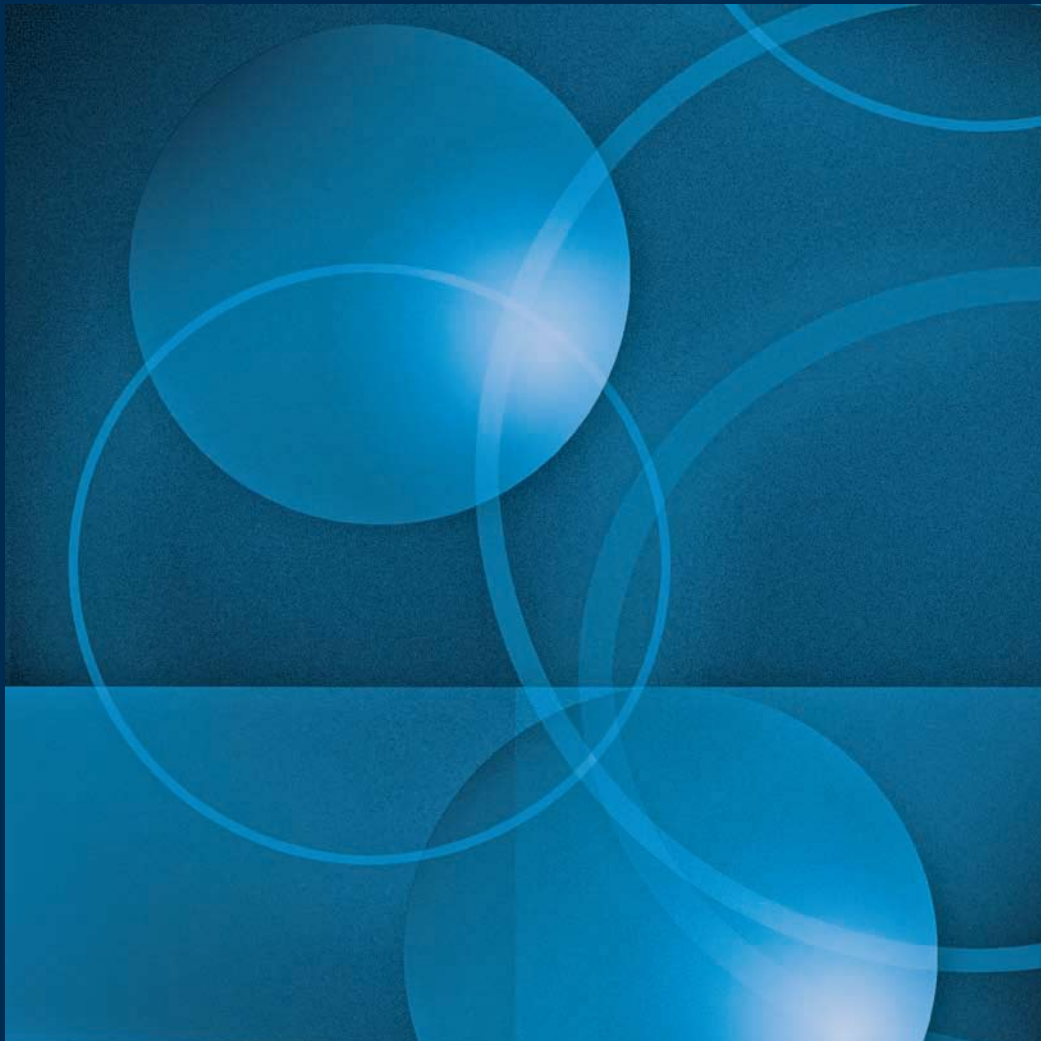


International Recommendations for Distributive Trade Statistics 2008



United Nations

Department of Economic and Social Affairs
Statistics Division

Statistical papers

Series M No. 89

International Recommendations for Distributive Trade Statistics 2008



United Nations
New York, 2009

Department of Economic and Social Affairs

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ST/ESA/STAT/SER.M/89

UNITED NATIONS PUBLICATION

Sales No. E.08.XVII.26

ISBN 978-92-1-161519-7

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Printed in United Nations, New York

Preface

The *International Recommendations for Distributive Trade Statistics 2008* (IRDTS 2008) were prepared in accordance with the decision of the United Nations Statistical Commission taken at its thirty-seventh session, New York, 7-10 March 2006.* In that decision, the Commission endorsed the United Nations Statistics Division initiative to revise the existing recommendations in the area of distributive trade statistics and advised that the revision should fully reflect the specific needs and circumstances of various groups of countries and particularly the needs of countries with a substantial informal sector.

The provisional draft of IRDTS 2008 had been prepared by the Statistics Division pursuant to the conclusions of the first meeting of the United Nations Expert Group on Distributive Trade Statistics held from 22 to 25 August 2005. The draft incorporated inputs from national statistical offices and international organizations received during the worldwide consultations on its contents conducted during November 2006–December 2007. The draft was reviewed and endorsed by the Expert Group at its second meeting, held from 16 to 19 July 2007, and submitted to the Commission at its thirty-ninth session.

The Statistical Commission, at its thirty-ninth session,** held in New York from 26 to 29 February 2008, adopted the draft *International Recommendations for Distributive Trade Statistics 2008* as the new international recommendations for distributive trade statistics.

Preparation of IRDTS 2008 has been part of efforts by the Statistics Division to strengthen countries' methodological and operational foundations for basic economic statistics in an integrated manner, including enhancement of their coherence across different sectors of an economy and conceptual consistency with respect to macroeconomic statistics, as well as to ensure production of the official distributive trade statistics in the most cost-efficient way.

IRDTS 2008 provides the comprehensive methodological framework for collection and compilation of distributive trade statistics in all countries, irrespective of level of development of their statistical systems. Its primary audience is the staff of national statistical offices involved in compilation of these statistics. Also, IRDTS 2008 contains a wealth of information that might be of relevance to data users interested in better understanding the nature of distributive trade data.

* *Official Records of the Economic and Social Council, 2006, Supplement No. 4 (E/2006/24), chap. I.C, decision 37/102.*

** *Official Records of the Economic and Social Council, 2008, Supplement No. 4 (E/2008/24), chap. I.B, decision 39/107, para. (b).*

Acknowledgements

The *International Recommendations for Distributive Trade Statistics 2008* (IRDTS 2008) were prepared by the United Nations Statistics Division in collaboration with the members of the United Nations Expert Group on Distributive Trade Statistics. Members of the Expert Group included (in alphabetical order): Fuziah Md. Amin (Malaysia), Anthony Amuzu (Ghana), Francisco Ardavin-Perez (Mexico), Batjargal Badamtsetseg (Mongolia), Odile Bovar (France), Natalia Cherevichenko (Denmark), Chalermkwun Chiemprachanarakorn (Thailand), Mohammadreza Doostmohammadi (Islamic Republic of Iran), Yan Du (China), Malgorzata Dytman (Poland), Richard Evans (Canada), Anatoliy Fryzorenko (Ukraine), Jose Alberto Garcia Zana-bria (Peru), Hassan Hassanin (Egypt), Eun-Pyo Hong (Organization for Economic Cooperation and Development), Alexander Kevesh (Russian Federation), Prahlad Kumar (India), Hon-kwan Lam (China, Hong Kong Special Administrative Region), Clifford Lewis (Trinidad and Tobago), Michael Manamela (South Africa), Cui Hui Min (Singapore), Darren Morgan (United Kingdom of Great Britain and Northern Ireland), Leonardo Nuñez (Chile), Maria Eugenia Oliden (Chile), Bibish Oyunsuren (Mongolia), Renato Rasia (Canada), Anne Russell (United States of America), Alekh Kumar Sahu (India), Roberto Saldanha (Brazil), Paul Sullivan (Australia) and Romulo Virola (Philippines).

The United Nations Statistics Division is grateful to the members of the Expert Group for their fruitful collaboration. Their valuable contributions throughout the drafting of the recommendations and during the two meetings of the Expert Group are highly acknowledged. A special word of appreciation is due for the contribution of Marco Lancetti (United Nations Statistics Division consultant), who reviewed and evaluated the existing international recommendations in the area of distributive trades statistics.

The United Nations Statistics Division is also grateful to national statistical offices, regional commissions, international organizations and individual experts for their comments received during the worldwide consultations on the contents of IRDTS 2008 which contributed to the successful completion of the drafting.

The preparation of IRDTS 2008 and the organization of the Expert Group meetings were undertaken under the guidance and supervision of Vladimir Markhonko. Youlia Antonova was directly responsible for the preparation of the text and the organization of the worldwide consultations. They were supported by the following Statistics Division staff members: Thierno Aliou Balde, Arlene Adriano and Greta Salisbury, at the early stage of the work. Collaboration with Gulab Singh, who was responsible for the preparation of the text of the *International Recommendations for Industrial Statistics 2008*, ensured that the texts on common principles, concepts and definitions in the two documents were aligned.

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Introduction

1. *Background.* Distributive trade statistics (DTS) constitute a subject area of economic statistics concerned with provision of data on economic units whose main activity is wholesaling and retailing (that is to say, sale without transformation) of any types of goods together with performing services incidental to sales such as repair, installation and delivery. The growing interest in distributive trade statistics has been due to a steady increase in the contribution of distributive trade to the total economy in terms of value added and employment in most countries. Increasingly, distributive trade provides a link not only between producers and buyers of goods who are residents of a given economy, but also between producers and buyers operating as exporters and importers on the global markets. In this context, availability of high-quality distributive trade statistics becomes a precondition for an in-depth analysis of globalization. While, in developed countries, distributive trade is well organized and can normally be captured by standard statistical means, the fact that, in developing countries, much distributive trade is still carried out in the informal sector of the economy complicates statistical observation.

2. The need for a better cross-country comparability of data on distributive trade had been recognized by the United Nations Statistical Commission in the early 1950s. After the preparatory work was completed, the initial set of international recommendations on distributive trade statistics was adopted by the Commission at its ninth session held in 1956.¹ It was based on the report of the Expert Group on Distribution Statistics (E/CN.3/L.36), the country comments on that report and the report of the second session of the Working Group on Distribution Statistics of the Conference of European Statisticians. Subsequently, those recommendations were revised and in 1974 the *International Recommendations on Statistics of the Distributive Trades and Services*² were adopted by the Commission at its eighteenth session.³ In 1977, at the request of the Commission, the United Nations Statistics Division published a manual entitled *Organization and Conduct of Distributive-Trade Surveys*.⁴ Since 1974, the Commission has not included distributive trade statistics as a separate item in its agenda. However, issues relevant to wholesale and retail trade primarily on service statistics and economic classifications, were considered in the context of the Commission's work. The present *International Recommendations for Distributive Trade Statistics 2008* (IRDTS 2008) is another entry in the series of international statistical standards that have been issued by the Statistics Division with a view to providing guidance to countries in the collection and compilation of distributive trade data.

3. *Purpose of IRTDS 2008.* The main purpose of this publication is to provide recommendation on the concepts, definitions, classifications, data sources, data compilation methods, approaches to data quality assessment, metadata and dissemination policies applicable in distributive trade statistics. The recommendations also cover some specific topics that have been identified as requiring additional guidance such as the treatment of informal sector units, compilation of indices of distributive trade, seasonal adjustment, etc. IRDTS 2008 are consistent with those issued in other fields of economic statistics such as industrial statistics, construction statistics and other related domains of structural and short-term statistics, compilations of index numbers and performance indicators and—last but not least—they have been harmonized with the *System of National Accounts 2008* (2008 SNA).

¹ See *Official Records of the Economic and Social Council, Twenty-second Session, Supplement No.7* (E/2876), chap. IV.A.

² *Statistical Papers*, No.57 (United Nations publication, Sales No. E.75.XVII.9).

³ See *Official Records of the Economic and Social Council, Fifty-eighth Session, Supplement No.2* (E/5603 and Corr.1), chap. VI.

⁴ *Studies in Methods*, No.19 (United Nations publication, Sales No. E.77.XVII.3).

4. IRDTS 2008 was developed to ensure production of distributive trade statistics that meet the demands of the user community and are policy-relevant, timely, reliable and internationally comparable. It is applicable for all countries irrespective of the level of development of their statistical systems. However, it should be stressed that the recommendations are not intended to be prescriptive and should be implemented by national statistical offices in a way that is appropriate to their own circumstances, including identified user needs, resources, priorities and respondent burden.

5. IRDTS 2008 focuses on compilation of both structural and short-term statistics. Structural statistics pertinent to distributive trade are production-related statistics that are collected and compiled to establish the structure, activity, competitiveness and performance of trade enterprises at national, regional and international levels. These statistics generally provide information referring to a whole reference year. They show changes from one year to the next and can be used to judge the accuracy of infra-annual data, which are often produced from smaller sample sizes. Finally, they can provide a benchmark population figure for analysing infrequent, irregular or one-time trade surveys. By contrast, short-term distributive trade statistics are infra-annual production-related statistics that are collected to monitor economic activity with respect to the short-term movements in the production and value added of trade units, employment in trade sector, etc. They are often used to produce monthly or quarterly indicators, and often take the form of indices.

6. *Need for the current revision of the recommendations.* The international recommendations for distributive trade statistics had not been reviewed as a whole since 1974 and had to be revised in order to:

- (a) Take into account and provide recommendations on statistical treatment of the new economic developments in the distributive trade sector such as the integration of distribution chains, the growing importance of groups of enterprises, the success of such modes of association as franchising, the growing role of shopping centres, the expansion of electronic commerce, globalization and the persistent importance of the informal sector in less developed countries;
- (b) Ensure implementation of an integrated approach to the compilation of basic economic statistics for various types of economic activities, in particular to achieve harmonization with the recommendations on industrial statistics. It was recognized that distinct advantages would be attained in practice through the standardization of concepts and definitions, methods and procedures utilized for the common features in economic surveys. This would include harmonization of the recommendations on distributive trade statistics with the other recently updated international statistical standards such as the *International Recommendations for Industrial Statistics 2008* (IRIS 2008), which is being updated in parallel with IRDTS 2008 and the *System of National Accounts 2008* (2008 SNA), the *International Standard Industrial Classification of All Economic Activities, Revision 4* (ISIC, Rev.4)⁵ and the *Central Product Classification, Version 2* (CPC, Ver.2);⁶
- (c) Ensure consistency with concepts, definitions and terminology used in statistical publications and regulations of other international organizations, such as the Statistical Office of the European Communities (Eurostat), regarding the development of statistical business registers and implementation of regulations on short-term and structural business statistics; the Organization for Economic Cooperation and Development (OECD), in respect of measurement of the non-observed economy, compilation of an

⁵ United Nations publication, Sales No. E.08.XVII.25.

⁶ United Nations publication, Sales No. E.08.XVII.7.

index of service production, business demography and data and metadata reporting and presentation; and the International Labour Organization (ILO), with regard to the international classification of status in employment, statistics of employment in the informal sector, and working-time measurement;

- (d) Provide guidance on the variables for compilation, data sources and data compilation methods and bring to light new practices in data collection and data compilation resulting in improved quality and coverage of statistical information on distributive trade;
- (e) Ensure uniformity in international reporting in order to create a worldwide database on distributive trade and provide easy access to information on structure and dynamics of global markets as well as performance of the distributive sector in different countries;
- (f) Take account of the continued emergence of the remainder of the services sector in most economies around the globe and the increased volume and complexity of the interrelationships between distributive trade and other service activities both within and between enterprises.

7. *Common integrated framework for the compilation of basic economic statistics.* The present *International Recommendations for Distributive Trade Statistics 2008* should be viewed as a component of the common integrated framework for the compilation of basic economic statistics being developed by the United Nations Statistics Division. The framework is to cover a wide range of topics including statistical units, and classifications and definitions of data items with economy-wide coverage of activities, which will allow for a consistent compilation of harmonized statistics with reliability, flexibility and the level of details required to meet the needs of Governments, the business community, and regional and international agencies and provide a solid foundation for the compilation of national accounts. It is intended to facilitate the examination of both industry and service activities in the business fields and to enable relevant comparisons to be made between various activities, regardless of their diversity, and between countries, irrespective of differences in customs and legislation.

8. *Summary of changes in the recommendations.* In brief, differences between the present recommendations and the 1974 recommendations can be described as follows:

- (a) *Scope.* The present recommendations define the *scope of distributive trade statistics* as statistics reflecting characteristics and activities of the units belonging to the distributive trade sector of an economy. The *scope of the distributive trade sector* is defined in terms of ISIC, Rev.4, as comprising all resident entities recognized as being statistical units and classifiable in section G, Wholesale and retail trade; repair of motor vehicles and motorcycles, irrespective of their size, form of economic and legal organization and ownership. Distributive trade activities carried out by entities not classified in section G of ISIC, Rev.4, are not covered by distributive trade statistics. The previous recommendations did not have a definition of the distributive trade sector, as they referred to all establishments that were engaged primarily in wholesale and retail trade, restaurants and hotels and selected services. According to ISIC, Rev.4, the units primarily engaged in provision of hotels and restaurants service and in the repair of personal and household goods are now classifiable in, respectively, section I, Accommodation and food service activities, and division 95 of section S, Other service activities;

- (b) *Statistical units.* The present version of the recommendations contains a more comprehensive and detailed discussion of statistical units for use in the collection of distributive trade statistics, including the treatment of statistical units of the informal sector and the mapping of selected entities specific to distributive trade, such as retail chains, department stores, franchising, marketplaces, etc. There are enhanced guidelines on delineation and proper classification of trade units in conjunction with the principles of the revised system of national accounts and classification of activities;
- (c) *Data items.* Both the list of data items and their definitions are reviewed and updated. In particular, the revenue and expenditure items are presented in more details, e-commerce sales are separately identified, and value of turnover is presented by product groups. Lists of data items and their coding in IRDTS 2008 and IRIS 2008 are fully harmonized;
- (d) *Performance indicators.* The present recommendations reflect the increased interests in the assessment of overall performance of the distributive trade sector. Along with providing a compilation of the basic data items, the recommendations identify a set of indicators for monitoring the profitability, productivity and efficiency of the distributive trade sector as a whole or of some of its divisions. Such indicators were not part of the previous version of the recommendations;
- (e) *Data sources and data compilation methods.* The description of data sources and data compilation methods has been significantly expanded, through, for example, inclusion of a discussion on various types of statistical and administrative data sources; the business register and its use as a frame for statistical surveys; and data compilation methods implemented by statistical offices to bring the data collected on distributive trade statistics to the level of intended statistical output. The outline of a data-collection strategy for different segments of the economy based on an integrated approach is also presented;
- (f) *Short-term distributive trade statistics.* A new chapter on this subject is added providing, inter alia, guidance on some of the most important issues related to short-term distributive trade statistics, such as compilation of indices of distributive trade, their time-series character and the need for seasonal adjustments and reconciliation of short-term with annual data (benchmarking);
- (g) *Data quality and metadata.* Issues of data quality and metadata were not covered in the previous recommendations. In keeping with the increased importance of the enhancement of data quality, the present recommendations contain guidance on the main dimensions of quality that should be taken into account in developing quality assessment frameworks. A limited set of key indicators for measuring quality of distributive trade statistics is suggested. Recommendations are also provided for development and dissemination of adequate metadata on distributive trade statistics;
- (h) *Data dissemination.* Recommendations on data dissemination are updated and harmonized with similar recommendations applicable in other areas of economic statistics. Further guidance is provided regarding the protection of confidentiality and development of a sound revision policy;
- (i) *Harmonization of IRDTS 2008 with the 2008 SNA.* The harmonization of IRDTS 2008 and the 2008 SNA has been strengthened in terms of imple-

menting the same underlying methodological concepts and definitions. Changes in the 2008 SNA, relevant to distributive trade statistics include:

- *Valuation of trade output.* Basic prices are recommended for valuation of trade margin and trade output (see paras. 4.164 and 4.165). This valuation principle, which not only is implemented by the 2008 SNA, but also underlies business accounting practices, provides the basis for extraction of data used in responding to statistical surveys.
- *Ancillary units.* When separate accounts on the production cost of an ancillary unit are available, or when it is in a geographically different location from the establishments it serves, this ancillary unit is to be recognized as a separate establishment (see para. 2.23) in order to facilitate the compilation of a regional value added for distributive trade activities.
- *Research and development.* Research and development expenditures of trade units, if any, are to be capitalized. Since much research and development is carried out on own account, a number of data items, including a separate assets category, are introduced to allow for its valuation at cost.
- *Large databases.* Similar to research and development, the large databases created by trade units either on own account or for sale are to be capitalized.
- *Employee stock options.* Additional instruments for compensation of employees in terms of employee stock options are introduced (see para. 4.61). This permits further harmonization not only with the 2008 SNA, but also with international business accounting standards.
- *Terminology and classification of non-financial assets* used in IRDTS 2008 and the 2008 SNA are identical.

