collects quarterly data on reinsurance premiums sold to and purchased from abroad and annual data on reinsurance claims paid and received, primary insurance premiums sold and claims paid, and auxiliary insurance services. For the quarterly survey, there is a reporting threshold. This form distinguishes transactions with foreign affiliates, transactions with foreign parent(s) and other members of affiliate foreign group, and transactions with unaffiliated foreign persons.

6.53. For the quarterly survey, filing is mandatory if, with respect to these transactions, any of the following eight items were greater than positive USD 8,000,000 or less than negative USD 8,000,000 for the previous calendar year or can be expected to be in the current calendar year, on an accrual basis: (1) premiums earned, and (2) losses, on reinsurance assumed; (3) premiums incurred, and (4) losses, on reinsurance ceded; (5) premiums earned, and (6) losses, on primary insurance sold; (7) sales of, and (8) purchases of, auxiliary insurance services.

6.54. Every 5 years, BEA conducts a benchmark survey of insurance enterprises, "Benchmark Survey of Insurance Transactions by U.S. Insurance Companies with Foreign Persons (BE-140)," to collect information on enterprises that fall below the reporting threshold on the quarterly survey.

6.55. To ensure complete coverage of imports of insurance services, BEA asks non-insurance enterprises in the United States to report premiums paid to and losses recovered from foreign insurers on another survey, "Survey of Transactions in Selected Services and Intellectual Property with Foreign Persons." BEA conducts this survey quarterly and also as a benchmark survey every 5 years.

C.5.b. Country experience: France collection of data for financial services

6.56. Over the last three years, Banque de France (BdF) has improved the way it collects data on financial services. As of 2013, data on financial services are collected according to four channels:

- i. The *Relevé de Transactions Économiques (RTE)*, a monthly reporting concerning a sample of 408 non-financial companies which generate the most important flows with entities abroad. In 2012, 58 of those companies reported that they are involved in financial services flows with non-residents;

⁷⁹ See also BPM6 CG.

⁸⁰ The entire forms can be retrieved from <http://www.bea.gov/surveys/iussurv.htm>.

- ii. The *Enquête Complémentaire sur les Échanges Internationaux de Services (ECEIS)*, an annual survey of data from non-financial companies which have generated service flows with non-resident entities. In 2011, 162 among 3 921 companies reported significant financial services flows with non-residents;
- iii. The *Comptes-rendus de Transactions (CRT)*, a reporting by the financial intermediaries. Data is collected either on an annual basis – for 1 523 companies – or on monthly basis for the 37 most significant companies; CRT account for over 75% of the overall flows of financial services with non-residents.
- iv. A monthly pro forma reporting concerning the Financial Services of the General Government.

6.57. These reports enable BdF to meet with the breakdowns required in BPM6 and produce an estimation based on monthly data with a relevant coverage for the monthly financial services flows.

6.58. The national accounts incorporate a measure of imports and exports of FISIM. A joint workflow with the National Statistical Institute (INSEE) is currently being developed to base the BOP FISIM on the National Account data for the production process and for back data. This will ensure the consistency of the BOP FISIM data with those of the national accounts. FISIM geographical breakdown will be based on the geographical breakdown of the stock of loans and deposits.

6.59. Regarding financial services embedded in margins from buy-sell transactions (b), and asset management costs deducted from property income (c), methodological work is being carried out, based on case studies with the industry.

C.6. R&D and innovation surveys

6.60. R&D and innovation surveys may include variables that are relevant for the estimation of trade in certain service categories, notably related to computer software and information services; research and development services; Architecture, engineering, scientific and other technical services; Audio-visual and related services included in personal, cultural, and recreational services; and charges for the use of intellectual property n.i.e. In particular questions related to the origin of funding of R&D activities, and payments for the sales of the products and services derived from R&D can be used to get to better estimates of trade in services in these service categories.

6.61. When developing and conducting R&D and/or innovation surveys, compilers should consult the Frascati Manual, which is the internationally accepted standard for such surveys (note that at the time of writing of this Compiler's Guide, the Frascati Manual is being revised and is expected to include a chapter dedicated to the globalisation of R&D). Since 2011, the Manual has included an online annex designed specifically to address the features and needs of developing countries. This annex is being integrated into the revised core manual.

6.62. When using questions from R&D and innovation surveys related to payments for R&D, compilers should be aware that the international funding of R&D may also include donations and grants and thus do not necessarily represent payments for R&D services. Hence, care is needed to clearly identify this information for the purposes of compiling trade in services statistics (especially when compiling import statistics because the coverage of R&D surveys does not necessarily include firms that buy R&D services but do not perform R&D themselves). Compilers can build on the prototype questionnaire with a comprehensive list of questions as described in the *OECD Handbook on Deriving Capital Measures of Intellectual Property Products*, notably the section III with example questions on data for international trade in R&D services and R&D output produced in the past.⁸¹

⁸¹ Two other publications that are relevant for measuring trade in services related to R&D include *Globalisation in the National Accounts*, and *The Guide to measuring Global Production (forthcoming)*.

6.63. In addition to questions related to payments for R&D services, questions in R&D and related surveys (e.g., ad hoc commercialisation and licensing surveys) could also give insight into the value of intra-firm trade in services related to IPPs, notably if no payments are made for those services. Box X gives some examples of these questions that could be added to derive such information. A distinction between the types of IPPS could be included.

Box 6.3 Questions for R&D surveys to better capture intra-firm services related to IPPs

- i. What is the estimated value of intellectual property licences (whether protected by copyright, patent etc. or otherwise) that you use in production and receive from your parent or other affiliated party, and who own and control the underlying asset, but for which no explicit payment was made by you?
- ii. What is the estimated value of intellectual property assets (whether protected by copyright, patent etc. or otherwise) that you use in production, whose ownership was transferred to you by your parent or other affiliated party but for which no explicit payment was made by you?
- iii. *For dedicated intellectual property producers that receive no revenue through licensing of IPPs:* What is the estimated value of intellectual property assets developed by your firm this year on behalf of your parent or other affiliated parties, and which may have funded the activity but did not make an explicit payment that was recorded by you as sales?
- iv. *For dedicated intellectual property producers that receive some revenue through licensing of IPPs to non-affiliated parties:* What is the estimated value of intellectual property (whether protected by copyright, patent or otherwise) you provide to your parent or affiliated parties but for which no explicit receipt was booked as sales.

All these questions can in turn be broken down by type of service category, e.g. R&D, Software, brands or audio-visual.

6.64. It is a good practice to target certain questions to specific groups of respondents. For example, sellers and buyers of licences to reproduce/distribute are likely to remain within discrete industry groups.

*C.7. Surveys of tourism activities*⁸²

6.65. It is useful to observe the activities which supply products relevant to Travel (credit) and inbound tourism consumption according to the tourism statistics concept. This necessitates the ability to identify those products which meet the share-of-supply condition, that is, those in which travellers and visitors' consumption represent a relevant share of total supply. Additionally, it will be necessary to be able to distinguish between the output provided to residents and those to non-residents. In the following, the supply of accommodation and travel agencies and tour operators services will be highlighted as possible sources of information on resident to non-resident transactions related to travel and international tourism consumption.

C.7.a. Supply of accommodation services

6.66. Accommodation services are mostly provided by production units specialized in their provision, though there are few exceptions. It is generally assumed that the provision of such services as a secondary output to other activities is limited, meaning that the collection of data will be restricted to production units producing accommodation services as their main output.

6.67. *Providers of accommodation services.* There are two broad categories of visitor accommodation providers: (i) market providers, which receive payment for their services, included under "Accommodation" (ISIC Division 55) or under "real estate activities" (ISIC Division 68) and (ii) non-market providers, which accommodate guests free of charge (case of family and friends and accommodation in one's own second home or timeshare). Staying with family and friends as a form

⁸² This sub-section deals only with the "supply side" of tourism statistics while the demand side is covered in Chapter 7.

of accommodation does not generate any additional production of accommodation services, and services provided by own second homes or timeshares do not depend on the actual visit to those homes.⁸³

6.68. Only market providers included in ISIC Division 55 will be considered in the present compiler's guide, as in most countries, they represent the major providers of accommodation services, and are those at which specialized surveys are usually directed. For more information on the other categories of providers, users can refer to the previously mentioned IRTS 2008 Compilation Guide. Activities under ISIC Division 55 include classes "551 Short term accommodation activities"; "552 Camping grounds", "Recreational vehicle parks and trailer parks", and "559 Other accommodation activities".

6.69. Most national tourism administrations have their own registers of accommodation establishments, based on a licensing procedure, which contemplates a more detailed classification (for instance using a "star" system of qualification of the services provided) but possibly a more restricted coverage (no inclusion of class 559, or even of class 551) whereas the NSO might have its own general Business Registry, that classifies generally establishments, without considering these particularities. This makes inter-institutional coordination all the more so important in order to insure consistency of the results.

6.70. *Survey design.* Regarding the statistical design, care should be taken, mostly in the annual NSO design, to ensure that accommodation establishments located in zones of low general economic activity (manufacturing, business services) but with a high tourism orientation are not omitted through the general selection procedure of statistical units (which is often based on the density of general economic activity).

6.71. The general sample design should recognize also the existence of small family-owned units. It may be the case that the licensing system is recording them, but not the general business register. Such establishments should be included in the annual survey (but might be excluded from the monthly or quarterly ones that usually focus on relatively big units, following a census type system whose base should be frequently updated (at least annually) to take into consideration the dynamics of the activity. Some of these small family-units might also be observed using household surveys or surveys to associative bodies to which they might belong. Such surveys might inform on the global performance of their associates in terms of tourism indicators (in particular accommodation units offered and occupancy).

6.72. Surveys of accommodation units concentrate in measuring occupancy rates, room rates revenues per night or guest, and the national origin of guests. This type of information can help in estimating non-resident expenditures on accommodation. In addition, other variables related to establishments can be compiled, such as: employees per room and their remuneration, total revenue, revenue derived from sales of accommodation services, value added, remuneration of employees, details on employment in particular according to the permanency of the work contract (short time contract for the season are often used), and gross fixed capital formation.

6.73. *Frequency of accommodation surveys.* Because tourism is a phenomenon which usually presents high seasonal variations, establishments belonging to these activities are observed monthly, quarterly and annually. Tourism administrations frequently control the monthly and quarterly surveys, whereas often the National Statistical Office (NSO) is in charge of the annual, structural survey. The surveys used for these different observation frequencies should have a harmonized design, to enable the comparison of their respective results.

C.7.b. Surveys of travel agencies and tour operator services

⁸³ See TSA-RMF 2008 paragraph 2.36.

6.74. The main business of travel agencies and tour operators services consists in trading in services such as passenger transport, accommodation, package tours (arranged by others or arranged by themselves). The related fees are paid usually, but in different proportion both by the person traveling (or his employer in the case of business travel) and by the provider of the service (international transport, visitor accommodation services, package tours). The person travelling is usually resident of the same economy as the travel agency, though this is rapidly changing with the increase of transactions realized through the Internet; in the case of the service provider, it might be resident of the same economy as the visitors, resident of same economy as the service provider or resident of any other economy.

6.75. Because their services are used to book or arrange trips, travel agencies and tour operators can provide indications on the intensity of travel (debit) or outbound tourism consumption. It is worthwhile mentioning that, in Balance of Payments statistics as well as in statistics of international trade in services, when services providers (principally international transportation and accommodation providers) use the services of a travel agency resident in an economy different from their own to make their supply available to the public, a resident-nonresident service transaction needs to be recorded; this transaction, however, is not included in travel but in trade-related services.

6.76. As a consequence, and in the case of mainly travel agencies, two important sets of data should be collected:

- i. Data on the volume of travel agencies' business in intermediating in the sale of international transport, international accommodation and package tours to travel abroad (arranged by either themselves or by specialized tour operators whom, in turn, might be resident in any country). This might be used as an indicator on the trend of travel (debit) and outbound tourism consumption. The information to be collected may refer to: types of clients (business/personal), destinations, number of operations and total value of transactions, treating separately those that correspond to travel on package or without package. Nevertheless, such a measurement might be fragile as households/persons are increasingly using the Internet to plan their trips, and thus have direct access to other online travel arrangers, that might be resident in other economies, and thus escape from this measurement.
- ii. Because, within the perspective of International Trade in Services, travel agency services, and more generally, reservation services paid for by international transport companies, accommodation service providers, etc are treated as purchase of services, these fees should be measured separately in order to be included in data corresponding to trade-related services if they correspond to resident-non-resident transactions.

6.77. In the particular case of international transport, obtaining information is complicated because of the multiplicity of travel agents and international carriers worldwide, the different modes by which the payments are collected from the final clients by travel agencies and the way their amount is assigned among the different stakeholders, the complexity of arrangements among airlines (in particular code sharing and interlining, by which whoever sells the service might not be the one that provides it). All of this results in the fact that the value that can be reported by resident travel agencies about the services sold to nonresident service providers might not be accurate, although it may represent useful information to be possibly combined with other sources. Improvements in the measurement of resident-nonresident reservation services could be gained through the possible use of databases generated by the International Air Transport Association (IATA) regarding the clearing system between airlines and travel agents (the Billing and Settlement Plan (BSP6)) and from a better understanding of the roles and modes of remuneration of the Central Reservation Systems (CRS) and the Global Distribution Systems (GDS), whose residence should be accurately considered.

C.8. Construction surveys

6.78. Construction is a sector with such special characteristics that compilers should consider to use a single survey to respond to various information needs, notably those of trade in services between

residents and non-residents and of FDI/FATS. The main reason for this is that international transactions for the construction sector are sometimes difficult to separate. For example, when a construction company provides its services through a physical presence over a long term period (more than 12 months) but without creating a legal entity in the country of the client, and if the operations are substantial enough, then the compiler may need to consider that a notional institutional unit needs to be considered from a statistical point of view. In this case, the corresponding international transactions will be recorded as foreign direct investment financial flows, income and position, and the data corresponding to its operations should be considered as FATS (see also section D of this chapter). If the above conditions are not met, the international transactions will be considered trade in services between residents and non-residents.

6.79. By reviewing all the information obtained through a single survey, the compiler can subsequently (and coherently across surveyed firms) make decisions as how to use the data, i.e. classify transactions as trade in services between residents and non-residents or FDI and use some of this information for FATS (i.e. sales/turnover, see also section D). Such a unified survey could also be used to collect additional operational data on the activities of these service providers.

6.80. In order to correctly compile construction it is particularly important to precisely identify the residence of the enterprise realizing the construction work. Indeed, a construction enterprise established in one economy may undertake construction of projects in another economy through a subsidiary or a branch; i.e., via a direct investment relationship. In other cases, it may decide to conduct services directly from its home base. In the former case, the construction activities are regarded as the activities of foreign affiliates and the corresponding international transactions are considered direct investment, whereas in the latter case they are considered export of services. For a number of cases (i.e., for larger projects that take more than one year), the delineation between trade in services between residents and non-residents and activities of foreign affiliates may be difficult to establish. A number of criteria to consider are suggested in BPM6 and MSITS 2010 and are described further in Chapter 14. Given the difficulties in establishing a clear delineation, it may be useful, in particular for countries where (many) big contractors have projects abroad, to collect all information on their activity through a single survey, thereby providing the necessary information for compilers to then distinguish between exports/imports of construction services or FDI/FATS transactions.

6.81. When classified as trade in services between residents and non-residents, construction transactions may be considered as mode 3 supply, i.e. commercial presence, or mode 4, that is presence of natural persons, to account for cases involving the presence of resident workers (employed by the resident construction enterprise or self-employed) in the non-resident/host economy. It should be noted that, although in general mode 3 concerns mostly domestic sales of foreign affiliates, the construction services for works carried out in less than one year may also be regarded as commercial presence according to the GATS.⁸⁴

6.82. Although business surveys are designed to collect information on both the transactions of construction companies and those of their clients, the coverage of the latter could be more difficult in the case of construction. The services provided by the contractor are likely to be closely related to the sector of activity of the enterprise (i.e. construction). This is less true for the clients, i.e. any household or companies of any industry may buy construction services. In addition information is needed on both the value of the construction project and on the inputs, in particular those bought in the country where the project is taking place. Hence, for construction a specific survey may be more appropriate, in particular for those economies which are specialised in the exports of construction.

C.8.a. Country experience: Italy

6.83. In Italy construction data are compiled by the central bank (Bank of Italy), in the wider framework of BoP statistics. Construction-related information is collected through a Quarterly non-financial transactions questionnaire (TTN), consisting of regular reports on other services (i.e.

⁸⁴ MSITS 2010, paragraphs 5.53-54.

services other than travel and transport), intangible assets, unilateral transfers and compensation of employees. Therefore, the construction item compilation is based on a general purpose sample, both for credits and debits (see Chapter 14 – Section B.3.c., paragraphs 14.118 – 14.124 for data compilation of construction).

6.84. Among the around 3,000 firms sampled with the TTN survey, about 450 enterprises are mainly engaged in construction activities, according to the reported NACE code. They cover about 23 per cent and 30 per cent, respectively, of the population total turnover (around 180 billion euro) and foreign turnover (65 billion euro).⁸⁵

6.85. The TTN questionnaire begins with a general part. Construction specific information has to be reported in a subsequent dedicated section of the questionnaire, where constructions abroad and constructions in Italy are distinguished. Despite the fact that the TTN survey is meant to mainly address non-financial items, the construction section aims also at contributing to the compilation of FDI, including the related flows of income.

6.86. Firms are required to list the construction projects in which they are involved either as contractors or clients and the counterpart is a non-resident entity, and to provide detailed information for each project to according to the guidelines of MSITS 2010.⁸⁶

6.87. In Italy's system, the attribution of the status of "branch resident in the host country" is based on a simplification criterion: the entity carrying out the works is considered a resident branch of the host country if the project lasts one year or more. Consequently, depending on the estimated duration of the works, the construction activity is either regarded as an FDI-related operation, if the construction work extends over a period of at least one year, or as a service transaction in the opposite case.

C.9. Other specific surveys (e.g. health, legal, IT enabled)

6.88. Given the high interest in specific sectors, in particular for exports, it may be useful to consider establishing a specialized survey to collect more detailed data on a particular service (e.g. a detailed breakdown of the services products or activities, detailed information on partner countries, on modes of supply used in these services international transactions). Often, the collection of statistics is motivated by a strong policy demand for more detailed information on one or more service category, when for example this category accounts for a substantial share of the economy or employment.

6.89. Although such a survey may be specially tailored to respond to the specific (national) needs, it is important that the information collected is compatible with the international definitions as outlined in MSITS 2010 for example for residence, detailed services items and modes of supply. The MSITS 2010 in particular indicates that for further breakdowns by type of service the CPC is used as a guide (see EBOPS 2010-CPC Version 2 correspondence table⁸⁷).

6.90. Finally, it should be noted that if a specific sector and its international transactions are very important for a country, compilers may wish to consider collecting *all* the required information through a single survey (i.e. not only trade in services between residents and non-residents, but also structural business statistics and/or FATS), and then make decisions as to how to use the data (i.e. classify transactions as trade in services between residents and non-residents or FDI and use some of this information for FATS (i.e. sales/turnover). Such a survey could also be used to collect additional operational data on the activities of these service providers

⁸⁵ The foreign turnover is estimated on the basis of a survey carried out by the National Builders Association (ANCE) in 2012 on 40 Italian construction enterprises (ANCE, Rapporto 2012 sulla presenza delle imprese di costruzione italiane nel mondo, <http://www.ance.it/docs/docDownload.aspx?id=8546>).

⁸⁶ MSITS 2010 paragraph 3.133.

⁸⁷ <http://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/ebops2cpc.htm>.

C.9.a Country experience: India's compilation of education services

6.91. In order to better analyse trends in trade in higher education in India, the Directorate General of Commercial Intelligence and Statistics of India (DGCIS) initiated a survey on international trade in education services, under the overall guidance of the Central Statistics Office, Ministry of Statistics & Programme Implementation. The scope of the survey was restricted to Higher Education services, i.e., *technical education, management education, medical education and general discipline* (University level courses). The survey period was year 2010-11, as all financial information for that year had already been audited and was accessible. The fieldwork of the survey as well as processing and compilation of data has been outsourced to the Indian Institute of Foreign Trade under the overall guidance and supervision of DGCIS.

6.92. A stratified sampling method was used to select the institutes/universities providing education services under each of the categories of education, and by mode of supply, across eight cities in India. Further, all the important Universities and Technical and Management Institutes in India enrolling foreign students were within the coverage. The questionnaire was developed in consultation with relevant agencies to collect detailed information on trade (both export and import) in higher education from Indian Universities / Institutions. The questionnaire has 16 subsections, covering among others (a) identification of the service provider, (b) transactions with non-residents, (c) employment by type of staff, (d) details of revenues / receipts from foreign universities / institutes (including foreign students studying in India and in-house Indian faculties visiting abroad), (e) details of expenses / payments to foreign universities / institutes (including Indian students studying abroad and foreign faculties visiting India), and (f) identification of trade barriers in higher education services.

C.9.b Country experience: India's compilation of software and IT exports

6.93. In view of the growing importance of exports of Information Technology and Information Technology Enabled Services (IT & ITES), the Reserve Bank of India (RBI) has conducted annual surveys on software and IT exports services on regular basis from September 2008 onwards. It covers elements of the EBOPS 2010 categories computer and information services as well as a broad range of other business services, which have the particularity that they may have a strong IT component (either to produce or to deliver the service). The survey is designed to collect detailed disaggregated level information on export of software services broken down by activity, type of services (on-site/off-site) and country of destination along with the four modes of supply. For determining the proportion of each mode of supply within the services transactions, survey respondents are asked to report the estimated value of services provided through modes 1, 2 and 4. This information is sought both on a fiscal year basis as well as on a quarterly basis. No treatment different to what is applied to other results of this very detailed survey (*i.e.* for non-response etc.) is applied for modes of supply. The survey also collects information on the software business of foreign subsidiaries/associates of Indian companies (foreign affiliates), distinguishing between software business done in host country, with sales to either India or to other countries. The collected statistics are cross-checked and validated with the information collected independently by two other sources, namely, the National Association of Software and Services Companies (NASSCOM) and the non-physical (off-site) software exports figures collected through a different format called Softex.

D. Foreign affiliate statistics and the international supply of services

6.94. This section deals with the collection through surveys of enterprises of data necessary for FATS. For most countries that are compiling FATS, business surveys are usually the most appropriate way to obtain the information needed to provide meaningful FATS in a reliable and cost-effective fashion. The elements for data collection detailed in this section focus on the specific aspects of services. The main definitions of the FATS conceptual framework are briefly described in Chapter 1, whereas more details as to the definitions of some of the variables are provided in Chapter IV of MSITS 2010. Needs in terms of compilation are described in chapter 15. As most of the variables are

directly drawn from the data collected, it is important that these definitions are considered when designing the survey form as well as the accompanying explanatory notes.

6.95. There are two basic approaches to collect FATS through enterprise surveys. These two approaches are not necessarily mutually exclusive. The first approach, which can be used only for inward FATS, identifies from existing data on resident enterprises the subset that is foreign-controlled. The second approach entails conducting surveys that request information directly on the operations of resident affiliates of foreign enterprises and foreign affiliates of domestic enterprises (either through a dedicated survey, that can be specially tailored to respond to needs, or through an existing FDI survey which offers more limited options as to the information that can be inquired). *MSITS 2010* recognizes the advantages and disadvantages of each approach and the need for compilers to demonstrate flexibility in adapting the FATS data collection to each country's statistical infrastructure while maximizing the use of existing data.

6.96. A usual precondition for the establishment of a foreign affiliate is the development of investment flows leading to an FDI relationship. An understanding of the FDI universe provides a strong basis for developing an understanding of the FATS universe and, therefore, ensuring a sound data collection mechanism for FATS. The FDI universe of enterprises has a broader coverage than the FATS universe, but a data collection program for FDI statistics can provide a base for a data collection program for FATS, either directly or indirectly. The direct use of this data collection is that key FATS variables might be incorporated into existing FDI surveys. Alternatively, if the information is not available from the FATS data source itself, links to existing data on FDI could be used (i) for inward FATS to identify the data of interest in existing sources of information on resident enterprises (i.e. to identify the foreign controlled subset of firms) or (ii) for both inward and outward FATS to identify foreign-controlled affiliates for which FATS variables could be collected on a separate survey. Finally it is important to note that in the case of regional headquarters which report data on behalf of affiliates further down in the chain and located in various countries, the respondent should be required to report the data on a non-consolidated basis, i.e. allocating the variables describing the operations of the affiliates to the affiliates' actual country of location.

6.97. Three types of surveys are particularly useful to compile FATS: Structural Business Surveys, FDI surveys, and specific FATS surveys. These are discussed in more detail below. It should be noted that the collection of FATS does not need to be a stand-alone exercise and that compilers can choose to collect FATS data and other information in a single survey, as described in B7 and B8.

D.1. Structural business surveys

6.98. Structural business statistics (SBS) surveys represent a class of surveys designed to provide detailed economic and financial data about the activities of domestic resident business enterprises. They may be encompassing all types of activities or could be specifically tailored for firms primarily engaged in specific sectors (e.g. wholesale and retail trade activities). Reporting and statistical units for these surveys can be identified at several levels of consolidation, ranging from establishments (single physical locations or local activity units) to fully-consolidated enterprises that may include several subsidiaries and operate in several different sectors of the economy.

6.99. SBS surveys can be used to provide FATS measures only for inward FATS, by identifying the subset of resident domestic corporations that meet the relevant criteria for statistical units and for which the recommended data items are either already collected for other purposes or can be added to the surveys to meet the FATS requirements. As described in Chapter 15 this approach requires the existence of indicators of foreign ownership in the domestic business register, a sample frame that meet the FATS requirements, or the ability to link SBS data with FDI survey or an FDI register through the use of common identifiers. An example of this approach was implemented in the United States; i.e. the linking of inward FDI enterprise data with the more comprehensive and detailed data collected every five years at the establishment level in the economic censuses. Where existing domestic statistics are used as the source of information, links to FDI data can be used to supplement the SBS data with information, such as by identifying the country of the controlling entity.

6.100. In general SBS surveys already cover most of the variables of interest identified in MSITS 2010, or include the relevant elements to compile them. However in many cases some of the elements or breakdowns are absent. When envisaging the use of SBS surveys for FATS, compilers are advised to coordinate with statisticians in charge of the structural business statistics data collection program, to identify what is already available, and what would need to be added in the survey(s). This would need to be established according to the priorities identified, keeping the burden for respondents to the minimum as SBS surveys are generally already quite long. The FATS variables often covered by existing surveys are the following: sales, employment, purchases of goods and services for intermediation consumption, as well as those for resale (often only covering goods), assets, compensation of employees, taxes on income, investment. Some breakdowns of these variables are often included and compilers will need to investigate how these could be used in the context of MSITS 2010. Some variables, for example on R&D, may be included or covered by supplementary surveys. Finally the forms may include some additional variables of interest to the compiling economy.

6.101. The additional characteristics which are often absent from existing structural business surveys but are of interest in the context of services are the following:

- i. For sales/turnover: a breakdown into sales of goods and sales of services (in first instance), and if possible a further breakdown into main categories of services (a longer-term goal), at least those of interest to the compiling economy, and on a basis compatible with EBOPS 2010.
- ii. Identify separately (i) sales (of services) made in the host economy, (ii) the exports to the economy of the UCI and (iii) to third economies.
- iii. Other geographical breakdowns of sales/exports as well as for purchases/imports (of services) would also be useful. If possible a distinction should be made between affiliated and unaffiliated parties. However given the higher burden this may entail, the possibility offered by structural business surveys may be limited (see also Chapter 15 sections E.1 and E.3).
- iv. For employment, identify non-resident employment, of which intra-corporate transferees.

6.102. Using SBS surveys to collect FATS data has a few advantages. The FATS variables will be compatible with measures of the domestic economy. Moreover, it allows FATS variables to be compiled with no (or little) added burden to reporters and with fewer resources than a separate data collection program. However, it may be difficult to include the full range of recommended FATS data items due to limitations in the domestic statistics.

D.2. Foreign direct investment surveys in the context of FATS

6.103. Where there are existing FDI surveys, registers used for FDI would typically be used to identify foreign-controlled affiliates that qualify for FATS treatment. Alternatively, key FATS variables could be incorporated into existing inward or outward FDI surveys. Many countries have inward and outward FDI surveys, and the use of these vehicles to collect some basic FATS can be considered as a quick and cost-effective solution. In particular for outward FATS. However, compilers need to keep in mind that there are a number of drawbacks, some of which are listed below.

6.104. The priority would be to cover the main FATS variables, namely sales/turnover (if possible with an estimated breakdown into total goods and total services, excluding income elements) and employment (if possible distinguishing employees recruited from overseas and intra-corporate transferees). If not available from other sources, the survey should enable the identification of (i) subsidiaries and branches (possibly including further qualitative information on the subsidiary), (ii) the principal activity of the affiliate, and (iii) the country of establishment of the affiliate for outward and of the UCI for inward. All affiliates should be covered whether directly or indirectly controlled.

However given that FDI surveys often only gather information on immediate relationships, in the first stages of implementation only data on direct control could be collected, but a medium to long-term objective would be to also gather information on affiliates indirectly controlled.

6.105. Compilers should note that incorporating FATS-related questions in FDI surveys may increase the response burden imposed on enterprises that are not part of the FATS population. In addition FDI surveys may need to be conducted more frequently (for example, quarterly), whereas FATS may be needed less frequently (for example, annually, at least in the initial stages of development of the FATS framework at the national level). If a country conducts an annual survey of direct investment as well as monthly or quarterly surveys, it may be appropriate to only incorporate FATS variables in the annual one. Concerning the possible extension of FATS variables and breakdowns to be covered in FDI surveys, this should also be carefully assessed given the main reasoning behind FDI surveys, and the broader population covered by those. This is why compilers are advised not to go beyond the list of items identified above, and that if there is a need to go beyond, then that a survey complementary to the regular (annual) FDI survey is developed, which could also be used to collect more detailed FDI data.

6.106. Extended business registers might also be a suitable means of maintaining such information. This approach has already been adopted in some countries which use them to maintain data on foreign ownership.

6.107. While FDI statistics have several differences from FATS variables. FDI statistics may provide useful indicators relating to commercial presence for those countries that have not yet begun to compile FATS. In particular, FDI positions can serve as an indicator of a country's interests in using commercial presence to supply services internationally. In addition, FDI statistics can be used in conjunction with FATS to indicate the extent to which the operations of affiliates were financed with funds from direct investors, as well as the extent to which the income generated by affiliates accrued to direct investors.

D.3. Foreign Affiliates Surveys

6.108. Some special surveys could be designed to collect FATS which would complement existing data collection systems such as SBS or FDI. These surveys would be limited to the subset of the FDI population that qualify for FATS and may be conducted as an extension of the existing surveys or less frequently than the FDI surveys. Naturally information from the business register or the FDI register would be necessary to identify the target population. Such surveys could be conducted separately for both inward FATS and outward FATS, or would enable more possibilities in terms of collecting detailed data, in particular for outward FATS. This approach may also be appropriate when an existing FDI data collection program is not already in place or cannot be easily adapted for the requirements of compiling FATS. In general separate surveys would be required for inward FATS and outward FATS due to the distinctly different populations, although in certain circumstances this would not be the case, such as when for outward FATS many of the mother companies of the compiling economy are themselves controlled from abroad. It is also important to note that the ability to conduct separate surveys may be limited by legal and institutional conditions in the compiling economy.

6.109. One of the main drawbacks of conducting a dedicated FATS survey is that it may be costly and burdensome to develop additional surveys. However, such a solution has also a number of advantages as it can be specially targeted towards the relevant inward and/or outward population. More importantly, it can be targeted to the needs of users and its design can more closely follow the international recommendations, including the development of detailed guidelines for survey respondents. Such a survey could have all or most of the various dimensions as listed in MSITS 2010. As a general consideration, one should note that again it may be easier to approach the inward FATS population for detailed data, than it is for the outward. As an alternative approach, the existing SBS could be extended with questions for the inward foreign affiliates, which could be overall more cost effective.

6.110. The information that can potentially be covered in a FATS survey includes all the requirements of international manuals (MSITS 2010) and guidelines (BD4 and HEGI). In the context of the international supply of services, these are also listed in Chapter 15 of this guide. The information to be covered will also depend on the national needs identified. At least in the first stages of development of a FATS survey, the collection could cover the following aspects:

- i. If not already covered by the register(s) or related FDI surveys, information on the type of affiliate (subsidiary, branch, associate), its main activity, the country of the UCI (for inward) and the country of establishment of the affiliate (for outward).
- ii. Variables: sales/turnover (if possible with a breakdown into total sales of goods and total sales of services), employment (if possible distinguishing employees recruited from overseas and intra-corporate transferees), purchases of goods and services for intermediation consumption, as well as those for resale.
- iii. For sales identify separately (i) sales (of services) made in the host economy, (ii) the exports to the economy of the UCI and (iii) to third economies.
- iv. Other details and breakdowns could then be sought as experience in the use of the FATS survey develops, and depending on the results obtained and the use that can be made of these.

D.4. Country experiences

D.4.a. Country experience: the United States

6.111. In 1976, the International Investment Act authorized the U.S. BEA to collect data on the finances and operations of foreign-owned enterprises in the United States and of U.S. parent enterprises and their foreign affiliates.⁸⁸ The Act was expanded to include trade in services in 1984. The Act made responding to BEA's surveys mandatory and required the BEA to maintain the confidentiality of the data collected. Another act passed in 1980, the Paperwork Reduction Act, governs the collection of data from the public by any government agency. The Paperwork Reduction Act requires agencies to minimize the burden they place on private businesses and citizens in collecting information.

6.112. BEA's surveys of the operations of MNCs collect data on balance sheets; income statements; sales; employment and employee compensation; research and development expenditures; property, plant, and equipment; taxes; trade in goods; and the components necessary to estimate value added. While the surveys cover both majority-owned and minority-owned affiliates, more data are collected for majority-owned affiliates.

6.113. BEA uses a system of benchmark surveys (conducted every 5 years), and annual surveys to collect data on FATS. Benchmark surveys cover the universe of multinational enterprises, but data collection is much less detailed for smaller reporters and for minority-owned reporters.

6.114. Annual surveys are conducted between benchmark surveys. The smallest reporters are exempt from reporting on the annual surveys, and BEA uses statistical sampling for the medium-sized reporters. Large reporters are required to report annually and provide the most-detailed information. The reporting thresholds are based on the reporter's assets, sales, or net income. Estimates are made for reporters not required or failing to report in a given year, so the published statistics cover the universe. Smaller majority-owned foreign affiliates report less detail than larger majority-owned foreign affiliates. To present statistics on the operating data of all majority-owned foreign affiliates, BEA estimates items that are only collected for large majority-owned foreign affiliates for the smaller

⁸⁹ Housing censuses may also be of interest. A housing census collects information pertaining to all living quarters and occupants thereof in a country or in a well delimited part of a country.

majority-owned affiliates. These estimates are based on relationships among the data items for a panel of comparable larger majority-owned foreign affiliates.

6.115. Both for inward FATS and outward FATS (regarding the U.S. parents), data are collected on an enterprise group basis and cover the fully consolidated domestic entity. For outward FATS, the U.S. parent is required to report on the operations of its foreign affiliates but this tends to be less consolidated. First, affiliates can never be consolidated across countries. Second, affiliates cannot be consolidated across industries unless they were part of an integrated production process. Finally, affiliates cannot be consolidated if they do not have the same ownership structure.

6.116. Data are collected on an accrual basis and generally follow U.S. Generally Accepted Accounting Principles (U.S. GAAP). Data are reported based on the enterprises's fiscal year. For outward FATS, items recorded in foreign currency are translated into U.S. dollars following U.S. GAAP, which calls for assets and liabilities to be translated using the exchange rate on the date of the balance sheet and for revenues and expenses to be translated using weighted-average exchange rates for the period.

6.117. For inward FATS, operations are classified by the country of the ultimate beneficial owner (UBO), which is equivalent to the UCI. However, a few data items are classified by the country of the foreign parent. For outward FATS, the statistics are classified by the country where the affiliate is located. That is, where the affiliate's physical assets are located and where its primary activities are carried out. In most cases, the country of location and the country of incorporation are the same. However, in some cases, a business enterprise is incorporated in one country but part or all of its physical assets are carried out in a second country. If all of its operations are in a single country outside of its country of incorporation, then the affiliate is treated as a single affiliate in the country of its physical presence. If the affiliate has physical assets in each country, it is treated as two affiliates.

6.118. For classification by industry, BEA uses industry codes derived from the North American Industry Classification System (NAICS) generally at 4-digit level. For inward FATS, each affiliate reports up to 10 industries in which it has sales. These are used to assign a primary industry code to the affiliate in three steps. First, a given affiliate is classified in the NAICS sector that accounted for the largest percentage of its sales; NAICS sectors are at the two-digit level. Next, the affiliate is classified into the 3-digit subsector within that sector. Third, within that 3-digit subsector, the affiliate is classified in the 4-digit industry for which its sales were largest. For outward FATS, the same process is followed to assign U.S. parents and each foreign affiliate to a primary industry.

6.119. BEA asks reporters to break out their sales into goods, services and investment income. For inward FATS, enterprises are asked to further break out their sales of services between sales to U.S. persons and sales to foreign persons. For outward FATS, BEA asks that sales of goods, services, and investment income each be broken out by destination: to the United States, to the host country, and to third countries. For each of these, BEA asks that the reporter further distinguish between sales to affiliated parties and sales to unaffiliated parties.

6.120. The data reported have to pass a large number of computerized edit checks and reviews for consistency with data such as quarterly FDI surveys. As a result of this edit and review process, a number of changes are made to the reported data, usually after consulting with the reporter. In some cases, usually involving smaller affiliates, estimates based on industry averages or other information are substituted for missing or erroneously reported data.

D.4.b. Japan

6.121. The Survey on Overseas Business Activities of Japan (outward survey) and the Survey of Trends in Business Activities of Foreign Affiliates (inward survey), conducted by the Ministry of Economy, Trade and Industry (METI) serve as Japan's FATS. They are conducted on an annual basis and data correspond to those recommended by *MSITS 2010*, with however some deviations i.e. :

- i. In case the parent company is mainly involved in financial, insurance and real estate industries, it and its affiliates are excluded from the outward survey;
- ii. Inward data are based on ownership ratio exceeding one-third, while outward data are based on 10 percent standard, while the majority standard is adopted by *MSITS 2010*;
- iii. Ultimate investors are not identified in inward surveys.

6.122. *The Survey on Overseas Business Activities of Japan (Outward survey)* aims at presenting the actual conditions concerning overseas business activities of Japanese corporations that will serve as a basis for future industrial and trade policies. Survey targets are parent companies: Japanese corporations which, as of the end of March, own overseas affiliates, excluding those in the financial and insurance industry or real estate industry (hereinafter referred to as "Parent Companies"), as well as overseas affiliates ("Subsidiaries" and "Sub-subsidiaries" are collectively referred to as "overseas affiliates"). The following overseas affiliates are surveyed:

- i. A foreign affiliate in which a Japanese corporation has invested capital of 10% or more;
- ii. A foreign affiliate in which a "subsidiary," funded more than 50% by a Japanese corporation, has invested capital of more than 50%;
- iii. A foreign affiliate in which a Japanese corporation and a subsidiary funded more than 50% by a Japanese corporation has invested capital of more than 50% cumulatively.

6.123. This outward survey is based on Japan's Statistics Law. For 2013 survey, 8,662 parent companies comprised the population and questionnaires were sent to the entire population. 76.4% of those enterprises replied. Survey forms have to be filled out by parent companies. In the case that multiple Japanese companies are parents, the company with the biggest share in the equity (leading company in the case that the shares of two companies are the same) of a foreign affiliate should fill out the form.

6.124. Outward FATS information collected include overseas affiliate profile; investment; operation status; Decline in control share; Employment on a full time equivalent (FTE) basis employment; sales turnover; purchase and related costs; profits; appropriation of earnings; R&D expenses; capital investment; major products broken down in intermediate and final goods.

6.125. *The Survey of Trends in Business Activities of Foreign Affiliates (Inward FATS)* is conducted based on Japan's Statistics Law. The 2013 survey covered 5,463 companies of which 60.3 percent replied. The following enterprises were covered:

- i. A company in which more than one third of shares or holdings is owned by foreign investor;
- ii. A company funded by a domestic company (in Japan) in which more than one third of shares or holdings is owned by foreign investors, in which the total ratio of the foreign investor's direct and indirect investment is more than one third of the shares or holdings of the company concerned;
- iii. Companies that fall under (1) or (2) above, in which the principal foreign investor's direct investment ratio is more than 10%.

6.126. Inward FATS Information collected include the company outline; operation status; employment on a FTE basis; type and function of the establishment (i.e. is the affiliate in Japan a regional headquarter); sales turnover; purchases of which imports; payments to the principal foreign

investor (dividends, interest on loans; royalties); R&D expenses; plant and equipment investments; profit and assets.

Chapter 7 Surveys of Persons and Households, and Population Censuses

7.1. *Scope.* This chapter discusses the issues related to the use of population censuses, surveys of persons and households and their organization in the context of data collection for measuring the international supply of services. Section A provides an introduction and a summary of good practices. The chapter promotes an integrated approach and cooperation between related statistical domains (e.g., BOP and tourism statistics) by describing these sources and their use in compiling statistics on the international supply of services (Section B). Section C covers population censuses. Section D covers household surveys, construction of the target population and sampling frame; conducting a household survey; measuring travellers' expenditure using a household survey; seasonality issues; and reference period. Section E describes labour force surveys, particularly the development of a labour force survey module for mode 4. Section F deals with border surveys and provides details on organizing surveys at different border points, including airports, road borders, railways, and cruise ships. Section G provides an overview of complementary surveys of persons traveling.

A. Introduction and a summary of good practices

7.2. This chapter mainly refers to population censuses, household surveys (including labour force surveys) and border surveys. Surveys of persons and households can be used to compile international transactions in services in which individuals (or households), as major purchaser or supplier of services, can be relatively easily identified for survey sampling purposes. For trade in services this would typically refer to travel-tourism, transportation, and mode 4 related transactions, but with the growing use of e-commerce by households, it may be relevant to consider other types of services or modes. Such sources as well as population censuses can also be used to collect non-monetary information, again in relation to mode 4 as well as mode 2. With respect to collecting balance of payments services data for households, compilers should consider if the information is not already covered by another data source such as described in this guide. However in some cases it may be necessary to turn to surveys of persons or households, where these are important for trade in certain services.

7.3. Population censuses, person and household surveys are generally used as major data sources for other statistical frameworks, such as social and demographic statistics, tourism statistics etc. They can also be used to collect information on economic transactions. Persons and more generally households are in many economies important economic agents in the context of the international supply of services. The usefulness of such sources will need to be carefully assessed by compilers for each type of information that could be used. Therefore, an integrated approach is imperative to the use of such sources for the purposes identified in MSITS 2010 and this guide. Following the basic principle of efficient statistical work – collect once, use many times (multiple-purpose use) – it is good practice to design a survey such that its results may be used for compilation in several statistical domains to ensure the highest possible efficiency. Given that the organization and conduct of these surveys will be the responsibility of different units in a statistical system, it implies that if a need is identified compilers actively seek cooperation in all stages of the statistical process with these units. For example, such a close cooperation is absolutely essential in border surveys which have to provide data for both tourism statistics and statistics on the international supply of services. Such cooperation will need to be formalised through an institutional arrangement (see Chapter 3). Cooperation with demographic statistics is important as well, for example, to ensure the proper use of population censuses in the context of the organization of the household surveys and as a benchmark in grossing-up their results.

7.4. Population censuses, surveys of households and of persons can be used for various purposes to collect the required information, but none can serve all needs. This guide suggests the following:

- i. Population censuses could be used to gather benchmark information (in particular to compile outgoing mode 4 data, but not only limited to this) or used for household sampling. This

could be done by adding questions directly in the census, or by developing a tailored module to the population census.

- ii. Household (limited to outbound travel) and border surveys are particularly relevant for collecting data related to international travel (including transport), such as on the expenditure/consumption of households or persons while outside their country of residence. Such sources could also be used to collect other information on characteristics of those travelling. A breakdown by purpose of travel and by type of product consumed should be collected to the extent possible (as a first priority according to the recommendations of MSITS2010/BPM6 and IRTS 2008, and with further items if relevant to the compiling economy).
- iii. For border surveys it is important to ensure that no category of persons are excluded from the survey (e.g. cover persons beyond the definition of visitors used in tourism statistics), but a clear distinction is made for each category so the compiler can select the population of interest to his/her statistical domain.
- iv. Labour force surveys can be used to collect various types of information in relation to the needs of MSITS2010, for example, for the mode 4 variable “number of persons or trips”, either by adding directly questions in the labour force survey, or by developing a specific module (see suggestions in Box 7.3). A labour force survey could be used for collecting more targeted information on outbound business travel (mode 2 consumption for personal purposes, mode 2 consumption for business purposes).
- v. Household surveys could also be used to collect data on
 - o consumption of other services (e.g internet purchase/consumption of services, mode 4),
 - o International provision of services of members of households, in particular for self-employed persons (modes 1 or 4)
- vi. Complementary surveys of persons traveling (e.g. at places of accommodation or in sites of tourism interest) could be used, but it is not a general recommended practice (could be done under certain circumstances). Indeed there are a number of challenges in using these sources, i.e. identification of non-residents, subsets of the population, stay not terminated at the time of surveying, etc
- vii. There could be interest in having some surveys targeting categories of persons given their specific (spending) characteristics (e.g. students, patients).
- viii. The use of household surveys or surveys of persons should be carefully looked at given the cost of them and the likely prevalence or sparsity of the activity within the broader population. Increased response burden on the households/persons and the burden for the data collection as well as the reliability and relevance of data obtained should also be considered.
- ix. A particularly useful source for mode 4 (and related mode 2) would be business travel surveys. Synergies could also be found in this context with labour force statistical sources (e.g. comparing/joining samples).
- x. Given that there are strong synergies with related statistical frameworks (e.g. tourism statistics, labour statistics) or that surveys of persons or households or population censuses are primarily designed to serve other information needs and given that it is considered good practice that one source serves multiple needs, compilers are strongly encouraged to find synergies and discuss the possibilities of using these sources to respond to the MSITS 2010 data needs. Chapters 2 and 3 provide more information on legal and institutional frameworks.

- xi. When designing the data collection system using surveys of households or persons, special attention should be brought to the sampling/selection of households or persons, selection of informants, cost, response burden, sparsity of responses obtained etc. Compilers should weight how these sources could be used for the various data needs identified. In particular increasing the size of samples may significantly increase costs and alternatives may involve using auxiliary information to better target the population to be covered.

B. General Purpose and Description of Population Censuses and Persons and Households Surveys

7.5. A population census, hereinafter referred to as a census, provides at a specified time reliable data on social, demographic and economic characteristics, of all persons in a country or in well delimited parts of a country, especially for small geographical units. This includes information on the size, composition and spatial distribution of the population in addition to socio-economic and demographic characteristics. It is a major source of social statistics, with the obvious advantage of providing reliable data—that is to say, data unaffected by sampling error. In general the census collects information for each individual in a household, usually for the whole country or for well-defined parts of the country. Censuses are conducted periodically in the majority of the countries in the world. The international recommendation is that a national census be taken at least every 10 years. Some countries carry out censuses more frequently because of the rapidity of major changes in their population and/or its housing circumstances. For more information on population censuses, compilers are encouraged to refer to the *Principles and Recommendations for Population and Housing Censuses, Revision 2* (UN, 2008).⁸⁹

7.6. SNA 2008 defines a household as a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food.⁹⁰ In other words they are groups of persons with common economic interests.

7.7. The internationally endorsed recommendations for the organization of household sample surveys are contained in the UN publication *Designing Household Survey Samples: Practical Guidelines*.⁹¹ The publication provides recommendations and good practices in such key topics as the planning and execution of surveys; sampling strategies; sampling frames and master samples; documentation and evaluation of sample designs; construction and use of sample weights; estimation of sampling errors for survey data; non-sampling errors in household surveys; data processing for household surveys. Many countries have in place household survey programmes that include both periodic and ad hoc surveys.

7.8. The compilers should familiarize themselves with the recommendations contained in the publication referred to above in order to be in a better position to participate in the planning and conducting of the household surveys in their countries for purposes identified in this guide. Household surveys are a widely used statistical tool⁹². Many countries have therefore developed their own

⁸⁹ Housing censuses may also be of interest. A housing census collects information pertaining to all living quarters and occupants thereof in a country or in a well delimited part of a country.

⁹⁰ SNA 2008, paragraph 24.12. SNA 2008 recognizes the importance of the household surveys, but, at the same time it is noted that the conventions adopted by survey statisticians and those of national accountants are not always the same. A household expenditure survey for example may not include estimates of imputed rental of owner-occupied dwellings or own account production. It may measure income after tax and measure expenditure on a cash and not on an accrual basis. Compiler should be aware of these limitations when using these sources.

⁹¹ Available at: http://unstats.un.org/unsd/publication/seriesf/Seriesf_98e.pdf.

⁹² See also the International Household Survey Network at www.surveynetwork.org.

detailed methodological guidelines on their design and conduct⁹³. Such guidelines are periodically reviewed and amended as necessary. It is good practice that compilers actively participate in this process and develop amendments which would ensure that relevant needs identified in MSITS 2010 are taken into account.

7.9. Compilers are also advised to review the IMF publication *International Transactions in Remittances: Guide for Compilers and Users* which suggests that household surveys or labor force surveys could be used to collect information relevant to mode 4 by including a number of specialized modules or questions in existing surveys, or that specialized surveys could be conducted through which relevant households would be identified. This would help analysts understand the relations among the supply of services, employment status, etc. This should be done by identifying ways of specifically targeting the population of interest in order to avoid increases in the cost of using such sources, the lack of results obtained, as well as the possible increase of response burden.

7.10. As any sample survey, entities (enterprises or individuals) surveyed must be representative of the population. Since there is no register for those traveling, compilers should look at administrative records or other sources that could play a role of register. For some countries, even measuring the number of people crossing the borders represents a challenge; for example, cases in which there are border unions (as is the case for EU countries).

7.11. A survey of persons is a data collection pertaining to (specific groups of) individuals. Household surveys provide access to persons by first selecting households. Compilers could transform household surveys into a sample of persons by the following procedure: at the beginning of the interview, the interviewer asks how many persons above a certain age are permanent members of the household. From this range of persons the target person (e.g. the oldest, the second-oldest, etc.) is chosen by a random procedure. The interview is then conducted with this randomly chosen target person only.

7.12. Due to the unique nature of tourism (as described later in this chapter), sample surveys of households and of persons (e.g., border surveys) are often used to collect information for travel imports (debits) and tourism expenditures. Thus, given the importance of tourism and travel, some parts of this chapter will frequently refer to the surveys conducted for tourism statistics purposes. Compilers should therefore have knowledge of the basic tourism statistics concepts in order to make appropriate use of such surveys in the context of MSITS 2010. Basic concepts of tourism statistics are provided in box 14.2 of chapter 14 of this Guide. For more detailed information, also see *International Recommendations for Tourism Statistics 2008* (IRTS 2008) and its accompanying compilation recommendations.⁹⁴

C. Population census

7.13. Population censuses can be used to benchmark some of the data collected through other means or estimated.⁹⁵ It could also be used as a sampling frame for surveys. This could be relevant for persons moving temporarily abroad under a mode 4 regime and to obtain a sense of medium to long-term developments. This includes information on the importance of outbound mode 4 for the country. More specific surveys or modules may then gather additional detail focusing on employment at home and abroad and additional questions relevant to mode 4. For example, to identify more specifically persons who went temporarily abroad in the context of mode 4, one could add the following questions:

⁹³ An example, household surveys are extensively treated in the Statistics Canada publication “Survey Methods and Practices”, available at: <http://www5.statcan.gc.ca/bsolc/olc-cel/olc-cel?lang=eng&catno=12-587-X>.

⁹⁴ See IRTS 2008, paragraphs 2.4 – 2.12. Add reference to ITRS 2008 compilation guide.

⁹⁵ It should however be kept in mind that an increasing number of countries are moving from traditional questionnaires to census a population to a register-based census, which may reduce the potential use of this source in the context of this Guide.

- i. Did you travel abroad for work in the past [x] ⁹⁶ months? Yes/No
- ii. If Yes, for what purposes?
 - fulfil a contract.
 - negotiate a contract or establishment of affiliate.

To avoid any confusion with the work related movements not covered by mode 4 work, questions and response alternatives are needed to identify the country of residence of the employer at the time.⁹⁷

7.14. If this is identified as a potential source of information, compilers are encouraged to approach the staff in charge of the census. The contents of the questions respond to various needs, and it is once again necessary to analyse if and how such a source could be used (i.e. either existing information or by adding a module/questions to the census). Given the long preparation time necessary to develop and conduct it, compilers need to contact the staff in charge of the census at the early stages of its design.

C.1 Country experience – Canada

7.15. At the time of writing Canada did not collect mode 4 data. However, some of the questions could be useful. For example, the Canadian census questionnaire⁹⁸ identifies if the person is a self-employed or an employee, his/her occupation, the industry of the firm, and if this person was generally working in or outside Canada during the previous week. Some countries which often have part of their population travelling abroad for work purposes may be interested in knowing more on the purpose of such travel to determine whether they are mode 4 relevant. When information is collected on the duration of residence, information could also be gathered to find out if the employer is a multinational or not, or if the person is in the country for mode 4 relevant purposes or not (i.e. with employer based in country of origin or not).

D. Household surveys

7.16. As indicated above, household surveys are primarily used to collect socio and demographic information, but can also be useful sources for collecting information as identified in MSITS 2010, in particular for the following purposes:

- i. For households as consumers of services (debits/imports):
 - Collect information on expenditure patterns of households, or some of its members, which may have travelled abroad. This information will mainly be used to compile the payments for international passenger transport or travel (as well as on outbound tourism expenditure). Socio-economic characteristics of these households as well as the characteristics of their travel abroad may also be a useful source of information in relation to the variable number of trips/persons for mode 2.
 - Collect information on expenditure of households on payments/imports for (other) services. This may particularly be relevant for Internet-based transactions or services provided through telecommunication networks, in particular expenditure related to intellectual property products (e.g. software or audiovisual products), as well as when the supplier is physically present to provide his services (e.g. health services providers, cleaning personnel).⁹⁹

⁹⁶ Number of months to be determined by the frequency of and period covered by the census.

⁹⁷ See Chapter 1 and Box V.2 of MSITS 2010 for more information on the identification of the employer-employee relationship.

⁹⁸ <http://unstats.un.org/unsd/demographic/sources/census/quest/CAN2006enL.pdf>.

⁹⁹ Compilers will have to ensure that only service contractual relationships will be taken into consideration, see Chapter 1, Chapter 14 and Chapter 16.

- ii. For households or its members as suppliers of services (credits/exports):
 - Collect information on the supply of services to non-residents by members of the household:
 1. Members of the household supplying services to non-residents by traveling abroad (i.e. mode 4), either as self-employed (value of contracts and information on characteristics of business travel abroad, e.g. business-mode 4- trips) or on behalf of their employer (only information on characteristics of business visits abroad). A labour force survey may be particularly relevant in this context (see section E).
 2. Members of the household supplying services to non-residents without traveling abroad, e .g. through the Internet (mode 1) or through the presence of these non-residents in the premises of the household (mode 2), most likely to be accounted for under travel credits (or inbound tourism expenditure or consumption).

7.17. Some specific household surveys, such as business travel surveys could be a timely and relevant source on outbound temporary labour mobility, which could be useful to collect (detailed) information on mode 4 (see the example of Netherlands below), as well as mode 2 for this particular category of business travellers. There may also be scope to think further into the direction of extending the usefulness of both business travel data and labour force data by joining samples.¹⁰⁰

7.18. Section B provided a general introduction to household surveys. In principle, all resident persons are attached to one resident household and only one. Therefore, in order to survey residents, resident households can be used as the sampling frame, as it will ensure total coverage, if the sampling frame is up-to-date.¹⁰¹ The information can be collected by interview, through the visit of an interviewer to the household. This is the most common procedure, as it facilitates the control of the survey.

D.1 Household surveys and services items of EBOPS 2010: travel, transportation and other services

7.19. Using a household survey to collect information in relation to residents traveling abroad (i.e. outbound travel) will serve the needs of the balance of payments (travel and passenger transport items) as well as the needs of tourism statistics in particular with respect to international tourism consumption (including international passenger transport). Residents as members of households will be asked (among other questions) about their travel abroad, the circumstances and characteristics of the travel, and the expenditure attached to them (products and values). It should be underlined that travel (and tourism) refers to individuals, not to households. Nevertheless, when persons travel together and belong to the same household, data on (shared) expenditure by the travel party can be collected. Households are used exclusively for selection purposes, but not for providing results: households as such do not travel.

7.20. The fact that household surveys are generally conducted at the home of the household will facilitate the possibility for the persons been interviewed to check some information, for instance credit card invoices, etc. The interviewer can collect the information on paper questionnaires, or using some electronic device which makes it possible to have a first control of the consistency of the

¹⁰⁰ For a discussion on the principle of modular and integrative data collection refer to <https://circabc.europa.eu/sd/a/45f2b51e-9ba4-4ad1-ab9a-d09a5bb02af4/DSS-2014-Sep-07.6%20VIP%20streamlining%20and%20integration%20of%20the%20European%20social%20surveys.pdf>.

¹⁰¹ Note that some special dwellings may be more difficult to enumerate - for example, retirement and palliative care homes, trailer parks and long-stay hostels, residential colleges, holiday homes, etc.

information (see Chapter 21). Such procedures can be costly; as a consequence some countries use rather telephone interviews: the procedure is cheaper, but with less possibility of asking more sophisticated questions. The telephone interview could also be used as a first step to approach respondents through some simple questions, and then the respondents could be asked if it is possible to send a questionnaire with deepening questions.

7.21. The travel item of resident/non-resident trade in services statistics (as well as tourism consumption) is expenditure oriented. Compilers will need an estimate of the value of expenditure per person in a given period, and this value will vary depending on numerous factors. In addition the information on characteristics of those traveling and their travel itself may be of interest to compile other variables. Compilers will therefore need information as shown in Box 7.1. The information on characteristics of travel which has to be collected might differ from person to person within the same household, even though they have travelled in the same party for this trip (e.g. their purpose of travel might be different, and also their expenditure).

Box 7.1 Information needed for international passenger transport, travel and their breakdowns, as well as for mode 2 number of persons/trips

The points below summarize the information to be collected from surveys of persons or households to compile statistics on the international supply of services (e.g. international passenger transport, travel and its breakdown). As shown below this is strongly related to information needs on tourism expenditure. Information is needed on:

- i. *The characteristics of travel* (such as, main purpose identifying clearly the different tourism and other travel purposes, duration, origin and destination, modes or transport, forms of accommodation used, organization -i.e. with or without package, traveling alone or in a party, with persons of the household or with others, etc.). This usually does not present major difficulties;
- ii. *The characteristics of expenditure*: Expenditure to be included refers not only to that part directly paid for by the persons traveling themselves, but also that paid by others for their benefit. This is true, both for travel and for tourism expenditure. The consequence is that, for each trip, and each category of expenditure, it is necessary to ask: (i) whether there has been an expenditure, and the value of expenditure, (ii) who has paid for it (oneself, a business, the government, other person of the travel party, another person, etc.), (iii) the type of payment used (such as credit cards, cash, travelers checks, etc.), (iv) the number of persons to which the reported expenditure corresponded to, as an individual might pay for him/herself and for any other persons within a travel party; and
- iii. *The breakdown of expenditure*. Finally, it is important to take into consideration both the breakdowns suggested in tourism statistics and in resident/non- resident services transactions.

Tourism expenditure should be broken down into the following functional categories. These categories have been defined so as to facilitate response.

- 1) Package travel, package holidays and package tours
- 2) Accommodation
- 3) Food and drink
- 4) Local transport
- 5) International transport
- 6) Recreation, culture and sporting activities
- 7) Shopping
- 8) Others

In balance of payments and in international trade in services statistics, the recommended breakdown is:

- 1) International passenger transport
- 2) Travel, broken down into the following categories:
 - a) Goods
 - b) Local transport services
 - c) Accommodation services
 - d) Food-serving services
 - e) Other servicesOf which,
 - Education services
 - Health services

Box 7.1 (continued)

It is important to note that beyond the breakdowns recommended above, compilers may also identify other breakdowns of importance at the level of their economy (see CARICOM proposal for creative/cultural services). In addition the breakdowns of expenditures in tourism and trade in services statistics are not totally equivalent, as the orientation of the tourism statistics classification is by purpose, whereas in trade in services statistics it is by types of products; meaning, for example, that expenditure in fuel for the car would be classified as “transport” in tourism statistics, and in “goods” in balance of payments statistics. To compile recommended breakdowns it will therefore be necessary to collect the necessary (detailed) information to respond to all needs. Due to these circumstances, different designs of forms are possible: to observe separately and with different frequencies travel and average expenditure per day; or to observe both, flows and expenditure, simultaneously using a unique questionnaire. The same source could also be used for associating information related to mode 2 trips/persons.

Challenges in collecting information on expenditures/consumption by type of product consumed. Regarding the collection of data on the expenditure by persons traveling, there are a number of challenges in obtaining data by type of product consumed. Visitors frequently share expenditure within a group of persons traveling together. Persons traveling do not always know the amount of expenditure attached to their trip as they do not pay directly for all the expenses (accommodation, transportation, etc.): there might be agreements in receiving some implicit or explicit payment in kind (transport, meals, accommodation); this happens for residents traveling for personal purposes but this case might be even more frequent for those traveling for business purposes. Persons traveling usually perceive their expenditure by "family" of products, not necessarily being able to single each (detailed) type of products they are actually consuming. For instance, separating goods from services might not be as straightforward as it seems such as for medical expenses which may include drugs and services, education expenses which include cost for lectures and include books and other services, transport might include goods (like gas), etc.). Persons traveling for business purposes (mode 4 and others) , or those that move frequently from their country of residence to their country of employment might not have a clear perception of the expenditure associated with each of their travel (in particular for expenditure such as accommodation, etc.). These aspects need to be taken into consideration when devising questions in the survey form to collect such information.

Seasonality of travel and the survey organization. Travel is often highly seasonal; it cannot be observed over a reduced period of time, and then be extrapolated to the whole year as travel, in particular that for personal reason, will be influenced by climate conditions in the country of origin and of destination, periods of vacation, etc. As a consequence, frequent observations will be required. It is a good practice to collect information on a continuous basis, though results might be produced with a different frequency: quarterly, or with other types of groupings, for instance, the peak season, and the low season, though seasonality might be different depending on the purpose of the trip (business, work, study, personal, etc.).

7.22. *Reference period.* Additionally, because of memory effects, the period of reference to be used, both regarding the travel/trips and the expenditure associated to them, has to be very short. This Guide considers as a good practice if a month is used as a reference period in order to reduce telescopic errors (improper date assigned to trips) and recalling errors (improper characteristics and expenditure), see box 7.2. As a consequence, because most persons might not have made any trip during such a short period of reference, the selected sample should be sufficiently large so as to collect enough valid information.¹⁰² A solution could be to ask about travel in the last X months and then deal with the memory effect by weighting up information relating to older travel.

¹⁰² However cost, burden and sparsity of responses considerations are also needed. Alternatives to increasing the size of the sample may involve using auxiliary information to better target travellers in household surveys.

Box 7.2 Research on the effect of expanding the period of reference for reporting tourism trips in Spain¹⁰³

Research carried out by the Spanish Instituto de Estudios Turísticos (IET) confirms how relying on a respondent's memory for information covered by a domestic and outbound tourism survey can cause two distinct types of errors entirely unrelated to sampling, that have often opposite signs:

- *Telescopic error*: the actual date of an event (an expense, a trip) is unconsciously and erroneously moved up to a more recent date.
- *Pure memory effect*: an event that in fact occurred during the observation period is simply omitted, because, subjectively, by the time of the interview, it seems to have occurred long before.

The IET developed a complex observation methodology using three overlapping samples, in which respondents were asked about trips taken three months, two months and one month before being contacted. As a result of this study, it appears very clearly that the longer the delay in contacting respondents after the observation period, the fewer the trips they report. For example, three statistically validated measurements for the number of trips taken in June 2006 by residents of Spain are as follows:

- 12,991,044 if observed in July
- 12,745,211 if observed in August
- 12,247,920 if observed in September

Source: Guardia, T. and Garcia, S. (2008)

7.23. *Issues to consider.* As to the process of selecting households, individuals and travel/trips, various possibilities are conceivable and each of them has their pros and their cons. Regarding the selection of households:

- i. All households might be selected with equal probability; or with different probabilities, taking into consideration differences in propensity to travel (case of the rural population for instance; or when countries have a stratified universe according to level of income as higher income is often positively correlated with propensity to travel); or
- ii. A moving panel of households can be used, that is renewed periodically; this allows to design profiles of behaviour overtime; nevertheless, persons who frequently travel and thus are absent when requested to answer the survey will tend to be substituted by more sedentary persons that tend to travel less, thus skewing the results of the survey.

7.24. Regarding the selection of informants:

- i. Select randomly one person within the household that will inform on his/her travel and expenditure; the drawback is that much of the cost of visiting a household will be lost, particularly taking into consideration that traveling over a short period is not so frequent so that the randomly selected person might not have travelled but other persons of the household might have;
- ii. Include only persons over a certain threshold (10 years, 15 years,...); this looks attractive, but small children usually travel with other persons of the household, and though the children usually do not pay themselves for their expenditure, their participation in a travel party decreases the average expenditure per person per day of all the members of the party; or

¹⁰³ Memory Effect in the Spanish Domestic and Outbound Tourism Survey (FAMILITUR) A paper presented by Teresa Guardia and Sandra Garcia from the Spanish Instituto de Estudios Turísticos to the OECD 9th International Forum on Tourism Statistics, Paris, November 2008.

iii. Include everybody: this is often the method followed.

7.25. Regarding the selection of travels:

- i. All travels can be selected both for description of the trips taken and the attached expenditure; this is often the method followed but when some persons travel frequently, it might be a drawback with too large a questionnaire (but this might not be so frequent if restricting to outbound trips); or
- ii. All trips can be counted (outbound and domestic, i.e. in relation to tourism information needs) but the characteristics of the travel and the expenditure are only collected for one of them (usually, the most recent one); this is usually the principle mostly followed by compilers.

7.26. Using a household survey to collect the above-mentioned information could be done in various ways. It is possible to attach a “travel/tourism” module to an existing household survey (usually, a labour force survey or an income and expenditure survey), or to a design specific observation procedures to observe the required variables. Because of the particularities of tourism and travel mentioned above, the first alternative, though usually considered initially by countries, does not result in obtaining all necessary data and should be complemented by a specific survey to observe tourism and travel. Further information is provided in the ITRS 2008 compilation guide.

7.27. Data for other BOP services items could be collected through a household survey, such as for example on the services consumed by households on-line, downloaded or received by e-mail or telephone (e.g. legal services, medical advice, audiovisual or software downloads, gambling). Although households may easily identify the type of online purchases they make, it may be difficult for households to identify whether they are buying their service locally or if they are importing a service and from which country. An additional difficulty is that the country of billing or marketing may not necessarily be the one which is actually supplying the service to the household. Services provided through mode 4 could be easier to identify, i.e. when the supplier of the service is physically present to render the service. This identification of mode 4 transactions for relevant services could be particularly interesting to serve the needs identified in this guide. However it will be necessary to ensure that respondents understand the difference between an employment relationship and a service contract. This information could be collected through existing household surveys (e.g. expenditure and income survey, specialized survey on the use of the Internet or telecommunications network by households), or could be collected by developing a specific module or survey. For all these other services sampling will be important to consider, as any household could potentially be a buyer of services. In addition many of the payments will most probably be low, and may be below thresholds that have been established in the data collection system. Many of the indications provided above on the selection of households and informants to collect information on travel/tourism and transport is also relevant for other services. To summarize, although it may be appealing to approach households to collect data for payments for services other than travel/tourism expenditure or related information (including international passenger transport), compilers need to consider if such an approach would provide meaningful and exploitable results for compiling other balance of payments services items.

D.2 Household surveys and (mode 4) receipts for exports of services

7.28. If the population of self-employed persons can be clearly established within households, it may be relevant to collect data on the value of the contracts for services provided abroad by these persons. Separately identifying those who travelled abroad to provide their services would be particularly relevant to obtain a breakdown by modes of supply for self-employed persons. However the issues identified above on identification of the population, informants, sampling (i.e. relevance of this data source) are even more prominent in this context as the number of self-employed exporting their services abroad may be relatively small and difficult to identify through the use of a (specialized) household survey. Some specialized survey could help collect some information, such as the business travel survey which is described below.

7.29. To collect information concerning mode 4 it can be considered to add a specific question in a household survey about the reason for the trip (“business trip”). In combination with the socio-demographic characteristic “self-employed” it can be used as a basis. If such a survey is conducted as a telephone sample compilers have to be aware that self-employed persons are difficult to reach and therefore consider using a specific sample of mobile phone numbers in addition, or use a web-based survey.

D.3 Household surveys and mode 2 and mode 4 number of persons/trips

7.30. Data on the characteristics of mode 2 and mode 4 trips (i.e. contractual service supply), or the persons who are themselves traveling, could naturally be collected at the same time as the expenditure/receipt data described above. The type of the information that could be collected through household surveys is the following:

- i. on mode 2 for outbound travel (i.e. those traveling for personal purposes and those for mode 4 or other work purposes);
- ii. on mode 4 for outbound travel, i.e. contractual service supply, intra-corporate movements and services selling/establishment of commercial presence; and
- iii. on mode 4 for inbound travel, i.e. import of services by households through mode 4-contractual service supply/inbound; or inbound intra-corporate transferees if these become/are residents of the compiling economy. For the latter the issue of identification of the relevant population is particularly difficult.

7.31. Some compilers may use some household surveys to collect specifically information on outbound business travel. As indicated above if such a survey is conducted as a telephone sample compilers have to be aware that frequent business travellers are difficult to reach and therefore consider using a specific sample of mobile phone numbers in addition or the development of a web-based survey. In general when using a household survey one would focus on a specifically targeted set of the population, i.e. those travelling for business reasons, and may serve multiple needs such as for national accounts, balance of payments or trade in services statistics. As it is targeted survey, some specifically tailored questions could be included to help the compiler gather some information that may be of interest for mode 4 in particular. Of course, as for other data collection described in this chapter, the level of detail one can expect from such a data source is relatively limited. However by targeting some of the questions, there are some possibilities to obtain more details on those categories of specific interest to the compiling economy. Considering confidentiality issues and the sample size, mode 4 data could be presented or aggregated to broad economic or geographical categories.

D.4 Country experiences – Austria

7.32. In Austria sample surveys of the Austrian population proved to be the most efficient solution to gather information on domestic and outbound tourism expenditures. Every quarter a representative sample of the Austrian population is asked about their travel behaviour with the help of computer assisted telephone interviews (CATI). In the Austrian questionnaire travel expenses include “all expenses related to the trip”. During the interview it is clearly stated that goods and services, bought in the name of the traveller and made available without compensation (i.e., as a gift or invitation) should also be included (for example invitations to dinner, expenditures for goods and services). During the interview it is mentioned that imaginary rent for free accommodation should not be included.

7.33. The advantage of CATI is that the spoken text can be standardized and better monitoring of the interviews is possible. Supervisors, interviewer training, pre-tests and interviewing instructions ensure the quality of the interviews. Plausibility checks are integrated to prevent typos and outliers. Warnings are programmed for example to pop up during the interview if the stated expenses are

below specified expenditure minimums. This gives the interviewers the opportunity to mention again that expenditures made on behalf of the respondent have to be included. These consistency checks make sure that typos and outliers are identified (signals) and replaced (hard errors) immediately.

D.5 Netherlands - Survey on outbound business travel

7.34. The CBS of Netherlands has purchased a new survey on business travel to measure their expenditure. It also extended the list of purposes of the trip, which could be (somehow) related to mode 4. The Continuous Business Travel survey (CBS) is a web-based survey for outbound business travel using the TNS-NIPO-base¹⁰⁴ which consists of more than 150.000 people and is held every second year whereas one measurement (retrospective) every quarter in the respective year is executed. The CBS is measuring business trips (overnight stays), same day trips and number of travellers. The sample consists of Dutch residents aged 18 years and older, identified as working population and who did at least one business trip abroad in the period of review. Every quarter of a year 10.000 panel members from the TNS-Nipo-base receive a screening question to determine if they belong to the sample. Out of them 1.000 Dutch residents receive electronically a complete questionnaire (to be returned within two weeks). The survey is a computer assisted web interview. Travel item is grossed up to the stratification remarks of the traveller going abroad (gender, age, region, municipality and education) to the total of the Dutch working population.

7.35. The questionnaire was extended regarding the purpose of the trip which can be related to mode 4. It suggests 15 types of activity conducted abroad (of which "marketing and sales", "installation and repair", "research, teaching, consultancy", "visit to clients", "visit to head office, branches" etc.) as well as indications about the nature of employment (self-employed, employee and civil servant). Additionally, the survey contains variables on the professional group e.g. farmer, higher professional educated, owner of an enterprise etc. as well as on the level of education.

7.36. Therefore, the group of business travellers providing services abroad can be narrowed down in the sample. This information could give first indications on the number of persons and could be linked to the value of service in the respective service category. However, to derive statistics on mode 4 transactions, one would need to make assumptions, in particular on the size of the activity. The business travel survey gives some first views about the number of persons carrying out activities abroad and also their allocation to some service categories. For analytical and trade negotiation purposes the partner country (destination country of the trip) might be interesting as well (the questionnaire contains a separate question on which countries were visited during the business trip abroad). Considering confidentiality issues and the sample size mode of supply data could be presented or aggregated to broader economic or geographical categories: e.g., EU-28, other country in Europe, Asia, Africa, NAFTA, and ASEAN.

E. Labour force surveys

7.37. As indicated above, a labour force survey (LFS) is a standard household-based survey of work-related statistics. In the context of statistics on the international supply of services, LFS could be used for the following purposes:

- i. The most relevant use of this source is to collect information on mode 4 outbound movements, i.e. contractual service suppliers, intra-corporate transferees/employees directly recruited by foreign affiliates and services sellers/responsible for setting up commercial presence (and to a lesser extent inbound for the two former, of course if the persons become resident).
- ii. Collect information on consumption/expenditure of those travelling abroad for business purposes (mode 2, relevant for travel debits and outbound tourism expenditure), i.e. goods and services actually consumed by the person in the context of his travel, not on behalf of his employer.

¹⁰⁴ TNS-NIPO is a Dutch survey agency.

- iii. Collect information on acquisition of services on behalf of their employer, or more generally on a business to business basis (mode 2).
- iv. Collect information on sales/exports of services on a business to business or business to consumer basis, which will mainly be relevant for self-employed persons (modes 1, 2 or 4).

7.38. Labour force surveys are widespread and reasonably standardized. To these surveys, modules might be added for multiple-purposes. For example, such a module could be designed to get information on persons moving in the context of mode 4. Another possibility is to use the survey system but change the subject-matter in each round, i.e. from questions on the labour force to questions related to mode 4 movements.

7.39. Labour force surveys can identify the individuals in the household that are self-employed (employers or not) or employees, as well as the occupation of their (main) job and the industry or the type of production of the employer if the individual is an employee (and in some instances the size of the company), or that of the self-employed persons. This is of interest in the context of mode 4. However the important factor for identifying mode 4 is whether the individual went abroad in the context of his/her work, but remains based in the home country where his place of employment is.¹⁰⁵

7.40. To use labour force surveys with the purpose of separating mode 4-related movements from international labour mobility, requires including a limited number of questions on (recent) visits abroad by household members for the purpose of work. For example, questions about the contracting parties, the duration and forms of payment, etc. This possibility may be mainly relevant for sending countries in respect of mode 4 which covers contractual services suppliers and those travelling for negotiating purposes. In the case of intra-corporate movements as well as migration of self-employed persons, these surveys could also be relevant for receiving countries, but with a different set of questions.

7.41. For those countries/regions where mode 4 is potentially important and/or the population is relatively well covered by the sample, it may prove useful to add appropriate questions in the surveys. A specific module could be developed similar to the one proposed by ILO for labour migration.¹⁰⁶ In order to identify such movements, some questions as illustrated in box 7.3 could be added to the questionnaire (or developed in a specific labour force survey module on mode 4). If deemed relevant other questions could be added to gather more information as outlined at the beginning of this section, however it is once again important to note that compilers need to analyse the eventual benefits and mainly the costs associated with the use of such a source, in particular if they want to go further than the purely mode 4 information needs.

7.42. It is recognised that such an approach cannot be generally adopted without a thorough analysis of the importance of the different mode 4 categories for a country. Some are more concerned with the fact that their workers are temporarily sent abroad to fulfil services contracts, whereas others are more in the position of receiving many self-employed persons, or intra-corporate movements of personnel (i.e. incoming) who operate from a base in the host economy (as per relevant modes 3 and 4 commitments, often combined). In addition, this may be limited to a specific region within a country; and such an additional module may then only be envisaged for respondents of that particular region.

7.43. Potential benefits could exist if countries with an LFS would be willing to cooperate at the national and/or regional level on producing such labour migration or mode 4 statistics for mutual benefit. The employment status in combination with demographic indicators has the potential to be useful for the compilation of mode 4 statistics. Another potential benefit of cooperation or coordination could be to ensure consistency with enterprise surveys that have similar subject matters.

¹⁰⁵ See chapter 1 and MSITS 2010 box V.2.

¹⁰⁶ At the time of writing the module for labour migration had already been applied in Thailand and Armenia

7.44. It is therefore good practice to cooperate with other agencies which have common or close interest in collecting such information, e.g. national accounts, balance of payments, migration or tourism statisticians. Integrated enterprise and social surveys such as the Structure of Earnings Survey or the Canada Workplace and Employee Survey, USA National Compensation Survey, could also be built to have information on duration at workplaces abroad collected and they could be potentially valuable sources covering information on wages, industry and other relevant characteristics. It is therefore important that compilers contact the units who are in charge of the respective surveys or subject matters. Chapters 2 and 3 provide more information on legal frameworks and institutional arrangements.

E.1 Country experiences – European Union member states

7.45. The European Labour Force Survey (ELFS) programme is an example of the (at the time of writing unexploited) possible use and benefits of cooperation at the regional level on producing such labour migration or mode 4 statistics for mutual benefit, given that all member countries of the European Union and EFTA have (reasonably well) coordinated their LFSs.¹⁰⁷ An additional illustration of the possibility offered by related sources is the European Working Conditions Survey¹⁰⁸ which provides an overview of working conditions in Europe using different indicators for working conditions of both employees and the self-employed. The employment status, which is included in this survey, as well as demographic indicators, once combined, have the potential to gather information useful to compile mode 4 statistics.

¹⁰⁷ For more detailed information on the results, common practices, methods and definitions of the European Labour Force Survey, see the EU LFS dedicated section on Eurostat's website at: http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_unemployment_lfs/introduction.

¹⁰⁸ Source: <http://www.eurofound.europa.eu/surveys/ewcs/index.htm>.

Box 7.3 Sample questions for inclusion in a labour force survey module on mode 4

The following questions could be included for sending countries:

- A. Did you work in a country other than your country of residence in the past period (e.g. year, months)?
- B. In the past year were you employed in a country outside your country of residence?
- C. If so, in which country is your employer?
- D. Were you employed by an employment agency?

The following questions would then be necessary to capture further information on contractual service suppliers (i.e. those who are self-employed, or those who are resident and employed in the compiling country, i.e. those who replied "No" to question B):

- E. In the context of your work did you travel abroad in the past year?
- F. How long did you stay abroad?
- G. How many trips did this entail?
- H. Did you travel abroad to fulfil a service contract in the destination country:
 - i. with a third-part client?
 - was it a firm?
 - was it a household?
 - ii. with an affiliated firm?

It may be of interest to obtain further data on service sellers/persons negotiating the establishment of commercial presence:

- I. Did you travel abroad to negotiate a contract?
 - Was it a service contract?
- J. Did you travel abroad to negotiate the establishment of an affiliate/branch?

Some questions could be added to identify if an employee travelled abroad on his/her own, or with colleagues,:

- K. If you are an employee, did you travel with some of your colleagues? If so how many?

Compilers should pay attention to the issues of double counting, interpretation and extrapolation of information obtained for this question. A solution could be to design processing algorithms to avoid double-counting.

For a self-employed/employer the following question could be asked:

- L. Did you send some of your employees to fulfil a contract with a client abroad? If so, how many?

For receiving countries it may be useful to gather information for intra-corporate transferees and self-employed migrants. The identification of the country of residence (origin or in last period) may be a first indication. If the individual comes from a foreign country, then the following questions would be useful:

- M. Did you come to work in an enterprise affiliated with your previous employer?
- N. Did you enter this country to develop a business?

F. Border surveys

7.46. Border surveys are a type of survey of persons. Border surveys apply to persons who are traveling. They are counted and/or surveyed when they enter or leave the country. Such sources can be used to collect information on characteristics of trips/travel, and are useful for deriving estimates of travel and tourism expenditures as outlined in Box 7.1, however, they could also be used to collect information to compile data on the number of mode 2 and mode 4 trips/persons. In 2005, UNWTO carried out a study "Tourism as an International Traded Services" in which 26 out of the 34 responding countries (in a sample of 48 countries considered to be representative of a wider group of countries) specified using border surveys. Given the strong link with tourism information needs, it is good practice to identify how stakeholders could cooperate to collect the details necessary to respond to all information needs. Chapter 2 and 3 provide more information on the legal and institutional arrangements.

7.47. *When to survey?* The circumstances in which information is collected are relevant for the quality of the data. In the case of inbound flows, this information has to be collected from the person as he/she is leaving the country in which he travelled. In the case of outbound flows, this information can be collected, either at the moment of re-entering the country of residence, or after the travel, within the usual environment of the person. This allows observing actual expenditure because they are interviewed once and this expenditure has already taken place. If they would be asked about their expenditure before their travel ends (e.g. at entrance for inbound travel and at exit for outbound travel), then we would be observing their expected expenditure. The particular case of inbound travel makes the observation challenging, as time is short upon departure, and the person might not be in the appropriate mood to answer a complicated questionnaire. Additionally, if the flows of certain categories of persons are small, it would possibly require a sample of a relatively bigger size or a deliberate over-sampling with suitable correction methods. It is strongly recommended that a specific set of questions is designed to enhance the accuracy of estimates and break them down into categories.

7.48. UNWTO developed a model border survey included in the IRTS 2008 Compilation Guide.¹⁰⁹ The model questionnaire covers 5 parts: A. - Travellers, B.- Means of transport, C. - About your stay, D. - Acquisition of services in your country or other country before arriving in our country, E. - Acquisition of goods and services in our country booked or paid either before, during or after the trip. The UNWTO *Compendium of Tourism Statistics* also presents a broad range of data and indicators that are being collected by a significant number of countries in line with the IRTS 2008 which could give an indication of what data should be collected to compile a basic set of data.

7.49. *Organization of border surveys.* Border surveys need to have very different organizations depending on whether they refer to airports, land borders, sea ports, ports on rivers, or to the case of cruises. The more extended practice refers to airports. The type of organization of the surveys, the sample design, and the questions that can be asked differ also extensively, because of the different circumstances in which the surveys can be held, in particular the time that can be assigned to the interview or to filling in the questionnaire.

7.50. *Means of conducting border surveys.* As other surveys the border survey can be conducted through different means such as (i) distributing the questionnaires on paper to pre-selected persons and having them answer (provided the questionnaires are available in different languages, with clear instructions and easy to understand); (ii) using a paper questionnaire, but filled by an interviewer; or finally, (iii) an electronic questionnaire with an interviewer using a handheld device and collecting the information and feeding it directly into a validation program. In comparison to a household survey, border surveys have the characteristic that it is impossible or difficult to get back to the informant if some information turns out to be inconsistent.¹¹⁰ Consequently the questionnaires should be clear enough to minimize errors in the provision of the required information. For example, a well-designed electronic questionnaire to be filled directly on a tablet computer by a person as he is leaving the country visited - at some strategic location where he/she has to wait anyway - could facilitate the conduct of face to face border/travel surveys.¹¹¹

7.51. *Treatment of traveling parties.* Because visitors often travel in parties, in which the most important expenditures are shared, some countries have tried to use different questionnaires for persons traveling alone and for those traveling in parties so as to facilitate the collection of

¹⁰⁹ International Recommendations for Tourism Statistics 2008 Compilation Guide, annex 1.

¹¹⁰ Some countries have tried returnable questionnaires, but this has not proved being very useful, as those that actually return it are very few, and possibly do not have the same profile as those that neglect to answer. However, New Zealand developed an on-line questionnaire where random sampling is done after airport security, and respondent provide information at a later stage.

¹¹¹ The Computer-Assisted Personal Interviewing system (CAPI) technique was used in 2013 in Morocco for the first time in the survey on travel conducted by the Ministry of Tourism at borders. The CAPI technique ensures conducting interviews by means of tablet computers in which questionnaires are installed. Answers are entered in computer and data is sent in online to the database after predefined checks and control processes. This sort of tool helps improve quality, reduce costs and save time.

information (since common expenditure would only be collected once for the whole party, while personal characteristics of party members need to be collected for each of them). This might be a good practice, especially if dealing with travel for recreational purposes.

7.52. *Working with specific characteristics.* For borders in which the flow of persons is almost permanent (land borders, airports), and in which it is difficult to maintain the periods of observation overnight, it may be useful to work with specific characteristics (for instance, in air, given origins or destinations often group flights in certain time brackets).

7.53. Finally, an observation should be made on the survey procedures themselves: when observing the flows of persons over the border (with the exception of cruise ships), it is not possible to determine a priori whether the person is a resident (leaving or returning) or a non-resident (arriving or leaving) yet only those having terminated a trip should be interviewed on their actual trip. The imbalance in the questionnaire responses corresponding to the different situations might result in false information.

7.54. Compilers should refer to Box 7.1 for information on the characteristics and breakdowns needed. Box 7.1 in particular outlines the difficulties regarding the breakdown of expenditure by product and on issues of seasonality and the conduct of the survey. Care should be taken nevertheless, that the extension and details that can be collected will depend to a large extent on the duration that can be assigned to the interview. For example, in the surveys at a land border, the time that can be dedicated to the interview is very short so that it might not be possible to enter in many details and the questionnaire should contain only the most essential types of questions.

7.55. It is important to ensure that no category of persons are excluded from the survey (e.g. cover persons beyond the definition of visitors used in tourism statistics), but a clear distinction is made for each category so the compiler can select the population of interest to his/her statistical domain.

F.1. Details on the organization of the surveys at different border points

7.56. *Airports.* The observation of travel flows through airports and their corresponding characteristics and expenditure should be relatively straightforward as the flows are clearly defined (various types of administrative records should be available from airlines, customs control, airport administration, etc.) and persons traveling have time to answer (either when they leave: after checking in and before boarding; or when they arrive: after disembarking and before leaving the terminal). This makes it possible to interview them at the end of their travel and observe the corresponding expenditure. In some cases, it might also be possible to distribute questionnaires on board the aircraft, before arriving or just after take-off, provided that all airlines cooperate.

7.57. In the case of airports, the statistical design should take into account the information provided by the airlines on anticipated flights, their origin or destination, their capacity and expected number of passengers. On this basis, and making some assumptions on the proportions of passengers residing abroad or in the country of reference, it is possible to define a sample. For a given flight, some countries might decide to survey all passengers, whereas others prefer selecting respondents (on a quota basis or systematically), or even allow the interviewers to select the persons they interview. For the sake of completeness and accuracy, it is preferable to interview all persons of a selected flight. Quotas, usually based on country of residence, provide skewed results, as the country of residence is not a good explanatory variable of expenditure, if not associated with others, such as duration of stay or purpose of trip. In the case of interviewers selecting informants, the skew can be all the greater. An additional difficulty may reside in interviewers who do not have access to airline lounges for the conduct of surveys and can only access potential respondents at departure gates. It is suspected that those that use the services of airline lounges have significantly different expenditure patterns from those who do not have access to the lounges, which can be a serious bias for the estimates.¹¹²

¹¹² Note that many mode 4 persons may transit through airport lounges.

7.58. *Land borders (road)*. The situation at land borders (road) is very different from that previously described for airports as, frequently, the flows of persons over the border is not well known, either because there is no control at all (such as the case of the European Schengen countries), or because the control is limited to a certain subset of flows (as is the case with the existence of bilateral agreements that often facilitate the movements of persons living in the vicinity of the border post), or even because of the physical impossibility of the border control authority to control all the (legal or illegal) border-crossings. Therefore, it is a good practice to measure the flows of persons over the border and to qualify them subsequently as either visitors or other categories of persons traveling. This might be done automatically with counting devices that capture vehicles (private cars, buses, trucks), to which an average number of passengers can be imputed, and also capture the license plate, from which the country of residence of passengers in private cars can be derived. In the case of buses, in most countries, a list of passengers and their nationality should usually be available.

7.59. *Land borders (railways)* In the case of land borders crossed on international railways, the case is relatively similar to that of airports. The railway companies should be able to provide the number of passengers (and in some instances on some rough characteristics, e.g. 2nd class versus 1st class passengers). A sample could be designed, on the basis for example of the persons seated in a given place, which is the kind of design that railway companies use for their satisfaction surveys.

7.60. *Cruise ships*. For some countries, such as those in the Caribbean, persons arriving aboard a cruise ship represent a very significant share of total arrivals and travel expenditure. The number of passengers aboard and their characteristics in terms of residence are known, as well as the characteristics of the crew. In the case of cruise ships, ferries, yachts and all types of recreational vessels, the captain is usually requested to provide the port authority with a list of passengers and crew on board (a manifest), indicating name, surname, nationality, passport number, and any additional information that authorities might decide to request. Expenditure in the country visited occurs when cruise passengers disembark, although they might also purchase packages on board to visit places of interest. Cruise ships necessarily use specific moorings, and embarking and disembarking are controlled by customs officers. It is a good practice to apply a simplified questionnaire, either to all passengers or to a sample, in order to collect information on their expenditure.

F.2 Border surveys and number of mode 4 trips or persons

7.61. Border surveys could also be used for collecting further information on mode 2 and 4 trips or persons (or details) if there was already an initial indication of the purpose of travel (e.g. obtained through the counting mechanism identified above or through administrative records, e.g. E/D cards or immigration counts). The relevant questions in existing questionnaires should relate to travel for personal, business or professional purposes, the two latter being more closely related to mode 4. Information on characteristics of mode 2 and 4 border crossers could be obtained by adding supplementary detail to the existing border surveys/passenger surveys questionnaires. However, it is important to note that the information collected in such sources will most likely relate to number of trips rather than number of persons. When it comes to mode 2, the former would be the preferred option, whereas for mode 4 there would be an interest in both.

7.62. If the flows of certain categories of persons are small (and this might happen for some detailed categories of service suppliers) it would possibly require a larger (and more costly) sample or a more targeted one than when fewer categories are considered, in order to obtain sufficient information. For mode 4, a mechanism to target more specifically business travellers would be useful (e.g. airport lounges).

7.63. IRTS 2008 already suggest the collection of information that would be very useful for approaching the number of mode 4 trips/persons. Recommended elements include a breakdown of purpose of stay into personal and business and professional activities. Among the professional

activities, self-employed are explicitly mentioned as well as other types of persons travelling for professional reasons (businessmen, investors). Information on attendance of meeting, conferences or congresses, trade fairs and exhibitions is also recommended¹¹³. The compilers should further consult the IRTS 2008 Compilers Guide and closely cooperate with the compilers of tourism statistics in order make the most effective use of such a data source.

7.64. A starting point for identifying mode 4 would be to identify people travelling internationally for business or professional purposes. As previously described such information could potentially be available from arrival and departure card data which could be used for a first stratification/selection for identifying business travellers (also see chapter 9). However, not all of the people in this group will represent mode 4. For example, people travelling overseas to receive a service (like attending a conference or workshop) are also likely to select business or professional as their purpose of travel in an arrival or departure card unless these cards include a separate option for this category.

7.65. Some small modifications can be included in existing surveys to capture mode 4 movements of natural persons. Adding such questions to border surveys will require close cooperation between those in charge of tourism and trade in services statistics. The questions suggested in IRTS 2008 on the purpose of the business trip could, for example, be extended as shown below. This would allow the differentiation between persons attending meetings, conferences, trade fairs and exhibitions and those who are of interest for mode 4.¹¹⁴ The suggestions below are built from the perspective of incoming persons. Similar questions could be developed from the perspective of outgoing persons.

7.66. If business or professional visit/trip

Are you here for
Attending meetings, conferences, trade fairs and exhibitions
Other business and professional purposes

The next question in order to identify mode 4, combined with the information on the length of stay, could then be formulated in different ways. Two options are given below. :

First option:
Are you employed
from domestic economy?
from abroad?
or are you self employed?

¹¹³ The scope of this business and professional category is described in paragraph 3.17 of IRTS 2008: "Business and professional. This category includes the activities of the self-employed and employees as long as they do not correspond to an implicit or explicit employer-employee relationship with a resident producer in the country or place visited, those of investors, businessmen, etc. It also includes, for example, attending meetings, conferences or congresses, trade fairs and exhibitions; giving lectures, concerts, shows and plays; promoting, purchasing, selling or buying goods or services on behalf of non-resident producers (of the country or place visited); participating in foreign Government missions as diplomatic, military or international organization personnel, except when stationed on duty in the country visited; participating in non-governmental organization missions; participating in scientific or academic research; programming tourism travel, contracting accommodation and transport services, working as guides or other tourism professionals for non-resident agencies (of the country or place visited); participating in professional sports activities; attending formal or informal on-the-job training courses; being part of crews on a private mode of transport (corporate jet, yacht, etc.), etc.

¹¹⁴ Care should be taken about the use of the non-specific term "meeting", meetings can be with a specific client to deliver a particular service and would be of interest under mode 4.

Second option, set directly more focus on the mode 4 supply of service:

Are you here to fulfil a service contract?

as a self-employed

as an employee sent by your employer

(alternative: Did your employer send you abroad?)

Are you coming to work in an affiliate of your employing company?

as a services sales person?

to negotiate the establishment of a (services) affiliate?

It is important that these questions be formulated to be understandable by respondents, for instance using explanatory notes.

7.67. Information on the occupation of the person could be collected, possibly presenting a short list relevant for the compiling economy. For example, specific information could be sought for those supplying maintenance and repair services as this is a category of particular interest for many economies. Alternatively a choice of activities of the service supplier (i.e. the employer) could be proposed, e.g. specify the service activity of your employer: "Agriculture, forestry and fishing", "Water supply; sewerage; waste management activities", "Construction", "Information and communication" etc. The activities of the employer (preferably consistent with ISIC) could also be listed in the notes attached to the questionnaire, but this would be considered as a second best solution.

7.68. Some persons moving internationally under mode 4 (especially intra-corporate transferees) will be staying abroad for longer than 12 months, so could be excluded from (tourism/travel) border surveys if respondents are told not to respond if this is the case. However, it would be a good practice to adopt an integrated approach – to design and conduct the border survey to collect also information on all respondents, and then the compiler would select the information that is needed for different statistical domains (e.g., for tourism statistics only select visitors with trips of less than 12 months, while other persons, either visitors or those traveling for other purposes, with stays of various lengths could be of interest in the context of MSITS 2010.)

7.69. In addition compilers need to take into consideration the national treatment with regards the duration determining whether or not an international traveller will be required to register as resident rather than be regarded as a visitor. This may also imply to adapt the data collection method.

7.70. As indicated above some rough estimates may be derived with no or little additional cost in the collection system. Unless it is possible to develop some specific modules towards well targeted mode 4-related samples or identifying ways to better exploit the existing data collection, estimates for mode 4 derived from border/passenger surveys may only be done with a certain degree of approximation.¹¹⁵

7.71. At least in some countries using border surveys to collect additional mode 4 information may involve certain challenges, such as costs, the size of the sample which may need to be enlarged to ensure the representativeness of small sets of the population, the interview duration (and consequently the survey total cost) may increase or the survey form may become more complex or lengthy. Compilers must not forget that border survey managers are already pressed by other users, in particular the tourism sector users, who are willing to expand the questionnaire for tourism-related aspects. This is why it is important that there is a strong co-operation between the (potential) users (i.e. tourism, balance of payments, trade in services, etc.) of such data to identify the synergies and priorities according to the specific information needs of the economy.

¹¹⁵ See chapter 16 for more information. The UNSD website provides information on the existing border surveys and the compilers are advised to familiarise themselves with the questions relevant for mode 4.

F.3 Italy – border sample survey

7.72. International tourist flows are very important in Italy. Bank of Italy uses an extensive border sample survey. The size of the survey and its sample design enables the production of high-quality analytical statistics on many aspects of international tourism in the country. The intended objectives of the data collection system are essentially: (i) Quality of the statistics of the “travel” item of the balance of payments and a better adherence to statistical standards established at the international level and (ii) the provision of disaggregated data on a large number of characteristics of the tourism market, for use by central and local government bodies, the tourism industry and researchers. The technique used for the collection of the data consists in interviewing a representative sample of persons crossing borders, both residents and non-residents, in transit at the Italian borders, while at the same time estimating the number and nationality of those in transit. The sampling is carried out independently at each type of border (roads, railways, international airports and ports), which are selected as representative. The general logic of the survey provides estimates of expenditure on international tourism in Italy through the application of two distinct operations at border crossing points chosen: the counting operation and the interview.

7.73. The counting operation is mostly based on the technique of systematic sampling, that is, with the observation of one unit each “n”, with “n” predetermined. The counts provide the number of persons traveling at each border point disaggregated by country of residence. The counting operation is necessitated by the lack of administrative information on physical flows of persons with the required level of coverage, detail and timeliness. The face-to-face interviews provide the estimate of the expense and a set of attributes that allow its disaggregation and qualification. The interviews are conducted using a structured questionnaire submitted to a random sample of persons traveling at the end of the stay abroad (i.e. when residents are re-entering Italy and non-residents are leaving it). This technique involves fewer errors in the respondents’ memory of the expenses incurred than, for example, does a telephone survey conducted some time after the travel is complete.

7.74. The questionnaire is the same for all border points. The main information - with varying levels of detail – that is requested include: Sex, age and occupation, Location, Means of transport used (with possible detail of the airline or ship used), Reason for the trip (if “vacation”, the type of holiday), Place visited (foreign country for residents of Italy, Italian province for residents abroad), Number of nights spent during the trip, Type of accommodation used, Travel arrangements (inclusive or not inclusive), Total expenditure, broken down by type of product (transportation, lodging, restaurants, shopping and other services), Method of payment, Level of satisfaction about various aspects of the place visited and of the stay .

7.75. In 2011, 145,000 interviews, or about 1.1 per thousand of total Italians and foreigners crossing the borders of the country, and about 1,550,000 counts of persons traveling, have been carried out. The sample is stratified by different variables for each type of border. The stratification variable “direction”, with the two modalities “to Italy” and “to abroad” and the variable “type of carrier”, with four modalities (road, rail, air and sea), are recorded exhaustively; i.e., respondents are Italian and foreigners crossing all types of borders. The survey covers 82 border points (42 for roads, 5 for rail, 24 for airports and 11 for ports), i.e. the most important in terms of annual flows, although a limited number of small border points were selected to capture origin-destination routes that were otherwise poorly represented in the survey. The selection was based on ISTAT (Italian statistics office) data when the survey was begun, and thereafter updated through the evidence of the border survey itself, which monitors some border points on a rotating basis. The border points considered cover the percentages of the total, according to ISTAT and ENAC (National Civil Aviation Authority) data. The choice of number of border points sampled was reduced over time to optimize costs. Some specific procedures for conducting the counting operation and the interviews were established for each type of border.

F.4 Philippines – Measuring Inbound Tourism

7.76. The main source of inbound statistics in the Philippines is the arrival card which is filled up by all travellers entering the Philippines. The Philippine Department of Tourism (DOT) and the Bureau of Immigration (BI) are jointly responsible for encoding, processing, and generating reports on the volume of international visitor arrivals, as sourced from the arrival card, which has been identified as a “Designated Statistics” for tourism under Executive Order in 1996. Though a proposal to remove the arrival card has been raised, the DOT and BI are continually working together to improve the appearance and dynamics of the arrival card to ensure that it remains a vital and critical data source for decision-making by the government and the private sector with regard to tourism development and promotion. The critical data in the arrival card relevant to tourism are the country of residence and purpose of visit.

7.77. A Visitor Sample Survey (VSS) is also being administered by the DOT on a regular basis in all international airports of the country to generate statistics on visitors’ demographic or profile, their travel characteristics, including psychographic information. The most critical data in the survey is the determination of length of stay and average expenditure of visitors, which are important parameters for estimating visitor receipts. The VSS complements the data gathered from the arrival card as a major source of information for inbound tourism statistics and the tourism satellite account (TSA)

F.5 France – characteristics of international visitors and tourism trips

7.78. In France, a border survey is conducted every quarter (20,000 questionnaires) by a private subcontractor. Entitled “Enquête auprès des Visiteurs de l’Etranger” (EVE), the survey permits the collection of quantitative data on trips (same-day visits included) in France by non-resident visitors, and is conducted just before they leave French territory. One major purpose is to collect data on physical flows of non-resident visitors (arrivals, tourist nights, same-day visitors, etc., broken down by country of usual residence). Another major purpose is to provide data requested by the statistical service of the Central Bank (Banque de France) for use in estimating the travel receipts item for the French Balance of Payments. The survey also collects data requested for French tourism market analysis (categorical data on non-resident visitors, main purposes of trip, places visited in France, activities during their stay, types of accommodation, modes of transport used, etc.). The General Directorate for Competitiveness, Industry and Services is interested in both monetary and non-monetary variables. The sample is stratified in order to calculate results for 22 countries or group of countries. Manual headcounts are conducted and EVE questionnaires are used at the same locations, except in the case of questionnaires relating to travel by road, which are used at car parks along motorways near the French border. Dates of arrival and departure are indicated by the respondent.

G. Complementary surveys of persons

7.79. It is possible to survey non-residents traveling in the compiling economy either in places of accommodation mainly (hotels and other kinds of accommodation) or in sites of tourism interest. Although this type of procedures presents some limitations many countries use it as an alternative/complement in cases where border control systems are incomplete or not reliable. The information to be ideally collected is outlined in Box 7.1. It could also be used to collect quantitative and qualitative information on mode 2 or mode 4 as deemed relevant.

7.80. The first challenge is to identify the non-residents among the guests of the means of accommodation. In the case of the observation of these persons at the collective accommodation, two major limitations usually exist. First of all, not all stay at collective accommodation. Studies in many countries have shown that the form of accommodation is a determinant of average expenditure per day, so that such variable observed for those staying at collective accommodation cannot be extrapolated to others. Another limitation is associated with the fact that when surveying at places of accommodation, they still have not terminated their stay, so that their average expenditure per day cannot be extrapolated to their expected length of stay as expenditure is not uniformly spread over the

whole duration. Additionally, a person on a unique trip might use more than one hotel, a situation that alters the probabilities of being selected.

7.81. A similar situation occurs in the case of surveys at visitor attraction where the drawbacks are as follows: not all persons traveling visit those attractions, the probability of visiting an attraction is not known, and a given person might visit more than one attraction. As a consequence, information based on surveys at visitor attraction could be biased. Any derived information for the whole population should take into account this bias.

7.82. Finally complementary data could be collected on specific sets of the population traveling. This could be particularly relevant for health patients or students. Indeed given the particular characteristics and expenditure patterns of some categories of persons, it may be relevant to capture information through a dedicated survey, e.g. expenditure survey of foreign students (other than education fees if these can be collected through other more relevant means).

G.1 Country experience – Austria and below threshold establishments

7.83. Austrian accommodation statistics provide information about the number of arrivals and nights spent in rented accommodation establishments in Austria. The data is based on a cut-off sample. About 1600 municipalities (two third of the total number of municipalities) are selected according to the number of nights spent (at present the threshold is 1000 nights spent per year) and report the data to Statistics Austria. The data includes all rented accommodation establishments, i.e. no threshold concerning the number of beds per establishment is applied. The results of the accommodation statistics show the importance of rented private accommodation in Austria. Based on Regulation 692/2011, Austria reported to Eurostat 77.16 million nights spent by non-residents in 2012, but this figure only represents 81% of the total number of nights registered in rented accommodation establishments, because in addition to the 77.16 million nights, 17.89 million nights were registered by non-residents in rented private accommodation establishments. So in 2012, 19% of the nights registered by non-residents in rented accommodation establishments in Austria were spent in rented private accommodation establishments, which are out of the scope of Regulation 692/2011.

G.2 Country experience – Australia and survey of students

7.84. Education related travel services, one of the largest contributors to service exports in Australia, are derived using a modelled approach. This approach combines data on the number of foreign students studying in Australia with estimates of expenditure by foreign students on course fees and on other goods and services.

7.85. Estimates on the number of foreign students studying in Australia are based on quarterly stock data for a range of study related visa sub-classes provided by The Australian Government Department of Immigration and Border Protection. Estimates of student numbers for the inter-quartile months are compiled using information from the ABS's Overseas Arrivals and Departures data with a small adjustment made to account for permanent migration.

7.86. Monthly estimates of course fees per student registration are derived from International Student Fees data supplied by Australian Education International. This data set is supplied by educational sector on a per-semester basis which is then split into months according to the number of students studying in Australia for each month in that semester (as estimated above).

7.87. Monthly estimates of per-capita expenditure on other goods and services by foreign students are derived from data collected in the Survey of International Students Studying in Australia conducted by Universities Australia. This survey provides estimated average weekly expenditure on goods and services for selected educational sectors, which is then converted to a monthly estimate. As this survey is conducted irregularly, most recently in respect of the 2010 calendar year,

estimates are interpolated between survey years and extrapolated to the most recent period with reference to the ABS's All Groups Consumer Price Index.

Chapter 8 International Transaction Reporting Systems

8.1. *Scope.* One of the sources used for statistics on international trade in services is the international transactions reporting system (ITRS). This chapter describes how ITRS can be used and discusses its advantages and disadvantages as a data source. It should be noted that the MSITS 2010 and this Compilers Guide deal with the use of the ITRS for the compilation of statistics on international trade in services. In doing so, they keep consistency with IMF's *Balance of Payments and International Investment Position Compilation Guide (BPM6 CG)* that discusses the ITRS¹¹⁶ as a source for compiling the Balance of Payments and International Investment Position statistics.

A. Summary of good practices

8.2. It is advised that compilers using ITRS as a source for statistics of international trade in services review the advantages and limitations of this data source, as summarized in table 8.1, and assess their relevance and comparative importance in the context of their countries. In particular, it is a good practice that compilers explore to what extent it is possible to mitigate the limitations of this source (e.g., under-coverage of small transactions in the case that reporting thresholds are in place, absence of data on services that cannot be measured or identified via ITRS, problems with the recording of partner countries, as well as lack of information on breakdowns by modes of supply) by using additional data sources such as surveys.

Table 8.1 Summary of advantages and limitations of ITRS

Advantages	Limitations
<ul style="list-style-type: none"> - Timeliness and high frequency facilitating data compilation - Comprehensiveness (new reporting entities can easily be covered) - Limited number and stability of respondents (banks can report on behalf of their clients) - Burden of reporting and compiling is not heavy once it is implemented - Reporting is often mandatory 	<ul style="list-style-type: none"> - Use of thresholds (simplification or exemption) has effects on data accuracy - Transactions approximated by settlements - Possible misclassifications of services items, in particular for some of the detailed EBOPS 2010 items - Geographical allocation may be biased (country of settlements versus country of transactions) - Difficult to manage with an increased number of transactions and growing share of inter-company transactions with netting practices

B. General description and purpose of ITRS

8.3. The ITRS is a system of collecting data of individual international settlements and/or transactions as reported by banks, enterprises and/or households.¹¹⁷ In this Compilers Guide, the ITRS system in which reporters are resident banks that report to the authority (the central bank in most cases) on behalf of transactors (enterprises or households) is called a bank ITRS, while an ITRS based on reports to the authority from transactors themselves is called a direct reporting ITRS.

8.4. In most countries that maintain ITRS, the reporting is mandatory. Because the ITRS is often a by-product of present or past foreign exchange controls, the data collected involve settlements (as opposed to transactions¹¹⁸). The most comprehensive ITRS collects data on: (1) settlements with non-residents through resident banks, (2) settlements with non-residents through non-resident banks, (3)

¹¹⁶ See BPM6 CG for more information on the use of ITRS for other parts of the Balance of Payments at <http://www.imf.org/external/pubs/ft/bop/2007/bop6comp.htm>

¹¹⁷ See also BPM6 Compilation Guide, paragraph 4.2.

¹¹⁸ In countries where the ITRS was not maintained after the abolishment of foreign exchange controls, surveys have become main sources for statistics on trade in services and the focus has already shifted from settlement to transaction data.

settlements with non-residents through intercompany accounts and (4) transactions without cash settlements.¹¹⁹

8.5. Historically, the ITRS started with settlement reports by resident banks in most countries. However, as resident transactors increasingly started using non-resident banks for international settlements, direct reporting from these transactors (i.e., not through resident banks) became necessary to maintain the completeness of data collection. In addition, requests of resident banks to reduce reporting burdens have made data collection depend more on reporting from transactors.

8.6. When the bank ITRS is complemented with direct reporting, the information included in the ITRS can be extremely useful to identify the major players involved in international trade in services, especially if the reports not only include settlement amounts, but also the name of transactors.¹²⁰ In some countries, the framework of ITRS is maintained even after the introduction of surveys exactly in order to capture international settlements with large amounts. By accumulating such information, a balance of payments enterprise register can be established, which can be used when conducting periodical surveys to measure small value transactions or adopting survey systems in place of the ITRS (see the chapter 5 on business registers and surveys frames). For a proper maintenance of such a register, the international payments database would need to include, at least once a year, the total sum of transactions in services conducted by individual enterprises.

8.7. Finally, in addition to its use for statistics on the international trade in services, the ITRS can also be used for statistics on other financial transactions, as the ITRS could cover a wider range of financial operations, including currency exchanges in foreign exchange companies and banks' information on settlements, as well as position and flow data regarding foreign assets and liabilities.

C. Using the ITRS for collecting data on international trade in services

8.8. There are many reasons why ITRS can be useful to collect data on international trade in services. First of all, the data are collected in a timely and frequent manner.¹²¹ Data can be reported as soon as international settlements are done, in an exhaustive way, at least when there is no reporting threshold or it is very small. The transaction codes included in ITRS that identify the purpose of settlement generally facilitate the classification in conformity with the recommendations of MSITS 2010, except in some cases where it is difficult to obtain the appropriate information (such as FISIM and construction), and for certain detailed EBOPS 2010 classifications, as discussed below. Indeed, classification of international settlements according to the type of transaction (although with precautions against misclassification) is the most important condition for ITRS to be used in compiling statistics of international trade in services.

8.9. An additional benefit of ITRS is that it can be maintained with relatively light burdens of reporting and processing data¹²². In the bank ITRS the reporting burden is concentrated in banks where the procedures of reporting are relatively mechanical (once ITRS is implemented) and can be computerised. Data compilation is generally also efficient because its procedure is also mechanical and compilers do not have to depend on complex statistical techniques that are often used for grossing up survey results. In addition, new reporting entities can easily be covered if they have significant transactions. This makes data reporting more comprehensive and stable and reduces compilers' burdens significantly.

¹¹⁹ *Ibid.*, paragraph 4.3.

¹²⁰ This point is especially important for countries changing their collection system from banks ITRS to direct reporting and surveys.

¹²¹ BPM6 Compilation Guide, paragraph 4.69.

¹²² Although setting up or restructuring ITRS may be costly and may require a period of more intense contact with respondents to inform and train them on the reporting forms, procedures, and coding systems.

8.10. When assessing the 12 BPM6 main services components individually, data from ITRS may be useful in compiling statistics on international trade in services for 1) manufacturing services¹²³; 2) repairs and maintenance; 3) insurance 4) charges for the use of intellectual property n.i.e.; 5) telecommunications¹²⁴, computer and information services; 6) other business services; and 7) personal, cultural and recreational services. ITRS is also useful for financial services with the exception of FISIM, whose amounts are often estimated based on accounting figures of financial corporations, as discussed in Chapter 14. ITRS captures construction but it has certain limitations, as discussed in paragraph 8.18. ITRS can be used partially for transport and travel. Since the compensation for transport services is often included in the total price of the goods that are transported, they are difficult to identify corresponding international settlements. In addition, in the case of travel, an ITRS may not ensure appropriate coverage in countries belonging to monetary unions (as the euro area), as the residents of these countries who are traveling will spend using the same currency as their own during intra-area journeys. Consequently, this mode of payment cannot be tracked by banks and other financial intermediaries.

8.11. Although ITRS has benefits for collecting data on international trade in services, it also has some major drawbacks that compilers should be aware of and should aim to mitigate when using this system.

8.12. First, resident banks reporting under ITRS may have difficulties in correctly classifying each transaction to their relevant transaction codes, especially for complex cases (for example, when services are bundled with other (financial) transactions, in the case of interest payments including fees). Misclassifications may occur if the information on the purpose of international settlements is not correctly transmitted by transactors to reporting banks. A breakdown of trade in services by EBOPS2010 categories (and supplementary items and complementary groupings), as recommended by MSITS 2010, requires more detailed transaction codes which exacerbates this problem due to the number of codes used.

8.13. Secondly, the transaction partner country may be incorrectly classified. ITRS generally includes country codes of counterparties of international settlements. In some cases, however, the country of the settlements counterparty and the country of transaction counterparty differ from each other. This occurs when settlement vehicles are used by transacting enterprises, for example.

8.14. Thirdly, small value services transactions may not be captured due to the existence of reporting thresholds. For example this may be particularly problematic for small value transactions made by households, e.g., for telecommunications, computer and information services as well as personal, cultural and recreational services, which can be small taken individually but may represent large amounts summed up at the level of the total economy. The bank ITRS generally has thresholds to reduce reporting burdens. The threshold can be either an exemption threshold (no reporting required under the threshold) or a simplification threshold (a lump sum amount is reported without indication of the nature of the transactions). The general trend is for reporting thresholds to augment, as the regulations related to foreign exchange controls are gradually lifted. For example, in EU countries, since the reporting threshold was raised from EUR 12 500 to EUR 50 000, a considerable loss of information has been observed. Box 8.1 explains options how the lack of information due to thresholds may be mitigated.

¹²³ While ITRS may provide information about the fee charged, it may not provide the data necessary to adjust the corresponding goods transaction in the trade in goods account

¹²⁴ However, depending on its set up, ITRS may also suffer from under-coverage as payments for some telecommunication services are made on a settlement (net) basis. Care should be taken to ensure the gross reporting of transactions (see BPM6 CG: para 3.11 and page 287).

8.15. A fourth caveat to address is that ITRS-based data may not accurately reflect the timing of the transaction, as the transaction and the settlement time may not always match¹²⁵. Under ITRS, the time of settlements is the only choice for recording the time of transaction. However, there are cases where settlements are deferred or advanced for some reasons, e.g. in construction and in insurance services.

8.16. Regarding construction, as noted in Chapter 6C(i), the use of ITRS may give rise to several biases. First, it may prove difficult to correctly identify the relevant settlements corresponding to services transactions, in particular, in defining the residence of units conducting construction projects (for example, from a balance of payments perspective a site office may be regarded as a resident if substantive (long term) construction work is undertaken, even if legally they are not necessarily treated as residents in the host country). Second, difficulties may arise in collecting data with the required level of detail (e.g. for the identification of goods and services sourced from the economy where the construction is taking place, and used as an input in a construction project). Third, the ITRS thresholds set in some countries may be too high to properly cover some of the payments related to construction projects (especially for smaller-scale work or especially in the case of fractionated settlements)..

8.17. In some countries, the authorities oblige ITRS reporters to use foreign exchange rates fixed by the government, rather than prevailing market foreign exchange rates. If large discrepancies exist between fixed rates and market rates, due to fluctuations of market rates and/or the time lag between transactions and settlements, reported data do not reflect the economic reality of international trade in services.

8.18. Netting contracts can make the settlements amounts smaller than transaction amounts. Netting is a common practice for telecommunication, postal services etc. It is also common for MNEs using treasury centres. Ideally, reporting under ITRS should be made based on the data on a gross basis, i.e., before netting. In that case, a direct reporting ITRS is more appropriate compared to a bank ITRS with indirect reporting. If transaction data, rather than settlement data, are reported on a gross basis using the prevailing market exchange rates, most of technical limitations of the ITRS could be overcome. Although the timeliness of data reporting might be sacrificed to some extent, such an evolution of the ITRS could be beneficial for the improvement of the accuracy and completeness of reported data.

8.19. Finally, ITRS is not a complete source of information. It does not provide adequate detail for all service categories recommended by MSITS 2010 (as mentioned above in 8.10), nor for preparing the recommended breakdowns (e.g., for government goods and services n.i.e.); in such cases administrative data may provide useful information especially if government's international settlements do not go through private banks.

8.20. As regards statistics on the international supply of services by mode, MSITS recommends that each EBOPS components be allocated either to one dominant mode, or broken down by mode. In particular, it is often difficult to identify modes of supply (e.g. modes 1 and 4) in the ITRS transactions, as well as partner countries, although those transactions may be reflected in transfer of funds or exchanges of foreign currency with a certain time lag.

D. Country experiences¹²⁶

D.1. Country experience: South Africa

¹²⁵ Also see chapter 11 *Comparing Data Sources* for a more in-depth discussion of the pros and cons of using the ITRS as a data source for selected service categories.

¹²⁶ A more elaborate description of the French and South African country examples in this chapter is available online. Also the Japanese example is described more elaborately online, and includes coding schemes, example forms, and more detail on the below-threshold statistical estimation methods.

8.21. The Research Department of the SARB, responsible for the compilation and dissemination of quarterly BoP statistics, relies mainly on ITRS (managed by the Financial Surveillance Department), to compile statistics on international trade in services. The electronic ITRS was introduced in 2001, replacing the previous paper driven system, as a compulsory reporting system to be used by all Reporting Entities (banks and bureaux de changes) using the UN EDIFACT international electronic reporting standard. In the transition (which coincided with the liberalisation of exchange controls), special care was taken to ensure that the data needs for compiling balance of payments were covered. In ITRS, the Reporting Entities provide all details of payments made to foreign parties by South African residents as well as payments received by South African residents from foreign parties, irrespective of the value.

8.22. SARB considers that ITRS is a cost effective reporting system that provides accurate, timely, and reliable information which is validated via the SARB Data Exchange Architecture (SARBDEX). The information contains comprehensive details of all transactions including the names, surnames, addresses, ID numbers, company registration numbers, telephone numbers, and physical addresses of transactors. The confidentiality of the data is guaranteed by using Internet encryption, SARBDEX senders' validation and SWIFTNET.

8.23. The South African ITRS has been enhanced several times since its introduction. The most recent improvement (end 2013) has also ensured a better alignment with the requirements of BPM6, although this required an additional substantial investment by reporters. The ITRS is used to assist the compilation of balance-of-payments statistics in general, but from the point of view of the SARB has special benefits for collecting trade in services data. Given that the South African ITRS has no threshold, it can identify potential new services traders well, and can serve as a sampling framework for surveys aimed at better understanding specific transactions in international trade in services.

8.24. The ITRS is seen as a primary tool to obtain statistical information for statistics on international trade in services. To mitigate any potential downsides related to inaccurate reporting (e.g., misclassification) the Financial Surveillance Department conducts regular onsite and offsite inspections. In addition, the systems of the Reporting Entities are certified annually to ensure compliance.

D.2. Country experience: Japan

8.25. The core data source for compiling statistics on international trade in services in Japan is ITRS, which is regulated by the Foreign Exchange and Foreign Trade Act. Under Japan's ITRS, all residents who made payments to or received payments from non-residents under a certain condition¹²⁷ are obliged to report their underlying transactions. Resident transactors must report their cross border transactions to the Minister of Finance through the Bank of Japan (BOJ). Transactions via non-resident banks are reported directly.

8.26. Information reported includes information on the transactor, the counterparty, the date, type of payment (payment or receipt), currency used, value, and the classification and description of the purpose of the transaction. For this last variable, reporters use a BOP classification code to report their purpose of transaction, choosing from a list of 186 BOP codes as provided by ministerial decree (61 of which relate to trade in services).

8.27. Under Japan's ITRS, transactions that do not involve cash payments are required to report on gross settlement basis. For example, if a resident imports and exports services under offsetting or

¹²⁷ There are some exemptions from reporting requirement, including transactions below the reporting threshold (current reporting threshold is 30 million JPY or the equivalent in foreign currency per transaction, in principle) and payments/receipts related to export/import of goods which crossed Japan's custom. Other exemptions are also specified in the ministerial ordinance.

netting arrangements, not only the amount settled, but also the underlying transactions on gross basis must be reported.

8.28. The Japanese ITRS reporting threshold has gradually increased to a relatively high level (30 million JPY). Therefore, a considerable amount of transactions may be missing, especially small value service transactions. In order to estimate trade in services (other than transport and travel¹²⁸) below the threshold, Japan will employ statistical methods starting with the implementation of BPM6. Empirical researches suggest that the frequency of transactions increases exponentially as a value of transaction decreases. Statistically, a Pareto distribution fits the data well. Assuming that transactions below the threshold also follow Pareto distribution, data below the threshold can be estimated. These estimations are made on annual basis, for each service item.

8.29. Compared to using information on transactions from before a threshold increase, the Japanese approach to estimating below-threshold transactions has the advantage as the estimations can be updated periodically with recent data. This means that structural changes and price changes over time can be captured. Further, since the fit of the Pareto distribution will be assessed on a regular basis, statisticians are able to choose another statistical approach if the implemented method does not fit the data well.

D.3. Country experience: France

8.30. France used ITRS as a data source for statistics on international trade in services up to 2010. Under the French ITRS, banks reported all payments between residents and non-residents registered in their books, whether the transaction was on their own account or on the account of their clients.

8.31. Since 1990, the data from Bank was complemented by direct reporting by firms with annual cross-border transactions greater than EUR 30 million. This system still exists and covers approximately 500 firms. These firms are required to report all transactions (on a monthly basis) and positions (on a quarterly basis) with non-residents conducted through accounts with domestic banks or banks abroad or through intercompany accounts.

8.32. The French ITRS had several advantages. It delivered information in a very timely and frequent manner and it was highly detailed, allowing in principle for an almost exhaustive knowledge of international services transactions. In addition, compiler's data access was facilitated and cost-efficient because data processing and compilation occurred at Banque de France DG Statistics, and Banque de France is also the institution overseeing payment systems and operations of resident banks in payment systems.

8.33. However, the French ITRS also displayed serious limitations common to other national ITRS such as misclassifications, stemming from the fact that the largest part of transactions was classified by intermediaries (banks) on behalf of their clients. Potential remedies would involve either additional resources or increase the risk of substantial data omission.

8.34. Also, transactions are registered on a cash basis, while BPM6 recommends the accrual basis of recording. Furthermore, the system did not capture all transactions that did not have a payment counterpart, such as intra-group transactions and was able to register transactions made via non-resident banks. As the evolving patterns in international trade show increased settlements through non-resident bank accounts and in intra-group flows, these limitations become progressively prominent.

8.35. Finally, ITRS is vulnerable to administrative changes imposed for other motives, but that may have negative consequences for collecting and producing statistics. For example, in Europe, the

¹²⁸ Transport is captured mainly by direct reports. Travel is estimated by using boarder survey, household survey, and official statistics.

creation of the Single European Payments Area (SEPA) that aims to improve the smoothness of cross-border payments and to lower their cost, implies that banks' reporting obligations are adjusted and reporting thresholds are increased (up to 50.000 EUR as of 2008).

8.36. In order to assess the magnitude of the ITRS limitations, Banque de France has organized a parallel run between the "old" ITRS-based system and the new system based on the 'Enquête Complémentaire sur les Echanges Internationaux de Services' (ECEIS), in order to perform all the appropriate testing on the ECEIS survey (see Chapter 6F(i)). The results indicated that ITRS could be replaced by a direct reporting system. It should however be noted that some traces of the old system are kept in the new gathering system: ITRS still provides data from all transactions higher than EUR 50 000 that intermediaries complete for their clients vis-à-vis counterparties located outside the SEPA. This survey is particularly useful to identify firms that have to be integrated into the direct reporting system.

Chapter 9 Administrative Records

9.1. *Scope.* This chapter describes main advantages and limitations of administrative records as a source of data needed for measuring the international supply of services. Advantages include reduction of costs, reduction in reporting burden by companies, filling of data gaps, and improvement in statistical business registers. Typical limitations are restrictions on access to information due to confidentiality, methodological differences with the statistical standards, consistency issues, timeliness, and other quality concerns. The chapter also presents good practices in the use of administrative records, which demonstrate that when their limitations are well understood and effectively addressed, such records can be a valuable data source in statistical compilation. The chapter consists of the following sections: a summary of good practices (section A); general description of administrative records (section B); examples of administrative records for use in statistics on the international supply of services (section C); and country practices (section D).

A. A summary of good practices

9.2. It is a good practice that administrative records are used in the compilation of statistics on the international supply of services, as well as in the maintenance of the SBR and the trade in services satellite register, following the policies adopted in the national statistical systems, that national legislation and/or regulations grant the compiling agency adequate access to the administrative data sources (see Chapter 2), and that appropriate institutional arrangements are in place between the compiling agency and the administrative authorities (see Chapter 3).

9.3. Compilers should fully understand and document relevant aspects of the administrative data sources, including (a) information on how these data are processed, registered, and stored, (b) methodologies and definitions, (c) coverage, (d) periodicity and timeliness, (e) changes in regulations pertaining to the administrative data being collected and (f) budgetary constraints at the administrative authority. In particular, compilers should be well aware of how the concepts and definitions used in administrative sources match with those necessary for the compilation of data on the international supply of services. The use of unique identifiers of economic units by all administrative authorities (as is done in increasingly done in many countries) would greatly facilitate the integration of the administrative records into the statistical system and help to eliminate duplication in coverage.

9.4. In particular, this Guide advises to use customs records as a source for trade related transport and insurance services while immigration records and entry/departure cards (E/D cards) - as a source for measuring the flows of inbound and outbound visitors. Compilers are encouraged to consult UNWTO's list of proposed items for inclusion in E/D cards.

9.5. Compilers are encouraged to use immigration records for estimation of the movements, numbers, and presence of foreign natural persons under mode 4 of supply of services and for compiling some FATS variables, if the immigration authority collects work permits containing information on foreign entrants applying for work.

9.6. Finally, it is advised to use records of tax authorities, especially value added tax (VAT) declarations, as a source on values of trade in services, foreign affiliate relationships, and the movement of natural persons. Moreover, tax records often include information on the ownership relationship between businesses and employment, and on income from foreign sources separately from income earned from domestic operations, which can also complement other sources in order to identify enterprises and individuals with investments abroad.

B. General purpose and description of administrative records

9.7. Administrative records are compiled for regulatory purposes or to support and document the administration of various government programmes, such as immigration regulations, social security benefits, education, and public health services. Important potential sources of data for the compilation of statistics on international trade in services include customs records, records of immigration authorities, and records of tax authorities.

9.8. The use of administrative data has become a cornerstone of economic statistics programmes in many countries¹²⁹. Administrative data are a valuable source for updating statistical business registers. However, other sources with similar information should also be considered, such as income statements made by public enterprises and public quasi-corporations.

9.9. In some cases, statistical outputs are produced at the national level from information obtained from different administrations and/or from various levels of the same administration. The characteristics of each source are important, as are the differences between the sources and how these differences affect statistical output. For example, different regional offices of the same administrative agency may experience different changes to their budget, capacity and workload, which may influence the timeliness and consistency of the data are processed and registered.

9.10. It is important, therefore, to collect, understand and document information (metadata) about the administrative data sources which is critical to the design of the data compilation system. Also, such documentation will improve coherency of the resulting statistics by helping users to assess the advantages and limitations of data obtained from different administrative sources. The information which compilers should document include: details of how the source data are processed (e.g., collected and stored), concepts and definitions of data variables, changes in data collection methodologies, available metadata on the coverage and number of data reporters, changes in sample size and/or in sample composition, breaks in series for any reason, time and date when the administrative data were processed and revised, as well as features of the environment in which the system of administrative recordings and which can influence quality of such recording (e.g., such as changes in regulations pertaining to the scope and composition of administrative data being collected, level of permanency of the mandate to collect such data, resource requirements and possible interruptions to staffing and technological needs, and budgetary constraints, among others).

9.11. Ideally, access to the administrative sources should be guaranteed to compiling agencies by national legislation. However, availability of legislation is not a sufficient condition for the efficient use of administrative records. A cooperative approach to the development and utilisation of administrative records for statistical purposes is likely to be far more effective in obtaining access to administrative records than an approach based on legal arguments. Managers in organisations gathering administrative information should be made sensitive to the importance of the data and contribution of each data provider to the overall statistical system.

9.12. With the increasing role of administrative data in the overall statistical process, clear arrangements between statistical offices and administrative authorities must be in place and reviewed regularly to ensure continuity of the use of these important data sources in the statistical system.¹³⁰ The agreements should contain clauses about confidentiality, coding, data transfers and their frequency and the content of the administrative database. Strict measures should be taken within the statistical agencies to ensure the administrative data records remain confidential, are treated as survey micro data and used only for statistical purposes.

B.1. Advantages and limitations of administrative data

¹²⁹ See Guidelines on IES, paragraph 5.98.

¹³⁰ See chapter 3 for more information on effective institutional arrangements.

9.13. If administered and maintained properly, administrative records can offer strategic and statistically important advantages over direct collection of corresponding data from respondents. The advantages and limitations of using administrative data must be considered, including the following:

i. *Methodological soundness.* As administrative recording must comply with relevant legal and other administrative concepts and requirements, the resulting records typically adhere to the adopted administrative standards of methodological soundness and consistency in terminology. Therefore, the use of administrative records for statistical purposes normally implies their certain transformation to better approximate statistical concepts. When the adequate transformation procedures are developed and systematically applied, administrative records can be a reliable and valuable primary and complementary source of statistical information (see paragraphs 9.11 – 9.13 below);

ii. *Cost.* Administrative records are a relatively inexpensive source of information compared to surveys and censuses, which is an important factor for statistical agencies faced with tightening budgets. However, the cost to statistical agencies may be higher than anticipated if the administrative data require complex transformation and/or processing to meet statistical requirements;

iii. *Coverage.* Due to their nature, administrative records usually have the advantage of covering a large segment of the economy, if not the entire economy. Moreover, due to the administrative character of the data, non-response is normally negligible and data are subject to substantial scrutiny, which should generally ensure their accuracy. However, statistical compilers should be aware that the coverage and content of administrative records can be subject to discontinuities resulting from changes in regulations or administrative practices. Also, not all variables in administrative records may receive the same level of attention; for example, revenues may be examined closely, whereas less effort may be devoted to ensuring that industry codes are correct. Nonetheless, with the increasing demand to produce statistics for small domains, where sample surveys may be difficult to implement, administrative records represent a valuable alternative or complement to sample surveys, when the limitations above are considered and addressed;

iv. *Periodicity and timeliness.* The availability and timeliness of administrative records may not align well with data release deadlines of statistical agencies. For example, individuals and/or entities may not be required to report to administrative agencies at common intervals, resulting in some data being reported monthly, while others are reported quarterly or annually. Moreover, annual data may be presented in administrative records on a calendar year basis or on a fiscal year basis. There may also be delays before the administrative data can be used and procedures established for allocating the records to the proper period;

v. *Response burden.* Administrative records allow for the reduction of the burden of statistical inquiries made by compiling agencies. Administrative records can be adapted and compared against data collected by other methods (e.g., surveys) for validation purposes. Linking administrative records to other administrative data sets, survey data or census data is increasingly being performed to produce richer datasets for statistical utilization;

vi. *Data compilation.* Administrative records can be used to complement survey data and in the absence of information, such as non-response to surveys, administrative data can be very useful in the imputation process.

9.14. In order to make administrative records useful to statistical compilation, it is necessary to show how the concepts, definitions and classifications of administrative data can approximate the economic variables required by the statistical system. For example, a correspondence table can be established that describes how business accounting type data are linked to the economic variables of

the statistical agencies. Methodologies should be developed on how the administrative data can be used as extrapolators for economic data collected from official surveys and censuses using economic accounting concepts and definitions.

9.15. Additional work is needed to link the legal entities used by administrative authorities to the enterprises and establishments used by statistical agencies. One of the prerequisites in using administrative data is to establish rigorous mappings between the various structures of entities maintained by administrative departments and the statistical agencies. This is necessary to ensure that there is no duplication in coverage and to match up information from various sources. Some countries have a unique identifier of economic units which is used by all administrative authorities. This clearly greatly facilitates the integration of the administrative records into the statistical system.

9.16. When using administrative records, it is good practice that the file(s) used for statistics are separate from the system in which the administrative records and transactions are stored for operational use. This separation enables compilers to manipulate the data without interfering with the administrative processes. It also helps to maintain the integrity and consistency of the data and preserves the confidentiality of the outcomes of statistical editing and adjustment.

C. Examples of administrative records

C.1. Tax records

9.17. Records of tax authorities can be a very important source of information on values of trade in services, foreign affiliate relationships, and the movement of natural persons. For example, tax records, especially value added tax (VAT) declarations, may include the value of services transactions between residents and non-residents, as well as the location of the service transactors. Moreover, tax records often include information on the ownership relationship between businesses, which may be useful for compiling FATS. Additionally, tax records on businesses may include employment information. This information can be combined with individual tax return records, which identify independent service suppliers or employees of service providers who go abroad to supply a service, to compile data on the movement of natural persons. Tax records often also identify income from foreign sources separately from income earned from domestic operations. These records can be useful especially for conducting surveys or for checking information obtained from other sources¹³¹ and to identify enterprises and individuals with investments abroad.¹³²

9.18. *Use of tax records for statistical business registers purposes.* Tax records are one of the sources for business registers and survey frames, as they contain unique identifiers, names, and incomes of businesses. The systematic and persistent updating and maintenance of business registers based on tax records will normally lead to significant quality improvements in the business register (coverage, timeliness and accuracy), reduction of operational costs and business compliance costs.

9.19. Where a VAT has been introduced and includes services, the VAT declarations also belong to the potentially very promising administrative data for statistics to identify the mode of the international supply of services (especially modes 2 and 4). The information is often reported monthly, covers most business units in the economy and, since the main principles of a VAT system are similar in different countries, there are common features, items and even details that could be used for statistical purposes in many countries.

C.2. Customs records for estimating value of resident/non-resident trade related transport and insurance services

¹³¹ As used by tax authorities, definitions of the terms foreign and income may differ significantly from those used in the compilation of statistics on the international supply services. The compiler should take care, in using tax data directly in compilation of such statistics, that any such differences are accounted for.

¹³² IMF, Balance of Payments Compilation Guide, paragraph 6.46.

9.20. Customs records are one example of how administrative sources can be used by compilers of trade in services statistics. In general, customs declarations include the freight charges and insurance for shipments of merchandise and can be used to determine the value of trade related transport and insurance services.

9.21. If foreign merchandise trade statistics provide both the FOB and CIF values of imports then the values of freight costs and insurance premiums can be obtained from such statistics. However, a method also needed to be developed to separate freight costs from insurance premiums. When both valuations are not available on a regular basis, it may be possible to analyze the supporting import documentation supplied to customs to obtain freight costs and insurance premiums. Such analysis could be achieved by means of a properly designed sample survey of the customs records. In some countries, import documentation may also provide the name or registration of the vessel carrying the imported goods. The compiler could match this information against the lists of vessels operated by residents; if no match is found, it could be assumed that the transport service was provided by a non-resident operator.¹³³ If customs data can also be used to measure freight on imports—for example, by taking the difference between imports CIF and imports FOB and deducting an estimate for insurance premiums—these data could be matched with information on the vessel to determine transport services provided by vessels operated by non-residents.¹³⁴

C.3. *Immigration records and entry/departure cards*

9.22. In most countries, immigration records and entry/departure cards (E/D cards) are a valuable source of information on the movement of persons across borders, even as the increasing mobility of persons and facilitation of the free movement of persons across borders, in some parts of the world or under certain circumstances (e.g., in the case of the European Schengen area) is changing this picture.

9.23. Migration statistics usually distinguish between visitors, other short-term individuals traveling abroad and migrants, where migrants could – for instance – be defined as persons staying in the country for a period longer than 12 months.¹³⁵ The number and characteristics of migrants and short-term visitors are usually part of international migration statistics,¹³⁶ guidelines for which may be found in *Recommendations on Statistics on International Migration, Revision 1* (1998).¹³⁷

9.24. Both short-term visitors and migrants are of interest for the compilation of statistics on the international supply of services by mode of supply. For short-term visitors, information could be used to measure earnings and expenditure of resident short-term visitors abroad and non-resident short-term visitors in host countries.¹³⁸ This information could also be of interest in the context of gathering information on the number of mode 2 and mode 4 persons, which is further described in chapter 16.

9.25. Some common examples of the categories covered by migration statistics and their relation to travel and tourism statistics are presented in box 9.1. However, it should be highlighted that immigration records or E/D cards have been put in place for purposes other than to measure trade in services. Records of these administrative procedures should, therefore, be carefully evaluated on a country-specific basis to understand the degree to which they could be useful. This exercise might even lead to adoption of the administrative records for improved measurement of trade in services (as well as tourism). Such adaptations are more likely if it can be demonstrated that they lead to improvements in the procedures used for registration and/or monitoring of the movement of persons across borders being done by the responsible agency.

¹³³ IMF, Balance of Payments Compilation Guide, chapter 12, box 12.2.

¹³⁴ IMF, Balance of Payments Compilation Guide, chapter 12, paragraph 12.58.

¹³⁵ IMF, Balance of Payments Compilation Guide, paragraph 304.

¹³⁶ IMF, Balance of Payments Compilation Guide, paragraph 306.

¹³⁷ Available at: <https://unstats.un.org/unsd/pubs/gesgrid.asp?ID=116>.

¹³⁸ IMF, Balance of Payments Compilation Guide, paragraph 305.

9.26. Immigration records contain information provided by travellers when applying for visa as well as passport information recorded at the time of border crossing. Entry/departure records contain information provided by a traveller to immigration authorities when crossing the country border. The

Box 9.1. Common categories of visitors, other short-term individuals traveling abroad and migrants captured in immigration records and their relation to travel and tourism statistics

	Holiday, leisure	Religion, pilgrimage	Education purposes*	Health purposes*	Employment**	Business visit ***
Tourism	X	X	X	X		X
Travel	X	X	X	X	X	X
Business purposes					X	X
Short term workers, etc.					X	
Other business purposes						X
Personal purposes	X	X	X	X		
Education related			X			
Health related				X		
Other	X	X				
Mode 2 number of persons	X	X	X	X	X	X
Mode 4 number of persons					Only to work in foreign affiliate	X

* For tourism would only qualify if for less than one year, for travel no time limit if residence (i.e., centre of predominant economic interest) does not change.

** For the purpose of being employed in host economy; i.e., employer-employee relationship in host country.

*** Employer-employee relationship remains in home country.

information available from these two sources and reconciled by the immigration authorities are often the basic source for establishing the flows of inbound and outbound visitors. The E/D cards usually collect information¹³⁹ on a census basis on name, sex, age, nationality, current address, date of arrival (and/or departure), purpose of trip, main destination visited and length of stay.

9.27. Usually, immigration authorities provide data based on arrivals, in which case, for inbound travellers, the data that are collected refer to the expected length of stay. Some countries reconcile entry and exit cards by matching their identification number in order to establish the actual length of stay.¹⁴⁰ Some difficulties might arise in this operation owing to the existence of unmatched cards as a consequence of errors in the process (e.g., lost cards or errors in the capture of the data), lack of coordination in recording authorizations of change in status, or change in expected stays (illegal immigrants who entered as tourists being also a possible source of discrepancy). However, notwithstanding the existing challenges and limitations, the compilers should make most use of them for compilation of statistics on the international supply of services.

¹³⁹ See the UNWTO publication *Tourism as an international trade service (2005)*, page 40 on the results of survey of country practices in the use of E/D cards, available at: <http://www.unwto.org/statistics/border.pdf>.

¹⁴⁰ For example, the Australian Bureau of Statistics compares the actual length of stay to the expected length of stay on the entry card, which allows for calculation of a "realisation ratios" so that numbers of visitors expecting to stay more (or less) than a year can be adjusted at the time of arrival to allow for an estimate of those who will actually stay for the amount of time they expected.

9.28. Immigration records and E/D cards can be combined with information on patterns of expenditure and compensation of employees to form the basis for a data model to estimate travel services by multiplying the actual number of trips of short-term travellers and the estimate of per capita expenditure from surveys of actual expenditure. Preliminary estimates for a period can make use of data on the expected length of stay and anticipated expenditure.

9.29. Immigration records and E/D cards can be an important source of information on mode 2 movements of persons as such persons may constitute a large proportion of those recorded in these sources. However, E/D cards are not seen as a sufficient source for mode 4 movement of people, as E/D cards are meant to collect data for immigration control purposes, not for the identification of natural persons crossing the border to supply a service. Mode 4 types of movements only represent a very small proportion of total entries/ departures as registered by E/D cards. Moreover, the identification of mode 4 persons is not an issue for compilation of tourism statistics, as such persons are part of the visitor population, regardless of the fact they are travelling in order to provide a service.

9.30. The use of E/D cards requires that statistical compilers have a clear understanding of their coverage and content, most importantly:

- i. *The geographic coverage of E/D data* needs to be clearly stated to assess how representative the cards are for the full population of persons crossing borders. It is, for example, important to know if E/D cards are used at all border crossing points or their use is restricted in some way (e.g., covers air passengers only, or applies to other types of arrival such as by sea, by land, by river, etc.). This is particularly relevant for countries with long and open international land borders or borders delimited by rivers, where geography makes crossing the border easy or where border controls are absent at some crossings. Border control authorities usually will have an estimate of what is beyond their present control procedures, but this estimation might need to be permanently monitored to detect changes over time.
- ii. *What categories of persons are covered?* Are there specific conditions that exclude certain persons from border controls, in addition to those represented by the non-controlled crossing points (e.g. nomads, refugees, border workers, etc.)? In many countries, nationals are often exempted from border controls or detailed reporting requirements. Frequent border crossers may have special permits, may not be registered for each crossing, may be excluded from the controls altogether, or may be covered only by a global estimate. Finally, certain types of border crossing might be subject to less cumbersome procedures (for instance private airports, or land borders used by nationals of neighbouring countries).
- iii. *What is the actual content of the data?* Access to detailed micro-data should be ensured to allow for corrections and controls. In general, compilers should not expect border control operations to provide all the information needed to measure movement of persons across borders and to provide all the required variables and the type of distinctions that would be needed for description and analysis. A recurring example is that many E/D cards do not request the residence of the respondent, only the nationality. Additionally, not all controls in a given country will be the same at all border points, nor will contain the same questions (e.g., questions at land borders might be kept to a basic minimum, because of the time constraint).

- iv. *Quality of the data collected* has to be assessed. There are various repeated inconsistencies in the information taken from administrative sources that stem from their specific functions. The main interest of border authorities, for instance, is controlling the flows of non-nationals and, as a consequence, other data (e.g., a national's country of residence, origin or destination – often different from the origin or destination of the flight, and detailed purpose of trip) are of less interest to them and are not always well-collected or stored. The concern of border control authorities is that the declared purpose be consistent with the type of traveller's visa or resident permit presented, which may induce travellers to declare a purpose in line with their visa (e.g., recreation instead of convention/conference, or seeking business opportunities). Revisions, checks and controls are needed to make E/D card information usable for purposes other than migration.

9.31. UNWTO proposed that E/D cards should include a number of variables for the measurement of travellers' flows useful for tourism statistics as well as for modes 2 and 4,¹⁴¹ such as date of entry/departure, the gender, age, place of birth, nationality, country of residence, port of entry, mode of transport, length of stay and purpose of the visit. In particular, if a further differentiation of the business purpose could be recorded on the E/D card (e.g., the difference between intra-corporate transferee or employment by a local business) then this information can be used to identify mode 4 movements. The full list of proposed variables on E/D cards can be found in the on-line version of the guide.

9.32. In countries that require a temporary work visa for mode 4 (at least for citizens of some countries) administrative records from the visa issuing department (usually the Ministry of Immigration) may be a more reliable source of information than the E/D card. If there is no requirement for a specific visa (for instance for the duration of the stay or its repetition), the proposed E/D card might not always enable identifying mode 4, unless a "purpose of trip/visit" is requested. It should be noted, however, that the declared purpose of trip may be influenced by the type of visa/permit that has been issued and not accurately reflect the reality. In the case when business visas are used, they can be directly identified using immigration data. Moreover, it is usually recommended that E/D cards identify the different subsets of travellers (such as visitors as defined in tourism statistics) through indirect observation of derived characteristics.¹⁴²

9.33. Also, it should be noted regarding mode 4, that the interest might not be on the total number of trips, but on the combination of number of persons, number of trips taken by these persons and duration of each trip and total per person. The E/D card could provide information on repetition of trips, only if the persons are uniquely identified in the E/D card and the registrations at different border crossing points are stored in the same database.

C.4. *Work permits*

9.34. In many developed countries where migration regulations are complex, each legal foreign entrant applying for a work permit is asked to register his/her nationality, occupation, purpose and place of visit, length of stay, etc. The information on inflow and stock of such persons could be collected from the immigration authority, and with the help of such information it may be possible to estimate the movements, numbers, and presence of foreign natural persons under mode 4 of supply. In some other countries, registrations of work permits may be available from the immigration or labour authority and may include additional information on the foreign resident, such as date of entry into the country and detailed occupation type, as well as information regarding the resident employer, such as name, location, type of business, or even gross annual income and number of employees. Such data

¹⁴¹ The MSITS 2010 sets out the framework to define mode 4 in the context of the existing tourism and migration statistical recommendations. Statistical compilers should review this framework and in particular table V.3 in MSITS 2010, which presents the *Links between the coverage of the Recommendations on Statistics of International Migration (RSIM), Rev.1 and that of IRTS 2008 in terms of purpose of trip or migration and length of stay, and identifies categories of interest for GATS Mode 4.*

¹⁴² See "Tourism as an International Traded Service" (2005) paragraph 2.45.

could serve as a major source to compile the number of foreign employees of service suppliers or the number of foreign nationals providing services as an independent supplier. Moreover, such information could be a complementary source of information for compiling FATS statistics (at least for those foreign affiliates in the services industry that may be hiring foreign nationals) – both in terms of identifying such foreign affiliates as well as estimating their sales and/or output and number of employees. Data derived from documents issued in the context of social security coordination and employment services could also be useful sources of information.

9.35. *Work permits and visa application records.* Only those permits relating specifically to mode 4,¹⁴³ or those that are clearly identified as a sub-group of a mode 4 category, can be used for compilation of mode 4 persons. While rarely possible,¹⁴⁴ immigration registers could, in theory, include the relevant information.¹⁴⁵ A solution could be to add questions to visa/permit application forms to get more detail on the reasons for migration, visit or permit request, and, to consequently obtain information more directly related to mode 4 as defined in MSITS 2010, and, therefore, be comparable between countries. For example, current visa information may indicate the length of stay or whether a migrant is moving under entrepreneur or skilled migrant categories,¹⁴⁶ but may not indicate whether a person is moving as an intra-corporate transferee or is being directly recruited by an overseas service producing company. In general, statistics on visas granted for work (or education) reasons are available; however, further breakdown by reason of stay (employment contract, service contract, or official residence permits categories) and for short-term visas of less than 3 months are typically not available.

C.5. *Population Records*

9.36. Registers of individuals (e.g., population registers, registers used to assist in the implementation of legislation, or for monitoring specific or overall activities) could be used to measure the number of mode 4 persons, in particular when such registers relate to a specific relevant part of the population. Once again, it is important to analyse to what extent such a source can be used for statistical purposes (i.e., the type of information included, reasons for inclusion in a register, how the data are stored in the register, etc.). Although the use of such registers is clearly possible from the perspective of receiving countries, the use of a register source could be particularly relevant in some "sending" countries where mode 4 movements are important and in the case such information is recorded in a register (e.g., by the labour ministry, or by a specific sectorial ministry such as health, transport, etc.) or any other official source.

9.37. The statistical compiler must ensure that it is possible to distinguish in the register data between those going abroad for employment purposes and those travelling for business purposes as defined in MSITS 2010 chapter 5 (i.e., most likely the registers would include those going abroad on the basis of services contracts, but compilers must ensure that the register does not also cover those travelling abroad for negotiating purposes). Registers used to assist in the implementation of a

¹⁴³ As defined in MSITS 2010.

¹⁴⁴ It is important to note that in certain cases countries have established commitments based on existing specific types of visas or working permits, which may or may not comply with the definition of mode 4 as defined in MSITS 2010 (i.e. it may have been designed to serve complementary or additional administrative needs). When this information is used to analyse mode 4, it should be clearly specified that such information relates to the commitment made, but does not necessarily refer to mode 4 as defined statistically.

¹⁴⁵ Actually such information is often used by analysts and policy makers to support decisions, including concerning labour migration. By ensuring that relevant mode 4 information is also included and reliably recorded in such a source would greatly improve the understanding of the different types and characteristics of international movements, and consequently help making the distinction between labour migration and mode 4 trade in services.

¹⁴⁶ See also: <http://epp.eurostat.ec.europa.eu/portal/page/portal/population/introduction>. The technical guidelines for data collection under Art.6 of Regulation 862/2007 – Statistics on residence permits specify under those called grants of permission to stay to third-country nationals for reasons related to remunerated activities, categories for those activities encompass (e.g., highly skilled workers, EU Blue Card, Researchers, Seasonal workers and other remunerated activities). The last category could be expanded for mode 4 purposes.

legislation (e.g., for tax purposes) may be particularly useful for sending countries in the context of mode 4 self-employed persons (i.e., those who remain residents of their economy of origin). The use of such a source would be especially relevant if it were possible to link information on individuals from this source with information on the same individuals from other sources, such as immigration records. Also, it is important to identify if this linking is legally (and statistically) feasible.

D. Country experiences

D.1. China - compilation of mode 4 person numbers

9.38. According to the Foreign Trade Law of China, qualified enterprises that seek to supply trade in services supplied through the presence of natural persons or to enter into contractual services with natural persons need to apply and get approval from the government. The governmental agency responsible for approving these applications of enterprises or service suppliers also collects and aggregates data on outflows and stocks of mode 4 persons in the category of contractual services. A statistical institution has been jointly established by the Ministry of Commerce and the National Bureau of Statistics in China, to which relevant enterprises are obligated to report required information, such as service project, outflow and stock of persons, occupation or overseas work, length of stay, and destination of country, etc. The national authority is responsible for aggregation and annual publishing of the data.

9.39. Sometimes basic information, such as occupation, purpose of visit, visit destination, etc., is being compiled separately by different authorities (such as immigration, tourism or labour), each with their own statistical purpose and measurement scope, resulting in statistics that do not always match the requirements for measuring the number of mode 4 persons. As a result, it is difficult to extract useful information from the existing statistical systems. For instance, occupations may be classified by first category (i.e. manager, technician, professional, etc.), and it may be impossible to further break this down by industry details. One potential solution to this problem is for compilers to cooperate more closely with the relevant sectors and ask for additional useful information. Alternatively, statistical systems of the authorities (other than the compiling authority) could be redesigned in order to meet the data needs for compiling number of mode 4 persons. Another solution is that compilers can establish a new and specific statistical system for the compilation of the number of mode 4 persons. Both solutions require close cooperation among the different agencies involved (e.g., immigration, labour, tourism and other sectors). Redesigning the existing system requires more communication and understanding, and increases daily workload for the agencies involved. Establishment of a new system may improve the coverage and accuracy of the data, but requires a large capital input, more coordination, and could raise the risk of leaking personal and business information.

D.2. Philippines and Customs Data for compiling freight and insurance services

9.40. The compilation of statistics on the resident/non-resident trade in services in the Philippines is heavily based on administrative records of the Bureau of Customs (BOC). These records are especially useful for estimating freight and insurance services. The cost of cargo insurance is stated in the attached invoice for Import Entry Internal Revenue Declarations (IEIRD). If the insurance value is not declared, then the value of insurance is estimated.

9.41. In 2007, a special survey was conducted for the purpose of input-output tables, which also enabled a verification of insurance and freight values generated from administrative sources. (See the on-line version of the guide for the 2007 Survey on Selected Imported Commodities (SSIC) questionnaire). Freight and insurance costs are also validated by collecting and comparing data collected from various government and private entities, including the Insurance Commission, the Bureau of Shippers, Asian Terminal Incorporated, Cargo House, and FedEx-Philippines. For IEIRD, the freight cost is stated in the customs declaration or in the attached invoice. If the freight value is not

declared then it is estimated. The details of the estimation procedure are given in the on-line version of this guide.

9.42. *Computation/Estimation: exports, insurance and freight cost.* For Export Declarations, insurance and freight costs are not reported on the export document but rather on the attached invoice. For multiple commodities, freight and insurance costs are computed by prorating, using Total Insurance/Total FOB or Total Freight/Total FOB as the multiplier and the individual FOB value as the basis in the computation. Insurance and freight costs are not imputed if not reported.

D.3. *New Zealand and tax records*

9.43. Statistics New Zealand (Statistics NZ) is in the process of establishing a new business register (BR), which will also include micro businesses that are not currently recorded. Since the 1920s, Statistics NZ has used tax data from Inland Revenue (IRD)¹⁴⁷ on incomes of individuals, self-employed workers and companies, which has been integrated with tax data from the Goods and Services Tax (GST)¹⁴⁸ since the mid-1980s. This integration was made possible by linking the BR enterprise statistical unit to the business tax number of GST-registered businesses

9.44. Increasingly over the past 20 years, as the use of tax and other administrative data to maintain BR has been extended, Statistics NZ has observed that BR quality has improved in terms of coverage, timeliness and accuracy; BR operational costs have been reduced; and business compliance costs resulting from BR update surveys have been reduced. Challenges in transforming administrative data for statistical purposes that Statistics New Zealand has addressed include: better understanding of the rules and processes that define the administrative data, including coverage, timing, quality, and completeness of the administrative data as well as the differences between the statistical units on BR versus units defined in the tax system; and developing appropriate methodology and processes to transform the administrative data to the statistical model. Addressing these issues has involved:

- i. Reliance on tax data for small businesses with a simple structure where the statistical unit directly matches the tax unit structure and supplementing the tax data for large and complex businesses with data collected by Statistics NZ;
- ii. Using models to derive the required statistical outputs from tax data. For example, modelling two and six monthly GST tax returns to produce quarterly data;
- iii. Using statistical techniques, such as estimation/forecasting, to address timeliness issues;
- iv. Using tax data that are correlated to a required statistical variable (not available in the tax system) to model the required variable;
- v. Making available to users a very clear definition of the statistical outputs produced and providing overlaps between series on the old and new definitions;
- vi. Requesting changes to administrative rules so that the administrative data better fit with the statistical requirements.

9.45. Maintenance of the BR is conducted continually, based primarily on tax data, as well as on Companies Office data, survey feedback, media reports, and company reports, among other sources. Units on the BR are stratified into three tiers on the basis of their structure, GST activity and employment numbers, thereby allowing Statistics NZ to focus its resources on the largest businesses. All units are updated using primarily tax data, as well as an annual update survey and other information to supplement and verify the tax information for the larger enterprises. The BR has a

¹⁴⁷ See chapter 3, section D.4, for a description of the MoU between IRD and Statistics NZ.

¹⁴⁸ The Goods and Services Tax is a Value-Added tax that covers almost all business activity.

monthly quality monitoring programme which also identifies opportunities for quality improvement and extending the use of administrative data.

Chapter 10 Other Data Sources

10.1. *Scope.* This chapter describes sources of information which were not intended for statistical use and are not covered in Chapters 5-9 but which, nevertheless, can be used for collecting data needed for measuring the international supply of services. In particular, the chapter presents recommended practices (section A); describes other data sources and Big Data (section B); and the use of specific data sources, namely payment cards (section C), mobile phone records (section D), external party sources (section E), and linked micro-data (section F). Each section presents some related country experiences.

A. Summary of compilation guidance

10.2. It is a good practice that compilers explore the possibilities of improving quality of statistics on the international supply of services (e.g., coverage and timeliness) offered by the use of additional data sources and develop action plans to gradually incorporate them into the data collection activities taking into account both their strengths and shortcomings. . Compilers are encouraged to use of additional data sources as necessary including payment cards records, mobile phone records, external party sources, such as financial statements of companies, reports of chambers of commerce, records of investment promotion agencies, records of business associations, surveys conducted by other organizations (e.g., various line ministries may conduct special studies on industries they supervise and may conduct surveys for this purpose), private databases, on-line search engines, on-line travel booking sites, data compiled by trading partners, and linked microdata.

10.3. It is further advised that compilers consider incorporation of various additional data sources in the context of Big Data initiatives and undertake pilot projects in selected areas and to weigh the benefits of using Big Data with the objective to improve timeliness, fill data gaps and reduce cost, while maintaining a high-level of quality of official statistics on the international supply of services. Many of the aforementioned other data sources are often placed under the umbrella term “Big Data.” For the purposes of this Guide, Big Data are sources that can be described as high volume, high velocity and wide variety of data that demand cost-effective, innovative forms of processing for enhanced insight and decision making.¹⁴⁹

B. Other data sources and Big Data

B.1. Good practices in using other data sources and Big Data

10.4. Compilation of data needed for measuring the international supply of services is a complex process and requires the use of both traditional and other data sources. Compilers are encouraged to consider using other data sources in the context of national initiatives to use Big Data as a new potential data source. This Guide advises that compilers undertake pilot projects in selected areas and to weigh the benefits of using Big Data in combination with the existing traditional data sources in order to improve timeliness, fill data gaps and reduce cost, while maintaining a high-level of quality resulting official statistics on the international supply of services. For instance, Big Data may be useful in compiling travel and tourism expenditures. However, compilers should be aware of, and be prepared to address, the challenges in using Big Data, including legislative issues surrounding the access and use of data; privacy concerns; financial costs in sourcing data relative to its benefits; management and protection of the data; methodological (in terms of data quality); and technological.

10.5. It is a good practice that any use of Big Data be part of an organized and efficient data integration process and be subject to strict standards commonly applied in quality control, data modelling, estimation and imputation. All of these modifications to the statistical process should be done in a transparent way, be part of the quality assurance programme, and be properly reflected in metadata.

¹⁴⁹ See “What Does “Big Data” mean for Official Statistics,” by UNECE (2012), paragraph 6.

B.2. Purpose and description

10.6. In our modern world, more and more data are automatically generated through a variety of devices, including mobile phones and sensors, and via many computer applications. The amount of data and the frequency at which they are produced have led to the concept of Big Data. Examples of different classes of Big data are:

- i. Commercial or transactional data (arising from transactions between two entities); e.g., credit card transactions, bank transactions, on-line transactions (including from mobile devices), retailers' sales records, etc.;
- ii. From sensors; e.g., satellite imaging, road sensors, climate sensors, etc.;
- iii. From tracking devices; e.g., tracking data from mobile telephones, global positioning systems (GPS), etc.;
- iv. Behavioural; e.g., online searches (about a product, a service or any other type of information), online page views, etc.;
- v. Opinion; e.g., comments on social media, etc.

10.7. Even though administrative data (arising from the administration of a programme involving collection of certain information, be it governmental programme or not) are usually seen as standard data source, they do have some of the characteristics associated with the Big data sources, and could therefore also be included here, if the volume of data and the velocity, in which these data become available, are high; e.g., electronic records on medical procedures, hospital visits, insurance transactions, education programmes, value added tax records, etc.

10.8. Major complaints about official statistics usually include lack of timeliness and high costs. Big Data is often automatically generated and are accessible in real-time. Therefore, it could certainly be envisioned that Big Data should complement official statistics in order to improve timeliness and cut costs.

10.9. However, many challenges need to be dealt with in order to effectively use Big Data in official statistics, such as:

- i. Legislative challenges with respect to the access and use of data;
- ii. Privacy issues to comply with confidentiality rules, to gain and maintain public trust and challenges to obtain acceptance of data re-use and link to other sources;
- iii. Financial challenges regarding the potential continuous costs of acquiring, hosting and processing the large data sources;
- iv. Management issues regarding policies and directives about the rules, roles and regulations to adequately protect and secure the sensitive data sources;
- v. Methodological challenges, specifically with respect to representativeness of the data, the volatility of data sources over time and the need for adequate estimation and model techniques in making the data useful and comply with quality standards;

- vi. Technological issues related to hosting and accessing the data sources, the data processing, the system maintenance and the over-time storage of huge amounts of data.

B.3. Using Big Data for purposes of official statistics on the international supply of services

10.10. Examples of Big Data which can be used for the compilation of statistics on the international supply of services include: electronic medical records of hospital visits (may aid in compiling health services), mobile phone records (are helpful in tracking movement of international visitors); credit card records (may be useful in tracking a wide range of tourism expenditures and in compiling other trade in services transactions). Such data can be used provided that involved operators and merchants are identified in those data as belonging to service industry. More information on such applications is included in next section of this chapter.

10.11. Compilers are, therefore, encouraged to treat Big Data as a new potential data source and to undertake pilot projects in selected areas. It should be noted that seizing the potential of Big Data would require attention to the organization of an efficient data integration process and review of existing methods on data modelling, estimation and imputation. All of these modifications to the statistical process should be done in a transparent way, be part of the quality assurance programme and be properly reflected in the metadata.

Box 10.1 Country example: Project of Eurostat on using Big Data

Eurostat conducted a 15-month feasibility study on the use of mobile positioning data for tourism statistics. The project will explore the usefulness of using these data for tourism statistics (and related domains) and will assess their strengths and weaknesses. Issues to be studied include access (and continuity of access), trust (of producers and users of statistics), costs, concepts (in translating the existing tourism statistics concept to a new data source) and other methodological topics (e.g., representativeness and sampling within a very large number of observations). The ability of handling large data files held by mobile operators is considered a critical obstacle to overcome if the project is to be successful. The inclusion of this project in the work programme is, among other reasons, based on promising research results in a number of countries.

B.4. Good practices in using payment cards data

10.12. Payment cards records are considered by this Guide as a potential source for compiling statistics on international trade in services in countries that have a favourable institutional environment concerning payment cards, especially if there is a well-established and extended network of automated teller machines (ATM) and point-of-sales (POS) terminals, along with a massive use of payment cards in national and international transactions.

10.13. A sound understanding of the processes of payment card transactions and the actors involved in this process, as well as what to measure, is crucial in order to find and communicate the specification of data to be collected from the payment cards institutions. Efforts should be made to obtain standardised nomenclatures, compatible with the statistical classification. Over time the specification also needs to be reviewed and eventually modified in order to reflect changes in cross-border payments infrastructures and patterns.

10.14. It is a good practice to compare the expenditures obtained from the payment card data with other traditional sources. For instance, if payment card data are being considered for use to in the compilation of travel statistics, these data should be compared with surveys on average daily tourist expenditure conducted by statistical agencies or publicly available from the tourism industry.

10.15. It is advised that an indicator of whether the card was present at the point of sale be collected from the payment card institution, as this information is useful in isolating cross-border transactions or for identifying the type of service involved in the transaction, particularly those related to e-commerce.

10.16. *Purpose and description.* Payment and bank cards (such as credit and debit cards) are important payment instruments in national and international transactions in both goods and services. Records of card-issuing institutions can provide data on international transactions of the card-holders, be they individuals or companies. A comprehensive payment cards database can provide detailed and accurate information concerning operations performed with payment cards, with a number of variables that can be used to characterize the operations, namely related to the geographical breakdown and the types of goods and services.

10.17. Payment cards data offer an advantage in collection of information on such transactions on surveys, as it would be difficult to identify those individuals or entities involved in international transactions by means of surveys. Moreover, individuals often have imperfect recall of specific transactions, whereas payment card records are generally accurate and complete.

10.18. *Using payment card records for purposes of statistics of the international supply of services.* Payment card records can be a valuable source for the compilation of travel statistics. Using the information reported by payments' institutions, it is possible to obtain the number and value of operations performed in resident ATM and POS with cards issued abroad, and operations performed abroad with cards issued by resident entities, as well as the characteristics associated with the cards and the type of channel used. Such data provide, on a monthly basis, a significant measure of travel expenditure, both in terms of credits and debits.

10.19. Payment cards data can also be used as a good proxy for the geographical breakdown of travel, if it is assumed that the country where the issuer bank is located is the country of residence of the traveller. However, compilers should be aware that this assumption may not be appropriate for some smaller countries, where a considerable number of individuals use payment cards issued in countries other than their country of residence.

10.20. Regarding the purpose of the trip, payment cards data can also be a helpful data source. The bank identification number (BIN code¹⁵⁰), which identifies the cardholder's designated account as an individual or a company, allows to distinguish business cards from other types of cards. This information can be used as a proxy to estimate expenditure made by business travellers and other travellers. However, an important issue that needs to be considered is the regular use of personal cards for business travel, which leads to the need for complementary data sources to estimate this breakdown. A separate alternative breakdown of travel into types of goods and services is required according to BPM6 and EBOPS 2010, which can be integrated with additional requirements of other statistical domains, namely the tourism statistics and tourism satellite account. Payment cards databases can provide important information to meet this new breakdown, using the activity classification of the goods and services providers. These variables can be used as proxies to identify the goods and services acquired by travellers.¹⁵¹

¹⁵⁰ Recently designed as IIN (Issuer Identification Number).

¹⁵¹ For this purpose, correspondence tables between national industrial or activity classifications (e.g., between NACE or MCC) and travel expenditures on goods and different types of services should be developed.

Box 10.2 Country example: Description of U.S. Merchant Category Codes¹

The U.S.-based payment card industry uses merchant category codes (MCCs) to classify each merchant and its credit, debit, and cash withdrawal transactions into industry groups. One or more MCCs are assigned to each U.S. or foreign merchant by the merchant's acquiring financial institution, based on the merchant's primary type of business. Each transaction is then assigned the MCC used by the merchant to process the transaction. Most members of the payment card industry collect detailed data on transactions by country and industry group, for which the industry classification is determined by the company's existing internal MCC groupings.

In total, there are approximately 600 MCCs on the universal list used by the U.S. payment card industry. Although the payment card merchant categorization was not specifically designed to conform to the BPM6 main services components, many of the MCCs directly correspond to particular services categories. However, MCCs are applied broadly in that a merchant that sells both goods and services may do so under the same MCC. If transactions data are being used to measure travel purchases, this distinction is not important, but it may be if it is intended to be used for other purposes.

10.21. The main advantages of using payment cards data as a source for the compilation of the travel item are, among others, the wide-ranging coverage of travel-related transactions; the existence of a limited number of respondents; the timeliness and frequency of the information, as data are available with a short delay and on a monthly basis; the detailed information on the characteristics of both travellers and goods and services providers; and, finally, a reduced cost in terms of compilation, since payments institutions need to process this information for their own use, imposing a reduced statistical burden. However, coverage with payment cards data will likely change over time.

10.22. Moreover, purchases made with a payment card from a foreign business identified as a service provider (by an industrial or activity code) in which the card is not present may be an indication of a mode 1 service provision. Identification of such information may be particularly relevant for Internet transactions in services related to IPP products (e.g., music, video, software).

10.23. There are some challenges that have to be considered when using payment cards data. Primarily, there exists the challenge of excluding non-tourist related transactions, such as imports or exports of goods or services other than travel. For this purpose, the use of the transaction amount along with the economic activity of the goods and services providers can be used to exclude transactions that should be classified under other items in the balance of payments. Also, an indicator of whether the card was present at the point of sale is useful in isolating some of these transactions, particularly those related to e-commerce.

10.24. Moreover, payment cards data are not comprehensive for travel expenditures, due to the fact that other means of payment can be used. In this case, it may be useful to compare the travel expenditures obtained from the payment card data with other traditional sources, such as surveys on average daily tourist expenditure or statistics from the tourism industry.

10.25. Another challenge is the fact that classifications used by payment card processors are not necessarily the same as those used by statistical compilers. In fact, efforts should be made to obtain standardised nomenclatures, compatible with the statistical classifications.

10.26. One more task to deal with when using payment cards data is to account for time lags between the moment of the payment and the time of the trip. An additional potential difficulty is the development of the global financial and payments systems that may lead to emergence of more international brands and processors, which brings further complexity to the collecting system.

10.27. Using diverse data sources is crucial to have a comprehensive system that facilitates the collection of travel-related transactions made by residents abroad and by non-residents in the compiling economy. One of the main challenges in designing a compilation system for travel item is integration of different data sources, which have different degrees of coverage, different periodicities and that may contain overlapping data. There is a trade-off between reducing the impact of possible double counting and covering the various types of expenditures of travellers as much as possible. The extensive detail of the payment cards database could allow the compiler to mitigate this risk.

Country experience: Iceland

10.28. Statistics Iceland has been using information on payment card data since 2009 as supplementary information to the trade in services survey for the compilation of the travel item. Information is received quarterly from all three payment card companies in the country, of which two issue credit cards.

10.29. Data on the use of foreign payment cards in Iceland links the ID number of the services provider receiving payment to the business register (or national registry for those not registered in the business register) and NACE and EBOPS classifications. For some NACE numbers, like hotels and restaurants, all transactions are automatically included in travel, whereas all other new ID numbers are examined manually. In order to avoid double counting with the trade in services survey, businesses are asked not to report transactions on the survey if the payment was made by payment cards. The data also includes the country code of the country where the card was issued; the amount of the transaction; and the date of the transaction.

10.30. Some potential challenges with this data are misclassifications of the NACE category; ID numbers for which no NACE category is available (however, transactions with such service providers are typically of small values); missing or incorrect data; double-counting with the trade in services survey; misclassification of country that issued the payment card (i.e., residents of country A with payment card from country B); large amounts of data that are ATM withdrawals and cannot be identified. All ATM withdrawal are therefore assumed to be travel transactions.

10.31. For data on transactions made with domestic cards abroad, only credit cards are included because the information on debit cards is not sufficiently detailed. Statistics Iceland receives total figures for the usage of debit cards abroad, which confirms that the use of credit cards abroad is much more common than the use of debit cards. Given that most of the debit card transactions are ATM withdrawals, Statistics Iceland assumes that the entire amount of the debit card transaction data are travel expenditures.

10.32. The data from the credit card companies includes the merchant category code (MCC) ID name and number, which is linked to the EBOPS classification. While most MCC numbers are manually examined, some, like hotels and restaurants, are automatically included in travel. E-commerce data is excluded. The data also includes identification of the card type (i.e., individual or enterprise), which may be useful in identifying travel transactions (e.g., if an individual card is used to purchase goods, it is assumed that these transactions are likely travel-related). The data also The data can also supplement information on transportation and other business services collected on the trade in services survey.

10.33. The challenges in using data on credit card usage abroad are the fact that MCC categorization is imperfect and of unknown reliability; e-commerce transactions are often difficult to recognize; the volume of different sales/service providers makes individual investigation difficult; transactions are

recorded in the payment card data at the time of purchase, not when the service is delivered,¹⁵² and large amounts of data that are ATM withdrawals and cannot be identified. All ATM withdrawal are therefore assumed to be travel transactions.

B.5. *Mobile phone records*

10.34. This Guide encourages compilers to consider employing the use of mobile phone applications (“apps”) to collect information about mobile phone users’ movements and behaviors. Such apps can be easily downloaded to users’ devices and can retrieve information to enable data analysts to conduct very detailed studies of users’ movements and behaviors. It is advised that compilers clearly request the consent of the mobile phone users before using such apps and describe how the data will be used for official statistical purposes.

10.35. For all types of mobile phone data, compilers must take precautions to make the data anonymous and check that confidentiality rules are being applied appropriately. Privacy concerns are of critical importance and compilers should reassure users that the data will only be used for official purposes and will be aggregated in order to maintain confidentiality. Again, as recommended in chapter 2 of this Guide, legal acts on confidentiality of official statistics should be well-established.

10.36. Compilers will likely need to adjust the mobile phone data to correspond with the definitions of official statistics. It is recommended that algorithms be developed to automatically organize the data according to statistical definitions as much as possible.

10.37. It is further advised that the residency of a mobile phone user is determined by the residency of the mobile operator associated with the user’s account.

10.38. *Purpose and description.* The use of mobile phones is widespread in many countries, which enables statistical compilers to obtain data on location data (geographical coordinates in time) and other important indicators about a mobile phone user and his or her activities.

10.39. Data gathered with the help of mobile phones can be divided into active and passive positioning data. In the case of active positioning, the collector of the statistics contacts phone owners and asks information about their location, themselves and their behavior(e.g. about their travel). In the case of passive mobile positioning, data are automatically stored in the memory files of phone operators or other recording systems.

10.40. *Using mobile phone records for purposes of statistics on the international supply of services.* Both active and passive positioning data obtained from mobile phone records can be important sources for statistics on the international supply of services. In particular, mobile phone records are advantageous in the compilation of travel item and mode 4 services, as information on the country of residence and current location of the mobile phone user facilitates the identification of international travellers, and, possibly, providers of mode 4 services.

10.41. *Active mobile positioning.* In the case of active mobile positioning, information about the location of a phone, the user, the travel behavior of the user, and/or provision of services, is found by making special inquiries, which generally requires the consent of the individuals chosen to participate in the study. Active positioning is related to surveys and software downloadable on smartphones.¹⁵³ As a result, it is possible to obtain very accurate information about the movement, means of transport, expenses, provision of services, and motivation of the chosen respondents. Active positioning data are

¹⁵² Timeliness is particularly an issue for cases in which accommodations are prepaid and when Icelanders purchase fares online from foreign airline companies using payment cards. Timeliness is less a concern with regard to other travel expenditures.

¹⁵³ Examples of such software are MySense and Posques.

geographically accurate.¹⁵⁴ Such detailed data enable data collectors to analyze mobility within the destination, and to conduct market research of a particular region. More study is necessary on how to engage with mobile phone users; the involvement with users could be limited to turning on GPS with consent to providing answers actively on a regular basis. Those studies should cover the technical possibilities of phone applications, their user-friendliness and the incentives for users to participate. Of course, the treatment of the data should be transparent for those users providing the active mobile phone data. Recruitment of mobile phone users for outbound travel could be more difficult and more costly due to the different standards of foreign operators. Still, this area is a very important source of gathering more detailed statistics for performing various studies on travel/tourism and the provision of mode 4 services.

10.42. *Passive mobile positioning.* In the case of passive mobile positioning, statistical data are obtained from secondary sources of mobile phone use, which are most often the phone use information automatically recorded in the systems of operators, such as Call Detail Record (CDR), Erlang, and Anonymous Bulk Location Data (ABLD), among others. The advantages of passive positioning are the huge masses of data involving all phone users and the relatively cost-effective data collection method. The shortcomings, however, are protection of the privacy of persons, the difficulties in obtaining the data from operators and the lack of characteristics included in the data. The main convention for defining the residence of persons traveling is by the residence of the mobile operator related with him/her. Other conventions for any other statistical purposes can be introduced as well. The use of passive positioning data in the area of travel/tourism is rapidly growing, because it is difficult to get an adequate overview of the movements and mobility of people in the increasingly mobile world with open borders.

10.43. Call Detail Record (CDR) is one of the most widely used sources among the passive positioning data suitable for compilation of travel item as well as for tourism statistics. The data are obtained from Data Warehouse or from the billing record of the mobile network operator's system; i.e., from the places where information is gathered about phone users from issuing invoices. The time of a call, the location of a call, the duration of a call, the cost and other characteristics are recorded as such information. Production of statistics from such data requires making the data anonymous and standardized, as well as checking the data, because the privacy of people and business confidentiality of operators need to be protected. CDRs are usually issued as impersonalized data, either aggregated for certain types of user groups or pseudonymously with randomly generated IDs. Spatially, the CDR data are usually issued with the accuracy of a network cell (the cell with its location is called the Cell Global Identity - CGI). This level of accuracy suits well, for example, for generating the main variables of tourism statistics and several data collection systems using CDRs were developed for this purpose. The CGI is, however, not accurate enough for preparing detailed analyses of movements of persons. For example, CGI can be used for identification of transit visitors in travel (airports and seaports, main transit lines thru the country, etc.). Moreover, there is noise in the roaming data that needs to be acknowledged, and travelers in border areas of some countries may pick up cells of neighboring countries without physically entering the country.

10.44. A caveat on the use of mobile phone records is that some travelers who are in a country for a period of time (e.g., less than a year) may purchase local subscriber identity module (SIM) cards for their phones and thus not be covered through mobile phone records.

10.45. The methodology of preparing passive mobile positioning data requires adjusting the mobile data to correspond with the definitions of official statistics. For example, the duration of a visit, the number of nights spent and transit tourism are assessed on the basis of ordering single call activities, with the uneven distribution of call activities in time and space posing a methodological problem. For this reason, it is necessary to develop algorithms for organizing data, segmenting visitors and the visits, for example.

¹⁵⁴ Smartphone-based studies in this area commonly utilize GPS resolution of the accuracy of 1-10 m

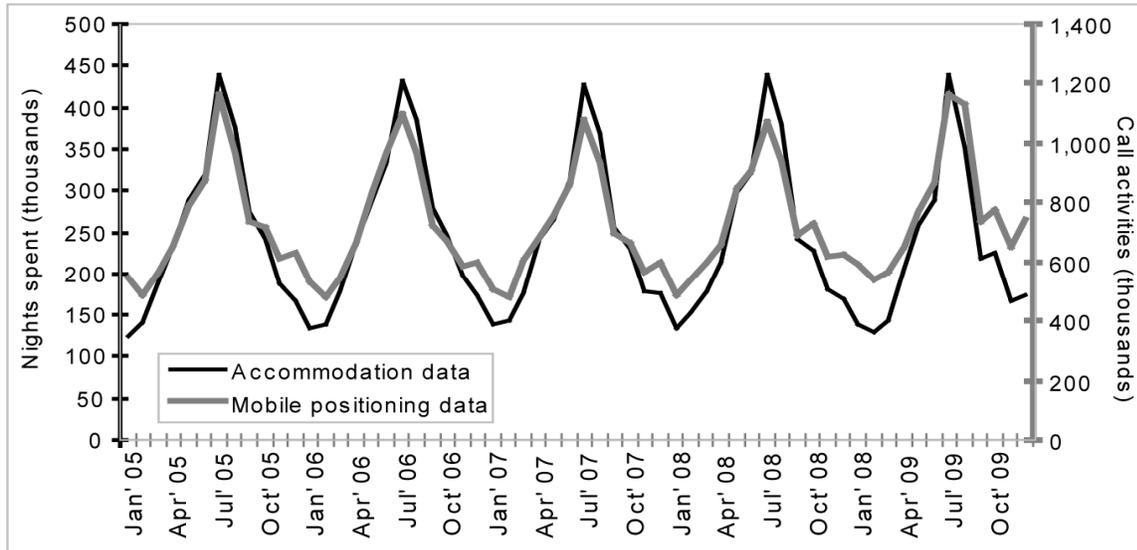
Country experience: Estonia

10.46. The Bank of Estonia relies on mobile phone records for estimating travel and the Tourism Satellite Account (see chapter 14.B.IV and chapter 16.A for mode 2). Estonia compiles the statistics based on data from Positium Data Mediator, software developed by the Department of Geography of the University of Tartu.

10.47. In Estonia, algorithms are developed for segmentation and cleaning of data available in the Positium Data Mediator. For example, special methods are required for eliminating cross-border and accidental roaming noise. In the preparation of the base models of inbound, outbound and domestic tourism, Positium Data Mediator uses the data from Statistics Estonia and the results of the surveys regularly ordered from TNS Emor for calibration. These results are used to prepare a base model of data, which must be representative of various visitor segments and geographical areas and also take into consideration the market shares of various operators and the ranges of the radio coverages of various mobile networks.

10.48. Inbound tourism is determined on the basis of the log files of the roaming service of operators. The travelers (phone-owners) that have arrived to the destination from abroad are divided into visitors from different countries of origin on the basis of the registrations of the phones (so-called resident countries of the tourist or nationality); the duration of a visit is measured by each phone on the basis of the number of days at the destination when call activities were performed. Outbound tourism is determined on the basis of the roaming log files of the phones originating from the countries of origin. Visiting statistics by countries are found on the basis of the temporal and spatial distribution of the call activities performed abroad; foreign visits are segmented according to the requirements of statistics, if necessary. Comparison of call activities obtained on the basis in passive mobile positioning data and data on accommodation nights in Estonia shows high correlation between these two data sources (see Figure 10.1)

Figure 10.1 Comparison of call activities in passive mobile positioning data and accommodation nights in Estonia (Positium LBS)



C. External party sources

C.1. Good practices in using external party sources

10.49. External party sources have some inherent limitations. While they can provide insight and a different perspective than are available from other more traditional sources, compilers should be aware of the unique challenges with using statistics compiled by other non-statistical entities.