9. IRDTS 2008 has been prepared in the context of the fundamental principles of official statistics,⁷ which call for official statistics that meet the test of practical utility, are accessible for all and are compiled in a cost-effective way, which means that sources and methods for data collection are chosen appropriately so as to ensure the achievement of timeliness and other quality-related goals and to minimize the reporting burden for data providers. The principles governing international statistical activities,⁸ which call for high-quality international statistics and coordination of international statistical programmes in order to strengthen the quality, coherence and governance of international statistics and to prevent duplication of work were used as a source of additional guidance.

10. Where appropriate, IRTDS 2008 has utilized the previous work and the material contained in various methodological manuals of Eurostat, ILO, the International Monetary Fund (IMF) and OECD as well as a number of the United Nations Statistics Division international statistical standards. In addition, examples of recommended practice were also widely utilized. Sources quoted extensively appear in the reference list at the end of the publication. Detailed source information and references have been provided throughout this publication to enable the user to obtain further information and background material.

11. IRDTS 2008 is designed to provide a comprehensive methodological framework for distributive trade statistics as well as policy guidance on a number of practical issues. More detailed advice to data compilers, including a description of good practices, will be developed in the near future and published in *Distributive*

⁷ Available from: <http://unstats.un.org/unsd/dnss/gp/fundprinciples.aspx>.

⁸ Available from: http://unstats.un.org/unsd/methods/statorg/Principles_stat_activities/principles_stat_activities.htm.

Trade Statistics: Compilers Manual and Indices of Distributive Trade: A Handbook of Good Practices and other technical reports.

12. *Users and uses of distributive trade statistics.* The main users and uses of distributive trade statistics are described briefly below:

- (a) *Compilers of national accounts* make extensive use of distributive trade statistics for, inter alia, (i) measuring the trade output and value added generated by this sector of the economy; (ii) compilation of supply and use tables and input-output tables using data on trade margins by commodity and by industry, and combining and reconciling distributive trade statistics with data from household expenditure surveys and production statistics; (iii) estimation of final consumption expenditure of households on the basis of retail trade sales by commodity groups; (iv) compilation of quarterly national accounts using short-term indicators of distributive trade for estimation or forecasting of both quarterly output and value added of distributive trade and quarterly final consumption expenditure of households; and (v) compilation of a monthly or quarterly index of services production;
- (b) *Policymakers* use distributive trade statistics, including indices of wholesale and retail trade, for assessing short- and long-term movements not only in the distributive trade sector but in a country's economy as a whole and for rationalization of their economic policies, including monetary policy. Such detailed data are vital not only in the context of the total economy, but for subnational (regional/provincial) analysis and for international policy formulation;
- (c) The *business community* is becoming a progressively more active user of detailed distributive trade statistics. The industry analysts find such data indispensable for assessment and forecasting of the dynamics of the wholesale and retail markets as well as for evaluation of performance and competitiveness of various subsectors of distributive trade both nationally and internationally. Statistics of distributive trade over a period of time detailed by kind of activity and by various groups of products are used for identification of areas of expanding or contracting demands and for monitoring the broad patterns of changing consumer tastes;
- (d) *Researchers* find distributive trade statistics useful for economic analysis and studies, including monitoring of economic trends and developing forecasts for the distributive trade sector; conducting market research on the sales of particular group of products; studying methods of sales and distribution, etc.;
- (e) The *general public* benefits from the availability of timely distributive trade statistics for evaluating conditions of the economy, employment and income perspectives in order to make more informed decisions.

13. *Organization of IRDTS 2008.* The present publication covers all aspects of distributive trade statistics. The content of its nine chapters and three annexes may be described as follows.

- Chapter I provides a description of distributive trade activities in terms of the *International Standard Industrial Classification of All Economic Activities, Revision 4* (ISIC, Rev.4), and other classifications, discusses boundary issues and defines the scope of distributive trade statistics.
- Chapter II describes the statistical and reporting units that are useful in the context of collection of distributive trade statistics and economic analysis of the economy.

- Chapter III examines the main characteristics of statistical units that are required for their unique identification and classification.
- Chapter IV provides definitions of data items for use in distributive trade statistics with reference to the data items to be collected and the statistics to be published.
- Chapter V describes a set of main indicators that are useful for evaluating the performance of the distributive trade sector.
- Chapter VI discusses the main data sources and methods used for the compilation of distributive trade statistics.
- Chapter VII provides recommendations on short-term distributive trade statistics, including indices of distributive trade, seasonal adjustment and benchmarking.
- Chapter VIII discusses data quality and metadata relating to distributive trade statistics.
- Chapter IX provides guidance and recommendations on the dissemination of distributive trade statistics and presents selected data items identified for international reporting with annual and infra-annual periodicity.
- Annex I contains a list of data items for use in distributive trade statistics.
- Annex II provides a list of activities excluded from the scope of the relevant distributive trade divisions and classes.
- Annex III provides an example of the identification of the principal activity of a reporting unit using the top-down method within wholesale and retail trade.

Chapter I

Scope of distributive trade statistics

A. Distributive trade as an economic activity

1.1. *Economic activity.* In general, the term “economic activity” is understood as referring to a process, that is to say, to the combination of actions carried out by a certain entity and resulting in a specific type of products (goods and services). An activity is characterized by (a) an input of resources; (b) a production process; and (c) an output of products. By convention, one single activity is understood as a process resulting in a homogeneous type of products. It is recognized that one activity may consist of one simple process or may cover a whole range of sub-processes, each of which might be classified in a different activity category. For statistical purposes, an entity engaged in a given activity may be treated as either simple or complex. A simple entity is not subdivided into parts to which activities are attributed, while a complex entity is, by definition, composed of several sub-entities, each of which is seen as performing a specific activity.

1.2. *Resale.* Taking into account the above conventions, the characteristics that make distributive trade different from other types of economic activity lie mostly in the specificity of its production process which is hereinafter referred to as “resale”. Resale includes a number of actions that might be undertaken to make goods available for buying including negotiating transactions between buyers and sellers or buying goods from the manufacturer on own account, transporting, storing, sorting, assembling, grading, packaging, and displaying a selection of goods in convenient locations. These actions can be organized or combined in different ways. Each combination of such actions resulting in the reselling of goods represents an activity falling within the scope of distributive trade. Some such combinations, typical to distributive trade, are called “type of operation” (see paras. 3.24-3.37 for further details).

1.3. *Sale without transformation.* By convention, resale of goods represents sale without transformation. In general, goods are transformed if they undergo a substantial change in form, appearance or nature so that the goods existing after the change are new and different from those existing before the change. The following actions are not considered substantial transformations of goods by the *International Standard Industrial Classification of All Economic Activities, Revision 4* (ISIC, Rev.4): sorting, grading and assembling of goods, mixing (blending) of goods (for example, sand), bottling (with or without preceding bottle cleaning), packaging, breaking bulk and repackaging for distribution in smaller lots, storage of goods (whether or not they are frozen or chilled), cleaning and drying of agricultural products, and cutting out of wood fibreboards or metal sheets as secondary activities.

1.4. *Distributive trade as an activity* consists of (a) provision of a service to various types of customers (retailers and other commercial users or the general public) by storing and displaying a selection of goods and making them available for buying; and (b) provision of other services incidental to the sale of those goods or subordinated to the selling such as delivery, after-sale repair and installation services.

B. Scope and structure of distributive trade in the International Standard Industrial Classification of All Economic Activities, Revision 4 (ISIC, Rev.4)

1.5. *Scope.* A more precise definition of the scope of distributive trade as well as description of its structure can be given in terms of an activity classification. Following the decision of the United Nations Statistical Commission to adopt ISIC, Rev.4, as an international standard for activity classification, it is recommended that the scope of distributive trade be defined as the scope of section G, Wholesale and retail trade; repair of motor vehicles and motorcycles, of ISIC, Rev.4. Countries that do not use ISIC, Rev.4, are encouraged to develop their national activity classifications in such a manner as to ensure that the overall scope of distributive trade is the same as in ISIC, and implement this in all national compilations for the purposes of international comparability. Failing this, countries should, at the minimum, develop clear and precise concordances between distributive trade classes in their national classification and those in ISIC, Rev.4.

1.6. *Structure of distributive trade.* According to the classification scheme of ISIC, Rev.4, distributive trade is structured within three divisions. Division 45 includes all activities related to the sale and repair of motor vehicles and motorcycles, while divisions 46 and 47 include all other sale activities. The distinction between divisions 46 (wholesale) and 47 (retail sale) is based on the predominant type of customer. Within divisions 46 and 47, the classification scheme considers two additional levels of distinction based on the type of operation of the units involved in such trade and the kind of products sold.

1.7. *Wholesale trade* is defined as the resale (sale without transformation) of new and used goods to retailers, business-to-business trade (for example, to industrial, commercial, institutional or professional users) or resale to other wholesalers, or it involves acting as an agent or broker in buying merchandise for, or selling merchandise to, such persons or companies. The principal types of wholesale trade businesses are merchant wholesalers, that is, wholesalers who take title to the goods they sell, such as wholesale merchants or jobbers, industrial distributors, exporters, importers, and cooperative buying associations, sales branches and sales offices (but not retail stores) that are maintained by manufacturing or mining units apart from their plants or mines for the purpose of marketing their products and that do not merely take orders to be filled by direct shipments from the plants or mines. Other types of wholesale trade businesses are merchandise and commodity brokers, commission merchants and agents and assemblers, buyers and cooperative associations engaged in the marketing of farm products. While by definition, wholesalers do not transform goods, they frequently physically assemble, sort and grade goods in large lots, break bulk, repack and redistribute in smaller lots (for example, pharmaceuticals), store, refrigerate, deliver and install goods, and engage in sales promotion for their customers and label design.

1.8. *Retail trade* is defined as the resale (sale without transformation) of new and used goods mainly to the general public for personal or household consumption or utilization, by shops, department stores, stalls, e-commerce retailers, mail-order houses, hawkers and peddlers, consumer cooperatives, etc. The goods sold in this division are limited to those usually referred to as consumer goods or retail goods. Therefore, goods not usually entering the retail trade, such as cereal grains, ores, industrial machinery, etc., are excluded. Retail trade also includes units engaged primarily in selling to the general public, from displayed merchandise, products such as personal

computers and software, stationery, paint or timber, although these sales may not be for personal or household use. Some processing of goods may be involved, but only as incidental to selling, for example, sorting or repackaging of goods, installation of a domestic appliance, etc. Retail trade also includes the retail sale by commission agents and activities of retail auctioning houses.

1.9. *Structure of divisions 45.* This division includes all activities (except manufacture and renting) related to motor vehicles and motorcycles, including lorries and trucks, such as the wholesale and retail sale of new and second-hand vehicles, the repair and maintenance of vehicles and the wholesale and retail sale of parts and accessories for motor vehicles and motorcycles. Also included are activities of commission agents involved in wholesale or retail sale of vehicles. This division also includes activities such as washing, polishing of vehicles, etc. Activities are grouped into four groups each of which has one basic class.

1.10. *Structure of divisions 46.* The first distinction that is considered in this division concerns the type of operation, that is, how the wholesale trade activity is organized. Two groups of activities are distinguished: (a) commission trade represented by group 461, Wholesale on a fee or contract basis (only), without any further detailing; and (b) wholesale trade on own account representing the aggregation of groups 462-466 and 469, depending on categories of goods sold. The second distinction entails the split of wholesale trade on own account into specialized and non-specialized trade. Twelve classes are used in ISIC, Rev.4, to present the groups of products sold (see below). The wholesaling that cannot be defined as specialized (that is, selling that does not involve one of these particular groups of products) is classified into group 469, Non-specialized wholesale trade.

1.11. *Structure of divisions 47.* The main structuring criterion used in division 47 is whether or not retail trade operations are organized in stores. The retail trade in stores, which includes groups 471-477, is further subdivided by retail trade in specialized stores and non-specialized stores. The third criterion applied to retail trade in stores is category of goods sold. The not-in-stores retail trade is represented by groups 478 and 479, which are further broken down into five classes, three of which encompass retail trade via stalls and markets, and the remaining two, other retail trade not via stalls or markets, and retail trade via mail-order houses or the Internet.

1.12. *ISIC, Rev.4, divisions, groups and classes relevant to distributive trade statistics.* The entire structure of section G of ISIC, Rev.4 is presented below, broken down by divisions (two digits), groups (three digits) and classes (four digits).

Section G—Wholesale and retail trade; repair of motor vehicles and motorcycles

45—Wholesale and retail trade and repair of motor vehicles and motorcycles

451—Sale of motor vehicles

4510—Sale of motor vehicles

452—Maintenance and repair of motor vehicles

4520—Maintenance and repair of motor vehicles

453—Sale of motor vehicle parts and accessories

4530—Sale of motor vehicle parts and accessories

454—Sale, maintenance and repair of motorcycles and related parts and accessories

4540—Sale, maintenance and repair of motorcycles and related parts and accessories

46—Wholesale trade, except of motor vehicles and motorcycles

- 461—Wholesale on a fee or contract basis
 - 4610—*Wholesale on a fee or contract basis*
- 462—Wholesale of agricultural raw materials and live animals
 - 4620—*Wholesale of agricultural raw materials and live animals*
- 463—Wholesale of food, beverages and tobacco
 - 4630—*Wholesale of food, beverages and tobacco*
- 464—Wholesale of household goods
 - 4641—*Wholesale of textiles, clothing and footwear*
 - 4649—*Wholesale of other household goods*
- 465—Wholesale of machinery, equipment and supplies
 - 4651—*Wholesale of computers, computer peripheral equipment and software*
 - 4652—*Wholesale of electronic and telecommunications equipment and parts*
 - 4653—*Wholesale of agricultural machinery, equipment and supplies*
 - 4659—*Wholesale of other machinery and equipment*
- 466—Other specialized wholesale
 - 4661—*Wholesale of solid, liquid and gaseous fuels and related products*
 - 4662—*Wholesale of metals and metal ores*
 - 4663—*Wholesale of construction materials, hardware, plumbing and heating equipment and supplies*
 - 4669—*Wholesale of waste and scrap and other products n.e.c.*
- 469—Non-specialized wholesale trade
 - 4690—*Non-specialized wholesale trade*

47—Retail trade, except of motor vehicles and motorcycles

- 471—Retail sale in non-specialized stores
 - 4711—*Retail sale in non-specialized stores with food, beverages or tobacco predominating*
 - 4719—*Other retail sale in non-specialized stores*
- 472—Retail sale of food, beverages and tobacco in specialized stores
 - 4721—*Retail sale of food in specialized stores*
 - 4722—*Retail sale of beverages in specialized stores*
 - 4723—*Retail sale of tobacco products in specialized stores*
- 473—Retail sale of automotive fuel in specialized stores
 - 4730—*Retail sale of automotive fuel in specialized stores*
- 474—Retail sale of information and communications equipment in specialized stores
 - 4741—*Retail sale of computers, peripheral units, software and telecommunications equipment in specialized stores*
 - 4742—*Retail sale of audio and video equipment in specialized stores*
- 475—Retail sale of other household equipment in specialized stores
 - 4751—*Retail sale of textiles in specialized stores*
 - 4752—*Retail sale of hardware, paints and glass in specialized stores*
 - 4753—*Retail sale of carpets, rugs, wall and floor coverings in specialized stores*
 - 4759—*Retail sale of electrical household appliances, furniture, lighting equipment and other household articles in specialized stores*
- 476—Retail sale of cultural and recreation goods in specialized stores
 - 4761—*Retail sale of books, newspapers and stationery in specialized stores*
 - 4762—*Retail sale of music and video recordings in specialized stores*
 - 4763—*Retail sale of sporting equipment in specialized stores*
 - 4764—*Retail sale of games and toys in specialized stores*

- 477—Retail sale of other goods in specialized stores
- 4771—Retail sale of clothing, footwear and leather articles in specialized stores
 - 4772—Retail sale of pharmaceutical and medical goods, cosmetic and toilet articles in specialized stores
 - 4773—Other retail sale of new goods in specialized stores
 - 4774—Retail sale of second-hand goods
- 478—Retail sale via stalls and markets
- 4781—Retail sale via stalls and markets of food, beverages and tobacco products
 - 4782—Retail sale via stalls and markets of textiles, clothing and footwear
 - 4789—Retail sale via stalls and markets of other goods
- 479—Retail trade not in stores, stalls or markets
- 4791—Retail sale via mail-order houses or via Internet
 - 4799—Other retail sale not in stores, stalls or markets

1.13. *Boundary of distributive trade.* The following activities are not considered to entail transformation of goods and *are included* in distributive trade:

- Physical assembly
- Packaging
- Sorting and grading of goods in large lots
- Breaking bulk
- Repackaging for distribution in smaller lots (for example, pharmaceuticals)
- Mixing (blending) of goods (for example, sand)
- Bottling (with or without preceding bottle cleaning)
- Storage (whether or not goods are frozen or chilled)
- Refrigerating
- Delivering
- After-sale installation
- Cleaning and drying of agricultural products
- Cutting out of wood fibreboards or metal sheets as secondary activities
- Engaging in sales promotion for customers including label designing
- Washing, polishing of vehicles

1.14. The following activities are regarded either as entailing transformation of goods or as not belonging to relevant distributive trade divisions and classes and *are excluded* from distributive trade:

- Renting of motor vehicles or motorcycles
- Renting and leasing of goods
- Packaging of solid goods and bottling of liquid or gaseous goods, including blending and filtering, for third parties
- Sale of farmers' products by farmers
- Manufacture and sale of goods, which are generally classified as manufacturing
- Sale of food and drinks for consumption on the premises and sale of takeaway food
- Renting of personal and household goods to the general public

C. Scope and structure of distributive trade in terms of the Central Product Classification, Version 2 (CPC, Ver.2), and the Classification of Individual Consumption According to Purpose (COICOP)

1.15. *CPC*. The *Central Product Classification, Version 2* (CPC, Ver.2), constitutes a comprehensive product classification covering all goods and services that can be objects of domestic or international transactions. It is a basic statistical tool for establishing distributive trade statistics by product. Distributive trade services are classified in divisions 61 and 62 of CPC on the basis of two criteria: (a) type of provided service (that is, type of operation as discussed in paras. 1.10-1.11 above); and (b) type of traded goods. As a result, the list of commodities that can be sold is set against any of seven groups of types of operation of trade services: two groups for wholesale trade services (commission and own-account) and five groups for retail trade services (store and not in store, specialized and non-specialized and commission retail trade services).

1.16. International and national versions of CPC exist in the same way as they exist for ISIC (see sect. D of this chapter). These include the Statistical Classification of Products by Activity (CPA), which is the European counterpart of CPC, and the Australian and New Zealand Standard Commodity Classification (ANZSCC). They differ significantly from CPC and each other not only in their details and coding systems but also in their structuring.⁹

1.17. *Scope of product groups used in section 6 of CPC, Ver.2*. In order to enhance international comparability of data, countries may use the correspondence table between categories of CPC and activity classes of ISIC, Rev.4, as a guide regarding the scope of such product categories. Such a table will be developed and included in the forthcoming *Distributive Trade Statistics: Compilers Manual*. When classifying statistical units in various classes of divisions 45-47, countries should follow the explanatory notes provided in ISIC, Rev.4, and CPC, Ver.2.

1.18. *COICOP*. Another option for classifying products of distributive trade is the Classification of Individual Consumption According to Purpose (COICOP) which categorizes by the purpose (or function) of the use of the commodities sold. Provision of retail trade data at detailed COICOP level facilitates the compilation of individual consumption expenditure of households in national accounts. Countries are encouraged to implement this classification and present the retail trade turnover, as much as possible, by COICOP classes.¹⁰

1.19. For the purpose of achieving broad international and national comparability of distributive trade data by products, countries are encouraged to present the division 45 retail product classes (four-digit level of CPC, Ver.2) grouped into the following 7 product categories. Although there is no one-to-one mapping between CPC and COICOP, the seven groupings are broadly reconcilable.

- Food, beverages and tobacco
- Clothing and footwear
- Household appliances, articles and equipment
 - Of which: Furniture
- Machinery, equipment and supplies
 - Of which: Information-processing equipment
 - Of which: Motor vehicles and associated goods
- Personal and other goods

⁹ More information on CPC and other product classifications, such as the Standard International Trade Classification (SITC) and the Harmonized Commodity Description and Coding System (Harmonized System) (HS), etc., is available from: <http://unstats.un.org/unsd/cr/registry/regct.asp?Lg=1>.

¹⁰ See *Classification of Expenditure According to Purpose: Classification of the Functions of Government (COFOG); Classification of Individual Consumption According to Purpose (COICOP); Classification of the Purposes of Non-Profit Institutions Serving Households (COPNI); Classification of the Outlays of Producers According to Purpose*, M No.84, United Nations publication, Sales No. E.00.XVII.6, part one, chap. III, and part three; available from: <http://unstats.un.org/unsd/cr/registry/regct.asp?Lg=1>.

- Construction materials
- Other

1.20. In order that they may satisfy the needs of a wide range of users, it is recommended that countries draw up their own lists for the reporting of distributive trade by type of products in accordance with the product classifications used in their trade surveys and the need to comply with international standards. It is desirable that countries prepare more detailed lists for retail trade than for wholesale trade, since the former are useful in describing the flow of goods to households. Whatever list or classification of products will be used, it should be linked to the classification of household goods and services for national accounts purposes.

D. Distributive trade in other activity classifications

1.21. *ISIC*. For classification of economic activities most countries either use the International Standard Industrial Classification of All Economic Activities (ISIC) directly or develop their national industrial classifications based on it. In the case of countries that do not use ISIC or whose national classifications differ from ISIC, it is recommended that they develop their national industrial classifications in a manner allowing for international comparability and identification of the kind of activity so as to ensure compliance with at least the two-digit (division) level of ISIC. For a national industrial classification to be fully compatible with section G of ISIC, Rev.4, the most detailed categories of classification in the national scheme should coincide with, or be aggregations or dissections of, the individual classes of ISIC.

1.22. *NACE*. The Statistical Classification of Economic Activities in the European Community, Revision 2 (NACE, Rev.2),¹¹ is the classification of economic activities implemented by member countries of the European Union (EU), some of the transition economies and other countries seeking admission to the European Union. It is fully compatible with ISIC, Rev.4, as in some cases it provides a subdivision of ISIC that is suited better to the structures of the European economies. Although a single activity at the level of groups and classes may have a numerical code and disaggregation in NACE that differ from those in ISIC, the two classifications can always be aligned by aggregating the more detailed groups and classes of NACE into the groups and classes of ISIC. There is a full correspondence between the first two levels (sections and divisions) of these classifications. NACE, Rev.2, was revised in parallel with the fourth revision of ISIC. It has been in force since 1 January 2008. Countries shall produce their annual structural statistics on distributive trade using NACE, Rev.2, from that date onward and short-term statistics from 1 January 2009. It is recommended that countries that use NACE continue to use NACE, Rev.2, as it is fully consistent with ISIC, Rev.4.

1.23. *NAICS*. The North American Industry Classification System (NAICS) has been developed to provide for Canada, Mexico and the United States of America common industry definitions that facilitate economic analyses of the economies of the three North American countries. NAICS is built upon a production-oriented or supply-based conceptual framework and classifies industries rather than activities. This means that production units that use identical or similar production processes are grouped together in NAICS. Although the system strives for compatibility at the two-digit level of ISIC, there are major differences between the NAICS and ISIC classification structures. An easy conversion of data according to NAICS into ISIC/NACE is not possible. A detailed concordance between NAICS and ISIC, Rev.3.1,¹² has been published on the United Nations Statistics Division website.¹³

¹¹ Available from: http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=NACE_REV2&StrLanguageCode=EN&IntPcKey=&StrLayoutCode=HIERARCHIC&CFID=1505220&CFTOKEN=4b5a935fefb8960a-64410213-09DA-12FE-B2107BE19A0001E6&jsessionmod=ee3085e515312a416332.

¹² Statistical Papers, No. 4/Rev. 3.1 (United Nations publication, Sales No. E.03.XVII.4).

¹³ Available from: <http://unstats.un.org/unsd/cr/registry/regot.asp?Lg=1>.

1.24. *ANZSIC*. The Australian and New Zealand Standard Industrial Classification (ANZSIC) was revised in 2006 and accounts for industries that are specific to Australia and New Zealand. As with ISIC, the conceptual framework for ANZSIC was re-evaluated to incorporate a stronger emphasis on the supply-side approach. The ANZSIC structure broadly follows that of ISIC and ANZSIC aligns with ISIC, Rev.4, at the division (two-digit) level as far as practicable. A correspondence between ANZSIC and ISIC is available at the Australian Bureau of Statistics website.

E. Selected boundary issues

1. Outsourcing: the boundary between wholesaling and manufacturing

1.25. *Outsourcing*. The term “outsourcing” of production is used to refer to a situation where the principal productive unit (the principal) contracts another productive unit (the contractor) to carry out specific functions constituting the whole or a part of the principal’s activity in producing a good or service. While the activity classification of the contractor is straightforward and is not affected by the fact that the activity has been outsourced, the activity classification of the principal is very much affected by the nature and extent of the outsourcing; hence, conventions are required to ensure a consistent treatment. The classification of the principal units is a significant boundary issue, because the decisions made regarding their activity affect the scope of the manufacturing and wholesale (or retail trade) divisions.

1.26. *Types of outsourcing*. Outsourcing can assume three forms, namely (a) outsourcing of support functions; (b) outsourcing of parts of the production process; and (c) outsourcing of the complete production process. In each of these cases, the principal and the contractor may be located within the same economic territory or in different economic territories. The actual location does not affect the classification of either of these units.

1.27. *Outsourcing of support functions*. In this case, the principal (wholesaler or retailer) carries out the resale of goods and services, but outsources certain support functions, such as accounting or computer services, to the contractor. In such a case, it is recommended that the principal remain classified to the ISIC class of section G that represents the core production process (resale by type of sale and type of goods sold). The contractor is classified to the specific support activity that it is carrying out, for example, ISIC class 6920, Accounting, bookkeeping and auditing activities; tax consultancy or class 6202, Computer consultancy and computer facilities management activities.

1.28. *Outsourcing of parts of the production process*. The principal (manufacturer) outsources a part of the production process (of a good or a service), but not the whole process, to the contractor. The principal owns the material inputs to be transformed by the contractor and thereby has ownership over the final outputs. In such a case, it is recommended that the principal be classified in the appropriate manufacturing class of ISIC as if it were carrying out the complete production process. The contractor is classified according to the portion of the production process that it is undertaking. In case of the transformation of a good, the contractor is classified in the same or a separate ISIC category. Also, in the case of the outsourcing of a service, the activities of the principal and the contractor might not be classified in the same ISIC category.

1.29. *Outsourcing of the complete production process.* Two specific cases have to be considered when the principal outsources the complete production process to the contractor, namely:

- (a) *Outsourcing of service producing activities, including construction.* In this case, both the principal and the contractor are classified as if they were carrying out the complete service activity;
- (b) *Outsourcing of manufacturing activities to contractor.* In this case, the principal does not physically transform the goods at the location of its unit. The following activity classification rules are recommended:
 - (i) A principal that owns the material inputs and thereby has economic ownership of the outputs, but has the production carried out by others, is classified to *section C, Manufacturing* of ISIC, Rev.4, specifically to the classification category that corresponds to the complete (outsourced) manufacturing activity;
 - (ii) A principal that has the production carried out by others, but does not own the material inputs, should be classified to *section G, Wholesale and retail trade; repair of motor vehicles and motorcycles* of ISIC, Rev.4, specifically to the classification category that corresponds to the activity represented by the type of sale (for example, wholesale or retail sale) and type of goods sold. In this case, it should also be determined whether the principal carries out other activities, such as design or research and development. If, indeed, other production activities are undertaken by the principal, the usual rules for identifying the principal activity of the principal should be applied (see para. 3.12 for the top-down method);
 - (iii) The contractor in such a case is classified to *section C, Manufacturing* of ISIC, Rev.4, specifically to the classification category that corresponds to the manufacturing activity performed by the contractor.

2. Distinction between retail trade and financial services

1.30. *Units offering consumer credit lines.* Many retail stores and other economic entities involved in distributive trade offer their customers the option of purchasing on credit. For this purpose, they may issue membership cards that allow customers to make purchases within a prearranged credit limit. Consumer credit is a form of a short-term loan extended to individuals for personal or household use, rather than to businesses. Consumer credit is offered also by companies that are active in the consumer credit industry, typically, (a) small loan companies, which, as originators, have contact with consumers and make loans to them directly; and (b) finance companies that do not deal directly with consumers, but purchase and hold consumer instalment debts related to the sale of durable goods on time.

1.31. The classification of financial institutions involved in consumer credit transactions is quite straightforward (they are classified in sect. K, Financial and insurance activities, of ISIC, Rev.4) but is not dealt with in the present recommendations. Compilers of distributive trade statistics, however, must pay attention to cases where the originator and holder of consumer credits is a retail trade unit that has a separate establishment dealing with, or ancillary activities involving (see paras. 3.10-3.11) consumer credits. Because 2008 SNA, distinguishes non-financial and financial sectors separately,¹⁴ it is recommended that, whenever possible, two separate units be defined

¹⁴ See *System of National Accounts, 2008*, chap. 4, for institutional sectors and institutional sector classification.

in this case, one for the entity engaged in non-financial (trade) activity and the other for the entity engaged in financial activity (provision of consumer credits), as long as the necessary financial accounts are available for each of them, even if the two together have all the other attributes of an economic entity and consolidated accounts are compiled for them as a single unit. Both units will be classified in their own right, the second one as a financial institution rather than as a distributive trade unit. However, if the unit providing consumer credits is not statistically observable separately (that is to say, if separate accounts of its activity are not available), it is recommended that it be treated as a part of the relevant statistical unit involved in an ancillary activity. Such treatment will not affect classification of that unit in distributive trade.

F. Scope of distributive trade statistics

1.32. In general, distributive trade statistics reflect characteristics and activities of the units belonging to the distributive trade sector of an economy. Taking into account the role of ISIC, Rev.4, as the activity classification for use in all applicable areas of economic statistics, it is recommended that the distributive trade sector of an economy be defined as consisting of all resident entities recognized as statistical units and classifiable in section G of ISIC, Rev.4, irrespective of their size, form of economic and legal organization and ownership (see chap. III for recommendations on statistical units). The residency of economic entities should be determined in accordance with the rules laid out in 2008 SNA. Distributive trade activities carried out by entities not classified in section G of ISIC, Rev.4, are not covered by distributive trade statistics.

1.33. By convention, the data items falling within the scope of distributive trade statistics are those reflecting: (a) the characteristics of entities belonging to the distributive trade sector; (b) receipts and other revenues and purchases of those entities that are recorded in their profit and loss statements and used for calculation of trade output, intermediate consumption and value added; (c) investment of entities in non-financial assets and changes in inventories; and (d) employment information which is closely related to most of the previous groups of items (see chap. V for detailed recommendations). Other data items, such as those on the financial position of the entities, are explicitly excluded and compiled instead as a part of financial or other relevant statistics.

Chapter II

Statistical and reporting units

A. Overview

2.1. *Economic entities.* The scope of the universe of economic entities engaged in distributive trade is vast, ranging from small entities engaged in one activity or very few activities that are undertaken at or from one geographical location, to large and complex entities engaged in many different activities that may be carried out at or from many geographical locations. Economic entities engaged in distributive trade vary in terms of their legal, accounting, organizational and operating structures. In large and complex entities, the units at which or from which economic activity takes place are grouped for management, administrative and decision-making purposes into hierarchic structures. Higher-level organizational units own, control or manage the lower-level production units at which production decisions are made or production takes place. An economic entity may be structured along geographical, legal or operational lines. It may have one structure or several structures to carry out different functions or to serve different purposes.

2.2. In complex entities, management of the financial affairs of the business is usually conducted at a higher organizational level than management of wholesaling or retailing operations. The accounting systems of businesses usually reflect this management structure by mirroring the hierarchy of management responsibility for the operations of the business. Inasmuch as the accounts required to support the management and decision-making functions, whether financial or production-related, are usually maintained for the corresponding level of management responsibility, it follows that the ability to report data will vary with the structural level.

2.3. *Collection of data from economic entities.* Economic statistics in general and distributive trade statistics in particular have to take into account the above-mentioned structures in order to compile the data that are most useful for economic analysis. However, legal and operational structures of economic entities as well as their record-keeping practices as developed in most countries are not suitable for statistical purposes. Therefore, it is desirable to have guidelines on the definition of statistical, reporting and collection units for use in data collection so that comparable national and international statistics can be produced.

2.4. *Statistical units.* A statistical unit is 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. These units can be divided into two categories:

- (a) *Observation units:* identifiable legal/organizational or physical entities that are able, actually or potentially, to report data regarding their activities;
- (b) *Analytical units:* entities created by statisticians (also referred to as statistical constructs), often by splitting or combining observation units in order

to compile statistics that are more detailed and more homogeneous than it would be possible to compile by using data on observation units. Although analytical units are not themselves able to report data about their activities, there do exist indirect methods of statistical estimation, including imputation of such data. Examples of analytical units are units of homogeneous production and local units of homogeneous production.

2.5. *Collection units.* A collection unit is the unit *from which* data are obtained and by which statistical forms are completed. In fact, it is more of a contact address or contact person than a unit. Any entity that possesses statistically relevant information about statistical units can potentially serve as a collection unit. For, example, if entities leave the form-filling to a bookkeeping office, the latter is the collection unit.

2.6. *Reporting units.* A reporting unit is the unit *about which* data are reported. Typically, when a given entity reports the required data on the characteristics and activities of all of its locations, these locations are the reporting units. In such a case, these entities are statistically observable and are both statistical and reporting units.

2.7. It should be noted that, in practice, the statistical, reporting and collection units often coincide with each other. However, this is not the case if the statistical units are analytical. There is a need to distinguish between these units because they correspond to different stages of the data collection/compilation process. In the context of these recommendations, statistical units are of primary interest, as they are the basis of statistical aggregates and it is to these units that all data items refer. Collection and reporting units are especially relevant in the sampling and data-collection stages.

2.8. If an economic entity is engaged in several kinds of activity and if a separate statistical unit is associated with each of them, this entity is statistically complex. Provided that this unit (or units) is (are) able to supply all the required data, no additional data collection is necessary with respect to the entity as a whole. However, if the complete set of data cannot be obtained in this way, the data collection should target the entity as a whole as well and, if successful, apportion additional information to the statistical units. In this regard, it is important to ensure that the reported data do not contain double-counting.

B. Definition of selected statistical units

2.9. Definitions of various kinds of statistical units are provided in the introduction to ISIC, Rev.4.¹⁵ Countries are encouraged to use this publication to ensure better comparability on national practices in use for statistical and other units. Definitions of statistical units relevant to distributive trade statistics are reproduced below.

2.10. *Enterprise group.* An enterprise group is an association of enterprises (see para. 2.12) bound together by various types of links such as ownership, controlling interest and management. An enterprise group can have more than one decision-making centre, especially for the policy on production, sales and profits and may centralize certain aspects of financial management and taxation. It constitutes an economic entity that is empowered to make choices, particularly concerning the units that it comprises. An enterprise group is controlled by the group head, which is a parent legal unit that is controlled, either directly, or indirectly by any other legal unit. However, there are some forms of cooperative or mutual associations where the parent enterprise is actually owned by the units of the group.

2.11. The enterprise group unit often corresponds to a conglomerate bound together by a network of complex relationships and frequently covers a very wide

¹⁵ United Nations publication, Sales No. E.08.XVII.25.

range of activities. Often, different subgroups can be identified within an enterprise group. There are some difficulties in the use of such a unit for statistical purposes, in particular because of the problems of identifying and keeping track of sometimes unstable links between different enterprises.

2.12. *Enterprise.* An economic entity in its capacity as a producer of goods and services is considered to be an enterprise if it is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other economic entities. 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. It may be engaged in one or more productive activities at one or more locations.

2.13. An enterprise involved in distributive trade may be a corporation, a non-profit institution or an unincorporated enterprise. A corporate enterprise is a complete economic entity that is capable of engaging in the full range of transactions, while the term “unincorporated enterprise” refers to the household as economic entity solely in its capacity as a producer of distributive trade services. A non-profit institution is also an economic entity set up for the purpose of serving and promoting the interests of distributive trade units.

2.14. *Establishment.*¹⁶ An establishment is defined as 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. Although the definition of an establishment allows for the possibility that there may be one or more secondary activities carried out, their magnitude should be small compared with that of the principal activity. If a secondary activity is as important, or nearly as important, as the principal activity, then the unit is more like a local unit, as described below (see para. 2.22).

¹⁶ The establishment is also called a local kind-of-activity unit in the European System of Accounts, 1995 (ESA 1995), para. 2.106.

2.15. In the case of most small and medium-sized businesses, the enterprise and the establishment will be identical. In general, it is recommended that large enterprises engaged in many economic activities that belong to different industries be broken into one or more establishments, provided that smaller and more homogeneous production units can be identified for which production data may be meaningfully compiled.

2.16. *Kind-of-activity unit.* Based on the way the enterprise unit is constructed and defined, it may already have a certain degree of homogeneity with respect to its economic activities; however, some statistics, including distributive trade statistics, may require a higher degree of homogeneity. It is for this purpose that the kind-of-activity unit has been defined and is used.

2.17. 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. There is no restriction placed on the geographical area in which the activity is carried out. In order to create such homogeneous units, the enterprise must be partitioned into narrower, more homogeneous parts.