10.50. Primarily, external party sources vary in terms of data quality and timeliness, which ultimately depend on the quality of the statistical processes in place at the external party. It is recommended that the compiling agency become as familiar as possible with the data sources, collection methods, methodology, and statistical rigor of the external institution and document their strengths and weaknesses. It is strongly recommended that the compiling agency contact the external source directly to discuss these aspects in greater detail; to alert the data provider that its data may be used for official purposes; and to open the lines of communication so that any changes in methodology or timeliness can be transmitted to the compiling agency in a timely manner. Some external parties may be willing to work more closely with the compiling agency in order to better meet the official statistical requirements; however, even in this instance, the NSO should continually monitor the quality of the data and be aware of the limitations and weaknesses.

10.51. The compiling agency should assess whether the data available from the external party is helping to measure the trade of the service category of interest, or other types of statistics related to the international supply of services. In many cases, the definition of the industry or other aspects related to international supply of services will not match the official statistical definitions. Such misalignments may lead to misinterpretations and misuse of the data. Again, it is strongly recommended that the compiling agency learns all such definitions and methodological aspects of the external party source.

10.52. Timeliness and frequency are often weaknesses of external party sources. The compiling agency should be prepared for breaks in series, changes in methodologies, changes in survey sample sizes, and complete extinction of the source. In particular, it is recommended that the compiling agency develops plans for cases where there is a reasonable expectation that the external party source might substantially change or expire. It may be advisable to use an infrequent data source as

an input to a data model that estimates the value of the service transactions, or to interpolate missing years or to fill other data gaps, rather than relying on the data source solely on its own.

10.53. Access to the data may also pose a challenge, especially if the external party typically charges a fee for access. It is a good practice that the compiling agency contact the external party source directly to request the best possible terms of use.

10.54. It is further advised that compiling agencies appropriately document all data sources in the metadata, including in which years the data source was used, and to keep documentation of the external party source, including historic data, revisions, methodological documents, communication, and any user agreements.

C.2. Purpose and description

10.55. Compilers could make use of other external party sources, such as financial statements of companies; reports of chambers of commerce; records of investment promotion agencies; records of business associations; surveys conducted by other organizations; private databases; on-line search engines; on-line travel booking sites; and data compiled by trading partners. In particular, studies and research publications of public or private institutions that include relevant statistical information can be resource- and cost-effective sources. Ministries also may conduct special studies on industries they supervise and may conduct surveys for this purpose. Moreover, industry trade associations may publish research studies on performance of the industry, particularly in international markets, as a means of promotion. Such data sources could be useful for compilers as a means of identifying enterprises involved in international transactions, updating the names and characteristics of businesses in the SBR, validating survey results, and filling in data gaps.

C.3. Using external party sources for the purposes of statistics on the international supply of services

10.56. National and international organizations that represent services industries often compile registers of the enterprise members, including names, locations, and contact information. Such information can serve as a source for updating and maintaining the service providers included in business registers.

10.57. Such organizations may also survey their members for quantitative and/or qualitative information on their operations, including domestic and international sales or market share, and conduct market research to compile estimates or forecasts of sales. Quantitative information from such studies can be used to validate or complement statistical survey results or to serve as a basis for estimates when no other data are available.

10.58. National ministries associated with specific industries are also important sources of data and can range from ministries of tourism and investment promotion to regulatory bodies on insurance, health, and education. Such agencies may already be providing to the NSO more traditional administrative data based on regulatory requirements. However, these agencies may also conduct special research reports or one-time studies that can supply greater detail or cover a different industry than its routine scope of work. Such data can be used to validate or complement other data sources.

10.59. Financial statements, annual reports, and profit and loss statements of enterprises can also be a wealth of information for statistical compilers. Often such reports include information and data on the firm's international operations, sales, and market share by country or region. The level of detail that is reported varies widely, depending on the country and type of enterprise. However, this source should not be overlooked as a means of identifying enterprises involved in international transactions, updating the BR, validating survey results, and filling in data gaps.

10.60. Private database companies that maintain databases of financial, statistical and market information on global companies and private consultant groups are also commonly used by statistical institutions, either to complement or substitute other data sources. Such private databases are usually accessible for a fee. Examples of such providers are Compustat, Dunn & Bradstreet, Amadeus (Bureau van Dijk), Business Monitor, Deloitte and Insight Research Corporation, among others. These databases can be good sources for updating and maintaining SBRs, as they typically provide company names, addresses, telephone numbers, names of contact persons, enterprise size by sales value or employee count, and other basic characteristics, including industry or market sector, market share, or number of establishments. These private sources often conduct market research studies that may include analysis of domestic and international sales, market share, actual values of sales, and/or estimates or forecasts based on historic trends.

10.61. Finally, internet searches of individual company names, industry sectors, or trade groups are an extremely efficient and cost-effective way of validating information in SBRs and survey results.

C.3.a. Country experience: Australia - legal services statistics

10.62. The Australian Bureau of Statistics (ABS) collects data for legal services by means of a quarterly survey of resident Australian businesses (the International Survey of Trade in Services). The ABS captures data from a broad range of respondents, but not a complete range as resource constraints and collection difficulties restrict data coverage.

10.63. The data from the ABS survey is collected on a country/dollar value basis asking only for the value of receipts and payments of total legal services. There is evidence that a significant percentage of international trade in legal services is provided by consultants and sole traders. It is currently beyond the resources of the ABS to cover and process such a potentially large number of additional respondents. The true volume in resident/non-resident legal trade, therefore, can only be estimated or modelled based upon this anecdotal evidence.

10.64. The legal services data currently obtained by the ABS on a quarterly basis is compiled solely from the Survey of International Trade in Services. The final trade in legal services statistics are published on a quarterly and annual basis, as part of the International Trade in Services series of publications, and posted for general access on the ABS website.

10.65. The Australian Attorney-General's Department in 1990 established the International Legal Services Advisory Council (ILSAC). Amongst other tasks, ILSAC produces an annual Statistics Survey on International legal trade. Unlike the ABS survey, the ILSAC survey is sourced from data representing all four Modes of Supply. ILSAC also noted that when compiling data for international legal trade, the ABS identifies earnings of overseas branches of Australian law firms as "returns on investment" rather than "exports", as the ILSAC survey does.

10.66. Initial results from the ILSAC Statistical Surveys showed that the ABS data were understating the extent of international trade in legal services. Significant efforts have been made in recent years to improve the quality of ABS data and as such, the ABS is in contact with ILSAC to better align the data provided by both organisations. It is now possible to reconcile the differences which continue to appear on an annual basis between data published by both the ABS and ILSAC. As the two surveys become better aligned, the size of trade in legal services can be more accurately measured.

C.4. Bilateral or "Mirror" data

10.67. Exchange of statistics between countries (especially main partners) is seen as a particularly relevant exercise for compilers of statistics on the international supply of services. However, bilateral (or "mirror") statistics should not be seen as a major data source on their own, but should rather serve as a reference for checking and adjusting collected data. In this connection, it should be noted that due to differences in applied concepts and data collection/compilation procedures,

such “mirror” data should be consulted with caution and after necessary reconciliation. It is also a well-known phenomenon that mirror statistics on the international supply of services often contain asymmetries, due at least in part to coverage, sampling and methodological differences. An investigation into bilateral asymmetries between the United States and Canada is presented below.

10.68. Mirror data could potentially be useful to collect information on Mode 4 number of persons as "sending" (i.e., exporting) countries may be able to more easily collect information for some categories (especially contractual-service suppliers and those travelling for negotiation purposes) than for others (e.g., intra-corporate movements, self-employed migrants). The "receiving" (i.e., importing) countries may have such information as well.¹⁵⁵

C.4.a. Country example: Reconciliation of the U.S.-Canadian Current Account

10.69. The Canadian-U.S. current account reconciliation, which explains the differences between the official bilateral statistics published by Statistics Canada and those published by the U.S. Bureau of Economic Analysis (BEA),¹⁵⁶ is undertaken because of the extensive economic links between Canada and the United States. Reconciliation of the U.S.-Canadian current account has been undertaken each year between 1970 and 2008, and periodically since 2008. The reconciled estimates are intended to assist analysts who use both countries' statistics and to show how the current account estimates would appear if both countries used common definitions, methodologies, and data sources.^{157, 158}

10.70. Differences occur in the official statistics of the U.S. and Canadian current accounts because of variations in the definitions, methodologies, and sources used by each country. Some of the differences are sometimes in components of the current account for which data are preliminary and subject to revision; these differences may be reduced or eliminated when final data for these components are incorporated.

10.71. The longstanding Canadian-U.S. current account reconciliation is among the leading examples of the benefits of international data exchanges. As a part of the reconciliation process, Canada and the United States have evaluated the accuracy of each other's statistics, and as a result, each country now includes in its official statistics data that are provided by the other country. The exchange of data between Canada and the United States for transactions such as trade in goods, travel, passenger fares, Canadian and U.S. Government transactions, and some large transportation transactions covers a substantial portion of the value of the Canadian and U.S. current account and has eliminated some of the differences in the Canadian and U.S. official statistics. In addition, the reconciliation process has identified areas where errors and omissions may exist helping each country to target data improvement efforts.

10.72. Although the U.S. and Canadian official statistics are reconciled and extensive exchange of data take place between Canada and the United States, differences in the official statistics remain. Complete substitution of the reconciled statistics for official statistics and complete exchange of data

¹⁵⁵ More information on potential sources for mode 4, and by direction of movement (ingoing/outgoing), is provided in table 11.8.

¹⁵⁶ U.S. Bureau of Economic Analysis and Statistics Canada, *Reconciliation of the United States-Canadian Current Account, 2010 and 2011*. http://www.bea.gov/scb/pdf/2013/01%20January/0113_unitedstates-canada.pdf and <http://www.statcan.gc.ca/pub/13-605-x/2013001/article/11772-eng.htm#n1>.

¹⁵⁷ A detailed article on the methodology was published by BEA in "Reconciliation of the U.S.-Canadian Current Account" in the November 1992 Survey and by Statistics Canada in Reconciliation of the Canadian-United States Current Account, 1990-1991. Statistics Canada also published a shortened version in the December 1992 Canadian Economic Observer and in Canada's Balance of International Payments, Third Quarter 1992.

¹⁵⁸ To better understand the differences in investment income, each country's positions on bilateral foreign direct investment and on some portfolio investment accounts are also compared during the exercise of the Canadian-U.S. current account reconciliation.

are not feasible for several reasons. For some accounts, the protection of the confidentiality of the source data bars the exchange of data. A few differences are attributable to different requirements for integrating the international and national (domestic) accounts in each country.

10.73. To reconcile the official Canadian and U.S. bilateral current account statistics, the official statistics are first restated to a common basis, that is, they are adjusted for definitional and methodological differences; and then statistical adjustments are applied to reach the reconciled values. The framework for restating the statistics to a common basis mainly follows the international guidelines published in the International Monetary Fund's Balance of Payments Manual. The official Canadian and U.S. statistics now largely conform to the international guidelines, but some differences from the international guidelines, and between the Canadian and U.S. statistics, remain because of data limitations, difficulties in determining country attribution, and differences in classification. In addition the international guidelines can sometimes provide for more than one acceptable treatment.

10.74. Definitional adjustments mainly reflect data limitations and differences in country attribution. Methodological adjustments mainly reflect differences in classification.

10.75. Statistical differences reflect the use of different source data in the United States and Canada, the difficulty in determining country attribution because of insufficient data, the preliminary nature of some data (particularly for the most recent year), and the use of sample data between benchmarks. For both the northbound (United States credit transactions and Canada debit transactions) and the southbound (United States debit transactions and Canada credit transactions) statistics, most of the statistical differences are in the categories of services other than transport and travel and in the investment income accounts.

C.4.b. ECB/Eurostat - Bilateral data exchange – FDI network

10.76. The FDI Network is a joint ECB/Eurostat initiative, which has been developed in close cooperation with FDI compilers from all Member States. Its aim is to tackle asymmetries in FDI and, as a consequence, to improve data quality. To reach this purpose, the FDI Network facilitates a secure exchange of information between national compilers on specific FDI transactions and positions.

10.77. The transmission and exchange of confidential data in the context of the FDI Network is foreseen exclusively for statistical purposes and in particular for the purpose of increasing the quality of the EU/euro area balance of payments statistics.

10.78. Transactions taken into account for a specific reconciliation round are related to transmissions exchanged in a certain period. These transactions were introduced into the template and sent out by Eurostat asking the FDI Network users to amend the information of those transactions where they acted as an initiator or – in a second sheet - as a counterpart. The compiler Member State completed the template for their transactions. A similar procedure is used for the reconciliation of positions.

10.79. In accordance with the provisions of the FDI Network Manual, Eurostat regularly monitors the results of the reconciliation process of the transactions exchanged through Network. FDI asymmetries can be analysed from two different points: at EU-28¹⁵⁹ aggregate level using data available from quarterly BoP, as well as annual FDI, and on a bilateral level using mirror FDI data for those countries more actively using the FDI network. The analysis of the counterpart countries are based on net figures reported by countries, while the transactions and positions exchanged true the network are expressed normally in gross values. The asymmetries are calculated separately for inward and outward flows/stocks. The tables indicate the decrease of asymmetries and the status of several transactions within a period.

¹⁵⁹ Croatia is not included in the tables above (as before 1st July 2013).

10.80. The bilateral exchange of data (flows/stocks) could improve the quality of transmitted data. Reconciliation in the FDI network leads to a number of closed cases. When reconciliation cannot be made, it is typically due to incorrect information received information from the company involved or some methodological differences in Member States, particularly due to the use of different valuation methods.

D. Linked microdata

D.1. Good practices in using linked microdata

10.81. In addition to the various data sources that have been discussed in this chapter and the preceding chapters, it is important to note that *the integration* of two or more existing data sources can also provide a lot of additional information relevant for the compilation of the international supply of services, as is described in more detail in chapter 13. In order to facilitate such microdatalinking, it is first advised that all economic entities are included in a SBR that serves as the central sample frame of the statistical system.

10.82. Microdata are the observation data that may be collected on an individual statistical unit, including an individual person, household, business or other entity.¹⁶⁰ Examples of microdata may be the name and location of a survey respondent; enterprise identification number from the BR; information on the number and characteristics of employees of an enterprise; etc. Such microdata may already be available from existing data warehouses within the NSO, or may come from other administrative data sources or the other sources cited in this chapter. If microdata are being linked across agencies or across different data providers, it is recommended that an aggregate list of the entire population of individuals or enterprises from all sources are marked with an indicator of whether it has been linked or not. A manual review of the entities that have not been linked may reveal duplicates or other inconsistencies that can be resolved.

10.83. This Guide advises that compilers conduct a thorough review of enterprises with similar names and multiple establishments, in order to identify the appropriate establishments to include in the linking exercise and to avoid double-counting.

D.2. Purpose and description

10.84. Compilers may consider using microdata to link characteristics of reporting individuals and enterprises in order to get a different perspective on a target population, to identify inconsistencies or overlaps in the data, or sometimes to even fill data gaps. Often microdata are not publicly released other than for officially-sanctioned research studies, which typically involves a rigorous approval process.¹⁶¹

D.3. Using linked microdata for purposes of statistics on the international supply of services

10.85. Linked microdata on enterprises may prove most valuable in compiling foreign affiliate statistics (FATS) and data on modes of supply. Namely, linking microdata on foreign ownership indicators (available from the BR, company financial statements, or other industry sources) will help to identify the target population for FATS surveys and service transactions through Mode 3. Moreover, microdata on the characteristics of employees of enterprises that may indicate foreign residence could also help in identifying these target populations in relation to mode 4.

¹⁶⁰ OECD glossary of statistical terms. <http://stats.oecd.org/glossary/detail.asp?ID=1656>.

¹⁶¹ See chapter 20 for a more detailed discussion of the release of microdata.

10.86. Microdata on labor statistics and/or individuals' residence will also help compilers in identifying presence of natural persons for compiling supply of services through mode 4.

10.87. Linking microdata can also provide opportunities for the NSO to conduct special research studies on different aspects of international supply of services which may be of particular interest to the country, such as the characteristics of domestic firms engaged in trade in services; determinants of imports of services; and effect of activities related to foreign affiliates and foreign direct investment on the domestic economy, among many others.

D.4. Country experience: the United States

10.88. The U.S. Bureau of Economic Analysis (BEA) jointly engaged with the U.S. Bureau of Labor Statistics (BLS) in a microdata-linking study of multinational enterprises based in the United States in 2011.¹⁶² The aim of the project was to uncover more about the geographic, occupation, and wage distributions of employment by U.S.-based multinational enterprises. While this linking study does not directly relate to statistics on international trade in services, the methodology employed demonstrates how such linking is possible and can open the door to future extensions and applications in the area of FATs and statistics of trade in services by modes of supply.

10.89. The project combined firm identifiers from the BEA 2004 Benchmark Survey of U.S. Direct Investment Abroad with BLS microdata on employment in establishments of these firms, for a pilot group of the largest U.S.-based multinational manufacturing enterprises. BEA data on multinational enterprises based in the United States were used to match a pilot group of U.S. parent firms of multinational enterprises with their establishments appearing in BLS data. The pilot group consisted of the largest 500 U.S.-based multinational manufacturers (by primary industry of the U.S. parent) in the BEA's firm-level data from the 2004 Benchmark Survey of U.S. Direct Investment Abroad. The efforts at matching were based primarily on the names, locations, and employer identification numbers (EINS)¹⁶³ provided in this survey.

10.90. Identification of the establishments of firms in the pilot group were based on the BLS Quarterly Census of Employment and Wages (QCEW), which collects information on total employment by month and total wage bills for all U.S. establishments covered in the Unemployment Insurance program, as well as detailed information on the industry of main activity (at the six-digit North American Industry Classification System (NAICS) level) and geographic location (at the Census block level) for each establishment. These establishments were then matched with those sampled in the BLS Occupational Employment Statistics (OES) survey, which provides data on the distribution of their employees' occupations and hourly wages.

10.91. The automatic matching efforts entailed matching EINS between BEA firm-level data and BLS establishment-level data. BEA firm-level data contain only one or two EINS per firm, while BLS establishment-level data contain one EIN per establishment, and the establishments of each firm may report many different EINS in the BLS data. Thus, additional EINS for each firm were found by matching firm names and addresses with the establishment names and addresses in the QCEW, as well as by using enterprise family lists (lists of employers that operate under different names but are part of the same enterprise) from other BLS programs, enterprise information in the Compustat database, and other sources of data on firms.

¹⁶² Elizabeth Weber Handwerker, Mina M. Kim, and Lowell Mason, "Domestic employment in U.S.-based multinational companies," Monthly Labor Review, October 2011. <http://www.bls.gov/opub/mlr/2011/10/art1full.pdf>.

¹⁶³ The Internal Revenue Service assigns the EIN, or Federal tax ID number, to identify a business entity. Most large companies with many establishments report more than one EIN to the BLS Quarterly Census of Employment and Wages. The one or two EINS that companies report to BEA in the Benchmark Survey of U.S. Direct Investment Abroad generally match only a fraction of these large companies' establishments.

10.92. However, such automated matching procedures are imperfect: some firms are matched with unrelated establishments, while other firms appear to be matched with only a fraction of their establishments in the QCEW. Accordingly, the lists of all establishments found through automated matching were reviewed manually, and the establishments matched in error were removed. Then, the QCEW was searched for additional establishments identified from enterprise Web sites, filings from the Securities and Exchange Commission (SEC), and enterprise annual reports.

10.93. The firms identified in BEA surveys were considered to be “adequately matched” with BLS establishment data if the total employment of all matched BLS establishments for a particular firm was within 20 percent of the total employment reported in the BEA survey. The establishments of the adequately matched firms were then linked with establishments in the OES survey data. Although a large portion of U.S. employment of U.S.-based multinational manufacturing enterprises was found in the QCEW and OES data, the missing employment was not random. The multinational enterprises that were found to match with the BLS establishment data were different from the firms that remained unmatched. For example, it was more difficult to match privately owned firms (which generally disclose less information than publicly owned firms and, in particular, do not file annual reports with the SEC) and firms that have undergone liquidation or reorganization since the survey date.

10.94. Furthermore, the sample design of the OES survey is intended to produce estimates at the State and industry levels, not to provide estimates for the unusual subsample of multinational firms examined in this study. The OES survey collects information from a sample of establishments rotating in 3-year panels, with sample probabilities that vary by establishment size. The probability that a larger establishment is included in the OES sample over the course of 3 years is greater than the probability that a small establishment is included. This difference could affect the distribution of occupations and wages in the subsample of establishments that are matched with multinational firms. Consequently, the sample and nonsample variance of these estimates may be large.

10.95. Future research could be based on other information collected by BEA, such as the magnitude and scope of foreign direct investment, the amount of intrafirm trade, the destination countries for foreign direct investment, the enterprises’ degree of “global engagement,” and their trade in services.

Chapter 11 Comparing Data Sources

11.1. *Scope.* This Guide discussed, in Chapters 6 to 10, a variety of data sources including enterprise and establishment surveys, surveys on persons and households, international transactions reporting system (ITRS), administrative records and other data sources. This chapter provides a comparison of the advantages and disadvantages of these sources in compiling the various EBOPS components, as well as FATS and modes 2 and 4 number of persons and trips. The advantages, identified with a plus (“+”) sign, and disadvantages, identified with a (“-”) minus sign, are analyzed in comparison tables by systematically addressing the coverage of transactions (C), the accuracy of reporting (A), the timeliness and frequency (T), the relevance (R) and the burdens of reporting and processing data (B) involved in each data source. In doing so, this chapter forms the basis for Chapter 13 where the integration of data from different sources is discussed.

A. Summary of good practices

11.2. Given the fact that the whole chapter is about comparing data sources and good practices for the collection of five main services groupings (manufacturing services on input owned by others and repair services, transport, travel, other services, government goods and services), FATS and the modes of supply, the user is advised to read sections B (resident/non-resident trade in services), C (FATS) and D (Modes of supply) for specific discussions of good practices in these area.

11.3. It is however generally considered a good practice that compilers, guided by the comparison tables available in this chapter explore and compare the possibilities offered by the sources readily available nationally and uses those that present an advantage (identified with a plus (“+”) sign), relatively to other sources, for collecting the information for the supply of services element under consideration. If no source is available yet for the topic under consideration, it is considered good practice that the compiler carefully compares and assesses which type of data collection or combination of data collections would be most useful to set up in his national context, using the guidance of the comparison tables in this chapter.

11.4. To assess the advantages and disadvantages of different sources with respect to their coverage of the specific service category, the good some collection practices are marked with “++” in order to illustrate that they, relatively, present most advantages. However, the reader should always be aware that depending on national circumstances, the suggested source might not always be the best option for all countries and in practice other existing sources or a combination of available sources can be more suitable to collect the necessary information.

B. Comparison of data sources for resident/non-resident transactions

B.1. Preferred collection practices and comparison of data sources for manufacturing services on physical inputs owned by others and maintenance and repair services n.i.e.

11.5. This guide suggests data on manufacturing services on physical inputs owned by others (and corresponding goods), short, manufacturing services, could be collected most preferably through surveys that are sent to the manufacturing companies which organise international production (for imports of manufacturing services) and to processing companies/sole-proprietorships (for exports of manufacturing services). It is important to explain and verify that respondents understand the scheme of production networks in which they are involved. Surveys would also be an efficient source for collecting information on maintenance and repairs n.i.e. (paying special attention to identify separately maintenance and repairs related to construction and computer services given the definition of these items).

11.6. ITRS is an alternative data source for these items. For manufacturing services it should be noted that it only captures fees paid to processors, meaning that transactions without settlements (e.g.

between affiliated enterprises), may not be captured. Although customs data may also be used to derive estimates on manufacturing services, it is widely recognised that the difference between the value of imports and that of exports of processed goods in general does not represent the processing fee. Customs data could be useful in identifying companies engaged in processing, could be used for reconciliation exercises when processing fees are obtained from ad-hoc surveys or could also be useful to complement other methods or alternatively, as input in a data model (by major type of manufacturing). Some (regular) benchmark surveys may complement those to validate the model outcomes. Customs data are also potentially useful for identifying goods being sent abroad for repairs and maintenance. Although difficult information on fees could be requested in customs forms (see BPM6). Given the tax concessions provided to some of the firms that may be involved in processing, eventual statements to tax authorities may provide relevant information.

Table 11.1 Comparison of data sources for compiling manufacturing services on physical inputs owned by others and maintenance and repair services n.i.e. (import and export)

	Enterprise and Establishment Surveys (EES)	ITRS	Administrative Records (AR); customs data; Tax concessions
Coverage (C)	(++) cover enterprises engaged in such activities (-) may not fully cover full population if threshold, in particular for resident SMEs	(+) cover settlements related to transactions (-) does not cover all settlements if threshold is applied	(+) customs data could be useful for identifying companies involved in manufacturing services or processing and maintenance and repair, but declaration forms may need to be adjusted (-) Most probably not possible to ask for fee charged. (+) information from Tax authorities.
Accuracy in Reporting (A)	(+) may require explanatory notes/follow up when respondents do not fully understand the scheme of the production network	(+) if settlements of processing fees occur between unrelated parties (-) misclassifications; may include other (goods or services) transactions between processing company and its client	(+) customs data: if gross flows related to goods for processing and repairs and maintenance are properly identified (mainly to adjust goods). Possible to ask for fee
Timeliness, Frequency (T)	(-) often lag of more than one month; quarterly frequency	(+) lag of a only few days; monthly frequency	(+) lag of a few weeks; monthly frequency
Relevance (R)	(+) can collect detailed information on manufacturing and maintenance and repair activities	(+) if different processing-related transactions are identified by separate transaction/codes (-) additional information needed on corresponding movement of goods to adjust general merchandise	(-) difference between value of imports and exports often does not reflect manufacturing (or repair) fee (e.g. holding gains and losses)
Burdens of Reporting and Processing Data (B)	<Reporting> (-) <Processing> (-) in case of difficulty of grossing up	<Reporting> (-) especially for banks reporting on behalf of transactors <Processing> (+) once implemented	<Reporting> (+) if no additional work <Processing> (+) in terms of coordination with data collecting units

(+) implies advantages and (-) implies disadvantages in terms of each element.

B.2. Good collection practices and comparison of data sources for transport

11.7. Enterprise and establishment surveys of resident and non-resident carriers are the main sources to collect transport services data in many cases. Compilers are advised to make sure that the survey is elaborate enough to cover most of the EBOPS categories related to transport services. An additional difficulty - which applies to all sources for transport - lies with the information necessary for compiling data based on balance of payments recording rules.¹⁶⁴ Compilers should also be aware of potential difficulties in obtaining data reflecting the activities of non-resident carriers' for freight related services (i.e. imports of freight transport services- debits). However, in many cases transport operators establish branches or agents in client countries who may then respond to surveys. For economies with regulated modes of transport (air transportation being the best example) this may even be more relevant. Alternatively countries can survey resident importers/exporters about their transport expenditures paid both to resident and non-resident carriers.

11.8. Information on passenger transport services can also be obtained from traveller surveys including questions on passenger fares of international transportation, although the same limitations as encountered in travel (the capacity of the respondent to provide the right information, and the compiler's ability to know the population) would apply.

¹⁶⁴ The reason for this is that, in line with BPM6 recommendations (para 10.78) all freight costs up to the customs frontier of the economy of the exporter are shown as incurred by the exporter and all freight costs beyond the customs frontier of the exporter are shown as incurred by the importer (see chapter 14 and BPM6 CG 12.35).

Table 11.2 Comparison of data sources for compiling transport services (including postal and courier services)

	EES	PHS	ITRS	AR; customs data
C	<p><Im/Export> (++) general enterprise surveys cover transactions by residents reporting on their transactions involving non-residents (less relevant for passenger transport imports) (++) surveys on agents/branches of non-resident carriers cover imports of residents (for passenger transport debit could be targeted to ticket selling agents) <Export> (++) specific surveys may cover major resident carriers providing services to non-residents (for both passenger and freight transport credit) (-) may not fully cover resident small carriers</p>	<p><Import> (partly +) household surveys or border surveys can cover transport service (freight and passenger fares) imports by residents <Export> (-) border surveys can provide information on passenger fares incurred by non-residents.</p>	<p><Im/Export> (+) cover settlements related to transactions (-) does not cover settlements under thresholds <Imports> (-) may be difficult to capture freight export and import included in goods</p>	<p><Import> (+) customs data could be useful for identifying freight costs (-) do not cover transport occurring between two foreign countries</p>
A		<p>(-) households/individuals may not identify cost components of package tour; depends on sample representativeness for international transactions</p>	<p>(+) but compilers need to pay attention to partner country attribution.</p>	<p>(-) difference by types of merchandise cannot be fully reflected</p>
T	<p>(-) often lag of more than one month, quarterly frequency</p>	<p>(-) lag of more than one month, quarterly frequency</p>	<p>(+) lag of only a few days, monthly frequency</p>	<p>(+) lag of a few weeks, monthly frequency</p>
R	<p>(+) can be designed so that relevance is ensured</p>	<p>(+) can be designed so that relevance is ensured (-) recollection of information may be approximate</p>	<p>(-) cannot easily identify complex transactions</p>	<p>(-) typically cannot identify freight costs</p>
B	<p><Reporting> (-) <Processing> (-) in case of the difficulty of grossing up</p>	<p><Reporting> (-) <Processing> (-) in case of the difficulty of grossing up</p>	<p><Reporting> (-) especially for banks reporting on behalf of transactors (-) in terms of aggregation of micro data <Processing> (+) once implemented</p>	<p><Reporting> (+) if no additional work <Processing> (-) in terms of aggregation of micro data or coordination with data collecting units</p>

(+) implies advantages and (-) implies disadvantages in terms of each element.

11.8. ITRS may cover most exports and imports of transport services categories, but may not properly distinguish freight exports under fob contracts where the transporter is a resident, and imports of freight transport under c.i.f. contracts, as the transport value is usually included in the value of merchandise. In these cases, compilers need additional information to estimate the imports of freight transport services. In addition, when using an ITRS, compilers should pay attention that the country of operations may be different from country of registration or residence of the owners (especially important in marine shipping).

11.9. Administrative records such as customs documents could provide useful information for modelling freight costs, as long as they include information about the commodity traded, weight, the origin and destination, and the mode of transport. Obviously, this also depends on the information available about the carrier involved. For example, administrative records may not have information on

transport costs by type of merchandise. They also will not be helpful for transport of cargo or passengers occurring between one foreign country to another foreign country by a resident transporter, and administrative records might also be a weak source to measure transactions related to auxiliary transport services (such as loading containers, storage or air traffic control).

B.3. Good collection practices and comparison of data sources for travel

11.10. Travel related transactions are unique in comparison with other services in that individuals are involved systematically in the consumption of the related products. The most efficient way to collect data from those traveling is therefore through surveys of persons or households where samples are asked to report information on their spending, while outside their home country. However, there are certain limitations to such surveys. The first issue comes from the capacity to reach relevant households/persons, notably non-residents at the time they leave the country. Reaching residents when they return to their home country is also a difficult task but they can be inquired later (i.e. through household surveys).

11.11. Secondly, respondents may not have a perfect idea of all their expenses made during their travel especially if they have to fill the survey while they are on their way to leave the country. Some expenses could have been paid well in advance such as the hotels or some transport. Expenses engaged in the context of business travel could be paid or reimbursed by its enterprise (in some cases he/she may even not know the exact value of the service transactions paid by his employer).

11.12. ITRS could cover payments by resident and non-resident travel agencies as well as large payments for travel. Payments by travel agencies may include expenses on hotels, domestic transport and meals during the travel. Transaction data from foreign exchange bureaus could also approximate travel expenditures, although such data could contain non-travel transactions. Another potential weakness which can be important in the context of travel is that settlements and service delivery may not occur in the same time period.

11.13. Other data sources, such as payment and bank card (credit and debit) transactions, could also be explored. These sources are not perfect, as purchases with credit card or withdrawals with debit cards could have other purposes than travel spending. Therefore, the use of further information relating to the credit and debit card transactions should be explored, such as the merchant code and the information concerning the point of sale, in order to identify the relevant travel transactions. Compilers should be aware that persons travelling do not always use a card as a way of payment but may use cash (or transactions may be paid by a third party). However, payment and bank card information might be very helpful to establish trends and geographical breakdowns and it offers a much larger sample than any survey on persons or households likely can provide. In the context of personal and household surveys, administrative records (including information from entry/exit cards) as well as mobile phone records, often the information is combined in a model to derive travel information.

Table 11.3 Comparison of data sources for compiling travel

	EES	PHS	ITRS	AR	ODS
C	<p><Export> (+) cover major resident suppliers, e.g., travel agencies, hotels, hospitals, education facilities <Imports> (+) potential source for business travel (-) do not cover non-resident suppliers</p>	<p><Export> (++) border surveys capture expenditures by non-residents <Imports> (++) border or household surveys capture expenditures by residents</p>	<p><Im/Export> (+) cover settlements by resident and non-resident travel agencies (+) capture large payments corresponding to travel expenditure (+) data of foreign exchange companies cover most foreign exchange transactions by individuals if not paid in advance (-) does not capture travel payments below threshold (as travel payments are small) (-) does not cover settlements under thresholds</p>	<p><Im/Export> registration of immigration office (including E/D cards, border counts), can be used for identifying number of persons crossing borders; official records may be used for students, medical patients (-) possibility of abrupt suppression of sources</p>	<p><Import> (+) payment and bank card data cover most payments (+) partner country data may be used as supplementary source. <Imp/export> (+) mobile phone records can be used for identifying both inbound and outbound travellers</p>
A	<p>(+) if respondents fully understand the residence of the customers</p>	<p>(-) possibly depend on unrepresentative samples and frequency of survey (-) members of households may not identify cost components of package tours (-) recalling errors might exist for household survey</p>	<p>(-) payments and services may not be in the same period (-) foreign exchange data do not represent entire expenditure and can include non-travel related payments</p>	<p>(-) depend on immigration control, but some countries may not identify relevant population</p>	<p>(-) credit/debit card data can include non-travel related payments</p>
T	<p>(-) lag of more than one month, quarterly</p>	<p>(-) uncovered periods may exist when the survey is not frequently conducted (-) lag of more than one month (border surveys more timely), quarterly or annually</p>	<p>(+) lag of a few days, monthly</p>	<p>(+) lag of a few weeks, monthly</p>	<p>(+) lag of a few weeks, monthly</p>
R	<p>(+) can incorporate breakdown by products partially (-) recollection of information may be approximate</p>	<p>(+) can incorporate detailed questions, e.g. expenditure by products</p>	<p>(-) cannot be designed easily so that details of travel expenditures are correctly collected</p>	<p>(-) cannot be designed easily to identify relevant population</p>	<p>(+) if non-travel amounts can be excluded</p>
B	<p><Reporting> (-) <Processing> (-) in case of the difficulty of grossing up</p>	<p><Reporting> (-) response-rate of household surveys <Processing> (-) for border surveys in operation costs (-) if grossing up survey results is difficult</p>	<p><Reporting> (-) especially for banks reporting on behalf of transactors <Processing> (+) once implemented</p>	<p><Reporting> (+) if no additional work <Processing> (+) in terms of coordination</p>	<p><Reporting> (+) if no additional work <Processing> (+) in terms of coordination</p>

(+) implies advantages and (-) implies disadvantages in terms of each element.

*B.4. Good practices and comparison of data sources for other services*¹⁶⁵

11.14. For most of the other services, the guide suggests enterprise/establishment surveys could provide a large share of sources for estimates. The advantage of these surveys is that they could be designed to collect specific information corresponding to the compilers' needs.

11.15. Surveys are however costly to process, and are also costly for the respondents as they have to train employees to complete questionnaires. This is particularly true for transactions in services which are difficult to extract from accounting documents. Increasing the response burden to small entities could be counterproductive as it could affect the interest of these small entities to respond to other surveys for which the presence of these entities is more important.

11.16. To improve the efficiency in data collection, enterprise/establishment surveys could be designed to target a specific activity or a specific industry in particular for exports. In certain cases this may also be relevant for imports of services (e.g. affiliated companies, activities for which outsourcing/offshoring of activities may be important). Respondents could then be asked to provide more details for services activities in which they are likely involved and less details for other services where they expect to have negligible impact. In addition it is important to note that collecting representative data for imports of services may be more difficult than for exports as any resident entity (large or small) can import services. However, as indicated above, a number of factors could be used to define those enterprises/establishments which are more likely inclined to be big importers of services.

11.17. As for any other survey, the degree to which a sample is representative of the population is a key indicator in the quality of the results. Compilers should take advantage of all other available sources of data to supplement and validate survey results, and to reduce processing costs and reporting burdens.

11.18. ITRS has the great advantage of providing a larger coverage than what enterprise or establishment surveys could do. ITRS comes with a strong degree of obligation for the respondents to provide the information requested. ITRS data may require low compiling costs, as the compilers can concentrate their efforts and resources on items that are not sufficiently covered. However, in some cases, it might be difficult to incorporate details, e.g. EBOPS, in reporting forms.

11.19. Administrative records cover a large part of transactors but may not be sufficient for all services categories. A promising source in this respect are the tax records which include the value of services sold or purchased to or from non-residents (Value Added Tax for services) as well as the location of the service transaction. This information can be particularly useful to identify service traders. The advantages of these records are their low costs and their timeliness, as well as completeness (Tax or Finance Departments may have greater powers to convince respondents). The drawback is that since the main purpose of this source is not to produce statistics, the validation of the results might not be adequate for the compilers' needs, and also the compiler has no control over changes in (or even abolishment of) the data source by the Tax authorities.

¹⁶⁵ Excluding manufacturing, government goods and services n.i.e., transport services, and travel.

Table 11.4 Comparison of data sources for compiling other services (excluding manufacturing services on physical inputs owned by others, maintenance and repair services n.i.e., and government goods and services, n.i.e.)

	EES	SPH	ITRS	AR	ODS
C	<Ex/Imports> (++) surveys cover major resident enterprises (-) may not fully cover resident small enterprises; may be difficult to ensure representativeness of imports data	<Imports> (+) can cover internet transactions (e.g. consumption of software, audio-visual products) (+) Can collect information on persons physically present to provide services (health, cleaning) <Exports> (+) (targeted) labour force survey can cover mode 4 persons supplying services abroad (+) Household survey can cover self-employed residents supplying services through mode 1	<Im/Export> (+) cover settlements related to transactions (-) does not cover settlements under thresholds	<Im/Export> (+) if transactions can be identified for some specific sectors (+) Tax records can help identify service traders and may include the value of services sold or purchased to or from non-residents.	<Export> (+) data on financial market and institutions are useful complementary sources for estimating insurance and financial services
A	(+)	(-) recollection of services consumed through internet may be approximate	(+)if settlements are occurring between unrelated parties (-) misclassifications	(+)	(+)if resident/non-resident transactions separately identified
T	(-) lag of more than one month, quarterly	(-) lag of more than one month, quarterly	(+) lag of a few days, monthly	(+) lag of a few weeks, monthly	(+) data are provided timely and frequently
R	(+) can incorporate detailed questions relatively easily, e.g. complex transactions, such as construction. Could also be tailored to target specific activities,	(+) Can be designed so that relevance is ensured.	(+) all the resident non-resident transactions can be captured once the system is designed properly (-) for long term construction projects can be difficult to establish the location from which work is conducted	(-) mapping may be difficult as not designed for statistical purposes	(-) mapping may be difficult as not designed for statistical purposes
B	<Reporting> (-) in particular for imports <Processing> (-) in case of the difficulty of grossing up	<Reporting> (-) large samples to ensure representativeness <Processing> (-) in case of the difficulty of grossing up	<Reporting> (-)especially for banks reporting indirectly on behalf of transactors <Processing> (+)once implemented	<Reporting> (+) if no additional work <Processing> (+) in terms of coordination with data collecting units	<Reporting> (+) <Processing> (-) if statistical techniques need to be used

(+) implies advantages and (-) implies disadvantages in terms of each element.

11.20. Surveys and the ITRS cannot be used to directly compile some services such as FISIM or insurance services which need supplementary information and require models to be generated. However they could provide important partial information for the measurement of these service items (e.g. insurance payments). Commercial databases on financial institutions could also be useful for these items if they contain sufficient detail. For construction, surveys may provide more detailed and relevant data than the ITRS (see also Chapter 8).

11.21. For some specific detailed service categories, surveys on persons and households, which are primarily used to collect socio and demographic information, could be useful. For example, although normally small in comparison with enterprises or establishments transactions, purchases of products downloaded online by individual consumers (software or audiovisual products) or commissions paid

directly to non-resident brokers by individuals directly buying or selling securities abroad would most likely be covered only through such surveys. (see chapter 7)

B.5. Good practices and comparison of data sources for government goods and services n.i.e.

11.22. Similarly to travel, government goods and services n.i.e. are transactor-based (*i.e.* government units supply services or purchase goods or services). Compilers should use administrative records for the majority of services supplied by government units. Administrative data could also be used to capture data on expenditures by government units abroad, as well of staff (e.g. by obtaining data on their wages to derive an estimation of their expenditure). For some components, such as goods and services acquired by government units, by staff and their dependants working in foreign embassies and military enclaves (for example diplomats or military personnel), these transactions could be obtained through surveys of the units. For staff and their dependants surveys could be targeted towards embassies. For example, these could include questions on the number of diplomats and other government employees, and their earnings, to estimate expenses. ITRS if well designed could capture expenditures by government units; however it could be difficult to capture transactions with foreign government enclaves located in the reporter's economy. In addition, it cannot be used to capture expenditure by diplomats and their dependents.

Table 11.5 Comparison of data sources for compiling government goods and services n.i.e.

	Surveys	ITRS	AR	ODS
C	<Import> (+) surveys (less likely) on own country's governmental agencies cover goods and services acquired from non-residents <Exports> (-) surveys on foreign embassies cover goods and services consumed by non-resident	<Im/Export> (+) cover settlements related to transactions (-) does not cover settlements under thresholds	<Im/Export> (++) the Central Bank dealing with international settlements of the central government may provide comprehensive data or Administrative records from Ministry of Foreign Affairs (-) transactions in kind are not covered	<Export> (+) budget data and statements of government accounts provide information on costs of government services
A	(+) if sufficient responses	(-) can include payments of other goods and services	(+)	(-) budget data are mere assumption
T	(-) lag of more than one month, quarterly	(+) lag of a few days, monthly	(+) lag of a few weeks, monthly	(-) publication of statements not timely
R	(+) can incorporate detailed questions (e.g. earnings)	(+) all the resident non-resident transactions can be captured once the system is designed properly (-) difficult to capture transactions with foreign governments' enclaves located in the reporters economy (-) Cannot capture expenditure by diplomats and their dependants.	(-) cannot be designed so that necessary data can be identified	(-) cannot be designed so that necessary data can be identified
B	<Reporting> (-)foreign embassies may not report <Processing> (-) if estimation is needed	<Reporting> (-)especially for banks reporting on behalf of transactors <Processing> (+) once implemented	<Reporting> (+) very low additional costs <Processing> (+) in terms of coordination	<Reporting> (+) very low additional cost <Processing> (-) if estimation is needed

(+) implies advantages and (-) implies disadvantages in terms of each element.

C. Good collection practices and comparison of data sources for FATS

11.23. For FATS, notably the information on services provided via mode 3 (commercial presence), enterprise/establishment surveys are the most useful source of information. As noted in chapter 6, an understanding of the FDI framework provides a strong basis for the establishment of the FATS universe; key FATS variables could even be incorporated into existing FDI surveys. Administrative records or commercial database on foreign affiliates are also useful but their forms and questionnaires cannot be easily designed to provide data useful for statistical and analytical purposes. Thus, they could rather be used as supplements to the survey on foreign affiliates.

11.24. ITRS, which provides strong sources for resident/non-resident transactions, is not necessarily useful for compiling FATS, because ITRS only captures settlements between foreign affiliates and residents, and such information does not measure the activities of foreign affiliates (including the provision of services).

Table 11.6 Comparison of data sources for compiling inward and outward FATS

	EES	AR	ODS
	Inward FATS		
C	(++) survey used to collect information on a compiling economy's business structure,(identifying the foreign-controlled population of firms, as well as the country of the UCI) (++) (key) FATS variables can be incorporated in FDI inward surveys. (++) dedicated inward FATS surveys (-) may be difficult to fully cover resident SMEs	(+) business registers, tax returns or regulatory reports cover (most) resident enterprises. (+) customs data for the trade variable, but through linking exercises	(+) industry associations, commercial databases, e.g. financial statements of major enterprises, could be useful (+) surveys conducted outside the main statistical program such as by sector specific ministries (e.g. research and development surveys) (-) Partner country data. However level of detail likely small for use, and care should be taken over the interpretation of concepts
	Outward FATS		
C	(++) key FATS variables can be incorporated in FDI outward surveys. (++) dedicated Outward FATS surveys (-) may not fully cover foreign affiliates of resident SMEs	(+) business registers, tax returns or regulatory reports could be used to identify if residents have affiliates abroad, and use relevant information if included in records.	(+) industry associations, commercial databases, e.g. financial statements of major enterprises (+) surveys conducted by specific ministries (e.g. research and development surveys) (-) partner country data, However level of detail likely small for use, and care should be taken over the interpretation of concepts
	Inward and outward FATS		
A	(+)	(+)	(+)
T	(-) lag of more than one month, quarterly	(+) lag of a few months, annually	(+) lag of a few months, annually
R	(+) can incorporate detailed questions	(-) cannot be easily designed for statistical purpose	(-) cannot be designed for statistical purpose
B	<Reporting> (-) FDI surveys: portion of FDI firms are not part of FATS universe and FDI surveys may be conducted on a quick turnaround whereas FATS data are usually collected on an annual basis. <Processing> (-) in case of difficulty in grossing up	<Reporting> (+) if no additional work <Processing> (+) in case of the need of coordination with data collecting units	<Reporting> (+) no additional costs <Processing> (-) in case of the need of statistical techniques to use data

(+) implies advantages and (-) implies disadvantages in terms of each element.

D. Preferred collection practices and comparison of data sources for mode 2 and 4 numbers of persons

11.28. Table 11.7 and 11.8 provide an overview of the different sources from which the number of modes 2 and 4 trips and/or persons can be derived, as well as some of their characteristics both from the perspective of the sending (outgoing individuals) and receiving (incoming individuals) country. Compilers should carefully evaluate how residence is defined in their country, be aware of the laws and regulations in place for migration and trade in services, and assess how this can be used in a statistical context.

11.29. Table 11.7 on mode 2 movements of persons show that the sources of interest would most likely be the same as some of those used for the collection of travel information. ITRS cannot capture such information, but household surveys and border surveys can capture information on outgoing individuals travelling for personal or business reasons. Often these surveys will need to be elaborated to identify the travel motive (business or personal reasons). Labour force surveys and enterprise surveys constitute appropriate sources to capture the number of outgoing persons travelling for business reasons. For incoming mode 2 persons, specific surveys targeting students, medical personnel and tourists could be used as well as border surveys which can be conducted as persons leave the country. Administrative sources like border counts or entry and departure cards can be used to get a first and timely estimate of the number of individuals leaving or entering the country to consume service; but compilers should be aware that it might be difficult to add supplementary questions to these sources. Often the data will need to be combined, in particular for compiling breakdowns, to obtain relevant data on the number of mode 2 movements/persons, e.g. through the use of data models using numbers from border counts E/D cards and information from border or household surveys.

11.30. Table 11.8 breaks down the categories of mode 4 persons into four categories: employees and self-employed contractual services suppliers, intra-corporate transferees/foreign employees of foreign affiliates and service sellers.

11.31. Regarding mode 4 types of persons, enterprise surveys (i.e. trade in services, structural business or general enterprise surveys) constitute an important source both for incoming and outgoing employees and of self-employed providing services under a contract (i.e. contractual service suppliers). Surveys are particularly relevant given that they can be specially tailored, in particular in the case of trade in services surveys. Inward FATS surveys, if they include variables measuring exports and import of services of the foreign affiliate could possibly also include information on the persons (and their numbers) who provide these services as employed contractual service suppliers. For outgoing persons, outward FATS surveys may provide information on employees on service contract working in the affiliate located abroad. The number of intra-corporate transferees/ foreign persons directly recruited by affiliates and possibly service sellers could also be captured through inward and outward FATS surveys. In particular, outward FATS surveys could allow the identification of employees of the parent company who work in the affiliate as intra-corporate employees.

11.32. As in the case of mode 2 persons, border and household surveys can also constitute an interesting source both for all types of incoming and outgoing employees and self-employed mode 4 persons. Information regarding residence and identification of the employer-employee relationship of the individuals will be crucial as household surveys only cover resident persons. Finally, as for mode 2, the data will most probably need to be combined, in particular for compiling breakdowns, to obtain relevant data on the number of mode 4 movements/persons, e.g. through the use of data on characteristics sourced from surveys of persons or households, combined with counts of those crossing borders. Use of data from partner countries may also be relevant, in particular that it may be easier to capture the relevant information for sending countries.

Table 11.7 Comparison of data sources for compiling mode 2 movements of persons

	Sources of data			ODS
	EES	PHS	AR	
C	<p><Demand side/outgoing> (+) enterprise surveys can include questions on individuals travelling on behalf of their employer.</p> <p><Supply side/incoming> (+) surveys targeting tourism, education or health related establishments can include questions to non-residents to whom services were supplied.</p>	<p>< outgoing> (++) household surveys can capture information on individuals travelling (++) labour force surveys can capture data on individuals travelling on behalf of their employers (i.e. in the context of business trips) (++) border surveys provide information (mainly on characteristics) of persons travelling. (-) some adjustments to fit both tourism and trade in services concepts needed (-) sample size might need to be increased < incoming> (-) most likely not relevant in case of household, persons and labour force surveys (++)border surveys provide information (mainly on characteristics) of persons travelling (often as they are leaving) (-) some adjustments to fit both tourism and trade in services concepts will be needed (-) sample size might need to be increased</p>	<p>< outgoing> (+)border counts, E/D cards or other types of immigration records can be used as first estimates of number of mode 2 persons leaving the country to consume services</p> <p><incoming> (+) border counts, E/D cards or other types of immigration records can be used as first estimates of number of mode 2 persons entering the country to consume services</p>	<p><incoming> (+) mobile phone records can be used for identifying both inbound and outbound number of persons travelling</p> <p><incoming and outgoing> (+) partner country data may be used as supplementary source.</p>
A	(+) for incoming if respondent fully understands the residence of the customer	(-) depend on unrepresentativeness of samples and frequency of survey		
T	(-) time lag of more than one month, quarterly	(-) time lag of more than one month, quarterly	(+) time lag of a few weeks, monthly	(+) lag of a few weeks, months (-) for partner data
R	(+) can be designed so that relevance is ensured	(+) can be designed so that relevance is ensured	(-) cannot be easily designed/modified to fit statistical needs (-) possibility of abrupt suppression of sources	(-) for partner data need to ensure that residence etc. is compatible with national definitions
B	<p><Reporting> (-) <Processing> (-) in case of the difficulty of grossing up</p>	<p><Reporting> (-) <Processing> (-) in case of the difficulty of grossing up</p>	<p><Reporting> (+) low costs <Processing> (+) in terms of aggregation of micro data and re-use of existing data (-) coordination with data collecting units</p>	<p><Reporting> (+) if no additional work <Processing> (+) in terms of coordination</p>

(+) implies advantages and (-) implies disadvantages in terms of each element.

Table 11.8 Comparison of data sources for compiling mode 4 persons/trips by category of mode 4

	EES	SPH	AR	ODS
Coverage (C)				
"Contractual service suppliers (Employees, Self-employed) and Intra corporate transferees"				
C	<p>< incoming persons> (++) trade in services, structural business, or general enterprise surveys (++) inward FATS surveys (for imports of services of foreign affiliates, i.e. incoming persons to provide services to foreign affiliates). Can also identify intra-corporate transfers where employment relationship is transferred to resident affiliate</p> <p><outgoing persons> (++) trade in services, structural business, or general enterprise surveys (++) inward FATS surveys (for exports of services of foreign affiliates) Can also identify intra-corporate transfers where employment relationship is transferred to non-resident affiliated unit (+) outward FATS surveys: for outgoing persons going to supply services to non-resident affiliates. Can also identify intra-corporate transfers where employment relationship is transferred to non-resident affiliated unit.</p>	<p><incoming persons> (+) border surveys whether when entering or leaving the country, to capture information on characteristics of those crossing borders (-) household/labour force survey or population census to capture information on characteristics of those crossing borders: in general non-residents are not covered.</p> <p><outgoing persons> (+) border surveys whether when entering or leaving the country, to capture information on characteristics of those crossing borders (+) household/labour force survey or population census to capture information on characteristics of those crossing borders, if remain residents.</p>	<p><incoming persons> (+) E/D cards for rough estimates (+) work permits/visas /immigration records (+) legislation implementation register (e.g. tax) (-) registers of persons do not cover non-residents.</p> <p><outgoing persons> (+) registers of persons if remain residents. (+) commercial registers(+) legislation implementation register (e.g. tax)</p> <p>(-) for incoming and outgoing only if coverage correspond to MSITS2010 definitions.</p>	<p><incoming and outgoing persons> (++) surveys covering statistical needs of other domains, such as surveys of a sectoral ministry (legal services, R&D, education, health)</p> <p>(+) partner country data, in particular for receiving countries</p>
Services sellers/commercial presence negotiations				
C	<p><outgoing persons> (++) trade in services, Structural business, or General enterprise surveys (++) possibly inward FATS surveys</p>	<p><incoming and outgoing persons> (+) Border surveys can cover information on services sellers/commercial presence negotiations whether when entering or leaving the country</p>	<p><incoming and outgoing persons> (+) E/D cards (+)visas/immigration records (-) only if coverage correspond to MSITS2010 definitions.</p>	
Accuracy in Reporting (A)				
A	<p>(+) in particular trade in services and FATS surveys; but requires clear explanatory notes (in particular to clearly define mode 4 categories).</p>	<p>(+) for border/passenger surveys (but with limited details) (+)for outgoing for household/labour force surveys and population census (-) for incoming for household/labour force surveys and population census</p>	(+)	(+)

Timeliness, Frequency (T)				
T	(-) lag of more than one month, quarterly	(-) uncovered periods may exist when the survey or census is not conducted on regular basis (-) time lag of more than one month, quarterly	(+) time lag of a few weeks, monthly frequency.	(-) for partner data
Relevance (R)				
R	(+) can collect detailed information on contractual service suppliers (employees, self-employed) and intra corporate transferees, in particular for trade in services survey which can collect detailed information on number of persons in addition to values. Also useful for intra-corporate transferees in particular FATS surveys (-) for self-employed outgoing, only if covered (i.e. threshold)	(+) all sources can be designed so that relevance is ensured.	(-) cannot be easily designed/modified (-) for incoming and outgoing, for all sources only if coverage of categories close to MSITS2010 definitions (-) possibility of abrupt suppression of sources	(+) can be designed so that relevance is ensured
Burdens of Reporting and Processing Data (B)				
B	<reporting> (-) in particular need to keep track of additional information which may be stored in other departments (e.g. human resources) <Processing> (-) in case of difficulty of grossing up.	<reporting> (-) may need to increase samples substantially <Processing> in case of difficulty of grossing up.	<Reporting> (+) if no additional work <Processing> (-) in terms of coordination	<reporting> (-) keep track of additional information stored in other departments (e.g. human resources) <Processing> (-) in case of difficulty of grossing up

(+) implies advantages and (-) implies disadvantages in terms of each element.

E. Country experiences

11.33. For compiling statistics on the international supply of services, most countries face the challenge of having to rely on several sources with different coverage. The data collection is often done in a context of scarce resources and having in mind the necessity to limit response burden. Therefore the compilers need to make best possible use of available sources. The following examples illustrate some country practices in dealing with the challenge of having to use and compare characteristics of different data sources in order to collect relevant information.

E.1. Country experience: Canada

11.34. For the majority of the statistics on services transactions, apart from travel and transport services, Canada uses a specific survey on trade in services and several industry-oriented surveys. These enterprise/establishment surveys are supplemented by administrative data recording non arm's length transactions with non-residents. Each source has its own coverage and its own collection of service statistics which are not necessarily equivalent to EBOPS. However, as resources are limited and as the reduction of response burden is an important objective for the Canadian compilers, there is a necessity to use several sources to produce the best possible estimates.

11.35. Canada's Industry-oriented surveys collect different information on revenues and expenses by enterprises/establishments for specific industries. These surveys offer a broad coverage of the service industries but the level of detail of the collected information is limited. These surveys are therefore complemented by a specific survey on International Transactions on Commercial Services (BP21S) targeting 3500 enterprises and collecting information for 32 categories of services. Transactions are reported by country of trade as well as with the relation with the trade partners (either related or not). The accompanying explanatory notes should in principle improve the quality of the responses.

11.36. Compared with enterprise/establishment surveys, administrative data provide, in principle, a better coverage as all Canadian legal entities are required to fill the tax form if their total transactions (not only in services) with their foreign related entities are above C\$1 million. For example, for the year 2010, more than 12,000 entities have filled that tax form and half of them have reported service transactions. The tax form supplies transactions by name and country of the non-resident entities.

11.37. However, this tax form is limited to transactions with foreign related parties. That limitation virtually eliminates Statistics Canada's capacity to use this administrative information as a "data-replacement" source. In other words, the administrative data could not completely replace survey data. Furthermore, several service categories are aggregated on the form to simplify the work of the respondents. Very few definitions come with the tax form which may lead to errors or misinterpretations by the respondents.

11.38. The files provided with annual administrative data are updated twice a year. As it is an external source, less quality control could be applied on the information provided. For example, if no transaction is reported for a certain entity, the reason could be absence of transaction but the transaction could also not be processed yet. The main purpose of this tax form is not to monitor transactions in services. Thus, verifications by tax authorities are usually done at a more aggregated level so transactions for the same unit could be reported under one activity in one year and under another activity the following year without further verification.

11.39. More information on Canada's Industry oriented surveys and the more specific International Transaction in Commercial services survey is provided online.

E.2. Country experience: Japan

11.40. Japan uses ITRS as a primary data source for compiling trade in services. However, as some transactions cannot be captured through ITRS, various data sources have been implemented to supplement ITRS. Other data sources include enterprise surveys for specific business based on the Foreign Exchange and Foreign Trade Act, administrative source, and data provided by private institutions. Uses of data sources other than ITRS for compilation of trade in services are summarized in the Table below. More detail of Japan's experience is given in the online version of the Compiler's Guide.

Table 11.11 Japan's sources* of trade in service items

	Source data	
	credit	debit
Sea transport	ITS, ITRS	ITS, ITRS, trade statistics, other sources
Air transport	ITS, ITRS	ITS, ITRS, trade statistics, other sources
Other transport	ITRS	ITRS
Travel	Border surveys, AS, ITRS, other sources	Household surveys, AS, ITRS, other sources
Manufacturing services	ITRS	ITRS, survey ordered by written notification
Maintenance and repair services	ITRS, ITS	ITRS, ITS
Construction	ITRS	ITRS
Insurance and pension services	ITRS, survey on freight insurance, other sources	ITRS, survey on freight insurance, trade statistics, other sources
Financial services	ITRS	ITRS
Charges for use of intellectual property	ITRS	ITRS
Telecom., computer & info. services	ITRS	ITRS
Other business services	ITRS	ITRS
Government goods and services n.i.e.	ITRS, AS, ITS	ITRS, AS, ITS

* note: ITS = International transportation survey; AS = Administrative sources

E.3. Country experience: Philippines

11.41. The *Bangko Sentral ng Pilipinas* (BSP) is the lead agency in the compilation of statistics on the international supply of services in the Philippines. The BSP is able to compile all the main services accounts, mostly from the bank reports in the International Transactions Reporting System (ITRS), supported by the company responses to the Cross Border Transactions Surveys (CBTS) and administrative reports from other agencies and industry associations.

11.42. The main challenge of the BSP in the compilation of statistics on the international supply of services is anchored in maximizing the benefits of the ITRS and CBTS. On the one hand, the challenge of the BSP in the use of ITRS, is addressing possible misclassification of transactions by the banks. On the other hand, the BSP is confronted with the challenge of improving the generally low response rate and the coverage of its CBTS to include other industries, to better capture relevant international services transactions. The low response rate of surveys stems from the absence of a specific provision in the charter of the BSP that would allow it to enforce compliance by non-financial corporations to provide data or information.

11.43. Reports submitted to the BSP by commercial, thrift and foreign banks under the ITRS contain information on bank positions in foreign currency-denominated assets and liabilities and all payments and receipts which bring about changes in the banks' position. This information is being utilized in the compilation of some of the services sub-items such as transport, travel, construction, insurance and pension, financial (including FISIM), charges for the use of intellectual property, n.i.e., telecommunications, computer, and information services, other business services, personal, cultural and recreational services.

11.44. In addition to the monthly CBTS, the BSP in coordination with the Department of Trade and Industry (DTI) is also conducting the annual Information Technology-Business Process Outsourcing (IT-BPO) Services Survey that covers companies engaged in Business Process Outsourcing (BPO) activities.

11.45. The BSP also utilizes administrative-based data provided by regulatory and administrative government agencies (as customs data) to compile some of the services sub-accounts (Manufacturing

services of the physical inputs owned by others, freight import and exports, Insurance etc.). The Department of Foreign Affairs (DFA) data on annual budget of Philippine embassies/consular offices abroad are used as approximations for payments on government goods and services n.i.e.

11.46. For non-resident expenditures in the Philippines (travel receipts), data are derived from the Visitors Sample Survey (VSS) conducted by the Department of Tourism (DOT), which provides information on the average expenditure of foreign tourists and their average length of stay in the Philippines. For tourist-related travel expenditures abroad by residents, data are sourced from the ITRS and CBTS. Beginning with the 1999 report, travel receipts include non-resident overseas Filipinos (OF) expenditures in the Philippines during home visits. Travel debits cover expenditures of resident OFs in the host countries where they are deployed. Information on resident's expenditures abroad via credit card payments are obtained via reports of the Credit Cards Association of the Philippines.

Part III Data Compilation

Scope. Data compilation is understood as a set of statistical procedures performed on the collected data to derive new information according to a given set of rules and resulting in intermediate data and final statistical outputs. Data compilation includes, among other things, integrating data from different sources, the use of weighting schemes, methods for imputing missing values or source data, statistical adjustment, balancing/cross-checking techniques and relevant characteristics of the specific methods applied. Part III includes an introduction and overview of data compilation within the modes of services supply statistical framework (Chapter 12), followed by discussion of integration of data from different sources (Chapter 13), compilation of resident/non-resident trade in services statistics (Chapter 14), compilation of foreign affiliates statistics (Chapter 15), compilation of other indicators for modes of supply (Chapter 16) and concluding with a description of estimation and modelling of missing data, and forecasting or back-casting (Chapter 17).

Chapter 12 Introduction and overview of data compilation within the modes of services supply statistical framework

12.1. *Scope.* This chapter provides an introduction and an overview of data compilation with the modes of supply framework. It first covers the information needs of data users, then provides an overview of using an integrated approach to data compilation, reviews the need for phased implementation of suggested data compilation procedures, and finally provides an introduction to using models and estimates in data compilation, which will be further covered in chapter 17.

A. Data compilation within the modes of services supply statistical framework: issues to consider

A.1. Information needs

12.2. The information needs include the value of trade in services or sales/output of services by foreign controlled foreign affiliates and other monetary statistics (foreign direct investment flows and stocks, research and development expenditure in affiliates, income flows relating to foreign affiliates active in services sectors etc.). There is also interest in non-monetary data, in particular when it comes to assessing commitments made in trade in services agreements (e.g. number of mode 4 persons, number of foreign affiliates established abroad in the context of mode 3 etc.).

12.3. To provide a better guidance on how to satisfy the information needs of data users, this Part of the Guide contains three chapters specially focused on particular areas:

- i. *Compilation of statistics on resident/non-resident trade in services* is covered in Chapter 14. This chapter complements the guidance provided in the BPM6 Compilation Guide Chapter 12. It elaborates conceptual issues which are directly related to the data compilation; describes challenges and good practices in the compilation of particular EBOPS services categories in total and their detailing by trading partner, as well as their allocation to modes of supply; and provides guidance on services transactions between related enterprises;
- ii. *Compilation of FATS* is covered in Chapter 15, which contains a general description of compilation of foreign affiliate statistics, elaborates a set of FATS variables and the related data compilation issues and describes relevant country experiences. The chapter has a special focus on the data needs with respect to the international supply of services. It in particular identifies the variables and breakdowns of interest for assessing mode 3 commercial presence, such as the need to have more detailed statistics for services activities, that output is a preferred measure to sales/turnover and that these variables need to separately identify

sales/output of services products for all activities as well as separately identify those that are destined to consumers of the country of establishment of affiliates;

iii. *Compilation of other monetary and non-monetary) indicators*, in particular for mode 2 and mode 4 (i.e., number of mode 2 persons travelling abroad and purchasing services and number of 4 persons crossing borders and temporarily abroad in the context of services contracts) is an important part of the information needs. Challenges and good practices relevant to this topic are described in Chapter 16. In particular, Chapter 16 provides an overview of data variables on the movements of natural persons under mode 4 of services supply, describes the uses of various data sources in the compilation of the variables and provides a comparison of different sources and guidance on the organization of the data compilation process. The chapter also provides information on the possibilities offered by the linking of trade and business statistics, and a list of services sectoral statistics that would be useful for a full analysis of the international supply of services.

B. Focusing on an integrated approach

12.4. Part III gives a special attention to the promotion of an integrated approach to compilation. As described in Part II there are several groups of data sources which can be used in the compilation. This raises the issue of how to properly integrate data from various sources. Chapter 13 provides guidance on this topic by discussing issues and good practices in consolidation and merging of data and exploring possibilities of compilation using data generated in other statistical domains. It also proposes a number of different approaches, taking into account the suitability for economies and considering differences in compilation systems.

12.5. Chapter 14 proposes to integrate data sources for compiling resident/non-resident trade in services statistics. For example for travel, it is proposed to link with tourism statistics, in particular to develop coherent sets of data. Such integration focuses in particular on the breakdown by purpose of travel, by type of product consumed or for compiling the supplementary item tourism related services in travel and passenger transport. In the case of data for modes of supply, such an approach would enable compilers to arrive at more detailed estimates of mode 2 supply of services, in particular travel by type of product consumed and linking to tourism statistics (i.e., tourism-related consumption/expenditure as suggested in ITRS 2008 or MSITS 2010 chapter 14, section C), and using customs data or merchant category codes from credit card data. The scope of different statistical domains has to be taken into account when integrating data from different sources (e.g., chapter 14, section B, iv).

12.6. Chapter 15, while focusing mainly on compilation issues related to FATS, also gives a special attention to the possibility to use or re-use existing data by linking with micro-level information; e.g., through business registers (with a common identifier) for the compilation of these statistics. It should also be considered to use data from the Structural Business Statistics (SBS) for further development on international services data by mode of supply accordingly for mode 1 and mode 4 as well as to combine the information on FATS to gather more insight details for mode 3.

C. A phased implementation of the recommendations on data compilation

12.7. This Guide advises a phased implementation approach for compilation of data within the statistical framework for measuring the international supply of services. The proposed approach can, in particular for modes of supply, serve as a reference for producing approximations of certain statistics. Part III therefore identifies the main conceptual and statistical challenges in measuring the international supply of services, in particular for the modes dimension, also beyond balance of payments services and foreign affiliates statistics. This part evaluates to what extent existing statistics can match the information needs of trade negotiators as well the needs of economic analysts, in particular in the context of the GATS; it also identifies what would need to be developed in data

compilation systems to respond to information needs when it comes to other indicators useful for assessing the international supply of services.

12.8. Data on trade in services have been compiled for a number of years in the context of the BPM5, but compiling more detailed statistics by type of service and by partner remains a challenge for many compilers. Not much information is currently compiled on activities of foreign affiliates, as FATS is a relatively new statistical domain. Moreover, modes of supply are not always easy to observe and consequently many data compilers have not yet compiled these data. On the one hand, the concept of modes of supply is not yet embedded in the existing national compilation systems. On the other hand, a complete new compilation of statistics on international supply of services by mode will necessarily cause a higher burden and additional costs for compiling economies, which is why a phased approach should be adopted based on what is proposed in MSITS 2010. Statisticians, both national and international, also need to have a more profound knowledge of how different services sectors operate in various economies. Compilers can choose between different approaches which are elaborated in Part III, in particular chapter 14. The respective size of an economy, the structure of the service sector or the importance of specific services could be indicators that could be used for focusing on one approach or the other, or adopting a combination of several approaches.

12.9. *A simplified allocation and direct compilation of statistics on the international supply of services by modes.* For the development of modes of supply information, a simplified allocation of FATS and balance of payments data to modes of supply is proposed in MSITS 2010.¹⁶⁶ The so-called mechanical allocation of services categories either to one dominant mode or the indication of a distribution to several modes in the BoP, as well the simple allocation of FATS to mode 3, is considered as a very first starting point. This approach makes use of existing services data within the BoP/FATS framework to compile or to estimate statistics by mode of supply and is further explained in Chapter 14, section C and chapter 15.

12.10. But this simplified allocation is a reasonable very first step due to relative low costs and a minimum burden for compilers. Chapter 14 then further elaborates on the development of estimates on a broader basis taking economic, political-economic and socio-economic issues into account. Chapter 14 then focuses on the actual compilation of data, in particular by suggesting the identification of modes in trade in services surveys (mainly mode 1 and 4, but also mode 2 under certain conditions). Focussing on different user interests, specific sector studies would already serve several purposes *e.g.* policy makers could also be interested in specific studies such as for services incidental to agriculture or environment services. This approach could be also combined for further elaboration and adjustments of the simplified allocation.

12.11. Finally, as outlined above, beyond the monetary value of the international supply of services, users also need additional monetary and non-monetary data, which are mainly described in chapters 16 and, for mode 3, chapter 15 (*e.g.*, employment, number of enterprises). Although these additional needs are considered as longer term objectives for compilation, when developing the system, compilers should keep in mind these additional needs in order to be able to factor them in easily for future stages of development for a complete information system to serve user needs.

D. Use of models and estimates

12.12. This Guide recognizes that available data sources have their limitations and, therefore, compilation has to include the use of models and estimates because part of the information cannot be collected or can be gathered only at an unsustainable cost, the available sources cannot provide the required coverage, detail, frequency and/or timeliness foreseen by the international standards, and the various sources to be combined in the collection system are partially overlapping. Chapter 17 is specifically devoted to these issues and covers such topics as imputation for filling data gaps and for data editing purposes, forecasting and compensating for lack of timeliness of data sources, , back-

¹⁶⁶ MSITS 2010, Chapter V and Table V.2, as well as chapter 1, paragraph 1.5.

casting and revising time series, allocating all services transactions to the relevant individual EBOPS services categories and appropriate trading partners, and model-based estimates.

Chapter 13 Integration of data from different sources

13.1. *Scope.* As described in Part II, several sources can be used in the compilation of data within the modes of services supply statistical framework. In practice, information from various sources will often have to be combined to obtain the required level of detail and quality, while at the same time, reducing excessive burden for respondents. This chapter reviews the potential challenges compilers face when integrating data sources that cover the same activities or the same entities and provides guidelines on how to resolve these issues. More specifically, this chapter presents a summary of good practices and defines the relevant terminology (section A), and describes the integrated business survey program (section B), integration, consolidation and merging of data from different sources (section C). A country experience is presented in section D.

A. Summary of good practices

13.2. Integrating data from different sources is advised as the principle way to ensure the production of more detailed and more comprehensive statistics as well as to reduce the burden on survey respondents. Compilers are encouraged to determine which data sources are most appropriate on a case-by-case basis carefully considering the strengths and weaknesses of each data source. More specifically, compilers should be aware of the statistical units used in each source, the entities covered, the services categories identified, the variables compiled (e.g., value of services exports/imports by EBOPS categories for compilation of trade in services between residents and non-residents, output or turnover/sales and employment for compilation of FATS etc.), the availability of geographic breakdown, the time period of reference, the presence of thresholds, and the survey frequency. Ideally, compilers should identify the source(s) in which they have more confidence, to be used as a benchmark for the other data sources.

13.3. To optimally exploit the advantages of data integration it is advised that the potential of using linked data is considered from an early stage onwards and that decisions on survey design and sampling frameworks, for example, are made while keeping in mind that the data will be linked later on. This forward thinking requires ‘positive coordination’ across surveys, that is compilers should ensure that the entities covered by different surveys and registers have sufficient overlap in order to avoid large shares of non-matched records (which make data integration more difficult and may create statistical biases). It is recognized that such coordination may be seen as a long-term strategy by countries where the capacity to compile statistics on the international supply of services needs significant strengthening.

13.4. This Guide encourages national statistical agencies to adopt an integrated business survey programme, as outlined in the *Guidelines on Integrated Economic Statistics*.¹⁶⁷ Specifically, under these guidelines, it is recommended that the collection of statistical information move from a stovepipe approach, in which each statistical program collects information for its own purposes, towards an integrated approach, which aims to integrate survey design and implementation across all statistical programme areas. This recommendation is particularly relevant in the context of statistics on the international supply of services, given that information needs cut across various statistical domains. Such integration of the data collection procedures will reduce the burden on respondents. It will also create a common standardized statistical framework for presenting more coherent statistics for the entire economy (covering business statistics, short term statistics, national accounts and international statistics) for evidence-based policy making.

13.5. It is a good practice that SBR is used to identify the common statistical unit and to provide the sampling frameworks. In addition it is advised that the ITRS and the trade register (which includes merchandise trade statistics) are linked to the SBR (with the enterprise as common statistical unit).

¹⁶⁷ Guidelines on Integrated Economic Statistics <http://unstats.un.org/unsd/nationalaccount/docs/IES-Guidelines-e.pdf>.

This is particularly relevant for those services categories where the link between trade in goods and trade in services is strong, such as manufacturing services.

13.6. Compilers should take note that for purposes of this chapter the term “data integration” is used to refer to bringing together information from two or more sources of data, with the object of better understanding and presenting the nature of a transaction that would otherwise not be possible based on any one source alone. “Data consolidation” is understood as the summation of data from multiple sources, in which the sources generally provide information on non-overlapping parts of the total. “Merging data” refers to the process of combining data (especially data covering the same activities or the same entities) from different sources via common denominators, such as a unique identifier in the BR, when incomplete information is available from individual sources. Merging data is the final step in the process and creates a unified view of an entity or activity. Before merging data, compilers must first be aware of the definitions and methodologies used across the various data sources to ensure internal consistency of the merged data and to prevent duplication or overlap of records.

B. Integrated business survey programme: an overview

13.7. The idea of developing and achieving an integrated system of business and international statistics has a long history among national and international governing bodies of economic statistics. The motivating source of this work has been the policy and statistical benefits that can be obtained from an integrated statistical system for national and international coordinated economic policy planning in an interconnected global economy.

13.8. The benefits to data users, producers and providers, include, but are not limited to, the following:

- i. A common standardized information management framework that governs the statistical production process over time and across countries;
- ii. Statistical production processes that help reducing response burden and costs while improving transparency for data users and providers;
- iii. Collaboration in the development and application of common methods and IT tools for data processing, documentation and exchange through the adoption of standardized information management model;¹⁶⁸
- iv. Addressing the demand for evidence-based mutually reinforcing stories and descriptions of the sequence of events that are obtained from coherent statistics, covering business statistics, short term statistics, national accounts and international statistics.

13.9. The starting point for integrated economic statistics is the use of the internationally accepted standard for macroeconomic accounts, the SNA (preferably its latest edition, the 2008 SNA) as the conceptual organizing framework. As a result of years of work in harmonizing macroeconomic statistical standards, the use of the 2008 SNA as the conceptual framework provides consistency and coherence with other internationally accepted standards and international recommendations, such as the BPM6 and other specialized manuals, such as the Manual on Statistics of International Trade in Services 2010.¹⁶⁹

13.10. *Standardized surveys across statistical programmes.* The most effective means of ensuring integration and consistency is through a holistic redesign of data collections (surveys and

¹⁶⁸ Concept note for the earning centre on explaining the integrated business statistics programme for statistical information management, presented at the Forty-fifth session of the Statistical Commission.
http://unstats.un.org/unsd/statcom/statcom_2014/seminars/LC_Integrated_Business/Concept%20Note%2012%20Feb%202014.pdf.

¹⁶⁹ *Guidelines on Integrated Economic Statistics* 2013, p. 17.
<http://unstats.un.org/unsd/nationalaccount/docs/IES-Guidelines-e.pdf>.

administrative data) that minimizes inconsistencies through the use of common standards and methods, integrated survey design and a central business register. It is a good practice that the collection of statistical information move from a stovepipe approach towards an integrated approach. In a stovepipe model, where each programme collects information on its own and for its own purposes, an entity surveyed may be asked the same questions with different definitions. A stovepipe approach, therefore, not only increases survey burden, but is also likely to produce statistics that are difficult to align. In contrast, integrated questionnaire design and integrated surveys help to resolve these data-collection issues.¹⁷⁰ The integrated approach is particularly relevant for statistics on the international supply of services, which are compiled with information from various statistical domains.

13.11. Under an integrated approach, all economic data collections gradually change their objectives and statistical designs and enhance the coherence of statistical outputs. When designing a collection for various sets of economic statistics, compilers will need to think beyond their current work to how those sets will integrate with other statistical outputs. Likewise, questionnaires have to apply concepts and definitions that are consistent with those used in other surveys and administrative collections.¹⁷¹

13.12. A national statistics act may provide a national statistical office with the authority to approve the design of all statistical surveys operated by government agencies.¹⁷² One practical approach to achieving integrated surveys is a reorganization of the statistical agency towards a more functional structure. A separate division with responsibility for developing and maintaining classifications and standards can lead a programme to apply consistent definitions and classifications to all statistical outputs. Creating a division that has responsibility for developing SBR to be used for the production of all economic statistics is an effective way to ensure that units are selected and classified consistently across all statistical outputs. Establishing an independent statistical methods division can help to ensure that all surveys are designed in a coherent way.¹⁷³

13.13. It is important to note here that the subject matter expert or compiler of statistics on the international supply of services may not always have full control over the design of such integrated surveys, if the design is managed by an independent division. It is important for compilers to recognize that success in achieving integration across many programmes requires extensive collaboration and communication across the organization, support from senior leaders in the organization, and adaptability and flexibility.¹⁷⁴

C. Integration, consolidation, and merging of data

13.14. The compilation of data within the statistical framework for describing the international supply of services requires the use of a wide range of data sources, as some sources are complementary and their combined use can result in the production of more detailed and more comprehensive statistics.

13.15. Integration of different sources and re-using surveys for several purposes also has the potential to reduce the burden for compilers, in particular in the context of compiling modes of supply data. Furthermore, linking data on a micro-level could allow for broader types of analysis of the resulting data. The potential of the approach of using information from other statistical frameworks therefore deserves further exploration by the compiler. For example, in the context of the compilation of inward FATS, there is the possibility of integrating information from FDI surveys and domestic

¹⁷⁰ *Ibid.* pp. 49-50.

¹⁷¹ *Ibid.*

¹⁷² *Ibid.* pp. 28-29.

¹⁷³ *Ibid.* p. 39.

¹⁷⁴ For a country example of the Integrated Business Statistics program at Statistics Canada, please see: http://unstats.un.org/unsd/nationalaccount/workshops/2014/St_Lucia/IBSP.ppt. Samples of integrated surveys from Statistics Canada are available on the UNSD website.

enterprise surveys. Other examples include using information from sources on migration, tourism, household expenditures, population, or taxes (see chapter 15). This information could be used in the compilation of resident/non-resident trade in services data (see Chapter 14) or to compile quantitative indicators on mode 2 or mode 4 (see chapter 16).

13.16. Consolidation and merging of data sources provides multiple advantages for the compilers. First, it improves coverage and the diversity of information. Second, it usually reduces the resources required to collect the statistics. Third, it leads to higher quality of resulting statistics. However, compilers must be aware of the risk that some of the data sets resulting from integration of various data sources may be internally inconsistent.

13.17. Consolidation is rather a straightforward summation of data sources from multiple sources in which the sources provide information on non-overlapping parts of the total. Meanwhile, merging data sources is usually not a simple task, as compilers must find common denominators between data from multiple sources that cover the same entity or activity. In this process the role of the business register is of vital importance in linking microdata.

13.18. Compilers should take into account all relevant dimensions of data sources before merging; for example, the content of each source could be more or less compatible with a certain services category definition. For such reasons, compilers should have an in-depth knowledge of the methodologies and definitions used by the other data sources to ensure consistency and comparability of the resulting merged data. Various dimensions of the different sources must be analysed by the compilers during merging, most notably: entities covered, services categories or activities identified, availability of geographic breakdown, and period of reference.

13.19. *Entities covered.* Sources could collect statistics at different structural levels of the entity. Some sources may target the legal entity, while others could survey entities responsible for the production. Companies could merge, be acquired, disappear, or simply modify their organisational structure so that entities might end up being different from source to source if they have been surveyed at different points in their structural composition. There could also be differences between how the business register defines the structural organization of an entity and how that entity defines its own structural organization. This last point might result in the statistical compiler unwittingly incorrectly comparing entities from different sources.

13.20. It is a good practice that compilers analyse the coverage, possible overlap, and potentially differing definitions of variables across different sources available, and make determinations of which data sources are most appropriate to use on a case-by-case basis.

13.21. *Services categories.* Compilers should compare the services categories available from each source to be merged. Details and aggregations provided could be different from source to source. In the absence of clear definitions and guidance, respondents may interpret survey questions incorrectly and include invalid transactions or exclude pertinent transactions.

13.22. *Geographic breakdown.* Data sources could have different levels of geographical breakdown, or even none at all. For example, the country of transaction identified in the International Transaction Reporting System (ITRS) could be different from the country that actually purchased or sold the service.

13.23. *Period of reference.* Values reported on a monthly basis from one source could differ from the annual value reported by another source (e.g., where there is an annual reconciliation or balancing process). Moreover, difficulties may arise when integrating data from administrative sources on a fiscal year basis with information collected on a calendar year basis. Similarly, there may be challenges in bringing together data reported on a monthly or quarterly basis with data reported on a through-the-year basis in another source.

13.24. *MSITS 2010* recommends the use of the accrual basis for determining the *time of recording* of transactions. The accrual basis provides the most comprehensive information because all flows are recorded (including nonmonetary transactions, imputed transactions and other flows). The change of economic ownership is central in determining the time of recording on an accrual basis.¹⁷⁵

13.25. Other factors, such as threshold for certain sources or the frequency of the survey, may also affect the comparison between sources. If a source is available only once every two years, compilers should develop a strategy to preserve the comparability for the year that source is not available. All these possible differences between sources may complicate the comparability and integration of data sources, not only at a global level but also at a micro level.

13.26. *Possible approaches and solutions.* There is no quick fix to resolve problems when merging data. Compilers must have in-depth knowledge of the data with which they work and need to recognize the strengths and weaknesses of each source. Data sources are rarely equivalent; one source may provide reliable information for some transactions but be weak for others. Ideally, if compilers could identify a source in which they have more confidence, such a source could then serve as a benchmark against which the other sources will be compared.

13.27. *Linking various data sources.* It is vital that the compilers avoid approaching businesses multiple times with different surveys covering the same or similar information. Above all, statistical surveys should not request information that the business has already supplied in another data gathering mechanism. The central statistical business register should be linked to the trade register to enable the analysis of the effects of the international supply of services on production, employment and enterprise performance.¹⁷⁶ The enterprise is the suggested statistical unit to be linked between trade and business statistics; thus, data collected and registered at the level of the declaring unit of trade operators can be aggregated to the level of the whole enterprise via characteristics available in the BR. The linking of trade and SBR allows generating relevant information on the structure of the international supply of services without collecting additional data from businesses.

D. Country experience

D.1. Canada

13.28. Three different sources are used in Canada to generate most trade in services statistics (excluding travel and transport). First, the annual survey on trade in services (International Transactions in Commercial Services – BP21S) is sent to Canadian enterprises of varying size and economic sector.¹⁷⁷ The second data source is the set of approximately fifteen annual industry surveys covering a large sample of establishments in service industries. The third source is administrative data on non-arm's length annual transactions between residents and non-residents.

13.29. Statistics Canada integrates these three sources and is thereby able to improve coverage, make better use of limited resources, and reduce the burden on respondents. The key to integrating these sources is that each entity covered by the three sources is linked to the Canadian Business Register (CBR). The CBR covers and contains information on ownership, industrial activity, organizational

¹⁷⁵ BPM6 Compilation Guide, paragraph 1.21.

¹⁷⁶ See also chapter 16.

¹⁷⁷ To supplement the BP-21S, more than 200 entities from the insurance sector are also surveyed with two surveys of Canadian incorporated insurance companies and Canadian branches of foreign insurance companies. Both surveys collect financial transactions as well as service transactions.

structure, and the business identification number¹⁷⁸ of businesses engaged in the production of goods and services in Canada.

13.30. The quality of the CBR directly influences the compiler's ability to integrate the different sources. A team at Statistics Canada is constantly working to ensure the CBR reflects the structure of Canadian economy as best as possible.

13.31. The three sources cited above are not considered to be equal in terms of quality and details provided. Data on the industry surveys are indirectly measured in a process by which respondents indicate the percentage of their total revenues related to total trade in services. No breakdown is available for transactions conducted between related partners and transactions between unrelated entities. Furthermore, the geographical breakdown is only available for total trade in goods and services. The administrative records cited only present trade with affiliated parties and aggregated groupings of services.

13.32. Both the industry surveys and the administrative data have limited details in term of EBOPS categories. However, the annual survey on trade in services (BP21S) is very detailed, with 32 categories of services collected, broken down by partner country and by affiliation.

13.33. For the majority of the responding entities, data are available from only one of the three sources cited, which case, reported values are kept by default. When there are data available on an entity from more than one source, the data from the BP21S survey are used if those values are larger, equal to or even slightly lower than the other sources. Other situations are reviewed on a case-by-case basis. Other analysis is also done to insure the validity of the reported transactions, for example, compilers compare current reported transactions with data from the previous year.

¹⁷⁸ This identification number is assigned at the time of registration with the Canada Revenue Agency. For more information about the Statistics Canada Business Register, please consult "Statistics Canada Business Register – A Brief Guide, http://www23.statcan.gc.ca/imdb-bmdi/document/1105_D2_T1_V3-eng.pdf.

Chapter 14 Compilation of resident/non-resident trade in services statistics

14.1. *Scope.* This chapter discusses the compilation of resident and non-resident trade in services statistics. It is important to stress that this chapter does not aim to be exhaustive, but rather that it aims to complement the existing guidance provided in BPM6 CG on specific aspects, and focuses on the needs outlined in MSITS2010. Compilers are also strongly suggested to consult the online version of this Compilation Guide, where more compilation guidance will be made available, e.g., on certain services items and complementary groupings, as well as the EBOPS-CPC conversion table that may facilitate the classification of certain transactions in the EBOPS classification.

14.2. After the summary of good practices (section A), section B describes the compilation of the EBOPS 2010 service categories by bundling them into several groups that are often similar in the nature of their compilation and use of underlying source data:

- i. Goods-related services (including manufacturing services on physical inputs owned by others, maintenance and repair services, as well as freight transport and insurance);
- ii. Passenger transport and travel;
- iii. Construction;
- iv. Insurance, pension and financial services;
- v. Services related to intellectual property products (IPP), telecommunication, computer, and information services, other business services, as well as personal, cultural, and recreational services);
- vi. Government goods and services n.i.e.

14.3. Note that in the case of transport, the treatment is split between freight transport and insurance (goods-related) and passenger transport (travel-related). For each of these subsections, the compilation of providing partner country detail is separately discussed. Such a breakdown is recommended in the MSITS 2010, at least at the level of the 12 major components of the BPM6 classification of services, and, where possible, at the more detailed EBOPS 2010 level.¹⁷⁹

14.4. Subsequently, section C discusses the compilation of statistics on the international supply of services by modes of supply insofar as it is related to resident/non-resident transactions. Section D elaborates the statistical treatment relevant to services transactions between related enterprises.

A. Summary of good practices

14.5. When compiling resident/non-resident trade in services statistics, it is good practice to follow the BPM6 recommendations on the principles of recording residence, valuation, time of recording, unit of account and currency conversion. The highest priority should be given to the compilation of data at the level of BPM6 main EBOPS categories, followed by the introduction of the EBOPS 2010 level of detail, the compilation of related supplementary items and the compilation of complementary groupings. Also, compilers are also strongly advised to consult the online version of this compilation guide where more compilation guidance will be made available on e.g. certain services items and complementary groupings, as well as the EBOPS-CPC conversion table that may facilitate the classification of certain transactions in the EBOPS classification.

14.6. When compiling *goods-related services statistics*, this Guide advises to note that enterprise surveys generally represent the most efficient method to collect the required information. ITRS and customs declarations, as well as other data sources, may also be used although these are generally not a sufficient source of data and may need to be supplemented with enterprise survey data. For *manufacturing services on inputs owned by others*, compilers should be aware that the difference between the value of the goods before processing and the value of the goods after processing may

¹⁷⁹ MSITS 2010, paragraphs 3.57-3.58.

differ from the value of the manufacturing fee. Compilers should also evaluate if and how received data has to be adjusted, especially in the absence of complete information or misreporting. Compilers also need to carefully distinguish between manufacturing services and manufacturing on own account, using the economic ownership of the inputs as the distinguishing criterion. Also a clear difference needs to be made between transactions related to manufacturing services on inputs owned by others, and those related to merchandising, based on whether or not the nature of the good changes.

14.7. For *freight transport and freight insurance services*, it is not always possible to measure the value of services directly. However, the information may be derived from the CIF/FOB adjustments that are made to the merchandise trade statistics for Balance of Payment purposes. Compilers should note however that when calculating the freight transport and insurance costs for BOP purposes, the statistical value does not necessarily reflect the sum of the actual invoice values, but instead follows the principle adopted in the accounting framework.