2.18. Although the aim is to meet, as much as possible, the homogeneity requirement, the other two requirements, namely, data availability and position in the organizational structure, should not be disregarded. Splitting enterprises into kind-of-activity units entails a trade-off involving homogeneity of economic activities on the one hand and data availability and organizational structure on the other. The three requirements in most cases are interrelated: the more homogeneous the unit, the fewer the data available, the less likely the unit is being perceived as a separate entity in the

organization. It is up to national statistical offices to find the right balance. However, it is recommended that such splitting should have due regard for data availability and organizational structure. It should be noted that each enterprise must by definition consist of one or more kind-of-activity units. In many cases, the kind-of-activity unit can exist only as an analytical statistical unit.

2.19. When deciding on the definition of a kind-of-activity unit, it should be noted that any given kind-of-activity unit falling under the heading of a particular activity classification may be engaged in secondary activities that cannot be separately identified from the available accounting documents.

2.20. *Definition of the term "location"*. Definitions of both "establishment" and "local unit" (see below) use the term "location", in this connection, its meaning needs to be clarified. The term "location" can be interpreted in two different ways:

- (a) Narrowly, as a specific site, such as an individual address or even a room in a multistorey office building. This dimension of location should be made operational for statistical purposes because in some cases two or even more than two non-contiguous sites can be regarded as constituting one location, as when, for example, two stores of a trade enterprise are around the corner of the same block or just across the street from each other and when no separate records are maintained for each store. In general, the distance between two sites has to be quite large in order to justify the specification of separate locations, especially when the sites fall within the most detailed geographical area for which series of data are to be compiled;
- (b) As the combination of all locations belonging to an enterprise within a geographical area. The identification of such a statistical unit allows for the distinction between provinces, States, counties, municipalities, townships and even smaller entities like mesh blocks.¹⁷ Therefore, if activities are engaged in at two or more locations, in, for example, the same municipality, township or similar restricted geographical area, covering all of these locations in one single local unit will be acceptable in terms of the concept of a local unit.

2.21. Which of the two interpretations is to be applied depends on the statistics in question. If, for instance, the number of retail shops in a certain area are being counted, or if production processes are being analysed, the location as an individual site is the appropriate unit; if, on the other hand, employment is the subject of the statistics, all locations of an enterprise within the smallest geographical area could well be regarded as one local unit.

2.22. *Local unit*. Enterprises often engage in their productive activity at more than one location, and for the purposes of obtaining geographical distribution of the collected data it is necessary to partition such enterprises accordingly. Thus, a local unit is defined as an enterprise, or a part of an enterprise (for example, a workshop, factory, warehouse, office, mine or depot), that engages in productive activity at or from one location. The definition has only one dimension in that it does not refer to the kind of activity that is carried out by the unit.

2.23. *Ancillary establishment*. If an establishment undertaking purely ancillary activities (see para. 3.10) is statistically observable, in the sense that separate accounts for the production that it undertakes are readily available, or if it is in a geographically different location from the establishments it serves, it may be desirable and useful to regard it as a separate unit, that is to say, an ancillary establishment, and allocate it to the industrial classification corresponding to its principal activity (see para. 3.8). However, it is recommended that separate establishments be created only if suitable

¹⁷ The basic concept governing geographically referenced statistics is that data are aggregated for the area in which an activity actually takes place. A mesh block is a microlevel geographical unit to which individual people or businesses can be coded and individual or unit data can be aggregated.

basic data are available on, for example, the value of the intermediate consumption, compensation of employees, gross fixed capital formation and employment.

2.24. The output of the ancillary establishment should be derived on a sum-of-costs basis, that is to say, on the basis of all the costs of its production including the costs of the capital used in the production. The output of the ancillary unit is treated as intermediate consumption of the establishments it serves and should be allocated using an appropriate indicator such as the output, value added or employment of these establishments. Holding companies are not ancillary units; the functions they perform to control and direct subsidiary companies are not ancillary activities.

2.25. *Ancillary corporation.* A trading corporation may find it advantageous for tax or other reasons to create a subsidiary purely in order that that subsidiary may perform certain ancillary activities for its own benefit. For example, it may create a subsidiary to which ownership of its land, buildings or equipment is transferred and whose sole function is to lease them back again to the parent corporation; or it may create a subsidiary to keep its accounts and records on a separate computer installation, etc. These are artificial units created to avoid taxes, to minimize liabilities in the event of bankruptcy, or to secure other technical advantages under the tax or corporation legislation in force in a particular country. It is recommended that the ancillary corporations not be treated as separate statistical units but as an integral part of the parent corporation and their accounts are consolidated with those of the parent.

C. Recommendations on statistical, reporting and collection units

2.26. Two main types of data are required to describe the economic activity of distributive trade units: (a) production data, based on management and cost accounts of trade units;¹⁸ and (b) financial data, based on their accounting records.¹⁹ These types of statistics are required for analysis of the distributive trade sector as well as for compilation of national accounts. To compile such statistics, statistical, reporting and collection units should be identified and consistently used. The recommendations for such units are provided below.

2.27. In recognition of the fact that the 2008 SNA recommends the establishment as the most appropriate statistical unit for production and employment data and that compilation of homogeneous and geographically distributed data is to be ensured, countries are encouraged to use the establishment as a statistical unit for distributive trade statistics. In the majority of cases, the establishment and the enterprise are the same, hence all types of data can be obtained from the same source. In such cases, an establishment/enterprise can be not only a statistical but also a reporting and collection unit. However, if an establishment is a part of a multi-establishment enterprise, it may not have access to all the necessary (for example, financial) information. Under these circumstances, the enterprise to which a given establishment belongs may serve as a collection unit which provides data about activities of that establishment to the statistical authorities.

2.28. Countries are encouraged to collect data for all relevant establishments belonging to a multi-establishment enterprise within a country. In the case of enterprises operating branches in economic territories of several countries, special care should be taken to ensure that data reflecting activities of establishments that are resident units in other economies not be included in distributive trade statistics of the compiling country.

¹⁸ In general, production statistics include data on operating revenues earned from the sale of goods and services produced and the associated costs, wages and salaries, depreciation and operating profits.

¹⁹ Such records include consolidated profit and loss statements and balance sheets of assets and liabilities of trade units.

2.29. If a sufficient degree of homogeneity and desired geographical distribution can be obtained by other means, or data at the establishment level are not available, the enterprise can be used as the statistical unit and countries may limit their data-collection activities to the enterprises whose main activity is distributive trade. Some countries aiming to achieve maximum possible homogeneity and detailed geographical distribution may find it practical to use the establishment as the statistical unit for the collection of non-financial data items while using the enterprise for the collection of financial data.

2.30. The kind-of-activity unit differs from the establishment in that there is no restriction in respect of the geographical area in which a given kind of activity is carried out by a single legal entity. In certain instances, the availability of data on a kind-of-activity-unit basis may warrant the utilization of this unit rather than the establishment in trade surveys. For example, in some cases, data on fixed capital formation, inventories and sales may be easily available in respect of kind-of-activity units but not in respect of establishments; at the same time, interest in the classification of the data according to area or size of establishment may be minimal. More generally, the kind-of-activity unit may be considered, for many purposes, a suitable alternative to the establishment in those countries where the larger multi-establishment enterprises organize their records on this basis. However, if the kind-of-activity unit is utilized in such cases, it would be useful to indicate the relationship between these units and the units used in other surveys.

2.31. The local unit is used as the statistical unit for compiling particular types of data where no breakdown by activity is required; as such, it is not recommended for use in distributive trade statistics. However, if the criterion of kind-of-activity unit can be attributed to the local unit and this will place it within the scope of section G of ISIC, Rev.4, the unit becomes an establishment and can be used in distributive trade statistics as both statistical and reporting unit.

2.32. The enterprise group unit is too diverse and unstable in nature to be adoptable as statistical unit in distributive trade statistics. However, the enterprise group is useful for financial analyses and for studying company strategies. Therefore, if distributive trade statistics can be presented on an enterprise-group basis, this will be of importance for analytical purposes.

2.33. The collection unit can be any entity that is in a position to provide the national statistical office with reliable and timely data with respect to adopted statistical units.

D. Mapping of selected entities specific to distributive trade to the statistical units

2.34. *Retail chains.* The retail trade sector in almost all countries has been undergoing significant changes in terms of types, size and structure of units in recent decades. The dominance of retail chain stores is one of the most important developments in the retail markets. Retail chains are organizational forms of retail trade units which have a place mainly in retail trade but also in some other service-oriented businesses. Retail chains encompass a range of retail outlets that share a brand and operate under the same ownership or central management. Such stores may be branches, owned by one legal unit, or franchises, owned by natural persons or companies and operated under contract with the parent corporation. In the case where a retail chain operates under a single ownership, there will exist one trade enterprise with many establishments, corresponding to different locations. In the case where a retail chain

operates under a franchise agreement, there will be many enterprises, corresponding to the number of franchisees.

2.35. Retail chains have come into existence as a result of the vertical integration of retail trade businesses in one and the same retail trade activity class (that is, through selling the same type of merchandise, whether food, furniture, etc.). Based on their type of operation (see para. 3.28), retail chains are classified as retailing at stores. Many countries introduce the minimum number of retail locations operated by retail chains as an additional criterion for distinguishing them from other store retailing. Chain stores differ in many ways from single-location stores; an important difference is the difference in their size. Typically, they offer low prices for specific merchandise and derive their profits from high sales volume rather than from high trade margin.

2.36. If a retail chain operates in more than one province or State and sub-national data are important to the economy of a country, it is recommended that the chain should provide a list of all locations it operates in as well as the totals on some of the important data items, such as the number of employees, turnover, wages and salaries, etc., for each location separately. Alternative methods such as using administrative data (for example, employment data) from a business register as a proxy for allocating national economic activity to the subnational level may also be considered to reduce the respondent burden. Each store in this case will be treated as a separate establishment, as its output and value added will be derived proportionally to the available data by location, thus allowing the allocation of the trade activity to the location where it actually takes place and facilitating the estimation of regional trade output and compilation of regional gross domestic product.

2.37. *Department stores/“shops-within-shops” trade.* A department store is a retail establishment that specializes in selling a wide range of products without a single predominant merchandise line (non-specialized stores). Certain department stores might be part of a retail chain, while others might be individual stores.

2.38. Department stores are organizational forms of retail trade that may complicate the implementation of rules for identifying the local units (see para. 2.24). In principle, in almost all cases, the retail local units will be precisely equivalent to retail stores. One exception to this principle arises from the form of trade represented by “shops-within-shops,” where a department store lets out part of its retail space to other retailers. While to a casual customer it may appear that there is only one shop, the fact that a local unit is defined as a part of an enterprise implies that there are a number of local units and an equal number of shops. It is recommended that, in the case of shops-within-shops trade, the department store and all other shops on the same premises be treated as separate statistical units.

2.39. *Franchising.* The operation of a franchise network entails a method of doing business that is popular in a number of service activities, especially retail trade. Franchisees are independent legal units that sign a contract with another legal unit, the franchiser, to engage in an activity making use of trademarks, trading styles and marketing support provided by the franchiser, usually in return for a fee or a share of the sales or profits. A franchise contract typically includes a number of restrictive clauses limiting the franchisee’s freedom of choice through imposing, for instance, standards for the goods and services to be produced, their quality and their price. The franchisee may be compelled to obtain supplies from the franchiser and pay a contribution towards certain services organized by the franchiser that are common to the entire network. The franchiser, in turn, offers scale economies without completely depriving the franchisee of its autonomy, for example, by assuming responsibility for collective marketing.

2.40. It is recommended that franchisees engaged in distributive trade activities be considered separate enterprises because they consist of a complete set of factors of production and run the full entrepreneurial risk. Franchisees also comply with the definition of an enterprise which requires autonomy but allows for this autonomy to be somewhat restricted (“a certain degree of autonomy” is required); moreover, full accounts tend to be available only at the level of the separate franchisees.

2.41. *Marketplaces, street markets, etc.* These are outdoor locations where goods and services are exchanged. They are traditionally in operation in many countries and function in a similar way irrespective of their name and location (on the street, at the market square or at some other specialized location). The traders (or producers) have stalls, but not entire stores. However, it is also possible to have associated shops. Often, the markets are permanent, but it is also possible for them to be temporary, with stalls present for only one or two days per week. Some marketplaces are gradually being replaced by shopping centres with sizeable area and specially organized premises like those in department stores.

2.42. Usually, another unit is the owner and operates the location where the market is situated. The owner could be a municipality or a corporation and to be able to sell at these locations, traders would be required to obtain a licence or pay a fee. In this case, the recommended treatment for such units will be similar to that for department stores (see paras. 2.34 and 2.35) when they let out retail space to individual retailers, that is to say, the individual retailers at the marketplace and its owner will be treated as separate statistical units. At the same time, the marketplace will have as many local units as there are stalls. It should be noted that farmers who sell their output at farmers’ markets are not treated as trade units (see para. 1.14). Selling is treated as an activity secondary to the production of agricultural goods and such units are classified in division 01, Crop and animal production, hunting and related service activities, of ISIC, Rev.4.

E. Statistical units of the informal sector

2.43. *Informal sector.* The informal sector constitutes an economic phenomenon that manifests itself in different ways in different countries. Its size and significance may also depend on the social structures, national and local economic policies and enforcement efforts of a given country. It may encompass practically all kinds of economic activities and household enterprises with different forms of operation. A large number of informal activities are carried out without a fixed location, in homes, small shops or workshops. Informal activities range, for example, from street vending, shoeshining and other activities that require little or no capital or skills to activities that involve a certain amount of investment or a certain level of skills such as tailoring and car repair. Many informal sector enterprises are operated by an individual working either alone, as a self-employed entrepreneur, or with the help of unpaid family members, although other informal microentrepreneurs may engage paid workers.

2.44. The informal sector has been defined by the International Conference of Labour Statisticians according to the types of production units of which it is composed. According to the Conference, the informal sector may be characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes for the persons concerned and that operate within the production boundary of the system of national accounts.²⁰ These units typically operate at a low level of organization, with little or no division between labour and capital as factors of production, and on a small scale. Labour relations—

²⁰ For further details, see the resolution concerning statistics of employment in the informal sector, adopted by the Fifteenth International Conference of Labour Statisticians (January 1993), available from: <http://www.ilo.org/public/english/bureau/stat/res/index.htm>.

where they exist—are based mostly on casual employment, kinship or personal and social relations rather than on contractual arrangements with formal guarantees. It is recommended that countries define the informal sector in terms of the characteristics of production units in which the activities take place and not in terms of the characteristics either of the persons involved or of their jobs.

2.45. *Informal sector enterprises.* These constitute a subset of household unincorporated enterprises,²¹ that is to say, enterprises owned by individuals or households that are not constituted as separate legal entities independently of their owners, with at least some production for sale or barter on the market, and for which no complete accounts are available that would permit a financial separation of the production activities of the enterprise from the other activities of its owner(s). Fixed and other capital used does not belong to the enterprise as such but to the household members. As expenditure for production is often indistinguishable from household expenditure and capital equipment such as buildings or vehicles may be used indistinguishably for business and household purposes, these enterprises cannot be treated as quasi-corporations and delegated to the corporate sector.

2.46. *Additional criteria for defining informal sector enterprises.* Apart from excluding household enterprises producing exclusively for own final use, countries should further restrict the scope of the informal sector by establishing additional criteria for the inclusion of household enterprises. The following additional criteria should be used in defining informal sector enterprises:

- (a) *Size.* The size of informal sector enterprises in terms of employment should be below a nationally determined threshold; and/or
- (b) *Non-registration of the enterprises and/or its employees.* Informal sector enterprises should not be registered under specific forms of national legislation (such as factory or commercial acts, tax or social security laws, professional groups' regulatory acts, or similar acts, laws or regulations established by national legislative bodies). It should be noted that this criterion does not apply to regulations enacted by local authorities for the purpose of obtaining a trade licence or a permit to operate a business.

2.47. A production unit in the informal sector is now defined as a household enterprise with at least some production for sale or barter that meets either or both of the following criteria: a size of employment that is below a nationally determined threshold and the non-registration of the enterprise and/or its employees under specific forms of national legislation.

2.48. *Types of informal sector enterprises.* Informal sector enterprises encompass the following two types:

- (a) *Informal own-account enterprises.* Depending on national circumstances, either all own-account enterprises should be considered informal, or only those that are not registered under specific forms of national legislation. Since the majority of own-account enterprises are small, no size criterion is recommended for defining them. Informal own-account enterprises may employ contributing family workers and employees on an occasional basis, but do not engage employees on a continuous basis;
- (b) *Enterprises of informal employers.* These are household enterprises owned and operated by employers, either alone or in partnership with members of the same or other households, that employ one or more employees on a continuous basis.

²¹ Household unincorporated market enterprises are created for the purpose of producing goods or services for sale or barter on the market. They include unincorporated enterprises owned and operated by individual household members or by several members of the same household, as well as unincorporated partnerships and co-operatives formed by members of different households, if these lack complete sets of accounts. See 2008 SNA, chap. 4, entitled "Institutional units and sectors".

2.49. *Informal sector enterprises engaged in distributive trade.* These are any production units that are engaged in resale of new or used goods and services on the market and that have the characteristics described in paras. 2.44 and 2.45 above. The activities may be undertaken inside or outside the enterprise owner's home, and they may be carried out in identifiable premises, unidentifiable premises or without fixed location. Mobile units (without a fixed location) in the distributive trade sector such as street vendors and hawkers should be regarded as separate enterprises if they are made up of self-employed persons and as employees if they work for enterprises of informal employers that meet the criteria for enterprises. It is recommended that informal sector enterprises engaged in trade activities include enterprises in both urban and rural areas.

Chapter III

Characteristics of statistical units

3.1. Characteristics of statistical units are data items used for their unique identification, for their classification within a particular activity area of distributive trade and for the description of various aspects of their structure, operation and relationship with other units. Availability of information on the characteristics of statistical units is a precondition for an effective organization of the statistical sample surveys as well as for the making of comparisons and the establishment of links between data from different data sources, thereby significantly reducing the duplication in data collection and response burden.

3.2. The main characteristics of the statistical unit are its identification code, location, kind of activity, type of operation, type of economic organization, type of legal organization, type of ownership, size, and demographic characteristics. The list is not exhaustive but these characteristics represent the most important ones from the viewpoint of international comparability, as well as the ones considered to be of significant national interest. They allow for four distinct types of analysis:

- *Geographical analysis*, or detailed analysis of the performance of regions or subregions of an economic territory as compared with the national total
- *Activity analysis*, pertaining to the structure or business cycle of production of one activity or to the comparison of relative performance of several activities within or between reference periods
- *Legal and ownership analysis*, allowing for comparison of performances across the various types of ownership and control as exhibited, for example, by public, private and foreign-owned enterprises, by economic activity and between economic activities
- *Size class analysis*, showing the relationship among the various size classes of enterprises and their activity and performance, as well as the different size structures of the activities, by providing an indication of the degree of concentration and competition. This type of analysis is particularly important in studying business demography

A. Identification code

3.3. The identification code is a unique number assigned to a statistical unit which may comprise digits identifying geographical location, kind of economic activity, whether a unit is a principal producing unit or an ancillary unit, link to its subsidiaries/principal, if any, etc. The unique identification of statistical units is necessary in order to: (a) allow their registration in a statistical business register or inclusion in a sampling frame; (b) permit the collection of information about them via administrative sources; (c) provide a sampling base for statistical surveys; and (d) permit demographic analysis of the population of units. The identification code must not change

throughout the life of the unit, although some of the other characteristics of the unit may change. Common identification codes, shared with administrative authorities and other government departments, greatly facilitate the statistical work, including the connection of the statistical business register, if it has been established, with other registers.