14.8. Regarding *passenger transport and travel*, compilers are advised that *transport* should be recorded on a gross basis. This means that the value of passenger transport includes fares and other expenditures related to the carriages of passenger. When passengers fares are a component of package tour payments, the compiler should, separate passenger transport and other travel components.

14.9. The compilation of *travel* item is closely related to the compilation of tourism statistics. Thus, it is useful for compilers to understand the conceptual framework of tourism statistics. The BPM6 and EBOPS 2010 recommendations should be followed and compilers are advised to provide further breakdowns of travel, in order to better assess the scope of travel activities, gauge their possible impact in terms of economic activity, and ensure consistency between travel and other related statistics, such as the tourism statistics, tourism satellite account or supply and use table.

14.10. When compiling statistics on *construction*, compilers should take care to value transactions on a gross basis, i.e. inclusive of all goods and services used as inputs to the work (whether subcontract or not), other costs of production and the operating surplus that accrues to the owners of the construction enterprise. It is particularly important to precisely identify the residence of the enterprise realizing the construction work in order to differentiate between exports of services and direct investment operations, using criteria such as the length of a project. Given the complexity involved in cross-border construction projects and the level of detail required means that surveys are the preferred method for collecting data on construction. Such surveys could possibly also be used to collect information on FDI and other resident-non-resident transactions.

14.11. Regarding *insurance, pension and financial services*, it should be noted that some services are provided without explicit fees, which means that their compilation needs a certain degree of estimation and imputation. It is good practice that *insurance and pension services* are based on the earned premiums, which are consistent with the accrual recording. To compile the exports of insurance services, compilers can generally obtain comprehensive data from surveying resident insurance enterprises. If comprehensive surveys are not feasible, compilers may be able to obtain information directly from domestic insurance corporations, which may also be used for estimating imports of insurance services.

14.12. In order to avoid the volatility and negative figures possibly generated by catastrophic events, an adjustment in claims due is required to reflect a more long-term view the functioning of the insurance sector. The compiler is invited to analyse the three possible adjustment methods for smoothing the amounts of claims by policyholders on insurance corporations, i.e. the expectation approach, the accounting approach and the sum of cost plus “normal profit” approach and use the most efficient depending on national circumstances.

14.13. For *financial services*, transactions without explicit fees are included in FISIM. FISIM is produced only by certain financial corporations and only on the loan and deposit instruments on their balance sheets. Compilers need to take special care to properly calculate the reference rate. As

recommended by the Advisory Expert Group (AEG) on National Accounts, the calculation of the reference rate should be determined according to national circumstances, using preferably either a reference rate based on a single observable exogenous rate for a specific instrument, such as interbank lending rates; a reference rate based on a weighted average of observable exogenous rates of maturities with different terms (weighted by the stock of loans and deposits in each maturity) or a weighted average of the endogenous interest rates on loans and deposits. The most comprehensive source data for exports and imports of FISIM come from (i) resident financial corporations (surveys or administrative data collections or financial supervision authorities), which can identify the deposits and loans with non-residents, as well as (ii) surveys of selected nonfinancial corporations, households, and NPISH, which could provide data on residents' accounts with financial corporations abroad to support compilation of FISIM import

14.14. *Services related to intellectual property products* may be particularly difficult to measure, because the distinction between the categories from a reporter's perspective may not always be clear, and because intra-firm transactions, which are frequent in these services categories, may be affected by transfer pricing phenomena or more general tax planning issues. When recording transactions on *the use of intellectual property n.i.e.*, compilers should note that *franchise and trademark licensing fees* related to charges for using non-produced assets and should hence, theoretically according to the SNA, not be recorded. However, often, the payments are bundled with additional service items that make it difficult to disentangle the pure payments for the use of the underlying brand and, as such, both the 2008SNA and BPM6 recommend that such payments are recorded as payments for services. For payments related to *licences for the use of outcomes of R&D*, care should be taken to differentiate between payments for entire originals. Similar differences exist for *computer services*, where compilers should distinguish between *licences to reproduce* (of more than one year) and *software originals*. In contrast, compilers should note that *R&D services* primarily relate to 'new' research and development, such as newly produced customized software, or transactions in 'originals', where ownership and the concomitant rights are transferred to the purchaser. Care is needed in this context to differentiate this from the licences to reproduce identified above. Compilers are strongly suggested to consider using the Frascati¹⁸⁰ based survey approach provides perhaps the best mechanism to improve their measurement of trade in R&D services.

14.15. For the compilation of data on resident/non-resident transactions in *education or health services*, primarily the collection of data is often problematic. Compilers are suggested to consider that sources of information from specialized entities may be necessary (e.g., the Ministry of Education and the Ministry of Health) and also to explore other types of sources, including higher education institutions, surveys on health insurance companies in combination with travel surveys (e.g. with reference to the purpose of stay); data available at embassies and consulates; or administrative data from health and social insurance.

14.16. *Government goods and services n.i.e.* includes only those services related to government functions that cannot be classified to another specific service category. The majority of government services transactions are most commonly compiled using administrative records. Data on government expenditure abroad should also be available from an ITRS, although it may be more difficult to capture expenditures by foreign governments and international institutions located in the compiling economy using an ITRS, in which case an enterprise survey of nonresident bank accounts or a survey of foreign embassies and international institutions could be used.

14.17. When allocating resident/non-resident trade by *mode of supply*, compilers may start with a simplified allocation, following table V.2 in MSITS 2010 and applying a three-step procedure of allocate, evaluate and refine. However, compilers should treat such an allocation only as a first rough approximation of resident/non-resident services transactions by mode of supply as this technique has

¹⁸⁰ OECD Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development, 6th edition. Note that at the time of writing the Frascati Manual is being revised, in part to provide better alignment with the National Accounts.

important limitations. This Guide strongly encourages compilers to gather additional information on modes of supply that may be collected for all services sectors using (added questions to) generic business surveys. Alternatively, compilers may choose to obtain information only for a selection of specific service sector(s) of interest to the compiling economy using focused sources of information, possibly using a sector specific survey that also integrates various other statistical domains (such as FATS, SBS, innovation or others). It may be useful to consider collaboration with other agencies and institutions that have a special interest (and/or expertise) in obtaining modes of supply data. In these circumstances, it is important the agency in charge of the collection and compilation of official trade in services statistics (generally the NSO or central bank) works in coordination with such specialised agencies so that the international recommendations for the collection and compilation of trade in services statistics are followed and to ensure that the information that is collected can be used in a broader context. It is suggested that the compiler investigates how to collect/compile more details for those items where mode 4 or mode 2 (both involving natural persons) is deemed to be important for the compiling economy.

14.18. Finally, compilers are advised to develop appropriate procedures to separately identify *service transactions between related (affiliated) enterprises*, as recommended by MSITS2010. It is a good practice to carefully examine the valuation of services transactions between related enterprises, since the recorded transactions could be under or overestimated and misrepresent the real flows of the economy. Compilers should be concerned that intra-firm trade might not reflect the real trade, as measured by market prices, to benefit from fiscal and taxation regulations, since transfer pricing is used for the valuation of services transactions.

B. Compilation of individual service categories

B.1. Goods-related services

B.1.a. Introduction

14.19. This sub-section deals with goods-related services, which include manufacturing services on physical inputs owned by others; maintenance and repair services n.i.e.; and freight transport and insurance (as sub-component of transport). These service categories are strongly related to flows of imported and exported goods. However, the value of services cannot necessarily be directly derived from the gross value of merchandise trade statistics. Additional information, from surveys, for example, is often needed to measure the exact value of the services provided.

14.20. *Manufacturing services on physical inputs owned by others* include activities such as processing, assembly, labelling and packing that are undertaken by enterprises that do not own the goods (see also paragraphs 3.66-3.77 of MSITS 2010). Such services may also be referred to as contract manufacturing, toll manufacturing, or toll services and are also described in BPM6¹⁸¹ and the BPM6 CG.¹⁸² In the case of manufacturing services imports (these services can, for example, be rendered under a special customs procedure - outward processing of goods), the principal¹⁸³ (goods

¹⁸¹ BPM6, para. 10.62-10.71 and boxes 10.1. and 10.2 and table 10.2.

¹⁸² BPM6 Compilation Guide, para. 12.5-12.25 and para. 3.15-3.17.

¹⁸³ In this chapter, the following terminology is applied: The *principal* is a unit that enters in a contractual relationship with another unit (here called processor) to carry out some part (or all) of the production process; the *processor* is a unit that carries out a specific production process based on a contractual relationship with a principal. The activities performed by the processor are denominated 'on a fee or contract basis'. *Processing* is a contractual agreement according to which the principal requires the processor to carry out a specific production process. The term 'sub-contracting' is sometimes used as well. In this context, the production process also includes supporting activities. Manufacturing services on physical inputs owned by others can be performed on goods leaving the country of the principle and entering the country of the processor under various arrangements depending on the customs laws of the involved countries including (but not limited to) specific customs procedures called *outward and inward processing*. *Outward processing* customs procedures means the Customs procedure under which goods which are in free circulation in a Customs territory may be temporarily exported

owner) has goods it owns processed by another unit (processor) which is resident of another economy. The principal pays a fee to the processor for the services provided. In the case of manufacturing services exports (these services can, for example, be rendered under a special customs procedure - inward processing of goods), a processor transforms goods belonging to the principal who is resident of another economy. In return for a processing fee, the processor transforms the goods using its own labor and capital. Over the course of the transformation process, the economic ownership of the goods remains with the principal. The manufacturing service equals the processing fee; i.e., the value of the contract between the owner of the goods and the manufacturer. Gross values of goods associated with manufacturing services should be identified as EBOPS supplementary items in economies where such an activity is significant.¹⁸⁴

14.21. *Maintenance and repair services n.i.e.* includes maintenance and repair work by residents on goods that are owned by non-residents (and vice versa) The value recorded for maintenance and repairs is the value of the repair work done, not the gross value of the goods before and after repairs (see also paragraph 3.78-3.79 of MSITS 2010).¹⁸⁵

14.22. *Freight transport and related freight insurance services* are part of EBOPS categories transport and insurance services, respectively (see 3.97-3.103 in MSITS for freight transport and 3.178-3.180 for freight insurance). It refers to freight charges by residents of the compiling economy with non-residents on goods with change of ownership, as well as on freight where there is no change of ownership.

B.1.b. Compiling statistics for goods-related services

14.23. It is suggested that compilers consider that *enterprise surveys* generally represent the most efficient method to collect information on goods-related services. The surveys could include questions on the value of the service fee, as well as the value of the goods sent and received for processing or for repair. This information can be used to adjust the goods account to measure merchandise trade on a change of ownership basis.

14.24. ITRS and customs declarations may also be used for the compilation of goods-related services, although these sources are generally not sufficient and may need to be supplemented with enterprise survey data. When using ITRS data for information on fees for manufacturing services or maintenance and repair services, the compiler should ensure that such amounts do not include payments for other goods and services. Administrative sources, including tax records, can also provide useful information (see BPM6CG 12.20-12.25 for manufacturing services and 12.35-12.37 (including tables 12.1 and 12.2 for freight transport).

14.25. Compilers may consider combining data from customs declarations with the results of enterprise surveys, when both datasets are available. While such merged data would not necessarily provide compilers with advantages in developing aggregate measures of goods-related services, such data could be very useful, in combination with appropriate screening questions on enterprise surveys, for determining partner country attribution, and for determining the detailed product composition of exports and imports for those firms that indicate they either receive or send goods abroad for processing or repair.

for manufacturing, processing or repair abroad and then reimported with total or partial exemption from import duties and taxes. *Inward processing* customs procedures means the Customs procedures under which certain goods can be brought into a Customs territory conditionally relieved from payment of import duties and taxes, on the basis that such goods are intended for manufacturing, processing or repair and subsequent exportation. See IMTS 2010, paragraphs 1.19 – 1.21 and annex B, para. B.12-B.1

¹⁸⁴ BPM6, paragraph 12.5.

¹⁸⁵ No distinction is made between those repairs that maintain the item in working order and are considered as intermediate consumption, as opposed to those that extend the efficiency or capacity of the good or extend its life and thus are included in capital formation.

14.26. Compilers may also consider comparing the trend in the value of goods under inward and outward customs procedures (and the use of the nature of transactions codes) with the trend in the magnitude of manufacturing services over time. While the actual monetary amounts will be different, compilers could expect the growth trend between the series to be similar, which could provide a useful quality check for compiling statistics on the international trade of manufacturing services.

B.1.b.1 Compilation of manufacturing services

14.27. Compilers should be aware that the difference between the value of the goods before processing and the value of the goods after processing may differ from the value of the manufacturing fee for various reasons, including the sale of processed goods in the economy of the processor or in third countries, holding gains or losses, the inclusion of brand names after processing, and others (see BPM6 CG 12.14).

14.28. The compilation of data on manufacturing services on inputs owned by others may be facilitated by following the change of ownership principle in general merchandise trade statistics. However, the recording of the movements of goods across borders and statistical surveys on trade in services are usually independent and therefore not mutually consistent.

14.29. As to export and import of manufacturing services, Box 14.1 provides an example of a possible data adjustment in the compilation of resident/non-resident trade in services statistics when not all necessary information is available to the compiler and misreporting of goods after processing can be expected to be the main cause of the difference between the processing services and the value of goods before and after processing. It also provides an example on other adjustments of data on import and export of goods related to import of processing services that may be conducted in order to compile balance of payment statistics. Table 14.2 presents possible combinations of related movements of goods and services across the borders for processing, after processing and also without any cross-border movements. It also explains the difference in recording of exports and imports of goods between the IMTS2010 (cross-border concept) and BPM6 (ownership concept). It is obvious that in some cases there is no cross-border movements of goods related to the handover of goods between processor and principal (either before the processing or after the services are provided).

Box 14.1 Numerical example of possible adjustments to import and export of goods for the balance of payments purposes in relation to import of processing services in the absence of full information

Assume that country A imports processing services from B in value of 7 (5 is related to processed goods returned to the economy of principal A, 1 - to goods that were sent for processing without returning to country A and 1 - to goods sourced abroad which were processed in B and imported (brought) to country A after processing). A's IMTS records: export of goods for processing (returning to country A after processing) is 10; but import of goods after processing is only 5 (therefore it has to be corrected for misreporting).

The margin between goods sent for processing (10) and returning after processing (5) is -5. The value of these goods cannot be accounted for as general merchandise in the balance of payments and their value is therefore subtracted to obtain the gross flows of exports and imports according to the BPM6/MSITS2010 recommendations. In addition, the import of services related to the goods returning back to A is 5 so the adjustment of import after processing has to be +10 (=5+5), i.e. the adjustment of general merchandise according to the BPM6/MSITS2010 is -10.

Apart from the adjustment for misreporting, there may be also other adjustments in goods due to insufficient data sources and imported processing services. Assume that country A exports goods for processing that is not returning back after processing in value of 10. Strictly speaking, the goods should be also subtracted from general merchandise since no change of ownership occurs when crossing the borders and exports of goods should be recorded only when sale abroad after processing occurs (e.g. in value of 11, 10 + 1 for the processing services). However, there is usually no data source for these sales abroad and thus the goods exported for processing without returning back may not be subtracted from general merchandise (10). In addition, the import of services for 1 (corresponding to the value of imported services processed on goods sold abroad) is supposed to be imputed to the export of goods. Analogously, assume import of goods which were purchased abroad and processed in B (in value of 11, purchase for 10, services for 1). The value of import according to BPM6/MSITS2010 should include only the value of goods brought from abroad (excluding the 1 corresponding to the value of imported services processed on goods purchased abroad and imported to country A).

Table 14.2(a)
Export of processing services; resident = processor (contractor)
Recording in BOP, NA, and IMTS

<i>Residence of the principal (owner of the goods to be processed)</i>	<i>Residence of processor</i>	<i>Origin of the good before processing</i>	<i>Residence of entity acquiring transformed goods from principal</i>	Export of processing services resident = processor (contractor)	Goods that should be captured in the IMTS of processor's territory (physical movement of goods)		Goods and services that should be recorded in BOP and NA of processor's economy (change of ownership principle)	
					Import	Export	Debit	Credit
<i>Non-resident</i>	<i>Resident</i>	<i>Abroad</i>	<i>Non-resident</i>	1 Goods received by resident processor for processing. Transformed goods leave processor's economy once processed.	Import of goods for processing	Export of processed goods	-	Service: Processing fee.
			<i>Resident</i>	2 Goods received by resident processor. Transformed goods are purchased by residents of processor's economy once processed.	Import of goods for processing	-	Goods: Purchase of processed goods	Service: Processing fee.
		<i>Compiling economy</i>	<i>Resident</i>	3 Goods purchased by non-resident principal in the resident processor's economy. Transformed goods are purchased by residents of processor's economy once processed.	-	-	Goods: Purchase of processed goods	Service: Processing fee Goods: Sales of goods (input) to non-resident principal.
			<i>Non-resident</i>	4 Goods purchased by non-resident principal in the resident processor's economy. Transformed goods leave processor's economy once processed.	-	Export of processed goods		Service: Processing fee Goods: Sales of goods (input) to non-resident principal.

Table 14.2(b)

Import of processing services; resident = owner (principal)

Recording in BOP, NA and IMTS

<i>Residency of the principal (owner of the goods to be processed)</i>	<i>Residence of the processor</i>	<i>Origin of physical inputs before processing</i>	<i>Residence of entity acquiring transformed goods from principal</i>	Import of processing services Resident = client/owner (principal)		Goods that should be captured in the IMTS of principal's territory (physical movement of goods)		Goods and services that should be recorded in BOP and NA of principal's economy (change of ownership principle)	
						Export	Import	Credit	Debit
<i>Resident</i>	<i>Non-resident Non-resident</i>	<i>Compiling economy</i>	<i>Resident</i>	5	Resident principal sends goods (inputs) to non-resident processor. Transformed goods are returned to the economy of principal.	Export of goods for processing	Import of processed goods	-	Service: Processing fee
			<i>Non-resident</i>	6	Resident principal sends goods to non-resident processor. Transformed goods are sold abroad by resident principal to non-residents.	Export of goods for processing	-	Goods: Sales of goods (includes processing fee)	Service: Processing fee
		<i>Abroad</i>	<i>Non-resident</i>	7	Resident principal purchases goods from non-resident. Transformed goods are sold by resident principal to non-residents.	-	-	Goods: Sales of processed goods (includes processing fee)	Service: Processing fee Goods: Purchases of goods (input)
			<i>Resident</i>	8	Resident principal purchases goods (input) from non-resident. Transformed goods are sent to economy of principal.	-	Import of processed goods	-	Service: Processing fee Goods: Purchases of goods (input)

B.1.b.2 *Manufacturing services: borderline cases*

14.30. It is important to separate manufacturing services on inputs owned by others from transactions that may have similar aspects, but that should be recorded differently according to BPM6.

14.31. First, compilers should carefully distinguish between manufacturing services and manufacturing on own account, using the economic ownership of the inputs as the distinguishing criterion. Even if the processor not only transforms the goods owned by others (i.e., the principals), but also provides some physical inputs in the process, their exported output will be recorded under manufacturing services (i.e., including the value of physical inputs provided by the processor). This distinction is particularly relevant for countries with locations or zones with special taxation arrangements, such as export processing zones or free zones. Compilers should be aware that enterprises that operate in these zones are not necessarily by definition engaged in manufacturing services. If such enterprises are the economic owners of the goods that they process (whether purchased domestically or from the rest of the world), their exported output would not qualify as manufacturing services but as general merchandise. Similarly, many enterprises may be engaged in manufacturing services, without necessarily being in special locations (see also (see also 12.15-12.16 of the BPM6CG).

14.32. Some enterprises may be affiliates from direct investors abroad and may use technology transferred to them by this direct investor.¹⁸⁶ Compilers should note that the mere existence of a direct investment relationship does not imply the provision of manufacturing services, even when the processed products are sold to the direct investor. Since the classification is solely determined by the economic ownership of the inputs, this would still be recorded by the affiliate as manufacturing on own account (and hence not a manufacturing service).

14.33. A second area where compilers need to make a careful distinction is the difference between transactions related to manufacturing services on inputs owned by others, and those related to merchanting (see also 12.19 in BPM6CG). When in the case of merchanting, the nature of the goods does not change; the gross values of the associated goods must be recorded as trade in goods (negative and positive exports).

14.34. In the case that goods under a merchant's ownership may be subjected to certain manufacturing services that change the condition of these goods, relevant purchases and sales of the goods should be recorded under general merchandise instead of merchanting, whereas the minor processing or packaging fee would still be recorded under manufacturing services.

14.35. Compilers are suggested to also consult the Guide on Measuring Global Production for more suggestions on how to deal with the different cases that compilers may be confronted with, as well as possible solutions to compile the related items in the goods and services account.¹⁸⁷

Country experience: Czech Republic

¹⁸⁶ Technology transfer includes patenting, licenses, know-how, technical assistance and the provision of research and development services. See OECD, *Measuring Globalization: OECD Handbook on Economic Globalization Indicators, 2005*.

¹⁸⁷ UNECE (2014) Guide to Measuring Global Production.
http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/bur/2014/Guide_to_Measuring_Global_Production_-_CES.pdf.

14.36. In the movements of goods within the EU the processing services cannot be estimated by the difference between goods crossing borders before and after the processing (e.g. a long-term negative margin on outward processing with other EU countries has been recorded). There are at least three main reasons for this:

- i. The non-resident principal has the goods after processing shipped directly from the economy of the processor to a third economy. The resident processor had reported receiving the goods for processing into Intrastat (system for collecting information and producing statistics on the trade in goods between EU countries) but the non-resident does not report them as goods sent after processing but as a simple merchandise export.
- ii. Goods after processing are sold by the non-resident principal to a resident of the processor's economy (i.e. without the goods leaving the processor's economy). Non-resident principal must be registered in the processor's economy for VAT purposes. The processor had only reported acquiring goods for processing into the Intrastat but there is no cross-border movement of goods after processing between the principals' and processors' economies.
- iii. Goods sent for processing and especially received after processing may be significantly affected by misreporting or asymmetric reporting. Goods sent for processing within the EU are not under custom control in the Czech Republic. For this reason it is difficult to keep reporting consistently on both sides in manufacturing chains. For example processor A reports physical entry of goods into the country (for processing) in certain value, eventually processes it and transfers it to processor B, which after its own processing reports the exit from the country with a completely different value.¹⁸⁸

14.37. The reasons mentioned under (i) and (ii) lead to differences between processing services and margins resulting from gross cross-border flows in goods for processing. Since the compilation of export and import of goods is based on change-of ownership principle¹⁸⁹ (not on cross-border principle), there is no need for any additional adjustments. In case of (i), the goods received for processing by resident processor is excluded from general merchandise as well as all cross-border exports by non-residents, even though they are reported as general merchandise. In case of (ii), the goods received for processing by resident processor is also excluded from general merchandise and only sales by non-residents within the Czech market is recorded as import of goods. The sales of non-residents are known from VAT statements submitted by non-residents.

14.38. However, the difference caused by point (iii) must be eliminated by additional adjustment of goods excluded from general merchandise in order to keep the balance on trade of goods and services unaffected. In fact, the first adjustment is done mostly at the level of Intrastat data-collection by comparing the processing services (declared by exporters or importers of services) and declared cross-border movements of goods (reported into Intrastat by the same reporting units, as these units are usually the same – exempt for chain-linked processing). The adjustment requires sufficient data comparison of

¹⁸⁸ Holding gain/losses or overheads are not likely to be among them as the entity obliged to report the movements of goods across the borders in Intrastat is the processor (not the owner of goods).

¹⁸⁹ National concept of foreign trade in goods, which represents change- of ownership approach, takes into account sales and purchases by non-residents within the Czech market, and eliminates all cross-border movements of goods reported by non-residents since these cross-border flows cannot be considered as transactions related to the Czech economy.

both data sources on the individual level of reporting units. Nonetheless, other adjustment may be needed at the aggregate level, mostly because of the misreporting caused by chain-linked processing.

14.39. For the purpose of these adjustments ad-hoc annual survey on a voluntary basis along the regular survey on international trade in services is conducted among the processors (exporters of services) and the principals of goods to be processed abroad (importers of services). Detailed information is collected on the relationship between services exports and imports and the related movements of goods across the border and the handover of transformed goods to the principal within the processor's economy. The additional adjustment of goods due to misreporting may be carried out in order to keep the margin between goods after processing and goods before processing in accordance with the particular processing services related to the movements of the goods (especially when goods is returning back after processing – see Box 14.1).

Hong Kong imports of manufacturing services and related goods transactions

Case I: Outward processing to Mainland China with processed goods returned to Hong Kong

14.40. In the processing activities between Hong Kong (principal in the reporting economy) and Mainland China (non-resident processor), the import value of the manufacturing services is derived from the total of the processing fee charged by the non-resident processor and the amount reimbursable by the principal for the materials procured by the processor.

14.41. The cost of materials supplied by the principal from or via Hong Kong for processing without change of ownership is not included in “Exports of goods” in the balance of payments statistics. By the same token, the value of the processed goods returned to Hong Kong should not be treated as “Imports of goods”. The cost of input materials supplied by the principal to the processor from a third economy directly is included in “Imports of goods” of the economy of the principal.

Case II: Offshore trade activities involving outward processing with processed goods sold offshore

14.42. Similar to Case I, the value of manufacturing services is reported under “Imports of services”. The import value of the manufacturing services is derived from the total of the processing fee charged by the non-resident processor and the amount reimbursable by the principal for the materials procured by the processor. Margin earned from the offshore sale of the processed goods are not included in “Exports of services”.

14.43. As for trade in goods, the cost of goods for processing supplied by the principal from or via Hong Kong to the processor without the change of ownership is not included in “Exports of general merchandise”. The value of the processed goods sold offshore directly without returning to Hong Kong is treated as “Exports of general merchandise”. The cost of materials supplied by the principal to the processor from a third economy directly is included in “Imports of general merchandise” in the economy of the principal.

Hong Kong exports of manufacturing services and related goods transactions

14.44. For illustration purposes, it is assumed a Hong Kong company provides manufacturing services on the materials owned and supplied by an Australian company (non-resident principal) and the processed

goods are returned to Australia. The value of manufacturing services is reported under “Exports of services”. The respondent can provide the export value of manufacturing services based on the total of the processing fee charged and the amount reimbursable by the non-resident principal for the materials the processor procured. For trade in goods, the value of the processed goods is not treated as “Exports of general merchandise” because the ownership belongs to the Australian company. Besides, the value of input materials supplied to the processor by the principal from Australia or a non-resident are not included in “Imports of general merchandise”. However, the value of materials procured by the Hong Kong company from a non-resident to be used in the processing activity are already recorded under “Imports of general merchandise” and would be part of the manufacturing fee.

B.1.b.3 Freight transport and freight insurance services: CIF and FOB valuations

14.45. It is not always possible to measure the value of the freight transport and freight insurance services directly. However, freight cost estimates (including both transport and insurance premiums) can be derived from the CIF/FOB adjustments that are made to the merchandise trade statistics for Balance of Payment purposes. The difference between CIF and FOB values are considered as freight costs (transport and insurance premiums). These costs are generally deemed payable by the importer of the goods. Where they are provided by residents to non-residents, or by non-residents to residents, there will be recordings in the balance of payments. Table 14.1 displays these differences in recording.

Table 14.1 Valuation principles of merchandise statistics and Balance of Payments

Merchandise trade (IMTS statistics)	Imports	Statistical values CIF (cost insurance freight) and statistical values FOB (free on board)
	Exports	Statistical values FOB (free on board)
Goods (BOP statistics)	Import and exports	Statistical values FOB (free on board)

14.46. As table 14.1 shows, the recommendation for merchandise exports is that they are valued on a FOB basis, which follows the BPM6 principle of recording general merchandise credits FOB. Imports in international merchandise trade statistics are recommended to be compiled on a FOB basis (also, countries are encouraged to compile FOB-type value of imported goods as supplementary information¹⁹⁰) whereas in the BOP, the imports of goods should be valued on an FOB basis; i.e., the value of transportation cost and insurance premiums from the frontier of the exporter to the border of the importer is recorded as imports of these services (if the services are provided by non-residents) and the remaining value is recorded as imports of goods.

14.47. Compilers should note that when calculating the freight transport and insurance costs for BOP purposes, the statistical value does not necessarily reflect the sum of the actual invoice values,¹⁹¹ but instead follows the principle adopted in the accounting framework (see the numerical example in box III.4 in MSITS2010). However, many users are also strongly interested in obtaining the data on the actual costs, as this reflects the total value of freight related services that are provided, which is why MSITS 2010 suggests making these data available to users on a supplementary basis (i.e. beyond the BPM6/EBOPS2010 recommendations). The valuation of freight transport services on a transaction basis indicates market price transactions excluding any kind of adjustments or estimations. Such additional

¹⁹⁰ See: IMTS 2010, paragraph 4.8

¹⁹¹ The report from Statistics Denmark provides an overview on differences between the statistical CIF and FOB value. EuroGrant 2009 Balance of Payments, Grant agreement number 20821.2009.001-2009.715, final report May 2010; the Glaab report recommends collecting invoice values instead of statistical value; the import and export of freight services should be collected.

information¹⁹² can be used as supplementary information to the FOB/FOB valuation principles in balance of payments statistics or the FOB/CIF principle in international merchandise trade statistics.

14.48. A variety of methods for estimating freight and insurance on imports are described in BPM6 CG table 12.2. A common approach of CIF/FOB adjustments is to calculate conversion factors, or ratios of CIF imports over FOB imports, that should take into consideration the mode of transport, the geographical distance and the type of commodity transported. International merchandise trade data from customs can be used to estimate CIF/FOB ratios, provided that these data include information on invoice and delivery terms. Dedicated surveys are also used in some countries.

14.49. To compile the ratios between the statistical value (CIF-type) and the invoiced value (of the transactions with FOB-type delivery terms¹⁹³), compilers are suggested to use those transactions for which FOB type delivery terms is available, and to calculate the ratio between their FOB-type invoiced value and the corresponding CIF-type statistical value. The ratio thus compiled can subsequently be applied to the total statistical value (CIF-type) to obtain a FOB type value. Such ratio should be calculated for freight transport and insurance, respectively. When there is no sufficient information available from customs merchandise trade statistics, a combination of the above techniques and direct data collection or surveys can be used to allow a full coverage of all the cases of imports and exports, types of contracts, and residence of the carrier.

14.50. Freight insurance services are usually estimated by compilers on the basis of the insurance premiums, the former being often calculated as a ratio to the non-life insurance premiums. Depending on the terms of the freight, additional adjustments may be needed based on the value of the goods being traded (i.e. if the terms are not on an FOB basis) and the terms of contract (i.e., whether the shipment between the exporter and the importer's borders is undertaken by a resident or a non-resident).

14.51. It is advised to compile the value of total freight insurance, whereas the freight transport component has to be broken down by mode, as follows: sea, air, other, of which, space, rail, road, inland waterway, pipeline transport and electricity transmission.

Country experience: Germany

14.52. In Germany, the following formula is applied for the calculation of the transportation costs: Transportation Costs = weight x freight rate (subject to mode of transport, product group (in the case of sea transport), and distance). In order to apply this formula the information matrix of table 14.5 is used.

¹⁹² MSITS 2010, paragraphs 3.107-3.110.

¹⁹³ The delivery-terms-FOB method has been developed by Statistics Netherlands.

Table 14.5 Information matrix to calculate transportation costs

	Weight	Product characteristic	Distance	Unit costs	Nationality
Sea Cargo	X	x	(x)	x	x
Air Cargo	X		(x)	x	x
Inland Waterways Cargo	X			x	x
Road Cargo	X		X	x	x
Rail Cargo	X		X	x	x
Pipelines	X		X	x	x

14.53. In order not to increase the burden for the reporters the information needed for the estimation are taken from the following public data sources.

14.54. *The weights* for imported and exported goods are taken from foreign trade statistics and are hence available on a monthly basis.

14.55. *Freight rates.* As a second best solution, we use information extracted from publications specialized in transport an internet research, which focus on more than 30 major carriers and data from transport services associations. Based on this information the transport costs for a standard container¹⁹⁴ were calculated for the various modes of transport. With regard to sea transport, owing to the availability of additional information, a further breakdown of the transport costs by containers, bulk goods and crude oil is made.

14.56. The transport prices for each mode of transport, which fluctuate considerably over the course of a year, are updated on the basis of the transport price indices calculated by the Federal Statistical Office.

14.57. *Mode of transport.* As an expedient, a “main mode of transport” is used as a basis for the estimation. The longest part of the total transport route (and hence as a rule also the stretch with the highest value) is covered using this mode of transport. Information on the mode of transport is derived from the foreign trade statistics, in which an obligatory enquiry is made about the active mode of transport used to cross the EU’s external border. This is mainly sea or air and a good approximation of the actual main mode of transport. If another mode of transport is stated in the trade statistics, it is assumed that in the case of non-European countries, the goods were transported by sea to the large ports in the Netherlands and Belgium¹⁹⁵ and then transported onwards to Germany on the stated mode of transport. Table 14.6 shows an example of calculating transportation costs.

¹⁹⁴ 20ft equivalent unit (TEU) with an average loading weight of 14 tons.

¹⁹⁵ For mineral oil imports, Italy (Trieste) is assumed to be the unloading port for the Middle East countries.

Table 14.6 Example of calculation of transportation cost for imports from China

Imports from China: 1,109,537t	Mode of transport	Distance	Product group	Unit costs	Costs in 1,000 EURO
Sea cargo	85.6%				151,141
+ chain sea->inland waterways	3.9%			139 €/t	
+ chain sea->road	8.3%				
+ chain sea->rail	0.2%				
Air cargo	2.0%			8,479 €/t	188,022
Inland waterways cargo	3.9%			4.90€/t	212
Road cargo	8.3%	300 km	0.08776€/t km		2,424
Rail cargo	0.2%	300 km	0.04636€/t km		30

Note: $(1,109,537 \times (0.856+0.039+0.083+0.002) \times 139 = 151,141)$

14.58. *Nationality of the carrier.* A number of different sets of statistics are used as a basis to determine the relevant partner country. The nationality composition of the road toll statistics is used for the regionalization of lorry transport (adjusted to compensate for the disproportionately large share of German trucks due to domestic transport). The ownership (not flag) share of the countries among the world fleet is used for sea transport. Since only some sea transport is carried out using scheduled services, the breakdown of the world fleet by country can be regarded as an informative approximation. The same applies to air transport, i.e. the world market shares of the airlines are used. With respect to inland shipping, information on the flags of the ships is the sole data available, hence only this information is currently used. As cross-border rail transport has only been liberalized since 2007, no statistics are available for this yet. A robust estimation for the rail system is carried out on the basis of the technical systems of the national railway networks (e.g. track widths, line voltages, operating licences).

14.59. *Transport insurance.* The amount of transport insurance is also estimated using this procedure, although no further details will be supplied regarding the methodological particularities of insurance companies (service fee included in the insurance premium, etc.). Unlike transport costs, the insurance costs are calculated as a share of the import value. This share is in line with the premium rates set by transport insurance brokers for transportation from/to various regions. These rates were calculated parallel to determining the transport costs by surveying several international transport insurance companies. The reported country structure for transport insurance is used for the regional breakdown of these costs.

B.2. Passenger transport and travel

B.2.a. Introduction

14.60. *Passenger transport* and *Travel* are service categories that are strongly related and where compilation often involves the same or similar data sources. *Passenger transport* include fares and other expenditure related to the carriage of passengers, including any taxes levied on passenger services, such as sales or value added taxes (see MSITS2010 paragraph 3.95). *Travel* covers goods and services for own use or to be given away, acquired from an economy, by non-residents during visits to that economy. Hence, travel is transactor-based, which makes the compilation of data on travel challenging compared with most other service categories that follow a product-based classification (see MSITS2010 paragraph 3.115).

B.2.b. Compiling statistics for passenger transport and travel

14.61. To compile statistics for passenger transport and travel, compilers can draw from a variety of data sources. These can include ITRS (which can provide information on monetary flows between travellers and tourism services providers and payments made through bank notes, traveller cheques or credit cards), payments cards data and other administrative sources (such as immigration records), but surveys remain an especially important data source. For passenger transport, these surveys may include dedicated transport surveys (aimed at large transport-providing enterprises, such as airlines or railway operators).

14.62. For EBOPS travel item (exports), surveys can include survey of travellers; border surveys; household surveys; and surveys of enterprises, including accommodation establishments and tourist intermediaries (e.g., travel agencies and tour operators). Travel agencies are the traditional intermediaries between those traveling and travel-related services providers, such as hotels, car rentals, cruise lines and package tours. Direct reporting allows for a better measure of travel expenditures booked through these intermediaries than what can result from the ITRS. As far as individual tours are concerned, the travel agencies have detailed information that allows them to distinguish travel components only when individuals pay for tours to visit foreign countries. For package tours, it is often the case that tour operators are in a better position to provide the product classification of different services assembled in a package. This information can be obtained through the implementation of a specific direct report for tour operators.

14.63. Visitors' surveys may provide more detailed insights, such as the purpose of travel without which the trip would have not taken place, the type of person traveling, the structure of the expenses made during the trip and how they pay for those expenses. Supplemental sources include tourism activity statistics (accommodation providers' statistics) along with accommodation prices in the consumer price index, and, on the debits side, mirror statistics from partner countries.

B.2.b.1 Passenger transport

14.64. Transport services should be recorded on a gross basis. This means that the value of passenger transport services includes fares and other expenditures related to the carriages of passenger. For example, commissions of ticket sales should be included in services value.

14.65. Given prevalent practices of interlining and code sharing by airlines, compilers should obtain data on revenue earned by an airline from residents of other countries rather than data on sales by an airline to residents. It may be possible to collect such data as airlines keep records on revenue generated by country of sale. However, as not all airlines earning revenue from residents of a particular country will have offices in that country, it may be difficult for compilers to obtain a complete coverage of passenger fare revenue earned by non-resident operators from residents of the home country. In such cases, a data model based upon the number of non-resident passengers carried by resident operators, passengers' countries of origin and destination, and average fare rates could be used to produce an estimated value.

14.66. An alternative means of measuring passenger fare revenue earned by non-resident operators is to collect information on the total value of tickets sold in the compiling country and deduct from this total value the earnings of resident carriers. An estimate of ticket sales may be derived from a household budget survey or other surveys of individuals, for example.

14.67. In some cases, passengers fares may be a component of package tour payments, and the compiler may, in consultation with travel industry representatives, have to separate passenger transport and other travel components.

Country experience: Ireland

14.68. In Ireland export sales data for passenger transport are obtained from resident airline and ferry operators in terms of their receipts from non-residents for travel to and from Ireland.

14.69. Direct data on receipts for other types of resident transport companies are not available – such expenditure by non-resident visitors to Ireland being captured indistinguishably in the travel and tourism receipts (exports). Respondents may provide their best estimates’ in respect of the geographical breakdown required because of the difficulty of knowing in all cases the precise country of residence of their customers. Payments by Irish residents to non-resident transport enterprises in general cannot be directly distinguished at present. Such payments (imports) are included in the travel and tourism expenditure data. Receipts by resident airline and shipping companies for freight services provided (exports) to non-residents are obtained from these enterprises, the geographical breakdown being provided on a best estimates’ basis where necessary.

Country experience: Australia

14.70. In Australia passenger transportation services are obtained from the ABS's quarterly Survey of International Trade in Services with estimates for freight debits derived from the ABS's International Merchandise Trade Statistics. Survey responses for passenger transport are adjusted to ensure only international services are captured as described below.

14.71. The SITS requests non-resident providers of passenger transport services to report revenue earned from the sale of international tickets within Australia. Survey responses could therefore include tickets sold to both resident and non-resident travellers, and regardless of whether it involves transport between Australia and the rest of the world or within Australia as part of an international journey. Data from the International Visitors Survey conducted by Tourism Research Australia and ABS Overseas Arrivals and Departures data are used to estimate the value of international tickets sold within Australia to non-residents on non-resident airlines and this value is deducted from the survey total for passenger transport debits. Similarly estimates are made for the value of international tickets sold within Australia to non-residents on resident airlines and this value is added to the survey total for passenger transport credits. It should be noted that the survey requests the same information from resident providers of passenger transport services for the sale of international tickets abroad, however no adjustment is currently made to account for the purchases by Australian residents abroad.

14.72. The value of services provided to non-residents by Australian carriers in Australia, when sold abroad as part of an international ticket (on-carriage), is collected from the carriers and allocated to travel. Services provided on purely domestic travel in Australia by non-residents, whether pre-purchased abroad or while in Australia, are also included in travel. No classification adjustments are made for non-resident earnings from residents for internal flights abroad, and all earnings from sales in Australia for on-carriage in a foreign country, or for pre-purchased domestic travel in a foreign country, are included indistinguishably in transportation debits. Cruise fares are excluded from passenger services and included in travel, although sea passenger services sold in Australia and provided to residents travelling from one country to another and any resident sea passenger earnings are included in transportation.

B.2.b.2 Travel

14.73. The concept of *travel*, as it used in MSITS 2010, is closely related with the concept of *tourism*. Thus, it is advised that trade in services compilers understand the conceptual framework of tourism statistics, including Tourism Satellite Account (TSA). Detailed descriptions are available in two UN

publications (IRTS 2008 and TSA: RMF 2008) and in the Compilation Guide for Tourism Statistics available at the World Tourism Organization website.¹⁹⁶

14.74. In addition to the aggregate measure of travel exports (credits) and imports (debits), BPM6 and EBOPS 2010 recommend the compilation of further breakdowns of travel. These breakdowns can be used not only to better assess the scope of travel activities and to gauge their possible impact in terms of economic activity, but also to ensure consistency between data on travel compiled in accordance with MSITS 2010 and other related statistics, such as the tourism statistics, tourism satellite account or supply and use table.

14.75. Some of these requirements are not new compared with the previous edition of MSITS and BPM. That is the case of the mandatory split between business and personal travel and the breakdown of personal travel into health-related, education-related and other motives. Other breakdowns, such as the alternative presentation of travel according to the types of goods and services, are new challenges for the balance of payments compilation. C To meet these requirements compilers should draw on the advantages of the increased proximity with agents directly involved in the external operations and on the availability of more detailed information. Table 14.7 shows complementary data sources that can be used to compile different breakdowns.

Table 14.7 Travel breakdown: data sources (example)

Breakdown	Data Sources
Travel Purpose: Business / Personal	Payment Cards Database
	Direct Reporting - Travel Agencies and Tour Operators, visitor surveys and household surveys
Personal Purposes: Health-related, Education-related, Other	Survey, Administrative Data
Group of Traveler: Border, seasonal and other short-term workers	Mirror Statistics
	Survey
Types of Goods and Services	Payment Cards Database
	Direct Reporting - Travel Agencies and Tour Operators
	Survey

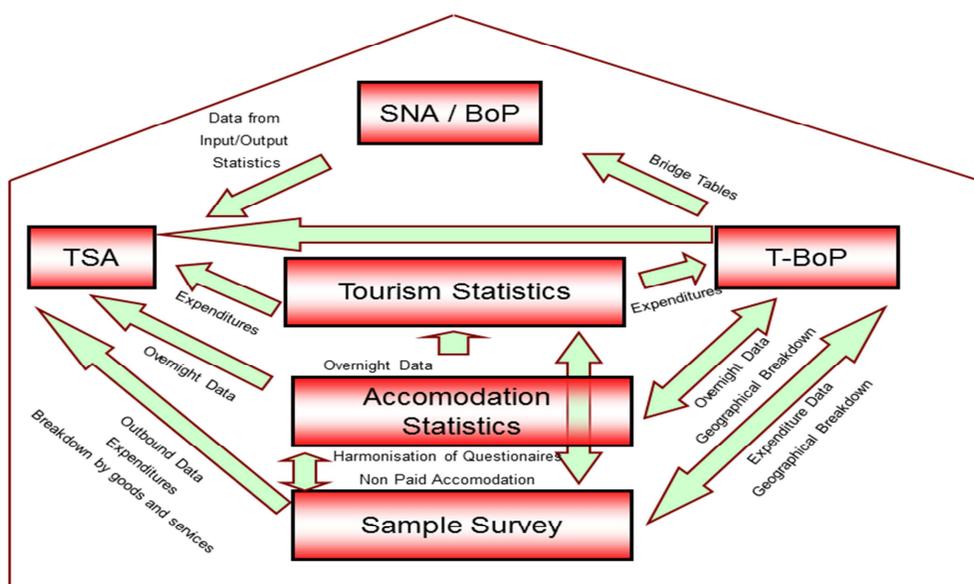
14.76. When defining the specific level of detail for each breakdown, other specifications should be considered in order to have an integrated and consistent framework, which would provide all details required by other statistical domains, such as the tourism satellite account, national accounts and the harmonized index of consumer prices. A needs assessment is essential to understand how the available data sources can deliver the level of detail required. For this purpose, the cooperation between different statistical authorities seems to be crucial in order to reduce compilation costs, as well as to integrate diverse statistical systems and conceptual frameworks.

14.77. In particular, compilers who are responsible for estimating the receipts and expenses for travel could work closely with the Ministry of Tourism or similar governmental agencies. When international passenger surveys and other surveys are conducted or outsourced, thorough discussions should be made between the compilers of trade in services statistics and the Ministry of Tourism. Such discussions would contribute to the consistency of primary data used for the compilation of these statistics and tourism statistics, including tourism satellite account.

¹⁹⁶ See: <http://statistics.unwto.org/en/content/methodology-0> and <http://statistics.unwto.org/content/international-recommendations-tourism-statistics-2008-irts-2008-compilation-guide>.

14.78. The interconnection of the different sources can be seen as rooms in different floors of a house (see Figure 14.1, which is based on the experiences of Austria), where the SNA serves as the roof top giving inputs to the TSA and receiving input from Travel item of balance of payments (T-BOP). The basic tourism statistics, accommodation statistics and the sample survey are major inputs for compiling the compound statistics TSA and T-BOP. The basic statistics should be mutually harmonized in major conceptual fields and the outcomes should be reconciled where they describe the same pieces of reality.

Figure 14.1 Integrated Aspects of Tourism and Travel Statistics



Country experience: Austria

14.79. In Austria, OeNB and Statistics Austria are running a joint survey for tourism expenditures and the travel item. For collecting or compiling tourism in its forms of domestic, outbound and inbound the accommodation statistics (covering inbound and domestic) and the sample survey are used. These two basic surveys cover all forms of tourism with respect to the physical flows. For bringing in expenditure variables for inbound expenditure, T-Mona, which is basic tourism statistics, is used. These three basic statistics are followed by the compound statistics TSA and the T-BOP. T-BOP statistics provide key figures with the TSA.

14.80. As the travel components such as seasonal and border workers, students, medical patients and those who are crossing the border but still are within their usual environment can be isolated, T-BOP data can be used as key figures of the TSA. The TSA uses several other data sources, including the accommodation statistics, the sample survey and T-Mona. The T-BOP that goes beyond the concept of tourism statistics also uses several tourism statistics as inputs. The T-BOP is input for compiling the rest of the world account, delivering bridge tables for the private consumption and identifying business travel, which is seen as production input in the NA.

14.81. *Reconciliation of basic tourism statistics.* The selection of the T-Mona sample is based on data of the accommodation statistics as these data are available on a detailed geographical level. The data are further used for weighting and grossing up procedures. Also the questionnaires are harmonized in major

fields as, for example, the same categories of accommodation statistics are used in both statistics. As the accommodation statistics do not consider stays at friends and relatives but as this information is also included in the T-Mona survey, inputs are used from the accommodation statistics to establish proper sample basis.

14.82. The questionnaires of the sample survey and T-Mona are harmonized according to accommodation establishments and other definitions according to the tourism concept. The data sources of both sample survey and accommodation statistics cover domestic tourism. Therefore the outcomes at least for the physical flows of the number of overnights and arrivals of Austrian residents in Austria are mutually checked.

14.83. *Reconciliation between the BOP travel item and tourism statistics* is performed on both credit and debit sides of T-BOP.

- i. Credit side of the T-BOP. The first major data source for the compilation of the credit side of the T-BOP is T Mona, as it delivers the average expenditure of non-resident tourists in Austria in paid and non-paid accommodation establishments. The expenditure questions in the T-Mona questionnaire meet TBOP needs and are harmonized with concept used in BPM6 and MSITS2010. The second major data source for the compilation of the credit side of the T-BOP is the accommodation statistics which delivers the population of non-resident tourists in paid accommodation establishments by country of origin. However due to survey restrictions the number of countries, which are directly surveyed, is limited to 60. In contrast to this limited geographical breakdown the T-BOP considers data from credit and debit card companies which are delivered by the Austrian National Bank and therefore delivers detailed information about the geographical breakdown. So data can be used to further splitting up the geographical breakdown of the accommodation statistics based on expenditure data.
- ii. Debit side of the T-BOP. Major data source for the compilation of the debit side of the T-BOP is a sample survey. As this sample survey is based on the tourism concept harmonized questions are implemented to meet the needs for the travel concept of the T-BOP. Besides the differentiation between business and personal travel also same day visitors are included as T-BOP does not distinguish between lengths of stay as only the expenditure variable is important. Credit and debit card data which are implemented in the T-BOP are used for doing plausibility checks with the outcome of the sample survey. The data are also used to create a detailed geographical breakdown of the sample survey as for this survey the geographical breakdown is limited to approximately 10 because of the sampling error. This reconciliation exercise helps to overcome the limits of the sample survey.

Country experience: Portugal

14.84. The framework designed in Portugal to compile travel statistics is to a large extent based on the instruments used to pay for travel expenditures, that is to say (a) payment cards, (b) traveler's checks and (c) cash. Regarding transactions settled in cash, the introduction of euro resulted in an additional difficulty for the compilers, particularly in the euro area countries. It is necessary to estimate these expenditures and this estimation can be quite challenging, since the use of cash must certainly differ according to the type of good or service acquired by travelers.

14.85. The selection of the data sources above-mentioned to use in such a framework depends upon the moment of payment of the expenditures: (a) pre-payment or (b) local payment, and upon the channel used to book and/ or pay for travel arrangements: (a) direct reservation or (b) reservation made through a travel agency or tour operator (resident or non-resident). The approach and sources selected to compile travel credits and debits may be somewhat different, taking into account that the scope of data sources available

and the degree of coverage that is possible to obtain from each data source individually can differ for the credit and the debit side.

14.86. Tables 14.8 and 14.9 present an overview of the main sources selected for each combination of channel, moment of payment and payments instrument used. The combinations showed in the tables are the ones that are more likely to occur. For example, the pre-payment of a trip booked through a direct reservation channel most probably will not be performed in cash. Therefore, this alternative was excluded from both tables.

Table 14.8 Main source for travel credit (supply side)

Channel used to carry out travel arrangements	Moment of payment	Payments instruments	Data Sources
Direct reservation	Pre-Payment	Payment Cards	Payment Cards Database
	Local payment	Payment Cards	Payment Cards Database
		Cash	Direct Reporting - Banks and MTO
			Payment Cards Database
			Survey
Traveler's check	Direct Reporting – Banks		
Reservation made through a travel agency or tour operator (resident or non-resident)	Pre-Payment	Payment Cards	Tourist Activity Statistics; Accommodation Prices; Direct Reporting - Travel Agencies and Tour Operators; Survey
		Cash	
	Local payment	Payment Cards	Payment Cards Database
		Cash	Direct Reporting - Banks and MTO
			Payment Cards Database
			Survey
		Traveler's check	Direct Reporting – Banks

Table 14.9 Main source for travel debit (demand side)

Channel used to carry out travel arrangements	Moment of payment	Payments instruments	Data Sources
Direct reservation	Pre-Payment	Payment Cards	Payment Cards Database
	Local payment	Payment Cards	Payment Cards Database
		Cash	Direct Reporting - Banks and MTO
			Payment Cards Database
			Survey
Traveler's check	Direct Reporting – Banks		
Reservation made through a resident travel agency or tour operator	Pre-Payment	Payment Cards	Direct Reporting - Travel Agencies and Tour Operators
		Cash	
	Local payment	Payment Cards	Payment Cards Database
		Cash	Direct Reporting - Banks and MTO
			Payment Cards Database
			Survey
		Traveler's check	Direct Reporting - Banks and MTO
Reservation made through a non-resident travel agency or tour operator	Pre-Payment	Payment Cards	Payment Cards Database; Survey
	Local payment	Payment Cards	Payment Cards Database
		Cash	Direct Reporting - Banks and MTO
			Payment Cards Database
			Survey
			Traveler's check

Country experience: Hungary – health-related travel

14.87. The Hungarian Central Statistical Office (HCSO) compiles services transactions between residents and non-residents. Data for business and transportation services are based on annual and quarterly conducted surveys by HCSO. The statistical units are the resident enterprises, government and non-profit organizations, which supply services to non-residents and use services of non-residents. The surveys contain a list of 62 service types, of which health services. According to the methodology, respondents should report all services of NACE 86 category between residents and non-residents, provided by physicians, nurses, other qualified personnel working in health care. Even the services provided from distance (ex. Laboratory, through internet) should be included.

14.88. The main data provider for health services is the National Health Insurance Fund (OEP). Among the other companies who reported export data for health services were university hospitals, air emergency rescue companies and pharmaceutical trade companies. According to an agreement between OEP and HCSO (and based on the international methodology) the insurance fund export data cover emergency and other demanded health services provided by Hungarian health institutes for foreigners in Hungary. The invoices paid by foreign health insurance companies, or paid by foreigners at the site.

14.89. On the other hand, imports cover emergency and other demanded health services provided by foreign institutes for Hungarians, the invoices paid by OEP directly, and the services paid by Hungarians

at the site, reimbursed by OEP later. The health services for Hungarians who travel abroad for the certain purpose of medical treatment are considered as part of the tourism service and are not reported here. The differences between the methodology of external trade statistics and SHA have as result different values for the national health accounts of Hungary and international trade of health services. In the trade statistics the difference is part of the tourism service import.

14.90. *Data on tourism expenditure* is based on two surveys: Questionnaire on foreigners visiting Hungary, and Questionnaire on travel abroad. The sample, excluding lorry drivers, covers those outgoing foreign and incoming Hungarian citizens, who cross the border, including participants in package tours. The sample is a stratified non-probability sample. On a yearly basis, average sample sizes are ~120,000 questionnaires for foreigners and ~50,000 questionnaires for Hungarians. The selection of the days is systematic and casual. Data collection is conducted through personal interviews. The surveyed places are 24 road border stations and Budapest-Liszt Ferenc International Airport. The survey is voluntary.

14.91. From the whole set of questions two contain information that can be related to health care, namely the questions on purpose of visit and on expenditures. The purpose of visit, among others, can be “medical treatment” and “spa, wellness”. In the latter should be accounted both the spending at spas based on physician’s prescriptions, and spending for purpose of wellbeing or recreation.

14.92. However, a mechanical use of data from tourism statistics may lead to double-counting on aggregate level, since the household survey data (the Hungarian out-of-pocket expenditure data being based mainly on this survey) contain all the household spending no matter if it took place in the country or abroad, even if in the household survey guidance there is not any reference to payments abroad. The exports of health services to non-residents are more important than the imports, given the lower prices of the Hungarian health care providers.

Country experience: United States – education-related travel

14.93. Exports of education services measure foreign students’ education expenditures in the United States. Foreign students are defined as individuals enrolled in institutions of higher education in the United States who are not U.S. citizens, immigrants, or refugees. Data on the number of students are obtained from an annual survey of about 2,700 accredited U.S. institutions, conducted by the Institute for International Education (IIE). Characteristics of the population used in the estimates include the geographic area of origin (residence), type of institution (public or private), enrolment status (part-time or full-time), and academic level of institution (2 year, 4 year, or university).

14.94. Estimates of average expenditures for tuition and for room and board are developed from annual surveys of most U.S. accredited institutions conducted by the National Center for Education Statistics, U.S. Department of Education, and matched by BEA to the characteristics of the student population. Data on living expenses are based on Bureau of Labor Statistics, U.S. Department of Labor, estimates of low-income level family budgets in metropolitan and nonmetropolitan areas, reduced to a single person, and adjusted for inflation each year. Estimates of foreign students’ expenditures are made by multiplying the number of students by average expenditures.

14.95. Imports of education services measure U.S. students’ expenditures abroad. Students consist of (1) U.S. residents who receive academic credit for study abroad from an accredited institution of higher education in the United States and (2) students who enrol directly with foreign institutions, including medical students, and receive no academic credit from U.S. institutions. The total of U.S. students’ expenditures abroad is the sum of the estimates for the two groups of students.

14.96. For students who receive academic credit from U.S. institutions, data on the number of students are obtained from an annual survey of about 1,300 U.S. institutions conducted by the Institute of International Education. Characteristics of the population used in the estimates include country of study, type of institution (public or private), and academic level of institution in the United States (2 year, 4 year, or university). Data do not include students who study abroad without receiving academic credit from a U.S. institution, or students enrolled for a degree overseas.

14.97. Student payments to U.S. colleges and universities for tuition and room and board are assumed to be forwarded to foreign institutions. Estimates of average expenditures for tuition and room and board are developed from an annual survey of most accredited U.S. institutions; the survey is conducted by the National Center for Education Statistics, U.S. Department of Education. Average living expenses are estimated by applying a ratio of U.S.-to-foreign living costs to the low-income-level family budget series developed for foreign students who study in the United States. Estimates of U.S. students' expenditures abroad are made by multiplying the number of students by average expenditures for tuition and room and board and for average living expenses.

14.98. For students who enroll directly in foreign institutions and receive no academic credit from U.S. institutions, supplemental estimates of education payments for the United Kingdom, Australia, Canada, and Ireland, based on national data from those countries, are used to capture U.S. students' expenditures.

B.3. Construction

B.3.1 Introduction

14.99. Construction covers the creation, management, renovation, repair or extension of fixed assets in the form of buildings, land improvements of an engineering nature and other constructions such as roads, bridges and dams. It includes related installation and assembly work, site preparation and general construction, as well as specialized services such as painting, plumbing and demolition (see 3.132-3.135 of MSITS 2010).

14.100. Construction is valued on a gross basis, i.e. inclusive of all goods and services used as inputs to the work (whether subcontract or not), other costs of production and the operating surplus that accrues to the owners of the construction enterprise¹⁹⁷. Construction is also valued on a gross basis in the sense that it can be disaggregated into construction abroad and construction in the compiling economy. The construction exports (credits) would result from summing up the credit entries (i) from construction abroad and (ii) from construction in the compiling economy. Similarly, the construction imports (debits) would consist of debit entries (i) from construction abroad and (ii) from construction in the compiling economy.¹⁹⁸ If the external operations of a construction company are substantial enough, a separate branch, resident in the host economy, may be constituted which will usually give rise to a direct investment relationship between the parent company and the branch.

¹⁹⁷ BPM6 CG, paragraph 12.95.

¹⁹⁸ BMP6 CG, Chapter 12.99, 12.101.

B.3.2 Compiling statistics for construction

14.101. With respect to the value of the goods and services used as inputs to the work, compilation difficulties may arise when it is not possible to identify separately the goods purchased in the home economy and the host economy. For practical reasons, the compiler may need to estimate a breakdown, or otherwise attribute all goods purchased to either the host or the home economy of the construction enterprise (see also Box 14.2). Also, it may not always be possible to identify the purchase of goods and services separately from labor costs. In this case, the compiler will need to estimate a breakdown or, alternatively, allocate all costs either as goods and services or as compensation of employees (for employees that are residents of the host economy).

14.102. In order to correctly compile the item it is particularly important to precisely identify the residence of the enterprise realizing the construction work. Indeed, a construction enterprise established in one economy may undertake construction projects in another economy directly (no local entity created) or through a branch, i.e. via a direct investment relationship. In the former case the construction activities are regarded as export of services, whereas in the other case they are considered direct investment operations.

14.103. In the case of long-term projects where no local entity needs to be created, MSITS 2010 and BPM6 suggest a number of factors to identify if a unit of one economy which is active in another has operations substantial enough to consider that this unit has a branch resident in this other economy (see MSITS 2010 paragraph 3.142). The operations therefore need to be analysed to identify if they are substantial. In particular, compilers should avoid creating too many notional units.

14.104. First of all, the compiler should identify the duration of the construction project. If the project extends over a period of at least one year, then it is a strong indication that the compiler should investigate further on the project. If certain other factors are met, the construction work undertaken is to be treated as if a separate institutional unit – a branch (subsidiary) – is created, which is resident in the economy where the activity is being carried out. This branch would be considered as a direct investment enterprise. If some or all of these factors are not met, the activity is to be treated as an export by the construction enterprise. The other suggested criteria are:

- i. The maintenance of a complete and separate set of accounts for the activity (i.e., income statement, balance sheet, transactions with the parent company, etc.);
- ii. The activity being subject to tax in the host country;
- iii. The existence of a substantial physical presence;
- iv. The receipt of funds for its work for its own account, etc.

14.105. The decision is based on the weight of the evidence for a set of criteria and not on any single criterion; for example it would be very difficult to identify a branch if for the construction activity a separate set of accounts cannot be prepared or maintained. Construction activities involving major projects (bridges, dams, power stations, etc.) that are carried out through unincorporated site offices, in many cases meet the criteria of a direct investment enterprise and thus are treated as part of the production of the host economy, not as an export of services to that economy.¹⁹⁹

¹⁹⁹ Ibid., paragraphs 12.92-12.94.

14.106. In the case of construction projects conducted in the context of aid programmes, the treatment should be to record a transaction under services if relevant (i.e. if project is small scale etc. using the criteria defined in the previous paragraphs) between the economy where the aid agency financing the project is located (credits) and the economy where the construction is taking place (debits). The counterpart entry should be in the capital account. If the contractor is not a resident of the economy of the donor, then there would also be some (construction) transactions to record between the economy of the donor and the economy where the contractor is conducting its operations from (using a gross recording).²⁰⁰

14.107. To compile statistics on construction, both ITRS and surveys can be used as sources of information regarding construction. However, surveys may provide more detailed and relevant data than the ITRS, in particular when it comes to gathering information on construction abroad debit and construction in the compiling economy credit. The complexity of cross-border construction activities is also another reason to prefer a survey, in particular if the compiling economy has many international construction projects (either exports or imports). If countries should decide to use ITRS data, particular care should be taken to measure transactions involving bank accounts of construction companies in the host economy, because some of these companies may meet the criteria for treatment as residents.²⁰¹

²⁰⁰ Such a treatment is not limited to construction.

²⁰¹ A survey collecting data on construction could also jointly collect information on foreign direct investment and other resident/non-resident transactions BPM6 CG, table 12.4, p.205.

Box 14.2**Numerical example of measurement of construction**

A construction enterprise resident in economy A starts a construction project in economy B on the 1st of February. The end date of the project is the 10th of April of the same year. The gross construction value is 100,000. The project is considered as a construction service, as it lasts less than one year (69 days). The enterprise is requested to report the construction project in the questionnaires related to both the first and the second quarter, specifying the project start and end dates, the counterpart country and the gross value of the construction.

In order to undertake the construction project the enterprise purchases inputs (materials, services and labour) during the first quarter. The purchases are reported as follows:

- Goods purchased in Italy: 20,000;
- Goods, services and labour purchased/acquired abroad: 50,000.

The gross construction value pertaining to Q1, to be allocated in A's BOP as constructions abroad - export with counterpart country B, is computed as follows:

$$(100,000 / 69 \text{ total days} * 59 \text{ days in the quarter}) = 85,507$$

The reported goods, services and labour purchased/acquired abroad are allocated as constructions abroad - import with counterpart country B. The reported goods purchased in Italy are deducted from the goods exports, again with partner country B, of the BOP. The complete recording for Q1 is shown in the table that follows:

Q1 BOP

	Export	Import
Constructions abroad	85,507	50,000
Goods (adjustment)	-20,000	

In Q2 the enterprise does not purchase any input, neither in Italy nor abroad, thus, it has only to report the construction start and end dates, the counterpart country and the gross construction value. The construction value pertaining to Q2, to be allocated the BOP as construction abroad - export with counterpart country B, is computed as follows:

$$(100,000 / 69 \text{ total days} * 10 \text{ days in the quarter}) = 14,493.$$

Hence, the BOP recording for Q2 is the following:

Q2 BOP

	Export	Import
Constructions abroad	14,493	

Country experience: Italy

14.108. In Italy's system, the construction activity is either regarded as an FDI-related operation, if the construction work extends over a period of at least one year, or regarded as a service transaction if the construction work takes less time. In Italy the gross construction value of projects lasting one year or more largely exceeds that of short-term works, both for constructions abroad (98% vis-à-vis 2% as an average in the period 2008-2012) and for constructions in Italy (80% vis-à-vis 20%).

14.109. *Constructions lasting less than one year.* The quarterly non-financial transactions questionnaire (TTN questionnaire) collects specific information needed to compile the construction item. In particular, only for constructions abroad, firms are required to report the following transactions, in relation to the reference quarter (see Chapter 6 Section C.8., paragraphs 6.78-6.87 for data collection of construction):

- i. Goods, services and labour purchased/acquired abroad, used to compile the construction abroad debits. According to MSITS 2010, the goods and services acquired by the construction enterprise from third economies should be recorded under the appropriate general merchandise or services item. However, in order to reduce the reporting burden, firms are not required to split the inputs purchased in the host economy from those acquired in third countries; as a consequence the inputs purchased abroad are all allocated to construction abroad debits and to the host economy as the partner country. Moreover, another approximation is that also labour costs are included in construction abroad debits, as it proved not feasible for firms to separately identify this cost component.²⁰²
- ii. Goods purchased in Italy, used to adjust the BOP goods item, by deducting the corresponding amounts from merchandise exports. This is necessary in order to avoid duplications, as the goods purchased in Italy by the resident construction enterprise are also recorded in merchandise exports, based on foreign trade statistics.²⁰³ In principle, also the services acquired by the resident construction enterprise from residents of the home economy should be excluded; however, in order to simplify the reporting, it is assumed that all services are acquired from the host economy.

14.110. Table 14.10 shows the different sources used for each component of construction services. The construction abroad as exports, and the construction in Italy, as imports are computed assuming that the gross construction value is uniformly distributed throughout the duration of the work.

14.111. For constructions in Italy, detailed information is usually not available to the reporting enterprises receiving the service. In order to fill this information gap, an assumption is made that the cost structures of constructions abroad and in Italy are similar. Therefore, the missing information (i.e. the goods, services and labour purchased/acquired in Italy and the goods purchased in the country of residence of the construction firm) is estimated on the basis of the ratio of the symmetric items reported for constructions abroad to the gross construction value.

²⁰² Ibid., paragraph 3.141.

²⁰³ Ibid., paragraph 3.140, footnote 14, and BPM6, paragraph 10.22 (d).

Table 14.10 Methodology for the compilation of the construction services item in Italy

	Export	Import
Constructions abroad	Total contract value pertaining to the reference quarter	Goods, services and labour purchased/acquired abroad
Constructions in Italy	Goods, services and labour purchased/acquired in Italy (estimated)	Total contract value pertaining to the reference quarter

14.112. *Constructions lasting one year or more.* Also in the case of constructions lasting one year or more the gross construction value is uniformly distributed throughout the entire duration of the work. The quota pertaining to the reference quarter is considered an increase of FDI equity stock (FDI abroad - or assets - in the case of construction abroad and FDI in the reporting economy - or liabilities - in the case of construction in the compiling country).

14.113. For constructions abroad, in the quarter in which the construction project ends, the reporting agent has to report the additional information on the net margin, i.e. the difference between the gross construction value and all costs incurred by the construction enterprise in relation to the project. For constructions in Italy, the net margin, which is not directly available to the reporting agent, is estimated by the compiler applying to the gross construction value the average rate of return observed for constructions abroad.

14.114. Consequently, in BoP for the quarter in which the construction ends: (i) the gross construction value is recorded as FDI disinvestment (on the assets side in the case of constructions abroad, on the liabilities side in the case of constructions in Italy), since the construction is delivered to the client; (ii) the net margin is recorded as FDI income (on the credit side in the case of constructions abroad, on the debit side in the case of constructions in Italy).

B.4. Insurance, pension and financial services

B.4.a. Introduction

14.115. This sub-section describes the compilation of insurance and pension services as well as financial services, maintaining the consistency with the recommendations of the BPM6 CG²⁰⁴. Some of those services are provided without explicit fees, which are included in property income and other flows. Thus, calculation of services needs certain degree of estimations or imputations, based on balance sheet and/or profit/loss, which are often provided through supervisory reports. Other services, in particular auxiliary services, are provided with explicit fees.

14.116. According to the MSITS 2010, insurance and pension services are disaggregated into four separate sub-components: direct insurance; reinsurance; auxiliary insurance²⁰⁵; and pension and standardized guarantee services²⁰⁶. Direct insurance is further broken down into life insurance, freight

²⁰⁴ The BPM6 CG provides recommendations on the treatment of insurance, pension and financial services, in particular, in its Appendix 2 “Insurance Transactions and Positions, Pension and Standardized Guarantees Schemes” and Appendix 3 “Financial Intermediation Services Indirectly measured”.

²⁰⁵ According to MSITS 2010, auxiliary insurance services are included in insurance and pension services. This fact should not be confused with the sectoral classification of SNA 2008, whereby insurance brokers and alike are classified under “financial auxiliaries.”

²⁰⁶ The MSITS 2010 does not recognise fees paid to administrators of pension funds as a separate category, while the 2008 SNA recommends that pension fund managers, (administrators of pension funds, which only manage the activities of pension funds without taking ownership of the assets or liabilities), be classified as financial auxiliaries.

insurance and other direct insurance. Pension and standardized guarantee services is further broken down into pension services and standardized guarantee services.

B.4.b Insurance and pension services

B.4.b.1. introduction

14.117. The insurance and pension services reflect the output of specific industries whose calculation is best described in the context of balance of payments recordings. *BPM6 Appendix 6c* provides some background to the operation of the insurance and pension schemes and the *BPM6 CG, Appendix 2* provides more details on the overall recording of transactions in the balance of payments, including the relevant services. This section summarizes the main aspects related to the calculation and data sources for the insurance and pension services.

B.4.b.2 Compiling insurance and pension services

14.118. The estimation methods and necessary data for various insurance and pension services, if they are provided without explicit fees, are basically the variation²⁰⁷ of those for direct insurance as shown below and in the example in box 14.3. Their insurance services are calculated based on premiums earned and losses incurred pertaining to the accounting period:

	Gross premiums earned (from direct business)
<i>Plus</i>	Net income from investments attributable to policyholders (premium supplements)
<i>Minus</i>	Estimated claims incurred (adjusted for claim volatility, if necessary)
<i>Equals</i>	Insurance service charges

Box 14.3 Numerical example of direct insurance services

For resident insurers with separate data on policyholders abroad:	
Premiums earned from abroad	100
Claims payable abroad	95
Income attributable to policyholders	20 (premium supplements)
Insurance service charge is	25 [=100+20-95]

14.119. For life insurance and pension services, the net increase in life insurance actuarial reserves or pension reserves (pension entitlement) should be further deducted as such increase is regarded as asset accumulation to their policyholders.

	Gross premiums earned
<i>Plus</i>	Premium supplements
<i>Minus</i>	Benefits due
<i>Minus</i>	Net Increase in life insurance actuarial reserves
<i>Equals</i>	life insurance service charges

²⁰⁷ The value of the output of standardized guarantees providers can be calculated in the same manner as that of non-life direct insurance. For reinsurance, commission payable should be further deducted from the premiums earned and the claims adjusted for profit sharing in excess of loss reinsurance.

14.120. To compile the **exports** of insurance services, compilers can generally obtain comprehensive data from surveying resident insurance enterprises, particularly in countries where surveys are the major source data for TIS data collection (see Chapter 6 F (iv)).

14.121. Alternatively, if comprehensive surveys are not feasible, compilers may be able to obtain information directly from domestic insurance corporations that would allow them calculate an approximate insurance service in a given reporting period. Specifically, if they can collect data on the breakdowns of premiums received from resident clients and those from non-resident clients, insurance services provided to non-resident clients can be calculated assuming that the service-to-premium ratio is the same between resident and non-resident clients. Such a ratio could also be used for estimating imports of insurance services if payments of insurance premiums are captured through general enterprise surveys, as shown in Box 14.4. Nevertheless, compilers should pay attention to possible differences between the service-to-premium ratio of domestic insurance corporations and that of foreign insurance corporations.

Box 14.4
Numerical example of exports of insurance services

For resident insurers with separate data on policy-holders abroad for premiums only:	
Total insurance services (to residents and non-resident clients combined)	50
Total premiums	200
Of which: Premiums from residents.	120
Premiums from non-residents	80
Estimated insurance services provided to non-residents are.	20 [= (80/200)*50]

14.122. Compilers, depending on the ITRS as a main source data, may not be able to compile a comprehensive set of accounts in order to approximate the insurance services exports. However, from the ITRS, compilers may obtain settlement data for insurance premiums received from abroad and insurance claims paid to abroad. Also, compilers may also obtain settlement data for insurance premiums paid abroad and insurance claims received from abroad to estimate insurance services imports. Insurance services can be estimated by multiplying these data by a service-to-premium ratio (Box 14.5). Premiums are a better indicator than claims for determining the service charge. The reason is that claims are contingent on events incurred to trigger payments, and there may be periods without claims or with regularly large claims. The service-to-premium ratio needs to be fixed and revised periodically by means of checking financial reports of domestic insurance enterprises or direct inquiries to them.

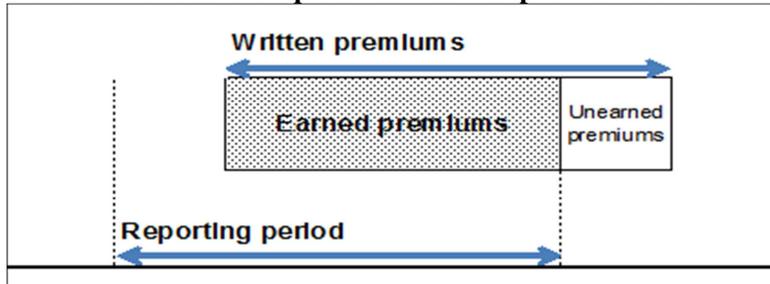
Box 14.5
Numerical example of imports of insurance services

Premiums from residents	40
Ratio of service charge to premiums (average from data on insurers abroad).	25 %
Estimated insurance services from non-residents	10 [40*0.25]

14.123. The concept of accrual recording is an important aspect in calculating the insurance service as insurance contracts may spread over different periods of time than the ones used in the compilation of statistics. In estimating the insurance services on an accrual basis, compilers would need to differentiate between the earned premiums and the written premiums. The estimation of the insurance service should be based on the earned premiums, which are consistent with the accrual recording. At the time a policy is first written, the total of the premium may be unearned, as premiums are often fully paid at the inception of the policy. Direct written premiums are the amount charged to and actually paid over the life of a

contract by the policyholders for insurance coverage. Each day thereafter, the premium amount accrues to the insurance unit until the end of the policy. At the end of the reporting period, the insurance corporation assesses the premiums reserves representing the unexpired terms of the policy. The earned premiums plus the unearned premium for a policy equals the written premium.

Figure 14.2 The relationship between earned premiums and written premiums



14.124. For insurance service, major catastrophes that may require large payments of claims are expected to occur once in several years. When they do occur, the payments of claims in the year of the catastrophe could exceed the value of premiums. If only the claims incurred in the accounting period are used in the formula, the value of insurance services could be highly irregular and, in some cases, could even be negative. Therefore, an adjustment in claims due is required to reflect a more long-term view the functioning of the insurance sector, in line with the decision-making process in the insurance industry. The adjustment for claims volatility shows the difference between the actual claims in the period and the normally expected value of claims, where the expected value of claims removes the effects of claims volatility. In periods when large values of claims are incurred, the adjustment, if it is to be made, would be negative, while in other periods the adjustment would be positive.

14.125. Regarding the adjustment for smoothing the amounts of claims by policyholders on insurance corporations, BPM6 (Appendix 6 c paragraph 22) proposes three methods: the expectation approach, the accounting approach and the sum of cost plus “normal profit” approach are proposed in the.

14.126. In the expectation approach, output is calculated as: premiums plus expected premium supplements minus expected claims. This approach replicates the ex- ante model used by insurer corporations to set their premiums on the basis of their expectations. In accepting risk and setting premiums, insurers consider both their expectation of loss (claims) and of income (premiums and premium supplements). Ideally, the micro data of the insurance corporations accounts could be used in the expectation approach for estimating the output of the insurance corporation, however this information is seldom available to the compiling agencies. In the absence of such data, a statistical technique to simulate this approach can be applied by using macro statistics, to smooth past data to forecast the expected claims.

14.127. In the accounting approach, output is calculated as: actual premiums earned plus premium supplements less adjusted claims incurred; where adjusted claims are determined by using claims due plus the changes in equalization provisions and, if necessary, changes to own funds. In the sum of cost plus “normal profit” approach, the output is calculated as the sum of costs (including intermediate costs, labor and capital costs) plus an allowance for “normal profit”.

Country experience: United States – insurance services

14.128. The U.S. method for measuring trade in insurance services most closely conforms to that outlined in example 4 in MSITS 2010.²⁰⁸ In addition to premiums minus a proxy measure of expected claims (actual claims payable with an adjustment for claims volatility), called normal losses, and premium supplements as outlined in table 14.11, the U.S. measure of insurance services also includes a measure of auxiliary insurance services. The U.S. measure includes separate estimates of trade in direct insurance and reinsurance. Although both this manual and BPM6 recommend estimating life and non-life insurance separately, the United States treats all direct insurance as non-life insurance because U.S. cross-border transactions in life insurance are thought to be insignificant.

14.129. The U.S. measure of trade in insurance services is compiled using data from a variety of sources. The main source is a survey of U.S. insurance enterprises. This survey, conducted by the Bureau of Economic Analysis (BEA), collects quarterly data on reinsurance premiums sold to and purchased from abroad and annual data on reinsurance claims paid and received, primary insurance premiums sold and claims paid, and auxiliary insurance services. Every 5 years, BEA conducts a benchmark survey of insurance enterprises to collect information on enterprises that fall below the reporting threshold on the quarterly survey. A separate survey of U.S. businesses, also conducted by BEA, collects data on primary insurance premiums purchased and claims received by non-insurance enterprises and additional data on auxiliary insurance. Data on the income generated by insurance enterprises' reserves, used to calculate premium supplements, are from *Best's Aggregates and Averages: Property-Casualty* by A.M. Best Company.

14.130. Insurance services include three components: premiums less normal losses, called 'risk-pooling services'; premium supplements; and auxiliary insurance. The calculation of risk-pooling services requires information on current premiums and a measure of what insurers expect their claims to be. Premiums are collected on BEA surveys as outlined above. The proxy measure for insurers' expected claims, called normal losses, is estimated by applying a ratio based on historical premiums and claims to current period premiums. This method assumes that insurance enterprises base current premiums on their expectation of current period losses and that their expectation of losses is based on their loss history.

14.131. The U.S. method assumes that insurance enterprises plan for two basic types of losses, regularly-occurring losses that occur every period and catastrophic losses that occur at infrequent intervals. Separate estimates are made for these two types of losses. To calculate separate estimates, catastrophic losses must be separated from regularly-occurring losses in the loss data reported by insurance enterprises. When a catastrophe such as a major hurricane occurs, the magnitude of the related loss is estimated using data from the survey of insurance enterprises and publically available reports from insurance enterprises impacted by the event. Losses other than catastrophic losses are considered regularly-occurring.

14.132. Expected regularly-occurring losses are estimated by applying to current period premiums a 6-year arithmetic moving average of each prior period's ratio of regularly-occurring losses to premiums. Loss data for the current period are not included in the average in order to achieve an ex ante concept of regularly occurring losses.

14.133. Because catastrophic losses occur much less frequently than regularly-occurring losses, they are assumed to affect loss expectations over a much longer period. To account for this, catastrophic losses are removed from current period losses, and spread over the 20 years following their occurrence in equal increments. Similar to regularly-occurring losses, expected catastrophic losses are estimated by applying to current period premiums a 6-year arithmetic moving average of the ratio of each prior period's share of

²⁰⁸ MSITS 2010, box III.7, page 61.

catastrophic losses to premiums. Thus, only a small fraction of catastrophic losses is factored into each year's calculation of expected claims.

14.134. Normal losses are the sum of expected regularly-occurring and catastrophic losses. Separate estimates of normal losses are calculated for primary insurance and for reinsurance and for credits and debits. For the United States, the ratio of losses to premiums is lower for primary insurance than for reinsurance because administrative and financial intermediation services differ for these two types of insurance. Primary insurance is more retail in nature—selling and writing a large number of individual policies to customers—and, thus, may have higher administrative and other costs than reinsurance, which involves fewer, larger transactions between insurance enterprises.

14.135. BEA does not directly collect information on the technical reserves of insurance enterprises on its surveys because it is deemed too burdensome for enterprises to report these data. Due to the lack of data on technical reserves, it is not possible for BEA to use a relationship between investment returns and technical reserves to estimate premium supplements. As a result, BEA developed a ratio of expected investment gains to premiums and multiplies that by current premiums to estimate premium supplements. The ratio of investment income to premiums is from Best's Aggregates and Averages: Property-Casualty by A.M. Best Company. A.M. Best provides data on investment gains that are attributable to insurance transactions, as opposed to investment gains attributable to the insurers' own funds. The ratio is a weighted moving average of the previous ratios of actual investment gains to premiums. In the cross-border trade data, the expected investment gains-to-premiums ratio is estimated separately for primary insurance and reinsurance, in recognition of the fact that reinsurers may have different ratios of net gains to premiums than primary insurers. The different ratios may arise because reinsurers hold larger reserves than primary insurers or because reinsurers hold reserves for a longer period of time.

14.136. Once these ratios have been calculated, they are applied to the estimates of premium receipts for direct insurance and reinsurance obtained from BEA surveys to derive premium supplement receipts. Because similar data on investment income of foreign insurance enterprises are not available for payments, the ratio used for receipts is applied to the estimates of premium payments in order to estimate premium supplement payments.

14.137. Auxiliary insurance services cover items such as agents' commissions, actuarial services, insurance brokering and agency services, and salvage administration services. Data are collected on BEA surveys. Auxiliary insurance is a component of primary insurance; there are no auxiliary services associated with reinsurance.

Table 14.11 Numerical Example of Measuring Insurance Services in United States

	2010	2011	2012
1 Primary insurance receipts (line 2 plus line 3 plus line 4)	1,090	1,575	1,350
2 Risk-pooling services (line 5 minus line 6)	825	1,200	1,015
3 Premium supplements (line 5 times line 9)	165	260	210
4 Services auxiliary to insurance (from survey)	100	115	125
Primary insurance supplementary information			
5 Premiums received (from survey)	1,500	2,000	1,750
6 Normal losses (line 5 times line 8)	675	800	735
7 Actual losses paid (from survey)	500	3,000	800
8 Normal loss ratio ¹	0.45	0.40	0.42
9 Premium supplement ratio ²	0.11	0.13	0.12
10 Catastrophic losses paid (from survey and public reports)	0	1,750	0
Non-services entries in balance of payments accounts			
11 Current transfers (line 6 minus line 7 plus line 10) ³	175	-450	-65
12 Capital transfers (line 10 with sign reversed) ³	0	-1,750	0
13 Income payments (line 3 with sign reversed) ³	-165	-260	-210
¹ Based on a 6-year moving average of premiums and losses, see paragraphs 14.57-14.61.			
² Based on a moving average of investment gains to premiums, see paragraph 14.63			
³ Negative sign denotes outflow from U.S. insurance company to foreign policy holder.			

Country example: Japan – recording insurance services on an accrual basis

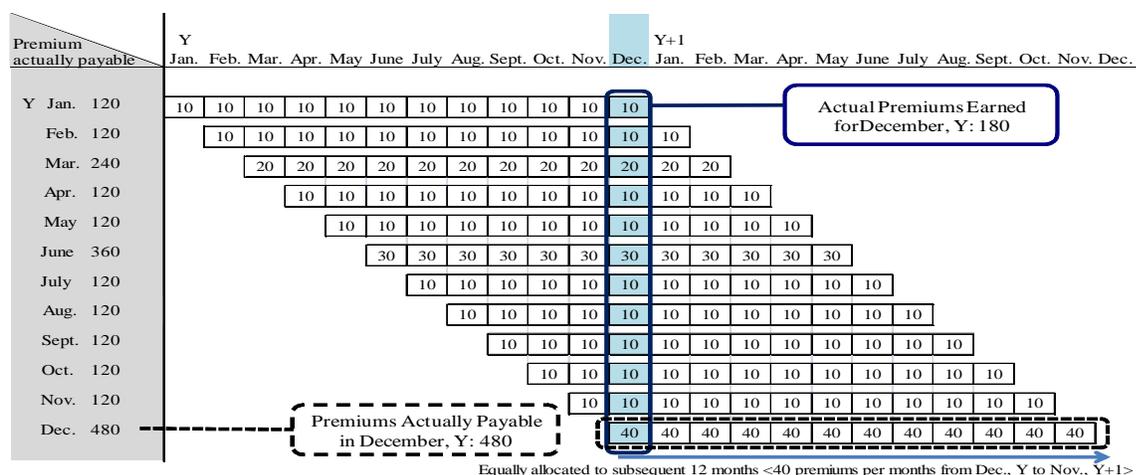
14.138. Since Japan employs an ITRS as a major data source, recording insurance services on an accrual basis has been challenging. To deal with this problem, Bank of Japan (BOJ) adjusts ITRS data in implementing a method that most closely conforms to that outlined in example 3 in the box III. 7 of MSITS 2010; the method measures insurance services by multiplying actual premiums earned by the insurance service ratio.

14.139. The ITRS captures premiums actually paid rather than actual premiums earned that accrue to the accounting period. Thus, data are adjusted under the following assumption. The BOJ assumes that insurance premiums payable cover 12 months risks, and as insurance premiums are generally paid at an inception of a policy, actual premiums earned are calculated by equally allocating premiums in subsequent 12 months (figure 14.3). This adjustment is made for other direct insurance and reinsurance.²⁰⁹

14.140. The insurance service ratio for other direct insurance and reinsurance, which is the ratio of service charges to gross premiums earned, are estimated from resident nonlife insurance enterprises' financial statement and applied to both imports and exports. Operating and administrative expenses are regarded as costs for providing insurance services, and service ratio is estimated by dividing aggregated operating and administrative expenses by corresponding premiums. This ratio is fixed for a year, and is updated when new financial statements become available. The insurance service ratio for freight insurance is captured separately and obtained from resident insurance enterprises.

Figure 14.3 Estimation of actual premiums earned

²⁰⁹ Since freight insurance policies cover a single contract, which is usually a short-term, the same adjustment is not applied to freight insurance premiums. Life insurance and pension services are excluded from estimating services, as cross border life insurance and annuity contracts are negligible in Japan.



14.141. Multiplying the service ratio and monthly actual premiums earned,²¹⁰ insurance services are calculated. Premium supplements are regarded as zero, as retained incomes for nonlife insurance reserves are negligible. Claims are recorded when paid, under secondary income for normal claims and under capital transfer for high claims when catastrophic events occurred.

Box 14.6	
Numerical example of actual premiums received and claims paid to non-residents	
Actual premiums received for December, Y	180
Insurance service ratio for year Y	40%
Claim paid to non-resident in December, Y	85
Insurance service (export)	72 (=180*40%)

14.142. This method is likely to stabilize outputs. Compared with a simple cash-based method, which is premiums minus claims, volatility of the outputs is substantially reduced. More importantly, negative figures, which are mainly due to lumped claims, are avoided.

Country Example: Germany – smoothing of insurance premiums paid/received

14.143. *Calculation of Insurance imports.* In Germany, there is a lack of any kind of administrative data for compiling imports of insurance services. Therefore the data available from the external sector

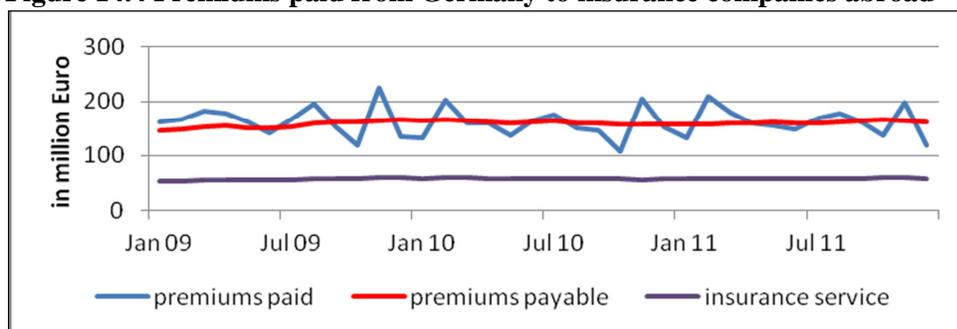
²¹⁰ Freight insurance premiums receivable on both exported and imported goods are obtained through direct report from resident nonlife insurance companies. The corresponding values for imported goods are also used to derive a premium ratio. Freight insurance premiums paid from resident to non-resident on imported goods are estimated by excluding those earned by resident insurance companies from the total value. The total value is derived by multiplying premium ratio on imported goods to total value of imports.

statistics are those to be used and are immediately available on a monthly basis. They are, however, not detailed enough and need to be supplemented by several types of estimates:

- i. Adjustments for premiums paid to premiums payable
- ii. Estimates for premium supplements
- iii. Estimates for changes of insurance technical reserves
- iv. Estimates on the stock of insurance technical reserves.

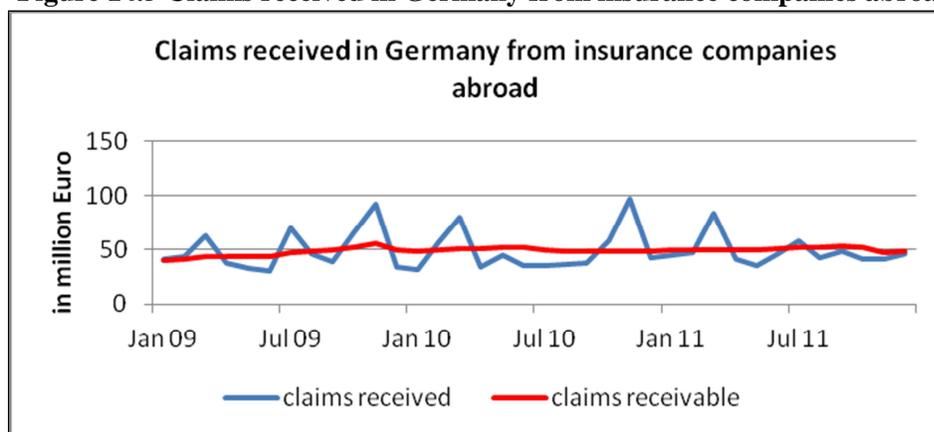
14.144. The first step is to smooth the premiums paid, which are relatively volatile, to premiums payable by using a 12 months moving average. The decision is related to the fact that premiums usually are paid in advance for one year. The second step is to apply the ratio of premiums earned to service derived from the export side to the smoothed premiums of the import side, which is in line with the BPM6 suggestions.