B. Location

3.4. *Physical location of the enterprise, mailing address, contact person.* The location is defined as the place at which the unit is physically performing its activities not the place that corresponds to its mailing address. This characteristic serves two important functions: identification of the unit and its classification by geographical region, preferably at the most detailed level; and allocation of the unit's economic activity to the location in which it actually takes place, if the unit operates in more than one location. The latter is important for measuring regional output (regional gross domestic product and other economic indicators) and conducting regional economic analyses. Since the classification of units by location is of particular national interest, any geographical classification should distinguish the major economic regions or administrative divisions of the country, ranging from large areas (States or provinces) through intermediate areas to local areas (towns).

3.5. The details about mailing address, telephone and fax numbers, e-mail address and contact person are also important identification variables, since these details are needed in order to mail the statistical questionnaires and permit written communication with the unit and transmission of ad hoc queries about its activity. Up-to-date information on any changes in those variables is crucial for the efficient work of statistical authorities.

3.6. *Location in case of multi-establishment enterprises.* Where an enterprise has only one establishment, enterprise and establishment may or may not have one location and address. Often, the enterprise address is used for administrative purposes and the establishment address for statistical purposes. Caution is recommended when dealing with large, complex enterprises. Depending on the identity of the reporting unit for a particular statistical survey, the multi-establishment enterprise may be requested to provide location details about each of its establishments, or the establishment may be requested to provide the name and location of the enterprise that owns it. In some cases, it may be necessary to correspond with both the establishment and the enterprise because, in general, the unit supplying employment details, for example, will be different from the one providing financial details.

C. Kind of activity²²

3.7. *Kind of activity.* The kind of activity is defined as the type of production in which a unit is engaged. The kind-of-activity characteristic is the principal variable utilized in determining whether or not a given statistical unit is to be included in the scope of distributive trade statistics and, if so, to what activity class of distributive trade it belongs. The Statistical Commission, at its thirty-seventh session, decided to recommend that ISIC, Rev.4, be recognized as the international standard for economic activity classification.²³ In accordance with that decision, it is recommended that the kind of activity of statistical units be determined in terms of ISIC, Rev.4,²⁴ by the application of the classification rules set out in its introduction. If a different scheme

²² The text of the present section is based on ISIC, Rev.4.

²³ See *Official Records of the Economic and Social Council, 2006, Supplement No. 4 (E/2006/24)*, chap. I, sect. C, decision 37/105; see also <http://unstats.un.org/unsd/statcom/sc2006.htm>.

²⁴ <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27&Lg=1>.

of national classification of activities is followed by countries, a full correspondence at least at the two-digit level of ISIC, Rev.4 (that is, the division level), should be sought.

3.8. *Principal activity.* The principal activity of a unit is the activity that contributes most to the value added of that unit, or the activity whose value added exceeds that of any other activity of the unit. It is not necessary that the principal activity account for 50 per cent or more of the total value added of a unit.

3.9. *Secondary activity.* A secondary activity is an activity carried out by a unit in addition to the principal activity and whose output, like that of the principal activity, must be suitable for delivery outside the unit. The value added of a secondary activity must be less than that of the principal activity. Most units carry out at least some secondary activities.

3.10. *Ancillary activities.* A productive activity undertaken with the sole purpose of producing one or more common type of services for intermediate consumption within the same enterprise is defined as an ancillary activity. Examples of ancillary activities are bookkeeping, transportation, storage, purchasing, sales promotion, cleaning, repair and maintenance, security, etc. At least some of these activities are conducted by every unit. Thus, ancillary activities are those that exist to support the principal and secondary activities of a unit by providing services entirely or primarily for the use of that unit.

3.11. If an establishment undertaking ancillary activities is statistically observable, in the sense that separate accounts for the production it undertakes are readily available, or if it is in a geographically different location from the establishments it serves, it may be desirable and useful to regard it as a separate unit and allocate it to the activity classification corresponding to its principal activity.

3.12. *General principles for determining the kind of activity of statistical units in terms of ISIC, Rev.4.* The following principles are recommended:

- (a) The kind of activity of a statistical unit is determined by the nature of its principal activity; secondary and ancillary activities are to be disregarded when classifying a unit;
- (b) If the unit is engaged in several types of independent activities, but the unit itself cannot be segregated into separate statistical units, its kind of activity should be determined according to the class of ISIC, Rev.4, with, in this case, the largest share of value added by using the "top-down" method. The top-down method entails, first, the determination of the appropriate highest classification level (one-digit), followed by determination of the lower (two- and three-digit) levels and, finally, of the class (four-digit) level;
- (c) If value added cannot be determined for the activities involved, classification has to be carried out using substitute criteria, provided that they are applied consistently for all involved activities. Such criteria entail:
 - (i) Substitutes based on output: gross output of the unit that is attributable to the goods or services associated with each activity; and value of sales of those groups of products falling within each activity;
 - (ii) Substitutes based on input: wages and salaries attributable to the different activities; hours worked attributable to the different activities; and employment in the activities according to the proportion of persons engaged in the different activities of the unit.

3.13. Two cases, where considerable proportions of the activities of a unit are included in more than one class of ISIC, Rev.4, are considered below, with a view to ensuring greater uniformity of classification decisions.

3.14. *Classification in the case of vertical integration.* It is recommended that a unit with a vertically integrated chain of activities, that is to say, a unit where the different stages of production are carried out in succession by the same unit and where the output of one process serves as input to the next and most of or only the output of the final stage is actually sold on the market, should generally be treated like any other form of unit involving multiple activities. This means that a unit with a vertically integrated chain of activities should be classified to the class corresponding to the principal activity within that chain, in other words, the activity accounting for the largest share of value added, as determined by the top-down method. If value added or substitutes for the individual steps in a vertically integrated process cannot be determined directly from accounts maintained by the unit itself, comparisons with other units (based, for examples, on market prices for intermediate and final products) could be used. If it is still impossible to determine the share of value added (or its substitutes) for the different stages in the chain of production activities, default assignments for typical forms of vertical integration can be applied.

3.15. *Classification in the case of horizontal integration.* It is recommended in the case of a unit with a horizontal integration of activities, that is to say, a unit where activities are carried out simultaneously using the same factors of production, where it is not possible to separate those activities statistically into different processes, assign them to different units or generally provide separate data for them, and where rules relying on allocation of value added or similar measures are not applicable, then that unit should be generally classified by application of alternative indicators, such as gross output. However, it is recognized that there is no good general rule for identifying the single activity that best represents the mix included within this horizontal integration. Countries are encouraged to develop their own rules for such identification and include them in the metadata for national and international dissemination.

3.16. *Specific principles.* The general principles for determining the kind of activity of statistical units should be supplemented by the following classification criteria specific to distributive trade:

- (a) Ideally, the principal activity of the unit should be determined by reference to the value added of the goods sold or the services rendered. In practice, however, it is often not possible to obtain the information on value added for individual products or services and it becomes necessary for the principal activity to be determined by using substitute criteria (see para. 3.12 (c)). It is recommended that, for the purposes of distributive trade statistics, output-based substitutes should be utilized in determining the principal activity of trade units. The gross margin (the difference between the trade turnover and purchases of goods for resale adjusted by changes in stocks) is conceptually the best output indicator for trade activities. However, as it is not readily available in trade surveys, value of turnover is the second-best alternative output indicator. It should be noted that problems with using the turnover criteria as an output substitute do exist because, in certain cases, the proportionality of turnover and value added may vary within a single type of wholesale and retail trade and also between trade activities. For example, turnover of wholesale and retail trade on own account usually has a much lower share of value added than that of a commission trade. Inputs indicators such as wages and salaries attributable to the different activities and employment according to the proportion of persons engaged in the different activities of the unit should be considered for use in determining the principal activity of units where no other output substitutes are available;

- (b) ISIC, Rev.4, is more explicit regarding when the top-down method should be applied in classifying units in divisions 46, Wholesale trade, except of motor vehicles and motorcycles, and 47, Retail trade, except of motor vehicles and motorcycles. Owing to the specific substructure of the divisions, two additional levels of classification describing various types of operation have to be taken into account (see paras. 3.24-3.37). In the case of wholesale trade, the division is first subdivided into commission trade and wholesale trade on own account, and the latter is then subdivided into specialized and non-specialized wholesale trade. Retail trade is presented in a similar manner. The division is first subdivided into one set of groups for retail sale in stores and another set for retail sale not in stores. Retail sale in stores is subdivided into groups for retail sale in specialized stores and retail sale in non-specialized stores. The groups for specialized stores are further subdivided into classes according to the range of products sold, while retail trade not in stores is subdivided into trade via stalls and markets and other trade.

3.17. *Application of the top-down method.* It is recommended that, for determining the proper classification code of a statistical unit with wholesale or retail trade as a principal activity, the type-of-operation criteria explained above are followed. On the basis of the listed activities carried out by the unit and the value added or other relevant measures corresponding to them, the following steps are recommended by ISIC, Rev.4, for the identification of the code:

- Step 1.** Identify the section that has the highest share of the value added.
- Step 2.** Within this section, identify the division that has the highest share of the value added.
- Step 3.** Within this division, identify the group that has the highest share of the valued added.

Wholesale trade

- Step 3 (a)** Distinguish between commission and own-account trade.
- Step 3 (b)** Distinguish between specialized and non-specialized trade.

Retail trade

- Step 3 (a)** Distinguish between store and non-store retail trade.
- Step 3 (b)** Distinguish between specialized and non-specialized trade (for in-store retail trade activities).
- Step 3 (c)** Distinguish between trade via stalls and markets and other trade (for non-store retail trade activities).
- Step 4.** Within this group, identify the class that has the highest share of value added.

3.18. Figures III.1 and III.2 below represent the decision tree to be used for the allocation of a unit within ISIC, Rev.4, division 46, Wholesale trade, except of motor vehicles and motorcycles, and division 47, Retail trade, except of motor vehicles and motorcycles:

Figure III.1
Decision tree to be used for the allocation of a wholesale trade unit

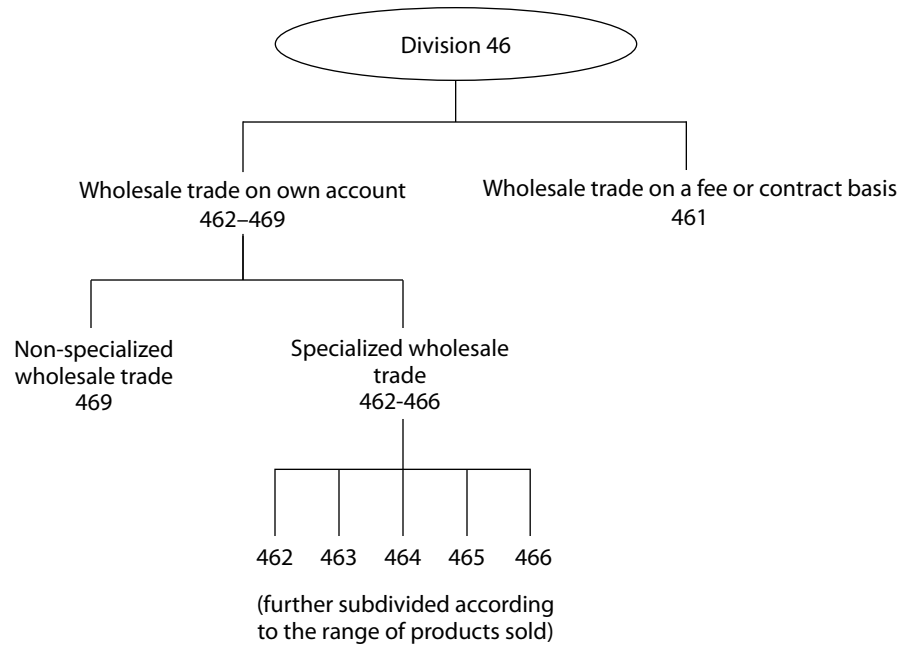
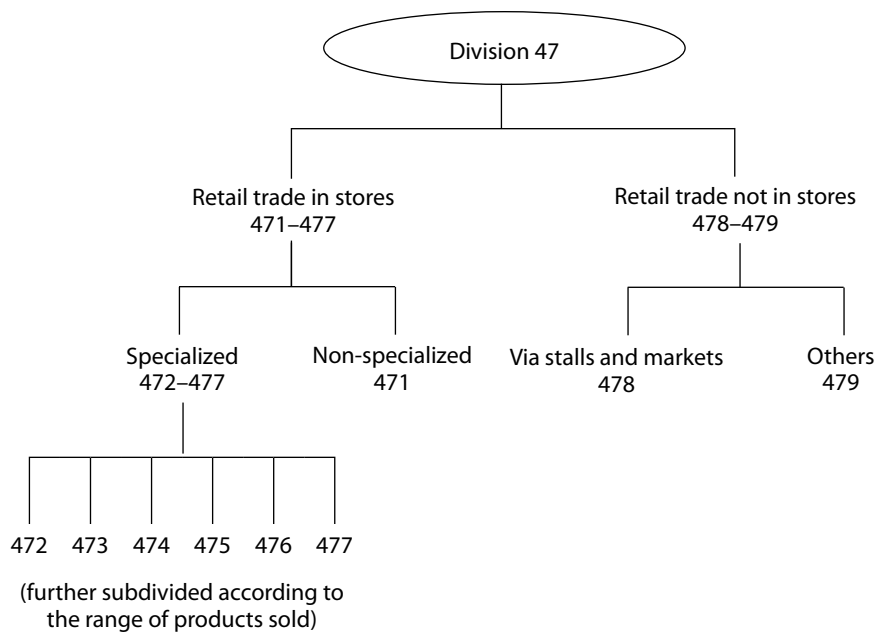


Figure III.2
Decision tree to be used for the allocation of a retail trade unit



3.19. When choosing between specialized retail trade in ISIC, Rev.4, groups 472-477, and non-specialized retail trade in ISIC, Rev.4, group 471, the outcome will depend on the number of ISIC, Rev.4, classes involved, irrespective of the importance of the group level. It is recommended that the following rules be applied to make that determination (similar considerations apply to specialized versus non-specialized wholesale trade activities):

- (a) If the products sold encompass up to four classes in ISIC, Rev.4, groups 472-477, none of which (classes) accounts for a share of 50 per cent or more in terms of value added, but each of which represents 5 per cent or more of value added, a specialized trade is still involved. It is then necessary to determine only the focus of the activities on the basis of value added. Through selection of the main group and then of the class within that group, the allocation of the principal activity can be determined;
- (b) If the products sold encompass five or more classes in groups 472-477, each of which represents 5 per cent or more of value added, but none of which accounts for a share of 50 per cent or more, the unit should be classified as a non-specialized store and allocated to group 471. If food, beverages and tobacco represent at least 35 per cent of value added, allocation will be made to ISIC, Rev.4, class 4711. In all other cases, allocation should be to class 4712;
- (c) The above allocation rules are always based on the retail activity of the unit. If, in addition to its retail trade, a unit has a secondary activity which also provides services or produces goods, the allocation of the unit to the appropriate class of division 47 is determined only by the composition of its retail activity, that is to say, the above-mentioned 5 per cent rule applies to 5 per cent of the value added of all retail sales activities, not to 5 per cent of value added of all activities of the unit.

3.20. An illustration of how to adjust the top-down method to the specific sub-structure of divisions 46 and 47 of ISIC, Rev.4, is presented in annex III.

3.21. *Changes in the classification of units.* Units can change their principal activity either at once or gradually over a period of time. The principal activity may change within the year from one statistical period to the next, either because of seasonal factors or because of a management decision to vary the pattern of output. In each case, there will have been a fairly sudden change in the balance of activities. Also, a change in the pattern of output or sales may take place gradually over several years. While all these cases call for the classification of the unit to be changed, too frequent changes so distort the statistics as to make interpretation extremely difficult.

3.22. It is recommended that countries avoid frequent changes in the classification of units and are encouraged to develop a stability rule. Without such a rule, there would be apparent changes in the economic demography of the business population that were no more than statistical artefacts. The recommended working rule is that the secondary activity should exceed the activity to which the unit is classified for two years before the classification is changed. Similarly, if a unit engages in a mix of activities that are almost balanced, raising the risk of changes for the principal activity, the ratio of activities over the past two to three years should be taken into account in determining the principal activity.

3.23. It is recommended that countries change the classification of units for the purpose of statistical inquiries not more than once a year, either at fixed dates or as the information becomes available. More frequent changes would result in inconsistency between short-term (monthly and quarterly) and longer-term statistics.

D. Type of operation

3.24. *Type of operation*, by convention, refers to different methods (ways) of organization of wholesale and retail trade and is used in defining the activities of groups and classes in section G of ISIC, Rev.4. The item is important from both a national and an international point of view and can be used to monitor the dynamics of the operational structure of wholesale and retail trade.

3.25. *Types of operation in wholesale trade*. Wholesale trade units can be classified into the following types of operation, which broadly conform with the principles for classifying units between different groups of division 46 of ISIC, Rev.4:

- (a) Wholesale trade on own account: wholesalers who buy goods (and thereby assume legal title to them) and sell these goods on own account (ISIC, Rev.4, groups 462-466 and 469). The wholesale trade on own account is further subdivided into the following two groups:
 - (i) Specialized wholesale trade (groups 462-466);
 - (ii) Non-specialized wholesale trade (group 469);
- (b) Commission trade: agents and brokers, who buy and sell goods to others mainly on commission (group 461).

3.26. It is recommended that the wholesale units that, at the same time, buy and sell on own account and also act as agents or brokers on the account of others be classified as wholesalers on own account (see para. 3.25 (a) above) whenever they derive a gross margin from wholesale trade greater than the receipts from commissions (agents' revenues). The same procedure (the greater gross margin) should be applied for the classification of units engaged in wholesaling and retailing by type of operation because the growth of new large-format retailers renders the current definition of wholesale and retail operations quite broad, hence difficult to implement.

3.27. *Specialized and non-specialized wholesale trade*. Wholesales can be either commodity/product-specific or general in nature; in the latter case, they are usually known as non-specialized wholesale trade.

3.28. *Types of retail trade operations*. Retail trade as defined in division 47 of ISIC, Rev.4, includes units engaged in selling new or used goods in small quantities without transformation mainly to the final consumers. Two broad categories of retail trade organization can be distinguished: store and non-store retailing. The two categories are by and large internationally comparable and provide an illustration of how the retail sector units operate in individual countries. It is recommended that the following types of retail trade operations be identified:

- (a) Retail trade in stores (groups 471-477):
 - (i) Specialized stores (groups 472-477);
 - (ii) Non-specialized stores (group 471):
 - Food predominantly;
 - Others;
- (b) Retail trade not in stores:
 - (i) Retail trade via stall or markets (group 478);
 - (ii) Others.

3.29. *Store retailers* operate their business from fixed-point-of-sale locations such as shops, department stores, supermarkets, etc., located and designed to attract a high volume of walk-in customers. They have extensive displays of merchandise and often use mass-media advertising to attract customers.

3.30. *Non-store retailers* also serve the general public, but their retailing methods differ. Such methods include sales from movable stalls either along a public road or at a fixed marketplace, where the customer does not enter the premises in which the sale takes place. This group also includes methods such as sales through vending machines and the retail sale of any kind of product through paper and electronic catalogues, door-to-door solicitation, in-home demonstration, direct selling, that is, direct delivery of fuel, newspapers, etc., to the customer's premises.

3.31. *Units engaged in e-commerce.* Business units that sell goods and supply services exclusively through the Internet are creating a new mode of delivering products. Many countries describe these transactions as e-commerce which is defined mainly through the electronic transactions. However, separate units that sell goods and supply services exclusively through the Internet are increasingly coming into existence. Though e-commerce is equally applicable to all major economic activities, it has been expanding tremendously in wholesale and retail trade with the widespread use of computers and the Internet.

3.32. *Definition of e-commerce.* There are two definitions of e-commerce²⁵ in use, broad and narrow (see box III.1 below). The only difference between them is based on the modes of information flows included. The broad definition accepts, in addition to Internet transfers, transfers made over other computer-mediated networks like telephone systems, electronic data interchange (EDI) and Minitel. For the purpose of IRDTS 2008, either definition is acceptable. Under the broad definition of e-commerce the scope of this type of operation will be closer to that of the entire class 4791, Retail sale via mail-order houses or via the Internet, which includes not only units selling predominantly through the Internet, but also mail-order houses (see paras. 3.34-3.35).

²⁵ The definitions are endorsed by the member countries of the Organization for Economic Cooperation and Development (OECD). For more details, see: http://www.oecd.org/document/22/0,3343,en_2649_34449_34508886_1_1_1_1,00.html.

Box III.1

Definitions of e-commerce

Broad definition: An electronic transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, Governments or other public or private organizations, conducted over computer-mediated networks. The goods and services are ordered over those networks, but the payment and the ultimate delivery of the good or service may be conducted on- or offline. E-commerce includes orders received or placed on any online applications used in automated transactions such as Internet applications, electronic data interchange (EDI), Minitel^a and interactive telephone systems.

Narrow definition: An Internet transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, Governments or other public or private organizations, conducted over the Internet. The goods and services are ordered over those networks, but the payment and the ultimate delivery of the good or service may be conducted on- or offline. E-commerce includes orders received or placed on any Internet applications used in automated transactions, for example, Web pages, Extranets and other applications that run over the Internet, such as EDI over the Internet and Minitel over the Internet, or over any other Web-enabled application, regardless of how the Web is accessed (for example, through a mobile or a V set, etc.). Excluded are orders received or placed by telephone, facsimile or conventional e-mail.

^a Minitel is a videotext online service accessible through telephone lines which was launched in France in 1982.

3.33. For many units, e-commerce is just one of a variety of means by which sales are transacted. It is recommended that the rules for classifying such units by activ-

ities remain unchanged: they are classified to the industry of their principal activity by implementing the top-down method. Units that supply services exclusively through the Internet should also be classified to the industry of their principal activity. Units engaged in e-commerce will therefore be found in any industry of ISIC. It should be noted that the only exception to this rule are the retail trade units that undertake their sales exclusively or predominantly through the Internet. They are classified within industry group 479, Retail trade not in stores, stalls or markets, to class 4791. E-commerce in wholesale trade (mainly business-to-business e-commerce) is not reflected in the current structure of ISIC, Rev.4, because it is classified by product.

3.34. *Other units of distance selling: mail order.* Mail order is a form of distance selling in which the buyer places an order for the desired products with the merchant through some remote methods such as a telephone call. Products could be advertised by mail-order catalogues, radio or TV channels. They are delivered to the customer by mail. The products are typically delivered directly to an address supplied by the customer, such as a home address, but occasionally the orders may be delivered to a nearby retail location for pickup by the customer. Some merchants also allow the shipment of the goods directly to a third-party consumer, which constitutes an effective means of sending a gift to an out-of-town recipient.

3.35. Nowadays, however, most traditional mail-order companies also sell over the Internet. The fact that a company's website has become the more usual means through which to order merchandise for delivery by mail makes e-commerce and mail-order sales hard to distinguish. Therefore, ISIC, Rev.4, classifies both kinds of activities within one class, namely 4791, Retail sale via mail-order houses or via the Internet. It is recommended that countries apply the top-down method for proper classification and recording of mail-order transactions and units.

3.36. *Additional breakdowns of store retailing.* The implementation of a top-down method requires additional details for the two segments of the retail activity. Further breakdowns of store and non-store methods of retailing are recommended. In the category of store retailers, the recommended distinction is between specialized stores and non-specialized stores. It has to be made on the basis of the number of classes comprising the goods sold (see the example in annex III). In addition to this, the non-specialized retailers are to be distinguished as selling predominantly food products or other items. If required or if there is user demand, more details of the store retailers' category may be sought. A further distinction can be made among types of retailers: retail chains, department stores and others.

3.37. *Additional breakdowns of non-store retailing.* The types of non-store retailers' operations also vary because of the different methods of transaction and delivery of merchandise. Owing to the expansion of e-commerce and other forms of mail-order trade in almost every country, it is recommended that they be distinguished separately whenever appropriate.

E. Type of economic organization

3.38. The enterprise and the establishment are the main statistical units used by countries for conducting the business surveys. The characteristic "type of economic organization" is intended to indicate whether the establishment is the *sole establishment* of the enterprise of immediate ownership or part of a *multi-establishment enterprise*. If further details are required for the economic structure, the multi-establishment enterprises might be divided into classes according to the number of their constituent establishments that are most appropriate for each country.

3.39. *Links between various entities within an economic organization.* For the purpose of accurate measurement of production and all other flows of goods, services and capital in the economy, it is recommended that the links between individual entities and any parent enterprise be clearly defined. More importantly, these links are fundamental for efficient sampling design because one survey might gather information on value added, employment and production statistics usually available at the establishment level, while another may collect data from consolidated financial statements compiled mainly at the enterprise level.

F. Type of legal organization and type of ownership

3.40. *Legal organization.* The type of legal organization is another important characteristic and a possible criterion for stratification of units in statistical surveys. The type of legal organization is the legal form of the economic entity that owns the unit (either the enterprise or the establishment). The recommended minimum classification of units by type of legal organization distinguishes between two main types, namely, *incorporated* units and *unincorporated* units. Further breakdowns may also be of interest, namely, of incorporated units by *incorporated enterprises* (corporations) except limited liability partnerships and cooperatives, *limited liability partnerships and cooperatives*, and *non-profit institutions*; and of unincorporated units by sole proprietors and partnerships not recognized as independent legal entities. In this regard:

- (a) *Incorporated enterprises* include the following:
- (i) *Corporations*: legal entities that are incorporated for the purpose of producing goods and services for the market, that may be a source of profit or other financial gain to its owner(s) and that are collectively owned by shareowners who have the authority to appoint directors responsible for their general management;
 - (ii) *Other incorporated entities*: legal entities created for the purpose of engaging in market production of goods and services for profit but incorporated in other forms such as:
 - *Cooperatives*: enterprises set up by producers for purposes of production and marketing their collective output in which each owner has an equal share of ownership
 - *Limited liability partnerships*: in these enterprises, partners are both owners and managers and have legally limited their liability
 - *Non-profit institutions*: legal entities that are set up for the purpose of producing goods and services, but whose profits cannot be the source of income for the units that own them
- (b) *Unincorporated enterprises* are units set up for producing goods or services that are not incorporated as legal entities separately from their owners. They may include public agencies that are part of general government or sole proprietorships and partnerships owned by households. Some unincorporated enterprises may behave in much the same way as corporations and such entities will be treated as *quasi-corporations* if they have complete sets of accounts, including balance sheets.

3.41. *Non-profit institutions (NPIs).* It is recommended that only those non-profit institutions that are market producers, that is, sell most of their output at economically significant prices, and that are serving and promoting the interests of distributive trade units should be included in the scope of IRDTS 2008. They consist

mainly of trade associations or trade employers' organizations. Non-profit institutions serving distributive trade businesses engage in activities that are of mutual interest or benefit to the group of units that control and finance them. These non-profit institutions are usually financed by contributions or subscriptions from the group of units concerned. The subscriptions are treated not as transfers but as payments for services rendered.

3.42. *Quasi-corporations.* Some countries may wish to distinguish those unincorporated units (see para. 3.40 (b)) that have characteristics of quasi-corporations. The intention behind the devising of the concept of a quasi-corporation was to separate from their owners those unincorporated units that were engaged in commercial activities, were sufficiently self-contained and independent from their owners, and behaved in the same way as corporations. In order to be recognized as a separate unit, the quasi-corporation must keep a complete set of accounts, including a balance sheet, or must be in a position to construct such accounts. However, experience has shown that distinguishing the quasi-corporations owned by households might, in certain cases, be difficult.

3.43. The classification of units by their legal form has greater national than international significance; therefore, it is recommended that such a classification be developed in accordance with the legal forms or categories adopted by each country.

3.44. *Type of ownership.* It is recommended that, in addition to the kind of legal organization, the main types of ownership, namely, *private* ownership and the various forms of *public* ownership of units, be taken into account as useful optional characteristics. The criterion for distinguishing between privately and publicly owned units should be based on whether the ownership of the enterprise to which the establishment belongs rests with public authorities or private parties. Public units are those units that are owned or controlled by government units. By contrast, privately owned units are those owned or controlled by private parties. Public authorities or private parties are considered to be the owners of a given enterprise if they own all, or a majority, of the unit's shares, or of its other forms of capital participation. Control over a unit consists in the ability to determine the unit's policy by choosing appropriate directors, if necessary.

3.45. *Disaggregation of public and private ownership.* The category of publicly owned units can undergo further disaggregation into the main divisions of public ownership existing in each country, which would normally differentiate among central Government ownership, ownership by State or provincial governments and ownership by local authorities. Within the group of privately owned units, a further classification of ownership, which differentiated between nationally owned units and those under foreign control, could be applied.

3.46. *Cross-classification by type of legal organization and type of ownership.* The following is an abbreviated version of the cross-classification by type of legal organization and type of ownership:

Incorporated enterprises except limited liability partnerships and cooperatives

- Public ownership
 - By central government
 - By state government
 - By local government
- National private
- Foreign-controlled

Cooperatives and limited liability partnerships

- Public ownership
 - By central government
 - By state government
 - By local government
- National private
- Foreign-controlled

Non-profit institutions

- Public ownership
 - By central government
 - By state government
 - By local government
- National private
- Foreign-controlled

*Unincorporated enterprises***G. Size**

3.47. The size measure of a statistical unit is an important stratification characteristic, essential for sample design and grossing-up techniques, and providing an indication of the structure of an activity. In general, the size classes of statistical units can be defined in terms of physical units like employment or of monetary units like turnover or amount of net assets. Monetary criteria can be utilized separately or in conjunction with employment criteria. Exposition area could be utilized as a specific criterion for the purpose of classifying retail trade units by size.

3.48. *Size based on employment.* A definition of size based on employment is recommended because of its simplicity, general applicability, usefulness and international comparability. Employment data are more readily available (including employment data for small units) in most countries and do not require additional statistical calculations and adjustments.

3.49. Employment classes should be measured in terms of the average number of persons employed. If the average number of persons employed is not available, the total number of persons employed in a single period may be used as the size criterion. The following size classification of distributive trade units based on employment is recommended: 1, 2-9, 10-19, 20-49, 50-249, and 250 and more.

3.50. In order to maintain the international comparability of data, countries are encouraged to follow the classification outlined in the preceding paragraph to the extent possible. If necessary, in light of national circumstances, the large size classes might be combined or, inversely, made more detailed within this classification. It is recognized, however, that differences resulting from administrative, organizational or legal factors may exist at the national level. In addition, the wide variety of types of employment, particularly in small retailing units of part-time and unpaid family workers, may also complicate the classification of size based on employment.

3.51. Employment in full-time equivalent (FTE) can also be utilized as a criterion for classifying statistical units by size. This measure provides more accurate measurement of employment, avoiding the problem presented by the group of part-time workers. However, application of the concept of full-time equivalent will not necessarily make the data really comparable, since this measure may vary significantly

from country to country. Also, it may not be possible to calculate employment in full-time equivalent in some countries owing to the need for fairly detailed data on hours worked.

3.52. *Size based on turnover.* For some types of surveys or analyses, alternative means of measuring the size of the unit may be of national interest. The turnover of statistical units is such a means. Being an important accounting indicator, the turnover could be obtained either through statistical (surveys) or administrative (fiscal or tax records) sources. However, like any other size criterion involving monetary values, it has limited application for international comparisons because of the problems associated with the conversion to a common currency. The exact definition and coverage of the turnover may also pose problems, especially for units in trade activities. For example, the turnover of wholesale agents working on a contractual basis will be entirely made up of commissions, whereas the turnover of the retailer will include the full value paid by the final consumer, including the value of goods bought for resale.

3.53. *Size based on sales space.* It is also possible to infer the size characteristics of retail trade units from sales space or/and exposition area. Sales space could be used as a stratification variable for classifying retail trade units, most of which are identifiable as “shops” or “outlets”. However, owing to non-uniformity of sales space classes and different country practices, the specific categories of sales space as mentioned in this chapter and chapter V, Performance indicators (see para. 5.26) should be defined in the context of national circumstances.

H. Demographic characteristics

3.54. Demographic characteristics provide information about the period of economic activity of a given unit and include the dates of commencement and cessation of its activity. Given the dynamics of creation (birth)/cessation (death) of economic units in the trade sector nowadays, demographic characteristics play a significant role in identifying units as a target population for statistical surveys. Moreover, where statistics about the demography of trade units are available on a regular basis, they can provide useful information on the rate of creation of new units, the probability of the survival of units and the differences between ISIC classes in terms of the dynamics of units. Such indicators allow the trends in the population to be analysed.

3.55. *Temporarily inactive (dormant) units.* In principle, the date of official recognition (the birth or other creation date) of the unit should exist and be stored in the business register or area frame. However, owing to the slowness of the administrative process of registration of death or cessation of a unit's activity or its intention to resume its activity after an indefinite period of time, there may be greater difficulty in obtaining information about the date (period) at which the unit actually ceased its activity. Therefore, between the period of operation, and the death of the unit, there might exist a period of inactivity, in which the unit is regarded as temporarily inactive (dormant). The information on births and deaths of units may also be obtained from administrative sources such as fiscal or juridical authorities, the social security administration or similar sources or an update of area frames through intercensal enumeration, while statistical surveys will detect the status of the unit, that is to say, whether the unit is active or temporarily inactive (dormant) or has ceased its activity.

3.56. *Business demography statistics.* There is a growing demand from a wide range of users for the production of internationally comparable statistics on the business demography of statistical units. The key events for these statistics would be births and deaths; however, other events such as break-ups, split-offs, mergers, takeovers,

etc., are also relevant when determining whether or not a statistical unit has survived from one period to another. Business demography statistics are generally compiled using the enterprise as a statistical unit and the business register as a preferred source of information for demographic events. However, it is recognized that the non-availability of an up-to-date business register in many countries limits the international comparability of business demography statistics. Countries may refer to the *Eurostat-OECD Manual on Business Demography Statistics, 2007 edition*²⁶ for further practical and theoretical guidance in this area of statistics.

I. Period of operation

3.57. This characteristic indicates the period during which a trade unit has been in operation during the reference period. It would be useful to seek information under the following alternative items: (a) in operation since (date); (b) temporarily or seasonally inactive; (c) ceased operation (date); and (d) sold or leased to another operator (name of new operator). Besides providing the information about the activity status of the unit (active or temporarily inactive), this characteristic also helps in interpreting the returns submitted by statistical units that are affected by seasonal factors and those submitted by statistical units that began or ceased operations during the reference period.

²⁶ *Eurostat Methodologies and Working Papers* (Luxembourg, Office for Official Publications of the European Communities, 2007), available from: http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1073,46587259&_dad=portal&_schema=PORTAL&p_product_code=KS-RA-07-010.

Chapter IV

Data items and their definitions

4.1. The present chapter provides summary definitions of data items of distributive trade statistics recommended for compilation and dissemination, together with definitions of additional data items derived from the basic system. Some of the data items may not exist or they may be of minor importance for certain economies. Compilers are encouraged to use the list of data items as reference in order to develop a list in accordance with their own statistical circumstances, respondent load and available resources and, after having determined the data items to be placed on the list, should use the definitions presented consistently.

4.2. The list of data items for use in distributive trade statistics is presented in annex I. It is developed by the United Nations Statistics Division with the aim of providing countries with a tool that can be used in building up their distributive trade statistics programmes, including the development of statistical questionnaires and other data-collection instruments. The list may be used in the development of any industry-specific list, thus ensuring coherence of concepts and definitions across activities, class sizes, geographical areas and ownership arrangements.

A. Understanding the links between business accounting and basic economic statistics

4.3. The records of transactions maintained by businesses are the main source of basic economic statistics collected through statistical surveys. In designing questionnaires with appropriate terms, it is therefore desirable to understand the links between the concepts used in business accounting and those used in basic economic statistics mainly for two reasons:²⁷

- Terms used in the questionnaires must be familiar to business accountants.
- Understanding of business accounting is essential for conversion of data collected from the records of businesses into economic data that can be used in basic economic statistics.

4.4. In basic economic statistics, the recording of costs of production must cover all costs of goods and services used in production during an accounting period. In business accounting, these costs may be spread across different segments of the accounts depending on the country's business accounting tradition. While in some countries, income and costs are recorded together, in others they are recorded in three different segments: (a) production (distribution or marketing in the case of distributive trade); (b) general administration (enterprise overhead, advertising, distribution, etc.); and (c) other incomes and other expenses. Also, it is important to know that most of the time, other operating revenues, which encompasses secondary incomes such as from rental of buildings, and charges for miscellaneous services which are recorded in business statistics as output and intermediate consumption, are recorded net (that is, income receivable less costs incurred) in business accounting.

²⁷ *Links between Business Accounting and National Accounting: Handbook of National Accounting, Studies in Methods, No. 76* (United Nations, publication, Sales No. E.00.XVII.13).

1. Differences in terminology

4.5. The meaning of the terminology used in business accounting may vary greatly from one country to another. For example, while in the United Kingdom of Great Britain and Northern Ireland and many other European countries the word “turnover” means total sales, for the Organization for Economic Cooperation and Development (OECD)²⁸ “turnover” means the sum of gross sales and some other incomes but excluding revenues from rental of real estate, contributions and gifts, etc. However, in the Generally Accepted Accounting Principles (GAAP) of the United States of America, the term “turnover” refers to the number of times an asset is replaced during a financial period, and is often used in the context of inventory turnover or accounts receivable turnover. In securities, for either a portfolio or an exchange, turnover refers to the number of shares traded for a given period as a percentage of the total shares.

4.6. “Operating expense” is another example of a term whose meaning depends on the country in which it is being used. In the United Kingdom, operating expenses are limited to costs that vary strictly with the quantity produced—costs, for example, of raw materials and purchased components. In the United States and Canada, however, operating expense refers to non-manufacturing, non-inventoriable costs such as selling, advertising and administrative expenses. This means that manufacturing costs are not operating expenses.

2. Differences in business accounting rules

4.7. Business accounting principles may remain the same in many countries but accounting rules vary from one country to another. These rules affect the adjustment required so that the data collected from business accounts may be utilized in basic economic statistics. For example:

- (a) Some countries’ rules require accountants to expense expenditures on software (developed in-house or purchased), while others allow capitalization of the same. In countries where capitalization is not allowed, the expenses need to be imputed as output and are then treated as gross capital formation;
- (b) In business accounting in most countries, net assets are valued as the sum of the historical value of gross capital formation less depreciation (based on historical value). Therefore, one cannot derive gross capital formation by deducting values of assets in two adjacent periods because assets in business statistics are to be valued at replacement costs in terms of economic accounting standards.

B. Definitions of data items

1. Demography

(a) Characteristics of statistical units

4.8. Statistical units engaged in distributive trade activities may be distinguished and classified using different criteria and variables (see chap. III for further details). In addition to financial and production data, each statistical survey aims at collecting detailed information associated with the statistical unit itself and to this end asks for its location, period of operation, type of ownership and economic organization, kind of activity, type of operation, size, etc.