Figure 14.4 Premiums paid from Germany to insurance companies abroad



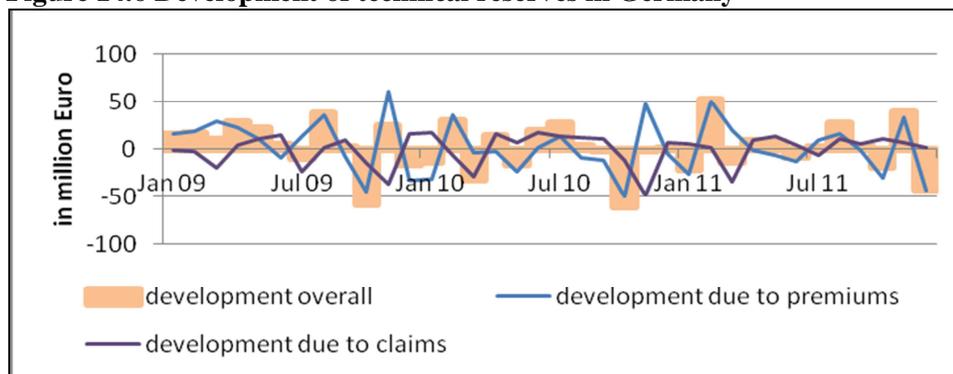
14.145. *Premiums received but not yet earned.* The technical reserves represent the amounts identified by insurance companies to account for prepayments of premiums and claims occurred, but not yet paid. Germany intends to use the same approach as for smoothing premiums paid to premiums payable for the two components which contribute to the development of technical reserves, the premiums paid to insurance companies abroad and the claims received. If the premiums paid are bigger than the premiums payable the technical reserves increase, if it is the other way round, they decrease.

Figure 14.5 Claims received in Germany from insurance companies abroad



14.146. If the claims received are bigger than the claims receivable the technical reserves decrease, if it is the other way round, they increase. The sum of the changes of technical reserves will have to be recorded in the financial account.

Figure 14.6 Development of technical reserves in Germany



14.147. There is still a need to estimate premium supplements as the interest on technical reserves. There are two ways to make this calculation, namely (1) calculation interest on the estimated stock of technical reserves or (2) applying a ration on the premiums payable derived from the export side. Germany's intention is to make use of the second possibility since it is immediately available.

B.4.c. Financial services

B.4.c.1 Introduction

14.148. Financial services may be charged for explicitly or implicitly, and some transactions in financial assets may involve both explicit and implicit charges. The most common implicit charges relate to (1) margins on buying and selling transactions; (2) asset management costs that are deducted from property income receivable, in the case of asset-holding entities; or (3) margins between the interest rate and the reference rate on loans and deposits (FISIM). EBOPS 2010 identifies FISIM separately from all other financial services.

14.149. Among financial services provided without explicit fees, margins on buying and selling are regarded as service charged by securities dealers. In theory, margins are identifiable for each transaction within securities dealers. Thus one way is to process such micro data if they can be collected. Another way, which appears more realistic, is to estimate margins on an aggregate basis, for example by multiplying their transaction volumes by spread ratio. Transaction volumes can be obtained from financial accounts of balance of payments statistics and spread ratio can be obtained from financial market data providers. *BPM6 CG* Chapter 12 paragraphs 114 – 116 provide additional detail on the data collection for such services.

B.4.c.2 Compiling FISIM

14.150. The *2008 SNA* and *BPM6* recognize FISIM produced only by certain financial corporations and only on the loan and deposit instruments on their balance sheets. Thus, *FISIM exports* are calculated on the loan assets and deposit liabilities of resident financial corporations for which the counterparty is a nonresident unit. is calculated as follows:

- For loans, it is the difference between interest receivable by a financial corporation and the interest cost of funds calculated at a reference rate on the loan balance;
- For deposits, it is the difference between the interest payable at the reference rate on the deposit balance and actual interest payable to depositor.

14.151. *FISIM imports* are calculated on the resident institutional sectors (mostly nonfinancial) loan liabilities and deposit assets with nonresident financial corporations.

14.152. The 2008 SNA refers to the cost of funds at the *reference rate* as “SNA interest”. Determining the reference rate is a key element in compiling FISIM. The reference rate should contain no service element and should reflect the risk and maturity structure of deposits and loans. The rate prevailing for interbank borrowing and lending may be a suitable choice as a reference rate. However, different reference rates may be needed for loans and deposits in other currencies, in particular in the case of transactions with non-resident financial institutions. The reference rate will change over time with market conditions.

14.153. For *FISIM exports*, the reference rate is, in principle, the cost of funds from the liability side of resident financial corporations’ balance sheets. However, exports of FISIM on loans to nonresidents can be estimated using the reference rate for domestically produced FISIM as interest receivable less the product of the loan position and the (domestic) reference rate, if it can be assumed that transactions are mostly in national currency. Exports of FISIM for deposits of nonresidents (excluding financial corporations) can be estimated as the product of the deposit position and the domestic reference rate, less interest payable (BPM6 CG Appendix 3, paragraph A3.11).

14.154. For *FISIM imports*, the reference rate is, in principle, the cost of funds from the liability sides of nonresident financial corporations’ balance sheets by economy of residency. Imports of FISIM for loans received from nonresidents can thus be estimated as interest payable to nonresident financial corporations less the product of the loan position and the reference rate for the applicable funds lent. Imports of FISIM for deposits with nonresident financial corporations can be estimated as the product of the deposit position multiplied by the reference rate for the funds deposited, less the deposit interest receivable from the nonresident FISIM provider (BPM6 CG Appendix 3, paragraph A3.13).

14.155. The most comprehensive source data for exports and imports of FISIM come from (a) resident financial corporations (surveys or administrative data collections or financial supervision authorities), which can identify the deposits and loans with non-residents, as well as (b) surveys of selected nonfinancial corporations, households, and NPISH, which could provide data on residents’ accounts with financial corporations abroad to support compilation of FISIM import (see Chapter 6). FISIM imports by general government is often derived from administrative data (see Chapter 9) or government financial accounts. Information on the interest flows and deposit and loan positions can alternatively be sourced from the compilation of balance of payments and the international investment position. Statistics on interest rates and/or data on interest flows are used to calculate the reference rate as well as deposit/lending rates.

14.156. The data sources available for economies’ own financial corporations sectors and for those of their FISIM trading partners will tend to control the specific approach to determining the relevant reference rates for international trade in FISIM.

14.157. Additional source of data difficulties may be encountered in compiling FISIM imports. Thus, partner country data, including data sourced from international organizations (most relevant here, BIS), may provide useful information. In this context, the domestic reference rates of the economies supplying financial intermediation services may be used. To ensure data consistency, it would be helpful if economies disseminate their domestic reference rates for possible use by non-resident compilers.

14.158. For economies where cross-border FISIM is small, it can be measured with relatively simplified methods based on aggregated data. For example, FISIM for deposits with financial corporations is

calculated by deducting deposits interest flows from the value obtained by multiplying deposit stocks by the reference rates. FISIM for loans from financial corporations is calculated by deducting the value obtained by multiplying loan stocks by the reference rates from loan interest flows. More elaboration on the calculation of the imports and exports of FISIM is provided in *BPM6 CG Appendix 3*.

14.159. In general, FISIM of financial corporations (calculated on the loan assets and deposit liabilities) is expected to be positive. However, the calculation of FISIM of financial corporations can be negative if the reference rate becomes higher than lending rate and/or lower than deposit rate temporarily. In this case, for practical reasons, the compiler may wish to assume the value of FISIM is zero. A negative FISIM may reflect erroneous calculations and inappropriate reference rates. If the negative values continue for a long time, compilers should review the calculation of the reference rates.

Reference rate in FISIM

14.160. Given the complexities involved in estimating imports and exports of FISIM the Advisory Expert Group (AEG) on National Accounts (at its May 2013 meeting) provided a series of recommendations which are applicable to the international transactions. These recommendations are summarized below and trade in services compilers are encouraged to follow them.

14.161. For estimating imports and exports of FISIM, FISIM should be calculated by at least two groups of currencies (national and foreign currencies). The reference rate for a specific currency need not be the same for FISIM providers, which are residents in different economies, however they are normally expected to be relatively close. Use of partner country information or other relevant information is thus encouraged, where national estimates are not available.

14.162. The calculation (definition) of the reference rate should be determined according to national circumstances, using preferably any of the following approaches:

- i a reference rate based on a single observable exogenous rate for a specific instrument, such as interbank lending rates;
- ii a reference rate based on a weighted average of observable exogenous rates of maturities with different terms (weighted by the stock of loans and deposits in each maturity); or
- iii a weighted average of the endogenous interest rates on loans and deposits.

14.163. Estimation of FISIM over periods of volatile movements in reference rates should be carefully monitored, in particular if the results turn out to be negative, particularly for depositors, but also for borrowers. In such cases, countries are encouraged to review the applicability of the underlying reference rate for that period to calculate FISIM.

14.164. Research continues in the area of credit default risk related to FISIM and the merits of its exclusion from FISIM, including for practical reasons.

Country experience: Estonia – calculating FISIM

14.165. For Estonia, external FISIM has a relatively small importance in relation to internal FISIM. This is due to the fact that most of the banking sector belongs to foreign banks and loan resources for local economy are made available through interbank transactions. The latter form the overwhelming majority in external transactions of loans and deposits. Having considered the size of the external FISIM, cost-

effective approach and simplifications have been taken into compilation practice instead of additional data collection with increase of burden for data providers.

14.166. The compilation process is based on the stock and interest income figures that are available through the balance of payments surveys and banking statistics. In order to compile FISIM, the average interbank rate is needed to calculate and apply for stock figures. FISIM is the difference between the interest actually charged and the adjusted interest or vice versa, depending on the lender or borrower point of view.

14.167. For stocks data, the balance of loans and deposits is needed. In case of the assets related to loans and liabilities related to deposits, stock data are needed only for institutional sectors S.122 and S.125.

14.168. The main difficulty arises due to the fact that assets and liabilities between financial intermediaries should be excluded from the stock data. Therefore, the counterpart data have to be taken into account while determining the stock from which FISIM is derived. This does not concern banking sector statistics that already have data by counterpart sectors. For other financial intermediaries (S.125), no loan data are available by counterpart sectors or the data are too aggregate level (leasing companies). Compilation of stocks for S.125 includes the assumption that they have loan liabilities against financial intermediaries. On the asset side of loans at the moment, all stocks of S.125 have been taken into account, reflecting also those with other financial intermediaries.

14.169. Another issue concerns stock data of households where the main data source is the ITRS. The use of ITRS does not give a good indication about the positions. One of the solutions to tackle the issue is to use mirror data, i.e. other countries banking sector statistics by counterpart sector. However, households sector still remains on the estimation level.

14.170. The reference rate is derived by using credit institutions report on the balance of loans and resources from which the stocks against non-residents financial intermediaries are taken by currencies and by maturities. Each stock is multiplied by the corresponding contractual interest rates from the same reports. The amounts to be paid or received are then divided by the stocks. The result from this compilation represents an average weighted interbank rate which is used as a reference rate.

14.171. Before multiplying stocks with the reference rate, both the stocks and unadjusted interest income are distinguished by counterpart sectors. The process is taken on in order to exclude the stocks and interest income between financial intermediaries. Data by counterpart sectors for both items could be derived by using credit institutions report on the balance of loans and resources. However, the stocks and income could not be divided for other financial intermediaries due to the lack of proper data sources.

14.172. Experiences up to the present indicate that preconditions still exist to eliminate stocks and income between financial intermediaries properly. Therefore, data sources have to include data by currencies and by counterpart sectors also for other financial intermediaries. For households sector further estimations for stocks is needed to be developed. Estimations were needed to be added in case of negative FISIM. Usually it happens due to huge transactions in deposits by general government sector where the stocks in both the beginning and the end of the period were zero while at the same time interests were earned. In order to keep a cost-effective approach to data providers, detailed sectorized data requirement in different currencies have not been applied. Instead the weighted average reference rate itself reflects the weights of the currencies and maturity while implementing it for stocks by maturities.

Country experience: Japan – margins on buying and selling transactions

14.173. Dealers implicitly charge services by incorporating a spread between their buying and selling prices. Japan will estimate margins on debt security transactions by multiplying their "transaction volumes" by corresponding "spread ratios", "Transaction volumes" and "spread ratios" are estimated as follows.

14.174. In most cases, a resident dealer exports services through inward investment transactions. Correspondingly, a resident investor imports services through outward investment transactions.

14.175. Therefore, Japan assumes that export of services occurs only in inward investment, and that import of services occurs only in outward investment. Some inward (outward) investment transactions are conducted with non-resident (resident) dealers and such transactions are excluded. Volumes (sum of buying and selling transactions) of inward investment and outward investment by type of securities are obtained from direct reports from financial institutions and ITRS.

14.176. A spread ratio is the difference (as a ratio) of an ask-price and a mid-price, where a mid-price is the average of an ask-price and a bid-price. The spread ratio varies by every transaction, but there is no perfect data source. Therefore, Japan chooses the most common products and uses their spread ratios for approximation. For inward investment (export of service), spread ratios of Japanese Government Bonds (JGB) are used. For outward investment (import of service), spread ratios of six major countries' government securities that account for majority of outward portfolio investment are used and are applied to investment in corresponding countries. As they are significantly different, spread ratios of short-term securities and spread ratios of long-term securities are separately measured. Data are obtained from Bloomberg.

Table 14.12 Numerical example of exports involving margins on buying and selling

(Bid price for 10Y JGB)	101.675
	Ask price for 10Y JGB		101.695
⇒	Mid-price [(bid + ask) / 2]:		101.685
	Spread [(ask – mid) / mid]:		0.01%

Table 14.12 continued

(Billion yen, %)

Country of investor	Transaction Volume (Inward Investment)			Spread on JGB (d)	Margin (c) x (d)
	Credit (a)	Debit (b)	Total (c) = (a) + (b)		
A	65,000	17,000	82,000	0.01%	8.2
B	1,800	25,000	26,800	0.01%	2.68
C	9,000	5,000	14,000	0.01%	1.4
D	16,000	2,000	18,000	0.01%	1.8
Total	—	—	—	—	14.08

Table 14.13 Numerical example of imports involving margins on buying and selling

(Billion yen, %)

Country of issuer	Transaction Volume (Outward Investment)			Spreads on government bonds (d)	Margin (c) x (d)
	Credit (a)	Debit (b)	Total (c) = (a) + (b)		
E	1,000	1,500	2,500	0.04%	1.0
F	1,500	2,700	4,200	0.05%	2.1
G	7,000	1,800	8,800	0.03%	2.64
H	9,000	2,000	11,000	0.01%	1.1
Total	—	—	—	—	6.84

Country experience: Luxembourg – E-commerce (merchandising) services

14.177. Luxembourg hosts an increasing number of subsidiaries of international groups²¹¹ that provide worldwide e-commerce services and are active in well diversified domains (distribution of music, audio books, and audio-visual products, online trading platform services, operating of websites for the purpose of selling, auctioning, renting or otherwise distributing products and services, etc.). Thus, “Service Merchandising” has become one of the important components of telecommunications, computer and information services, audiovisual and related services, royalties or other business services.

14.178. Given the importance of international transactions of these subsidiaries, Luxembourg’s aim was to include all of them in its monthly BOP reporting for services. While there are a few international groups that operate through different local operational entities, in most cases, the international groups act through a single operational legal entity with a low physical presence through which services are provided to a multitude of clients, especially inside the European Union, whereas expenses (i.e., imports) are often intercompany retrocessions in different form of services (including royalties), both within and outside the European Union. Therefore, while the gross flows may be sizeable, in many cases, on a net basis, the

²¹¹ By combining the advantages of both European directives (2002 / 38 / CE and 77 / 388 / EEC) from July 1st, 2003, the subsidiaries from international groups providing e-commerce services were allowed to apply the Luxembourg rate of 15 % VAT on services provided, and not the higher VAT rates applicable in the country of residence of European clients.

international trade in services transactions nearly cancel out because the overall accounting result of the resident legal entities is often around zero, due to the intercompany retrocessions. Thus, because the value of “Merchandising services” exported from and imported to Luxembourg is recorded on a gross basis, the resulting values may seem inflated, given the fact that there is a low physical presence of the international groups in Luxembourg. This treatment is applicable because most of the firms hosted in Luxembourg trade services that are classified to the appropriate specific service classification (such as telecommunications, computer and information services, audio-visual and related services, charges for the use of intellectual property n.i.e. or other business services), and if the firms act as an agent on a commission basis, then only the commission is recorded as the service provided.

14.179. Luxembourg covers the external transactions through its survey and completes monthly figures with an estimate for FDI income.

B5. Services related to intellectual property products

B.5.a. Introduction

14.180. This sub-section discusses the compilation of services related to intellectual property products (IPP), and covers EBOPS category *Use of intellectual property n.i.e.*; as well as parts of other main EBOPS categories including telecommunication, computer, and information services; other business services, and personal, cultural, and recreational services. This Guide combines these components in this sub-section because of the partial overlap and interrelationships between the categories.

14.181. Services derived from IPP cover following items in the 2010 Extended Balance of Payments Services Classification (EBOPS 2010):

- Charges for the use of intellectual property n.i.e. (main EBOPS category)
- Computer and information services (included in telecommunication, computer, and information services)
- Research and development services (included in other business services)
- Architectural, engineering, scientific and other technical services (included in other business services)
- Audio-visual and related services (included in personal, cultural, and recreational services)

14.182. Recent decades have seen an explosion in transactions related to these categories. Many of the transactions relate to the use of an underlying produced asset (typically research and development, software, databases and audiovisual originals). However these categories present significant measurement challenges. Firstly, because the distinction between the categories from a reporter’s perspective may not always be clear (for example software versus research and development, or software versus audiovisual). And, secondly, because intra-firm transactions may be affected by transfer pricing phenomena or indeed more general tax planning issues, meaning that the distinction between flows recorded as trade in services and flows recorded in the primary income account of the Balance of Payments as property income may not always be clear cut.

14.183. This section provides a detailed description of each of the service categories derived from IPP. It focuses on the particular challenges concerning flows relating to IPP recorded as assets in the system of national accounts. Special mention is also made for the treatment of transactions related to franchise and trademark licence fees. These fees usually also reflect payments for the use of marketing assets, which are considered as non-produced assets. As a consequence, in theory transactions should be recorded in the primary income account in the balance of payments. However given that the payments also includes a

service element and if it is not possible to make the distinction with the income element, then by convention the full value is recorded under franchise and trademark licence fees.

14.184. Despite the guidance offered below, it is important to note that it is unlikely that compilers will ever be able to fully account for transactions in intellectual property in a way that is consistent with the underlying principles of economic ownership. However, it is at least possible to make progress on achieving more coherence: both internationally, by encouraging compilers to engage in asymmetry reconciliation exercises, and nationally, by improving the coherence of capital stock and productivity estimates. Ultimately, pragmatic approaches to measurement are necessarily advocated here. Improvements in a few key areas could significantly improve quality.

B.5.b Use of intellectual property n.i.e.

14.185. Charges for the use of intellectual property n.i.e. are defined in paragraph 3.214 of MSITS 2010, and include franchises and trademarks licensing fees, licences for the use of outcomes of research and development, licences to reproduce and/or distribute computer software, licences to reproduce and/or distribute audio-visual products and licences to reproduce and/or distribute other products.

14.186. *Franchises and trademark licensing fees* are in theory related to charges for the use of non-produced assets (*Marketing Assets*). As such and, if one were to follow the underlying principles of the National Accounts, payments would not be recorded in production accounts of the National Accounts nor in the goods and services account of the Balance of Payments. Rather the payments correspond to property income. However, often, the payments are bundled with additional service items that make it difficult to disentangle the pure payments for the use of the underlying brand and, as such, both the 2008SNA and BPM6 recommend that such payments are recorded as payments for services. Nevertheless outright purchases of the entire brand (the Marketing Asset) or indeed rights to use the brand in certain regions, such that the licence has the characteristics of a *licence to reproduce*, should not be recorded in the goods and services account and should instead be recorded in the Capital Account.

14.187. *Licences for the use of outcomes of R&D* include payments for licences to use and licences to reproduce. The latter reflects a transaction in a pre-existing produced asset in the SNA corresponding to negative Gross Fixed Capital Formation (GFCF) for the unit selling the licence and positive GFCF for the acquiring unit.

14.188. Care should be taken to differentiate between payments included in this category from those included in EBOPS category 10.1, which includes payments for customized (made to order) R&D as well as acquisitions of entire R&D originals. Differentiating between sales/purchases of licences to reproduce and sales/purchases of entire originals may not always be trivial but the latter will usually, at least for transactions between unaffiliated parties, be accompanied by sales/purchases of legal instruments, such as a patent or copyright.

14.189. Since the 1993 SNA, when software was recognized as a produced asset for the first time, significant improvements have been made in measuring software and software related transactions, and the proposed changes for more details in the latest EBOPS classification system should consolidate those advancements. The inclusion of a separate category *Licences to reproduce and/or distribute computer software*, which specifically relates to licences to reproduce and not licences to use (which are included in EBOPS category 9.2) was requested by the National Accounts community to assist in efforts to estimate GFCF in software. Licences to reproduce (with a contract period of more than one year) are recorded as GFCF by the purchaser and negative GFCF by the seller.

14.190. Similar improvements have been made with respect to other intellectual property products such as databases, audio-visual, literary and other artistic originals. *Licences to reproduce and/or distribute audio-visual products* and *Licences to reproduce and/or distribute other products* refer only to licences to reproduce and not licences to use.

B.5.c. Computer services

14.191. MSITS 2010, in paragraph 3.224, defines *Computer services* as covering “hardware- and software-related services and data processing services”. Compilers should take particular care with respect to the coverage of computer software, in particular its distinction with *licences to reproduce and/or distribute computer software*. (see also paragraph 3.225 of MSITS 2010).

14.192. The key difference vis-à-vis licences to reproduce concerns the recording of flows in the national accounts. Whereas *licences to reproduce* (of more than one year) are not considered as reflecting new output, transactions in computer software, with the potential exception of *software originals* (which may have been produced in prior periods) are. This item does not include the value of software embodied in other products, (such as a computer) and sold as a bundle where the software component and value is not separately invoiced. Moreover, with the exception of sales to households and expenditures on licences with one year or less, all domestic expenditures in this category are typically recorded as GFCF in the national accounts.

14.193. Also of note is the inclusion of software provided on a physical storage device with a periodic licence fee as transactions in services, whereas software acquired on physical media with a one-off payment are recorded as transactions in goods.

14.194. It is clear that the blurring of the lines between a good and a service, magnified by the difficulties that may exist in differentiating between the two categories in practice, will complicate measurement. A complementary grouping (C.3) in EBOPS is included for *Computer software* transactions, which includes all related transactions whether embodied on physical media or not (see below). An additional grouping C.3.1 is included to separately identify those transactions that concern licences (explicit or otherwise) whose duration is for more than one year, which are recorded as GFCF when acquired by producers.

14.195. Other computer services (EBOPS 9.2.2) include all other related transactions that are generally not recognised as investment in the national accounts. The detailed coverage of other computer services is given in paragraph 3.230 of MSITS 2010.

B.5.d Information services

14.196. MSITS 2010 divides information services into news agency services and other information services. These are defined in paragraph 3.232 of MSITS 2010. One particular issue worthy of mention here concerns database related transactions. The use and outright purchase or sale of originals and copies of databases are included in this category. However some care is needed to ensure that software development costs in developing databases are not included in this category but in *Computer software*.

B.5.e Research and development services

14.197. Research and development services are defined in paragraph 3.234 of MSITS 2010. EBOPS 2010 recommends a breakdown of research and development services into two subgroupings: work undertaken on a systematic basis to increase the stock of knowledge (reflecting the coverage of research and development within a 2008 SNA context) and other research and development services.

14.198. It is important to note that the categories above within provision of customised and non-customised R&D services 10.1.1.1 primarily relate to ‘new’ research and development, such as newly produced customized software, or transactions in ‘originals’, where ownership and the concomitant rights are transferred to the purchaser. Care is needed in this context to differentiate between licences to reproduce and originals. Most, if not all, of these expenditures will be recorded as investment in the accounts of the importing country. Note too that not all acquisitions necessarily need reflect patented, copyrighted or other protected forms of R&D. In many cases, companies may deliberately opt not to patent the outcomes of (some of their) R&D. This may be motivated by a desire to preserve secrecy, the costs of patenting may in some instances be perceived as outweighing the benefits, or the R&D may not be a patentable subject matter.

14.199. Other research and development services primarily reflect other R&D related expenditures that are not expected to add to the stock of knowledge as defined in the OECD Frascati Manual and recognised in the SNA, and so, will not be treated as investment in the national accounts.

14.200. There are other borderline issues to consider however. These chiefly concern design originals and the potential overlap with *architectural, engineering, scientific and other technical services*, covered below.

B.5.f. Audio-visual and related services

14.201. Audio-visual and related services relates to the production of motion pictures (on film, videotape, or disk or transmitted electronically), radio and television programmes (live or on tape) and musical recordings (see 3.256 of MSITS 2010). As noted above care should be taken to ensure that **licences to reproduce and/or distribute audio-visual products** are not included in this category. There may however be borderline issues concerning the rights acquired by transmitters such as TV companies and radio stations, when the contractual arrangements allow for multiple transmissions. Where the fees are paid on a ‘pay as you go’ basis, for example a royalty payment is made every time a song is played on a radio station, these should be recorded under 11.1.1 (audiovisual). If however a one-off fee is paid that provides for unlimited air-time it should be recorded as being equivalent to a licence to reproduce (intellectual property).

14.202. Performing arts and other live entertainment event presentation and promotion services (namely, live performances such as concerts and plays) are excluded from audiovisual services and are instead included in artistic related services. The transaction corresponding to the performance of resident actors, musicians or other artists for the shooting of a movie (or other types of visual programs) or musical recording by a non-resident entity (and vice-versa) is also included under artistic services, under the condition that artists are not in an employer-employee relationship with the recording entity. However, the subsequent transactions for the result of the recording will be included in audiovisual services. If for the recording the services of an independent recording studio or similar services are outsourced, then transactions will be included under audiovisual services if between residents and non-residents (and there is no employer-employee relationship if these correspond to the services of an independent service provider). Also included in audiovisual services are amounts receivable or payable for rentals of audiovisual and related products and charges for access to encrypted television channels (such as those offering cable and satellite services).

14.203. Like software, a complementary grouping is provided for *audiovisual transactions* in recognition of the grey borderline between transactions in goods and services. In the same way a complementary grouping is included to account for those transactions that reflect investment expenditure in the national accounts (i.e., licences for more than one year), when undertaken by producers.

14.204. For artistic related services, care should be taken to ensure that transactions are only included if the service providers are not employees of the entity making payments (otherwise, they should be recorded as compensation of employees).

14.205. Sales of ownership rights of literary or other artistic originals (excluding those covered under audio-visual), should be recorded under 11.1.2 (artistic-related services). There may be borderline issues for rights that restrict reproductions to certain markets or languages, where transactions should be recorded under EBOPS 8.4.2 (intellectual property).

14.206. Other borderline issues may concern transactions relating to the selling of exclusive rights before any originals have been created (for example, the exclusivity of a publisher to publish future literary works of an author). These types of rights should be recorded as contracts for future production, and so payments should be included in the capital account. However at the point in time when the ‘original’ is produced, an imputation should be recorded for either (a) the transfer of the entire ownership from the ‘author/producer’ to the ‘funder’ or (b) a licence to reproduce.

B.5.g. Compiling IPP related services

14.207. Despite some of its current shortcomings in identifying international transactions in trade in R&D services, with the addition of supplementary questions, the Frascati²¹²-based survey approach provides perhaps the best mechanism to improve the measurement of trade in R&D services. The *OECD Handbook on Deriving Capital Measures of Intellectual Property Products* describes a prototype questionnaire with a comprehensive list of questions that could inform the design of new or modified surveys (see also below).

14.208. The key challenge for measuring R&D flows, however, concerns transactions between affiliated parties. R&D-related transactions between affiliated enterprises are not always observable, and, often, payments that are implicitly related to R&D are instead recorded in the primary income account of BPM6. At the same time, flows may also be channelled through convoluted chains of affiliates, including Special Purpose Entities, that have been set up to maximize post-tax profits for the controlling Multi-National Enterprise (MNE).

14.209. The Task Force on Global Production²¹³ and its predecessor, the Task Force on Globalisation in the National Accounts, have the goal of developing guidance on the issue of ensuring that flows for the funding, performance and use of R&D align with the concepts of ‘economic ownership’ in the National Accounts. Since the conclusions reported in the Guide to Measuring Global Production are still under discussion in other inter-governmental bodies at the time of writing this Compilers Guide, more concrete guidance on these issues will be provided on the on-line version of this Guide. In the Interim Guide to Measuring Global Production,²¹⁴ the Task Force proposes that the most expedient approach to ensuring an underlying consistency between payments for the use of an asset and economic ownership would likely be through adjustments to balance sheets and, where possible, through the recording of transfers of assets from one affiliated party to another.

²¹² OECD Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development, 6th edition. Note that at the time of writing the Frascati Manual is being revised, in part to provide better alignment with the National Accounts.

²¹³ See Chapter 4 of Global Production, UNECE, forthcoming.

²¹⁴ http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/bur/2014/Guide_to_Measuring_Global_Production_-_CES.pdf.

14.210. Central to this proposition is a desire to remain close to recorded and observed flows. This partly reflects practicalities, in particular the difficulties in making corrective imputations in the absence of complementary data, but it also reflects a desire to retain a close consistency between recorded profits and taxes paid, even if these payments suggest departures from the principles of economic ownership. Nevertheless, in two specific cases, the Task Force on Global Production suggests imputations to correct for flows recorded ‘incorrectly’ as property income, where evidence is available.

14.211. The first case relates to affiliates using an underlying asset, owned by the parent (or other affiliate), but where no explicit payment for use is recorded, and, instead, related flows are recorded as property income. In these circumstances, the Interim Guide to Measuring Global Production²¹⁵ proposes that, in principle, an imputed payment for the use of the underlying asset should be recorded as charges for the use of intellectual property n.i.e.²¹⁶ The imputation could be based on observable flows in property income that can be related to the underlying asset, or failing that, the imputation should be based on the affiliate enterprise’s share of total relevant MNE output multiplied by the total income generated by the underlying asset. However, the data requirements of such an approach are arduous as it requires not only information on the entire MNE, but also on the income generated by the asset, or proxies, such as the value of capital services provided by the asset. As such, more often than not, it is unlikely that such imputations will be made in practice. Nevertheless, if compilers do make such imputations, they should ensure that counterpart transactions (in particular international transactions) should be coherent, requiring coordination with other statistics agencies.

14.212. The second case concerns dedicated affiliates engaged in the production of intellectual property products for use by other affiliated parties in production but where the affiliate producing the intellectual property does not itself use the asset in production nor does it receive any revenue through sales of licence to use or reproduce the asset or related income. Often these units have no recorded output beyond the production of the asset itself, which is recorded as own-account production of GFCF. In these circumstances the Interim Guide to Measuring Global Production²¹⁷ proposes that an imputation is made such that the produced asset is transferred (exported in cases of international transactions) to the parent company. Sources of such information are scarce but some potential sources or approaches exist.

14.213. The first source relates to firm-level data and, in particular, data collections on Activities of MNEs and Foreign Affiliates. Units classified to the Research and Development activity (ISIC Rev 4: 72) but with no identifiable output, except for own-account production of R&D originals, or with no expectations of revenue through sales of licences (which can be indicated if historically this is also the case) can be considered as satisfying the criteria established in the Interim Guide on Measuring Global Production²¹⁸ for imputing unrecorded or misreported exchanges of R&D assets to their parents (see footnote 42). In these cases, the value attributed to the asset should be equivalent to the valuation used in estimating the own-account production (typically based on the sum of costs with an estimated mark-up for gross operating surplus).

14.214. A second potential source is the surveys used for the collection of R&D data in the Frascati framework. Data on external funding of business R&D are collected in a large number of countries as part

²¹⁵http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/bur/2014/Guide_to_Measuring_Global_Production_-_CES.pdf.

²¹⁶ Since the conclusions reported in the Guide to Measuring Global Production are still under discussion in other inter-governmental bodies at the time of writing this Compilers Guide, more concrete guidance on these issues will be provided on the on-line version of this Guide. [Insert web address of on-line version of CG MSITS 2010].

²¹⁷http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/bur/2014/Guide_to_Measuring_Global_Production_-_CES.pdf.

²¹⁸ *Ibid.*

of this framework. The information includes funding from abroad by affiliated and non-affiliated enterprises. Although business enterprises mainly perform market transactions, these flows of funding might include donations and subsidies and not necessarily represent acquisitions of R&D, so some care is needed in interpreting this information. Nevertheless, the source can provide a useful proxy or diagnostic to investigate flows recorded as acquisitions of R&D originals or payments for customized R&D services within the EBOPS category for R&D services.

Country experience: Germany – Charges for the use of intellectual property

14.215. Germany collects all BOP relevant service transactions via a cut-off survey directly from enterprises, public authorities and natural persons on a monthly basis. Thereby, a generic questionnaire has to be used by the respondents to submit all their service transactions to the Deutsche Bundesbank, as long as the value of a single transaction is above the reporting threshold of 12,500 Euros. Thus, the collection of data on “Charges for the use of intellectual property” builds only one block in the frame of the general approach. Instead of asking explicitly what kind of intellectual property has been used and charged for in the reporting period, respondents have to report only a transaction code indicating for which licences payments have been made/received (use or reproduction).

14.216. The list of transactions codes for filling out the forms is part of the basic law about the collection of BOP data. However, as the list might not always be self-explaining enough for respondents, the Deutsche Bundesbank has published in addition an explanatory note on the coding list. Like for other BOP items, the note describes, in the case of intellectual property with over three pages and in an understandable way, which kind of transactions should be reported under a specific code and explains differences between the codes.

14.217. From the following excerpt of the note, it can be seen that, at the beginning of the section on intellectual property, a small table summarizes all relevant codes falling under this category²¹⁹. Thereby, the structure of the table follows mainly the structure given by Table III.1, Treatment of Intellectual Property, in Chapter III, subparagraph 8 of the MSITS. Subsequently, for each category (licences, distribution rights and purchase/sale) at first a general “definition” of the category is given, followed by detailed remarks and examples about transactions to be reported under the respective code. All of them are in line with the recommendations of the MSITS and the BPM6.

²¹⁹ It becomes obvious from the table that, under this section, not only codes belonging to the item “charges for the use of intellectual property” are listed, but also codes for transactions with intellectual property which have to be assigned to other EBOPS items. This is done for practical reasons because respondents usually get confused if transactions in intellectual property are spread over various service items.

Figure 14.7 Treatment of Intellectual Property

Codes relating to intellectual property			
Item	Licences	Distribution rights	Purchase
Software	613	623	629
Audiovisual media	614	624	624
Patents / Research findings	615	-	625
Brands and trademark rights	616	-	626
Other rights	617	627	627

1 Royalties and licences

The buyer, generally by acquiring licences, is given permission to use legally protected intellectual property for himself or for products that he produces.

Special features

In Germany, income from licences is subject to income tax. If a domestic enterprise acquires a licence from a non-resident that does not have a notice of exemption from the foreign tax authority, the German enterprise is obliged to deduct tax from the licence payment and to pay this amount to the German tax authorities. The amount that should be reported is not the amount of the licence payment minus the tax deduction but the actual invoiced amount.

Equally, German companies, as licensors, are subject to tax liability in various different countries. The licensee pays the taxes to the foreign tax authorities and only pays the licence amount minus the deducted taxes.

The income should be reported gross (excluding foreign withholding tax deductions) as licences, with the tax withheld abroad reported as an expense using code 810. If this tax is refunded, the corresponding incoming payment should also be reported using code 810.

467 / 507 Emissions allowances should be reported as "Other capital investment" using the financial transaction codes (p 83/102).

613 Use of Software Z 4

The use of intellectual property relates to transactions based on the acquisition of a licence, even if, from the buyer's perspective, this looks like a software purchase (e.g. acquisition of software for office applications). One indication that such a licence has been acquired is that the acquired software must not be copied or distributed to third parties.

The following receipts and expenditure should be reported:

- Licences for individually produced or customised software, regardless of form in which supplied (CD, download etc.). If the software company has the right to also distribute this in individual software to third parties, the client's payment for the individual software should be reported here. If this right does not exist, it can be assumed that the sale involved proprietary rights (code 633).

- Licence fees (periodic and one-off payments) for standard software, if the software is downloaded via the internet
- Periodic licence fee for standard software supplied on a physical data carrier (e.g. DVD)
- Creation and production of software documentation
- Charges from end consumer to dealers or points of sale for use of software

Special feature

In the case of a one-off fee for standard software that was exported or imported on a physical data carrier or through having been pre-installed on hardware (pre-installed on PCs), checks should be made to determine whether there is a reporting obligation in relation to external trade statistics (intrastat or extrastat).

Given that the purchase of software generally entails the purchase of a licence and not acquisition of proprietary rights to the full software (code 633), code 613 should be applied if there is any doubt.

614 Use of audiovisual products and other artistic copyrights Z 4

Audiovisual and other artistic products can only be used as end user or for further use in own products. In the event of the latter, generally only extracts from relatively large works will be used. This includes, for example, all receipts from and expenditure for:

- Movies, documentaries, television films
- Videos (DVD, Blue Ray etc.)
- Online media libraries
- Musical compositions
- Literary copyright
- Licence payments to authors
- Design patents
- Designs
- Access to encrypted television channels (e.g. pay TV)
- Charges received by the distributor from the distribution of audiovisual products

Special feature

624 Public play-back or broadcasting of audiovisual products

615 Use of research findings, inventions and processes Z 4

This includes, for example, receipts from and expenditure on the use of patents through the payment of licence fees.

14.218. Currently the reports of the reporting agents are the only source used to compile the item "Charges for the use of intellectual property". Besides the transaction code, the respondent has to provide for each transaction (credit and/or debit) the partner country and the amount which has been paid.

14.219. The incoming reports are checked by staff members for plausibility and completeness, mainly by cross-checking them with the reports of former periods. In case of doubts about the correctness, declarants are contacted to clarify the doubted transaction. In the event that an open request could not be answered in due time by the respondent, imputations are made at least for important reporters.²²⁰ The monthly values for the total and each partner country are then calculated by aggregating the transactions codes belonging to the item "Charges for the use of intellectual property" of all individual reports. Codes for transactions with intellectual property belonging to other EBOPS items, for example the use of software (code 613 in the table above), are separated automatically and assigned to the appropriate item like software services.

²²⁰ Usually they are replaced by the confirmed or corrected transaction in the following month.

B.6. Education and health services

14.220. For the compilation of data on resident/non-resident transactions in education or health services, additional sources of information from administrative sources (e.g., the Ministry of Education and the Ministry of Health), specialized entities, or other third party sources may be necessary or other types of sources. In particular, on the receipts side, relevant ministries usually gather such information (i.e., for mode 2, but also other modes) or would have an interest in doing so. Another option is to collect data from all higher education institutions and universities operating in the country with the aim of collecting data on foreign students studying in the compiling economy. Other questions relevant to mode 2 could be also added to the survey questionnaires. Data from health insurance companies could be used and combined with administrative sources and information from travel surveys for further analysis on health services.

14.221. Embassies and consulates may also hold information for both exports and imports of such services. For health services, it is advised that compilers use administrative data from health and social insurance programs. Other breakdowns could also be encouraged for sectors of particular interest to an economy; e.g., cultural services or leisure.²²¹

14.222. Given the importance, for example, of increasing demand for information on health-related or cultural services, and the complexity of some existing questionnaires, other methods could be envisaged to compile more details on such services, such as combining household surveys with administrative data, or health insurance and credit card data expenditures to health care providers, as this information could be extracted by the appropriate merchant code categories.²²²

14.223. Some information on health services could be derived from the travel purpose variables used for education-related travel, by including a breakdown for “Study and courses” and “Medical treatment”. Additional information could be derived from linking the aforementioned sources with administrative data. such as VAT data (from the National Tax and Customs Administration).

B.7. Government goods and services n.i.e.

B.7.a. Introduction

14.224. While services supplied by and to governments should be classified to the relevant service category (business services, health, etc.), if possible, services related to government functions that cannot be classified to another specific service category are classified as government services. Transactions covered by *government goods and services n.i.e.* include trade of goods and services between the government unit and the territory in which it is physically located; i.e., as government and international organization enclaves are not residents of the territory in which they are physically located, their transactions with residents of the territory of location are international transactions. Other official entities are also considered government transactors, such as aid missions, government tourism information and trade promotion offices, and international organizations. Other examples of such transactions include charges for visas; payments for police-type services; technical assistance under certain circumstances (see

²²¹ For example, given Australia's interest in the exports of education services, the Australian Bureau of Statistics compiles a breakdown of education travel data by type of expenditure (i.e., education fees and other expenditures) and type of institution.

²²² For example, Austria is deriving information on health-related services which residents consume in Hungary as a neighboring country from a household survey, together with administrative information from the project “health region – Regional Network for the Improvement of Healthcare Services,” which is run by the European Union. Both relevant information sources are combined to establish sound estimations.

paragraph 14.115); and government supply of a licence or permit that is classified as provision of a service (see paragraph 14.116).

14.225. MSITS 2010 recommends that government goods and services n.i.e. be further classified according to the following breakdown based on the transactor: embassies and consulates; military units and agencies and other government goods and services n.i.e.. Administrative costs incurred in the donor economy as a result of providing technical assistance or aid should be included under the specific services provided. Technical assistance provided by a government or an international organization is classified under government goods and services only when not specified to a specific service and if the technical assistance personnel are employed by the donor government or an international organization.

14.226. If the issue of government licenses involves little or no work on the part of the government, with the licenses being granted automatically on payment, it is likely that they are simply a device through which to raise taxes and should therefore not be considered a service. For example, by convention, amounts payable by households for licences to own or use vehicles, boats or aircraft, along with licences for recreational hunting, shooting or fishing, are treated as taxes. On the other hand, cases in which the licensing is used to check the competence or qualifications of the person concerned, to check the efficient and safe functioning of equipment, or to carry out some other form of control, the payments made should be treated as purchases of services from the government, unless the payments are clearly out of all proportion to the costs of providing the services.²²³

14.227. All expenditure on goods and services by diplomats, consular staff, and military personnel, and dependent members of the same household, in the economies in which they are located is also included in government goods and services n.i.e. However, the expenditure of locally engaged staff of embassies, military bases and so forth, and international organization staff is not included in government goods and services n.i.e. Moreover, all staff of international institutions staying in the host economies for 12 months or more should be regarded as residents of those host economies and their expenditures are therefore not included.²²⁴

B.7.b Compiling government goods and services n.i.e.

14.228. As discussed in Chapter 11, the majority of government services transactions are most commonly compiled using administrative records. Data on government expenditure abroad should also be available from an ITRS.²²⁵ Moreover, estimates of expenditures of diplomats and other government personnel posted abroad could be based on the wages paid to these persons—details of which should be available from administrative records—and an assumption about the percentage of wages spent on such expenditures.²²⁶ It may be more difficult to capture expenditures by foreign governments and international institutions located in the compiling economy using an ITRS, in which case an enterprise survey of nonresident bank accounts or a survey of foreign embassies and international institutions could be used. When comprehensive data collection is difficult, existing replies to past surveys could be used as representative values.

14.229. For provision and receipt of aid, compilers of the donor country could obtain information on the costs and type of provided services from official sources. In the recipient country, compilers could obtain

²²³ MSITS 2010, paragraphs 3.277 – 3.279.

²²⁴ On the other hand, staff of international institutions staying in host economies for less than 12 months should be regarded as residents of the economies in which they maintain permanent households—typically their economies of origin. BPM6 CG, chapter 12, fn. 37.

²²⁵ BPM6 CG, paragraph 12.150.

²²⁶ BPM6 CG, chapter 12, paragraph 12.150.

information from the embassy of the donor country or the relevant domestic ministry or agency. An ITRS can also provide information on several related transactions (e.g., current transfers to government received through the banking system) or from customs (data on imports of materials and equipment). An alternative source is OECD's Official Development Assistance (ODA) records.²²⁷

14.230. If data on government expenditure abroad are not timely, or source data only provide broad aggregates or partial data, it may be necessary to extrapolate certain series or create data models based on past survey data or historical trends. In such cases, government expenditure policies, budget planning and decisions, and observed statistical relationships among historical indicators should be considered.

Country experiences: Denmark

14.231. In Denmark, information for the expenditure side of *government goods and services n.i.e.* is provided by the Ministry of Foreign Affairs and the Ministry of Defence. Data on officials' (ambassadors, military personnel, etc.) personal expenditure in the host country in which they are located is based on their wages. Importantly, Statistics Denmark assumes that these government officials spend 50% of their salary on personal expenditures in the host country in which they are located. The data for military units, however, is based purely on expenditure data rather than data on wages.

14.232. The revenue side of *government goods and services n.i.e.* is compiled by combining information from different sources. The Ministry of Foreign Affairs provides lists of embassies and international organizations located in Denmark, which Statistics Denmark contacts to obtain their number of employees of Danish and foreign origin. Non-responses are supplemented by information from the Ministry of Foreign Affairs. It is assumed that government officials of foreign origin located in Denmark spend a similar amount on personal expenditures in Denmark as Danish government officials spend when abroad. Thus, the number of staff of foreign origin per embassy or international organization located in Denmark is multiplied by the average expenditure on goods and services of Danish government officials located abroad, which Statistics Denmark has previously estimated as described above.

Country experiences: Japan

14.233. Japan relies on the ITRS as the data source for most of its balance of payments (BOP) statistics, including *government goods and services n.i.e.* when possible. However, there are certain transactions of government goods and services that are carried out with no monetary settlement, which therefore cannot be captured by the ITRS and must be estimated.

14.234. Following BPM6 convention,²²⁸ the value of transactions that occur without monetary settlement in the absence of appropriate market prices is regarded as the sum of the relevant costs of providing the good or service (in this case, government expenditures for providing the goods and services in question). Actual government expenditure data in Japan have certain limitations that preclude their effective use in the statistical compilation process; namely, such data are not timely²²⁹ and are not reported according to official BOP definitions. Therefore, the Bank of Japan (BOJ) uses government budget data, which are more timely than government expenditure data²³⁰ and follow BOP classifications, in place of actual government spending data in order to compile *government goods and services n.i.e.* when the ITRS does not suffice. The discrepancy between the budget data and the actual expenditure is usually insignificant,

²²⁷ BPM6 CG, chapter 12, paragraph 12.159.

²²⁸ BPM6, paragraph 12.49.

²²⁹ Data on government spending are not released in Japan until the end of the fiscal year, which is too late for inclusion in the compilation of the relevant statistics.

²³⁰ Government budget data in Japan are released before the beginning of the fiscal year.

according to BOJ research. The budget data are then allocated to the correct time period in accordance with the duration covered by the budget. If a supplementary budget is passed, it is also incorporated into the budget data used to compile government goods and services transactions.

C. Allocation of resident/non-resident trade in services to modes of supply

C.1. Introduction

14.235. MSITS 2010 recommends that statistics on the international supply of services are also broken down by modes of supply, based on the resident/non-resident trade in services and FATS statistical frameworks. FATS output data for services should be used to measure mode 3, whereas the resident/non-resident trade in services data needs to be broken down by modes. Different options exist to compile such information, either via a simplified allocation of EBOPS2010 categories, or on the basis of collected data. This section describes these options in more detail (it should be noted that deriving modes of supply using a data model is also a possibility, this is described in chapter 17).

14.236. This section starts with explaining how the MSITS 2010 recommendation, that in the absence of a special data collection, compilers use a simplified (mechanical) allocation of FATS and balance of payments data to modes of supply,²³¹ can be applied in practice (C.2). Subsequently, given that the goal is to ultimately implement a data collection and compilation of a breakdown of the international supply of services by mode of supply based on collected data, section C.3 describes the steps compilers can take to set up such a data collection in the most efficient and policy relevant manner. Section C.4 concludes with suggestions on how more detailed information regarding especially mode 2 and 4 can be compiled.

C.2 Resident/non-resident trade in services data by mode of supply: a simplified allocation

14.237. Given that the compilation of resident/non-resident trade in services data broken down by mode of supply is a relatively new area of data compilation, and given that amending existing data collection mechanisms or creating new ones may be difficult, it is suggested to adopt a step-by-step approach for compiling such a break down. In the absence of relevant data, or if only some sporadic information is available, it is first proposed that compilers conduct a simplified allocation of existing statistics as given in table V.2 in MSITS2010.²³² This method consists of attributing EBOPS service categories to either one dominant mode or to several modes using a distribution, based on an assumption on how specific EBOPS 2010 service items are most probably supplied by exporters (or to importers) of the economy.

14.238. This method provides a first set of estimates on modes of supply comparable at the international level (which also could be disseminated in a common manner; see chapter 20 for more information). Such an allocation has the advantage of being a relatively low-cost solution, as the compiler can start working with the available balance of payments services data and gradually build his/her knowledge of how services are supplied internationally. However, compilers should treat such an allocation only as a first rough approximation of resident/non-resident services transactions by mode of supply as this technique has important limitations. This Guide strongly encourages compilers undertake efforts to develop more precise estimation procedures at a later stage.

²³¹ See also MSITS 2010 Chapter V and Table V.2 and chapter 1, paragraph 1.5.

²³² *Ibid.*

14.239. Using table V.2, compilers are suggested to make the allocation in three steps: 1) allocate 2) evaluate and 3) refine, as described below:

14.240. Firstly, compilers can allocate each service item to one of the columns identified in table based on an assumption of how a specific service item is most probably supplied by exporters (or to importers) of the economy. In order to provide a first approximation in a comparable way, all compilers are strongly encouraged to conduct this generic allocation.

14.241. Secondly, compilers should evaluate if the "generic" allocation as conducted at the first step is relevant for their economy, and review results accordingly. For example, it may be worthwhile for the compiler to discuss with the institution in charge of trade in services negotiations if the results reflect their knowledge of how services are supplied abroad and to their national economy, as far as it relates to transactions recorded in the balance of payments.

14.242. Thirdly, and based on the results obtained in the second stage, compilers can refine their allocation by gathering additional information to improve the knowledge of some specific service sectors. Such additional information can be gathered in cooperation with the institution in charge of trade in services negotiations and might validate the assumptions made earlier by statisticians or negotiators.

14.243. Various ways of gathering more information may be envisaged, such as contacting major services providers or trade or consumer associations; conducting qualitative interviews with one or two relevant services providers in a specific sector (e.g., legal services, computer services, consultancy, construction etc.), or conducting interviews with employment agencies which have international services transactions with clients abroad. Compilers can also approach relevant ministries, in particular sectors where internationalization is known to be important (e.g., the ministry of industry, education, and health), or approach compilers in other statistical domains to obtain further information on particular sectors and to adjust the allocation if needed (e.g., through micro-data linking).

14.244. When making refinements to the initial allocation, compilers should also consider other factors, such as the business structure of the compiling economy (e.g., the dominance of large enterprises or SMEs/micro-enterprises), the type of service traded (some specific/technical services require the physical presence of the service provider), the geographical location of the compiling country and/or the distance to the trading partner (i.e., the less distant the partner, the more likely trade in mode 2 or mode 4 can occur), language barriers, the evolution of business strategies and tradability over time (e.g., technological advances).

C.2.a. Limitations to the simplified allocation

14.245. The compiler should always keep in mind that table V.2 and the methods described above, are simply a theoretical guide for classifying resident/non-resident services transactions according to the most likely predominant modes of supply. In each specific economy, other modes than those indicated may be involved for some specific services categories, considering their nature. For example, in table V.2 personal, cultural and recreational services are shown as deemed to be provided (or consumed) through modes 1 (cross-border) or 4 (temporary presence of service provider, either himself/herself, if self-employed, or his/her employee). However, for example, in the case of countries that are important destinations for the shooting of films, mode 2 (presence of consumer abroad to consume services) may also need to be considered. In other words, these assumptions may need to be reviewed to identify how well they respond to national needs. It would also be useful to conduct some analysis of contracts for specific groups of persons to better understand how they operate in the context of trade in services.

14.246. There are also other shortcomings to be considered when following the procedures outlined above. Compilers should ask themselves questions such as the following: how is the most significant mode allocated? Regarding enterprises which report their main economic activity, how should secondary economic activities be treated? Regarding manufacturing enterprises also providing production services or services packages around high-value goods, how should these services be treated? Even if this framework provides an approach for a first rough measurement of trade in services by modes of supply with a minimum use of resources, relevant qualitative background information and research is needed. Compilers need to consider these aspects when performing the conceptual allocation.

14.247. Compilers are encouraged to make use of their own information about modes of supply and possibly different country-specific distributions among services than the general allocations. Allocations to the modes may be based on the knowledge compilers have about the provision of services from their close contact with respondents or based on their knowledge of the business structure gained in the enterprise survey design process. More generally such an exercise is encouraged for improving the knowledge of compilers with respect to the international supply of services.

C.3. Resident/non-resident services transactions by mode of supply: towards full data collection and compilation

14.248. As indicated above, the ultimate goal is to implement data collection and compilation of a breakdown of resident/non-resident services transactions by mode of supply. This compilation can be done in much detail for (a) specific service sector(s) of interest to the compiling economy (i.e., using the simplified allocation for the other sectors of less interest), or through the compilation for all services sectors. The compilation of such data may entail a number of challenges, mainly because of the fact that it may be difficult to collect the raw data itself. However, it should be noted, that when the relevant details *are* collected, there are no additional compilation issues, besides the general considerations (i.e., grossing-up, dealing with non-response, quality of information obtained, data confidentiality etc.).

14.249. A variety of options have been developed (or can be envisaged) by countries to set up a new data collection (or add questions to existing data collections) regarding trade in services by mode of supply.²³³ Both a broader data collection exercise, as well as collaboration with other agencies and institutions, can be envisaged as described below. Alternatively, data on modes could be derived through the combination of information; e.g., through the use of a data model, as described in chapter 17.

C.3.a. Broad data collection and generic surveys

14.250. For collecting data on the value of supply of services by mode of supply, the most relevant source would be through surveys, mainly enterprise surveys (see chapter 6). By, for example, amending existing surveys or integrating appropriate questions in survey forms, data from existing enterprise surveys can be used as a way forward to estimate the value of the international supply of services by mode. Hence, potentially, such estimates can be generated without establishing a new and additional data collection, while still being of acceptable quality. Even efforts targeted towards a limited number of relevant services categories in the compiling economy can ensure the production of policy relevant results. Especially because the expected respondents' burden could be high, it would be a good practice to conduct at the initial stages sample surveys of enterprises, which should address questions needed to estimate or allocate services by modes. At a later stage, modes of supply could be integrated in the existing questionnaires as a mandatory data element.

²³³ Another possibility would be for the data compiler to establish a data model for certain services categories or modes (see chapter 17).

14.251. Such an approach (i.e., amending existing surveys in a step-by-step manner) would necessitate some knowledge building from the compilers side. As a starting point this could be done by following the considerations outlined in the section on the conceptual allocation. It could also be achieved by conducting a "screening" survey to identify the sectors and enterprises that should be targeted, or by exploring academic research (literature review) to identify the way in which services are generally rendered. Relevant enterprises could be extracted from the existing business registers (see also chapter 5, section E and chapter 6) focusing as a first step only on some key (business) services e.g. legal services, engineering services, computer services.²³⁴

14.252. Structural business statistics provide compilers with additional information regarding the structure of the businesses, size-class, employment, etc. which could be useful for national industry policies.²³⁵ Important service sectors could be identified as a starting point from the shares of the services to the GDP or share in total services. Some countries compile jointly international trade in services and structural business statistics, therefore the whole business population is available and the relevant sub-population of interest for a specific mode could be derived from this source. In some cases the information is also available in internally maintained registers, so-called BOP-registers.

C.3.b. Specialized surveys

14.253. A *focused or specific data collection* could be developed on the basis of economic, political-economic and socio-economic issues; for example, mode 4 could be integrated in a broader concept of cross-border movements and related international transactions in globalization theories. In addition to enterprise surveys, surveys of persons and households (see chapter 7) could also be (partially) useful to for certain mode 4 niches; e.g., for services provided by self-employed persons or for households as consumers of services provided by contractual service providers, although the latter may not be significant for the majority of compiling countries (small proportion of population, small transactions as compared to mode 4 transactions of enterprises). Surveys of persons and households could also be used to identify mode 2 (i.e., travel).

14.254. Finally, a *pluralistic-integrated* approach, i.e., a sector-specific survey that integrates various statistical domains, including trade in services (but also e.g. FATS, SBS, innovation or others), can provide relevant statistical information for different statistical domains. Focusing on different user interests, specific sector studies would serve several purposes; e.g., policy makers could also be interested in specific studies, such as those incidental to agriculture or environment services. A more detailed approach (i.e., modes for more detailed services categories) in such surveys may be implemented, but often the policy needs have to be identified by the national authorities for this to be developed.

C.3.c. Specialized surveys in collaboration with other agencies

14.255. As described in chapter 6, the collection and compilation of resident/non-resident statistics on the international supply of services by mode of supply may also be established in collaboration with agencies that have specific interests in obtaining such data. For example, ministries of economy or trade may be

²³⁴ See also Eurostat manual on the Production of Business Services, Annex VIII of the European Parliament and Council Regulation No 295/2008. For more information see: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:097:0013:0059:EN:PDF>.

²³⁵ Information on small and medium-sized enterprises and specific characteristics of enterprises related to particular breakdown of activities might be important for national policy to promote cross-border services trade for enterprises which are not exporting services or to support enterprises which are already active in the export of services.

interested in a special collection for this type of information. In these circumstances, it is important that the agency in charge of the collection and compilation of official trade in services statistics (generally the NSO or central bank) coordinates with the specialised agency so that the international recommendations for the collection and compilation of trade in services statistics are followed, and to ensure that the information that is collected can be used in a broader context.

14.256. An example of such a data collection is presented in chapter 10 (paragraphs 10.63-10.67). This example shows that the Australian International Legal Services Advisory Council (ILSAC) has for a number of years been conducting its own compilation of statistics on the international supply of legal services to non-residents. This approach benefited from the assistance of the Australian Bureau of Statistics. Such collaboration has highlighted the desirability, from ILSAC's point of view, of increasing the focus on compiling data that is more closely aligned to the specific modes of service delivery recognized by economies in trade negotiations, and although it does not mention it, to ensure that the data collected will be following as closely as possible international standards. This experience can also be seen as an example of positive collaboration of the body in charge of compiling trade in services statistics and an institution which has a strong interest in collecting sector-specific data. Although from the statistical compilers perspective it would seem difficult to replicate this for all services sectors, such experience can prove useful for improving the quality of statistics as well as providing some first estimates according to the four modes.

14.257. Similarly, large employment or recruitment agencies²³⁶ that (could possibly) have important cross-border activities could also be targeted. This would be for example agencies *e.g.* working with persons from new EU-members for instance or working with persons in so-called regional (border) clusters). For example, it may be possible to use the data from these agencies on the types of contracts to identify those services relevant for measuring mode 4.

C.4. Compiling more detailed mode of supply statistics for resident/non-resident trade in services

C.4.a. Specific considerations regarding mode 4

14.258. It is suggested that the compiler investigates how to collect/compile more details for those items where mode 4 (presence of natural persons) is deemed to be important for the compiling economy. For example, professional and management consulting services (mainly business services) is generally considered to be predominantly provided (or consumed) through modes 1 (cross-border supply) or 4 as these services often entail a proximity to the consumer for the service to be rendered. Alternatively, providing processing services or maintenance and repair services may most likely involve mode 2 (consumption abroad) or mode 4. So including a question asking for the share of mode 4 for specific services categories may be sufficient to greatly improve the statistics on the international supply of services by mode.

²³⁶ For example, since 1994, recruitment agencies in Germany can recruit in all occupational fields before there were some exceptions in management and artistic related activities.

C.4.b. Specific considerations regarding mode 2

14.259. As presented in MSITS 2010, some EBOPS components are strongly linked to the supply of services through mode 2. These include for example manufacturing services, maintenance and repair services, travel and waste treatment. Travel has the most obvious link with mode 2 supply of services. In this context BPM6²³⁷ and MSITS 2010²³⁸ propose an alternative breakdown of travel into: goods, local transport services, accommodation services, food-serving services and other services. This level of detail would already serve many information needs, including those related to mode 2. It is in particular important to identify goods separately as these products are of minor interest from a GATS/trade in services perspective.

14.260. Various possibilities exist for compiling these breakdowns for the Travel item, such as the use of credit card data, border surveys or household surveys (which are often used in the context of data models). Tax-free purchases could be used as complementary sources to separately estimate the goods purchased by persons going abroad for travel reasons, because those traveling can request a refund for the VAT paid on the goods when exporting the goods.

14.261. When using credit card data, the use of information included in merchant codes is suggested. This could enable a more detailed analysis of travel/tourism data and would also allow to identify e.g. transport services and to extract data split by goods and services. For example payments of or to a company which provides maintenance and repair services would be reported since this company is providing services and the payments have to be reported. Also merchant codes categories like Hotels/Motels/Inns/Resorts, car rentals or tourist attractions and exhibits are subject of reporting. Using merchant code information from credit card data has several advantages, including the relatively low costs for compilers, and the fact that in addition to the EBOPS travel item, also other services categories (other business services, communication services, government services) could be compiled or verified.

14.262. In addition, customs data could help in the identification of thresholds in order to adjust travel and goods (EBOPS concept) accordingly (i.e., durable goods and valuables).²³⁹ For that, totals on travel-related inflow from travel survey data or credit card data has to be calculated. The value of the total amount of valuables and durable goods in excess of custom thresholds from customs data also has to be calculated and efforts need to be made to avoid double counting.

C.4.c. Country experience: New Zealand on collecting data on modes of supply

14.263. The user is invited to read the experience of New Zealand collecting data on modes of supply as presented in the country example of chapter 6. In New Zealand respondents were asked in the 2011 Census of International Trade in Services and Royalties to estimate the percentage of the export value that was delivered through mode 1, mode 2, and mode 4. Testing showed that most respondents understood the modes of supply concepts, although feedback suggested that the guide which was provided along with the questionnaire was helpful as well.

²³⁷ BPM6, paragraphs 10.85-10.100.

²³⁸ MSITS 2010, paragraphs 3.115-3.131.

²³⁹ BPM6/MSITS 2010 and ITRS 2008 have a different treatment concerning some goods purchased by those traveling: the BPM6/MSITS 2010 travel item excludes purchases of valuables and consumer durables above a customs threshold, whereas tourism statistics includes all such purchases irrespective of the threshold. See MSITS 2010 Box III.5 for the relationship between data on travel and tourism statistics.

C.4.d. Country experience: Turkey

14.264. Turkey's compilation system entails some advantages for modes of supply analysis. To be more precise, the first advantage stems from already having the following breakdown of travel by type of product for Mode 2 purposes both for travel credit and debit as well as for personal and business travel (except for the expenditure on package tours: the share pertaining to Turkey for credit and the share pertaining to non-residents for debit) almost on an EBOPS 2010 classification: breakdown a) Goods, b) Local transport services, c) Accommodation Services, d) Food-serving Services, e) Health services, f) Sports, education and culture.²⁴⁰ In addition, some of the Mode 4 type of transactions may be identified through the ITRS forms.

14.265. At this point, it may be useful to give more information on the TURKSTAT travel surveys conducted in cooperation with the CBRT and the Ministry of Culture and Tourism. In connection with Mode 4 purposes. These are face to face surveys conducted at the border gates, on the nationality basis, four times a year, so as to cover quarterly periods. For instance, the "Departing Non-resident Visitors" survey for travel credit is carried out at 25 border Gates, which covers 90 percent of all departing visitors according to the departure way (Air, Road, Rail and Sea), and as regards years and terms, new gates have been added or excluded. The purpose of this survey is to determine the profile (age, sex, education level, occupational status), travel characteristics (purpose of visit, the place stayed, accommodation type, night spent, types of expenditures) and to estimate Turkey's travel income of foreigners and citizens residing abroad. The number of foreign visitors is based on the administrative border statistics of the Directorate General for Security for the related periods which cover all arrivals and departures in all border gates in the details of citizens, foreigners, nationality, month and border gates (overnight visitors and excursionists).

14.266. The survey is carried out for overnight visitors and excursionists by 0.5% sample rate to estimate on the basis of departure way and nationality and estimations are given quarterly in the detail of 26 selected nations and 10 country groups.²⁴¹ The sample survey results estimate the average expenditures with the breakdown of overnight stays and the excursions, which are expanded with the related Directorate General for Security border statistics. In order to estimate average expenditure figures for Turkish travelers abroad, sample surveys are also conducted on a quarterly basis for resident visitors arriving in Turkey.

14.267. In the light of the above considerations, the "Departing Non-resident Visitors" survey has questions on general occupational status and purpose of the visit with one of the options being "Business (conferences, meetings, assignments etc.);" albeit with no further breakdown. This option may further be broken down into i) conferences, meetings, trade fairs and exhibitions etc. and ii) as a contractual service supplier and iii) other. The next step would be to modify the questions on general occupational status to identify the type of the employer-employee relationship for those whose purpose of visit is business and professional activities as such if (i) their employer is in Turkey, (ii) outside Turkey. The resulting matrix of the mentioned questions may then prove to be useful, provided that a statistically meaningful expansion can be achieved, which should be assessed with statistical scrutiny.

14.268. The compilation of the additional item on tourism services related expenditure in travel and passenger transport should also be encouraged to establish a clearer link between the BOP and tourism statistics. Finally it is necessary that BOP and tourism statisticians cooperate, and in particular investigate

²⁴⁰ In the EBOPS 2010, the distinction regarding *other services* is between education services and health services.

²⁴¹ Turkish Statistical Institute (2011), Tourism Statistics.

if more detailed services categories are of interest. Also some data for the tourism satellite accounts could probably be integrated.

C.4.e. Country experience: Portugal

14.269. A separate alternative breakdown of travel into types of goods and services is recommended according to BPM6/MSITS2010. Box 14.8 shows the level of product detail required as supplementary breakdowns for travel in according to BPM6 and EBOPS 2010 integrated with additional requirements included to provide the necessary level of detail for other statistical domains. This also responds to mode 2 information needs.

Box 14.8 Level of product detail required for supplementary breakdown of travel

BPM6/ EBOPS 2010	Type of Product
1.A.B.4.0.1	Goods Fuel Other goods
1.A.B.4.0.2	Local transport services Air transport Rail transport Road transport Other transport Rental services
1.A.B.4.0.3	Accommodation services
1.A.B.4.0.4	Food-serving services
1.A.B.4.0.5	Other services
1.A.B.4.0.5.1	Health services
1.A.B.4.0.5.2	Education services Cultural and recreational services Other services

14.270. The forthcoming payment cards database can provide important information to meet these new requirements, using the activity sector code of the goods and service provider. For payments made in Portugal by cards issued abroad in Portugal the NACE of the POS owner is available, while for payments made abroad by cards issued by resident institutions the MCC of the POS owner is provided. These variables are used as proxies. A correspondence table between NACE or MCC and the different travel expenditures on goods and different types of services has to be developed. Furthermore, to identify local transport services other than rental services separately from international transport services the border survey is going to be used.

14.271. In addition, when travel expenditures are prepaid to resident travel agencies, both in terms of travel credits and travel debits, the direct reporting by these companies will provide the breakdown by good and type of service for travel credits as well as for travel debits. This information complements payment cards data. For the same breakdown of payments made to non-resident travel agencies, on the debits side, the border survey is being considered as a possible data source. In terms of travel expenditure on goods, BPM6 recommends the acquisition of valuables, consumer durable goods, and other consumer

purchases for own use or to give away acquired by travelers in excess of customs thresholds to be registered under general merchandise and not under travel. To identify the acquisition of such goods, different variables from the payments card database have to be combined, namely, the activity classification of the goods provider is restricted to jewelry, art, cars and electronic goods, and considering some minimum threshold for the value of the operation.

D. Service transactions between related (affiliated) enterprises

14.272. MSITS 2010 acknowledges that information on the value of all transactions between affiliated enterprises is helpful in understanding the degree to which globalization of services is taking place. Such intra-firm trade in services can take up a substantial share of total services trade; for example, transactions between related (affiliated) enterprises accounted for 28 per cent of both U.S. exports and U.S. imports of private services in 2013.²⁴² In addition, statistics on intra-firm services trade can highlight the role of services, in particular those related to IPPs, provided by one unit but used throughout the MNE. For example, again the information for the United States shows that intra-firm trade accounted for 59 per cent of receipts of royalties and license fees and 71 per cent of payments of charges for the use of intellectual property in 2013.

14.273. MSITS 2010, therefore, recommends that data on resident/non-resident transactions in services separately identify transactions with related and unrelated enterprises. Although such a breakdown would be most informative at the level of the detailed EBOPS 2010 classification, it is recognized that this could place an additional burden on both suppliers and compilers of data and could raise issues of confidentiality. In this connection, MSITS 2010 recommends that such a breakdown be carried out at the aggregate level for total services transactions (under the complementary grouping of EBOPS entitled total services transactions between related enterprises), although countries willing to provide additional detail are encouraged to do so for some (relevant) aggregated EBOPS 2010 categories.²⁴³

14.274. The MSITS 2010 associates related enterprises (intra-firm trade) to direct investment relationships²⁴⁴. Should the criteria for related enterprises depart from this recommendation, it is good practice to clearly describe the criteria chosen in a country's trade in services metadata.

14.275. It is good practice to carefully examine the valuation of services transactions between related enterprises, as the recorded transactions could be under- or overestimating and misrepresenting the real flows of trade (as measured by market prices) if such transactions between related enterprises are based on transfer prices (see also chapter 1 for transfer/market prices).

Country experience: the United States

14.276. For conceptual reasons or due to the source data limitations, the U.S. Bureau of Economic Analysis (BEA) only presents statistics on intra-firm trade for some selected types of services. Transactions between individuals and businesses are considered to be between unaffiliated parties. Thus,

²⁴² U.S. cross-border trade in private services excludes transactions by the U.S. government (including the military). Trade in private services is the most appropriate basis of comparison because intra-firm trade covers only trade by businesses.

²⁴³ Ibid., paragraph 3.56. Note that for some transactions/services items compiling such a breakdown would not be relevant, e.g. transactions where individuals are consuming services, education services.

²⁴⁴ See MSITS 2010, paragraphs 4.58 – 4.60 for further details.

personal and business travel services, which are transactions by individuals who travel to foreign countries; education, which consists of expenditures for tuition and living expenses by students studying in foreign countries; medical services, which cover expenditures by patients in foreign countries; and expenditures by non-resident workers, are all considered to be unaffiliated transactions. Passenger transportation, which covers transactions between individuals and foreign airline or vessel operators, are also considered to be unaffiliated transactions. Transactions in insurance services are deemed to be unaffiliated even when they are between affiliated companies because the services are deemed to be provided to the policyholders who pay for the insurance premiums and who are unaffiliated with the multinational company. Transport services other than passenger transport are treated as unaffiliated because the source data do not allow transactions between affiliated parties to be separately identified from transactions between unaffiliated parties.

14.277. The remaining categories—including charges for the use of intellectual property; telecommunications, computer, and information services; financial services; and other business services—can have affiliated transactions. The source data for these statistics are BEA surveys.²⁴⁵ On the surveys, U.S. companies are asked to report their transactions in a specific service type by country and, for each country, by whether the transaction was with their foreign affiliates, with their foreign parent or with foreign affiliates of their foreign parent, or with unaffiliated parties.

14.278. The definitions of affiliated parties are the same as those used to identify a direct investment relationship. A foreign affiliate is a foreign business enterprise in which a U.S. person directly or indirectly owns or controls 10 per cent or more of the voting stock in an incorporated business enterprise or an equivalent interest in an unincorporated business, including a branch. A foreign parent is the first person outside of the United States that owns or controls 10 per cent or more of the voting stock in an incorporated U.S. business enterprise or an equivalent interest in an unincorporated U.S. business, including a branch. Foreign affiliates of the foreign parent are defined according to a more restrictive criteria than above as they are any foreign persons proceeding up the foreign parent's ownership chain that owns more than 50 per cent of the person below it up to and including that person that is not owned more than 50 per cent by another foreign person and any foreign persons, proceeding down the ownership chains of each of these members, that is owned more than 50 per cent by the person above it.

14.279. By collecting data on transactions with foreign affiliates separately from those with foreign parents and foreign affiliates of the foreign parent, transactions within U.S. multinational enterprises, i.e., between U.S. parent enterprises and their foreign affiliates, can be distinguished from those within foreign multinational enterprises, i.e., between U.S. affiliates and the foreign multinational enterprises that invest in them.

14.280. Multinational enterprises sometimes allocate expenses across various divisions or parts of the enterprise rather than billing them separately. These allocations, often called allocated expenses, headquarters services, or miscellaneous charges, are sometimes for a designated service, such as for research and development (R&D), but sometimes no specific service is designated. It is important to note here that management of patents and license fees, which may be of a similar nature to allocated expenses, should be recorded in other business services, n.i.e. If the type of headquarters service is known, BEA

²⁴⁵ Financial services are collected on the BE-185 Quarterly Survey of Financial Service Transactions between U.S. Financial Service Providers and Foreign Persons and the BE-180 Benchmark Survey of Financial Service Transactions between U.S. Financial Service Providers and Foreign Persons. Telecommunications and most business, professional, and technical services are collected on the BE-125 Quarterly Survey of Transactions in Selected Services and Intangible Assets with Foreign Persons and the BE-120 Benchmark Survey of Transactions in Selected Services and Intellectual Property with Foreign Persons. These surveys can be found on BEA's website, www.bea.gov, by looking under "International" and clicking on "Survey Forms and Related Materials."

asks reporters to include those allocated expenses in its data for that type of service. If the type of service is not known, BEA asks reporters to include them in the category of “management, consulting, and public relations (including allocated expenses).”

Chapter 15 Compilation of Foreign Affiliates Statistics and the international supply of services

15.1. *Scope.* This Chapter deals with the compilation of FATS and consists of the following sections: Compilation of foreign affiliates statistics: summary of good practices (Section A), general purpose and description of FATS compilation (Section B), FATS variables and their compilation (Section C), selected additional data compilation issues (Section D). Specific country experiences have been included in the main text, and full texts of country contributions will be made available on the website dedicated to the compilers' guide.

A. Summary of good practices

15.2. FATS describe the activities of foreign-owned or foreign-controlled enterprises in host economies. This statistics relates to commercial presence in GATS (mode 3), but also it is more broadly of interest in the context of globalization.²⁴⁶ As described in MSITS2010 the interest in FATS is on all variables, with a particular focus on variables related to the supply of services. This Guide advises on the compilation issues in relation to FATS and provides more details on items where services measurement deserves more attention. Partial information on the presence of natural persons may also be obtained in the process of FATS compilation if data on employment by foreign affiliates is collected and if the foreign employees (such as corporate transferees) can be separately identified. For these purposes, FATS are of interest in their own right, but it will often only be possible to ascertain their full significance when they are viewed in conjunction with other information, such as comparable information on total investor-country or host-country economic activity and on services supplied through modes other than commercial presence.

15.3. Consequently collection of data based on balance sheet information and activity measures such as sales, employment, imports, exports or value added figures, etc. provide a more complete picture of the international supply of services. While the production and use of services provided by foreign affiliates are part of the national accounts of the host country (including exports of such services to other countries), these measures will not appear in the national accounts of the investing country.

15.4. *Good practices.* Given the complexity of the FATS compilation framework, a step-by-step approach is advised as follows:

- xii. While setting up the FATS compilation programme a thorough analysis of data needs for FATS has to be conducted in the context of various possible options for the organization of data collection and data compilation process. Given that inward FATS are generally easier to obtain than outward FATS and that this information is directly connected to international negotiations, it is a good practice that countries first concentrate on the compilation of inward FATS;²⁴⁷
- xiii. A review of all available sources should be conducted (e.g. FDI statistics, enterprise surveys, registers, administrative sources). Procedures for the identification of the relevant population, either directly or through linking exercises should be developed and tested. The identification of the Ultimate Controlling Institutional unit is particularly important for compiling FATS;
- xiv. A list of the most important variables for compilation has to be established early on based on the list of core (and eventually additional variables) identified in MSITS2010. The guide suggests as

See chapter 1.²⁴⁷ It is important to note that a country's outward FATS conceptually should match its partner's inward FATS.

²⁴⁷ It is important to note that a country's outward FATS conceptually should match its partner's inward FATS.

a starting point to concentrate on sales/turnover or output (the latter being the preferred measure out of the two), employment, and number of enterprises;

xv. The choice of the statistical unit needs to be made, although in many cases this will be determined by the existing definitions used in other domains of national economic statistics (e.g. for business statistics, national accounts);²⁴⁸

xvi. Ideally data should be compiled annually and, if possible, on a calendar year basis;

xvii. Compilation of data broken down by economic activities is advised. Compilers are encouraged to do so for all activities, with sufficient details to respond to the needs related to services negotiations (see ICFA Rev. 1 in MSITS 2010). For output or sales/turnover, feasibility of a disaggregation into total sales/output of goods and total sales/output of services for each activity should be investigated to respond better to information needs related to the measurement of the international supply of services;

xviii. Given the complexity of the FATS framework and the often high level of detail in of the collected information, compilers should pay particular attention to ensuring data confidentiality when cross-classifying information by activity/product and partner country; proper procedures for evaluating what data can be publicly disseminated should be developed and systematically applied.

B. General Description

15.5. FATS data should be compiled for as many variables as possible. Some are more closely related to the needs of GATS (output or turnover, employment, number of enterprises), but for broader analytical purposes other variables would be of interest such as assets, R&D expenditure, etc. The main elements of the FATS conceptual framework and its scope for services are described in Chapter IV of MSITS2010. For additional guidance, compilers are advised to refer to the *OECD Benchmark Definition of Foreign Direct Investment 4th edition* chapter 8 as well as the *OECD Handbook on Economic Globalisation Indicators* chapter XX.²⁴⁹ All sources identified above also include some practical information on FATS compilation.

15.6. FATS are the main data source for assessing mode 3, or commercial presence.²⁵⁰ In the majority of cases this mode of supply corresponds to the activities of entities that are controlled or owned from abroad in the territory where they are established. The supply of services through mode 3 by non-resident suppliers to residents of the compiling economy is made by the resident affiliate of this supplier (i.e., recorded as transactions between residents of the same economy).

15.7. The main interest from a mode 3 perspective is in compiling data broken down by destination/origin of control and by service type. However in the absence of data by service type or if such a breakdown is difficult to compile, it is possible to estimate the most likely type of service being provided according to the primary activity of the firm. For example, a company in the telecommunication services industry is likely to have been set up abroad to provide mainly telecommunication services.

²⁴⁸ Compilers should note that this may differ between inward and outwards FATS, see section D.1

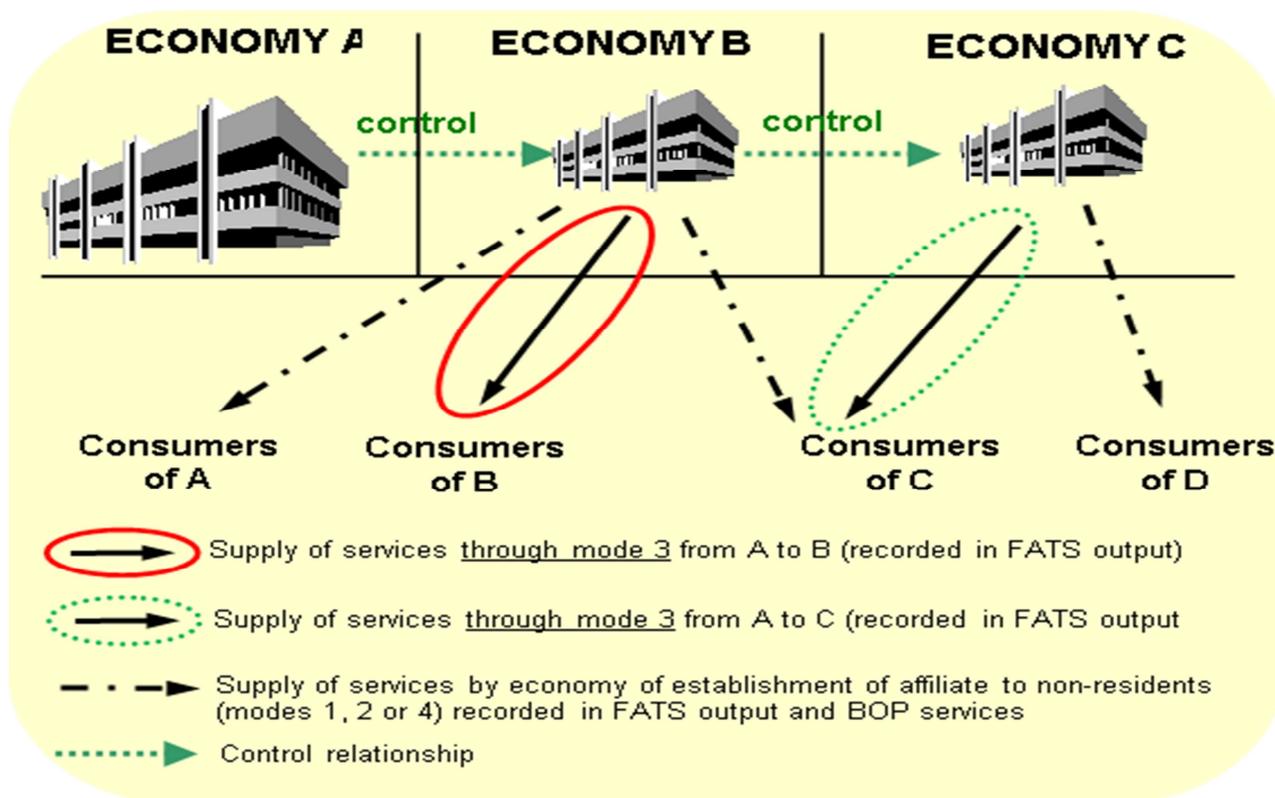
²⁴⁹ Another valuable source of information for compilers is the Eurostat Foreign Affiliates Statistics (FATS) Recommendations Manual, 2012 edition, produced by Eurostat Available at:

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-RA-12-016

²⁵⁰ Mode 3 also refers to cases where there is an establishment of a non-resident entity (e.g. for less than one year) delivering services to customers of the economy of establishment. In these cases international transactions in services will be recorded in the balance of payments statistics. However, MSITS2010 recommends considering these only if it is believed that such cases are important for the compiling economy.

15.8. FATS will include variables such as output or turnover/sales, employment, etc. Although the interest from a mode 3 perspective is not limited to this output, output is the measure of mode 3 supply of services, which, in a GATS context, is analogous to exports and imports of services recorded in the balance of payments (corresponding to modes 1, 2 and 4). In the absence of output data, a solution could be to use FATS sales/turnover of services data, keeping in mind the mode 3 measurement issues associated with wholesale and retail trade, financial services, and insurance services (see section C.1 below).

Chart 15.1 Output of foreign affiliates and mode 3 supply of services: a statistical view



15.9. It is also important to consider what has in fact been supplied to consuming entities of the economy where the affiliate is established. The measure of mode 3 supply of services is a subset of a foreign affiliate's output figures, i.e., output that is not exported to third economies or back to the economy of the controlling enterprise. As shown in box 15.1, company B's production and delivery of services to consumers of B is supply of services through mode 3 for economy B (originating from A). Company B's exports of services to the rest of the world are part of output figures as a FATS variable, but are not included as economy B's mode 3 consumption of services. It could be supply of services through modes 1, 2 or 4. Similarly, Company C's production and delivery of services within economy C is supply of services through mode 3 to consumers of C (from economy A). The services output produced by company B (or company C) but provided to non-resident consumers outside their economy of establishment should be accounted for as trade in services (either mode 1, 2 or 4) between the economy of residence of this company and the economy of residence of the consuming entities. In other words this information is already covered in balance of payments services data of respective economies. When

analysing the international supply of services by mode, only those data derived from the FATS framework that correspond to mode 3 should be considered, to compare to data derived from the BOP services account.²⁵¹

15.10. Within the list of variables recommended for FATS compilation, employment is also one of great interest particularly if compilers are able to separately identify the portion of employees from abroad (i.e. non-residents). This would be useful in relation to mode 4 commitments, as further described in section C.4 of this chapter as well as chapter 16. If possible, data on the number of intra-corporate transferees would be useful particularly given the high level of commitments made in trade negotiations for this category of persons.

15.11. The variables should be broken down according to:

- i. The country of location of the foreign affiliate for outward FATS or the origin of ultimate control/FDI for inward FATS;
- ii. The activity of affiliates;
- iii. The type of products produced by the foreign affiliates for the variables for which such a breakdown is possible, at a minimum distinguishing services from goods. Although this is generally seen as a longer term goal, some compiling economies have already compiled such data, or such a breakdown is feasible; and
- iv. For output or sales, Distinguishing between those within the host economy, with the home economy and third economies.

15.12. Supplementary data may also need to be compiled as a separate dataset in the specific circumstances of some economies such as the existence of significant joint ventures, or where control cannot be determined solely using the guideline of more than 50% ownership of voting power, or in economies where control is not possible by law.

15.13. FATS often require integrating multiple data sources, which can present measurement challenges. Different data sources are often necessary to identify the population covered by the framework, as well as the breakdowns by partner country.

C. Selecting data sources

15.14. Data source for FATS are described in chapters 5, 6 and 10. Comparison of data sources is shown in chapter 11. When beginning FATS compilation, to select data sources one should take into consideration the fact that mode 3 supply of services as measured through FATS is most likely to occur in the context of multinational groups, in particular those with important and numerous FDI relationships. In other words, in particular on the outward side, large companies are more likely to be the most important players for supplying services abroad. As a starting point, it may therefore be useful to consider focusing on larger (services) companies or those with important FDI transactions and positions, which could provide an intermediate low-cost solution for compilation. However, one should not underestimate the role of smaller companies because (i) in the context of inward FATS, foreign affiliates of large multinational groups may not necessarily be large themselves and (ii) in the context of outward FATS, the international role of small and medium enterprises is becoming increasingly important. This means that although such an intermediate solution may be useful in the short-run, in the longer-run compilers should consider compiling a FATS dataset representative of the entire population. In the context of employment,

²⁵¹ Keeping in mind other considerations with respect to the comparability of these data, see chapter 20 on data and metadata dissemination.

it is also important to note that larger (services) companies/affiliates are more likely to recruit many non-resident employees (i.e. from the perspective of the compiling economy) or have important intra-corporate movements of their personnel.

15.15. Collecting source data and compiling FATS implies the need for various stakeholders to cooperate. For compiling FATS, as done in many economies, the data sources should be used in a complementary way, in particular for inward FATS. For example, although the main data source to collect data may be a survey under the responsibility of one agency (e.g. statistical office, central bank), often the information relating to the identification of (part of) the population to be covered and/or the UCI is available from another data source (e.g. other surveys, enterprise registers) that can be under the responsibility of another agency (e.g. central bank or another administrative body). In addition, in many economies the collection of data from financial institutions is conducted by the central bank whereas the collection of data of other types of units is conducted by the statistical office.

15.16. It is therefore a good practice to assess whether cooperation of various stakeholders is necessary and if so, to identify possibilities and responsibilities for linking information (e.g. common identifier in registers/administrative sources) before beginning FATS compilation. This process has been implemented by many economies, and often enables the compilation of FATS with little or no additional burden for reporters or work for compiling agencies. Information on legal frameworks and institutional arrangements is provided in chapters 2 and 3 respectively. If there is a difference in statistical units underlying (i) information on ownership or financial information at the enterprise level and (ii) operational data at the establishment level, then compilers must account for this difference in their compilation procedures.

C.1 Which data source to choose?

15.17. A comparison of data sources for FATS is suggested in Chapter 11. Chapter 6 provides more detail on the information that should be sought from these data sources and how they could be used.

15.18. Inward FATS variables can in general be obtained from four main sources:

- i. Survey used to collect information on a compiling economy's business structure, identifying the foreign-controlled population of firms, as well as the country of the UCI. This information could be sourced from the survey itself by including the appropriate items, or by cross referencing with information available from other sources (e.g. business register, FDI register). Coverage of (services) activities is an important consideration when choosing such a source, as in many cases it "only" covers business activities (i.e. excluding education, health, recreational service activities, agricultural, mining activities).
- ii. Survey used to collect foreign direct investment information, where questions would be included to identify the variables of interest. Again it would be necessary to identify within the population of foreign direct investment enterprises those that are foreign-controlled as well as the economy of the UCI²⁵².
- iii. A dedicated FATS survey.
- iv. Administrative sources (business registers, tax return or regulatory reports such as for banks or insurance companies, or more generally on foreign investment, privatization monitoring, etc.)

15.19. Economies that have business statistics this source may be preferred for inward FATS. This option has been implemented by many economies. Some others have preferred using (existing) FDI

²⁵² The identification of the UCI is discussed in sections E.5.

surveys to collect FATS. In fact, this may be an interesting solution as the FATS population may be relatively easy to isolate (directly from the survey, or from the register used for establishing the FDI survey). But one needs to keep in mind the need not to overload an FDI survey, in particular if it needs to be run on a quick turnaround.

15.20. The outward FATS characteristics are usually collected based on (1) FDI surveys, and (2) dedicated FATS surveys. Outward FATS information is believed to be more difficult to obtain as it relates to the activities of firms established outside the compiling economy. As a starting point it may be useful to consider using an FDI survey to obtain data on outward FATS, keeping in mind the pros and cons of using such a source. A number of economies have chosen this option, particularly when starting to collect the most important outward FATS characteristics. Alternatively, a FATS survey could be developed.²⁵³ In general, it would be advisable to conduct a periodic census for outward FATS (i.e. including all units identified as belonging to the target population of reporting units). Between censuses, sample surveys could be conducted. Administrative data could also be considered for compiling outward FATS if the data include relevant variables.