²⁸ See *Compilation Manual for an Index of Service Production* (Paris, Organization for Economic Cooperation and Development, 2007), available from: http://www.oecd.org/findDocument/0,2350,en_2649_34257_1_119669_1_1_1,00.html.

4.9. Most of the data items included under this heading are generally deployed for the purpose of cross-tabulating the data. It should be noted that in the case of multi-establishment enterprises, some of those items refer more appropriately to the trade enterprise of which the unit under reference (establishment, local unit, etc.) is a component and, depending on how this problem is handled in the operational design of statistical surveys, they may be collected at the level of the enterprise for subsequent allocation to the statistical units supporting it.

(b) Number of statistical units

Number of enterprises (item 1.10)

4.10. This indicator is defined as a count of the number of active enterprises operating in the distributive trade sector. Temporarily inactive (dormant) units should be excluded. This statistic should include all units active during at least a part of the reference period. *For the purpose of the present recommendations, the population of units is defined as all units that are primarily engaged in trade activities, that is to say, those falling under section G, Wholesale and retail trade; repair of motor vehicles and motorcycles, of ISIC, Rev.4.*

4.11. Because of the variation in size and organizational structure of trade enterprises, this item is further subdivided into two broad categories of enterprises:

- (a) *Complex enterprises (item 1.10.1).* A complex enterprise, also called a multi-establishment enterprise, is one consisting of more than one establishment. Individual establishments of a complex enterprise are generally engaged in different economic activities, belonging to different ISIC classes, but they may be engaged in the same activity as well;
- (b) *Single-establishment enterprises (item 1.10.2).* Conversely, a single-establishment enterprise is one with a single establishment.

Number of establishments (item 1.10.1.1)

4.12. This item is a count of the number of establishments operating in the distributive trade sector during the reference period. Establishments must be included even if they have no paid employees. This statistic should include all establishments active for at least a part of the reference period registered to the population concerned (see para. 4.10) either in the statistical business register or in the area frame.

4.13. In the case of most small and medium-sized businesses, the number of enterprises and the number of establishments are likely to be the same. Therefore, the total number of establishments is equal to the sum of the number of establishments in multi-establishment enterprises (item 1.10.1.1) and the number of single-establishment enterprises (item 1.10.2).

4.14. Where small and micro-establishments are enumerated on a sample basis, data on the total population of such active establishments should be reported by grossing up (with the sampling fraction) the number of establishments included in the sample.

2. Employment²⁹

(a) Number of persons employed

4.15. It is recommended that the employment data be collected for a number of categories of employed persons, as specified below, with a breakdown by gender

²⁹ For status in employment, see the resolution concerning the International Classification of Status in Employment (ICSE), adopted by the Fifteenth International Conference of Labour Statisticians (on January 1993), available from: <http://www.ilo.org/public/english/bureau/stat/res/index.htm>.

in each category, as resources permit. Countries are also encouraged to collect other characteristics that are of national interest such as the distinctions between part-time, full-time and seasonal work which are based on the laws and customs of the country. Some countries, more specifically those without surveys more-frequent-than-annual, are advised to capture the seasonal factors in trade by requesting employment data for each quarter or even for each month of the reporting period.

Total number of persons employed (item 2.1)

4.16. The number of persons employed is defined as the total number of persons who work in or for the statistical unit, whether full-time or part-time, including:

- Working proprietors
- Active business partners
- Unpaid family workers
- Persons working outside the unit who belong to it (for example, sales representatives, delivery personnel, repair and maintenance teams) provided that they receive a regular salary from that unit
- Salaried managers and salaried directors of incorporated enterprises
- Persons on short-term leave (sick leave, annual leave or vacation)
- Persons on special paid leave (educational or training leave, maternity or parental leave)
- Persons on strike
- Part-time workers on the payroll
- Seasonal workers on the payroll
- Apprentices on the payroll
- Outworkers on the payroll, paid for the work done

4.17. Total number of persons employed excludes:

- Directors of incorporated enterprises and members of shareholders' committees who are paid solely for their attendance at meetings
- Labour made available to the unit by other units and charged for (contract workers, paid through contractor; persons carrying out repair and maintenance work in the unit on behalf of other units)
- Persons on indefinite leave
- Persons on military leave
- Persons on pension
- Outworkers paid by subcontractors

Working proprietors (item 2.1.1)

4.18. These include all individual proprietors and partners actively engaged in the work of the establishment, excluding silent or inactive partners whose principal activity is conducted outside of the establishment. This category is not applicable to any incorporated or similar enterprise the ownership of which is represented by the holding of equity shares.

Unpaid family workers (item 2.1.2)

4.19. Unpaid family workers are defined as all persons living in the household of the proprietor(s) of the owning enterprise and working in or for the establishment, irrespective of the number of hours worked during the reference period, without regu-

lar pay (that is to say, without an agreed amount to be paid for work performed). Where it is customary for young persons, in particular, to work without pay in an economic enterprise operated by a related person who does not live in the same household, the requirement of “living in the same household” may be eliminated. Family workers who receive pay for work performed should be classified as employees. Countries that prefer for special reasons to set a minimum time criterion for the inclusion of unpaid family workers among the employed should identify and separately classify those who worked less than the prescribed time.

Employees (item 2.1.3)

4.20. This category includes all persons who work in or for the establishment, who have a contract of employment with the unit and who receive compensation in cash or in kind at regular intervals of time. The compensation is normally based either on the time spent at work or on some other objective indicator of the amount of work done. Compensation could be in the form of wages, salaries, fees, gratuities, piecework pay or remuneration in kind (item 3.1).

4.21. The relationship of employer to employee exists when there is a written or oral agreement, which may be formal or informal, between the establishment and a person, normally entered into voluntarily by both parties, whereby the person works for the enterprise in return for remuneration in cash or in kind.

4.22. The category “employees” is intended to include all persons engaged in the economic activity of the establishment other than working proprietors and unpaid family workers. It also includes outworkers when they are paid by and are under the control of the concerned unit. Employees engaged in activity ancillary to the main activity of the unit are also included.

4.23. Employees should be considered to be all paid workers engaged in the selling of goods and related activities of the establishment. Employees engaged in activities ancillary to the main activity of the unit and persons engaged in truck driving, repair and maintenance and so on should also be included. Also to be included are students who have a formal commitment whereby they contribute to the unit’s process of production in return for remuneration and/or educational services.

Breakdowns of number of employees

4.24. It is typical for distributive trade units to keep non-standard time in respect of working hours (24 hours, 7/11 or entire weekends), which may force them to hire employees either with full-time or with part-time employment contracts. This phenomenon might be quite significant for the sector and will have implications for calculation of seasonally adjusted data.

4.25. Countries are encouraged to establish additional breakdowns for the various groups of employees who exist in their economies, and for which it is important and possible to produce separate statistics. One such breakdown may be established in reference to the length of work as set in the existing *working-time arrangements*.³⁰ Working-time arrangements relate to such arrangements as have been stipulated in laws and regulations, collective agreements, arbitral awards or employment contracts or determined by rules or customs of establishments or communities, or by the individual self-employed person on the basis of contractual obligations, work requirements or personal and household preferences.

4.26. In a given country, the length of work may vary for different groups of paid employment jobs, depending on the different working-time arrangements. Hours of work are the hours that persons in paid employment jobs spend during a reference

³⁰ See the resolution concerning statistics of hours of work, adopted by the Tenth International Conference of Labour Statisticians (on 11 October 1962), available from: <http://www.ilo.org/public/english/bureau/stat/res/index.htm>.

period on work activities that contribute to the production of trade services. Individual working-time arrangements of persons in paid employment jobs may exhibit a range of differences in terms of shorter/longer daily or weekly hours of work, fewer or more days per week, part-year work, etc.

4.27. Provision of separate statistics about employees with different working-time arrangements such as full-time and part-time employees is useful for certain types of employment analyses. Owing to the conventionality in the definition of full-time and part-time work in terms of hours of work across countries, it is impossible to establish an exact international distinction between part-time and full-time employees. However, it is recommended, if resources permit and if there is sufficient national interest, that item 2.1.3, Employees, be presented into the following three categories: full-time employees, part-time employees, and employees in full-time equivalent. The figures for all three categories should be calculated with reference to the number of hours actually worked (item 2.5).

Number of full-time employees (part of item 2.1.3)

4.28. This is a division of the number of employees calculated by reference to the number of hours worked per day/week/month for which they are paid. Full-time employees are persons whose working time is equal to the standard working time for a full week, month or year. Standard working time is the time that persons in paid employment jobs spend on work activities during a reference period, as specified in laws and regulations, collective agreements or arbitral awards.

Number of part-time employees (part of item 2.1.3)

4.29. Part-time employees are persons whose working-time hours are less than the standard working time of a full-time employee. This category encompasses all forms of part-time work (half-day work, work for one, two or three days per week, etc.). Part-time employees and intermittent/seasonal employees (who may work full-time but for a fixed short period, for example, temporary workers, film crews, etc.) should not be confused.

Employees in full-time equivalent (part of item 2.1.3)

4.30. The total number of hours worked by all part-time employees could be the basis for conversion into full-time equivalent. The conversion should be carried out with reference to the standard working time of a full-time employee in the unit by taking into account the number of hours, days, weeks or months worked. The full-time equivalent is defined as the total hours worked in a unit divided by the average (annual, quarterly, monthly or weekly) hours worked by a full-time employee. Such a conversion will facilitate international comparisons with countries that can estimate employment only in terms of full-time equivalent. Owing to the differences in the length of full-time employment by activities, employees' categories, etc., it is recommended that the conversion be calculated at the most detailed level possible.

Outworkers on the payroll (part of item 2.1.3)

4.31. Countries may find it useful to provide statistics on other aspects of employment arrangements in the distributive trade sector, such as place of work or employment. An outworker is a person who agrees to work for a particular trade enterprise or to supply a certain quantity of goods or services to it, by prior arrangement or contract with that enterprise, but whose place of work is not within any of the

establishments that make up the enterprise. Only those outworkers should be included in this category who are remunerated directly, or indirectly, on the basis of the amount of work done, that is, by the amount of labour that is contributed as an input into some process of production, irrespective of the value of the output produced or the profitability of the production process. This type of employment is believed to be of less importance for the units in trade; however, outworkers may be engaged in some repackaging of goods in smaller lots, assembling, etc.

4.32. Outworkers paid by subcontractors are not included; the amounts paid to subcontractors in respect of outworkers are treated as “purchases of services, except rental” (item 4.4.1.2.1).

4.33. Outworkers on the payroll should be enumerated for a single period. In cases where the numbers are significant and fluctuate, it may also be useful to collect the average numbers in the inquiry periods as defined for employees.

Employees engaged in research and development (item 2.1.3.1.1)

4.34. The output of research and experimental development is recognized as an asset in the 2008 SNA. The present recommendations adopt the definition of research and development as given in the *Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development*.³¹ According to the *Manual* (para. 63): “Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications”. When produced on own account, it represents the cost of production and should be estimated by summing up the cost of inputs, including labour inputs.

³¹ Organization for Economic Cooperation and Development, Paris, 2002.

4.35. This item comprises all employees directly engaged in research and development, as well as those providing direct services such as research and development managers, administrators and clerical staff. Those persons providing an indirect service, such as canteen and security staff, should be excluded, even though their wages and salaries are included as an overhead in the measurement of expenditure. The research and development personnel must be distinguished from personnel for a wide range of related activities. The following are therefore excluded from research and development personnel:

- Personnel employed in education and training
- Personnel employed in other scientific and technological activities (for example, information services, testing and standardization, feasibility studies, etc.)
- Personnel employed in other industrial activities (for example, industrial innovations n.e.c.)
- Personnel employed in administration and other indirect supporting activities

Employees engaged in software and databases development (item 2.1.3.1.3)

4.36. This item comprises the total number of employees working on development of software and databases with an expected working life of more than one year, as well as those providing direct services, such as managers, administrators and clerical staff. Those persons providing an indirect service, such as canteen and security staff, should be excluded, even though their wages and salaries are included as an overhead in the measurement of expenditure. The development of software and databases is

recognized as an asset in the 2008 SNA. When produced on own account, it represents the cost of production and should be estimated by summing up the cost of inputs, including labour inputs.

Employees engaged in own-account fixed asset formation and major repair
(item 2.1.3.1.5)

4.37. This item comprises the total number of employees working in own-account fixed assets formation and major repair. Fixed assets formation and major repair when undertaken on own account are regarded as capitalized production that is retained by its producers as investment. Capitalized production is unsold production and is therefore valued at production costs, that is to say, by summing up the cost of inputs, including labour inputs.

Number of leased employees (item 2.2)

4.38. Leased employment entails the provision for a fee of human resources for trade units. This item comprises the total number of persons supplied by employment agencies or similar organizations to the trade establishment. Employment agencies of this kind do not supervise the employees, who are under the control (direction and supervision) of the clients of employment agencies. Leased employees are on the payroll of the employment agency rather than on the payroll of the establishment paying the fee. The provision of human resources is typically conducted on a short-term basis (in which case the employment agency will be classified in class 7820, Temporary employment agency activities of ISIC, Rev.4) or on a long-term and permanent basis (in which case the employment agency will be classified in class 7830, Other human resources provision of ISIC, Rev.4). The information about leased employment is important for meaningful labour and productivity analyses; however, the number of leased employees is excluded from the total number of persons employed in the trade unit (item 2.1).

4.39. The establishment using leased employment should be classified based on its own principal activity. The following categories are excluded from leased employment:

- Temporary staffing obtained from a staffing service
- Contractors, subcontractors or independent contractors
- Purchased or managed services, such as janitorial, guard or landscape services
- Professional or technical services purchased from another firm, such as software consulting, computer programming, engineering, or accounting services

Total number of persons employed in informal sector (item 2.3)

4.40. For countries that utilize the concept of the informal sector in their statistical systems, the total number of persons employed in the informal sector comprises all persons who, during a given reference period, were employed in at least one production unit of the informal sector (item 1.5.4.1) that is classified in section G of ISIC, Rev.4, irrespective of their status in employment but only if such employment constituted their main job. The total number of persons employed in the informal sector must refer to the whole territory of the country. This item can be further disaggregated into employees (item 2.3.1) and other persons employed in the informal sector (item 2.3.2).

4.41. The number of persons employed in the informal sector does not include:

- Persons exclusively engaged in the production of goods or services for own final consumption or own fixed capital formation
- Persons engaged in agricultural activities, as these activities are excluded from the scope of the informal sector for practical reasons
- Self-employed persons engaged in rendering the professional or technical services—doctors, lawyers, accountants, architects, engineers, etc.—if they do not fulfil the requirements for the informal sector enterprises
- Paid domestic workers

4.42. For the purpose of the present recommendations, the distributive trade (production) units of the informal sector (item 1.5.4.1) are defined according to the Fifteenth International Conference of Labour Statisticians³² as a subset of unincorporated enterprises owned by households, that is to say, as a subset of production units that are not constituted as separate legal entities independently of the households or household members that own them, and for which no complete sets of accounts (including balance sheets of assets and liabilities) are available that would permit a clear distinction to be made between the production activities of the enterprises and the other activities of their owners and that would allow the identification of any flows of income and capital between the enterprises and the owners.

4.43. Informal employment could be estimated directly, through conduct of informal sector surveys, or indirectly, through alternative approaches. One such approach is the residual method, where the informal employment is estimated as the difference between total employment (based on the population census or labour-force survey data) and formal employment (based on economic census, establishment survey or administrative data sources).

(b) Average number of persons employed

Average number of persons employed (item 2.4)

4.44. This data item, which is defined as the average number of employees (item 2.4.1) plus the number of working proprietors (item 2.1.1) and unpaid family workers (item 2.1.2) for a single period, serves as the size criterion for the unit. If the average number of persons employed is not available, the total number of persons employed (item 2.1) in a single period may be used as the size criterion.

Average number of employees (item 2.4.1)

4.45. The average number of employees is the arithmetic average of the numbers of employees for each calendar day of the reference period, including holidays and weekends, divided by the number of days in the reference period. The annual average number of employees is defined as an arithmetic average of monthly (or quarterly) average numbers of employees.

(c) Hours worked

Hours worked by employees³³ (item 2.5)

4.46. Number of hours worked, also known as *volume of work* or *labour input*, is an important data item used for labour analysis, conversion of part-time employees into full-time equivalent, study of productivity and calculation of a number of aggre-

³² See the resolution concerning statistics of employment in the informal sector, adopted by the Fifteenth International Conference of Labour Statisticians (January 1993), available from: <http://www.ilo.org/public/english/bureau/stat/res/index.htm>.

³³ See the draft International Conference of Labour Statisticians resolution on working time measurement. (http://www.insee.fr/en/nom_def_met/colloques/citygroup/2006_meeting.htm).

gates per hour worked. Number of hours worked by employees is defined as the total number of hours actually spent by them on activities that contribute to the production of distributive trade services during the reference period. This indicator can be measured per week, per month or per year. It is recommended that it should be broken down similarly to the employment categories.

4.47. Some small units, particularly those with less formal records, may be unable to report hours worked. In this case, it is recommended that hours worked be imputed from the responses to alternative questions such as the number of workers, average number of working days, length of the productive hours in a usual working day, etc.

4.48. Hours actually worked should include:

- (a) *Productive hours*: hours spent on activities related to persons' employment and intended for the production of trade services. These activities may be carried out within normal or contractual periods, or as overtime; may be paid or unpaid, regardless of the place where they are carried out, whether in the establishment, in the home, in the fields, on the street, etc.; and may include work taken home from the place of work;
- (b) *Hours spent on ancillary activities*: hours spent on activities that are not directly intended for the production of trade services but are necessary to enable such production. This includes hours spent on:
 - (i) Design, preparation, cleaning of workplace or work instruments, repairs or maintenance of work processes;
 - (ii) Professional training (for persons in paid employment) authorized and provided directly or indirectly by the employer; and travelling or itinerant activities required or paid for and inherent to the employment such as those of door-to-door vendors, seafarers, drivers and persons travelling to attend a meeting outside their usual place of employment;
 - (iii) Other job-related personal training or education activities paid (including in kind) by the employer, whether in or outside of the place of employment;
- (c) *Unproductive hours spent in the course of work*: hours spent between productive periods that are unavoidable yet inherent to work processes and during which persons in employment continue to be available for work. Included are hours spent:
 - (i) Waiting for customers in an office, shop, street;
 - (ii) Standing by for technical or economic reasons such as lack of work supply, machinery breakdown, accident;
 - (iii) Between productive periods during which no work is performed but for which payment is made under a guaranteed employment contract;
 - (iv) Travel time, as a function of specific work assignments or as determined by specific customers, when the place of employment is variable;
- (d) *Short periods of rest*: periods of less than 30 minutes spent between productive periods on personal activities during which persons are not available to the employer or for other work. Such periods occur as a consequence of natural needs and may be authorized by contract or custom and may include tea, coffee or prayer breaks.

4.49. Hours actually worked should exclude:

- (a) Hours paid for but not worked, for example, paid annual leave, paid public holidays, paid sick leave, paid education leave, paid parental (maternity, paternity) leave, paid leave for family reasons, non-military civilian service;
- (b) Meal breaks longer than 30 minutes;
- (c) Time spent on commuter travel between home and employment that is not time spent actually working, even if paid by the employer.