15.21. For some of the variables supplementary sources may be needed, such as merchandise trade statistics or BOP data on goods or services for the trade variable, research and development surveys for relevant variables, or administrative or other sources for data for some specific (services) activities (finance, insurance, oil, mining, other major industries). If needed compilers may also refer to other sources to gather information on structures or operations of multinationals, such as industry associations, free zone authorities, stock exchange and securities commissions, special registers of foreign companies such as those maintained by some international organization (e.g. UNCTAD, OECD, Eurostat) or private companies (e.g. Dun and Bradstreet), the Internet, and partner country statistics. Again, compilers need to be cautious of how all this information, including the data collected, aligns with the FATS recommendations. These sources could also be useful to verify or validate some of the FATS information compiled. For counterpart statistics it is important to note that the information is likely to be confidential and should not be able to provide information on individual businesses. Aggregate information may be available but care should be taken over the interpretation of concepts and the implication of different compilation methods.

15.22. Although not advised, some countries apply cut-off thresholds. For practical reasons (reduction of the costs and the burden) such thresholds can, nevertheless, be considered acceptable as long as they are kept at minimum and estimations are provided for the population under the threshold.

15.23. To summarize, compilers may have various options for sourcing their data for compiling FATS, and the choice will depend on the situation in each country. However:

- i. For inward, it may be preferable to consider sourcing data from business statistics keeping in mind that these statistics may need to be complemented for activities that may not be covered by this dataset, e.g. agricultural activities or various types of social services). Another solution, at least as a starting point, could be to consider an existing inward FDI survey.
- ii. For outward, an FDI or dedicated FATS survey could be used, although the former may be easier to implement as a first solution.
- iii. If an FDI survey is used, response burden should be considered, particularly if the survey is conducted on a quick turnaround and because a portion of FDI firms are not part of the FATS universe (i.e. firms with influence relationships, but not control).

²⁵³ For example if the FDI survey needs to be run on a quick turnaround, or if compilers do not want to unduly overburden FDI firms that are not part of the population to be covered by FATS.

- iv. The link with FDI, in particular to identify the statistical population, is an important point that should be considered when choosing a data source and when identifying the population to be covered and the UCI.

C.2 Country experience: Austria

15.24. The two major sources of the inward FATS statistics in Austria are the comprehensive structural business statistics that Statistics Austria collects and the direct investment survey that the OeNB conducts. Foreign-controlled enterprises are a subset of direct investment enterprises, which also include minority holdings above a 10% threshold and below the 50% majority holding level. The fact that the OeNB has, for many years, compiled direct investment information on a per-enterprise basis and has included a question on the “ultimate controlling investor” (UCI) in its survey, allows the OeNB to analyze multiple minority ownership structures and to establish the country in which the ultimate parent is located, as is required for FATS statistics.

15.25. As the OeNB’s direct investment survey includes only enterprises above a certain threshold, instances of foreign-controlled ownership below the threshold need to be identified for the inward FATS statistics in a *second* step. This is done by an automated analysis of the administrative Company Register data. However, the information available does not allow for determining whether the corporate headquarters of these generally small enterprises are located in a third country; therefore the country in which the institutional unit exercising immediate control is located is, by default, considered the country of ultimate control.

15.26. In a *third* step, the enterprises under direct foreign control determined on the basis of OeNB surveys and IT-based analyses of Company Register data are checked for any first and second-tier affiliates they may have in Austria. To this end, an algorithm is applied to Company Register data to establish, in a step-by-step procedure, all majority holdings in Austria of the enterprises identified thus far. The process described above enables the OeNB to submit an exhaustive list of all resident foreign-controlled enterprises to Statistics Austria.

15.27. Statistics Austria’s first task is to link the OeNB’s list of enterprises with the entries in its own business register. This is feasible using three common identifiers, namely the OeNB’s internal key, the NSIs unit identifier, and the official company code which is stored in the public Company Register. These identifiers are available in both data-bases, thanks to a long standing practice of the mutual exchange of register information (including name address, and economic activity of the unit). Usually 100% of the units can be matched automatically, without any manual intervention. Next, Statistics Austria once more checks the data, thereby eliminating “*inactive*” business units from the OeNB’s list. Such inactive units may appear if they have not yet started economic activity or if enterprises are being liquidated. In some cases, control relationship may be unclear – e.g. where a change of ownership occurs during the reference year – and may be corrected at this point in time.

15.28. The most important step is then to retrieve the required characteristics for inward FATS from the existing database for structural business statistics. The values in this database may be either a direct result from the SBS survey, if the enterprise in question was part of the sample, or they may be imputed data, based on regressions with employment and turnover as exogenous variables, if the relevant enterprise was *not* part of the sample. In any case, the data used for reporting inward FATS statistics are exactly the same as for SBS statistics, which is an important aspect of quality. Every second year, the data is supplemented by information about the R&D activities of foreign affiliates in Austria. These R&D characteristics of foreign affiliates are to be derived from the available R& D statistics by linking data sets at the individual enterprise level.

C.3 Country experience: Spain

15.29. The Spanish INE has long recognized the importance of indicators of Spanish subsidiaries of foreign companies and has carried out several pilot studies or surveys on subsidiaries abroad in the years before entry into force of the European regulations. Reducing the statistical burden is a strategic objective of the INE and that, within this line of action, one of the theoretical principles to consider when starting and developing new statistical projects is promoting the use administrative data and prioritizing them in relation to the collection in the field, whenever a reliable and timely administrative source from which they can effectively meet research objectives is available.

15.30. Consistent with this view, and in parallel with some pilot studies, the INE explored the possibility of obtaining the information from the Foreign Investment Registry of the Ministry of Economy and Competitiveness (MINECO). This Register is formed from statements by the Directorate General for Trade and Investment, and more specifically the Directorate General of International Trade in Services and Investment, collected about foreign investment in Spanish companies and Spanish investment in foreign companies, both as regards flows and stock.

15.31. Specifically, in the case of Spanish investment stock in foreign companies, Spanish resident investors that make investments in foreign companies whose net worth exceeds a threshold and in which the investor's share capital or total voting rights are equal to or greater than 10%, must submit an annual report on the development of foreign investment in the first nine months of each calendar year. Also included in this report is the investment in foreign companies whose activity is the holding of shares in the capital of other companies, regardless of the amount of the investment. Holders of foreign branches also report the size of the investment in the annual report. Information is obtained from the companies in which the investor invests and in turn, investee companies. Finally the third level of the chain of participation in subsidiaries is reached, although less detailed information from the latter is collected.

15.32. The Foreign Investment Registry covers Foreign Direct Investment in Spain and Spanish Direct Investment Abroad, published annually and included in the National Statistical Plan (PEN), and presents Foreign Direct Investment in Spain and Spanish Direct Investment Abroad quarterly and bi-annually as well as the PEN. Foreign Investment Registry statistics are also obtained on Spanish Investment in Foreign Securities and Foreign Investment in Transferable Securities Spanish, both flows and position. In meetings between the two institutions involved (MINECO and INE), officials discussed the methodological alternatives, implement procedures and legal issues arising from the eventual transfer of the relevant files. Further analysis of the information provided by the Register and comparative studies conducted with pilot surveys highlighted the quality and wealth of information, as well as the role it could play as a source of primary data to meet the objectives.

15.33. Finally, after the evaluation of the various advantages and limitations associated with each of the procedures, the administrative source was chosen as a more effective means of achieving the objectives of this research. However, it should be noted that while the data derived from said Investment Register are considered as the primary basis for generating key information, the data has been supplemented with information from the European Register of Groups (*) in order to obtain the final results of the investigation. It should be noted that the coverage of branches in the Investment Register is not complete as far as the population of subsidiaries are concerned, because according to the current rules, companies are not required to declare investments in companies with assets of less than a threshold. The results of the subsidiaries from the third level of the chain of participation are not shown either. It has therefore been necessary to perform additional processing and estimation taking into account European Register of Groups (information on enterprise groups from private databases and records units in the statistical offices of the individual Member States and the countries of the EFTA) to measure the activity of these subsidiaries and through appropriate adjustments, to derive the final results of the statistic.

15.34. In conclusion, the statistical design for the primary data generated from the Foreign Investment Registry of the Ministry of Economy and Competitiveness, can reduce the statistical burden on enterprises while allowing for national dissemination of the main results on Spanish subsidiaries abroad.

D. General compilation issues

D.1 Which statistical unit to consider?

15.35. For inward FATS, the statistical units are all the enterprises (or establishments) and branches that are under foreign control and for outward FATS, the statistical units are all the enterprises (or establishments) and branches abroad that are controlled by an institutional unit resident in the compiling economy.

15.36. MSITS 2010 makes no recommendation as to the choice between enterprises or establishments for statistical units and explains that both approaches have strengths and weaknesses (see chapter 6 and MSITS 2010 paragraph 4.13-4.14). In addition, if the collection takes place at the enterprise level, then it is possible that it is also done at the local enterprise group level.²⁵⁴ There is, therefore, an even greater risk of interpretation of the activities of the local enterprise groups as it will regroup units engaged in multiple activities, making data classification more difficult when it comes to compilation. The statistical unit for FATS will in fact heavily depend on the statistical units of the existing national statistical systems if defined, or on the limitations that exist in the data collection system. Because the statistical units can have an important bearing on how the statistics are interpreted, both in isolation and in comparison with other data sets, the compiler should consider this when compiling FATS. In addition, it is a good practice that metadata on the statistical units used in collecting FATS be disclosed in explanatory notes given that the level of consolidation may affect users' interpretation of the statistics.

15.37. Compilers should also consider that units may differ between inward and outward FATS. For example, to the extent that for inward FATS, structural business surveys are the basis, the unit for this compilation is likely to be an establishment (recognising the need for a degree of industry homogeneity within the unit); for outward FATS, the use of FDI surveys as a potential basis will tend towards an enterprise or local enterprise group as the unit for compilation. The use of different units for inward and outward FATS will make within country comparisons and balances difficult, particularly for business counts. This is why compilers in the longer term should identify ways, if possible, of aligning the statistical units used in both inward and outward FATS.

D.2. Choice of reference period, periodicity of compilation and valuation of monetary variables

15.38. MSITS2010 does not make any recommendation as to the choice of the reference period for compiling FATS.²⁵⁵ In practice, economies that are compiling FATS use years as a reference period. At the time of this writing, such a choice seems reasonable from the perspective of users, as well as with respect to the reporting and compilation burden. However, in the future there may be a need for data referring to shorter periods of time, e.g., quarters, at least for some main FATS aggregates.

²⁵⁴ It is advisable that these enterprises in the host economy that are part of a common enterprise group are identified and see how this consolidation question can be addressed.

²⁵⁵ HEGI recommends that the calendar year is used as a reference period.

15.39. MSITS2010 also does not make any recommendation as to the periodicity of update of FATS data. In practice, agencies producing FATS do so every year, at least for the variables that are deemed to be the most important (i.e., priority variables). In some cases it may be reasonable to consider compiling FATS less frequently (e.g. every odd year) for the variables/breakdowns of minor importance or for those that are most complicated to produce.

15.40. In principle, data for a given reference year should correspond to the calendar year, but firms may report on a fiscal or accounting year basis if that is what is available. In addition, it should be noted that some characteristics are compiled from already existing data, in particular for inward FATS. For these characteristics, the reference period may have to be taken as a given and might not always coincide with the calendar year. Compilers should clearly inform users of the reference period used, and if there are any deviations for some variables.

15.41. Consistent with other economic statistics, activity should be recorded as it occurs rather than when the related payment is made (accrual basis). Flow variables should be recorded for the whole reference period, while stock variables should, if possible, be recorded as of the end of the reference period. An exception is the employment variable, for which use of a period average is preferable (see also section D.4) if the employment is subject to strong seasonal variation. Data for a given reference period are mainly valued at the average prices and, if relevant, average exchange rates of that period. For stock variables (for example, property plant and equipment), values of source data might be recorded at historical cost and will largely reflect prices at the time the asset was acquired rather than prices of the reference period. In such a case, revaluations to reflect current-period prices should be made by the compiler.

D.3. Treating the Activities of Special Purpose Entities in a FATS context

15.42. Special Purpose Entities (SPEs) are engaged in various activities and take various forms. Thus, compilers should pay attention to the treatment of SPEs in compiling FATS. Although there is no precise definition of SPEs in the 2008 SNA, BPM6 and BMD4, these documents include some elements that help to better identify SPEs and their activities.

15.43. A unit can be considered an SPE, if it meets the following criteria:

- i. It is a legal entity:
 - i. Formally registered with a national authority²⁵⁶ and
 - ii. Subject to fiscal and other legal obligations of the economy in which it is resident; SNA 2008, paragraph 4.6. for definition of a legal entity.
- ii. The entity is ultimately controlled by a non-resident parent, directly or indirectly;
- iii. The entity has no or few employees, little or no production in the host economy and little or no physical presence in the economy in which it is created by its parent, which is typically located in another country;
- iv. Almost all the assets and liabilities of the entity represent investments in or from other countries;

²⁵⁶ This excludes non-resident units that have been registered for VAT purposes only, which may be the case in some EU-countries acting as a hub for the imports of goods to the European Union.

- v. The core business of the entity consists of group financing or holding activities; i.e., channelling of funds from non-residents to other non-residents. However, in its daily activities, managing and directing plays only a minor role.

15.44. According to the 2008 SNA, judgment has to be made regarding the independence of an SPE as an institutional unit. However, non-resident SPEs owned by residents (and resident SPEs owned by non-residents), which are the main focus of FATS, are treated as independent institutional units by convention. When those SPEs transact by their own decision, their transactions, in principle, should be recorded in the same manner as those of non-SPE foreign affiliates.

15.45. At the same time, however, it should be considered that SPEs are often established to facilitate cross-border ownership of enterprises and thus generally do not have any substantive (services) activities. Thus, special treatment of SPEs in FATS (and FDI statistics) might provide economically more meaningful data and thus enhance their usefulness.²⁵⁷ For example, it would be relevant to separately identify SPEs and to compile supplementary data not considering certain types of SPEs.

15.46. Nevertheless, some SPEs are engaged in services activities in addition to passing through funds, and such types of entities should not be ignored in FATS. The appropriateness of considering SPEs in FATS depends on their activities. Identifying their activities is not straightforward but one way of doing so is to classify SPEs according to the 2008 SNA sector classification assuming that such classification is conducted by statistics compilers of host countries.

15.47. Among various types of SPEs, holding corporations, shell companies and conduits are often established only to channel the funds from non-residents to non-residents. Thus, supplementary data looking through such pass-through entities could be useful for users in relation to FATS. In contrast, royalties and licensing companies, merchanting companies, and securitisation companies are engaged in non-captive financial and non-financial activities. The other types of SPEs provide financial services although most of them are captive financial corporations. Thus, these non-pass-through entities should not be looked through.

15.48. Compilers should also consider that it may be difficult to collect information on SPEs given their little or no physical presence or how they are accounted for in the national statistical system. In fact the treatment of these in national statistics will strongly influence the possibilities for the FATS compiler. See chapter 6 for more information.

15.49. More guidance on SPEs and their treatment in statistics may be found in Eurostat's FATS Recommendations Manual, as well as the UNECE/OECD/Eurostat publication on "The impact of globalization on national accounts" in chapter 4.

D.4. European Union practice

15.50. In the European statistics, special purpose entities are relevant for both inward and outward FATS. The Eurostat FATS Recommendations Manual further clarifies that "They should be excluded from the target populations of statistical or reporting units only if they had no turnover and no employment during the reporting period."

15.51. There is no single approach to how SPEs should be treated, even though the main principle to be followed is that the SPEs should not be automatically excluded from the target population as they carry out important economic transactions with their respective parents or associated enterprises. SPEs should be excluded only if they had no turnover and no employment during the reference period.

²⁵⁷ See BD4 for more information.

D.5. Other considerations

15.52. It is good practice that compilers evaluate the validity of reported data and establish checking procedures in the context of FATS (e.g. registers, etc.). Survey processing staff will need to evaluate the reported data to ensure accuracy, consistency, and reasonableness, and this is particularly relevant for FATS. Many of these techniques will be related to the usual work expected from compilers in other statistical domains. For compilers that have chosen such a solution to gather FATS data, the strong link between the structural business statistics and inward FATS should be taken into consideration when validating the data. Consistency of information, in particular for the identification of the population or UCI could be ensured by checking with other registers that some compilers may have at hand, for example registers of enterprise groups or foreign-owned enterprises. More information on evaluating the validity of reported data are available in chapter 19.

15.53. In most countries there are legislative requirements for confidentiality that necessitate avoiding disclosing information, and these would also naturally apply to FATS. Multinational companies that by definition are involved with FDI and FATS may be particularly sensitive about such matters for competitive reasons. Even countries in which FDI and FATS data collection are mandatory maintain strict confidentiality. This is particularly relevant given the granularity of the data obtained through the compilation system, i.e., breakdowns by detailed country, by detailed activity and by product.

15.54. For example, when compiling data by activity (e.g. according to ICFA Rev.1 categories) categories may sometimes have to be suppressed (that is, not separately shown) so as to preserve the confidentiality of those data for individual companies. This need for suppression occurs most often at the most detailed level of the classification, when smaller countries are involved or in cases where the data are cross-classified by country or area. Other possibilities exist to ensure confidentiality of information, such as perturbation techniques which may be sufficient to mask individual responses and increase the utility of the statistics for the analysts. The compiler should therefore identify appropriate techniques to ensure the confidentiality of data reported by individual companies. (See Chapter 20 for further details on dissemination and confidentiality issues).

E. Compiling FATS Variables

15.55. Economic variables — operational and financial — with regard to FATS should be collected primarily for their usefulness for trade policy needs and for analysing the globalization phenomena. Practical issues associated with obtaining data must also be considered. With such considerations in mind, and in the interests of harmonization with other international guidelines (see paragraph 15.6), MSITS 2010 recommends that the FATS variables to be collected include at least the following basic measures of foreign affiliate activity:

- i. Sales (turnover) and/or output;
- ii. Employment;
- iii. Value added;
- iv. Exports and imports of goods and services;
- v. Number of enterprises.

15.56. In the context of this Compilers Guide, output and/or sales (turnover) are the variables of most interest, followed by employment and number of enterprises. Although the five variables identified above constitute a basic set that can provide answers to a variety of questions, additional variables may prove useful in addressing specific issues (among these variables are compensation of employees, gross fixed capital formation, total assets, and research and development expenditures). MSITS 2010 suggests several additional measures that might be considered for collection by countries that are able to compile such information. Most of the “basic” and the “additional” variables, as well as their definitions, have been drawn from the 2008 SNA.²⁵⁸ It may not always be specified, but there is a particular interest in obtaining detailed data for services sectors (either activities or products if relevant) for all the variables listed below.

E.1. Sales (turnover) and output

15.57. Sales and turnover are terms which are used interchangeably in this Guide. They refer to the totals invoiced for the sales of goods or services rendered, including all duties and taxes, excluding consumption and sales taxes (i.e. VAT type taxes). Sales/turnover also includes all other charges passed on to the customer (transport, packaging, etc.), even if these charges are listed separately in the invoice. Reductions in prices, rebates and discounts as well as the value of returned packing must be deducted. Charges for the use of intellectual property are included. Income classified as other operating income, financial income and extra-ordinary income in company accounts is excluded from turnover. It is important to note that revenue of long-term contracts, such as building contracts should be recognised by reference to the stage of completion of the contract. For insurance, turnover/sales correspond to gross premiums written and for pension funds they refer to total pension contributions. For financial services excluding insurance, pension funding, and auxiliary services, turnover refers to the explicit fees charged for the services provided (fees and commissions receivable) as well as interest and leasing income, income from shares, net profit on financial operations, income on foreign exchange transactions and other operational income.

15.58. The variable sales or turnover is usually easy to compile because it is easy to collect and besides the usual adjustments for nonresponse, under-reporting or grossing-up, no specific calculations are needed

²⁵⁸ Other variables not mentioned in the Manual on Statistics of International Trade in Services as basic and additional variables may also be collected in order to cover important needs, in particular “hours worked” (SNA 2008, paragraph 19.78) which are relevant in the context of the measurement of productivity. More details on variables and their definitions may be found in OECD's BD4 and HEGI.

to produce the final data. In addition, sales or turnover generally offer more options for disaggregation, in particular for having a breakdown by service product.

15.59. As indicated above, output²⁵⁹ is a preferred variable considering mode 3 supply of services. Output is a superior and more refined measure than sales for most purposes and is recommended as the preferred variable for compilation. Following the 2008 SNA, *output* differs from sales mainly because it includes changes in stocks of finished goods and work-in-progress. In general, these considerations do not apply to services. There are also differences in measurement applicable to wholesale and retail trade, insurance, and financial services industries. For affiliates in wholesale and retail trade, insurance, and finance, sales may include non-service elements or may exclude the value of services provided without an explicit charge.

15.60. For the wholesalers and retailers, their output of services should be measured as trade margins—wholesale or retail sales of goods or services less the goods and services purchased for resale. While not in the core list of variables to compile, and even though it is only mentioned as a suggestion for compilation in MSITS 2010 (paragraph 4.65), compilers will need to make sure that data on purchases of goods and services for resale in the same condition as received are collected or can be estimated.

15.61. For insurance, international economic accounting guidelines recommend measuring output as gross premiums earned plus premium supplements minus estimated claims incurred (either estimated claims or benefits due) and, in the case of life insurance, minus the net increase in life insurance actuarial reserves. For financial intermediaries, in addition to the explicit fees charged, compilers should include a measure of implicit service fees as well as financial intermediation services indirectly measured.

15.62. In general, output statistics can be compiled directly from data collected (i.e. services sales or turnover) or extracted from existing sources, making necessary adjustments and taking the above points into account. The latter may entail that additional data collections, data from outside sources, and estimation methodologies must be used. The suggested practice is as follows:

- i. Output is the preferred measure, but sales/turnover is easier to compile as a first step and may offer more options for disaggregation. For wholesale and retail trade, insurance, and finance, some additional calculations are needed to compile output.
- ii. Activity/product breakdown²⁶⁰:
 - a. Output or sales/turnover should first be compiled by activity.
 - b. A breakdown of output or sales/turnover into total goods and total services products for each activity should be provided.
 - c. As a long term goal, compilers should strive to produce product detail, if possible compatible with EBOPS2010.
- iii. Output or sales/turnover should not only be broken down by country of UCI for inward or by establishment of affiliates for outward, but a distinction should be made as to the output actually delivered to clients in the host economy. This is further elaborated in the section on trade variables.

E.2. Example of United States

²⁵⁹ Output can be valued at producer or basic prices. The latter is generally preferred.

²⁶⁰ More information on breakdowns by partner or service activity and products is provided in relevant sections under E.

15.63. The U.S. BEA compiles data on sales/turnover by industry, with a distinction between sales of goods and sales of services for each industry. To estimate the output of wholesale and retail trade, insurance, and finance, the BEA initiated new data collections, developed new compilation methodologies, and identified data from other sources.

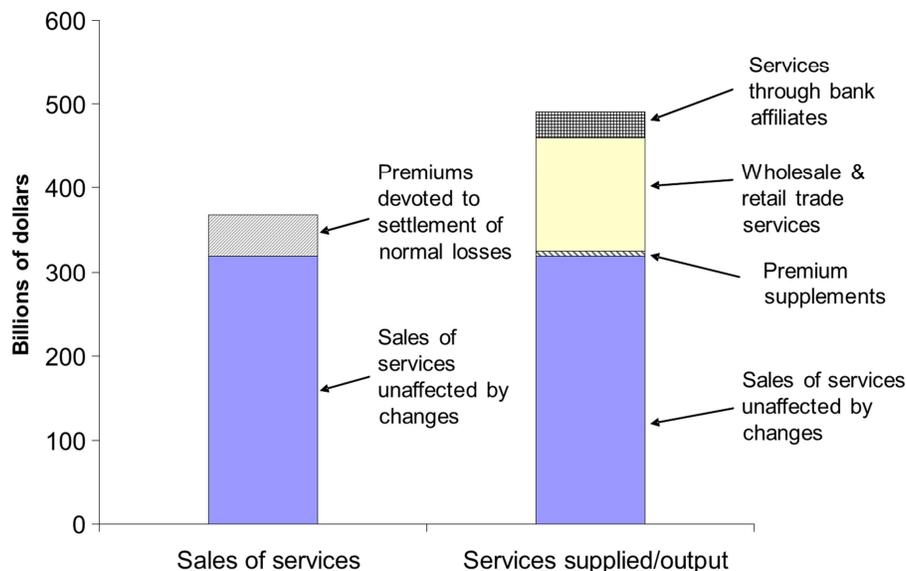
15.64. To construct estimates of distributive services supplied through affiliates, the U.S. BEA collects data on the cost of goods sold and the beginning- and end-of-year inventories of the goods for resale on its censuses of FATS, which are conducted every five years.²⁶¹ In between its censuses, BEA uses data on the domestic wholesale and retail trade industries to produce estimates of distributive services supplied through affiliates (based on movements in trade margins).

15.65. To estimate the value of insurance output supplied through affiliates, the U.S. BEA deducts “normal” losses—a proxy for insurers’ expectations—from premiums earned. To do so it uses data collected on its FATS surveys on the premiums earned and losses paid by majority-owned affiliates with operations in insurance. BEA uses a six-year moving average of the relationship between premiums earned and losses paid to estimate normal losses. When it first introduced this compilation method, to avoid having to wait until 6 years of data had been collected on premiums and losses, BEA used data on the relationship between premiums and losses from the domestic insurance industry and gradually replaced them with data collected from affiliates. In addition, information collected on investment income of majority-owned affiliates with operations in insurance collected on its FATS surveys are combined with data on the domestic insurance industry to estimate the value of investment income earned on technical reserves (i.e. premium supplements). This is done using data on the domestic insurance industry to calculate the share of total investment income that is income on technical reserves and applying this share to affiliates’ investment income to derive an estimate of premium supplements.²⁶²

²⁶¹ Originally the data were collected through the annual surveys but moved to collecting only on benchmarks to reduce burden on reporters and BEA resources.

²⁶² BEA uses data from a global credit rating agency which has a focus on the insurance industry. It breaks out total investment income earned by the domestic insurance industry into categories, including one called “investment gains on funds attributable to insurance transactions”—that is, on their technical reserves. BEA takes the percentage that this category accounts for in total investment income and multiplies this by the investment income attributable to insurance for the affiliates to derive their premium supplements. The break out by destination is used to define the destination of their sales of services.

Figure 15.2 Impact of compilation of services output by U.S. Affiliates of Foreign multinational enterprises, 2002



15.66. The U.S. BEA collects and compiles FATS data for banks. It constructs its estimates for financial intermediaries based on data collected on both banks' explicit fees and services charges, and on their total interest paid and received to estimate the value of output by affiliates in banking.

15.67. The impact of the compilation of output /supply of services as opposed to sales of services by foreign affiliates in the United States (inward FATS) is illustrated in the chart below. Although the impact may differ from one country to the other, it is interesting to note that using the more refined variable output to measure the supply of services through mode 3 may substantially change the picture as compared to the use of sales/turnover of services. The example below shows that the preferred measure of output increases by almost one third the estimate for mode 3 supply of services as opposed to data on sales of services.

E.3. Value added

15.68. Value added (in services production) is also a variable of interest for analysing the impact of mode 3 of services supply. The 2008 SNA defines the gross value added of an establishment, enterprise, industry or sector as the amount by which the value of the outputs produced exceeds the value of the intermediate inputs consumed. A related concept—net value added—is defined as gross value added less the consumption of fixed capital.²⁶³ Gross value added can provide information about the contribution of foreign affiliates to the gross domestic product of a host country, both in the aggregate and in specific industries. Gross value added receives higher priority than net value added and is often easier to compute because it does not require estimation of capital consumption.

15.69. Value added cannot be directly observed from accounting records. Two ways are available to derive value added. First, as gross output (revenue) less its intermediate inputs or consumption (purchased goods and services used in production). The valuation of value added is linked to the gross output. Second, value added can be derived as the costs incurred (except for intermediate inputs) and

²⁶³ SNA 2008, paragraph 6.74.

profits earned in production. Costs generally fall into four categories: compensation of employees, net interest paid, taxes on production and imports, and the costs of capital consumed in production. Alternatively it can be calculated from gross operating surplus by adding personnel costs. Choosing one or the other method of computation will depend on the availability of data, as well as the method used to compute value added in national business statistics. For inward FATS, value added will often be easily derived from information available from regular industrial or enterprise surveys, but for outward FATS, value added will often have to be derived from various variables collected in FATS (or FDI) surveys.

15.70. The valuation of value added will depend on the valuation of output (basic prices or producer prices) while intermediate inputs are always valued at purchasers' prices. Alternatively, value added can be valued at factor cost. For more information see 2008 SNA, 2.65.

E.4. Trade variables

15.71. International goods and services transactions of foreign affiliates constitute another basic indicator of activity. As previously described, on the exports side this variable is related to the sales/turnover or output variables. Imports are a part of the purchase of goods and services. MSITS 2010 recommends that the trade variables reflect international trade in goods and services between residents and non-residents, i.e. are compiled on a balance of payments basis. It should be noted that, for the above definitions to be applicable to both inward and outward FATS, the concept of 'residents' has to be interpreted in different ways. While for inward FATS, 'residents' refers to the compiling country where the foreign affiliate is resident, for outward FATS it is defined as the host country where the foreign affiliate is located.

15.72. Ideally, data would need to be compiled for exports and imports for each activity and economy of operation of the affiliate (for outward) or UCI (for inward), by type of product for goods and services (with a particular focus on services given the interest of this information for services trade negotiations/analysis), as well as the origin or destination of the international trade conducted by the affiliate with a distinction between trade with related enterprises and trade with unrelated parties.²⁶⁴ This is a complex dataset to build.²⁶⁵ But beyond the specific focus on services provided by MSITS 2010, there is a strong interest for such information for the analysis of globalisation and more particularly on global value chains and trade in value added.

15.73. As outlined in the section on sales/output, for measuring mode 3, having an estimation of total services (separated from total goods) that are sold by affiliates to entities in the economy of establishment separated from total services (and total goods) that are exported outside the country of establishment would provide useful and often sufficient information from the perspective of the measurement of the international supply of services. The compilation of such variables could be done if this distinction is possible in the data sources (most likely for the sales/turnover variable), both for inward and outward FATS.

15.74. In the broader context of globalisation analysis, more information could be considered for the compilation of these variables. This would mean having total goods and total services broken down as follows:

- i. Exports and imports of affiliates with parent enterprise.
- ii. Exports and imports of affiliates with other related enterprises (in third countries, without distinction)

²⁶⁴ The distinction between related and unrelated parties is made according to the definitions used in FDI statistics.

²⁶⁵ It is also important to note that exports and imports cannot normally be isolated in standard company accounts.

- iii. Exports and imports of affiliates with unrelated parties in the country of the parent enterprise and third countries (without distinction between third countries).

The compilation of such variables could be done for exports in the same line as described above, that is if the distinction is possible in the data sources for the sales/turnover variable, both for inward and outward FATS. However, for imports one would need to develop appropriate questions so that the information necessary for the compilation of these variables is available.

15.75. The possibilities for the compilation of the more detailed product-origin/destination of trade breakdown will largely depend on the sources used to obtain the data. Data could be derived from information provided by reporting units in sources used for FATS (see section 15.C), whether business activity surveys (only for inward), FATS or FDI surveys. However, these approaches may require a significant increase in the level of detail requested from reporting units, which is something compilers must consider before pursuing one of these approaches. If relevant, some separate questionnaires could be used to collect the details, in particular for the larger companies for which affiliates are more likely to conduct international trade.

15.76. However, linking information with balance of payments trade in goods (or merchandise) and services data could ensure that these additional detailed statistics can be compiled. This can be implemented for inward FATS.²⁶⁶ When the data are obtained through linkages with primary data sources for balance of payments transactions, breakdowns by product and by origin or destination will often be possible. If this is the case, exports and imports of services (or goods) may be disaggregated, not only by the primary activity of the affiliate according to ICFA Rev.1 but also by product, on a basis compatible with EBOPS 2010.²⁶⁷ However, to be able to do this the compiler needs to be able to distinguish in the balance of payments data the transactions between related and unrelated parties. For services this is in line with the text provided in MSITS 2010 paragraph 3.56.

15.77. For the inward FATS trade variables, relevant information could be obtained through the linking of trade and business statistics, such as the in the context of the Services Trade by Enterprise Characteristics (STEC) that some countries have been developing in recent years. STEC describe trade flows between countries broken down by the characteristics of traders such as type of trader, activity sector, size class, or type of ownership²⁶⁸. The latter variable would be of particular interest to establish this link with the FATS trade variables and therefore produce relevant breakdowns as described above²⁶⁹.

15.78. Compilers should be mindful of the high burden for reporting and compiling this information when considering the production of data for the trade variables. Consequently, it is advised to approach this in stages:

- i. First produce data to measure mode 3, by distinguishing for each activity (or services product if this is available) between sales or output of services in the country of the affiliate from services exported.

²⁶⁶ If merchandise data are used as a source instead of goods, then compilers need to make necessary adjustments to comply with the recommendations regarding resident-nonresident transactions in goods. If this is not possible, then the differences in concept should be clearly documented. See MSITS 2010 Box III.1 or EU FATS Recommendations Manual for further information. The OECD HEGI Chapter 5 also provides useful information with respect to the measurement of intra-firm trade.

²⁶⁷ Naturally a similar consideration can also be made for goods/merchandise.

²⁶⁸ External trade by Enterprise Characteristics, European Communities, 2007

²⁶⁹ Precondition for establishing TEC statistics are the availability of business and trade registers in a country.

Through linking both, normally at the level of statistical unit (legal unit) and a common identifier, trade flows can be associated to trader characteristics. For reliable statistics, a high matching rate between records in the linked datasets is required.

- ii. Compile in a second stage trade variables, breaking down the exports and imports data into (i) total goods and total services (ii) trade with the parent enterprises, other affiliated enterprises and unaffiliated parties (iii) trade with the country of the parent enterprise and with third countries.
- iii. In a third stage compile the more detailed information by product (group) and by country.

Synergies should be found for the production of detailed data for the trade variables, in particular for inward FATS, e.g. STEC.

15.79. In the European Union for outward FATS, two sets of trade variables are suggested for compilation (subject to pilot studies): "exports and imports of goods and services" and "intra-group exports and imports of goods and services", intra-group referring to trade between enterprises controlled by the same unit, and the controlling unit itself. The recommendations/definitions provided are in line with those of MSITS2010 and related guidelines (BD4, HEGI). The EU FATS Recommendations Manual also provides additional clarifications as to the trade conducted by foreign affiliates: "Exports/imports of goods and services can be performed directly by the foreign affiliate or indirectly by means of other firms, such as wholesalers, that are resident in the same country and act on behalf of the foreign affiliate. In this latter case no property right transaction must occur between resident firms.

E.5. Employment

15.80. The MSITS 2010 recommends measuring the number of persons on the payroll of foreign affiliates, whether full-time or part-time. The enumeration should specify the period covered (such as an annual average), or, in the absence of strong seasonal or other fluctuations, a point in time, such as the end of the year. The compilation of this variable should generally follow the national practices. Although data on a full-time equivalent basis would be preferable, given that this measure is not widely available, MSITS 2010 recommends that data on the number of persons employed is compiled (i.e. inclusive of employees, working proprietors).²⁷⁰ To serve the information needs for mode 4, a useful extension would be the separate identification of employment of non-residents of the compiling economy working for the affiliate, of which those that are intra-corporate transferees (i.e. employees transferred between affiliated enterprises).

15.81. Data on employment can be derived from the information collected through FDI or FATS surveys, or from business statistics (for inward). Again, it could be possible to derive the data by linking to other data sources, such as administrative sources, by using common company identifiers. Data should be compiled as a period average, but in the absence of strong seasonal and other fluctuations it may be compiled at a certain point in time (e.g., end of the year). The data should be derived from information that is generally readily available from company accounts.

E.6. Number of enterprises

15.82. The preferred measure is number of enterprises, but data should reflect the number of statistical units, that is enterprises or establishments, which correspond to the data described for other variables. It is a basic indicator of the prevalence of control by foreigners in the host economy. It should be made clear that the enterprises to be taken into account in these statistics are those with a genuine economic activity. Firms which have no activity, but simply set up an office in a country for the purpose of transferring funds or taking advantage of certain tax breaks, should be excluded from this category of data.

²⁷⁰ Although not recommended in MSITS 2010 other measures may also be compiled in order to cover important needs, in particular "hours worked" (SNA 2008, paragraph 19.78) which are relevant in the context of the measurement of productivity.

15.83. Although the data compilation of this variable is considered as a by-product of the FATS data collection and compilation, a number of considerations need to be taken into account, such as determining if units have been active during the period under consideration. In addition, the number is likely to be affected, often significantly, by the level of company consolidation and by thresholds for reporting on surveys.²⁷¹ Given that for outward FATS the data will often be reported by one unit on behalf of a group of affiliates (e.g. country head office, regional office), it is important to ensure that data are reported and compiled on a non-consolidated basis. Consequently, to avoid any problem of interpretation that there may be if data do not reflect the above principles, it is important that any deviation is clearly documented in available metadata. . Whatever measure is retained, to assist users in interpreting counts of units (whether enterprises or establishments), compilers are also encouraged to document how the numbers were derived.

15.84. The EU FATS Recommendations Manual provides further indications as to how this item could be compiled. It states that "only active units which had turnover or employment at any time during the reference period should be included. Dormant (temporarily inactive) and inactive units are excluded. This statistic should include all units active during at least a part of the reference period." It also indicates that not only separate legal entities which are dependent on foreign enterprises but also "local units (branches) which do not constitute a separate legal entity and which are dependent on foreign enterprises ..." should also be included. In other words if they are considered as branches (i.e. they meet the branch criterion, see for example chapter 14 on construction) then their operations in the country of establishment should be reflected in FATS, and they should be counted. But if they do not then these operations should not be accounted for in FATS.²⁷² It also states that in the context of outward FATS the number of enterprises is a characteristic that in principle is obtained by counting the units in the target population, although in practice there can be collection problems when a resident parent enterprise supplies information on the activity of many affiliates abroad. The respondent may, for example, tend to group affiliates located in the same foreign country as a single enterprise.

E.7. Other FATS variables

15.85. Other FATS variables may, for certain countries, hold equal or even greater importance than some of the priority variables as described in MSITS 2010. The list of additional variables provided in MSITS2010 is the following: assets,²⁷³ compensation of employees, net worth, net operating surplus, gross fixed capital formation, taxes on income, research and development expenditures²⁷⁴ and purchases of goods and services. For some of these variables, data are already being compiled by some countries in their business statistics, national accounts, etc. The definitions of these variables are provided in MSITS 2010 (paragraph 4.65). These definitions are drawn from the 2008 SNA, which may be consulted for additional information.

15.86. Data are usually derived directly from information collected, with necessary adjustments to the statistical process. This means that the production of such data will necessarily entail an increase in the reporting burden of respondents (except for inward FATS if data are derived from existing data collected

²⁷¹ Note that HEGI also recommends the compilation of the number of consolidated enterprises. See HEGI paragraph 267 for more information.

²⁷² And its sales will be recorded as imports/exports under the relevant BoP services item.

²⁷³ Often referred to as the "balance sheet total." The OECD was at the time of writing working on the issue of linking (real) economic variables from FATS with financial variables from balance sheets and income accounts. See *Harmonisation and integration of financial and economic measures of multinational enterprises - Final report*, OECD working Group on International Investment Statistics, March 2013, DAF/INV/STAT(2011)10/FINAL.

²⁷⁴ This variable is important as FDI is deemed to be a source of technology transfer. Note that the OECD Handbook on Economic Globalisation Indicators also suggests "Technology payments and receipts." More related information on R&D definitions, etc., may be found in the Frascati Manual.

on business statistics). Only one of the additional variables listed in MSITS 2010, purchases of goods and services (intermediate consumption), can be directly derived from the basic measures recommended for compilation. It can be derived from gross output and gross value added if intermediate consumption cannot be collected directly.²⁷⁵

15.87. The list of additional variables and their definitions will also depend on those used in the compilation of national business statistics and national accounts. In general, the practice is to compile most of these additional items for inward FATS rather than outward, at least in the first stages of development of the framework at the national level. The choice for compiling additional variables will depend on the priorities and feasibilities in a given country. If the data for inward FATS are derived from the source used for structural business statistics, then the list of variables will most likely be driven by what is included in it. Countries could also provide variables that are not listed in MSITS2010 or in other international guidelines, but that are of interest in that country.

E.8. Country experience: Vietnam

15.88. In Vietnam data on foreign direct investment enterprises are collected and compiled through an Annual Enterprises Survey (AES) conducted by the General Statistics Office (GSO) since 2003. AES cover all FDI enterprises in Vietnam. According to the results of Establishment Census 2012, number of FDI enterprises is 9500. The separation out of FATS enterprises from the list of FDI enterprises could be presented using the criterion of over 50% foreign ownership.

15.89. The statistical unit of the inward FATS statistics in Vietnam is the *enterprise*. Twelve inward FATS variables can be obtained from the Annual Enterprise Survey data. The FATS variables which are presently collected by the Annual Enterprise Survey include: basic variables such as sales, turnover, output, employment, and additional variables such as: assets; net worth, operating surplus, gross fixed capital formation, taxes on income; R&D expenditure, compensation of employees. Beside these variables, some more detailed indicators of main activity of FATS enterprises can be also compiled based on the data filled in questionnaire of result on main activity as manufacturing, construction, distribution, transportation, financial services, insurance and some others. All above variables can be compiled, are published annually comprising different detailed tables breakdown by country/kind of activity; kind of activity/country.

15.90. Data on exported and imported goods are collected from the Customs resource through matching customs database and enterprises survey database based on the tax code of each enterprise which is provided by the tax office/register office whenever the enterprises finished all register schedules. The data of service exports and imports of some enterprises are collected through ITS sample survey quarterly/annually.

15.91. The classification of enterprises by type of activity was determined in accordance with the Vietnamese Standard Industry Classification of Economic Activities 2007 (VSIC 2007). The data cover all sectors except Agriculture and forestry.

²⁷⁵ As noted previously, it is also linked to the imports variable.

F. Attribution of FATS variables

15.92. MSITS 2010 recommends that FATS variables are broken down: by activity of affiliates, by type of service rendered and by partner country. Compilation guidelines for these three types of breakdowns are provided below.

F.1. Activity breakdowns

15.93. Although the focus in this Guide is on services, in general the compilation should cover all economic activities (i.e., goods and services activities). The breakdown should be made according to the main activity of enterprises using the ISIC, Rev. 4, or using an activity classification compatible with ISIC Rev.4. This basis of presentation allows activities of services enterprises to be viewed within the context of the activities of all enterprises. In general, it will be easier to produce a more detailed ISIC Rev. 4 breakdown for inwards FATS than it is for outward FATS. Compilers should, at minimum, produce data for the activities that are of importance for their economy or international trade/investment negotiations. In the context of information needs of trade in services negotiations, compilers should aim at distinguishing and providing more details for services activities, and having in mind the categories as suggested in ICFA Rev.1, which is recommended for presenting data alongside the resident/non-resident trade in services data (see Chapter 20).

15.94. The ICFA Rev. 1 categories cover all activities but provide more detail for services than for goods. Annex II on page 149 of MSITS 2010 offers general guidelines. However, if countries are in a position to provide more detail than is presented in annex II, this supplementary breakdown should be compatible with ISIC, Rev.4. A total for services activities should be compiled or estimated to better respond to information needs on the international supply of services. It is important to note that a presentation by activity will show data for variables according to the primary activity of enterprises. Because a given firm will often have secondary activities in industries other than the activity of their primary classification, the value recorded for any given activity must be interpreted as an indication of the total activity of enterprises for which the given activity is the most important, rather than as a precise measure of the value of that activity itself. This needs to be made clear to users (i.e. metadata).

15.95. Compiling data for some activities may sometimes be challenging, in particular if not covered in the data sources, or given the difficulty to gather information for particular industries (e.g., financial activities). This is particularly true for inward FATS in that if structural business data are used as a source, then some activities may not be covered, such as agriculture or some personal or social services. In this case compilers should derive this information from other sources or estimate the variables for these particular sectors. Alternatively, at least as a starting point, compilers may wish to concentrate solely on (services) activities of importance to their economy.

15.96. The activity breakdown should follow the activity of the "affiliate enterprise." For inward FATS, the activity of the resident affiliate should be used. Frequently for outward FATS, the activity of the resident investor is *incorrectly* used by compilers as an approximation for the activity of the affiliate. Assigning an activity code - contrary to a widespread misconception - is not an easy task. For outward FATS the only way to compile the information is by using information obtained directly from the respondent. In order to compile information on activity breakdowns, the compilers are encouraged to find out if affiliates are engaged in production, trade or any other service activity; be able to assign at least 2-digit ISIC codes; and obtain a verbal description of the activity. This should be obtained through the data collection process (see chapter 6). By carefully assessing this information along with consultation of the internet and public registers, compilers can derive a meaningful allocation of activity. While this procedure is burdensome at the time the affiliate is initially accounted for, the information typically will not need to be compiled again for a number of years.

F.2. Particular treatment for certain activities

15.97. The specific treatment of wholesale and retail trade; and finance, and insurance enterprises was described in Section E.1, as it mainly related to the variables sales/turnover and output. Particular attention should also be paid to other activities relating to enterprises operating ships and other mobile equipment, as well as some leasing arrangements.²⁷⁶ Compilers need to pay particular attention to the treatment of construction activities with no subsidiary or branch clearly identified in the country where the construction project is taking place particularly when some large-scale projects have operations that are not substantial enough for the entity in the host country to qualify as a branch. A consistent treatment with the balance of payments/trade in services or national accounts statistics should be applied. The criteria for recognizing if activities are substantial are described in Chapter 14. If it is identified that these criteria are met, then the operations of the activities of this unit should be recorded in the FATS framework. In that context, compilers may find it difficult to gather the necessary data, and may need to turn to alternative data sources or establish new data sources (for example in co-operation with resident-nonresident trade in services statisticians, see Chapter 6 for more information).

15.98. This Guide advises to compile information for all economic activities, with details classified using ISIC Rev.4. The activity breakdown should follow the activity of the "affiliate enterprise" for both inward and outward FATS. Given the needs for trade in services negotiations, compilers should aim at distinguishing and providing more details for services activities, keeping in mind the ICFA Rev.1 presentation and at compiling a total for services activities.

F.3. Secondary activities and compilation of a breakdown by product for sales/turnover, output and trade variables

15.99. As outlined above, MSITS 2010 recommends that FATS variables be classified by the activity of the affiliate according to ISIC Rev. 4. Details should be produced having in mind ICFA, Rev.1 and its more detailed breakdown for services (see above section). Using ICFA Rev.1 for presentation purposes allows activities of services enterprises to be viewed within the context of the activities of all enterprises and provides a link for the presentation of services FATS data and resident/non-resident trade in services data. Within the context of this Guide there is an additional interest in compiling information on services produced as secondary activities of enterprises, i.e., services produced by enterprises primarily engaged in goods producing activities (e.g. agriculture, manufacturing).²⁷⁷ For example, services supplied by enterprises primarily engaged in manufacturing activities may be of particular interest in the context of the supply of manufacturing services on physical inputs owned by others. Besides providing a bridge with the EBOPS 2010 classification primarily used to classify resident/non-resident transactions, ICFA Rev. 1 provides a framework for displaying services produced as a secondary activity by enterprises classified as goods producers.²⁷⁸

15.100. In this context, and as a longer-term goal, MSITS 2010 encourages compilers to work towards disaggregating some of the variables by product—including sales (turnover), output, exports and imports. This is the type of information that would be of most interest for trade negotiators and analysts. If implemented for services, this should be done using a product classification system compatible with EBOPS 2010. Product-based statistics are more likely to be free of problems of interpretation related to secondary activities and are consistent with the basis on which GATS commitments are made and with the basis of classification used for trade between residents and non-residents. In addition such a

²⁷⁶ See also section D.3 on the treatment of special purpose entities in FATS.

²⁷⁷ There is also interest more generally in knowing which services activities produce goods, in what proportion etc.

²⁷⁸ Establishing a correspondence between the two bases of classification may in particular be useful, for activities that tend to be carried out only by enterprises that are specialized in the activity and generally do not engage in significant secondary activities.

compilation practice is important to achieve because goods-producing industries can be important suppliers of services.

15.101. MSITS 2010 and this Guide recognize that this may be a difficult task, in particular with respect to the data collection as it will necessarily increase substantially the reporting burden for respondents as well as the compilation work. MSITS 2010 recognizes this and encourages compilers in a first step to at least achieve for output (or sales) a breakdown between total goods and total services for each activity. Such a solution, while providing more relevant data to users, would imply fewer burdens for respondents/compilers than establishing a more detailed breakdown by product. This would be much easier to implement, however, to achieve this compilers need to ensure that such a breakdown is feasible or can be derived from the data sources. Some countries have been able to produce such data because the information (or estimates) on sales of goods and sales of services was gathered through the data sources used to collect FATS. It is also important to note that the investment income element should be separated out from sales of services (and goods).

15.102. In structural business surveys, information is often requested on turnover with a breakdown in a number of goods and services product groups. Consequently, if inward FATS are compiled using this source, then a further breakdown of sales (or output) of services can be established or could be easily estimated. Similarly, this could be achieved for the trade variables if they are included in the survey.

15.103. As described in section E.3, for the trade variables a breakdown by product may be derived from information provided by reporting units in sources used for FATS, whether business activity surveys (only for inward), FATS or FDI surveys. However, linking information with balance of payments trade in goods (or merchandise) and services data could ensure that additional more detailed statistics can be compiled. Section E.3 further describes the possibilities offered by this linking exercise. Data obtained through this work could also help in first steps to estimate a more detailed breakdown of output or turnover, in particular if enterprises are (services) export oriented, or if it is assumed that the pattern of (services) exports by product is similar to that of (services) sales or output in the host economy.

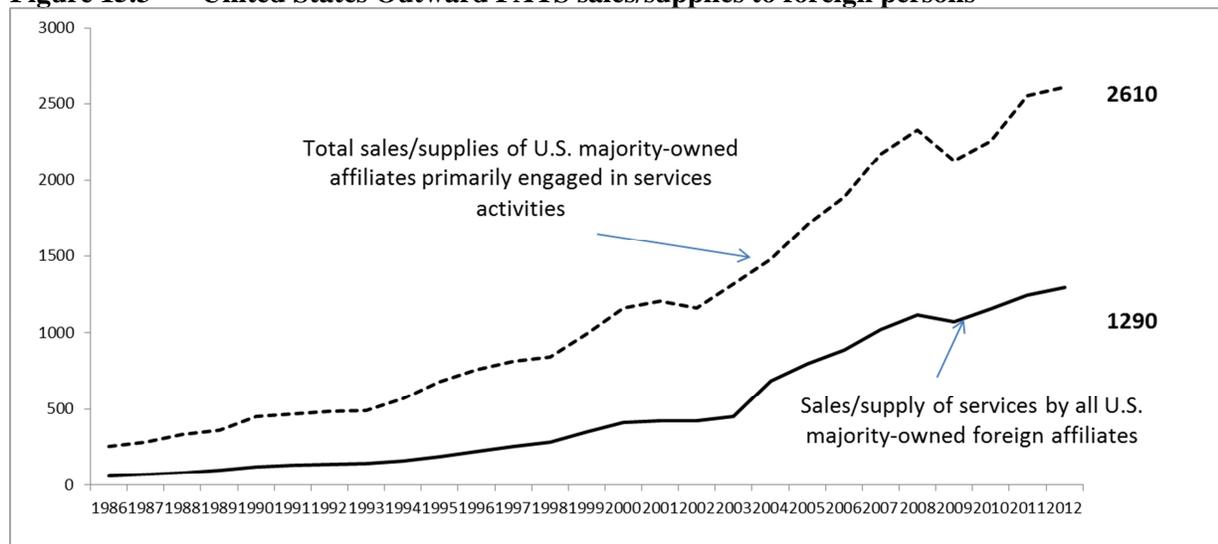
15.104. It is advised that a breakdown by (service) product of output and/or sales or turnover be derived, as well as trade variables from data sources (e.g. breakdown in FDI or FATS surveys, or for inward FATS structural business surveys). Given the difficulty to produce a breakdown by product, for each activity countries are encouraged to at least compile a breakdown of output or turnover into sales of goods and sales of services (excluding investment income). For trade variables, it is considered a good practice to investigate possibilities offered for linking FATS and resident/non-resident trade in services statistics in order to develop a breakdown.

F.4. Country practices: United States

15.105. The U.S. BEA compiles data on output by industry, with a distinction between goods, services, and investment income for each industry. It can do so through the collection of such a breakdown of sales in its FATS surveys. As described above, it then makes a number of adjustments for some industries to arrive at the concept of supply (i.e., output) of services. A product type of breakdown, at least distinguishing total services from total goods sales for each industry is an important achievement for trade analysis and beyond. In particular enterprises primarily engaged in the production of goods may be important services suppliers. As illustrated in Figure 15.3, being able to produce such a dataset enables the United States to have a better sense of the actual services supplied to foreign markets, as compared to the total sales (i.e., of goods and services) of foreign affiliates of U.S. multinational enterprises engaged in services activities. At the total services level, i.e. activities versus products, the approaches show very different results. The main factors behind these differences are the fact that sales of goods are removed for services producing enterprises (the biggest activity contributing to this difference being wholesale and retail trade) and services produced by goods producing enterprises are included. For 2012, data show total

sales/supplies of firms engaged in services activities 2 times higher than total sales of services/supply products by all firms.

Figure 15.3 United States Outward FATS sales/supplies to foreign persons



For total sales/supplies of firms primarily engaged in services activities: beginning in 1999, industry classification based on NAICS rather than SIC. Beginning in 2009 sales by bank affiliates and by the nonbank affiliates of U.S. banks are included in the statistics. For 2009-2012, values for goods and services supplied by majority-owned foreign affiliates in services industries to all foreign countries are used. For 1986-2008, values for total sales by majority-owned foreign affiliates in services industries to all foreign countries are used. Total sales are comprised of 3 components: goods supplied, services supplied, and investment income. In the 5 years leading up to 2009, investment income accounted on average for 3% of total sales.

For sales/supply of services products, beginning in 1999, sales by foreign affiliates were classified as goods or services based on industry codes derived from NAICS rather than the SIC system, which resulted in a redefinition of sales of services and a net shift of sales from goods to services. See SURVEY 81 (November 2001). Beginning in 2004, services provided by bank affiliates and by the nonbank affiliates of U.S. banks are included in the statistics. Also beginning in 2004, the statistics are presented as "services supplied" (equivalent to services output) rather than "sales of services." Compared with sales of services, services supplied adds 1) wholesalers' and retailers' distributive services, 2) insurers' premium supplements, and 3) banks' implicitly-charged services; it subtracts a proxy measure of insurers' expected losses. For more information, see SURVEY 89 (October 2009).

F.5. UCI and partner country

15.106. Determining the country of the ultimate controlling institutional (UCI) is the most important task in the FATS compilation work. The UCI is the recommended basis for classification by country for inward FATS, but it is also relevant in some respects for outward FATS. (See MSITS 2010 Box IV.2 and Chapter 1, Section C of this Guide).

15.107. Although many countries were able to implement this concept, it may be difficult to define control relationships using the criteria as defined in international guidelines. Some countries have used the percentage of equity shares as a first estimation of the percentage of control of the voting power. In this context compilers should note that large enterprises usually have complicated structures. Small and medium-sized enterprises (SMEs) tend to have simple structures, and the immediate controller is often the ultimate controller. However when there is indirect control the UCI may be more difficult to identify.

15.108. *Compiling inward FATS*. For inward FATS, variables for a given affiliate are attributed in their entirety to a single country of control. As descriptors of the operations of affiliates, they should not be factored down by share of ownership of voting power (or equity). Nor are the values of the variables to be apportioned between the controlling enterprise and any foreign minority owners of voting power.

15.109. Data on the UCI should be directly available as a by-product of FDI statistics.²⁷⁹ Alternatively information on the UCI can also be drawn from the FATS or other data sources, or derived from a combination of sources and/or registers. If the UCI cannot be extracted directly from existing data, the decision about the UCI should be based on a step-by-step analysis of control relationships up the ownership chain in the enterprise group. MSITS 2010, BD4 and HEGI suggest some factors that could be used to decide how to define the country of the UCI for specific examples, in particular in the case of a group of affiliated investors, (i.e. determining the status of the different investors, e.g. direct relationships vs. indirect, government entities, SPEs etc.).

15.110. MSITS 2010 concludes that in the absence of any such factor that could be used as a basis of attribution, the value of FATS variables may be allocated evenly among the foreign countries of control. However, data so allocated may pose problems of interpretation, and efforts should first be made to determine a basis for allocation to a single country. See MSITS 2010 section H.1 for more information. The Eurostat FATS Recommendations Manual provides useful additional considerations on the determination of the UCI. If necessary, it is advisable to check with important partners about how the decision on the UCI has been achieved for bigger players. This can in particular be relevant at the regional level, where a multinational enterprise may have established an affiliate/regional headquarters in one country which controls affiliates in other countries of the region.

15.111. Frequently, the first foreign parent and the ultimate investor are the same. Although for inward FATS the recommendation is to allocate data to the country of the UCI as a first priority, in practice this may be something difficult to achieve, in particular in the initial stages of development of a FATS national compilation framework. In practice, many economies initially developed their inward FATS classifying information on the basis of the immediate controlling country, before moving to a classification according to the country of the UCI. This guide proposes such an approach for the compilers that are not able to determine the UCI when they start compiling FATS. In fact, that information on immediate controllers are available by referring to FDI data. If FATS entities are identified through linkages with FDI data or collected directly on FDI surveys, data on the country of immediate foreign parent should be readily available. To facilitate comparisons with those data, MSITS 2010 encourages compilers to make available some data classified by the country of the first foreign parent on a supplementary basis.²⁸⁰ However, in light of the relevance of the ultimate-controller basis and the demonstration by a number of countries that compilation on this basis is feasible, this Guide advise to compile data on an ultimate controller basis as soon as achievable (i.e., as data sources, linking procedures or compilation procedures permit).²⁸¹

²⁷⁹ BD4 "strongly encourages" reallocation of all FDI positions (voting power of 10% or more) to the country of the UCP of the direct investor. To the extent that the UCPs of all direct investors in resident enterprises are identified, the UCPs of those direct investors with controlling interests in residents will be available. In order to apply the directional principle, FDI statistics will identify whether the resident direct investment enterprise has a foreign or domestic ultimate controlling parent (noting that this parent will be controlled by itself and so will have a resident ultimate parent if there are no controlling links above it).

²⁸⁰ As a matter of comparison, BD4 encourages that supplemental inward FDI position statistics be compiled on an ultimate investing country (UIC), and the corresponding industry sector..

²⁸¹ Identification of the UCI can also be used to identify cases of round-tripping in inward FATS statistics. Round-tripping refers to the channeling abroad by direct investors of local funds that are then subsequently returned to the local economy in the form of direct investment.

15.112. For certain countries, it may be of interest to compile some operations data beyond the control relationship, e.g., for associates (share of control between 10 and 50 per cent). This may be driven by the fact that in these particular countries the law does not allow foreign investors to own a majority equity stake (for all activities, or strategic ones for the compiling economy). In such cases, and if of interest to the compiling economy, information could be compiled on operations, but with separate breakdowns for the activities of majority-controlled affiliates (over 50 per cent owned, i.e. FATS) and minority owned affiliates (e.g. 10 to 50 per cent).²⁸² However, a clear distinction should be made between both datasets in order that users are informed as to differences with international guidelines.

15.113. *Compiling outward FATS.* Outward FATS are statistics on foreign affiliates controlled by residents of the compiling economy and should include all controlled foreign affiliates, regardless of whether the control in the affiliate is held directly or indirectly through a chain of ownership and regardless of whether the direct investor in the compiling economy is the UCI unit or is, instead, an intermediate investor in an ownership chain. The data should be allocated to the country where the operations of the affiliate are taking place.²⁸³ It is consistent with the treatment of foreign-controlled enterprises in the 2008 SNA, in that the value added in production by the enterprise is attributed in all cases to the economy of location of the enterprise. In other words, it is included in the GDP of the economy where the enterprise is located. In addition variables should not be apportioned according to the level of control (e.g. 100% of sales should be reported, even if the mother companies controls less than 100% of the voting power).

15.114. However, because the activities of an affiliate held through an ownership chain could be recorded in the FATS of both the ultimate and the intermediate investors, and in order to facilitate international aggregation without double counting, compilers are strongly encouraged to identify the aggregate share of FATS variables accounted for by enterprises for which the compiling country is the ultimate controller. Of particular interest will be data on this set of foreign affiliates belonging to ultimate investors resident in the compiling economy. See section G for more information on UCI and regional aggregations.

15.115. It is advised that FATS data should be attributed geographically as a first priority to the economy of the UCI unit for inward FATS and to the economy where affiliates' operations are taking place for outward FATS. If control relationships cannot be clearly established, compilers should adopt a step by step approach to determine them. For big players it is a good practice to investigate ways to coordinate with compilers in major counterparty countries. This Guide *further advises* that ownership of 50% or more of equity shares could be used in the compilation process as an approximation to determine control. However compilers should aim at working on the basis of control relationships. Although the first priority for inward FATS is to allocate variables to the UCI, in first instances compilers can consider producing data according to the country of the immediate controller. In fact this is suggested as a supplementary dataset in MSITS 2010. Outward FATS should be compiled for all affiliates controlled by enterprises resident in the compiling economy. For reporting to regional/international organisations, outward FATS data should also be compiled for the subset of affiliates of UCIs of the compiler's economy (i.e. controlling units in the compiling economy that are not themselves controlled from abroad).

15.116. *European Union.* Identifying the UCI plays a crucial role as all data for foreign affiliates under direct or indirect control should be attributed to the country of the UCI. If the information on the UCI is

²⁸² It is important to note that for the latter this will lead to double counting when comparing with data compiled by other countries.

²⁸³ This is in contrast to the guidelines for FDI. According to BD4, if the ownership is through a directly held affiliate located in another country, the variables should be attributed to the country of that affiliate. BD4 included in its research agenda the presentation of FDI positions by the country where the affiliate is located (ultimate host country). Because of the difficulties in tracking financial flows from the immediate counterparty to the ultimate destination, most countries only present FDI data attributed to the immediate counterparty.

not available from the existing data, the European statistics on FATS follows a general rule, which says that the identification of the UCI should be based on a step-by-step analysis of control relationships up the owner chain in the enterprise group. Once the top enterprise of the group is identified, its decision-making ability must be examined.

15.117. An important source for identifying affiliates and allocating them to the UCI should be the future EuroGroups Register (EGR), which, at the time of this writing, is under development. The EGR should cover step-by-step all multinational enterprise groups operating in the European Union. This will help to identify the correct country code of the UCI to which the enterprises belong. With a full and well developed EGR, no double counting or gaps would exist and the same data sets from different compilers would be linked.

G. Regional aggregation

15.118. This section is mainly for compilers of regional/international organisations, but also provides more insights as to the reason why outward FATS data are also needed on a UCI concept (i.e. for outward FATS only data where the parent entity is not itself controlled from abroad), as opposed to a national concept (where all outward FATS are considered whether the mother company is a UCI or not). Indeed in this context data will be compared from one country to another, and in certain cases it will be necessary to compute regional or world aggregates. If all countries apply international guidelines in the same way, in principle, if UCIs are detected in a consistent way, inward FATS data compiled by countries will be duplication free. This will not be the case for outward FATS, as the main recommendation is to compile data on foreign affiliates of all controlling entities established in the compiling economy, whether UCIs or units who are themselves controlled from abroad. However, following international recommendations, compilers should also compile information focusing on affiliates of UCIs of the compiling economy. This is the information that should be used by regional or international organisations when constructing aggregates for outward FATS.

15.119. In producing such aggregates it is important that common rules for collecting and compiling FATS are adopted by the countries participating in the group (i.e., beyond the international agreed definitions). An important aspect to consider when producing these aggregates is the possibility of distinguishing intra-regional FATS from FATS with the rest of the world. To do this, it is necessary that countries compile information according to agreed intra- and extra-regional definitions and/or have the necessary partner country detail. For outward FATS, it is important to use the data compiled by countries referring only to the affiliates of ultimate controlling units of the compiling economy (i.e., foreign affiliates of resident units not themselves controlled by non-residents). A set of guidelines on the basis of international recommendations and the level of detail provided should be established. Finally, it is necessary to ensure that confidentiality of information is still ensured when computing regional aggregates (see the description of the EU experience above).

G.1. European Union Experience

15.120. The legal framework for the provision of foreign affiliate statistics in the European Economic Area (EEA) is the Regulation No. 716/2007 of 20 June 2007. In addition, Eurostat publishes the FATS Recommendations Manual, which provides a common methodological framework on the definitions and concepts to national compilers in order to produce a harmonized set of FATS data across the Member States. Having a comparable set of the FATS data is a pre-condition to compile meaningful, reliable and high-quality European aggregates.

15.121. IFATS and OFATS data are collected from the European Member States, candidate and EFTA countries on an annual basis; data. Data collection has been mandatory starting with the reference year 2007. One of the most important concepts when looking at the European statistics is that FATS should be

compiled according to the UCI concept. The UCI is the institutional unit (enterprise, branch) proceeding up a foreign affiliate's chain of control that is not controlled by another institutional unit (enterprise, branch).

Chapter 16 Compilation of additional indicators on the international supply of services

16.1. *Scope.* The purpose of this chapter is to focus on the compilation of additional indicators on the international supply of services, in particular data on the number of persons/trips relevant to modes 2 and 4, the use of data on services production, prices, employment or sectoral performance indicators. Also, linking of trade and business registers offers the potential for the compilation of new types of data. Section A introduces the general purpose of this chapter and Section B provides a summary of good practices with respect to additional indicators on the international supply of services. Section C contains an overview of the compilation of variables on the movements of natural persons under modes 4 and 2 of supply of services. Section D describes the linking of business and trade registers. Finally, section E lists possible existing additional indicators and the level of detail necessary for a full analysis of services sectors in the context of the international supply of services.

A. Introduction

16.2. While most of this Guide provides good practices for obtaining the value of the international supply of services (i.e., the value of trade in services or sales/output of services of affiliates), trade negotiators and analysts need additional information on the market performance of individual service sectors, such as foreign direct investment flows and stocks, research and development expenditure in affiliates, income flows relating to foreign affiliates active in services sectors, etc. In the same way as there is interest in the monetary and non-monetary measures of merchandise trade, non-monetary information drawn from various quantitative indicators is also important to assess trade commitments and to conduct further in-depth analysis on the international supply of services (e.g., number of modes 4 and 2 persons, number of foreign affiliates established abroad in the context of mode 3, etc.).

16.3. This chapter aims at presenting these additional data items many of which are already defined within other statistical frameworks and may be extracted without additional cost if the level of detail needed is readily available (i.e., the frameworks for foreign affiliates statistics, foreign direct investment statistics, and sectoral statistics; e.g., tourism and education). These additional data items will be further detailed in section E. Linking trade and business registers is also a new line of work that compilers should be aware of, given the potential that such an exercise offers for compiling new sets of data of interest to policy makers with little additional effort or costs (section D).

16.4. However, meeting some user needs requires the development of new data compilation systems, or the extension of existing ones. For example, in the case of mode 2, availability of information on the number of persons/trips (section C.2) who are traveling abroad and consuming services, whether for personal or business reasons, is in high demand. Such extension is even more valid for a variable of greater interest to negotiators and analysts -- the number of persons moving to provide services under arrangements covered by mode 4 (section C.1).

16.5. Knowing how many people are providing services abroad (flows, stocks, as well as the number of associated trips) is very important for analysis of both GATS and international mobility. First, as stated above, like for merchandise trade, it is non-monetary (quantitative) statistics that may usefully complement value data about mode 4 supply of services. Second, given the interest that mode 4 generates amongst officials and research institutions involved in the international supply of services and/or migration issues, quantitative data provide a useful gauge about the relative importance of mode 4 movements of persons within wider economic international mobility. This is why this chapter focuses particularly on mode 4 number of persons and trips. The chapter identifies sources which could be used and elaborates how relevant statistics could be produced. In the context of mode 4, a subset of the

population of business travellers will be of particular interest, but other categories of internationally mobile individuals will also be of relevance.

B. Summary of good practices

16.6. The identification of mode 4 movements and stocks in existing sources is a new area of work. This Guide suggests dealing with this issue in stages. For incoming and outgoing mode 4 movements, compilers have to take into account the needs of users (in particular for categories of primary interest) and various possibilities offered by each data source (and possible drawbacks).

16.7. As a starting point it is suggested to compile rough estimates of the size of mode 4 movements in terms of the number of natural persons or, if easier, to collect data on number of trips. This could be done if appropriate sources are identified, grossed-up or estimated using an appropriate data model. However, the objective is to have more pertinent and detailed data on number of persons. Breakdowns by purpose, type of service supplied, country of origin or destination should be compiled, for inbound and outbound flows and stocks. To enhance the usefulness of the compiled data they should be produced, in the long run, with a breakdown by length of stay and occupation/skills of individuals (e.g. using ISCO-2008 or ISCED 2011).

16.8. Compilers should strive to obtain, as a first priority, information for the mode 4 categories of persons which are of most interest to their economies (generally contractual service suppliers, whether employees or self-employed, or intra-corporate transferees), whether incoming or outgoing. This could be done by analysing the needs for information. A longer term goal would be to have data for all mode 4 categories and all service sectors, both for incoming and outgoing persons/trips, therefore enabling overall international comparisons.

16.9. The compilation of mode 2 data on inbound and outbound flows of persons should be given more priority than to the compilation of data on stocks, except if deemed necessary for specific services sectors or categories of persons (for example, education/students or health/medical patients). Data should be broken down by purpose of movement, by type of service consumed (using EBOPS 2010), as well as by destination/origin of persons or trips. Although of less priority in the context of MSITS 2010, a breakdown according to length of stays could be compiled.

16.10. For mode 4 and mode 2 quantitative indicators, it is a good practice to concentrate on obtaining annual statistics first, as this should be sufficient to serve most analytical and monitoring needs. If in future compilers identify the need for more frequent statistics, their compilation could be envisaged but, maybe, at a less detailed level.

16.11. Given the policy relevance of such information, compilers are encouraged to analyse the national possibilities for compiling trade in services data by enterprise characteristics, by linking trade in services data with information drawn from the statistical business register. Although foreseen as a longer term objective, compilers should keep in mind the needs to be identified with users for additional indicators in relation to services trade analysis and negotiations. Needs should be identified with users, but a list is suggested to serve as a starting point in section D. Given that this information is linked with needs of other statistical frameworks this Guide strongly advises that trade in services compilers cooperate with compilers in charge of the data collection and compilation in respective statistics domains.

C. Mode 2 and mode 4 movements and stays

16.12. The supply of services involving movements of physical persons is defined in the GATS as follows: (i) movements and temporary physical stay abroad of consumers of services (mode 2); and (ii) movements and temporary physical stay abroad of persons to supply services (mode 4)²⁸⁴. Mode 2 is generally well understood as it refers to any potential consumer traveling or temporarily staying abroad for any purpose (e.g., leisure, studies, health, business or employment) and consuming services while abroad. Mode 4 movements and stays are concepts more difficult to grasp. As described in Box 1.1, mode 4 can, in general, be further described as covering foreign natural persons entering the host economy to directly fulfil service contracts (contractual service suppliers, either self-employed or employees of a foreign service supplier);²⁸⁵ work in a foreign affiliate that delivers services (intra-corporate transfer or directly recruited by the affiliate);²⁸⁶ or negotiate services contracts or the establishment of services related commercial presence without actually carrying out service transactions).

16.13. The availability of data on the number of natural persons moving (flows) between countries to consume (mode 2) or to supply (mode 4) services and on foreign natural persons present at a certain point in time (stocks) is highly important for trade policy making, monitoring and for the analysis of global supply of services, as well as broader tourism and migration policy.²⁸⁷ Data on the movement of natural persons should include detailed information on the characteristics and activities of such persons. This could also be useful for estimating the value of services consumed or supplied by them in the cases when value data cannot be obtained from other sources.

16.14. Taking into account the information needs, an indicative list of the variables covering movements (and stays) of natural persons under modes 2 and 4 is provided in the following sections (sub-sections B.1 and B.2). The prioritization of the variables is also discussed. It is advised that compilers consider the list and incorporate it in their data collection and compilation programmes taking into account their specific needs and circumstances. In this context this Guide strongly encourages compilers to coordinate with the entities in charge of the other (and broader) statistical frameworks used to collect and compile such data (e.g., tourism, migration or employment statistics).

16.15. Compilation of number of persons/trips does not necessarily always demand sophisticated compilation methods,²⁸⁸ but it requires availability of a rather focused and efficient data collection mechanism. Due to this entanglement of the collection and compilation of the number of mode 2 and mode 4 movements and stays, this chapter mainly presents the types of breakdowns required and complements chapter 11 by presenting the potential sources of information. The collection of number of persons moving abroad (or trips) and/or on the characteristics of trips is dealt with in the context of surveys of businesses (chapter 6), of persons and households (chapter 7) and administrative sources (chapter 9), respectively.

16.16. It should be noted that the information on number of persons traveling during a given period of time is difficult to collect as many sources rather provide information on the number of the trips (or on

²⁸⁴ Further information on definitions and recommendations on mode 2 and mode 4 may be found in chapter 1 of this guide as well as chapters 2 and 5 of MSITS 2010.

²⁸⁵ In general the transactions would be measured as trade in services (mode 4) in the balance of payments services account, see chapter 14, section C.

²⁸⁶ The supply of the service to the client is through mode 3, and the transactions would be recorded by FATS as services output of foreign affiliates, see Chapter 15

²⁸⁷ See also MSITS 2010, chapter 5 Section A.

²⁸⁸ Either data would need to be grossed up to be representative of the whole population, or alternatively data could be used in a data model to be grossed up.

fractions thereof).²⁸⁹ This means that a same person may be counted more than once in a reference period. In other words, one will not be observing the number of persons, but rather the number of trips/movements or number of permits. However, while in certain cases, it may be possible to identify individual persons and link them to trips/movements or permits, such identification will most likely not be feasible in the majority of data sources. For mode 2, this issue may not necessarily be important, as statistics based on trips/movements are consistent with the information needed; but for mode 4, this issue may be important, as the primary interest may be more on number of persons, with the number of movements and/or permits being of secondary relevance. However, if data on trips are of a good quality, then such data can be used to estimate the number of persons travelling under these two modes.

16.17. Quality issues need to be considered in the context of the compilation of data on the number of persons and or movements/trips in relation to modes 2 and 4; namely: do the primary observations cover the whole population of interest or the most important sub-groups; can we observe the characteristics of the relevant statistical units; do we observe (obtain good approximations of) the characteristics of interest using particular data sets? Are the observations reliable and the resulting statistics sufficiently accurate for both levels and changes/differences? Do we get the statistics with the required frequency and timeliness?

16.18. Building stronger institutional arrangements is, therefore, a precondition for success in compiling quantitative indicators on mode 2 and mode 4 movements and stays. No single source can provide statistics on all these categories, and the direction of movements (e.g. incoming/outgoing) adds a difficulty for data producers. Thus, it will often be necessary to combine statistics based on different sources and data collection methods. This is an additional argument for encouraging different institutions to work together. The development of clear guidance for the administrative forms and statistical questionnaires will be very important given that this subject is often difficult to understand. It should be noted however, that the challenge is to make respondents understand what information is requested. This does not necessarily mean that the statistical concepts have to be fully explained as the relevant statistics may be derived by the application of algorithms to the responses to questions that are easy to understand and concern information that respondents can easily recall or obtain from records readily available to them.

16.19. Flows and stock data need to be compiled for modes 2 and 4 quantitative indicators. Compilation of flow data requires attention to such issues as differences in coverage of data sources methodology of making necessary adjustments, grossing up, etc., of gathered information so that the resulting statistics are a fair representation of the target population and are of sufficient quality. Stock data are connected with flow data, as they result from the accumulation of flows of previous periods and they are changed by the inflows and outflows in the period under consideration. However, compiling a base or benchmark figure for the stock at a given time may be difficult, in particular given the high mobility of persons concerned. For stocks related to mode 2 or mode 4, presence in the compiling economy, arriving of inbound persons or trips would add to the inward stock, whereas those departing would subtract from the inward stock. For stocks related to mode 2 or mode 4, presence abroad, returning outbound persons or trips would subtract from the outward stock, whereas those departing would add to the outward stock. Compilers will need to ensure that these calculations are made at a specific (and regular) point in time within the period under consideration (e.g. beginning, middle or end of the period).

C.1 Movements and stays of persons related to mode 4

16.20. As described in chapter 11, the potential data sources for mode 4 movements are enterprise surveys (see chapter 6 for more information), administrative sources (chapter 9), and household and

²⁸⁹ For example the border surveys capture information about a particular individual on a given trip. Since a person can make several trips during the same reference period the number of trips and the number of persons travelled are usually not the same.

labour force survey, population censuses and border/passenger surveys (chapter 7). There are no dedicated and comprehensive data sources for mode 4 movements and stays, which means that compilers could use one or the other source depending on the type/category of inward or outward stocks of mode 4 for which information has to be compiled. This could be established based on identified needs and potential sources. For example:

- i. Trade in services surveys would probably be the best source to collect data on contractual services suppliers alongside the data on the value of the contracts:
- ii. FATS data sources could be useful on intra-firm movements²⁹⁰ or direct recruitments by foreign affiliates;
- iii. Other enterprise surveys, covering specific services sectors, or temporary employment agencies could also be specially tailored to capture information of interest on mode 4.
- iv. Border/passenger surveys should be considered for obtaining characteristics of those traveling for business, work or employment purposes, combined with counts of border crossings;
- v. Household/labour force surveys could help to obtain information for outgoing mode 4 persons, in particular the self-employed, and if relevant combining this information also with counts of outgoing persons/trips;
- vi. Business registers (see Chapter 5) might contain information needed to identify potential mode 4 self-employed service suppliers;
- vii. Administrative sources (migration records, registers) might be used, in particular in receiving countries, and could offer useful records, for example, on counts of persons or trips. Work permits or documents issued in the context of social security coordination and employment services could also be considered. In other words there may already be relevant administrative information on short term movements of workers. However, compilers need to ensure that in administrative sources, the category(ies) that could be of interest for mode 4 are defined in a way close enough to the coverage (and if possible breakdowns) recommended in MSITS 2010 and this Guide. If well-defined and used appropriately, entry/exit cards could be used to make a first selection of border survey respondents that could potentially be of interest in the context of mode 4. These respondents could then be surveyed to obtain more refined information;
- viii. Similar considerations could be put forward for other sources. Finally, partner country data may provide useful information given that it may be difficult/not possible to collect details on characteristics of incoming persons/trips through surveys of enterprises or households, or using administrative records for outgoing persons. In the same way population sources tend to reflect outbound mobility better than inbound, which contrasts with migration data where emigration is much harder to capture than immigration. As a consequence partner country information could turn out to be essential and be used/compared through the use of a clearinghouse for such data statistics. This however implies that the data collection and quality of the compiling country depends on partners' willingness and capacity to collect and provide quality data, as this normally involves coordination, cost and in the case of trade negotiations also certain interests, a central brokering institution may be important. Compilers

²⁹⁰ Whether the employer-employee relationship remains with the sending firm, i.e. corresponding to the rendering of services by the sending firm to the receiving one; or the employer-employee relationship is with the receiving firm.

therefore need to be cautious in using partner country data (definitions, national laws/regulations in place may differ, etc.). Refer to chapters 5, 6, 7, 9 and 10 for a more in-depth description of the respective data sources.

All sources identified above offer some potential to collect data. However, it is important to identify/coordinate with those in charge of these respective data collection mechanisms to see if it is possible and not too burdensome to identify, collect and compile data on the mode 4 categories of interest to the economy (both inward and outward) and their breakdowns. A comparison of data sources by purpose of mode 4 movement/stay and direction of movement is provided in chapter 11. Alternatively, the compilers are advised to explore a possibility to combine obtained information and develop an appropriate model to derive the data and breakdowns of interest (see chapter 17).

16.21. For compiling data on mode 4 movements and stays, two groups of persons should be distinguished: those who will not be in an employer-employee relationship in the country in which they are temporarily present and those who will be in an employer-employee relationship in the country in which they are temporarily present (this refers solely to part of intra-corporate transferees and those directly recruited by foreign affiliates). This Guide advises the following statistical treatment of these two groups

Persons who will not be in an employer-employee relationship in the country in which they are temporarily present_the mode 4.

The variables are flows and stocks and should be broken down as follows:

Outbound:

- i. Flows: the number of natural persons of the compiling country who departed to other countries to render services (or negotiate a contract or establishment of commercial presence), as well as on the number of their trips.
- ii. Stocks: the number of natural persons of the compiling country who were present in other countries at a certain point in time in the reference period (e.g. beginning, middle, or end of period) to render services (or negotiate a contract or establishment of commercial presence).

Inbound:

- i. Flows: the number of natural persons of other countries who entered the compiling country to render services (or negotiate a contract or establishment of commercial presence), as well as on the number of their trips.
- ii. Stocks: the number of natural persons of other countries who were present at a certain point in time in the reference period (e.g. beginning, middle, or end of period) in the compiling country to provide services (or negotiate a contract or establishment of commercial presence).

The information on number of inbound/outbound flows (persons and trips) and stocks (persons) will have to be broken down by:

- i. Purpose of (mode 4) movement/stay abroad(outbound) or in the compiling economy(inbound) with at least a separate identification of the four main categories of mode 4 movements: service contract either by self-employed or employee -intra-firm trade or not-, or sales/commercial presence negotiation;
- ii. Service category;
- iii. Country of destination (outbound) or origin (inbound);
- iv. Duration (length of stay);
- v. Skills/occupation of persons.

Persons who will be in the employer-employee relationship in the country in which they are temporarily present.

The variables to be collected are the same as for the first group, except that the breakdown by purpose of stay should identify those relating to the movements between affiliated companies (intra-corporate transfer) from those who refer to a direct recruitment by a foreign affiliate in the country of temporary stay. The status of employment for both categories is being an employee of the foreign affiliate. In addition for the service category, since the employment of these persons is not necessarily directly related to the supply of the service by the affiliate to clients, it is recommend compiling data broken down by type of service activity of the affiliate/employer (using ISIC Rev.4 /ICFA rev.1).

This Guide advises that the compilation of data on stocks should be given the same priority as the compilation of flow data in view of their great importance for the GATS mode 4 analysis.

16.22. Compilers should strive to obtain information for the mode 4 category of most interest to their economy (generally contractual service suppliers, whether employees or self-employed, or intra-corporate transferees), whether incoming or outgoing. Identifying categories of interest could be done by conducting an analysis of the potential size of the population based on the types of agreements signed by a country (e.g. free movement of persons, etc.), the estimated value of mode 4 trade, if certain visas that are issued are strongly related to trade in services, which services sectors are assumed to be a mode 4 comparative advantage of the economy (and reversely how big could mode 4 imports be) etc. The different circumstances in each country determine locally specific forms of the international supply of services through presence of natural persons. A methodological approach to the production of statistics on mode 4 persons should take into account, not only market specifics, but also for incoming persons/trips, the national regulations of immigration and labour policies, as well as those of foreign investment and the international supply of services through presence of natural persons as well as effectiveness of regulations and policies. For instance, if foreign investment in a service industry is strictly controlled then intra-corporate transferees could not be considered for estimation or if low skilled workers cannot get work permits then estimation of mode 4 person number could be concentrated on other higher skilled occupations. Therefore, a step by step approach should be adopted. In early stages each economy could establish a necessary statistical capacity for compilation on mode 4 movements and stays depending on their economy's circumstances, identifying simplifying features to determine key categories of data and

major authorities to cooperate with, and compilation should be based on facts and in responding to recommendations of MSITS2010. A longer term goal would be to have data for all mode 4 categories and all service sectors, both for incoming and outgoing persons/trips, therefore enabling overall international comparisons.

16.23. With respect to the periodicity, compilation of (detailed) data on an annual basis should serve most information needs. However, given the strong link of this information with trade/labour mobility policy, it could be of interest to also envisage the compilation of some information for shorter periods, for instance on a quarterly basis, at least for main aggregates.

16.24. As indicated previously, depending on the source used, the compilation of data on trips is significantly less resource intensive and provides a satisfactory information basis for policy purposes and estimation of missing value data. Therefore, as a general rule, this Guide advises that compilers first concentrate on the compilation of data on inbound and outbound trips and use these data for the compilation of data on persons as necessary.

16.25. For the country of destination or origin, the primary focus should be on the country of the supplier and that of the consumer of the service. In the case of receiving countries (where mode 4 data will be of primary interest given direct relation with commitments made), priority should be given to identifying the country of origin of the supplier, in particular for contractual service suppliers-employees where this can be more difficult to establish as it can differ from the country of the individual(s). When the source data does not enable this, the country of origin of the person could be used as a reasonably good indication of the country of origin of mode 4 trade in services.

16.26. The identification of purposes of business, work or employment related movements using internationally agreed definitions ensures the compilation of comparable data needed for trade and other purposes. Adopting such an approach can also facilitate the estimation of some value data for resident/non-resident trade in services transactions. Compilers are advised, as a starting point, to make use of the list of purposes of trip/migration provided in table V.3 of MSITS 2010, which is based on the classification of purposes of tourism trips provided in IRTS 2008 and from the list of migrant and non-migrant categories provided in RSIM Rev.1.²⁹¹ This list contains two main groups: the first one refers to the tourism visits/trips, and the second refers to all the other RSIM Rev.1 categories. Within tourism visits/trips, two main purposes are identified: (a) personal and (b) business and professional. The first group is broken down into 8 items (none is of interest in the context of mode 4), while the second is not subdivided. In view of the information needs related to mode 4, it is advised that compilers subdivide this latter group as identified in MSITS2010 table V.3:

- i. contractual service suppliers, self-employed,²⁹²;
- ii. contractual service suppliers, employees of a juridical person (of which intra-firm trade in services which is equivalent to intra-corporate transfers where the employer-employee relationship remains with sending entity);
- iii. services sellers and persons responsible for setting up commercial presence.

Within the RSIM categories of migrant work/employment-based settlement (i.e. where the employer-employee relationship is in the country of destination of the person), a separate identification of those intra-corporate transferees or those directly recruited by services producing foreign affiliates would complement the mode 4 information needs.

²⁹¹ See IRTS 2008, paragraphs 3.15 – 3.21 and paragraph 5.26 (5th bullet point); and RSIM Rev.1.

²⁹² This category is to be compiled for mode 4 purposes if there is not an employer-employee relationship in the host economy. See Box V.2 of the MSITS 2010.

16.27. The compilers should take into account the MSITS 2010 recommendation that notwithstanding the difficulties involved, they should break down relevant statistics between permanent and non-permanent stays according to their national definition of residence, regardless of whether stays may be substantially longer than the one year guideline generally suggested by statistical systems. In this connection, it should be recalled that in tourism statistics the duration of trips is measured in terms of the number of overnight stays, and only will include those not exceeding one year. In the case of mode 4 where the employer-employee relationship stands in the country of temporary stay, one should turn to migration statistics. Migration statistics only refer to short-term (3 months to 12 months) and long-term (more than 12 months) stay. In both frameworks there are no recommendations on groupings as identified in MSITS 2010. MSITS 2010 recommends,²⁹³ as a long term goal, that the breakdown for mode 4 stays should be provided by:

- i. stays of less than three months;
- ii. stays of between three months and less than one year;
- iii. stays of between one and three years;
- iv. stays of between three and five years, and;
- v. stays of more than five years.

When it comes to the length of stay, the information needs triggered by the GATS for the variable number of persons or for number of trips go beyond those used as guidelines in international statistical standards. Consequently compilers should adapt this classification to their national needs and statistical systems (and laws) including the needs of national tourism statistics and migration statistics, as well as other types of statistics.

16.28. The detailed multipurpose international classification of services is provided in CPC, Ver.2, while more aggregated service categories adopted for use in statistics on service transactions between residents and non-residents are contained in EBOPS. Compilers should select the services classification for use in the context of movements of natural persons/trips under mode 4 depending on their needs and circumstances, but are advised to do so on a basis compatible with EBOPS 2010 to facilitate the analysis of this information as well as link, if possible and relevant, with the compilation of some balance of payments services items and FATS. If a product classification cannot be used, then the field of activity of the service supplier could be used (i.e. using ISIC Rev. 4 or ICFA Rev. 1).

16.29. Although not completely consistent with GATS definitions, such an integrated approach with tourism and/or migration statistical definitions will strengthen the institutional arrangements in data collection and data compilation and will ensure a more efficient use of limited statistical resources, while providing information that can be used as reliable indicators on mode 4. Another potential benefit of cooperation or coordination could be to ensure consistency between enterprise and household/labour force surveys that have work conditions/policy as common subject matters, and could, therefore, be combined to obtain data on mode 4.²⁹⁴

²⁹³ MSITS 2010, paragraph 5.26, 5th bullet.

²⁹⁴ A similar approach to the work of Eurofound could be established for mode 4 information purposes. In its work Eurofound aims at providing information on the quality of living and working conditions in Europe. In order to realise this goal they combine three surveys, each targeting a different population to get specific information. The European Working Conditions Survey questions workers to gain insight on the quality of work and employment. The European Company Survey targets managers and employee representatives in companies to gather information on workplace practices. The European Quality of Life Survey interviews European citizens to get a perspective on

16.30. The breakdown by skills/occupations is entirely optional. However, it is advised that countries follow the International Standard Classification of Occupations (ISCO-08) and/or the International Standard Classification of Education (ISCED) 2011 if such data are compiled.

Country experience: China - compilation of mode 4 number of persons

16.31. China was developing the methodology to estimate the number of mode 4 persons for many years. This work was focused on two areas: overseas contracted projects and overseas labour service cooperation. The former refers to overseas construction projects carried out by Chinese firms and their foreign affiliates. It includes persons working in projects where the establishment of a branch or affiliate is not necessary (either for short-term projects, or those which do meet the criteria for the establishment of a branch), i.e. referring to contractual service suppliers in the construction sector (most of the income refers to these projects). It also covers employees sent by the mother (construction) company to work in affiliates or branches abroad (intra-corporate transferees). The overseas labour service co-operation refers to contractual service suppliers. They are employed by the China Labor Service Co-operation firms which offer services to overseas firms and organization (i.e. clients abroad) based on service contracts. Data on outflow and stock of mode 4 persons by the type of contract is almost completely covered by China's direct data collection. Self-employed contractual service suppliers are not covered, as well as intra-corporate transferees in other sectors.

16.32. According to the Regulation of Overseas Contracted Projects and Regulation of Overseas Labor Service Cooperation of China, qualified enterprises to be able to sign contracts should apply and get approval for the right to trade services through presence of natural persons. The relevant authority is not only responsible for applications of enterprises or service suppliers, but also participates in the collection and aggregation of data on outflow and stock of mode 4 persons in the category of contractual services. Two statistical programs have been jointly established by the Ministry of Commerce and the National Bureau of Statistics. According to these programs, relevant enterprises are obligated to report required information, such as the type of service project, outflow and stock of persons, occupation or overseas work, length of stay, revenue, country of destination, etc. Administrative sectors at all levels collect data and check it. The national authority is responsible for aggregation and annual publishing of the data in the China Statistical Yearbook and the Chinese Statistics of Trade in Services, as shown in table 16.1 below. Data are also broken down into 8 sections of the Industrial Classification of the National Economy of China (agriculture, forestry, animal husbandry and fishing; manufacturing; construction; transport; computer services and software; accommodation and restaurants; scientific research, education, culture, sanitation and sports; others.

living conditions and perceptions of quality of life. Despite these differences in terms of target population, Eurofound aims to harmonise survey methodology whenever possible, to ensure that lessons learned in one survey are implemented in the others.<http://www.eurofound.europa.eu/surveys/methodology/index.htm>.

Table 16.1 Outflow and stock of mode 4 Chinese persons in 2012 (contractual services)

Unit: persons

Variable Country (region)	Total		Contractual Projects		Labour Contracts	
	Outflow	Stock	Outflow	Stock	Outflow	Stock
Total	511745	850181	233365	344618	278380	505563
<i>Angola</i>	23525	43604	17445	31905	6080	11699
<i>Russia</i>	15354	18822	4502	4088	10852	14734
...						

Note: Stock indicates the total number of persons sent overseas by the end of the year.

C.2 Movements and stays of persons related to mode 2

16.33. The possible sources for quantitative data on mode 2 movements and stays are in most cases closely related to the tourism/travel data collection and compilation mechanism. Household surveys (including labour force surveys) can capture information on individuals who have travelled abroad (outbound flows). Border or passenger surveys could be used to gather information on persons who have travelled abroad (outbound flows) as well as on those who have travelled to the compiling country (inbound flows). These will mainly provide information on the characteristics of the travel/trips, while border counts (or counts in ports of entry-exit) will provide figures on the number of entries or exits. As described in the previous section data from this source could also be used to satisfy (some) mode 4 information needs. Chapter 7 further describes data collection through surveys of households and persons. Administrative sources are also a source that could be used in this context, although it may be difficult to clearly identify the categories of interest (see chapter 9). Enterprise surveys could also be used to obtain the mode 2 demand side statistics (if employers are asked to report on the travel abroad of their employees), but most likely they will be used to generate the supply side data (surveys targeting accommodation services, tourism attractions, or specific services sectors such as health or education establishments). Other sources may also be of interest depending on the situation of countries. A data model could be used to combine information from multiple sources in order to obtain mode 2 statistics with relevant breakdowns (see chapter 17). A comparison of data sources by purpose of mode 2 movement/stay is provided in chapter 11.

16.34. Quantitative data should be compiled on mode 2 for inbound and outbound flows and stocks as follows:

Outbound:

- i. Flows: the number of natural persons of the compiling country who departed to other countries to consume services, as well as on the number of their trips.
- ii. Stocks: the number of natural persons of the compiling country who were present in other countries at a certain point in time in the reference period (e.g. beginning, middle, or end of period).

Inbound:

- i. Flows: the number of natural persons of other countries who arrived in the compiling country to consume services, as well as on the number of their trips.
- ii. Stocks: the number of natural persons of other countries who were present in the compiling country at a certain point in time in the reference period (e.g. beginning, middle, or end of period).

The information on number of inbound/outbound flows (persons and trips) and stocks (persons) will have to be broken down by:

- i. Country of destination (outbound) or origin (inbound);
- ii. Purpose of stay abroad (outbound) or in the compiling country (inbound);
- iii. Types of (services) products consumed;
- iv. Duration (length of stay).

In the majority of cases, mode 2 stock information will be of minor interest to users/policy makers. It is, therefore, a good practice that compilers identify with users the relevant categories of persons/purposes where stays will most probably be of a more long-lasting nature and consequently stock data of more interest, for example in the case of students.

16.35. Compilers should select the services classification for use in the context of movements of natural persons under mode 2 depending on their needs and circumstances, but are advised to do so on a basis compatible with EBOPS 2010 (in particular the travel breakdown by product consumed) to facilitate the analysis of this information as well as link if possible and relevant with the compilation of some balance of payments services items and FATS. In view of the information needs related to mode 2 and tourism it is also advised that countries build their breakdowns in a way which is also useful for tourism statistics. Such an integrated approach will strengthen the institutional arrangements in data collection and data compilation and will ensure a more efficient use of limited statistical resources.

16.36. For the purpose of stay abroad or in the compiling country, compilers are advised as a starting point to make use of the classification of purposes of tourism trip provided in IRTS 2008. This classification contains two main groups of purposes: (a) personal and (b) business and professional. IRTS 2008 suggests a breakdown of the first group into holidays, leisure and recreation; visiting friends and relatives; education and training; health and medical care; religion/pilgrimages; shopping; transit; and other. The second group is not subdivided.²⁹⁵ Note that from the perspective of this Guide it may also be useful to gather information on purposes other than tourism related (e.g. education purposes for more than one year, or those who are temporarily abroad for employment purposes).

²⁹⁵ See ITRS2008, section B.1 for more information.

16.37. Compilation of data on an annual basis should serve most information needs. However, it may also be of interest to obtain some information for shorter periods, for instance on a quarterly basis at least for some main aggregates. This would, in principle, also be linked to the needs of other statistical domains (e.g., tourism).

16.38. The table below shows an example for presenting data on mode 2 number of persons, mainly relating to tourism purposes. It is drawn from the UNWTO Compendium of Tourism Statistics. An extension that would serve the needs as identified in MSITS 2010 would be gather information of purposes other than tourism related (e.g. education purposes for more than one year, or those who are temporarily abroad for employment purposes).

D. Linking services trade data with the business register

16.39. Nowadays many compilers have started projects to link merchandise trade statistics to the business register at the micro-level, in order to produce so called Trade by Enterprise Characteristics (TEC) indicators (as published e.g. by Eurostat and the OECD²⁹⁶). These data indicate which firms – by for example industry, size class, foreign ownership, or geographical (sub-national) region – are actually engaged in international trade. This information is considered very policy relevant as it shows the importance for example of SMEs, or foreign owned firms, in total trade, and gives insight into which industries use what kind of imported products, which is vital for the analysis of global value chains.²⁹⁷

16.40. Similar data-linking activities can be conducted in the area of trade in services and are called Services Trade by Enterprise Characteristics (STEC). These data are compiled by combining the information from enterprise or establishment trade in services surveys (generic or specialized), with the business register that contains information on industry classification, size class and other relevant stratifying variables. A well-maintained statistical business register (see chapter 5) is essential for such a data linking exercise. Microdata linking is greatly facilitated when the trade in services surveys are sampled directly from this register and use the same statistical unit. Similarly, it is recommended to identify the full population of firms engaged in trade in services trade, for example via a multi-annual census or via VAT registers, in order to facilitate the grossing up of the data.

16.41. It should be noted that given the diverse nature of trade in services data sources, the total value of trade in services cannot be fully attributed to individual enterprises. Compilers should not see this as a weakness, but rather as a consequence of the fact that some service categories, notably travel, as well as for some others, are collected through certain methods which renders the linking to the business register conceptually impossible.

16.42. It is a good practice that compilers carefully consider confidentiality issues when disseminating STEC data, as a more detailed breakdown of services trade by industry and size-class may make it easy to identify individual firms. In such instances, it is preferred to publish a set of tables that break down services trade according to only one enterprise characteristic (e.g., either industry OR size class), rather than a more detailed table that contains many confidential cells.

16.43. Further, as described in chapter 5, statistical business registers could prove useful in the compilation of additional data to support the analysis of service industries and enhancing comparability and consistency across collections, e.g. the particular example of potential mode 4 self-employed service suppliers was indicated above.

²⁹⁶ See for Eurostat:

http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/International_trade_by_enterprise_characteristics and for OECD: <http://www.oecd.org/std/its/trade-by-enterprise-characteristics.htm>

²⁹⁷ See e.g. the OECD-WTO TiVA project, www.oecd.org/trade/tiva.

E. Other indicators of interest for the global analysis of service industries

16.44. Other indicators of interest for the global analysis of service industries are listed in MSITS 2010 paragraphs 5.83-5.86 and 5.111-5.112. This chapter has already dealt in detail with the compilation of variables related to the persons crossing borders and staying temporarily abroad in the context of mode 2 or mode 4. Beyond the FATS variables of direct interest on the international supply of services (i.e., turnover/sales or output, employment, in particular intra-corporate), Chapter 15 has also extensively described the compilation of other variables and their breakdowns. Out of these variables, the number of enterprises and assets of foreign affiliates are of direct interest with commitments that could be made in trade or investment negotiations.

16.45. For the other indicators, MSITS 2010 does not suggest new recommendations for compilation, but rather indicates which statistics and with which (additional and reasonable) breakdowns they could be compiled in order to be useful for trade in services policy makers and analysts. It builds upon existing data already compiled by many countries and collected by many regional and international agencies. The set of other indicators detailed below is in no way exhaustive, rather, it contains the indicators that will most likely be of interest to the majority of users:

i. Foreign direct investment statistics

- a. Financial transactions, income and positions
- b. By destination and origin of investment (immediate and ultimate)
- c. By type of service activity (if possible with a total for services)

ii. National accounts statistics and Structural business statistics by industry

- a. Value added, output, employment, capital formation
- b. By type of service activity (if possible with a total for services)

iii. Employment statistics by type of service activity (if possible with a total for services)

iv. Sectoral statistics:

- a. Tourism (beyond number of inbound and outbound visitors which is discussed above)
 1. Number of establishments, hotels and similar establishments, food and beverage serving activities, travel agencies and other reservation services activities
 2. Number of rooms, number of bed-places (including occupancy)
 3. Number of employees by tourism industries
- b. Research and development: Gross domestic expenditure on research and development (total, financed by business enterprise, by government, by higher education)
- c. Audiovisual services
 1. Number of internet radio stations, radio channels, television channels
 2. Number of indoor cinemas (of which multiplexes)

3. Number of distribution companies (of which foreign controlled), number of film exhibitors (of which foreign controlled)
 4. Number of national feature films produced (of which 100% nationally produced, and internationally coproduced)
 5. Gross box office receipts of feature films exhibited (of which foreign feature films)
 6. Number of admissions of feature films exhibited
 7. Number of feature films exhibited (of which national, and foreign)
- d. Postal and courier services
1. Number of permanent post offices (of which staffed by administration officials)
 2. Income for letter post, parcels and logistics services, postal financial services
 3. Number of letter-post items, of ordinary parcels (of which domestic service, and international service – dispatch)
- e. Construction
1. Number of contractors (of which foreign controlled)
 2. Construction of new building (of which dwellings, non-residential, residential)
 3. Cement production
- f. Finance and insurance
1. Domestic credit provided by the banking sector
 2. Insurance density
 3. Insurance penetration
 4. Interest rate spread
 5. Market capitalization
- g. Telecommunications: Number of fixed (wired-) broadband internet subscriptions, Internet users, secure internet servers, telephone subscriptions, mobile-cellular telephone subscriptions
- h. Transport: air, sea, road, rail etc.
1. Fleet (by country of ownership, by country of registration etc.)
 2. Network
 3. Freight transport (national and international)
 4. Passenger transport (national and international)

5. Container port traffic
 - i. Education services
 1. Number of students (primary, secondary, tertiary education)
 2. Outbound and inbound mobile students (students from a given country studying abroad)
 3. Public, private current expenditure on education (primary, secondary, tertiary education)
 - j. Environmental services
 1. CO2 emissions, NOx emissions
 2. Population connected to wastewater collecting system
 3. Population served by municipal waste collection
 4. Hazardous waste generation
 5. Organic water pollutant (BOD) emissions
 6. Other greenhouse gas emissions, HFC, PFC and SF6
 7. Water pollution
 - k. Health related and social services
 1. Number of hospital beds
 2. Number of physicians, dentistry personnel, nurses and midwives
 3. Life expectancy at birth
 4. Health expenditure, public and private
 5. Out-of-pocket health expenditure

16.46. The sources and recommendations on the above statistics are available from the relevant international manuals and guidelines. Some of these publications are included in the list of references in box 16.1. To respond to these information needs, compilers are strongly encouraged to discuss with users what type of information would be necessary, as well as discuss with those in charge of the collection and compilation of these statistics to identify what would be used or could be envisaged for compilation (these could cover diverse units of the statistical office as well as various government agencies).

16.47. In addition to indicators that describe the performance of services industries, indicators to judge services flows on an inflation-adjusted base would be useful. However, export and import price indices for services are not easy to compile. While the Voorburg Group focuses on the measurement of producer price indices, the IMF's Export Import Price Index Manual²⁹⁸ offers guidance for measuring prices of internationally traded services.

²⁹⁸ Available at <http://www.imf.org/external/np/sta/xipim/pdf/xipim.pdf>

16.48. Services for which prices can be compiled using existing data collection systems fall into the domain of transport. Among price-related time series, the US Bureau of Labour Statistics (BLS), for example, is compiling air freight, air passenger or ocean liner freight rates. On travel and tourism the US BLS derives price information from a subset of the CPI for lodging, food, beverages, etc. from foreign visitors by country of their residence. However, beyond transport and travel, price information on internationally traded services is scarce and further research is needed on developing the respective information.²⁹⁹

Box 16.1 References for other indicators of interest for the global analysis of service industries

- International Recommendations for Tourism Statistics 2008, UNWTO
- Manual on Statistics of International Trade in Services 2010, chapter 5.
- SNA 2008
- BPM6
- BD4
- System of Health Accounts, OECD
- Framework for cultural statistics, UNESCO UIS
- Measuring cultural participation UNESCO UIS
- ISCED 2011, UNESCO UIS
- ISCO 2008, ILO
- Frascati Manual : Proposed Standard Practice for Surveys on Research and Experimental Development, OECD
- WTO's Integrated-Trade Intelligence Portal (<http://i-tip.wto.org/services/>), statistics module
- IMF, Export and Import Price Index Manual, Theory and Practice
- http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/International_trade_by_enterprise_characteristics and for OECD: <http://www.oecd.org/std/its/trade-by-enterprise-characteristics.htm>
- OECD-WTO TiVA project, www.oecd.org/trade/tiva

²⁹⁹ IMF (2009), Export and Import Price Index Manual, Theory and Practice, p. 282.

Chapter 17 Estimation and modelling of missing data, forecasting or back-casting

17.1. *Scope.* This chapter describes the use of models and estimates to complement the observed data required for the compilation of statistics on the international supply of services, which are frequently needed because: (a) part of the required information cannot be collected or can be gathered only at an unsustainable cost, and/or (b) the available sources cannot provide the required coverage, detail, frequency and/or timeliness foreseen by the international standards, and/or (c) the various sources to be combined in the collection system are partially overlapping. The chapter consists of the following sections: summary of good practices (section A); imputation for filling data gaps and for data editing purposes (section B); forecasting, back-casting and revising time series (section C); allocating to individual EBOPS items and trading partners (section D); and model-based estimates (section E).

A. Summary of good practices

17.2. In order to properly carry out imputations needed for filling data gaps and for data editing purposes, it is a good practice that compilers first check and load data from primary and secondary sources followed by integration, processing and analysis of data. If the compiler believes that editing of the source data might be needed, the source data provider should be contacted to edit or adjust data if deemed necessary.

17.3. For dealing with unreported or aggregated transactions due to thresholds applied by ITRS, different approaches could be used, such as collecting information on small value transactions from periodic sample surveys or from an analysis of small transactions before the thresholds were raised. If a threshold is established, it is a good practice that transactions below the threshold level are reported in an aggregated amount and classified using the appropriate code. Alternatively, statistical estimations can be applied which can be updated periodically with actual data.

17.4. When data are not available on a sufficiently timely basis, the compiler may extrapolate certain series from earlier periods or interpolate new data points within a range of known data points. The choice of extrapolation or interpolation method should be based on the characteristics of the past series and the range of information available at the time of compilation. If other, more frequent, indicators provide evidence of seasonality in the series, then the data models and interpolation techniques should take these into account.

17.5. For back-casting, in absence of relevant indirect measures, compilers may consider using a constant percentage change between the start and end points if no better approximation is feasible. It is a good practice that these relationships be analysed to verify that they hold over time in order for the compiler to decide the appropriate back-cast time period. Again, if other, more frequent, indicators provide evidence of seasonality in the series, then the back-casting techniques should take this into account.

17.6. Model-based estimates can be used for various statistics on the international supply of services. For instance, for estimating travel services, a model could be constructed using primarily the number of visitors and other short-term individuals traveling (partially available from tourism statistics or transportation operators) and estimates of per capita expenditure obtained from occasional surveys of persons who travel. Additionally, for estimating the value of mode 4 and the number of persons moving under a mode 4, model-based estimates could be developed using existing statistics on the international supply of services, travel information (including model-based estimates of a number of travelers), as well as existing data from, for example, tourism, migration, or employment statistics. In this context, it is advised that compilers analyse available metadata, familiarize themselves with the methodologies behind

data from other statistical frameworks, cooperate closely and exchange the relevant microdata with the other statistical domains and institutions involved.

17.7. Compilers should strive to systematically allocate all services transactions to the relevant individual EBOPS services categories, at the most detailed level possible, as well as to appropriate trading partners. If diverse transactions are bundled into a single payment or receipt, the compiler should estimate the relevant share of services transactions and allocate estimates to items/partners as relevant.

B. Imputation for filling data gaps and for data editing purposes

17.8. Data gaps may arise in preliminary stages of compilation for various reasons, including non-responses from establishment surveys, lack of timely reporting or missing entries in secondary data sources. Compilers should consider taking the following steps to identify data gaps, missing replies, and suspect outliers and impute data.

- i. *The first step is to check and load data from primary and secondary sources.* Namely, the data should be standardized to fixed formats in advance (produced in separate processes). When loading data, checks on codes, the completeness of necessary fields, and value ranges should be run automatically. For primary source data, or directly reported data, only incorrect records should not be loaded. For secondary data sources, or data that are not submitted directly by the reporter (including administrative sources), the complete file should not be loaded until reviewed and fully corrected;
- ii. *The second step in imputing data gaps and missing replies is the integration and processing of all data.* After the data files have been checked, corrected, and loaded as described above, the data should be tabulated and processed. Data that are missing or otherwise not reported by survey respondents can be imputed using statistical procedures such as the mean value reported by respondents with similar characteristics or the average change for such variables from the prior period.³⁰⁰ Imputation procedures are especially important for universe (benchmark) surveys that are designed to provide results for the entire population and that form the basis of future annual or quarterly surveys. In some cases missing values, if not provided by respondents during regular follow-up procedures, can be obtained from financial statements and commercial databases.
- iii. *The third step in this process is checking the data, which involves data analysis.* As part of this analysis, significant increases and decreases in time series, e.g., of imports or exports, also as a share of net exports, of a particular service or with a particular country (or group of countries) are examined. The analysis should be done step-by-step, using a top-down approach, meaning starting from total services with partner world to more detailed levels of imports, exports, and net figures. The aim of macro-editing is to focus on suspicious values influencing publication totals. It also leads to gains in efficiency. Analysis is also done to trace a dubious enterprise or source that may need to be edited and possibly adjusted. A similar approach can be used for other statistics on the international supply of services;
- iv. *The fourth step is the editing of primary and secondary sources.* After having traced an enterprise or other source with dubious data, the unit/source should be assessed by the editing team and be contacted by phone or email to edit or adjust the data if deemed necessary. This will be done depending on the issue identified and the result of the investigation. Various methods can be used to adjust or edit, for example using an average of previous periods, growth rates for available data, etc.

17.9. Another issue related to filling data gaps is when a threshold is applied for reporting/collecting data. In many ITRS, thresholds are established for reporting transactions to prevent undue reporting burdens and processing costs, which may imply that a considerable amount of transactions may be missing, especially small value service transactions.

17.10. Different approaches to dealing with transactions falling below the threshold could be applied, such as carrying a small (ad-hoc) sample survey or other sources (e.g. credit card data). Also, estimation can be carried out through an analysis of small transactions before the threshold was raised, or through empirical research.

17.11. For example, as described in the country experiences of Chapter 8, research conducted in Japan suggests that the frequency of transactions increases exponentially as a value of transaction decreases and that statistically, a Pareto distribution fits the data well.³⁰¹ Compared to using information on transactions from before a threshold increase, this approach to estimating below-threshold transactions has the advantage in that the estimations can be updated periodically with recent data. Further, statisticians are able to choose another statistical approach if the implemented method does not fit the data well.

B.1. Country experience: the Netherlands

17.12. Imputation for filling data gaps at Statistics Netherlands is conducted according to the four-step process described above. After checking and loading primary and secondary response data, imputations are made for non-responses. For non-responses from large enterprises (LE) and small and medium enterprises (SME) and special purpose entities (SPEs), imputations are done on the basis of the average of the last four quarters of responses. For LE, if there is no response for Q-1, Q-4 receives a higher weighted average. For SME, if there is no response for the last four quarters, no imputation is made. For travel, imputation is based on Q-4 data. Other sources are imputed entirely on the basis of Q-1. To gross up (e.g., for SME data), each stratum is weighed, based on the number of enterprises in the population and the number of responding enterprises or imputed responses. Source data are at different level of detail in terms of services and/or countries involved in the international transaction. LE source contains the most detailed data; Travel is also detailed; and all other sources are less detailed. All these sources' data are 'converted' to the most detailed levels on basis of the corresponding LE data (mean of last 3 years). After ensuring all data are fully detailed, tabulation takes place by aggregating or summing up these components to more condensed groups of services or countries.

17.13. The Netherlands checks its data according to a top-down approach. At Statistics Netherlands, this analysis is carried out with the use of Macroview, an interactive tool for top down analysis of statistical data. Major built-in analysis scans within Macroview include: (a) Quick scan (all services and aggregates, in graphical form); (b) External deliveries scan (selected services and underlying enterprises); (c) Complete scan (all services and aggregates and all country (groups), all sources, all underlying enterprises and weighing factors).

17.14. The editing of primary and secondary sources is submitted to the editing team with specific assignment information. If the assessment concerns a LE or SME enterprise, the enterprise is contacted by phone or email. If needed, the data of the enterprise will be edited or adjusted and loaded again. If the assessment concerns another source, the source data provider is contacted and if needed, a new source file will be made and loaded again.

³⁰¹ Japan will employ statistical methods starting with the implementation of BPM6. See chapter 8 (paragraphs 8.42 – 8.48) for the full description of Japan's country experience with its ITRS.

C. Forecasting, back-casting, and revising time series

17.15. Not all sources may supply data on a timely basis. In those instances, the compiler may have to extrapolate certain series. Compilers are advised to consult the BPM6 Compilers guide, which explains a number of interpolation, extrapolation and forecasting techniques that range from very simple, such as using the value from the previous period or same change as occurred in the previous two periods, to more complex techniques that draw information from models, taking account of seasonality in sub-annual series.³⁰² These techniques can be applied to various types of statistics.

17.16. Similarly, historical statistics on the international supply of services are also important (e.g. for analysis purposes). Compilers are often asked to provide long time series, especially when new guidelines, new data sources or a compilation methodology are introduced. Since it is often difficult to collect source data on the new basis for a long historical period, suitable overlap periods and the stability of relationships over time need to be analysed to decide how far back in time the data can be revised. To generate series for earlier periods similar techniques as for forecasting can be used (for example, by a constant (percentage) change, possibly accounting for seasonality).

17.17. Back-casting is also very important for providing long time series for new classifications based on EBOPS 2010. A first step could be to use the EBOPS 2010 - EBOPS 2002 correspondence table,³⁰³ taking into account that some new EBOPS 2010 classifications are not directly related to those based on EBOPS 2002 (such as manufacturing services). It may also be difficult to relate the two classifications if only main services aggregates are compiled, although some new recommended breakdowns can be derived from data for earlier periods based on relationships between old and new classifications in a recent overlap period.

C.1. Country experience: Australia

17.18. The Australian Bureau of Statistics (ABS) maintains long time series for national and international accounts. A large proportion of these series are maintained in original, seasonally adjusted and trend variations. The introduction of changes to compilation methods and treatments can result in shifts to the levels of component and total series. If the shift in level is sufficient to distort the seasonally adjusted time series, the ABS revises the historical series to make the time series as continuous as possible.

17.19. In some cases there is not sufficient detail available to adjust the historical series directly. In these cases, the ABS estimates the shift in level of the series by comparing estimates at one point in time for both the current and new basis (although comparison for additional periods is desirable).

17.20. Ideally any change in the level of a series would be measured over a sufficient time period to enable seasonal patterns to be observed. This is possible for some modelled estimates, but for estimates based on surveys, the cost of producing two estimates for one or more time periods is expensive both in processing costs and provider burden. In these cases, alternative methods may be needed.

17.21. To ensure consistent treatment of time series, the ABS has established a standard approach to measuring shifts in the level of series. The size of the level shift induced by a methodological or measurement change is assessed using regression analysis techniques on ratios between the current published estimates and actual or simulated estimates produced by the revised methodology. In cases where the level shift was found to be significant in the seasonally adjusted series, the historical series is back casted to make the time series as continuous as possible while maintaining, as far as possible, the

³⁰² See e.g. BPM6 Compilation Guide, paragraph 8.29 and 8.30.

³⁰³ Available on the UNSD website.

integrity of the period to period seasonally adjusted movements, taking into account real world changes. For a small number of lower level series it may not be possible to create a valid time series and these series are marked 'not available' for periods prior to when data collection commenced.

17.22. Where it is not possible or necessary to maintain a long time series, an approach of 'bridging' the current published estimates and the estimates produced by the revised methodology is used. 'Bridging' means that estimates on both the current and new basis are produced for one point in time and both sets of estimates are released along with analysis to help users understand the differences between the series. This technique is particularly relevant for series where modelling beyond a certain time may not be appropriate.

D. Allocating to individual EBOPS items and trading partners

17.23 Compilers should make every possible effort to allocate collected data on services transactions to the appropriate individual EBOPS items. Throughout the data collection and compilation process, compilers should as much as possible avoid using existing or catch-all services categories (e.g., "other business services", "other business services n.i.e.", "services not allocated"³⁰⁴, "undefined") or catch-all partner categories (e.g., "not allocated," "undefined") to assign services transactions for which precise identification of one EBOPS 2010/partner category is not readily clear. Indeed, assigning unidentified services transactions to EBOPS categories such as "other business services n.i.e." (or one of its parents if this level of disaggregation is not available, e.g. "other business services")³⁰⁵ will artificially inflate, and sometimes in very large proportions, the value for this specific EBOPS category and its parent categories (e.g., "technical, trade-related and other business services" and "other business services"). This practice decreases the analytical usefulness and reliability of these statistics, and will also increase bilateral asymmetries because unidentified services will be classified in different ways by different reporting countries.

17.24 Consequently, compilers should strive to systematically allocate all services transactions to the relevant individual EBOPS services categories, as well as appropriate trading partners. To the extent possible, this allocation should be done at the most detailed level. If diverse transactions are bundled into a single payment or receipt, the compiler should, to the extent possible, estimate the relevant shares of services transactions and allocate estimations to items/partners as relevant. It is advised to use the most appropriate modelling and statistical techniques, based on the information available to compilers. Such practices should be clearly documented in the metadata to improve users' understanding with respect to the interpretation and quality of the data.

17.25 It is reiterated that compilers should make every effort to allocate all services transactions to individual EBOPS 2010 services categories; however, if there is no possible solution in every case, compilers should use a category to be labelled "not allocated," which will be shown at the same level as the main services items (i.e., not included within any of the services items) or main partners.³⁰⁶ The

³⁰⁴ The Eurostat BoP Vademecum (2012 edition), defines "services not allocated" as follows: "This item was created due to the fact that some Member States are unable to allocate certain amounts to specific services. This results in a discrepancy between the sum of individual services and the total services item. If a Member State encounters this problem, they should record such residual item under item 'SN' which corresponds to the code for 'Services not allocated'. Only services whose origin cannot be determined should be included under this label." (<http://forum.europa.eu.int/Public/irc/dsis/bop/library>).

³⁰⁵ As defined in MSITS 2020, paragraph 3.252 and the EBOPS 2010-CPC2 correspondence table 9 (http://unstats.un.org/unsd/tradeserv/tfsits/msits2010/ebops2cpc_detailed.htm).

³⁰⁶ It is important to note that the role of EBOPS 2010 items labelled as "other" or "not included elsewhere (n.i.e.)" is not to include transactions for which the compiler cannot determine to which EBOPS item they belong to, but

corresponding values should only be included at the total services level if such a category corresponds to the classification shown, or at the total World level if it relates to the partner breakdown shown. Metadata should clearly document when total services or total partners include not allocated elements (see chapter 18).

17.26 Compilers should also establish rules to make allocations across the correct geographical partners if transactions are recorded under “services not allocated.” One possible method of performing this allocation is to consider the shares of geographical distribution evident in total World trade in services. It should be noted that the allocation by nature of transaction and by partner country are independent; e.g., it is sometimes the case that transactions cannot be allocated to individual services items, but can be allocated to trading partners.

E. Model-based estimates

17.27. When source data are not timely or otherwise adequate, compilers may also choose to create a data model to estimate (part of) statistics on the international supply of services.³⁰⁷ The data model elements should be based on the compiler’s judgment of the specific information available. Some data models can be relatively simple. For example, they may be based on proven relationships between different data sources and variables. An additional straightforward approach for monthly or quarterly estimates of items with strong seasonal fluctuations, is to look at relationships of relevant data series from the current period (quarter or month) from each of the preceding (pre-determined number of) years. When quarterly results become available, monthly estimates would then be reconciled so that the three months equal the corresponding quarter. Models can also be more complex, based on mathematical and econometric approaches, including exponential smoothing, linear and logistic regression, polynomial interpolation (or cubic splines), and multilevel models to account for hierarchical relationships among variables.

17.28. For estimating travel services, a model could be constructed using primarily the number of visitors and other short-term individuals traveling (partially available from tourism statistics or transportation operators) and estimates of per capita expenditure. However, it should be noted that these data are not always accurate, as the transport operator may not always collect information on the residence of the customer. Furthermore, when collected, the information may relate to the nationality of the customer and not the residence. Estimates of per capita expenditure could be obtained from occasional surveys of persons who travel. If necessary, separate data models may be designed to measure education and/or medical-related travel based on information from relevant institutions or special surveys (e.g., survey of students).³⁰⁸ However, in order to enable the use of tourism statistics, the differences in terms of the coverage between balance of payments definitions, on the one hand, and tourism statistics as used in the International Recommendations for Tourism Statistics 2008 (IRTS 2008) (as well as in Tourism Satellite Account: Recommended Methodological Framework 2008), on the other, need to be understood³⁰⁹ (also see chapter 14 of this Guide).

rather corresponds to a residual list of services which are not identified as belonging to specific EBOPS items. In other words these "other" or "n.i.e." items are actually defined, and correspond to a specific list of CPC Version 2 products (see EBOPS 2010-CPC Version 2 correspondence table available at <http://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/ebops2cpc.htm>).

³⁰⁷ BPM6 Compilation Guide, 8.17 and 8.25.

³⁰⁸ BPM6 Compilation Guide, 12.75.

³⁰⁹ *Ibid.*, 12.76.

17.29. For estimating the value of mode 4 and the number of persons moving under a mode 4, model-based estimates could be developed, using existing statistics on the international supply of services, travel information, as well as existing data from tourism, migration, employment statistics, etc. All of this information could be used for building an estimation of mode 4. More information on combining different data sources is provided in chapter 13 Model-based estimates are a cost-efficient way to use existing data to compile modes of supply data.

17.30. For such an approach to be efficient, compilers need to analyse existing metadata, familiarize themselves with the methodologies from other statistical frameworks, cooperate closely and exchange the relevant microdata with the other statistical domains and institutions involved. Some adjustments to the data or data collection tools will probably be needed, in particular to obtain the relevant breakdowns and to clearly distinguish the population of interest. For example identifying or estimating the population qualifying as visitors or traveling for short term-employment, including appropriate breakdowns would be necessary as inputs for data models for estimating travel or the number of mode 2 persons/trips. For mode 4 this would entail distinguishing within the group of traveling persons that are employed, those that will have an employer-employee relationship in their country of origin (mode 4) and those that will have this relationship in the host economy.³¹⁰

17.31. For example, tourism data sources could be used for collecting further information on the characteristics of mode 4, while some adjustments on different concepts and terminology in both statistical domains would almost certainly be necessary. Subsequently, an estimation of the number of mode 4 persons and of the value of mode 4 trade could be derived by grossing up the figures by using a model based on research.

17.32. A similar approach could be adopted for other types of sources, such as labour force surveys, household surveys or even business surveys. Adding options in the questions asked to respondents could serve to identify mode 4 persons in such data sources.

E.1. Country experience: Austria - a model to estimate monthly BOP data

17.32. In Austria, the *Oesterreichische Nationalbank* (OeNB) is responsible for compiling and disseminating statistics on the international supply of services, including the balance of payments. In cooperation with Statistics Austria, the OeNB collects data on Trade in Services on a survey basis, which is conducted quarterly. In contrast to financial transactions, the OeNB found it unfeasible to employ monthly surveys on real economic transactions due to cost-benefit considerations, as data are not available on a monthly basis for most of respondents. Accordingly and due to the lack of user needs for monthly data, national figures on trade in services are published as quarterly time series only. At the same time, the OeNB has to fulfil monthly reporting requirements according to EU regulation.³¹¹ To meet these ends, the OeNB has introduced a monthly estimation model to derive monthly Balance of Payments data from quarterly reports.

17.33. The model produces total figures – credits and debits - for goods, services, compensation of employees and current transfers. In addition to global figures, a regional breakdown is available for Intra- and Extra-EU-trade, as well as trade with Intra- and Extra-Euro area. When assessing the model described

³¹⁰ Actually, defining services contracts versus employment relationships is something that would better serve the compilation of tourism statistics as well as migration statistics.

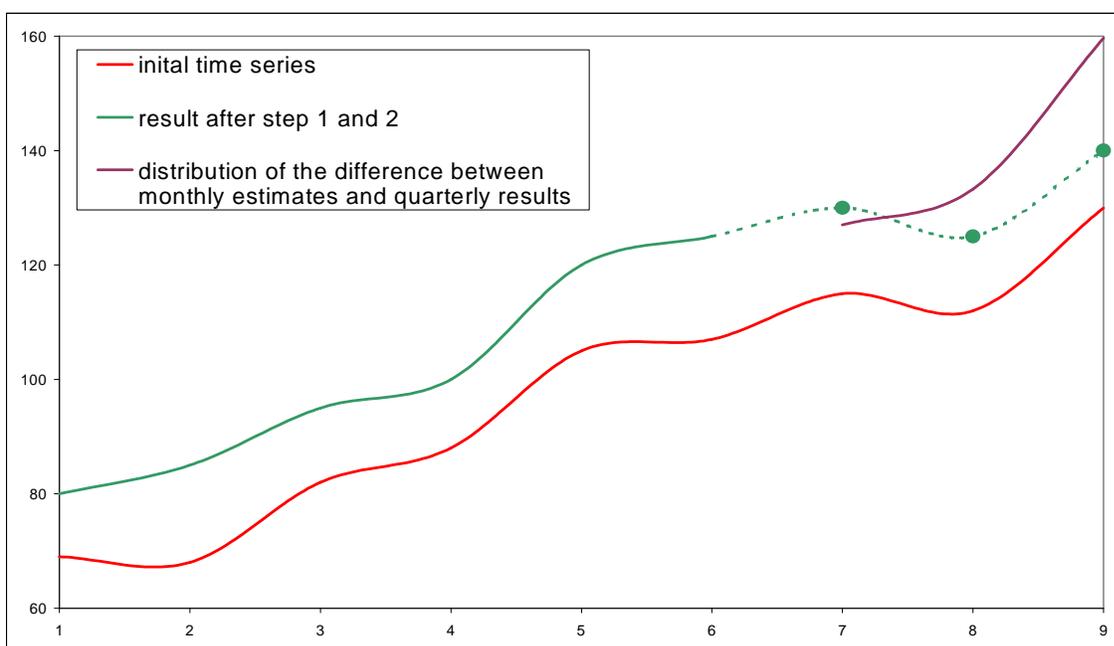
³¹¹ Regulation (EU) No. 555/2012 amending Regulation (EC) No. 184/2005 on Community statistics concerning balance of payments, international trade in services and foreign direct investment; ECB's Guideline of 9 December 2011 on the statistical reporting requirements of the European Central Bank in the field of external statistics (ECB/2011/23).

below, it has to be kept in mind that the results are not intended to be published as such; rather, they enter into EU- and Euro area aggregates.

17.34. In principle, reports have to be sent to the ECB and EUROSTAT around the 10th day of the second following month of the reporting period. Therefore, estimation is based on quarterly time series which are updated according to revision standards as well as exogenous variables if available. After quarterly figures have become available monthly data are reconciled with the quarterly results.

17.35. For calculating monthly figures, the original quarterly time series is first seasonally adjusted by calculating the smoothing component, the seasonal component and the irregular components. Three different methods of smoothing are employed: moving average, basic exponential smoothing and exponential smoothing according to HOLT (Holt-Winters Forecasting Method). After the original time series has thus been prepared, three different estimation models are employed: linear regression, quadratic regression and cubical regression. A period of either 12, 18 or 24 months is used for forecasting. Therefore, 27 different modelling techniques are in principle available. For each item, monthly results are estimated for 24 test periods according to the different models and the quality of the results is quantified by comparing them with the actual figures by calculating relative absolute and relative quadratic differences.

Figure 17.1 Example of Austria's monthly estimates distribution



17.36. For services exports, an estimation model employing exponential smoothing according to Holt-Winters Forecasting Method (and quadratic regression over a period of 12 months has proven to be most suitable)³¹². The regression also incorporates overnight stays of foreign guests in Austria as an independent variable. Still, in-coming travel makes up for approximately one third of Austria's services exports. Therefore the development of overnight stays is an influencing variable of the development of overall services exports.

17.37. For services imports, a model with basic exponential smoothing and linear regression over a period of 18 months has proven to be most effective.

17.38. After global values are estimated, they have to be divided into Intra-EU-, Extra-EU-, Intra-Euro area and Extra-Euro area exports and imports. For estimating the current month of trade in services, the regional division according to the respective quarter in each of the two preceding years is considered. In contrast to linear regression, this method is employed for those items for which strong seasonal fluctuations are observed, which is the case for trade in services.

17.39. When quarterly results become available, monthly estimates are reconciled so that the three months equal the corresponding quarter. The adjustment is based on the Cubic Splines method by which the monthly data are first seasonally adjusted and smoothed and the actual quarterly results are adjusted for smoothing components. Then a multiple regression model with the Cubic Spline function is applied, which serves as the basis for the monthly results to be estimated again. As a third step, the difference between the actual quarterly result and the quarterly result based on the Cubic Spline function is determined and distributed between the monthly estimates. This process is again accomplished by applying the regression coefficients of the Cubic Spline function. As a last step, the monthly estimates have to be adjusted for the seasonal and smoothing components which have been determined at the beginning.

E.2. Country experience: India: estimation of non-response in the survey on exports of Information Technology and Information Technology Enabled Services

17.40. In the annual survey of exports of 'Information Technology and Information Technology Enabled Services' conducted in India by the Reserve Bank, non-responses occur from a number of small as well as medium size companies. The exports figures of the non-responding units are estimated using a well-defined methodology described below:

- i. Using the observed proportions of 'nil' and 'closed' units, first the number of companies 'reporting no export of software products', i.e., 'nil exports' and 'closed' out of the non-responding companies are estimated. These are then removed from the universe of non-reporting companies to obtain the number of operating non-reporting companies.
- ii. Since no information is available on the business activities of the non-reporting companies, these are classified into four groups namely, IT services, Software product development, BPO Services and Engineering services based on the observed proportions corresponding to these four categories derived from the responding units.
- iii. As most of the small companies do not have onsite operations and an overwhelming number of non-responding units are small companies, only offsite software exports of these companies are estimated. For this purpose the offsite exports reported by the respondent companies are used.

³¹² For description of this method see: <http://www.ons.gov.uk/ons/search/index.html?newquery=Holt-Winters+Forecasting+Method+>

iv. The distributions of offsite exports of the responding companies for the above mentioned four groups are observed to be highly positively skewed and hence, instead of mean, the median of the distributions are used for estimating software exports for each group. The estimated software exports for i th group of non-respondent companies are computed using the formula:

$$\text{Median (export) of } i^{\text{th}} \text{ group} \times \left[\frac{\text{no. of reported companies in } i^{\text{th}} \text{ group}}{\text{total no. of reported companies}} \right] \\ \times \text{no. of nonresponding operating companies.}$$

v. The total software exports of India is then derived adding the reported software exports of responding companies and the estimated software export for non-respondent companies in each of the four groups.

E.3. Country experience: UK - experience with modelling outward FATS

17.30. Since reference year 2009, the UK has been obligated to provide Eurostat data on the majority shareholdings outside the EU held by UK Ultimate Controlling Institutions (UCIs). This regulation requires the UK to produce Outward Foreign Affiliate Statistics (OFATS) on an annual basis reporting on the economic activity, turnover, number of persons employed and country of residence of subsidiaries where a UK UCI has a majority shareholding. In order to compile these statistics, the UK adopted a model-based approach using data from survey returns in conjunction with auxiliary information from the Euro Groups Register (EGR) and the National Business Register.

17.31. The UK OFATS survey collects data from 200 enterprise groups where the UCI is resident in the UK. Data items include employment, turnover and the number of foreign affiliates. These variables are consolidated by country and industry for each parent company. By matching this returned information with corresponding company data held on the EGR and national business register, a model is developed. This is then applied to the remainder of the un-sampled population.

17.32. The process involves estimating affiliate employment (logistic regression, multilevel model) and calibration:

- i. *Logistic regression.* An initial logistic regression is used due to the prevalence of zero returns which affects the fit of the model. Sample returns are re-coded to a binary variable to indicate if the employment is zero or non-zero. This model then calculates the probability that the survey response is non-zero;
- ii. *Multilevel model.* Having developed a model to estimate if a record is non-zero, a multilevel model is then used to estimate a value for the employment of an affiliate. The explanatory variables that are used in our model have a hierarchical relationship and this model attempts to account for that. For both models, the coefficients are estimated using the sample returns and are then used to predict the estimates when applied to the un-sampled population;
- iii. *Calibration.* The final stage involves calibrating estimates to employment of global groups outside of the UK. Information on global employment is available from the EGR, whilst information on the groups UK employment is available from the national business register. Model estimates are then calibrated to the calculated employment outside of the UK.

17.44. The estimates produced for UK OFATS are currently branded as experimental statistics by ONS, as they are new official statistics undergoing evaluation.

Part IV Cross-cutting topics

Part IV consists of four chapters which provide guidance on metadata (Chapter 18), quality management (Chapter 19), data and metadata dissemination (Chapter 20), and on the uses of information and communication technology (Chapter 21).

Chapter 18 Metadata

18.1. *Scope.* This chapter describes concept and structure of metadata (or data that define and describe other data and processes³¹³) for use within the statistical framework for describing the international supply of services as well as good metadata compilation practices. It underscores that metadata are relevant for the correct understanding of the content, coverage and limitations of the data, and should guide users on their correct interpretation. The Chapter consists of the following sections: a summary of good practices (section A); an overview of the basic concepts and definitions and the role of SDMX (section B); indicative list of metadata items (section C); metadata standards of international and regional organizations (section D) and country practices (section E).

A. Summary of good practices

18.2. This Guide recognizes that metadata (i) play a crucial role in the statistical production process, as they enable and facilitate sharing, querying, understanding and using data over the different stages of their collection, compilation and dissemination, and at their various levels of aggregation and (ii) are indispensable for assessment quality dimensions of data, as their availability and wide dissemination constitute a precondition of the correct interpretation of publicly available statistics and their effective use.

18.3. It is advised that compilers take into account that statistical metadata cover the following items³¹⁴: statistical description, unit of reference, reference period, institutional mandate, confidentiality, release policy, frequency of dissemination, dissemination format, accessibility of documentation, quality management, relevance, data accuracy and reliability, timeliness, comparability, coherence, cost and response burden, data revision and statistical processing.

18.4. The use of standard terminology for metadata across the various statistical domains and use of the SDMX information model is also advised, as this will facilitate further integration of statistics, the standardized sharing of data and the international comparability of data.

18.5. It is further advised that compilers design their metadata systems in the most efficient way so that metadata items can be conveniently retrieved from the relevant databases, be used in the generation of the intermediate and final datasets or in production of other metadata, and be updated and synchronized. In this context, compilers are encouraged to design and use a data warehousing system of data and metadata by which the dissemination of data and metadata becomes integrated with the collection and processing components of the statistical production process.

18.6. With regard to compiling metadata, compilers are encouraged to follow standardized metadata concepts; make use of the metadata developed in related statistical domains and already being applied in their national statistical system; define layers of metadata; establish metadata registries; incorporate

³¹³ See ISO/IEC FDIS 11179-1 "Information technology - Metadata registries - Part1: Framework", March 2004. <https://www.iso.org/obp/ui/#iso:std:iso-iec:11179:-1:ed-2:v1:en>

³¹⁴ Guidelines on IES, paragraph 5.91.

structural metadata items into the data processing as early as possible; establish clear links between data and metadata; and compile reference metadata.

18.7. In the case of countries with less developed statistical systems it is a good practice to begin by setting up an exhaustive, consistent and detailed repository (possibly in the form of a metadata registry) with both structural and reference metadata, adopting as much as possible metadata concepts that are standardized across all statistical domains, both nationally and internationally. This Guide strongly advises that the next immediate priority should be granting equal, easy, extensive and timely access to metadata to all user groups including general public.

18.8. The structural metadata items promoted by this Guide are those defined within the framework of the Balance of Payments Data Structure Definition (DSD), defined by MSITS 2010 and this Guide for FATS and for additional indicators on the international supply of services. Metadata items should cover both monetary and non-monetary (quantitative) data items which compilation is encouraged by this Guide.

18.9. The metadata standards of international organisations should be carefully considered by compilers, both to improve their metadata collection and compilation, as well as to ensure better compliance with their international and regional data and metadata reporting obligations.

18.10. It is good practice that any deviations from international standards and use of estimations and modelling to compile certain data series are clearly documented in metadata.

B. Metadata: basic concepts and definitions, the role of SDMX

18.11. *Definition of metadata.* Metadata are data that defines and describes other data and processes.³¹⁵ Thus, data become metadata when they are used to describe other data.³¹⁶

18.12. *Scope of statistical metadata.* Statistical metadata, according to the UN Statistical Commission, describe various elements of the statistical processes including collection, processing and production of statistical data and indicate the data sources and tools that are instrumental in statistical production like statistical standards and classifications, business registers and frames, statistical methods, procedures and software. Section C provides an indicative list of structural and reference metadata items relevant in the context of statistics on the international supply of services.

18.13. *Institutional arrangements for metadata compilation.* To reduce the burden associated with projects on metadata for statistics compiled within the framework for describing the international supply of services, it is a good practice for compilers to closely cooperate with the specific units within the national statistical system responsible for ensuring that metadata is produced, that it adheres to a standard format, and that it is properly maintained and updated.

18.14. The UN Statistical Commission recommends the use of standard terminology for metadata across the various statistical domains as this will facilitate the international comparison of data³¹⁷; increasingly encourages countries to treat metadata compilation and, subsequently, their dissemination as an integral

³¹⁵ See ISO/IEC FDIS 11179-1 "Information technology - Metadata registries - Part1: Framework", March 2004. <https://www.iso.org/obp/ui/#iso:std:iso-iec:11179:-1:ed-2:v1:en>

³¹⁶ See SDMX CONTENT-ORIENTED GUIDELINES, Annex4 (2009) for details.

³¹⁷ Guidelines on Integrated Economic Statistics (UN), page 40.

part of the statistical process in any statistical domain and promotes the standardization of the compilation and dissemination of metadata³¹⁸.

18.15. *The way forward: metadata warehousing.* Statistical agencies have traditionally developed separate databases for each statistical output. While this practice may simplify development processes, it can be a hindrance to the successful integration of statistics, especially if there is no effort to standardize variable definitions, labels and formats. Use of a centralized data warehousing system for data and metadata can make creating, maintaining and accessing metadata more efficient and can contribute to the integration of economic statistics. This process is facilitated as better information and communication technology (ICT) tools become available³¹⁹.

18.16. With well-designed data warehouses, the dissemination of data and metadata becomes integrated with the collection and processing components of the statistical production process. A data warehouse should establish a simple and efficient process for accessing data to provide:

- i. Comprehensive metadata to facilitate understanding and analysis;
- ii. Consistent and coherent long-term time series;
- iii. Reliable information about the availability of data;
- iv. Information about the availability of updated versions of published series;
- v. Contact details for the people who can provide more information about a statistical output.

18.17. The implementation of a more comprehensive metadata system is an important prerequisite for developing an integrated questionnaire in the statistical system. The metadata will eventually provide the necessary coherence between the various estimates and data collection tools leading to the production of the statistical information. For sophisticated users, metadata are not only about concepts related to units, variables and classifications; rather, metadata are also about quality.

B.1. The role of SDMX

18.18. The Statistical Data and Metadata Exchange (SDMX) project is developed by an international consortium³²⁰ for use in data and metadata management. The SDMX information model is applicable for much of the information stored and processed within statistical organizations and its use by such organizations is promoted by the UN Guidelines on integrated economic statistics.³²¹

18.19. The use of the standardized information management model is very important for compilers of statistics on the international supply of services as various agencies participate in the data collection and compilation at different stages of the statistical production process and the establishment of a standardized data sharing between them results in additional efficiency gains.

18.20. The development of global Data Structure Definitions (DSDs), defining the structure to data to be exchanged (see section C), by the SDMX consortium and international organizations enable the broader adoption of the SDMX standard for data collection, exchange, and dissemination.

³¹⁸ The important role in this respect was played by UNECE publication "Terminology on Statistical Metadata", Conference of European Statisticians Statistical Standards and Studies, No. 53, Geneva, 2000.

³¹⁹ See chapter 21 for more information on the use of ICT in the statistical process.

³²⁰ The BIS Guidelines, paragraph 5.123.

³²¹ Guidelines, paragraph 5.123.

Box 18.1 Statistical Data and Metadata Exchange (SDMX)

1. *SDMX*. Statistical Data and Metadata Exchange (SDMX) is an international co-operation initiative aimed at developing standards and the employment of more efficient processes for the exchange and sharing of statistical data and metadata among international organisations and their member countries.
2. The rationale of SDMX is standardisation for statistical data and metadata access and exchange. With the ever increasing ease of use of the Internet, the electronic exchange and sharing of data is becoming easier, more frequent and important. This heightens the need for the development of a set of common standards for exchange and sharing of statistical data and metadata, and for making processes more efficient. As statistical data exchange takes place continuously, the gains to be realized from adopting common standards are considerable both for data providers and users.
3. The objective is to establish a set of commonly recognised standards, adhered to by all players, making it possible not only to have easy access to statistical data, wherever these data may be, but also access to metadata that makes the statistics more meaningful and usable. The standards are envisaged to help national organisations to fulfill their responsibilities towards users and partners, including international organisations, more efficiently. Among other things they are seen as facilitating use of Internet-accessible databases in order to be able to retrieve data as soon as they are released. Several quality dimensions can also be improved through the use of SDMX standards, such as timeliness, accessibility, interpretability, coherence, as well as cost-efficiency.

C. Indicative lists of metadata items

18.21. This section contains the indicative lists of structural and reference metadata items which countries are encouraged to compile as part of the production of their statistics within the framework for describing the international supply of services. (The issues specifically related to the dissemination of metadata are discussed in Chapter 20.) The list of structural metadata provided below stems from the Balance of Payments DSD. The reference metadata are based on the recommendations contained in MSITS 2010.

18.22. In the context of the SDMX, *structural metadata* refers to identifiers and descriptors of data, such as concepts and attributes of variables, which are essential for discovering, organizing, retrieving and processing statistical datasets. They can be thought of as the ‘labels’ that need to be associated to each data item in order for it to have a meaning at all. *Reference metadata* are of a more general nature and may refer to specific statistical data, to entire data collections or even to the institution that provides the data.

C.1. Structural metadata - The Balance of Payments Data Structure Definition (DSD)

18.23. The structural metadata contains the list of concepts and attributes of variables that are necessary to codify the reporting requirements of four international agencies³²² for data collection exercises of external sector statistics, including international trade in services.³²³ The BOP DSD structure is based on

³²² The four agencies are the European Central Bank, Eurostat, IMF, and the OECD.

³²³ At the time of writing, there is not yet a DSD available neither for FATS neither for non monetary indicators of modes of supply. A FATS DSD would include specific dimensions such as FATS characteristics: e.g., number of enterprises, number of persons employed, etc.; Resident economic activity vs. non-resident economic activity; Items

the methodology defined in *the IMF Balance of Payments and International Investment Position Manual, sixth edition (BPM6)*, *the Manual on Statistics of International Trade in Services (MSITS 2010)*, and the *OECD Benchmark definition of foreign direct investment-4th edition*. In order to code trade in services data, the extended Balance of Payments Services classification, including the complementary groupings, is included in the “international account item” dimension of the DSD.

18.24. The BOP-DSD, presented on the SDMX website,³²⁴ includes 16 concepts and 13 attributes (see box 18.2). Concepts are used to uniquely identify a time series and, when joined together, they provide the series code or “time series keys,” which are the unique identifiers for a time series. When defining a time series key using SDMX, a valid code must be assigned to each concept of the DSD. Attributes are used to further describe the data.

18.25. When coding detailed trade in services by partner country statistics, a number of the BOP-DSD concepts are fixed; e.g., the reference and counterpart sectors defined as the total economy (S1) when the data refer to total trade between both related and unrelated parties³²⁵. However trade in services between related parties can also be coded by using in the counterpart sector dimension the code S1A “affiliates” whereas S1B should be used for unaffiliated parties.

18.26. Other concepts of the DSD are not fixed; e.g., the case of the “counterpart area” which is used to identify the territory of the non-resident entity of individual time series. The country code list in the counterpart area follows the ISO classification and is a "cross-domain" code list,. The codes used for various regional groupings were harmonized across international agencies that use the BOP-DSD, wherever possible.

specific to non-monetary indicators on modes of services supply would include Direction of trips: Inbound, outbound; Country of origin or destination.

³²⁴ http://sdmx.org/?page_id=1747.

³²⁵ In order to eliminate the possibility of having multiple ways of coding the EBOPS 2010 complementary grouping “total services transactions between related entities”, this item is not coded in the international accounts dimension of the DSD, but is coded in the Annual International Trade in Services dataflow as follows (example on the credit side): A.N.#.%S1.S1A.T.C.S._Z._Z._Z.\$._T._X.N.

Box 18.2 List of concepts and attributes in the BOP-DSD	
The second column provides information on the coding that should be used in the context of an annual trade in service data submission:	
1. Frequency	The code for the annual periodicity is 'A'.
2. Adjustment indicator	The code for no adjustment is "N"
3. Reference country or area	For a reference country, a ISO 3166 code should be used
4. Counterpart Area	For the partner country, a ISO 3166 code should be used
5. Reference sector	The code for total economy which is used for ITS in all cases is "S1"
6. Counterpart sector	Code "S1" for total economy, "S1A" for related enterprises, "S1B" for unrelated enterprises. <i>ref para. 18.38.</i>
7. Flows and stocks indicators	The code for Transactions which is used in all cases for TIS is "T"
8. Accounting entries	Credit "C", Debit "D" or Net "N"
9. International accounts item	"S" for total services, "SC" for transportation, etc.
10. Functional category	Identifies functional categories applicable of financial accounts. It is not applicable for trade in services. Code: "Z"
11. Instrument and assets classification	Identifies the type of financial instrument which is reported in the external sector time series. It is not applicable for trade in services. Code: "_Z"
12. Maturity	Identifies the types of maturity of the financial instrument of the external sector statistics time series: It is not applicable for trade in services. Code: "_Z"
13. Unit of measure	Refers to a currency unit.
14. Currency of denomination	Identifies the currency of denomination of the financial instrument. For ITS, a constant "_T" is applied.
15. Valuation	Identifies the method of valuation for selected transactions and positions data. For ITS, this is coded "unspecified "_X".
16. Compilation methodology	Distinguishes between time series which are compiled according to the methodology applied for national statistics by opposition to similar time series which follow the specific methodology applied for economic or currency union statistics. For ITS, this is coded as national "N".
The BOP-DSD also uses the following 13 attributes:	
I. Time format	
II. Observation status	
III. Confidentiality Status	
IV. Pre-break value	
V. Comments to the observation value	
VI. Detailed description (title complement)	
VII. Short title	
VIII. Unit multiplier	
IX. Decimals	
X. Time period collection	
XI. Reference period detail	
XII. Compiling organisation	
XIII. Underlying compilation	

C.2 Example of a trade in services time series key coded according to the BOP DSD

18.27. The times series key [A.N.US.FR.S1.S1.T.C.SC._Z._Z._Z.USD._T._X.N] provides an example of codification for a trade in services series. This times series key stands for a series in annual Frequency "A"; with no adjustment indicator "N"; the Reference country is the United States "US", the counterpart area is France "FR"; the reference sector is the total economy "S1"; the counterpart sector is the total economy "S1"; the Flows and stocks indicator dimension indicates a Transaction "T"; the accounting entry dimension indicates that we are looking at a credit entry "C"; the international accounts item specifies that the series relate to transport services "SC"; the functional category is not applicable "Z"; the instrument and assets classification is not applicable "Z"; the maturity is not applicable "Z"; The Unit of

measure is US dollar “USD”; the currency of denomination is set to “All currencies of denomination” _T; the Valuation is unspecified _X; and the compilation methodology is National “N”.

18.28. As noted above, attributes are used to qualify observations further; e.g., they provide information on the “confidentiality” status or the “compiling organisation.” Attributes do not contribute to the identification of a time series, as this is already done by using the dimensions.

C.3. Reference metadata

18.29. The following items are typically part of the reference metadata associated with statistics on the international supply of services:

- i. *Legal framework and institutional arrangements* (e.g., references to relevant laws and regulations, role of all institutions involved in compilation and description of coordination of dissemination of statistics and data-sharing agreements among these institutions, either distinctly or as part of broader statistics (e.g., balance of payments and other external sectors statistics));
- ii. *Underlying concepts and definitions* (e.g., definition of residence; non-residence; residence of units, as applicable; definition of statistical value; scope of statistics on the international supply of services and their relationship to national accounts and international merchandise trade statistics; distinction from other international transactions; classification under relevant services item according to BPM6/EBOPS 2010 and any deviations from international standards, if any; ultimate controlling institutional unit (UCI) concept; definition of a foreign affiliate; definition of direct or indirect control; definitions of statistical and reporting units, etc.);
- iii. *Description of core data sources* (e.g., ITRS, enterprise/establishment surveys, surveys of households or persons, administrative records, statistical models, partner country data, or combination of sources), including specific notes on services categories or activities for which particular data collection arrangements or combination of sources are employed and comments on limitations of source data in terms of coverage, frequency, level of detail, reliability, availability, etc.;
- iv. *Description of data collection, data compilation methods and data-processing procedures*, including frequency of data collection; description of specific procedures used for data collection, validation, editing, aggregation, etc.; adjustments made to source data, such as imputations, misclassification, adjustments for non-response or under-coverage; adjustments to standard data processing procedures, such as coding, tabulation errors, etc.; indications of departures from international standards, if any;
- v. *Estimation methods*, such as descriptions of methods for estimating non-reported transactions or transactions falling below customs and/or ITRS thresholds (e.g., CIF-FOB adjustments for transportation item);
- vi. *Dissemination policy*, including release and revision schedules; indication of the presentational format of data; level of disaggregation, eventual commentaries accompanying the data; etc.;
- vii. *Additional explanations and footnotes concerning the data as required* (e.g., explanatory notes on revisions, breaks in series, definitions of confidentiality flags, etc.);

viii. *Quality reporting*, including publication of regular quality reports that use the quality dimensions in the Template for a Generic National Quality Assurance Framework (NQAF)³²⁶ and that include definitions of such quality dimensions (e.g., timeliness, accessibility, comparability, etc.);

ix. *Confidentiality*, including descriptions of confidentiality rules and indications of how much data is affected by such rules.³²⁷

18.30. *Compilation of metadata*. Metadata are compiled at all stages of the statistics production process. This Guide encourages countries to use the following good practices, as applicable, in metadata compilation:

i. *Use of standardized metadata concepts*. In the same way as any data item, metadata items also have to be clearly defined. Even though each statistical domain, including statistics of international trade in services, has its specific metadata items, it is a good practice to use applicable standardized concepts that are relevant across statistical domains (e.g., by adopting cross-domain concepts from the SDMX framework or OECD Glossary of Statistical Terms). The aim should be to promote harmonization of statistical information and their related high-level metadata across various institutions and statistical domains, even if some specific metadata concepts are not applicable or are organized differently in different domains or institutions;

ii. *While developing metadata for statistics compiled within the framework for describing the international supply of services, make use of the metadata developed in the related statistical domains and used in your country*. Statistics of international trade in services is a relatively new statistical domain in many countries. It is very likely that the metadata policy is already in place in related statistical domains. Compilers are advised that such metadata is carefully reviewed and utilized;

iii. *Define layers of metadata*. It is a good practice to compile metadata in layers of incremental detail and provide clear links between high-level and specific metadata concepts. Such a layered structure of metadata will allow data users and analysts to access necessary metadata items and to minimize the risk of misinterpretation of data content while, for example, compiling data from various data sources, as well as to ensure clear presentation of metadata to diverse groups of users.

iv. *Establish metadata registries*. A metadata registry is a central repository (usually a database itself) with information that allows for linking of the detailed definitions (semantics) with the codes (representations) of the metadata items used to describe a particular statistical dataset. It is a good practice that compilers put special emphasis on the development, maintenance and dissemination of metadata registries in order to improve the harmonization, standardization, use, re-use and exchange of their metadata.³²⁸

v. *Confidentiality and access to metadata during the compilation process*. As metadata for statistics on the international supply of services might be compiled by various units of the same agency or by units located in different organizations, there might be cases when metadata describes data subject to confidentiality rules. It is a good practice, in this context, that

³²⁶ <https://unstats.un.org/unsd/dnss/QualityNQAF/nqaf.aspx>. See chapter 19 for more information on NQAF and quality reporting and management in general.

³²⁷ See chapter 20 for more information on statistical confidentiality.

³²⁸ The Euro SDMX Registry includes harmonized structural metadata, the DSDs designed for the statistical domains, metadata structure definitions; e.g., ESMS and other related information.

confidentiality rules are set up in such a way that they will allow compilers to obtain non-confidential data aggregates with the same metadata content;

vi. *Incorporate structural metadata items into the data processing as early as possible (e.g., as parts of the records structure).* This step will facilitate data processing including the identification of viable options for data aggregation and subsequent presentation. It is advisable that structural metadata are made an integral part of the database containing statistics compiled within the framework for describing the international supply of services in such a way that it can be extracted together with any data item and used in data processing to obtain meaningful combined data sets.

vii. *Establish clear links between data and metadata.* As metadata are generated and processed during every step of the data compilation process, there is a strong requirement to ensure that the appropriate metadata retain their links with data. In this connection it is a good practice to implement metadata-driven management along the various stages of the statistical production process.³²⁹

viii. *Compilation of reference metadata.* Reference metadata can be presented as a detailed explanatory note describing the scope, coverage, and quality of a dataset and can be made available electronically alongside the database or in special publications.

18.31. *Priorities in metadata management.* Although ideally the management of metadata would take into account all of the recommendations highlighted thus far, countries with less developed systems for statistics on the international supply of services should begin by setting up an exhaustive, consistent and detailed repository (possibly in the form of a *metadata registry*) with both structural and reference metadata, adopting as much as possible metadata concepts that are standardized cross-domain, nationally and internationally. The next immediate priority should be granting easy, extensive and timely access to metadata to the general public. In subsequent phases the system could be improved by gradually incorporating more advanced features; e.g., implementing a layered presentation of metadata, actively linking data and metadata, etc.

D. Metadata standards of international and regional organizations

18.32. International availability of appropriate metadata is of great interest to all the organizations having global or regional responsibilities. These organizations have made efforts to standardize their requirements on scope and structure of the data and metadata which they would like to obtain from countries. Those requirements should be carefully studied by countries, both to improve their metadata collection and compilation, as well as to ensure better compliance with their international and regional data and metadata reporting obligations.

D.1. SDDS/GDDS metadata of the IMF

18.33. The Special Data Dissemination Standard (SDDS) and General Data Dissemination System (GDDS) are part of the IMF's data standards initiative aimed at enhancing member countries' data transparency and promoting development of sound statistical systems. A dedicated electronic bulletin board on the IMF website³³⁰ posts information that SDDS countries provide to the IMF on their

³²⁹ There are several information model specifications that can contribute to achieve this goal (most notably SDMX and DDI), which are designed to perform different functions but can be used together in the same system, or complement each other in the compilation and exchange of data and metadata.

³³⁰ <http://dsbb.imf.org>.

dissemination practices and offers direct links to the economic and financial data that countries disseminate under the SDDS and information that GDDS countries make available to the IMF on their statistical practices

18.34. For both standards, metadata are organized by country and by topic. The SDDS metadata are available in two presentations: the current SDDS format and the DQAF format, while the GDDS uses the DQAF presentational format. Revisions to metadata are deemed to be made regularly and are available on the website. Metadata aspects related to statistics compiled within the framework for describing the international supply of services are embedded in the various quality dimensions of the balance of payments framework.

D.2. The SDMX content-oriented guidelines on metadata by Eurostat

18.35. Based on the SDMX information, model data structure definitions (DSDs) can be created for data on the international supply of services (including FATS).³³¹ The SDMX content-oriented guidelines have been used to define reference metadata for the European Statistical System (ESS).³³² Table 18.1 lists the main components of the ESS reference metadata. This Guide advises compilers of statistics on the international supply of services of other regions to take the EU recommendations into account, as applicable, while setting up the conceptual structure of their own reference metadata for such statistics.

D.3. Ensuring consistency of metadata and data reported to international organisations

18.36. Reporting of trade in services data and metadata to all international organisations should be consistent. This can be achieved by ensuring that the total services and main items are transmitted with identical values to all international organisations, even if a "not allocated" category is used in a compiling country.

18.37. As mentioned in chapter 17 (section E), compilers should make every effort to allocate all services transactions to the relevant individual EBOPS services categories and to appropriate trading partners and should avoid, as much as possible, using catch-all services categories (e.g., "other business services", "other business services n.i.e.", "services not allocated"³³³, "undefined") or catch-all partner

³³¹ Available at: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/metadata/metadata_structure; inward FATS metadata are available at: http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/en/fats_esms.htm; while outward FATS metadata are presented at: http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/fats_out_esms.htm

³³² See also the Commission Recommendation 2009/498/EC of 23 June 2009 on reference metadata for the European Statistical System (OJ L 168,30.6.2009, page 50).

³³³ The Eurostat BoP Vademecum (2012 edition), defines "services not allocated" as follows: "This item was created due to the fact that some Member States are unable to allocate certain amounts to specific services. This results in a discrepancy between the sum of individual services and the total services item. If a Member State encounters this problem, they should record such residual item under item 'SN' which corresponds to the code for 'Services not allocated'. Only services whose origin cannot be determined should be included under this label." (<http://forum.europa.eu.int/Public/irc/dsis/bop/library>).

Table 18.1 Main components of the European Statistical System reference metadata

	Concept Name	Descriptions
1	Contact	Individual or organisational contact points for the data or metadata, including information on how to reach the contact points.
2	Metadata update	The date on which the metadata element was inserted or modified in the database.
3	Statistical presentation	Data description, classifications used, concepts and definitions etc.
4	Unit of measure	The unit in which the data values are measured.
5	Reference period	The period of time or point in time to which the measured observation is intended to refer.
6	Institutional mandate	Set of rules or other formal set of instructions assigning responsibility as well as the authority to an organisation for the collection, processing, and dissemination of statistics.
7	Confidentiality	A property of data indicating the extent to which their unauthorised disclosure could be prejudicial or harmful to the interest of the source or other relevant parties.
8	Release policy	Rules for disseminating statistical data to interested parties.
9	Frequency of dissemination	The time interval at which the statistics are disseminated over a given time period.
10	Dissemination format	Media by which statistical data and metadata are disseminated.
11	Accessibility of documentation	
12	Quality management	Systems and frameworks in place within an organisation to manage the quality of statistical products and processes; quality assurance and quality assessment.
13	Relevance	The degree to which statistical information meet current and potential needs of the users.
14	Accuracy and reliability	Accuracy: closeness of computations or estimates to the exact or true values that the statistics were intended to measure. Reliability: closeness of the initial estimated value to the subsequent estimated value.
15	Timeliness and punctuality	
16	Comparability	Measurement of the impact of differences in applied statistical concepts, measurement tools and procedures where statistics are compared between geographical areas or over time.
17	Coherence	Adequacy of statistics to be reliably combined in different ways and for various uses.
18	Cost and burden	Cost associated with the collection and production of a statistical product and burden on respondents.
19	Data revision	Any change in a value of a statistic released to the public.
20	Statistical processing	Source data, frequency of data collection, data validation, data compilation and adjustments.
21	Comment	Supplementary descriptive text which can be attached to data or metadata.

categories. To conduct such allocations, compilers could use information from partner economies; if this information is not available or reliable, then it is advised to use the most appropriate modelling and

statistical techniques, based on the information available to compilers. (See chapter 17 for more information on estimation and modelling of missing data.) Such practices should be clearly documented in the metadata.

18.38. If there is no acceptable way to allocate all service, compilers should use a category to be labelled "not allocated," which will be shown at the same level as the main services items (i.e., not included within any of the services items) or main partners.³³⁴ The corresponding values should only be included at the total services level if such a category corresponds to the classification shown, or at the total World level if it relates to the partner breakdown shown.

18.39. A "services not allocated" item is included in the BOP-DSD (because it is part of the reporting requirements of ECB and Eurostat for the quarterly Balance of Payments (QBOP) and of the requirements by Eurostat, OECD and UNSD for annual international trade in services³³⁵ data), whereas such a category is not included in the QBOP data reporting requirement of the IMF. Consequently, for countries that use a category "services not allocated," the individual services items will not add up to the total services in their report to IMF. In this case, the compiler should indicate in the metadata provided to the agencies that that total services do not correspond to the sum of main services items due to the presence of some transactions that are impossible to allocate across services. Table 18.2 presents an example of data reporting in such a case.

³³⁴ It is important to note that the role of EBOPS 2010 items labelled as "other" or "not included elsewhere (n.i.e.)" is not to include transactions for which the compiler cannot determine to which EBOPS item they belong to, but rather corresponds to a residual list of services which are not identified as belonging to specific EBOPS items. In other words these "other" or "n.i.e." items are actually defined, and correspond to a specific list of CPC Version 2 products (see EBOPS 2010-CPC Version 2 correspondence table available at <http://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/ebops2cpc.htm>).

³³⁵ By detailed partner countries for the former and by detailed EBOPS 2010 for the latter.

Table 18.2 Example of reporting trade in services data to IOs for the cases in which “services not allocated” is (and *is not*) part of the data collection

<i>Credit side</i>	<i>Submission of data to international organizations following EBOPS 2010 (“services not allocated” is part of data collection)</i>	<i>Submission of data to international organizations following BPM6 (“services not allocated” is not part of data collection)</i>
Total Services	130	130
Manufacturing services on physical inputs owned by others	10	10
Maintenance and repair services n.i.e.	10	10
Transport	10	10
Travel	10	10
Construction	10	10
Insurance and pension services	10	10
Financial services	10	10
Charges for the use of intellectual property n.i.e.	10	10
Telecommunications, computer, and information services	10	10
Other business services	10	10
Personal, cultural, and rec. services	10	10
Government goods and services n.i.e.	10	10
Services not allocated	10	(Metadata need to explain the difference between total services and sum of sub-components)

E. Country experiences

E.1. Italy

18.40. The Bank of Italy (BoI) adopts an integrated approach to the broad range of its statistical programmes. BoI’s approach to management of metadata is based on two pillars: (1) an *information model*, capable of fully *describing* the data, the processing steps and the elaboration algorithms, and (2) a *software platform*, which supports the entire statistical production chain.

18.41. The BoI has designed a proprietary model called “Matrix,”³³⁶ which is based on mathematical and statistical theory, to support all phases of statistics production process (data definition, collection, compilation and dissemination) and all the data of interest (micro/aggregated, registers, questionnaires, etc.). A fundamental infrastructural component of BoI’s system, representing a core part of the actual implementation of the Matrix model, is the central *statistical dictionary*, a repository describing the whole content of the statistical data warehouse, in terms of *structural metadata* (e.g. concepts, classifications, data structures, processing rules) and *reference metadata* (e.g. methodological notes).

18.42. The Matrix model was also designed to take into account major international standards, so that, for example, the Matrix data and metadata can be easily transformed into SDMX and other metadata formats. Another essential feature of the Matrix model is that it enables a *metadata-driven* system by

³³⁶ Vincenzo Del Vecchio, Fabio Di Giovanni, Stefano Pambianco, *The Matrix Model – Unified model for statistical data representation and processing*, Banca d’Italia, 2007. (http://www.bancaditalia.it/statistiche/quadro_norma_metodo/modell_SIS/matrixmod.pdf).

utilizing a recently introduced *software platform* for statistical processing called INFOSTAT.³³⁷ Consistent with the underlying holistic approach, INFOSTAT supports the statistical production chain end-to-end, by providing the following services:

- i. Identity and access management (e.g., user registration, authentication, user profiling);
- ii. Metadata definition;
- iii. On-line data-entry and data upload;
- iv. Support for a secure data transmission, storing and versioning;
- v. Validations and handling of reporters' feedbacks;
- vi. Calculations;
- vii. Data and metadata import, export and exchange;
- viii. Event subscription and notification;
- ix. User environment for metadata prototyping and data production;
- x. Reporting and publishing;
- xi. Search of information;
- xii. Inquiry and download of data and metadata;
- xiii. End-to-end monitoring of business processes.

18.43. An important advantage of this approach is that most of the changes in the statistical processes (e.g., the establishment of a new survey, the production of new sets of statistics, the release of a new publication, etc.) can be timely implemented by metadata administrators, avoiding the need for complex software maintenance. In fact, due to an advanced user interface, metadata administration is rather user-friendly, allowing non-IT users to accomplish it directly, without the intervention of technical staff.

18.44. The system can handle both qualitative and quantitative indicators, micro and macro data, questionnaires, registers and unstructured data (documents), thus allowing broad integration. INFOSTAT also adopts the Matrix model language, called EXL (expression language), to define expressions used in data validation and in data processing phases for calculations. EXL expressions are intuitive as they are quite similar to spreadsheet formulas, and the language is conceived to be extensible, in order to support the great variety and variability of statistical requirements.

³³⁷ Fabio Di Giovanni, Daniele Piazza, *Processing and managing statistical data: a National Central Bank experience*, paper presented at the "International Statistical Conference" held in Prague on 14-15 September 2009 (http://www.czso.cz/conference2009/proceedings/data/process/piazza_paper.pdf).

Chapter 19 Quality management and quality reporting

19.1. *Scope.* This chapter provides a summary of good practices in quality management and quality reporting (section A); an overview of basic concepts and definitions used in quality management (section B); a description of quality assurance frameworks (section C); good practices in quality measurement and reporting (section D) and country practices (section E). The quality management issues pertinent to managing statistical system and institutional environment were covered in Chapters 1-3. Dissemination of information on quality management and statistical output is further dealt with in Chapter 20.

A. Summary of good practices

19.2. Proper quality management and quality reporting on data compiled in such wide domain as statistics on the international supply of services is especially important. Therefore, it is a good practice that compilers responsible for statistics on services transactions between residents and non-residents, FATS and additional indicators on the international supply of services maintain high, clearly defined and measurable quality standards and regularly disseminate information on their implementation in order to gain the trust and confidence of their users and data suppliers and to aid users in better understanding and appropriately analyzing the disseminated statistics. This will ultimately raise the visibility and reputation of the compiling agencies. The implementation of quality standards should include the application of a formalised system that documents the structure, responsibilities and procedures put in place for satisfying users, while continuing to improve the data production and dissemination process.

19.3. Compilers are advised to develop their own quality assessment frameworks on the basis of the Generic National Quality Assurance Framework (NQAF) endorsed by the UN Statistical Commission and the quality assessment frameworks developed by international, supranational and regional organizations. They should consider that the template for a NQAF is intended to be voluntary, and not meant to be prescriptive or viewed as a replacement for other quality frameworks already adopted or in use by a country's national statistical office. In this context, examples of common quality dimensions or components include relevance; accuracy; reliability; timeliness; punctuality; accessibility; clarity; interpretability; coherence; comparability; credibility; integrity; methodological soundness; and serviceability.

19.4. To ensure the quality of statistics on the international supply of services, compilers are advised to use sound statistical methodologies based on the internationally agreed recommendations contained in MSITS 2010, while proactively managing the respondent burden. It is a good practice that countries develop a standard for quality reports that include quantitative and qualitative indicators covering the full range of statistical processes (i.e., data collection, processing and dissemination) and their outputs based on the quality dimensions listed in this chapter and that are issued regularly (e.g., at least every five years or when significant methodological changes occur). For monitoring the quality of the processes and effectiveness of quality-improvement actions, reviews should be conducted more frequently.

19.5. Compilers are encouraged to facilitate continuous quality improvement. In particular, when adopting new methods, compilers should assess the impact on the statistical series of adopting the new methodology and subjecting the proposed methodology to peer review.

B. Quality management: an overview of basic concepts

19.6. Managing quality of official statistics is vitally important to compilers' success in maintaining the trust and confidence of their users and data reporters. Regular dissemination of the information on the implementation of high and clearly defined quality standards will also aid users in better understanding and appropriately analyzing the statistics and ultimately raise the visibility and reputation of the compiling agency.

19.7. While there are several general definitions of quality, one of the most commonly used and succinct is fitness for use or fitness for purpose.³³⁸

19.8. The development of the Template for a Generic National Quality Assurance Framework (NQAF) and the Guidelines to accompany the Template was undertaken by the Expert Group on NQAF in response to a request by the United Nations Statistical Commission at its forty-first session in 2010. The NQAF Template is intended to be used as a tool to provide the general structure within which countries that choose to do so can formulate and operationalise national quality frameworks of their own or further enhance existing ones. Other international organizations have also developed data quality systems. Examples include the IMF's *Data Quality Assessment Framework (DQAF)*,³³⁹ which is used to assess the quality of countries' macroeconomic statistics, and as a standard presentation of metadata within the GDDS and SDDS standards. Eurostat has developed its *Quality assurance Framework* (see box 19.1) which contains a total of eight quality criteria for which reporting is defined in a Handbook on Quality reports,³⁴⁰ while the OECD's *Quality Framework for Statistical Activities*³⁴¹ explicitly focuses the quality of the data used, produced and disseminated by the OECD itself.

³³⁸ Statistical agencies have arrived at a consensus that the concept of quality of statistical information is multi-dimensional and that there is no one single measure of data quality. Several statistical organisations have developed lists of quality dimensions, which, for international organisations, are being harmonised under the leadership of the Committee for the Coordination of Statistical Activities (CCSA). Description of the CCSA activities in this respect is available at: <http://unstats.un.org/unsd/accsub-public/data-quality.htm>.

³³⁹ <http://dsbb.imf.org/pages/dqrs/DQAF.aspx>

³⁴⁰ http://epp.eurostat.ec.europa.eu/portal/page/portal/ver-1/quality/documents/EHQR_FINAL.pdf.

³⁴¹ <http://www.oecd.org/std/qualityframeworkforoeecdstatisticalactivities.htm>.

Box 19.1 Quality assurance in the European Statistical System (ESS)

1. In the European Statistical System (ESS) quality of statistics is managed in the framework of the European Statistics Code of Practice which sets the standards for developing, producing and disseminating European statistics.
2. In accordance with the 15 principles of the European Statistics (ES) Code of Practice and the provisions of Regulation (EC) No 223/2009 on European statistics, quality is approached along 3 lines:
 - a. quality or characteristics of the institutional environment (6 principles):
 - 1) Professional independence
 - 2) Mandate for data collection
 - 3) Adequacy of resources
 - 4) Commitment to quality
 - 5) Statistical confidentiality
 - 6) Impartiality and objectivity
 - b. quality of the statistical processes (4 principles):
 - 7) Sound methodology
 - 8) Appropriate statistical procedures
 - 9) Non-excessive burden on respondents
 - 10) Cost effectiveness
 - c. quality of the statistical output (5 principles):
 - 11) Relevance
 - 12) Accuracy and reliability
 - 13) Timeliness and punctuality
 - 14) Coherence and comparability
 - 15) Accessibility and clarity

Each of the 15 principles of the ES Code of Practice (1st level of quality assurance) contains specific indicators which show how compliance with the principle can be demonstrated (2nd level of quality assurance). Compliance with the ES Code of Practice is regularly monitored through the ESS-wide exercise of peer reviews which start with a national self-assessment questionnaire – improvement actions identified in the peer review exercise are then monitored and reported upon on an annual basis.

3. As a 3rd level of quality assurance, the ESS Quality Assurance Framework (QAF) has been developed in 2011-2012. Similarly to other existing quality assurance frameworks like UNSD's NQAF, the ESS QAF provides methods and tools for implementation at institutional and process level for each of the indicators of the ES Code of Practice as well as links to relevant reference documentation. Therefore, it provides clear guidance to compliance assessors.

19.9. To ensure conformity of the use and interpretation of the meaning of quality dimensions by compilers of all data sets within the statistical framework statistics recommended by MSITS 2010 for measuring the international supply of services, all definitions in this chapter are taken from the NQAF Glossary, which was endorsed by the UN Statistical Commission as part of the NQAF Guidelines.³⁴²

³⁴² Definitions and their contexts are taken from NQAF Glossary (2012), Available at: <http://unstats.un.org/unsd/dnss/QualityNQAF/nqaf.aspx>.

19.10. NQAF lists the following examples of common quality dimensions or components: relevance; accuracy; reliability; timeliness; punctuality; accessibility; clarity, interpretability; coherence; comparability; credibility; integrity; methodological soundness; and serviceability. The dimensions of quality are overlapping and interrelated and, therefore, the adequate management of each of them is essential if information is to be fit for use. SDMX defines eleven quality dimensions: relevance, accuracy, timeliness, punctuality, accessibility, clarity / interpretability, comparability, coherence, integrity, credibility, and methodological soundness.³⁴³

19.11. First of all, compiled statistics should be *relevant*, meaning that they should meet current and potential users' needs. The compiling agency's challenge is to weight and balance the conflicting needs of current and potential users to produce statistics that satisfy the most important needs within given resource constraints. For a breakdown by mode of supply, such statistics should be produced for services items that are important for the compiling economy and should preferably be developed in cooperation with the users of such data (such as the ministries of trade, the economy or foreign affairs). The relevant services could be identified through direct dialogue with the major users or, for the case of data broken down by mode of supply, by examining the sector's relative share of total exports/imports of services.

19.12. *Accuracy*, or the closeness of computations or estimates to the true values that the statistics were intended to measure, should also be ensured by compilers. It is usually characterized in terms of error in statistical estimates and is often decomposed into bias (systematic error) and variance (random error) components. Assessment of accuracy can either contain numerical measures of accuracy or qualitative assessment indicators. It may also be described in terms of the major sources of error that potentially cause inaccuracy (e.g., coverage, sampling, non-response, response error).

19.13. Statistics compiled within the framework for describing the international supply of services should also adhere to standards of *timeliness*, measured as the length of time between data availability and the event or phenomenon they describe. Timeliness is a crucial element of data quality, as it increases the statistical information's relevance and its ability to be used effectively by policy makers. For statistics on trade in services, the data should preferably be produced at least on an annual basis. It is a good practice that selected (e.g., aggregated) data series covering services transactions between residents and non-residents, FATS or additional indicators on the international supply of services are produced and disseminated more frequently depending on country's needs and resources. The release date of data should also be punctual, in that it follows the target date announced in the official release calendar. Timeliness typically involves a trade-off against accuracy and cost.

19.14. *Accessibility and clarity* should also be ensured. Statistics on the international supply of services should be presented in a clear and understandable form, and disseminated through a suitable and convenient medium, with supporting metadata and guidance.

19.15. Furthermore, statistics on the international supply of services should be *comparable* across geographical areas (i.e., the degree of comparability between statistics measuring the same phenomenon for different geographical areas); over time (i.e., the degree of comparability between two or more instances of data on the same phenomenon measured at different points in time); and across domains (i.e., the comparability between different survey results which target similar characteristics in different statistical domains). For data broken down by mode of supply, if a country is focusing on a particular type of service, a description in terms of CPC of the service would be useful. Moreover, internal coherence (or

³⁴³ See SDMX, Metadata common vocabulary, page 109; available at: http://sdmx.org/wp-content/uploads/2009/01/04_sdmx_cog_annex_4_mcv_2009.pdf.

consistency) and coherence across domains should be ensured, as statistics are often obtained from different sources or based on different approaches, classifications and methodological standards. Metadata must convey such information that will help any interested party in evaluating the comparability of the data, which is often the result of a multitude of factors.

19.16. Compiling agencies should also ensure *integrity*, or their values and related practices that maintain confidence in the eyes of users in the agency producing statistics and ultimately in the statistical product. One important aspect of integrity is the trust in the objectivity of statistics. It implies that professionalism should guide policies and practices and is supported by ethical standards and by transparency. Integrity is closely linked with *credibility*, or the confidence that users place in statistical products based simply on their image of the statistical authority (i.e., the brand image).

19.17. Compiling agencies should also ensure that *sound methodologies* are used to compile statistics that comply with the relevant international standards, including the professional standards enshrined in the Fundamental Principles for Official Statistics.

19.18. At the same time, *cost effectiveness* should also be ensured. For the compilation of statistics on the international supply of services broken down by mode, the mechanical allocation of EBOPS 2010 to modes of supply presents a strong advantage, as this method is relatively inexpensive as it is based on existing data and knowledge of the compiler. Finally, existing *data transmission mechanisms* and IT-tools should be used to the extent possible.

19.19. *Quality management and its components*. Quality management is defined in SDMX as systems and frameworks in place within an organisation to manage the quality of statistical products and processes. Quality management refers to the application of a formalised system that documents the structure, responsibilities and procedures put in place for satisfying users, while continuing to improve the data production and dissemination process. It also includes how well the resources meet the requirement. This concept can be broken down into: "assurance"; "assessment"; and "documentation".

i. *Quality assurance* refers to all the planned and systematic activities implemented that can be demonstrated to provide confidence that the processes will fulfill the requirements for the statistical output. This includes the design of programmes for quality management, the description of planning process, scheduling of work, frequency of plan updates, and other organisational arrangements to support and maintain planning function.

ii. *Quality assessment* contains the overall assessment of data quality, based on standard quality criteria. This may include the result of a scoring or grading process for quality. Scoring may be quantitative or qualitative.

iii. *Quality documentation* contains documentation on methods and standards for assessing data quality, based on standard quality criteria.

C. Focusing on quality assurance

19.20. Quality assurance is a critical part of producing the statistics which ensures that the methods have been correctly applied and that the statistics are robust and fit for purpose. Given the complexity surrounding the compilation of statistics within the framework for describing the international supply of services, it would be particularly relevant that organisations produce, document, implement, monitor and maintain a quality assurance strategy, policy and quality assurance procedures which apply to regular

publications, new outputs and changes to outputs, as well as statistical outputs derived from surveys, administrative sources and other secondary sources.

19.21. Quality assurance should be built in at each step of the statistical process, including:

- i. The selection of the methods;
- ii. Ensuring issues related to the quality outcomes of the methods chosen are identified;
- iii. Careful checking of the outcomes of the applications of the methods;
- iv. Ensuring that a sufficient range of stakeholders are engaged in the quality assurance process.

19.22. Compilers should adopt quality assurance procedures, including the consideration of each statistical product against users' requirements, and of their coherence with other statistical products. The quality assurance policy should include aspects such as control, improvement processes, quality measures, documentation and awareness-raising. It is a good practice that the quality assurance procedures specify clear ownership and accountability for statistics and related products.

19.23. Appropriate validation to minimise the risk of errors should also be incorporated into the quality assurance procedures, including:

- i. Validation built into the production processes wherever possible;
- ii. Internal validation checks – for example, checking against previously produced outputs from the same source, or parallel running by two people where there is a large degree of manual intervention;
- iii. External validation checks – for example, 'sense-checking' against other relevant sources

19.24. For all regular statistical outputs, a programme of periodic reviews should be planned and undertaken, covering quality, methodologies and processes. More information may be found in international guidelines on national quality assurance, such as the Guidelines for the Template for a Generic National Quality Assurance Framework, which have been prepared and are available at the UNSD website.³⁴⁴ At its forty-third session in 2012, the Statistical Commission fully endorsed the generic national quality assurance framework template and encouraged countries to use it. The template is provided in box 19.2.

³⁴⁴ Available at: <http://unstats.un.org/unsd/dnss/QualityNQAF/nqaf.aspx>.

Box 19.2 Template for a generic national quality assurance framework (NQAF)

1. Quality context

- 1a. Circumstances and key issues driving the need for quality management
- 1b. Benefits and challenges
- 1c. Relationship to other statistical agency policies, strategies and frameworks and evolution over time

2. Quality concepts and frameworks

- 2a. Concepts and terminology
- 2b. Mapping to existing frameworks

3. Quality assurance guidelines

3a. Managing the statistical system

- [NQAF 1] Coordinating the national statistical system
- [NQAF 2] Managing relationships with data users and data providers
- [NQAF 3] Managing statistical standards

3b. Managing the institutional environment

- [NQAF 4] Assuring professional independence
- [NQAF 5] Assuring impartiality and objectivity
- [NQAF 6] Assuring transparency
- [NQAF 7] Assuring statistical confidentiality and security
- [NQAF 8] Assuring the quality commitment
- [NQAF 9] Assuring adequacy of resources

3c. Managing statistical processes

- [NQAF 10] Assuring methodological soundness
- [NQAF 11] Assuring cost-effectiveness
- [NQAF 12] Assuring soundness of implementation
- [NQAF 13] Managing the respondent burden

3d. Managing statistical outputs

- [NQAF 14] Assuring relevance
- [NQAF 15] Assuring accuracy and reliability
- [NQAF 16] Assuring timeliness and punctual
- [NQAF 16] Assuring timeliness and punctuality
- [NQAF 17] Assuring accessibility and clarity
- [NQAF 18] Assuring coherence and comparability
- [NQAF 19] Managing metadata

4. Quality assessment and reporting

5. Quality and other management frameworks

19.25. Within the NQAF, four components of quality assurance are particularly relevant for statistics on the international supply of services:

- i. *Assuring methodological soundness.* This requires the use of the statistical methodologies based on internationally agreed recommendation contained in MSITS 2010 and good practices described in this Guide;
- ii. *Assuring cost-effectiveness.* Cost-effectiveness is assured by the implementation of standardized solutions that increase effectiveness and efficiency, documentation of the costs of data production at each stage of statistical process and carrying out the cost–benefit analyses to determine the appropriate trade-offs in terms of data quality;
- iii. *Assuring soundness of implementation.* This is achieved by carrying out such activities as staff selection and conducting training programmes that emphasize the importance of statistics that are fit for purpose, building in the production process data quality checkpoints and (as appropriate) sign-offs before proceeding to subsequent stages in the statistical life cycle, documenting procedures for the design, development, implementation and evaluation of the statistical compilations, and consulting with stakeholders, especially users and potential respondents, at all appropriate stages of the statistical life cycle; and
- iv. *Managing the respondent burden.* The respondent burden is managed by raising awareness that the requirement to collect information (user needs) should be balanced against production costs and the burden placed on respondents (supplier costs). Compilers of statistics on the international supply of services should be proactive in managing the respondent burden and ensure that there are mechanisms in place to assess the necessity to undertake new statistical surveys and that care is taken to reduce or distribute response burden. It is important that compilers inform respondents about: (a) the purpose of the surveys (including the expected uses and users of the statistics to be produced from the survey), (b) the authority under which the surveys are taken, (c) the collection registration details, (d) the mandatory or voluntary nature of the survey, (e) confidentiality protection, and (f) the record linkage plans and the identity of the parties to any agreements to share the information provided by those respondents. Mechanisms to maintain good relationships with individual providers of data and to proactively manage the response burden are essential for improving quality.

19.26. Concerning the outputs produced within the statistical framework for describing the international supply of services, NQAF lists six groups of activities, which should be carried out:

- i. Assuring relevance in the context of the varying needs of users. Relevance can be assured by consulting users about the content of the statistical work programme, prioritizing between different users' needs in the work programme, establishing an advisory council to assist in setting overall statistical priorities, periodic review of the continuing relevance and cost-effectiveness of individual statistical programmes/domains, ensuring good understanding of the interdependencies between individual statistical programmes/domains and coordination, harmonisation and full coverage of statistical information produced by the national statistical system;
- ii. Assuring accuracy and reliability of outputs by assessing and validating source data, intermediate results and final outputs, using proper statistical techniques, comparing the obtained data with other existing sources of information in order to ensure their validity, clear identification of preliminary and revised data, and provision of the explanations about the timing and reasons for and the nature of revisions;

iii. Assuring timeliness and punctuality implies establishing clear release policy (taking into account the need for different dissemination formats and frequency of data); consideration of the trade-off with other quality dimensions; clear identification of preliminary data so that users are provided with appropriate information for assessing their quality;

iv. Assuring accessibility and clarity by releasing statistical results with readily accessible and up-to-date metadata, which cover used concepts and deviations, scope, classifications, basis of recording, data sources, compilation methods, statistical techniques, etc. to allow for a better understanding of the data;

v. Assuring coherence and comparability by establishing well defined relationships between statistics on residents/non-residents transactions in services, FATS and additional indicators on the international supply of services is very important; also, the relationships between statistics on the international supply of services and other economic statistics should be well articulated. Compilers should ensure application of efficient and documented procedures for combination of data from various sources; provide clear identification and explanation of breaks in the series and the provision of methods for ensuring necessary data reconciliation; and

vi. Managing metadata, which includes provision of information covering the underlying concepts, variables and classifications used, methodology of data collection and processing, and indications of the quality of the statistical information to enable the user to understand all of the attributes of the statistics on the international supply of services, including their limitations, for informed decision-making.

19.27. In the context of point (v) on assuring coherence and comparability, a number of compiling agencies have created a unit in charge of ensuring coherence of data collection, data quality and coordination of work across economic statistics concerning data on large multinationals enterprises. The unit is often referred to as "Large and complex enterprises units" and may have different tasks assigned to it. In many countries a relatively small number of multinational enterprises accounts for a major part of total (services) production and trade. For this reason, they are generally included in most surveys carried out in the area of economic statistics, and consequently they are covered in the work of the large and complex enterprise unit. Several statistical offices also realized that a more proactive dialogue with important respondents can improve the large enterprises' understanding of the statistical data requirements. This is why in countries where a small number of multinational enterprises account for a large part of the national production, there are also likely to be important (services) traders. Compilers are therefore encouraged to identify if there is a need to consider such a unit, and if it already exists to approach it in order to identify how to collect and compile data in a coherent way.³⁴⁵

C.1. Evaluating validity of reported data

19.28. It is important that due attention is paid to evaluating validity of reported data. Techniques for this evaluation include comparing reported values for the current period to those for prior periods in order to ensure consistency, calculating ratios of key items, such as sales per employee or value added to sales, to ensure reasonable results, and establishing ranges and tolerances to identify outliers for review by survey staff. Automated checks can be included in an electronic questionnaire or in the survey processing system to detect unusual or large changes in the data, internal inconsistencies or invalid responses.³⁴⁶ The

³⁴⁵ More information can be found in the Guide to measuring Global Production (chapter 6).

³⁴⁶ See chapter 21 for more information on the use of information and communication technology.

questions about the validity of reported data can be subsequently resolved through consultation with respondents and by other means (e.g., use of relevant financial statements, regulatory filings, and other surveys). It is also a good practice to have staff dedicated to evaluating the data reported by specific respondents. Establishing a relationship between the compiler and the reporter can lead to improved reporting.

19.29. Validated responses provided by respondents at the individual company (micro) level must be aggregated to higher (macro) levels for further review and evaluation and ultimately public release. For universe (benchmark) surveys, validated micro data (including estimated values for non-respondents) can simply be summed over all units. For sample surveys or other non-benchmark surveys, aggregation of micro data will depend primarily on how the sample was selected and the associated sample weighting factors used to develop universe estimates. For a probability sample with weights, individual values are multiplied by the weighting factor and the weighted values are summed. For cut-off surveys or other surveys that are not based on probability samples, aggregation may be based on using growth factors to extrapolate the aggregate value forward from the most recent benchmark year using values from a matched sample for adjacent years. This method assumes that the growth rates for the firms in the matched sample are representative of growth for firms that were excluded from the sample because they fall below the sample cut-off threshold.

C.2. Country experience: Ireland

19.30. The Central Statistics Office of Ireland (CSO) is the national office responsible for compiling and publishing official Balance of Payments and related statistics and for implementing the related quality assurance activities.

19.31. The surveys of manufacturing and non-financial service enterprises undertaken by the CSO are designed to meet international conceptual and geographical requirements. Coverage is on a sample selection basis, those surveyed being selected on the basis of statistical register information concerning transactions with non-residents. Two types of grossing take place in the compilation of the results. For the enterprises who report annually an estimate is made for non-response. This estimate can vary from the last value carried forward to more complex trending/forecasting based on similarly sized and type of enterprises and current market conditions. For non-coverage a separate grossing exercise takes place for both services and profits. Using other data sources available (e.g. Annual Services Inquiry, Census of Industrial Production) the enterprises and data are matched and compared and an imputation is made for non-coverage based on a ratio derived by comparing the size of the overall data to the size of the unmatched data. This exercise also serves as a useful quality indicator in comparing data collected via different channels.

19.32. The survey information collected for all types of enterprises covers transactions with non-residents concerning purchases and sales of services, income flows, transfers, as well as acquisitions and disposals of foreign assets or liabilities. In order to facilitate compilation of the wider national accounts statistics, the surveys also collect data on transactions of reporting enterprises with residents of Ireland. This allows for a wide range of edit and plausibility checks; e.g., profits earned in relation to costs and sales; dividends paid relative to earnings.

19.33. The type of quarterly survey form issued to a company depends upon the type of company. The survey for manufacturing and non-financial service companies requests data on all resident and non-resident sales/purchases of services (including royalties, copyrights, licenses, etc.), assets and liabilities (flows, stocks and reconciliation items) as well as related income transactions from companies incorporated in Ireland and Irish branches of foreign companies. Sectoral and geographic details are also required.

19.34. A qualified accountant is employed to provide advice on data queries from respondents and on the various plausibility and edit checks in place. The accountant also examines and compares the data reported on the BOP forms against the annual statutory accounts, where available. The accountant accompanies the responsible staff when visiting respondents. The major enterprises are visited at least once every two years while smaller enterprises are met less frequently. Enterprises are assessed on an on-going basis for their suitability for quarterly/annual reporting.

19.35. Received data are loaded into the CSO's relational database where they undergo various automated consistency and plausibility checks. Further manual checking routines are carried out by statistical staff. Depending on the materiality of the identified queries the CSO will make contact with the enterprise concerned in order to obtain corrections/clarifications. Once verified and any further processing has been completed, the data from all surveys are assembled and the combined data subjected to further scrutiny and checking, at both a macro and micro level. If problems are detected at this stage the case can be referred back to the data collection division who can contact the company if necessary to resolve the issue. Apart from the general checking routines performed by BOP compilers additional checking is done by a separate data consistency unit existing within the National Accounts Division. This unit carries out checks on the consistency of monthly, quarterly and annual data returned by individual large manufacturing and non-financial service companies to various divisions within the CSO (including the BOP Division). Approximately 70 large companies or groups of companies are reviewed.

19.36. The work of the Consistency Unit has been extended to rationalise the data collection for the 50 largest companies/groups referred to above. The Large Cases Unit (LCU) was set up in 2010 to coordinate the surveys issued to these enterprises. An important step was to examine the various CSO data requests and to ensure that any particular item of data was only requested once from the respondent. A combined survey form for these enterprise was designed which would collect not only the BOP data but also production, turnover, services, stocks and profits. The LCU is the central point of contact for these enterprise and works closely with both the enterprises and the various production divisions in the CSO to ensure quality and consistency of data, while at the same time minimising the burden on the respondent.

D. Quality measurement and reporting

19.37. Quality management implies that countries undertake steps to measure quality and report the results of such measurements to all participants of the statistical process and general public. In this connection this Guide advises that countries develop a standard for regular quality reports that cover the full range of statistical processes and their outputs including publication of statistics on residents/non-residents transactions in services, FATS and additional indicators on the international supply of services, as applicable. Such reports can be either producer-oriented, with the aim of identifying strengths and weaknesses of the statistical process and leading to or containing the definition of quality improvement actions, or user-oriented, with the aim of keeping users informed on the methodology of statistical process and the quality of statistical output.

19.38. Quality reports should be prepared at least every five years, or more frequently if significant methodological changes or changes in the data sources occur. For monitoring the quality of the processes and effectiveness of quality-improvement actions, reviews should be conducted more frequently. It is a good practice that countries base their quality reports on a set of quantitative and qualitative indicators, as well as on a checklist covering data collection, processing and dissemination, in order to assess the strengths and weaknesses in the statistical process and to identify possible quality-improvement actions.

19.39. Countries are advised to develop their own quality assessment frameworks on the basis of NQAF and the quality assessment frameworks developed by international, supranational and regional organizations.

19.40. *Quality measures.* Quality measures directly reflect a particular aspect of quality. For example, the time lag from the end of the reference period to the release of particular data set is a direct quality measure. However, in practice, quality measures can be difficult or costly to calculate. Instead, quality indicators can be used in the quality assessment.

19.41. *Quality indicators* are summarized quantitative or qualitative evidences about the quality of the data. They are generally defined with respect to some reference point and can assist in making different types of comparisons. When countries define the quality indicators for their statistics on the international supply of services, they are encouraged to ensure that the indicators satisfy the following criteria: (a) they cover all dimensions of quality as defined in section B above; (b) are based on the consistent application of a sound methodology; and (c) the indicators are easy to interpret both by internal and external users.

19.42. It is a good practice that countries maintain a balance between different dimensions of quality and the number of indicators. The objective of quality measurement is to have a limited set (minimum number) of indicators which can be used to measure and to follow over time the quality of statistics compiled within the framework for describing the international supply of services and to ensure that users are provided with a useful summary of overall quality, while not overburdening respondents with demands for unrealistic amounts of quality metadata.

19.43. *Suggested quality measures and indicators.* Table 19.1 presents a possible set of indicators (and measures) which countries might wish to consider for measuring the quality of statistics on the international supply of services. The table is compiled on the basis of the quality measures and indicators recommended by various international organizations including the IMF, OECD and Eurostat. The utilization of such measures and indicators provides users with a clear and up-to-date overview of the overall quality of these statistics.

Table 19.1 Suggested indicators for measuring the quality of data compiled within the statistical framework for describing the international supply of services

<i>Quality dimension</i>	<i>Quality measure and indicator</i>
Relevance	<p>1. Gaps between key user interests and compiled trade in services statistics in terms of concepts, coverage and detail; 2. Results of users' satisfaction surveys and meetings with user groups.</p> <p>The <i>relevance</i> aspect of quality could also be measured in terms of the <i>availability</i> of the data to the final users. Data availability is measured through completeness and confidentiality.</p> <p>In general, data availability can be calculated as the number of reported data cells divided by the total number of the data cells required in accordance with the adopted data compilation methodology³⁴⁷.</p> <p>Measure of confidentiality can be developed by taking into account the share of values of the data cells containing confidential data in the total value of all data cells.</p>
Accuracy	<p>1. Differences between two successive releases of the same dataset. 2. Application of reporting thresholds. 3. Under-coverage (% of non-reporting due to thresholds, % of non-reporting due to non-response); 4. Characteristics and frequency of revisions (e.g., as % of total value);</p> <p><i>Mean Absolute Percentage Error (MAPE)</i> may be used for characterising the size of revisions. MAPE shows the average percentage difference between initial and final estimates (between 0 and infinity inclusive). The higher is the value, the higher – the average size of revisions. When the result equals zero, there are no differences between the first and final estimates.</p> <p>MAPE is defined as follows:</p> $MAPE = \left \frac{X_f^t - X_i^t}{X_i^t} \right \times 100$ <p>Where, X_i^t = the initial estimate for characteristic X in reference year t. X_f^t = the last available estimate for the same characteristic in reference year t.</p> <p>5. Use of data validation techniques and their impact. <i>In the case of sample surveys-based estimates, the accuracy can be measured using the following indicators:</i></p> <p>6. Sampling errors. <i>The sampling error</i> has to be calculated on the basis of the specific survey design adopted.</p> <p>7. Non-sampling errors: - Unit response rate,</p>

³⁴⁷ For example, such approach is adopted by the Eurostat. See Annex 1, Table 3 of the EU Commission Regulation (EU) No 555/2012 of 22 June 2012 amending Regulation (EC) No 184/2005 of the European Parliament and of the Council on Community statistics concerning balance of payments, international trade in services and foreign direct investment, as regards the update of data requirements and definitions, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:166:0022:0066:EN:PDF>. Also see BoP VADEMECUM, Chapter 5.

	<p>- Item response rate;</p> <p>Total measurement error (sampling errors plus non-sampling errors) can be expressed in terms of a coefficient of variation (CV), as follows.</p> $CV = \frac{\sqrt{\text{estimate of the sampling variance}}}{\text{estimated value}}$ <p>A thorough description of the sample design is needed, containing all information which is likely to affect accuracy and providing background information for the assessment and interpretation of sampling errors.</p> <p>8. Number and average size of revisions of particular datasets.</p>
Timeliness	1. Time lag between the end of the reference period and the date of the first release (or the release of final results) of data.
Punctuality	Punctuality can be calculated as the actual date of data delivery minus the scheduled date of publication/transmission. It shows how many calendar days the release of data was behind (positive value) or ahead (negative value) of the deadline (e.g. as published in an advance release calendar).
Accessibility	<ol style="list-style-type: none"> 1. Number and types of means used for dissemination of statistics; 2. Degree to which all detailed data sets are made available to users, as a percentage of total number of data sets produced; 3. Degree to which detailed metadata are disseminated.
Comparability	1 Differences that can be observed when statistics related to the same domain are compared between geographical areas or over time. This component of quality can be described by measuring asymmetries. For example The absolute and relative values of asymmetries could be, calculated using partner country data, at different levels of detail of service categories. Relative asymmetries could be calculated giving equal weight to the datasets of the reporter and to the mirror data. Persistent asymmetries are identified in case the top asymmetries for country A (for a given service category and flow), are generated by the same partner country B for more than one year.
Coherence	<ol style="list-style-type: none"> 1. Use of common concepts, classifications, data sources and methods; 2. Availability of appropriate bridging tables. <p>This component of quality could be described by measuring the internal consistency (with respect to the application of integrity rules, coherence between the quarterly and annual data, size of errors and omissions), and external consistency (e.g., coherence between statistics on trade in services between residents and non-residents and similar statistics belonging to different statistical frameworks).</p> <p>Consistency with integrity rules. The integrity rules should include a set of equations, which have to be respected in the datasets. For example: the sum of the components should be equal to the aggregates.</p>
Integrity	<ol style="list-style-type: none"> 1. Statistics are produced on an impartial basis. 2. Choices of sources and statistical techniques as well as decisions about dissemination are based solely by statistical considerations. 3. The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics. 4. The terms and conditions under which statistics are collected, processed, and disseminated are available to the public. 5. Internal governmental access to statistics prior to their release, if practiced in the country, is publicly announced. 6. Products of statistical agencies/units are clearly identified as such.

	7. Advanced notice is given of major changes in methodology, source data, and statistical techniques. 8. Guidelines for staff behavior are in place and are well known to the staff.
Methodological soundness	1. Number and degrees of divergences from the relevant international statistical standards in concepts and measurement procedures which are used in the collection and compilation of trade in services statistics (preferably in terms of the amount of data affected).

* The quality dimensions “clarity/interpretability” and “Credibility” are not included in this table as there are no identifiable quality measures or indicators for them.

19.44. One recognized good practice in relation to continuous quality improvement is process measurement. A process is a series of actions or steps towards achieving a particular end; process quality is an assessment of how far each step meets defined criteria; and process variables are factors that can vary with each repetition of the process. It is a good practice that producers of official statistics define and produce a selection of process quality measures to provide an indication of the overall quality of processes and facilitate continuous quality improvement.

19.45. For official statistics produced from surveys, examples of process quality measures are the percentage of ineligible sampling units found in the sample, the proportion of proxy interviews by survey, travel time for interviewers, and scanning/keying error rates.

19.46. When dealing with statistics produced from administrative sources, process quality measures may be the number of queries from the statistical producer to the administrative data supplier, and the percentage of data items changed during quality assurance.

19.47. When adopting new or improved methods, quality assurance procedures should be used. These should include assessing the impact on the statistical series of adopting the new methodology and subjecting the proposed methodology to peer review. Various mechanisms exist to gain input from experts into the suitability of new or improved methods. The setting up of specific peer review groups and collaboration with users, academics and subject matter experts, for example industrialists or demographers, can also be considered or simply peer review from a statistical colleague.³⁴⁸

19.48. The quality criteria as described in this chapter also apply to statistics on the international supply of services by mode.

³⁴⁸ UK Statistics Authority, National Statistician’s Guidance, Quality Methods and Harmonisation <http://www.statisticsauthority.gov.uk/national-statistician/ns-reports--reviews-and-guidance/national-statistician-s-guidance/>].

E. Country experiences

E.1. Spain - Automatic editing on statistics by modes of supply

19.49. In order to better control the quality of data on Modes of Supply in International Trade in Services, INE has developed a software tool for recording and fieldwork treatment to facilitate the automatic editing of modes data in the questionnaire. This software tool ensures that the editing rules defined by the statistical expert are applied exhaustively and automatically in all used questionnaires. The questionnaires are either automatically downloaded into the tool (in the case of web questionnaires) or data are entered manually in the case of hard copy questionnaires.³⁴⁹

19.50. The editing rules in the tool are classified in two types: "strong" or "fatal" edits and "weak" edits. Fatal edits imply that the questionnaire is not validated and INE staff has to call the respondent to solve it. Weak edits do allow continuing with the questionnaire recording and subsequent validation processes but an explanation must be included in the "Observations" field.

19.51. Four editing rules are applicable to modes of supply section in the survey:

- i. *a fatal edit* is implemented to when a mode has been associated to a non-service item (note: INE informs respondents that only services items can have a mode of supply associated to them).
- ii. *a weak edit* is implemented when a mode 3 association is (wrongly) made to a service (i.e. the supply through mode 3 is not possible (by definition) in international transactions data covered in a balance of payments trade in services survey; such data can rarely be associated to Mode 3, except for construction, see MSITS 2010 Chapter 5 for more information).
- iii. *a weak edit* is implemented when a mode 2 association is (wrongly) made to services that theoretically cannot be supplied by this mode according to the guidance provided in MSITS 2010 (note that travel is not covered by the survey; see the MSITS for the non-travel services that could be supplied by mode 2 (e.g. manufacturing, maintenance and repair)).
- iv. *a fatal edit* is implemented as to admit only mode 1 for supplying the ex-service item of merchanting.

E.2. Luxembourg - quality management for compilation of financial services

19.52. Luxembourg is a small, very open economy anchored in foreign trade, thereby generating significant international transactions and capital flows. Financial services (mainly investment fund management and international private banking) are one of the mainstays of the national economy. International trade in financial services, as reported by Luxembourg in its balance of payments, is very significant. *The Banque centrale du Luxembourg (BcL)* and the *Institut national de la statistique et des études économiques (STATEC)* are jointly responsible for establishing the balance of payments of Luxembourg since January 2002 onwards.

³⁴⁹ According to INE policy, respondents can choose whether to answer questionnaires in hard copy or via the web (although CAWI is strongly recommended).

19.53. Asymmetries with partner countries have always been a major concern for Luxembourg compilers. Systematic mutual exchange of results and underlying data with partner countries in the past has led to significant reductions in asymmetries in different areas. However, asymmetry tables produced by Eurostat identified persistent bilateral asymmetries in the field of financial services between Luxembourg and selected partners. An in depth analysis showed that the origin of the differences lies in the treatment of asset management costs taken out of income.

19.54. The investment fund industry in Luxembourg is the largest in Europe and serves mainly non-residents. Almost all the activity focuses on the external sector. In principle, domestic undertakings for collective investment have no direct employment, no offices, do not directly charge fees and in most cases, income earned (on assets) is capitalized (i.e., not distributed to investors). Resident undertakings for collective investment incur expenses for management and administration, payable in a very large extent to the resident management companies. A priori, these transactions between residents are outside of the field of balance of payments statistics.

19.55. Based on a recommendation stemming from the European Monetary Institute and in line with National Accounts concepts, Luxembourg introduced in its balance of payments time series a procedure to consider the management fees that are implicitly passed on to the investors.³⁵⁰ The economic substance is revealed by rerouting. All income (on foreign or domestic assets) earned by the undertakings for collective investment is assigned simultaneously to the investors, regardless if distributed or not. Therefore, property income earned by the fund determines the income of its unit holder (investor). The offsetting of the income assignment to the investor is both the management fees assigned to the non-resident investors (financial services) and the reinvestment of the income.

19.56. The bilateral asymmetries observed have their origin in this specific treatment, partially because partner countries do not always have the necessary information to perform the corresponding records. Indeed, it is assumed that many shares of Luxembourg-based undertakings for collective investment are held by nonresident households whose financial activities are probably not routinely covered by surveys.

19.57. The geographical breakdown comes from annual reporting to the supervisory authority that requires an estimate of the percentage of shares or units of the undertakings for collective investment invested in each country. However, uncertainty related to the geographical distribution is permitted; thus, this uncertainty is a weakness of the procedure.

E.3. European Union – validation of data

19.58. Validation of data is performed by the national data providers as well as by Eurostat. Through this process the plausibility of the data (e.g. the development of time series, possible outliers) and their internal consistency (aggregates should match the sum of the sub-items) is verified. The strong link between the Structural Business Statistics (SBS) and inward FATS also exists when validating the data.

19.59. In the EU countries inward FATS data are usually extracted from the data sources used for the SBS and the results for both domains should be consistent. Some Member States have registers of enterprise groups or foreign-owned enterprises that can be used as a basis for identification of the population of foreign-controlled domestic enterprises and these registers are treated as the main source of information used to identify the target populations. However, in practice, this consistency is not always assured. One of the main reasons is that there are sometimes considerable differences between the frame populations used for the inward FATS data collection and the foreign-controlled subset of Structural Business Statistics population. This should not be a problem if correct grossing-up methods are used. In

³⁵⁰ BPM6, paragraph 10.124.

that case, the total number of all enterprises, including domestic-controlled ones should be equal in both SBS and inward FATS.

Chapter 20 Data and Metadata Dissemination

20.1. *Scope.* This chapter consists of the following sections: a summary of good practices (section A); an introduction to data and metadata dissemination concepts (section B); factors to consider in data and metadata dissemination (section C); the presentation of statistics by mode of supply (section D); and combined presentation of international merchandise and trade in services statistics (section E).

A. Summary of good practices

20.2. It is a good practice that countries continue their efforts in the implementation of the UN Fundamental Principles of Official Statistics, according to which the dissemination of data and metadata compiled within the statistical framework for describing the international supply of services should be carried out with great care and attention to the needs of users while, at the same time, ensuring adequate confidentiality of data providers. In particular, compilers should ensure the equal treatment of all users, adequate user access, provision of advanced release schedules and pay due attention to metadata dissemination. It is a good practice to discuss and agree with major user groups on the adequate balance between timeliness versus reliability and accuracy. It is also a good practice to develop a revision policy that is well-designed, transparent, well-publicized, and coordinated with other areas of statistics.

20.3. More specifically, it is advised that compilers ensure consistency between disseminated datasets covering services transactions between residents and non-residents, FATS and additional indicators on the international supply of services, as well as they coordinate dissemination of trade in services statistics with dissemination of balance of payments statistics. It is further advised to disseminate preliminary estimates of available or priority aggregates on services transactions between residents and non-residents monthly, with the main aggregates (by main EBOPS 2010 categories and by main trading partners) being disseminated on a quarterly basis and the full detailed data sets on an annual basis. In particular, it is a good practice that the value data on services transactions between residents and non-residents are broken down by: (1) direction of trade flows (exports and imports); (2) EBOPS 2010, by 12 first level categories as a minimum but preferably by all relevant sub-categories and (3) trading partners, (4) enterprise characteristics (if available) and (5) modes of supply, if such data are compiled or if an allocation is performed following the recommended procedures contained in Chapter 14 of this Guide.

20.4. For foreign affiliate statistics (FATS), the selection of variables which should be disseminated depends on the quality assessment of the compiled variables and the information needs of the country. However, efforts should be made to disseminate the variables identified in MSITS 2010 and elaborated in Chapter 15 of this Guide. It is advised that dissemination the following annual data are treated as a matter of priority: (i) sales (turnover) and/or output; (ii) employment; and (iii) number of enterprises. It is advised that the data be broken down by: (1) direction of investment (outward and inward FATS); (2) activity (and if possible, for output or sales(turnover) by product; or at a minimum, a disaggregation into total goods and total services for each activity); and (3) partner (economy of affiliate operations for outward and economy of UCI for inward). Moreover, if possible, data on sales(turnover)/output that are rendered to residents of the economy of the affiliate should be separately identified.

20.5. It is a good practice to disseminate statistics on service transactions between residents and non-residents, FATS sales(turnover)/output data and selected additional indicators on the international supply of services in a common report regularly (e.g., on an annual basis), presenting the international supply of services broken down by mode, if possible. For non-monetary indicators, in particular on the movements and stocks of persons covered modes 2 and 4, as a minimum requirement, countries are advised to disseminate the full detailed data sets on an annual basis, using the breakdowns as suggested in chapter 16. It would also be desirable to disseminate main aggregates on a quarterly basis.

20.6. In terms of maintaining statistical confidentiality, compilers should strive for a full coverage of all flows and stock data which are in the scope of trade in services statistics, while applying appropriate methods to keep, as relevant, certain information confidential.

20.7. This Guide stresses that provision of micro-data (or data about a data provider, including an individual person, household, business or other entity) is consistent with legal and other necessary arrangements that ensure that confidentiality is protected and that procedures for access to micro-data are transparent and publicly available.

20.8. It is a good practice to adopt several formats and means of dissemination to ensure that data and metadata are delivered efficiently to all user groups. In this connection it is advised to make most use of electronic databases: (a) to allow free and equal access to all users to any data record considered part of official trade in services statistics; (b) to store and deliver to users extensive metadata and knowledge base; and (c) to allow users to make queries easily and with a user-friendly interface on the entire database, and to download query results in the commonly used electronic data formats. It is also recommended that statistical agencies consider the application of Statistical Data and Metadata eXchange (SDMX) standards in the dissemination of data and its accompanying metadata in order to ensure consistency and coherence.

B. Data and metadata dissemination: an introduction

20.9. The availability of official statistics, including statistics compiled within the framework for describing the international supply of services, is one of the cornerstones of public confidence in good governance as such statistics can inform the debate and decision-making by governments and by the wider community. This Guide highlights the importance of countries' adherence to the UN Fundamental Principles of Official Statistics which, inter alia, state that:³⁵¹

- i. Official statistics “provide an indispensable element in the information system of a democratic society, serving the Government, the economy and the public”;
- ii. These statistics should be made “available on an impartial basis by official statistical agencies to honour citizens' entitlement to public information”;
- iii. The statistical agencies should “facilitate a correct interpretation of the data”, and, therefore, have “to present information according to scientific standards on the sources, methods and procedures of the statistics”;
- iv. The statistical agencies “are entitled to comment on erroneous interpretation and misuse of statistics”.

20.10. In the light of these Principles, the dissemination of data and metadata should be carried out with great care and attention to the needs of users while, at the same time, ensuring adequate confidentiality of data providers. Dissemination enhances accessibility of statistical information and constitutes an indispensable building block of the integrated statistical production process.³⁵²

20.11. Below is a brief description of several good practices which countries are advised to follow in setting up their dissemination policy:

- i. *Users should be treated equally*, whether national or international;

³⁵¹ The Principles are available at <http://unstats.un.org/unsd/dnss/gp/fundprinciples.aspx>.

³⁵² Guidelines on Integrated Economic Statistics, ST/ESA/STAT/SER.F/108.
<http://unstats.un.org/unsd/nationalaccount/docs/IES-Guidelines-e.pdf>.

- ii. *Data should be made available to all users at the same predetermined time;*
- iii. *Adequate user access to data and metadata* (including information on quality of data³⁵³ and methodologies) should be ensured, in terms of making information publicly available in a clear and easily understandable manner and in adequate forms of dissemination; making statistics available on an impartial and timely basis; and providing prompt and knowledgeable support services to users (e.g., “Frequently-Asked Questions”, contact information for questions, and technical help). For a major statistical release, it is often helpful for the statistical agency to organize a press briefing event. The highlights could be used to convey significant findings, comparisons, and trends to assist the media, and other users, in understanding and using the publications. Where feasible, special data services could be provided including special or non-standard groupings of data items or outputs, and their usefulness and their costs;
- iv. *An advanced release schedule* should be published. It is essential that the dates in the schedule are met.

20.12. *Importance of metadata dissemination.*³⁵⁴ The statistical agencies responsible for statistics on the international supply of services must ensure that users are able to access and correctly interpret the information on statistical methods, concepts, variables and classifications used in producing statistical results. Additional guidance on dissemination of metadata is provided below:

- i. Sufficient metadata should be made available to enable both the least and the most sophisticated users to readily access data and understand their quality. It is a good practice to structure metadata in layers of incremental detail.³⁵⁵
- ii. *Structural metadata* should be presented as an integral part of the database and be published as part of statistical tables (e.g., in the form of flags or footnotes identifying differences in definitions, estimations and imputations, provisional values, confidentiality, break in the time series, etc.). by default, unless explicitly removed by the user. *Reference metadata* can be presented as a detailed explanatory note describing the scope, coverage, and quality of a dataset and can be made available electronically alongside the database or in special publications. In addition, compilers should make every effort to ensure that users have ready access to metadata through multiple dissemination channels, both in printed and in electronic format (whereby Internet dissemination plays a key role), and be free of charge (regardless of whether the statistics they describe are disseminated for a fee according to the compiling organization’s policies).³⁵⁶ Any deviations from international standards or discrepancies (e.g., trade in services, balance of payments, tourism statistics, FATS, etc.) should be adequately explained to the user. Whenever feasible, it is a good practice that compilers disseminate metadata using standardized concepts that are relevant across statistical domains (e.g., by adopting cross-domain concepts from the SDMX framework, Annex 4).

³⁵³ See chapter 19 for more information on quality reporting.

³⁵⁴ Also see chapter 18.

³⁵⁵ See OECD, *Data and metadata reporting and presentation handbook*, 2007, page 22.

³⁵⁶ See OECD, *Data and metadata reporting and presentation handbook*, 2007, page 22.

C. Factors to consider in dissemination of data and metadata compiled within the framework for describing the international supply of services

C.1. Variables to be disseminated

20.13. MSITS 2010 contains recommendations with respect to the kinds of data variables that should be considered for dissemination. Taking into account the elaboration of the data and metadata variables provided in this Guide, countries are encouraged to organize their dissemination policy as follows:

- i. *Statistics on value of trade in services between residents and non-residents.* It is recommended that the full detailed annual value data be broken down by: (1) direction of trade flows (exports and imports); (2) EBOPS 2010, by 12 first level categories as a minimum but preferably by all relevant sub-categories; (3) trading partners, (4) relation between the parties and (5) modes of supply if such data are compiled or if an allocation is performed following the recommended procedures contained in Chapter 14 of this Guide. It is good practice to disseminate on a quarterly basis the main aggregates of such data (in particular for exports and imports, by main EBOPS 2010 categories and by main trading partners). It is also a good practice to disseminate preliminary estimates of available or priority aggregates monthly. Compilers should ensure coherence between disseminated datasets and should closely coordinate dissemination of the statistics with dissemination of balance of payments statistics.
- ii. For *foreign affiliate statistics (FATS)*, the selection of variables which should be disseminated depends on the quality assessment of the compiled variables and the information needs of the country. However, efforts should be made to disseminate the basic variables identified in MSITS 2010 and elaborated in Chapter 15 of this Guide namely: sales (turnover) and/or output; employment, value added, exports and imports of goods and services, and number of enterprises. As a priority, given their relative ease in producing, and the primary interest of users, data should be disseminated for (i) sales (turnover) and/or output; (ii) employment, and (iii) number of enterprises. It is recommended that the data be disseminated broken down by: (1) direction of investment (outward and inward FATS); (2) activity according to ICFA Rev. 1 or on a compatible basis such as ISIC Rev. 4; (3) if possible for output or sales by product, using a classification system compatible with EBOPS 2010, but if not achievable as a minimum compiling total goods and total services for each activity; (4) partner (economy of affiliate operations for outward, UCI for inward). For sales/output, if possible, those services rendered to residents of the economy of establishment of the affiliate should be identified. FATS statistics should ideally be disseminated at least on an annual basis for those variables that are deemed to be the most important (i.e. priority variables). The corresponding structural and reference metadata items should also be made available (see Chapter 18).
- iii. Countries are further advised to disseminate resident/non-resident trade in services and FATS sales/output data in a common report.
- iv. *Non-monetary indicators, in particular on the supply of services by modes 2 and 4* include data on number of persons crossing borders (or trips) broken down by several classification criteria appropriate for such modes. For countries that have not started compiling trade in services by modes, a possible alternative would be to perform a “conceptual” allocation as presented in chapter 14 C. It is a good practice to concentrate, at a minimum, on disseminating statistics on an annual basis, using the breakdowns as suggested in chapter 16. However, given the strong link of this information with trade/labour mobility policy, it could be of interest to also envisage the compilation of some information for shorter periods, for instance on a quarterly

basis, at least for main aggregates. Countries are also advised to pay special attention to the dissemination of the relevant structural and reference metadata in order to ensure the correct interpretation of the data. For the other statistics described in chapter 16 section D, given that these are compiled by statisticians in other statistical domains, no particular dissemination practices are detailed in this guide other than the general principles described above (see also section 20.D).

C.2. Timeliness

20.14. Timeliness of the dissemination is one of the recommended quality dimensions and should be fully taken into consideration when developing the release schedule. The delays in time between data collection and publishing should be monitored, as well as how the release of these data fit with the release of related data, such as BOP and National accounts³⁵⁷.

20.15. When disseminating data, there is usually a trade-off between the timeliness, on the one hand, and reliability, accuracy and level of detail of published data on the other hand. To help making relevant decisions compilers should consider, user requirements (e.g., discussing trade-offs with major user groups and making decisions public) and the timing of the collection of initial and revised data from various sources.

20.16. Compilers are advised to publicly post (e.g., on the website of the national agency responsible for the dissemination of the official trade statistics) before the beginning of each year an advance release calendar of data with precise dates at which those will be released and possibly revised. It is also a good practice to inform users about availability of such calendars using all appropriate means of communication. In addition, to improve timeliness in the dissemination of statistics on the international supply of services, it is a good practice to publish on a regular basis the provisional estimates of totals, as well as of breakdowns by major service categories and main partners (see section C.1 for more details), soon after the end of the reference period. Such estimates, by their nature, would be based on relatively limited data content and are to be replaced by more accurate, but less timely figures at a later date. Users must be aware of the trade-off between quality (size of revisions) and timeliness (e.g., it is generally not a good practice to publish frequently large revisions); and quality aspects need to be taken into account when deciding on the frequency of publication.

20.17. Compilers are encouraged to issue, as relevant, the first releases of resident/non-resident trade in services data as follows: (a) monthly totals within 45 days after the end of the reference month, at least by main categories of services (and by major trading partners, if possible); (b) quarterly data within one quarter after the reference period; and (c) annual data generally within six to nine months after the reference period. The release of certain data sets such as annual FATS can be extended.

20.18. In addition, compilers are advised that the data for the fourth quarter (or for the twelfth month) need to be compiled and disseminated in their own right and should not be derived as the difference between the annual totals and the sum for the first three quarters (or eleven months) in order to provide undistorted data for all months and quarters.

20.19. Regarding coherence between monthly, quarterly and annual data, countries should ensure that additivity is always present, possibly by systematic automated checks. In the case of non-additivity, compilers should make available the reasons underlying it in the metadata or explanatory notes.

³⁵⁷ See BPM6 Compilation Guide, paragraph 17.4.

C.3. *Statistical confidentiality*

20.20. Statistical confidentiality refers to the protection of information of individual statistical units and has to be differentiated from other forms of confidentiality under which information is not disseminated due to other considerations, for example due to national security concerns. It is a good practice to always strive for a full coverage of all data which are in the scope of statistics on the international supply of services, while applying appropriate methods to keep certain information confidential. This Guide recognizes, however, the necessity of both statistical confidentiality and of balancing it against the need for public information in cases where the application of statistical confidentiality would limit or make it impossible to provide sufficient or meaningful information. It is also good practice to disseminate a quantitative indicator of the amount of data subject to confidentiality.

20.21. The implementation of recommendations on statistical confidentiality depends to a large extent on each country's legislation and the general confidentiality policy adopted by its statistical system. The assurance of confidentiality is essential to securing the cooperation of reporters and to maintaining the integrity of the statistical system. Confidentiality concerns may also be a more serious issue in smaller or less developed countries where there are fewer entities likely to be engaged in in the international supply of services. An important challenge in the implementation of confidentiality rules is to ensure that confidentiality is applied across all the different classifications in which data are disseminated.

20.22. Active confidentiality is advised, which implies that the statistical agency should take the initiative to actively suppress or aggregate data the dissemination of which would enable the identification of any individual person or entity.³⁵⁸

20.23. The Eurostat Handbook on Statistical Disclosure provides detailed examples and approaches to applying sensitivity rules when applying active confidentiality and is recommended for further reading.³⁵⁹ As shown in table 20.1, common sensitivity rules used are: the minimum frequency rule (data suppressed for cells that have less than a pre-determined number of respondents reporting, typically three³⁶⁰); or the dominance rule in which the preponderance of the value (the exact share of which to be pre-determined by the compiler) is derived from the top one to three entities). It is important to keep the exact pre-defined parameters confidential. In some cases, the contributor with the second largest contribution to a cell which is non-sensitive according to the sensitivity rules cited above is able to derive a close upper estimate for the contribution of the largest one by subtracting his or her own contribution from the aggregate total.³⁶¹ In such cases, the dominance rule would need to be adapted (see the p% rule in table 20.1).

³⁵⁸ It may be interesting to note that in the domain of international merchandise trade statistics, "passive confidentiality" is recommended (i.e., data are treated as confidential only when the trader requests so on the grounds that his or her interests would be harmed by the dissemination of their data and the statistical authority finds the request justified based on the confidentiality rules), unless the use of active confidentiality is already the established, desired and accepted practice. IMTS 2010, paragraph 10.3. [https://unstats.un.org/unsd/trade/eg-imits/IMTS%202010%20\(English\).pdf](https://unstats.un.org/unsd/trade/eg-imits/IMTS%202010%20(English).pdf). IMTS 2010 Compilers Guide, paragraph 1.14.

<http://unstats.un.org/unsd/trade/EG-IMTS/IMTS2010-CM%20-%20white%20cover%20version.pdf>³⁵⁹ Handbook on Statistical Disclosure, Eurostat, 2007. <http://unstats.un.org/unsd/EconStatKB/Attachment474.aspx>.

³⁵⁹ Handbook on Statistical Disclosure, Eurostat, 2007. <http://unstats.un.org/unsd/EconStatKB/Attachment474.aspx>.

³⁶⁰ While three is a common criteria, some statistical agencies use others. For instance, the United Kingdom sets this number at five companies. Department of Trade, Enterprise and Investment (DETI), UK. DETI Confidentiality Statement.

http://www.detini.gov.uk/data_confidentiality_statement_principle_5_of_the_code_of_practice_for_official_statist_ics_.pdf.

20.24. If one data cell is made confidential, it is typically advisable to also suppress the next available cell with the smallest value so that the value of the primary confidential cell cannot be calculated.

Table 20.1 Sensitivity rules³⁶²

Rule	Definition
	A cell is consider sensitive when:
Minimum frequency rule	The cell frequency is less than a pre-specified minimum frequency of n respondents
(n,k) -dominance rule)	The sum of the n largest contributions exceeds $k\%$ of the cell total, e.g., $x_1 + \dots + x_n > k/100 \cdot X$
$p\%$ -rule	The cell total minus the 2 largest contributions x_1 and x_2 is less than $p\%$ of the largest contribution; e.g., $X - x_2 - x_1 < p/100 x_1$ ⁵

20.25. It is a good practice that an overview of the confidentiality rules is published so that data reporters are assured that their right to confidentiality is guaranteed while data users are informed about certain data limitations, enabling them to use the data more appropriately. It is also a good practice to provide users details on what data areas are affected most by the application of confidentiality rules and the magnitude of this effect.

20.26. Demand for access to micro-data has been increasing amid the growing recognition of its value for social, economic and business analysis. Arrangements for access to micro-data will vary from country to country, but compilers should ensure that data are only made available for statistical purposes and that access for research purposes is granted as long as the confidentiality is protected. More information on basic principles to be adopted can be found in the UNECE guidelines.³⁶³

20.27. It is the role of the statistical compiling agency to decide whether, how and to whom its micro-data are released, based on well-established rules, such as: (a) the merits of the research proposals and the credibility of the researcher, (b) whether the risk of identification is sufficiently small and (c) whether the confidentiality adjustments made to the data have unduly damaged the micro-data for research purposes, among others. Legal arrangements or some form of administrative arrangement to protect confidentiality should be put in place and made visible before any micro-data are released. Such arrangement should cover what can and cannot be done and for what purposes, the conditions of release and the consequences if these conditions are breached. Transparency is important to increase public confidence that micro-data are being used appropriately and that decisions regarding access are made objectively. The compiling agency's web site is an effective means of ensuring transparency and for providing information on research based on released micro-data.

20.28. *Managing breaches.* The statistical compiling agency should ensure that researchers are aware of the consequences to them and their institution if there are confidentiality breaches. Legal action could be considered if a legal offence has occurred; but at a minimum, the researcher (and possibly the researcher's institution) should be prevented from further access to micro-data. For minor breaches, a warning may be sufficient.

³⁶² *Ibid.* Table 4-1. ³⁶³ *Managing Statistical Confidentiality and Micro data Access: Principles and Guidelines of Good Practice* (2007). United Nations Economic Commission for Europe and Conference of European Statisticians. ISBN 13: 987-92-1-116959-1. The electronic version of the guidelines is available at the UNECE Statistical Division's website: <http://www.unece.org/stats/publ.htm>.

³⁶³ *Managing Statistical Confidentiality and Micro data Access: Principles and Guidelines of Good Practice* (2007). United Nations Economic Commission for Europe and Conference of European Statisticians. ISBN 13: 987-92-1-116959-1. The electronic version of the guidelines is available at the UNECE Statistical Division's website: <http://www.unece.org/stats/publ.htm>.

20.29. There are a number of software products currently available for managing confidentiality of micro-data³⁶⁴ and many NSOs also develop their own tailored processes and software specific to their legislative requirements.³⁶⁵

C.4. Users and data dissemination

20.30. Major users of trade in services statistics that a statistical agency disseminates are likely to include balance of payments and national accounts statistics compilers (generally the central bank or the statistical office). Key government agencies (such as ministries of economy, or trade) are other major users that will need detailed data on the international supply of services to assist in the determination, monitoring or modification of specific trade or industry policies. Industry bodies, researchers and the media may also be important users. Given the complexities surrounding statistics on the international supply of services, users will often require support, by way of explanatory material of key statistical concepts, for example, and their expectations may need, initially at least, to be more closely managed. Effective interaction with users also includes the promotion of metadata so that users can make better use of the data disseminated.

20.31. It is therefore essential that the compiling agency (or agencies) responsible for the dissemination of data on the international supply of services negotiates with its users in terms of content, standards, classifications, accuracy, timeliness, output format/s, and platform/s for delivery. Such discussion would also include clarity concerning the unavoidable trade-off between timeliness, accuracy and cost. When the users are from other government agencies, the discussion should occur in the context of the institutional arrangements (see chapter 3). Ideally, users' output requirements would be discussed well before data is to be disseminated as these requirements have significant impact on decisions made throughout the statistical process, including: the scope of the collection, its cost, required levels of accuracy, timeliness, standards, classifications, explanatory material, format of the output, platforms for its delivery, possible or likely limitations imposed by data providers' confidentiality requirements, and the handling of *ad hoc* requests.

³⁶⁴ Special Uniques Detection Algorithm is a system for detecting and grading special uniques. This is needed for confidentialising datasets by first identifying all special unique records and either disguising or removing them. SDCMicro is free software for the generation of protected micro-data for researchers and public use, available at: <http://cran.project.org/web/packages/sdcMicro/index.html>. Country-specific examples of micro-data procedures as presented at plenary sessions of the Conference of European Statisticians held by the United Nations Economic Commission of Europe (UNECE) are available at: <http://www.unece.org/stats/documents/2013.06.ces.html>. More details regarding Remote Analysis Servers can be found in a note by the Australian Bureau of Statistics presented at the Sixty-first plenary session of UNECE/CES, entitled "Innovative micro-data access - confidentiality on the fly" available at: <http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/2013/29.pdf>.

³⁶⁵ Country-specific examples of micro-data procedures as presented at plenary sessions of the Conference of European Statisticians held by the United Nations Economic Commission of Europe (UNECE) are available at: <http://www.unece.org/stats/documents/2013.06.ces.html>. For example, a number of NSOs release public use files, also referred to as Confidentialised Unit Record Files (CURFs), which are heavily confidentialised files that remove names, addresses, geographic information and other details. Micro-data can also be made available via Research Data Centers or Data Laboratories, either on-site or through virtual terminals installed in other organisations. Outputs removed from these centers should be checked manually. Finally, some statistical agencies have begun using Remote Analysis Servers, which allow researchers to submit a query via the internet to the agency's server, which sends confidentialised output back to the researcher. More details regarding Remote Analysis Servers can be found in a note by the Australian Bureau of Statistics presented at the Sixty-first plenary session of UNECE/CES, entitled "Innovative micro-data access - confidentiality on the fly" available at: <http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/2013/29.pdf>.

20.32. The compiling agency should be aware that users' requirements may evolve over time. It is a good practice to systematically monitor changing user needs in order to ensure higher relevance of the compiled data, for example via user satisfaction surveys. A well-designed user satisfaction survey regarding data dissemination would normally focus on the following aspects of data dissemination: (a) user-friendliness of the trade statistics database interface; (b) clarity and completeness of available metadata; (c) desirability of continuation of traditional paper publications, (d) ways to improve data and metadata presentation.

20.33. It is also a good practice to establish close and long-term relationships with representatives of major user groups in order to identify the most effective ways of data and metadata dissemination. This contact might be done via regular fora for structured communication involving key users and stakeholders, such as standing advisory committees, as well as via ad hoc promotional events. While statistics can be acceptably used and interpreted in many different ways, it is important to maintain trust in, and the credibility of, official trade statistics. The responsible statistical agency therefore has to prevent obviously erroneous interpretation of the data, and undertake the necessary corrective actions if such faulty interpretations are detected (for instance, conducting press conferences and press releases, and writing letters to the editors publications where misinterpretations have been detected). A good practice to avoid misinterpretation of data is to place special attention to establishing direct contacts with the main users of trade statistics whose analyses have major impact on public policy and public opinion.

20.34. At all stages of the production cycle of statistical output a statistical agency should have clearly formulated and documented procedures for communication with users. These procedures should cover content, frequency, and protocols for interaction with the media and ad hoc communication. It is a good practice to conduct regular outreach activities aiming to help users to better understand data and put them to the most effective use, including efforts to improve the statistical literacy of users and to prevent misinterpretation within the context of a broad public relations strategy to deepen the general public's understanding of the importance of statistics. For example, the following outreach activities can be encouraged: conducting regular user group meetings or seminars; conducting user satisfaction surveys; offering tutorials and user guides explaining how to find data on the dissemination website; organizing press conferences and including contact information in press releases to assist users in the correct interpretation of the statistics; participating in annual conferences of user groups, book fairs and other suitable events; and launching awareness campaigns, such as a "National Statistics Day/Week/Month". It is also a good practice in all relevant outreach activities to raise users' awareness of the importance of metadata for correct data interpretation and effective use.

20.35. *Working with the media.* It is also in the best interest of the agency responsible for disseminating external sector statistics to build a strong working relationship with the media, to make it easy for journalists to report on statistical information in an accurate, timely and informative manner, and to take steps to increase media coverage as a way of reaching the broader society with important statistical information.

20.36. The capacity of users to pay for data is a factor to be considered in the selection of the best data dissemination method. If users have a limited capacity to pay, and especially where the broad dissemination of data is desired, making data freely available electronically, or providing users' access through making hard copies available at libraries would be useful. Regular data dissemination should satisfy most if not all user needs. However, some users might have special needs which would require complex data extraction, which the users might not be able to perform themselves. Countries may consider offering such users premium data extraction services for a fee. In any case, compilers should ensure that users are made fully aware of all available options for obtaining the required data.

20.37. Both data and metadata can be disseminated in various formats and by various means. In light of diversity of user groups, it is a good practice to adopt several formats and means of dissemination to ensure that data and metadata are effectively delivered. For example, press releases aimed at the general public have to be disseminated in ways that facilitate re-dissemination by mass media, while more comprehensive or detailed statistics intended for researchers need to be disseminated via on-line databases, with hard copy publications used as reference materials. Similarly, an individual dataset with a range of features may be presented using multiple dissemination methods (e.g., data in a spreadsheet format and the explanatory notes as a PDF file). (See chapter 21 section C for more information on the use of information technology in data and metadata dissemination.)

20.38. The method of dissemination should also give consideration to the maintenance of links between data and the metadata, classifications, and explanatory material, so that clients can understand and easily access all publically available statistical information.

20.39. Statistical organisations may choose to publish a standard dataset of statistics on the international supply of services which meets the needs of most users via the most readily accessible means or technology (e.g. spreadsheet, printed or electronic documents). For example, in areas where access to the internet is limited or lack of bandwidth would make downloading the data too slow, publishing some datasets in a printed publication could be preferable to publishing everything on-line. However,, countries are advised that it is generally no longer necessary to issue paper publications containing many detailed sets of tables. A better practice is to focus such publications on the main features of the statistics, presenting data in a more user friendly way by resorting to enhanced visual elements, such as color charts and by adding more analytical information.

20.40. Statistical organisations can also provide more sophisticated data sets via different dissemination methods to more demanding users, if necessary, and possibly with the ability to query the data and create customised datasets. For example, data may be published at a national level as a PDF file on the statistical organisation website, with more data available (which could or could not be free of charge) for more detailed service categories or for more detailed geographic areas as a custom data request supplied to individual clients directly . In this instance, it is worth considering creating interactive tools, such as an online table building facility, with a user friendly interface.³⁶⁶ It is important that any customized, automated, or interactive systems are designed to correctly apply the compiling agency's confidentiality rules before the data are release.

20.41. There are a number of processes and mechanisms for the exchange or dissemination of data and metadata between different organisations. Bringing together output in a single repository, supported by standard services for loading and extracting content and managing associated metadata is a good way of ensuring consistency and coherence, and can facilitate dissemination to different users with different needs. In this context this Guide encourages countries to cooperate with regional, supranational and international organizations to identify and apply the most efficient ways of dissemination of their data on the international supply of services and related metadata, in particular through a relevant use of the Statistical Data and Metadata Exchange (SDMX). Also, a new dissemination format for the balance of payments metadata is using standardized web forms that are accessible via an Integrated Correspondent System (ICS). This reporting method is meant to provide reporting countries with an easy-to-use and efficient system for reporting data and metadata to IMF.

³⁶⁶ See chapter 21 for more information on the use of information and communication technology.

C.5. Revision Policy

20.42. Recognizing that revisions of data on the international supply of services are often necessary and given that dissemination of the revised data are essential for users, this Guide encourages compilers to develop a revision policy that is well-designed, carefully managed, transparent and well-coordinated with other areas of statistics thereby allowing users to cope with revisions in a systematic manner, which entails:

- i. A detailed description of the revision policy on the responsible agency's website, including the data required to be revised, the frequency in which data is to be revised, and any reasoning behind revisions;
- ii. A reasonable stability of timing of the revisions, clearly reflected in the data release calendar;
- iii. A (early) notification whenever a revision requires changes in the time series going as far back as the beginning of the series to retain methodological consistency, explaining the reasons for the revision and providing information on its possible impact on the data;
- iv. Easy access to sufficiently long time series of revised data;
- v. Dissemination of all revised monthly, quarterly and annual data to ensure consistency of all data available to users, including seasonally adjusted data and indices;
- vi. Adequate documentation of revisions in the statistical publications and databases;
- vii. Coordination of revision policy with data providers which might be the origin of large revisions;
- viii. Establishment of a vintage database to measure the size of revisions and generate quality indicators.

20.43. Data sources are often continually updated and some data sources are received on a lag, making it necessary to revise data. Any revision has the potential to impact multiple sections/teams, all operating on different time periods and publications, so there needs to be a consistent treatment surrounding the revision process to maintain quality, coherence and usability of data that is published.

20.44. Revision policies should balance accuracy with usability. On one hand, it is desirable to account for each and every possible change in the data as soon as possible. On the other hand, frequent changes to a dataset may make it difficult for users to get a clear picture of the underlying series and makes version control difficult. The policy should be practical to implement, and should itself be revised if necessary.

C.8. Country experience: the Russian Federation - data revision policy

20.45. Russian external trade in services data are revised and updated within the overall framework of the Bank of Russia's Data Revisions Policy and Methodology, in order to ensure the accuracy and comprehensiveness of external sector statistics and ensure the temporal consistency of time series. The revision rules applied in practice to external trade in services time series provide for three different kinds of adjustments:

- i. *Regular revisions*: when published data are updated e.g. in order to replace initial estimates with actual data (in case of time lags);
- ii. *Ad hoc revisions*: when new information becomes available on unrecorded large transactions or when changes are made in the compilation methodology;
- iii. *Technical revisions*: related to the application of the double entry principle in recording the external trade in services transactions within the balance of payments and the need to correct the corresponding double entry, or reflect the change in the source data coverage or other changes.

20.46. Historical data are revised as far back as possible in instances of major changes in methodology; however they are not revised in the case of changes to the data collection systems.

20.47. The results of revisions are published. Annually the Bank of Russia prepares a detailed table of revisions including the initial data, revised data and discrepancies, followed by detailed commentary on data revisions. The quarterly publications also contain a detailed list of updated items, periods subject to review, and reasons for the revisions, which are assigned special codes. The coded reasons for revisions are:

- i. Changes in the previously reported data;
- ii. Improvements of compilation methodology/computation and evaluation methods;
- iii. Inclusion of information from new sources on non-residents' transactions;
- iv. Corrections due to changes in the pairs of the BOP double entry transaction records;
- v. Replacement of earlier estimates with actual data;
- vi. Other miscellaneous changes.

C.9. Country experience: Australia – data revision policy

20.48. The Australian Bureau of Statistics (ABS) has published the Australian Economic Statistics Revisions Policy (ASERP). In summary, it states that economic statistics are typically high frequency data that require a trade-off between accuracy and timeliness, and it aims to maximise both these factors. It states that the following principles should be observed: (a) as far as possible, users should be informed in advance of significant methodological changes which will result in revisions, (b) information on revisions, including their reasons, should be kept and published as appropriate; (c) revisions should be analysed to determine whether improvements in sources or methods could lead to a future reduction in the extent of revisions.

20.49. The current ASERP has been presented with challenges. Among these include: (a) the complexity and risk imposed on Business Statistical Centres (BSCs) from having to maintain parallel data for six to nine months on systems that are not designed for this, (b) clients agreeing to the introduction of concurrent seasonal adjustment and its regular revisions based to a desire to know the true result sooner. Australia's current policy delays the release of this true (or improved quality) data, (c) increasing reliance on administrative data and not being able to impose our revisions policy on the administrative sources, and (d) maintaining internal vs. external coherence for statistical data.

20.50. Trade in services statistics have developed their own revisions policy that is consistent with the AESRP on a broad level (that is, maximising both accuracy and timeliness while taking both into

account) but also guides decisions for Business Statistical Centre (BSC) use. In summary, it states that survey revisions may be recorded at any stage but should only be applied after the current survey data has been finalised to ensure consistency across publication cycles particularly during periods of monthly, quarterly and annual releases. Historical revisions should be recorded as soon as they are identified, as they only occur once a year in statistics on the international supply of services and may not cover periods where revisions are identified. Any revisions that do not fit the other two criteria may be applied at any stage. For instance, if there the survey data are revised from the previous quarter, the following steps are taken: (a) revisions are identified and confirmed, (b) revisions are documented, (c) revisions are applied in the processing system for trade in services through to working spreadsheets, (d) these spreadsheets are updated with only the revisions mentioned above and are sent to other areas for further processing.

D. Presentation of statistics by mode of supply

20.51. This section deals with the dissemination of statistics on the international supply of services by the 4 modes. The allocation of FATS as mode 3 supply of services is relatively straightforward (see chapter 15), whereas the modal breakdown or allocation of resident non- resident trade in services to modes is described in detail in chapter 14.C. It is key in trade negotiations and analysis, and could provide statistical background for settling disputes, better evaluating market opportunities and monitoring changes in patterns of the international supply of services. Modes of supply statistics could possibly be disseminated on an annual or pluri-annual basis as (i) FATS data are more likely to be produced yearly and (ii) data on resident-non-resident transactions broken down by modes may not be compiled every year.

20.52. Given the complexity, and different levels of advancement in producing relevant data, it is proposed to proceed in stages in the dissemination of combined information on modes of supply, initially concentrating on monetary aspects. From this perspective it is of utmost importance that compilers provide metadata to users on the issues of comparability of FATS and balance of payments services transactions data, in particular if for the former the data refer to sales rather than output, are not broken down by product but rather by activity, or it is not possible to separately identify sales to the residents of the territory of establishment of the affiliates.³⁶⁷

20.53. First combining statistics on resident/non-resident transactions in services and FATS—gives users a broad perspective on the international supply of services. This broad perspective recognizes the key role in the delivery of services internationally played by affiliates that are located in—but are owned outside—the markets they serve. It is also consistent with the view many firms take of their world-wide operations. Once countries have developed FATS and balance of payments services data, a first step would be to report data on BOP services with no distinction of modes alongside data on inward and outward services output (or sales) by foreign affiliates (as a close estimate of the supply of services through mode 3), as³⁶⁸ shown in table 20.3. A dataset could first be produced for total services, but then a breakdown into partners and services sectors (keeping in mind the comparability issues that this may raise) would also prove useful.

³⁶⁷ Concerning FATS data, as long as they are provided only on an activity basis, it will most probably be difficult to present a breakdown of sales or output by product using EBOPS 2010, nor ICFA Rev. 1 as suggested in MSITS2010 Chapter 5. However it is important to keep in mind that MSITS 2010 suggests as a long-term goal to develop statistics on sales/output of services by product, using a classification compatible with EBOPS if possible. An interim solution is to break down output (or sales) for each activity between total services and total goods, the former being of interest in the context of the international supply of services.

³⁶⁸ For a proper estimation of mode 3 one should identify output or sales of services to residents of the country of establishment of these affiliates.

Table 20.3 Services supplied to foreign and national markets through international transactions and through affiliates

	To foreign markets		To national market	
	Through exports of services (credits)	Through foreign affiliates of resident companies (outward, output of services)	Through imports of services (debits)	Through resident affiliates of foreign companies (inward, input of services)
2000				
2001				
2002				
...				

20.54. Second, for those countries that have some specific services niches, there may be interest to compile a breakdown of relevant monetary data (i.e. FATS services output (or sales) and balance of payments services data) into modes of supply for this sector, in particular to assist the policy making and negotiations. Data on FATS and services transactions may be collected or compiled separately or together (as described in chapters 6, 14.C and 15). Accompanying metadata should be very detailed as the sector under consideration might not be directly comparable with statistics possibly disseminated by other countries on similar service sectors. Each country might indeed choose to compile services data by modes of supply on very specific niches taking into account their comparative advantage and the relative importance of the service for their domestic economy.³⁶⁹

20.55. Table 20.4 provides an example format for disseminating statistics for a specific service for the 4 modes of supply. Depending on needs, data could be broken down by more detailed type of service and/or by partner, and could also be produced for both services supplied to foreign (exports/outward) and national markets (imports/inward).

Table 20.4 Dissemination of data on the international supply of services according to the 4 modes

	Through trade in services			Through foreign affiliates (output of services)
	Mode 1	Mode 2	Mode 4	Mode 3
Services X				
Services Y				

20.56. However, it is important that compilers aim at disseminating services data by mode of supply at least for each main services items and direction of supply (i.e. to foreign markets and to the national market). This is why that as a third step it is advised to disseminate a table similar to 20.4, but with the breakdowns described above for all main sectors, with more or less detail depending on interest/availability of data for specific services. Where no data collection or compilation by mode is established, a possible alternative for presenting – and disseminating data would be to perform as a starting point the “conceptual” allocation of trade in services as presented in chapter 14 section C (see also table V.2 of MSITS 2010). If it is not possible to use FATS data (e.g. not compiled, or comparability issues are too big), an alternative solution could be to only present the breakdown of balance of payments trade in services into modes, and if relevant have the available FATS sales/output data (preferably focusing on services) shown in a separate set of tables. Again very detailed metadata has to be provided explaining the rationale for the allocation of the service items to specific modes

³⁶⁹ A description of the services sector in terms of the Central Product Classification (CPC) could be useful in order to clarify the scope of the service under consideration which is broken down by modes.

20.57. Presenting modes of supply data by main service sector will facilitate cross country comparison, keeping in mind that this may be adapted according to the data availability in the country, as well as on the compiler's knowledge of how services are supplied by or in the country. Instead of partner world relevant economic or geographical zones or regions could be presented and would give probably more insight views for policy decisions. If for balance of payments services transactions it is not possible to distinguish between modes, then additional columns could be added (for example at the right hand side of table 20.4) providing the possibility of presenting information for a combination of modes (e.g. "modes 1 and 4", "modes 2 and 4"). It is, however, advised that the headers reflect the (two) mode(s) most likely to be relevant for services sectors. To ensure the usefulness of the information, the use of these additional columns should be limited, the longer-term aim being to have all transactions shown under respective (single) modes, and therefore removing the "combined" columns.

20.58. Finally for other indicators relevant in the context of the international supply of services, the details of interest from a trade policy perspective should be made available or easily accessible for policy makers and analysts. It is therefore suggested that the responsible agency at the national level makes information (or links to it) available to users in a standardized format for example in a database or analytical report alongside the FATS and balance of payments services data as described above. Particular attention should be brought to mode 2 and mode 4 non-monetary indicators which should be disseminated using the breakdowns as suggested in chapter 16 to the extent possible.

20.59. Examples are presented below for United States and New Zealand, however as presented in this guide, other national agencies have engaged in the publication of monetary data broken down by modes of supply, e.g. Reserve Bank of India, Australian International Legal Services Advisory Council. In addition some reports combining indicators from various sources are published by some agencies in charge of analyzing the international supply of services such as the U.S. International Trade Commission or Australia's Department for Foreign Affairs and Trade. Readers are advised to refer to these reports for examples of dissemination of data on the international supply of services.

D.1. Country experience: the United States - combining statistics on resident/non-resident transactions in services and FATS

20.60. The U.S. Bureau of Economic Analysis (BEA) releases statistics on international sales and purchases of services on an annual basis.³⁷⁰ These statistics cover resident/non-resident transactions in services and services supplied through locally established direct investment enterprises, or affiliates, which are obtained from FATS.³⁷¹

20.61. The annual statistics on resident/non-resident transactions in services are consistent with the statistics on U.S. trade in services that BEA disseminates via monthly (global aggregates for selected types of services), quarterly (detail for more types of services and for selected partner countries and regions), and annual releases (greatest details by service categories and by partner). The statistics on services supplied through affiliates included in the international services statistics are derived from FATS. Separate releases for inward and outward FATS provide detail by country and industry for all of the data items that BEA collects.

³⁷⁰ See BEA's website, www.bea.gov, by looking under "International" and clicking on "International Services."

³⁷¹ Cross-border trade in private services excludes transactions by the U.S. government (including the military). Trade in private services is featured in the statistics on international sales and purchases of services because they are most comparable to the services supplied through affiliates, which cover activities of businesses.

20.62. In the presentation on international purchases and sales of services, resident/non-resident transactions of exports and imports represent trade in the conventional sense and cover transactions between residents of the United States and residents of foreign countries. They include both transactions between unaffiliated parties and trade within multinational enterprises (intra-firm trade). The data on services supplied through affiliates cover majority-owned affiliates and include services supplied to foreign residents through the foreign affiliates of U.S. multinational enterprises and services supplied to U.S. residents through the U.S. affiliates of foreign multinational enterprises. These transactions are not considered U.S. international transactions because, under the residency principle of balance-of-payments accounting, affiliates of multinational enterprises are regarded as residents of the countries where they are located rather than of the countries of their owners. The measures of services supplied are based on data that require affiliates' sales or gross operating revenues to be distributed among sales of goods, sales of services, and investment income.

20.63. The BEA recognizes in its reports that there are differences in coverage that make comparisons of services supplied through affiliates to resident/non-resident transactions imprecise.³⁷² However, the large gap between resident/non-resident transactions and services supplied through affiliates indicates the importance of services supplied through affiliates as a channel through which enterprises sell services to foreign markets. This could be due to the fact that selling through locally established affiliates is the only practical method of delivery for many types of services because of the need for proximity in both time and space between the consumer and producer. In addition to coverage differences, precise comparisons of the relative size of the two modes of delivery cannot be made for specific types of services because the data on cross-border trade are classified by type of service, whereas the data on sales of services through affiliates are classified by the primary industry of the affiliate. An example of the data release on US international supply of services is provided in table 20.6.

³⁷² An example of a difference in coverage is the inclusion of distributive services in the measure of services supplied through affiliates but not in the cross-border trade statistics. The distributive services associated with importing and exporting goods are included indistinguishably in the value of trade in goods.

Table 20.6 Services supplied to foreign and U.S. markets through cross-border trade and through affiliates

	To foreign markets		To U.S. market	
	Through cross-border trade	Through foreign affiliates of U.S. enterprises ¹	Through cross-border trade	Through U.S. affiliates of foreign enterprises
	(U.S. exports)		(U.S. imports)	
	Billions of dollars			
2008	516.3	1,116.9	372.5	701.6
2009	490.5	1,071.6	350.4	669.3
2010	538.6	1,155.2	372.9	701.2
2011	595.7	1,287.0	398.4	754.0
2012	628.1	n.a.	414.7	n.a.
	Percent change from the preceding year			
2008	9.8	9.6	10.4	2.6
2009	-5.0	-4.1	-5.9	-4.6
2010	9.8	7.8	6.4	4.8
2011	10.6	11.4	6.8	7.5
2012	5.4	n.a.	4.1	n.a.
n.a. Not available				
* A non-zero value between -0.05 and 0.05 percent.				
Note. The statistics on cross-border trade for 2003-2011 and services supplied through affiliates for 2010 are revised from those released in October 2012.				

Table 20.5 New Zealand supply of services to foreign markets by mode and broad type of services

Year ended 30 June 2011			
NZ\$(million)			
Broad service type	Mode of supply ⁽¹⁾		
	Cross-border supply ⁽²⁾	Presence of natural persons ⁽³⁾	Consumption abroad ⁽⁴⁾
Information and communication technology services	642	69	14
Financial services	189	2	1
Trade and sales services	551	34	20
Business services	831	66	25
Technical and professional services	343	137	9
Intellectual property	469
Miscellaneous services	136	84	12
Entertainment and recreational services	219	71	24
Services not elsewhere classified	43	--	1
Total	3,424	463	105

1. Data may not add to stated totals due to rounding.
2. Cross border supply is when the work is performed in New Zealand and delivered to a customer overseas (eg by Internet, phone, or mail).
3. Presence of natural persons means the work is performed by a New Zealand employee working in a foreign country.
4. Consumption abroad is when the customer travels to New Zealand to take delivery of the service.

Symbols:
... not applicable
-- amount too small to be expressed

Source: Statistics New Zealand

D.2. Country experience: New Zealand - disseminating trade in services by mode of supply by broad service types and by partner

20.64. New Zealand disseminates two tables presenting services exports by modes of supply for main services items and for main partners. Mode 3 is out of the scope of the BOP survey which is used to collect the information on trade in services by mode so only modes 1, 2 and 4 are presented in two tables. Table 20.5 presents exports of services by mode of supply and broad type of services and is provided below. A similar table shows by mode, the main partners to which services are supplied.

E. Combined presentation of international merchandise and trade in services statistics

20.65. The presentation of an integrated set of statistics is recommended by the UN Statistical Commission as such will benefit the users, in creating a better understanding of the disseminated data and reinforcing messages for evidence-based policy and decision making.³⁷³

20.65. Users expect that trade statistics cover both goods and services and are presented to them as a coherent data set. Such presentation of the data is essential for enabling users to better understand international trade between country A and B and a country's export and import profile.

20.66. To meet this user expectation it is a good practice that compilers, in addition to making trade in services statistics available in their own right, closely cooperate with compilers of IMTS in order to develop a policy of presenting some data on resident/non-resident trade in services and merchandise trade

³⁷³ Guidelines on Integrated Economic Statistics, paragraph 5.115.
<http://unstats.un.org/unsd/nationalaccount/docs/IES-Guidelines-e.pdf>.

alongside each other (as appropriate), accompanied with appropriate explanation of their scope including conceptual overlaps and numerical assessments of such overlaps. It is also good practice to provide guidance on interpreting the data, including examples on how the data can and cannot be used.

20.67. In particular, a combined presentation of the data should be considered, as long as users are informed of the methodological differences behind the figures and the data are made as comparable as possible beforehand. For further discussion of the methodological differences between trade in services and merchandise trade (e.g., in terms of coverage, timing, valuation, and classification) and for adjustments needed to make the data comparable, see Annex D.³⁷⁴

E.1. Country experience: Germany

20.68. In 2011 the Deutsche Bundesbank and German Statistical Federal Office decided to present merchandise trade data combined with trade in services data in a collaborative publication for interested users on a yearly basis. It was published for the first time in 2012 on the websites of both institutions and is available only in an electronic version.

20.69. It contains annual data from 2009 on of merchandise trade from Foreign Trade Statistics (FTS) broken down into main industrial groupings, selected economic activities and country groups. Due to the methodological differences between FTS (movement across the border) and Balance of Payments concepts (change of ownership) the publication also provides some basic information about the total corrections made to reconcile merchandise trade with the goods account on a Balance of Payments Basis.³⁷⁵

20.70. Trade in services is broken down by major service items like travel, transport, construction or financial services and by country groups already used for merchandise trade. To highlight the relevance of the aggregates for the economy, the publication further contains a table with relations of exports and imports of merchandise and services to GDP.

20.71. The publication provides users for the first time a complete picture about the German trade with the Rest of the World in a coherent way. However, the current version is quite condensed and so the Bundesbank has to wait for users' feedback. As mentioned before, the publication will be updated on regular basis at the end of year following the reporting period (t-1).³⁷⁶

³⁷⁴ Annex D will be made available on-line on the UN website.

³⁷⁵ For further details about the necessary adjustments, see Table 10.2, page 161, in the BPM6.

³⁷⁶ An English version of the publication is currently not available. The German version can be found under: http://www.bundesbank.de/Redaktion/DE/Pressemitteilungen/BBK/2012/2012_12_07_ausfuehren_waren.html.

Chapter 21 Use of Information and Communication Technology

21.1. *Scope.* This chapter provides a summary of good practices associated with the use of information and communication technology (ICT) (section A) in the collection and dissemination of statistics compiled within the framework for describing the international supply of services. The ways in which ICT can be used at the data collection stage are discussed in section B, while the data compilation and dissemination stages are reviewed in section C. The topics covered include electronic data collection and compilation methods, including electronic questionnaires, computer assisted personal interviewing, internet data collection, and data and metadata warehousing, as well as technological considerations at the dissemination stage. The chapter also includes country examples on implementing web-based statistics reporting portals and a mobile application for data dissemination.

A. Summary of good practices

21.2. Compilers are encouraged to consider implementing electronic data collection methods (such as electronic questionnaires, computer-assisted personal interviewing, internet data collection and electronic file transmission), as they offer the possibility of improving the accuracy and timeliness of statistics, reducing survey cost and reporting burden, and diminishing the compilation burden. Given the complexities of collecting data on the international supply of services and its various dimensions, adopting an electronic data system may assist in collecting detailed breakdowns by e.g. type of service, partner country, or mode of supply, as well as for different types of variables.

21.3. It is a good practice that electronic data collection methods, especially electronic surveys, include the use of built-in automatic edits and other devices, such as automatic data fills and calculations, prompts for missing fields, and automatic skipping of not applicable questions, which allow the respondents to avoid errors and to fill in the questionnaire more easily and faster.

21.4. Compilers should also be aware that use of electronic questionnaires may introduce certain bias in survey results (at least in the early stages of implementation), whereby some potential respondents may be unable to participate due to lack of access to, or lack of familiarity with, the appropriate technology.

21.5. Compilers are advised to design their processing systems in an efficient way so that data and metadata can be conveniently retrieved from the relevant databases, be used in the generation of the intermediate and final datasets, and be updated and synchronized. In this context, compilers are encouraged to design and use a data warehousing system of data and metadata by which the dissemination of information becomes integrated with the collection and processing components of the statistical production process.

21.6. Compilers are further advised to choose the form of technology used for dissemination based on the nature and quantity of data to be published. In making these decisions, statistical organisations should also consider the needs of their users, e.g. publish a standard dataset which meets the needs of most users via the most readily accessible technology, and provide more sophisticated data sets via different dissemination methods such as online interactive databases (free or not). Printed publications can also be produced more easily with an effective use of information technology.

B. Use of ICT at the data collection stage

21.7. Electronic data collection includes the use of electronic questionnaires via computer assisted personal interviewing (CAPI), computer assisted telephone interviewing (CATI), computer assisted web interviewing (CAWI), and internet data collection (possibly via an internet portal), among others. Electronic forms may ease the collection for data but also present new challenges and opportunities, for example in improving editing. In particular, it offers the possibility of using built-in edits previously not possible in paper or other non-electronic modes of data collection. More generally, electronic data collection can result in other efficiency gains by allowing for study and upgrading of current editing practices or editing practices associated with other non-electronic collection modes, analysis of different problems using multimode data collections, measuring the respondent burden, and measuring the quality and reliability of responses in order to provide valuable information to other survey processes.

21.8. The use of electronic questionnaires improves the accuracy and timeliness and, at the same time, reduces survey cost, reporting burden and processing burden. First, the elimination of the need for the statistical agency to manually enter data from surveys prevents a common source of error. Moreover, improved accuracy results from the possibility of adding built-in automatic edits in electronic questionnaires, which allow the respondents to avoid errors or reduce the time spent in filling-in questionnaires. For example, devices such as automatic data fills and calculations, prompts for missing fields, and automatic skipping of not applicable questions could help the respondent to fill in the questionnaire more easily, more accurately, and faster. Although, as with any form of questionnaire, it is possible for survey respondents to misinterpret the questions, electronic questionnaires would help to reduce this risk by including within the electronic forms notes explaining the type of information that is expected from respondents and definitions of key concepts. Therefore, the use of electronic questionnaires is encouraged as it enhances data quality, and, in the case of statistics compiled within the framework for describing the international supply of services, can also help in the collection of multiple variables (e.g. receipts or payments for services, associated quantity indicators such as number of mode 4 persons/trips) and accompanying dimensions (service type, partner, relation between the parties, modes of supply, etc.).

21.9. It is very difficult to measure the real impact of the use of such questionnaires on accuracy, given the self-selective nature of the respondents that choose the electronic option. Compilers should also be aware that use of electronic questionnaires may introduce a certain bias in survey results (at least in the early stages of implementation), whereby some potential respondents may be unable to participate due to lack of access to, or lack of familiarity with, the appropriate technology (e.g., those without a computer or internet access, the elderly, low-income groups, or the lowly educated).

21.10. There are several methods that compilers can employ to encourage respondents to provide data via electronic questionnaires. For example, compilers can explain the time-saving benefits of such questionnaires to respondents or can offer incentives (e.g., temporary access to or previews of information on survey results, or free deliveries of customized data queries). Compilers are also advised not to underestimate the value of providing a high-level of customer service and thanking respondents for their responses, regardless of the method of questionnaire response. Finally it is important to note that the success of the implementation of such a process also lies in the co-operation of survey managers and IT specialists.

21.11. *Computer Assisted Personal Interviewing (CAPI)*. CAPI is a computer assisted data collection method for replacing paper-and-pen methods of survey data collection and usually conducted at the home or business of the respondent using a portable electronic device, such as a laptop, notebook or tablet. As the technology advances to provide lighter devices with longer battery life and more user-friendly software, CAPI is expected to be used more often, especially for quick turnaround surveys.

21.12. *Internet Data collection (IDC)*. IDC is a means of quick survey data collection by utilizing the Internet in which respondents submit responses using web-based forms, sometimes available on statistics “portals”. A system administrator retrieves the completed forms and routes them for further processing. Existing systems of IDC often produce ready-made data files with all answers, which can subsequently be combined – if necessary – with data obtained by other modes of collection.

21.13. *Electronic file transmission*. Compilers may also collect data via transmissions of data files (e.g., spreadsheets or in text format) through a secure website or e-mail address. This method has the advantage of eliminating the need for the compiler to manually enter data from a survey; however, there is less guarantee of automatic edits or checks for accuracy built into the data file in as straightforward a way as possible in an electronic questionnaire.

21.14. *Extensible Business Reporting Language (XBRL) reporting*. XBRL is an XML-based computer language developed for the electronic transmission of business and financial reports. Some regulatory agencies have established processes for businesses to fulfil their mandatory reporting requirements using XBRL standards. XBRL tools have also been developed for reporting of financial information to taxation and statistical agencies. These tools reduce the cost of compliance for businesses by building reporting requirements into standard accounting software packages in a way that automates the process of reporting to government agencies.

21.15. The core methodology is an XBRL taxonomy that defines all the data items that the relevant agencies require from businesses. An essential step in developing taxonomy is harmonising the data items collected by different government agencies. If two agencies require the same definition of a data item, it is given the same name. If the different agencies establish that they need different definitions, then they are specified with different names. This harmonisation process not only simplifies reporting by businesses by standardising definitions, but it also assists with integration of statistics, ensuring that different collection agencies have coherent data definitions.

B.1. Country experience: Germany's statistics reporting portal

21.16. As in other countries, the former principle to collect data exclusively using paper forms was replaced by offering respondents certain possibilities to transmit the requested information by electronic means; e.g., a spreadsheet which can be uploaded via the so-called extranet infrastructure of the Deutsche Bundesbank³⁷⁷, or via the submission of an electronic report or in extensible markup language (“xml”) format.

21.17. The reaction of the reporting community on these offers was very positive, resulting in an annually-increasing share of reports transmitted electronically. Although in the beginning the target was to motivate notably “big players” (representing a high share of the overall reported data) to use the electronic means, in the latter years the focus shifted to also encompass less sizable reporters (small and medium enterprises). This shift was in response to the conclusion that only a complete electronic data collection enabled efficiency gains in the different stages of the statistical production chain (editing, aggregation, dissemination, etc.) and the reduction of the reporting burden.

21.18. The statistical reporting portal was designed to allow all respondents to electronically and securely transmit their data on international transaction and positions to the Bundesbank. The respondent can either manually enter the data or import it into the portal from another source in a prescribed data format (i.e., CSV format). In addition, the portal contains a range of help functions and plausibility checks

³⁷⁷ For more details see: <http://www.bundesbank.de/Navigation/EN/Service/Extranet/extranet.html>.

to ease the creation of reports; e.g., when entering data, drop-down lists show the selection options available. The data are automatically checked and any potential errors are identified. The portal is also a multi-client system, meaning that it can be used by third-party submitters, such as a lawyer's office reporting on behalf of their clients.

21.19. The main advantage of the portal is the possibility to receive higher-quality data more quickly than paper or other electronic data collection means. Other advantages include the high level of security, the user assistance (e.g., plausibility checks) and the integrated interface to upload large files.

21.20. At the time of writing the Bundesbank receives more than 86% of the referenced transaction volume electronically. This high proportion of electronic reports encouraged the Bundesbank to change its legal requirements so that all respondents transmit the requested information solely by electronic means.

B.2. Country experience: United States

21.21. The Bureau of Economic Analysis (BEA), an agency of the U.S. Department of Commerce, started collecting international investment data via the Automated Survey Transmission and Retrieval (ASTAR) system in the year 2000. The system was subsequently also used in connection with surveys of trade in services. One of the key features of the ASTAR system is its ability to allow respondents to work at their own pace until the data are ready for submission. The system also incorporates data export and import capabilities for integration with other software, such as spreadsheets, as well as encryption features that safeguard the confidentiality of the reported data. In 2005, BEA began researching electronic filing alternatives in the face of evolving technology and selected e-forms as the basis of its second-generation electronic survey data collection program, called eFile.

21.22. One of the main benefits of the eFile system is the lower cost of maintenance when compared with ASTAR. The eFile system is supported and maintained in-house and not by external contractors. More specifically, BEA can build the fillable forms in-house (using the forms supplied by the Census Bureau), whereas ASTAR must be supported by external contractors.

21.23. Another key benefit and feature of eFile is the password-protected portal site, which allows respondents to manage their own passwords, whereas for the ASTAR system, the respondents must contact BEA at the beginning of each reporting cycle to receive period-specific passwords. The ease of eFile password management reduces BEA's burden of maintenance and may also encourage more respondents to use the eFile system.

21.24. The eFile system also has the potential to collect more accurate data, as fillable forms allow more flexibility in checks for validity and form-specific logic than ASTAR. Additionally, BEA can better ensure data security, as respondents save and submit their encrypted data on the BEA website. Lastly, eFile users receive confirmation of their submissions almost instantaneously, whereas ASTAR respondents receive confirmation only after the data have been loaded into BEA's internal database. BEA plans to phase out ASTAR and convert to eFile for all of its surveys. In addition, the development of a feature allowing respondents to import their data directly into eFile without the need to enter data manually is seen as a major improvement. The survey managers and IT specialists at BEA are committed to work together to continually improve and augment the system..

C. Use of ICT at data compilation and dissemination stages

C.1. Data and metadata warehousing³⁷⁸

21.25. With well-designed data and metadata warehouses, the dissemination of data and metadata becomes integrated with the collection and processing components of the statistical production process. Use of a centralized data warehousing system for data and metadata can make creating, maintaining and accessing data and metadata more efficient and can contribute to the integration of economic statistics, as well as help in bringing together the various set of statistics responding to user needs with respect to the international supply of services.

21.26. As better IT tools have become available, many statistical agencies are moving towards the development and population of such data warehouses. A data warehouse should establish a simple and efficient process for accessing data to provide:

- i. Comprehensive metadata to facilitate understanding and analysis;
- ii. Consistent and coherent long-term time series;
- iii. Reliable information about the availability of data;
- iv. Information about the availability of updated versions of published series;
- v. Contact details for the people who can provide more information about a statistical output.

C.2. Means of dissemination

21.27. Both data and metadata can be disseminated in various formats and by various means. This Guide advises that the statistics compiled within the framework for describing the international supply of services are made available to users through the electronic databases maintained by the responsible agency.³⁷⁹ An efficient use of IT may also ease the production of statistical publications (whether in electronic or paper form).

21.28. The nature of the data to be published will have a significant influence on the form of technology used for dissemination. For example, large, detailed datasets are likely to be more appropriately published electronically, which increases the ability of users to adapt the presentation of the data to satisfy their information needs. Likewise, where very large amounts of data are involved, the ability to query the data and create customised datasets could be useful. In this instance, it is worth considering creating interactive tools, such as an online table-building facility, with a user-friendly interface. Often such online facilities also provide the option to display the data in interactive graphs or maps, or via other forms of visualization such as infographics. Such visualizations can be a great help in communicating data and information (e.g., trends over time, distributions, comparisons across

³⁷⁸ See chapter 18 for more information on data and metadata warehouses.

³⁷⁹ Such databases should: (a) allow free and equal access to all users to any data record considered part of official trade in services statistics; (b) contain an extensive metadata and knowledge base; (c) allow to make queries easily and with a user-friendly interface on the entire database, and to download query results in commonly-used data formats (such as spreadsheets and comma delimited text files), thus reducing the need for personalized handling of most data requests and greatly enhancing efficiency of data dissemination.

groups, geographical origin/destination) clearly to users and can make complex information stories easy to grasp.

21.29. Website-based electronic publications can also contain data and metadata presented in html-format, as a downloadable document (e.g. PDF) or spreadsheet format. Internet access is clearly a key consideration when assessing user accessibility, and the (additional) publication of some datasets in a printed format. It should be considered in those areas where internet access is limited or where lack of bandwidth would make downloading the data too slow. (see chapter 20, section C for more information on data and metadata dissemination).

C.3. Country experience: Austria

21.30. The Austrian central bank (OeNB) offers a statistics mobile application (app)³⁸⁰ that connects mobile users to the broad range of data provided by the OeNB, including pertinent press releases. The app runs on Android or iOS mobile devices and was designed for smartphones, but also works well on tablets. This tool app enables the OeNB to meet its social responsibility of providing sound financial statistics to the broad public in a highly efficient and user-friendly way. A mobile app can reach out to a large number of recipients and address fast-emerging target groups who are heavy users of modern technologies.

21.31. The app provides access to the following domains:

- i. OeNB, Eurosystem and monetary indicators
- ii. Interest rates and exchange rates
- iii. Financial institutions
- iv. Securities
- v. Prices, competitiveness
- vi. Economic and industry indicators
- vii. Financial accounts
- viii. External sector
- ix. International comparisons

21.32. Users can select specific time series to be displayed as tables and charts. Data can be filtered for specific frequencies and ranges, and can also be forwarded to an e-mail address for access through another end device, such as office PCs. Bookmarks allow for quick and regular access to specific time series. Moreover, the app automatically suggests a list of the most frequently accessed time series. Users are alerted to new developments through integrated statistical press releases and can also access explanatory notes and publication schedules. Users can install the app via the Android and iOS app markets or by scanning the QR code provided on the OeNB's website.

21.33. The OeNB launched its app in 2011 and reached about 4,000 users in the first year. A specific function allows for carrying out highly flexible user surveys, on which basis the application can be adapted to user needs.

³⁸⁰ <http://www.oenb.at/en/Statistics/Statistics-App.html>.

21.34. The app complements the mix of communication tools used by the OeNB, such as web presence, publications geared to specific target groups and several instruments aimed at enhancing financial literacy. Substantial synergies have been achieved by implementing the app in the existing IT infrastructure. Basically, the app serves as an alternative tool for presenting data extracts from the database that feeds the statistics applications of the web portal - the app connects to this database through an in-house developed interface. The software itself was developed by an external software consultant. The whole project took about 18 months to develop and implement. The efforts required to maintain the app are limited, as it is built upon an existing and well-established infrastructure and administration is highly automatized.