4.50. The number of days worked is recommended as an alternative for measurement of labour inputs for countries that are unable to collect information on hours worked. This information is more easily obtainable from payroll records than are the hours worked. Days worked should refer to the total number of days spent at work and not to days paid for. Days spent on annual, casual or sick leave should be excluded. In addition, the standard number of working hours per day in the trade units for the full-time employees may be ascertained and the days worked by part-time employees may be separately collected. Provision is made for breakdown by employment status.

Breakdown of employment by gender and occupation

4.51. In general, separate figures for male and female employment should be sought. Each of the employment categories and corresponding labour input data should, as resources permit, distinguish between male and female. It will be important, in constructing labour compensation price indices in the distributive trade sector, for those categories to include breakdown by occupation, preferably following the International Standard Classification of Occupations (ISCO).³⁴

³⁴ Available from: <http://www.ilo.org/public/english/bureau/stat/isco/index.htm>.

3. Compensation of employees

Compensation of employees (item 3)

4.52. Compensation of employees is defined as the total remuneration, in cash or in kind, payable by a trade establishment to an employee in return for work done by the latter during the reference period. It should be recorded on an accrual basis; that is to say, measured by the value of the remuneration in cash or in kind that an employee becomes entitled to receive from an employer in respect of the work done during the relevant period, whether paid in advance, simultaneously or in arrears of the work itself. Compensation of employees does not include any taxes payable by the employer on the wage and salary bill, for example, payroll taxes. Compensation of employees has two main components: (a) wages and salaries payable in cash or in kind (item 3.1) and (b) social insurance contributions payable by the employers (item 3.3). Employees are those defined as such in data item 2.1.3.

4.53. No compensation of employees is payable in respect of unpaid work undertaken voluntarily, including work done by non-paid family workers. Payments to working proprietors not in receipt of a regular salary should be excluded.

Wages and salaries in cash and in kind of employees (item 3.1)

4.54. Wages and salaries³⁵ are defined as all payments, whether in cash or in kind, made by the employer during the reference period in connection with work done by all persons included in the count of employees regardless of whether they are paid on the basis of working time, output or piecework or whether payments are made regularly or not. They include the value of any social contributions, income taxes, etc.,

³⁵ See the 2008 SNA, chap. 7, The distribution of income accounts, for more details on the components of wages and salaries of employees.

payable by the employee even if they are actually withheld by the employer for administrative convenience or other reasons and paid directly to social insurance schemes, tax authorities, etc., on behalf of the employee. They are recorded on an accrual basis, in respect of entitlement arising out of work done during the accounting period, whether paid in advance, simultaneously or in arrears.

Wages and salaries in cash

4.55. Wages and salaries in cash include the following kinds of remuneration:

- (a) Wages or salaries payable at regular weekly, monthly or other intervals, including payments by results and piecework payments; enhanced payments or special allowances for working overtime, at nights, on weekends or during other unsocial hours; allowances for working away from home or in disagreeable or hazardous circumstances; expatriation allowances for working abroad, etc.;
- (b) Supplementary allowances payable regularly, such as housing allowances or allowances to cover the costs of travel to and from work, but excluding social benefits (see below);
- (c) Wages or salaries payable to employees away from work for short periods (for example, on holiday) or as a result of a temporary halt to production, except during absences due to sickness, injury, etc.;
- (d) Ad hoc bonuses or other exceptional payments linked to the overall performance of the enterprise made under incentive schemes;
- (e) Commissions, gratuities and tips received by employees: these should be treated as payments for services rendered by the enterprise employing the worker and thus should also be included in the output and gross value added of the employing enterprise when such remuneration is paid directly to the employee by a third party.

4.56. Wages and salaries in cash do not include the reimbursement by employers of expenditures made by employees to enable them to take up their jobs or to carry out their work, for example:

- (a) Reimbursement of travel, removal or related expenses incurred by employees when they take up a new job or are required by their employer to move their home to a different part of the country or to another country;
- (b) Reimbursement of expenditures made by employees on tools, equipment, special clothing or other items that are needed exclusively, or primarily, to enable them to carry out their work.

4.57. Wages and salaries in cash also do not include social insurance benefits paid by employers in the form of: (a) children's, spouse's, family, education or other allowances in respect of dependants; (b) payments made at full, or reduced, wage or salary rates to workers absent from work because of illness, accidental injury, maternity leave, etc.; and (c) severance payments to workers who lose their jobs because of redundancy, incapacity, accidental death, etc., or to their survivors. In practice, it may be difficult to separate payments of wages or salaries made during short periods of absence due to sickness, accidents, etc., from other payments of wages and salaries, in which case the former have to be grouped with the latter.

Wages and salaries in kind

4.58. Payments in kind are defined as goods and services provided to employees that are not necessary for work and can be used by employees in their own time,

and at their own discretion, for the satisfaction of their own needs or wants or those of other members of their households. Almost any kind of consumption good or service may be provided as remuneration in kind. The most important payments in kind relevant to distributive trade units comprise meals and drinks; clothing (if it could be worn off duty); housing services or accommodation provided free of charge or at markedly reduced prices; sports, recreational or holiday facilities for employees and their families, etc. However, expenditures by employers that are of benefit to them as well as to their employees (for example, on the amenities of the place of work, medical examinations, sports and other recreational facilities, travelling, entertainment and similar outlays by employers in connection with the business) are not part of compensation of employees but are included in the employers' intermediate consumption.

4.59. The money value of payments in kind should be expressed as being equal to the net cost to the employer of the goods or services concerned. Where the employer is unable to report the actual cost incurred, it is convenient to use producers' selling prices or wholesale prices.

4.60. Remuneration in kind may also include the value of the interest forgone by employers when they provide loans to employees at reduced, or even zero rates of interest for the purpose of buying a house, furniture or other goods or services. Its value may be estimated as the amount that the employee would have to pay if average mortgage, or consumer loan, interest rates were charged less the amount of interest actually paid.

Stock options

4.61. It is the practice of some employers to offer employees the option to purchase a company's stocks (shares) at certain future dates at a specific price and under specific conditions. These stock options are a form of income in kind. They grant employees the right, but do not impose the obligation, to purchase stock options. Options are usually granted to encourage employees to remain with the company and help it grow. The employee may not exercise the option, either because the share price is now lower than his option price or because he no longer works for the employer who offered the option and so has forfeited it. The following is a description of how stock options are valued, taking into account the probability that not all the options are exercised.

4.62. Typically, an employer informs his employees of the decision to make a stock option available at a given price (the strike price or exercise price) after a certain time and under certain conditions (for example, the employee must still be in the enterprise's employ, or the enterprise must have achieved a certain level of performance). The "grant date" is the date on which the option is provided to the employee, the "vesting date" is the earliest date on which the option can be exercised and the "exercise date" is the date on which the option is actually exercised (or lapses). In some countries, the permissible length of time between vesting and exercise dates is quite long; in others, it is very short.

4.63. The valuation of the options may be estimated either by using a stock options pricing model or as the difference between the market price and strike price at the vesting date. If the market price is lower than the strike price, the option has zero value, as it would not be exercised. The time of recording should be spread over the period between the grant date and vesting date, if possible. If this is not possible, the value of the option should be recorded at vesting date. Any change in value between the vesting date and the exercise date is not treated as compensation of employees but as a holding gain or loss.

Breakdown of wages and salaries of employees

4.64. In order to ensure that the output of research and development, development of software and databases and of own-account fixed assets formation and major repair will be properly estimated, it is recommended that data on wages and salaries for employees in these three categories be reported separately.

4.65. To provide a more precise measure of wage and salary levels, it is also recommended that in infrequent surveys data on wages and salaries paid to full- and part-time employees and to outworkers be collected, by occupation, and that details by gender be obtained.

Payments to directors of incorporated enterprises for their attending meetings (item 3.2)

4.66. This item includes all payments made to directors of incorporated enterprises and members of shareholders' committees for attendance at meetings.

Social insurance contributions payable by employers (item 3.3)

4.67. Employers' social contributions are social contributions payable by employers to social security funds or employment-related social insurance schemes to secure social benefits for their employees. To be treated as social insurance contributions, the contributions in question must meet one of three conditions: (a) beneficiary (or policyholder) must be obliged, or encouraged by law or by the conditions of employment, to participate; (b) the scheme must be operated on behalf of the group and restricted to group members; and (c) employers make a contribution on behalf of employees. These insurance schemes may be operated either by the employers or by a third party. Social insurance contributions may be classified into the following items:

- Social security
- Pension funds
- Health insurance
- Term (life) insurance
- Other payments

4.68. Employers may, at their own discretion, offer employees payments for sickness, maternity and employment-related injury, as well as a family allowance, termination pay and other employee benefits; these payments are treated as part of wages and salaries of employees.

4. Other expenditures

(a) Purchases of goods and services

4.69. Purchases of goods and services include the value of all goods and services purchased during the accounting period for resale or consumption in the production process for which the trade establishment took title, excluding fixed assets, the consumption of which is registered as consumption of fixed capital (depreciation (item 11.4)). The goods and services concerned may be (a) resold with or without further transformation, (b) completely used up in the production process or (c) stocked.

4.70. Included in these purchases are the materials that enter directly into the goods produced (raw materials, prefabricated parts (intermediary products), components, etc., that are physically incorporated in the products of the establishment), plus non-capitalized small tools and equipment. Fuels that enter the product directly

should be included, as well as fuels for the generation of electricity and the production of gas and steam, whether for own consumption or for sale. Also included is the value of ancillary materials consumed during the production process (lubricants, water, polishes, packaging, maintenance and repair materials, and office materials). Included in this variable are the purchases of materials used for own-account fixed assets formation and major repair carried out by the unit.

4.71. If the establishment contracts out some work to other establishments including the other establishments of the same enterprise and provides them for that purpose with the raw materials, supplies and the like, the value of these raw materials and supplies should be included under this item.

4.72. Cost payable for purchase of services during the reference period is also included, regardless of whether those services are industrial or non-industrial. Also included are payments for all work carried out by third parties on behalf of the trade unit, including current repairs and maintenance, installation work and technical studies. Amounts paid for the installation of capital goods and the value of capitalized goods are excluded.

4.73. Expenditure classified as financial expenditure or extraordinary expenditure in the accounts of the trade units are excluded from the total purchases of goods and services.

4.74. Purchases of goods and services should be valued at purchasers' prices, that is to say, the prices at which they are delivered to the establishment, including transport charges invoiced either by the producer or by other organizations, the cost of insurance, the value of packaging materials charged for, and all taxes and duties on the goods but excluding, where applicable, the deductible value-added tax (VAT). Discounts (including cash discounts if netted off purchases in purchase records) or rebates allowed to the purchaser and the value of packaging materials returned to the suppliers should be deducted. Where transport is carried out by the statistical unit itself, no charges should be imputed.

4.75. Goods received by the establishment from other establishments of the same enterprise for production of goods should be valued as if purchased. In practice, it will usually be necessary to accept the book values in the accounts of the shipping establishment, but in cases where transport of the goods to the recipient establishment is carried out by outside organizations, the transport costs should be included. Where returns of goods are made after being recorded in inventory, the items should be recorded as sales in the same condition as received (item 4.5). Goods received by the establishment from other establishments of the same enterprise for providing transformation services should not be treated as if purchased.

Cost of raw materials and supplies except gas, fuels and electricity
(item 4.1)

4.76. This item includes the cost of all goods (excluding fixed assets) delivered to the control of the establishment in the reference period and owned by the establishment (or by the legal entity to which the establishment belongs). The time of receipt of the goods should be related to the definition of inventories (item 6) in the sense that goods should be regarded as having been received at the time such goods are entered in the inventory account of the establishment. Alternatively, goods may be regarded as having been received when the establishment acquires economic ownership of the goods. In general, the times given in this definition coincide with the time of acquisition of title or the time of invoicing, but goods received from abroad should be included, even though legal title may not yet have passed.

Purchases or receipts of raw materials and supplies from other enterprises
(item 4.1.1)

4.77. This item includes the value of raw materials and supplies and the like or prefabricated parts (intermediate products), as enumerated under item 4.1, that are purchased or received from other enterprises.

Value of raw materials and supplies delivered by other establishments of the same enterprise (item 4.1.2)

4.78. This item covers the value of raw materials and supplies and the like or prefabricated parts (intermediate products) purchased or manufactured by one establishment of an enterprise and transferred to another establishment of the same enterprise, which further manufactures them, incorporates them into other products or employs them otherwise in its own production process. These should be valued as if purchased from another enterprise.

Cost of materials for own-account fixed asset formation and major repair
(item 4.1.3)

4.79. This item includes the cost of raw materials and other materials purchased or received by the establishment for the production by the unit itself of capital goods for its own use (or for rental or lease) and materials and parts used for own-account major repair on its own buildings, structures, machinery and other fixed assets. Included are materials and the like for the construction of employee-occupied dwellings and other staff facilities and for the major repair of all establishment-owned or rented buildings, except housing accommodation.

4.80. The cost of materials for own-account fixed asset formation should be recorded separately for intellectual property products, namely: research and development (item 4.1.3.1), software and database development (item 4.1.3.3) and fixed asset formation and major repair (item 4.1.3.5).

Cost of gas, fuels and electricity purchased (item 4.2)

4.81. This item includes the cost of all purchased gas, fuels and electricity received by the establishment only if they have been purchased to be used as fuel. Energy products purchased as a raw material or for resale without transformation should be excluded and recorded in item 4.1 or 4.5 respectively.

Cost of individual fuels and gas purchased (item 4.2.1)

4.82. Fuels that enter the product or are used for other energy production should be included under materials. For convenience, gasoline and other fuels for vehicles are included. Fuels and electricity used for heating and lighting are also included, except when used for employee-occupied dwellings owned or operated by the establishment. Excluded are fuels produced and consumed in the same establishment.

Cost of electricity purchased (item 4.2.2)

4.83. This item includes the cost of all electricity purchased by the establishment during the reference period.

Cost of water and sewerage services (item 4.3)

4.84. This item includes the cost of water and sewerage services purchased by the establishment during the reference period.

Cost of water purchased (item 4.3.1)

4.85. This item is defined as the total cost of all water purchased by the establishment for business purposes during the reference period.

Cost of sewerage services purchased (item 4.3.3)

4.86. This item includes cost of sewerage services purchased by the establishment during the reference period.

Purchase of services except rentals (item 4.4)

4.87. This item includes the cost of all services payable by the establishment during the reference period regardless of whether they are industrial or non-industrial.

4.88. The item covers amount payable by the establishment for contract, commission, repair and maintenance work carried out during the reference period by other establishments of the same enterprise and by other enterprises. Where the work is carried out by other enterprises, the actual invoice prices should be used but, where applicable, the deductible value-added tax should be excluded. Freight charges should be included. Where the services are carried out by other establishments of the same enterprise, equivalent commercial values at basic prices (excluding taxes on products and transport cost) should be used or an imputed valuation of the work should be made, including an imputed margin for overhead costs and profits, as well as the cost of materials consumed and labour used.

4.89. The amounts payable by the establishment during the reference period for services of a non-industrial nature such as communication services, transport services, advertising and promotional services, financial services (excluding interest payments), and other non-industrial services should also be included in this item. The actual amounts payable should be reported, excluding deductible value-added tax and other deductible taxes.

4.90. The following items should be excluded: dividends and interest paid; fines and the like paid; outright purchases of patents and licences; purchases of land and other capital goods; donations; bad debts; and depreciation.

Cost of industrial services purchased and also delivered by other establishments of the same enterprise (item 4.4.1)*Maintenance, repair and installation (except construction) services* (item 4.4.1.1)

4.91. This item includes maintenance and repair work of an industrial nature, included under CPC, Ver.2, group 871, such as maintenance and repair services of fabricated metal products, except machinery and equipment; maintenance and repair services of office and accounting machinery; maintenance and repair services of computers and peripheral equipment; maintenance and repair of transport machinery and equipment; and maintenance and repair services of other machinery and equipment. Payments for the installation of goods sold by the establishment on an installed basis and service on goods sold are included, but amounts paid for the installation and major repairs of capital goods are excluded.

Contract and commission work (item 4.4.1.2)

4.92. This item covers the payments made by an establishment for work that is outsourced to another unit. The outsourcing (see also outsourcing (paras. 1.25-1.29))

of production occurs when the principal unit (the principal) contracts another productive unit (the contractor) to carry out specific functions constituting the whole or a part of the principal's activity in producing a good or service. Outsourcing can assume three forms, namely (a) outsourcing of support functions; (b) outsourcing of parts of the production process; and (c) outsourcing of the complete production process. In the case of distributive trade units, this item covers mainly the payments made by the establishment for the functions that are outsourced to subcontractors. These functions may include cleaning, accounting or computer services. Also included are payments made through subcontractors to outworkers not on the payroll (leased employment (item 4.4.1.2.1)).

Cost of non-industrial services purchased and also delivered by other establishments of the same enterprise (item 4.4.2)

Maintenance and repair of buildings and structures (item 4.4.2.1)

4.93. This item covers current repair and maintenance work on buildings and other structures of the establishment and in respect of rented buildings other than housing accommodation. The repair and maintenance costs of employee-occupied dwellings should not be included but should be recorded separately in order to calculate the total cost of workers' housing borne by employers for compensation of employees in kind.

Communication services (item 4.4.2.2)

4.94. This item includes the costs payable by the establishment for purchase of postal and telecommunication services, including mobile phone services, fax, Internet, etc.

Transport services (item 4.4.2.3)

4.95. This item includes the cost payable by the establishment for hired transport only. The transport carried out by the unit itself should not be included here, since the costs are covered in other items.

Advertising and promotional services (item 4.4.2.4)

4.96. This item includes all expenses payable by the establishment for advertising through television, newspapers and other media as well as promotional payments and payments for market research activities and public relations activities carried out by a third party. Market research undertaken by the unit itself should be excluded.

Financial services (item 4.4.2.5)

4.97. This item includes fees and charges directly payable for financial intermediation services and indirect outlays for purposes of financing the acquisition of fixed assets: for example, flotation costs in respect of security issues such as underwriters' commissions and registration charges, and service charges in respect of loans. Interest payments are not included.

Other non-industrial services (item 4.4.2.9)

4.98. This item includes purchases of services such as legal services, accounting and bookkeeping services, managing and consulting services, entertainment, travelling and subsistence, contributions to business and professional associations,

newspaper and periodical subscriptions, costs of meetings of the governing bodies and shareholders, and other services n.e.c. Patent and licence fees (but not the value of outright purchases of patents and licences) should also be included.

Purchases of goods and services for resale in the same condition as received
(item 4.5)

4.99. This item includes the value of all goods and services purchased from other enterprises or produced or purchased by other establishments of the same enterprise and transferred to the trade establishment for which it took title, for resale to third parties without transformation. Resale without transformation is considered to include sorting, grading and assembling, mixing, bottling, packaging, breaking bulk and repackaging of goods, etc.

4.100. Purchases of goods should be recorded net of returns, discounts, rebates and other allowances received. The value of goods and services that are sold to third parties on a commission basis are excluded, since these goods are neither bought nor sold by the agent receiving the commission. Services for resale referred to here are the output from service activities, rights to use predetermined services (such as fax or photocopying services) or physical supports for services (for example, paying a third party to deliver your goods and then passing on the cost to the consumer who is buying them).

4.101. Purchases of goods should be valued at purchasers' prices that are the delivered value to the trade unit, including delivery and similar charges involved in the purchase (for example, transport charges, the costs of insurance, the value of packaging, etc.) and all taxes and duties on the products, but excluding deductible value-added tax and other deductible taxes linked directly to turnover. The purchase price by the unit should also include the value of goods traded or bartered in payment for the purchase. Transfers from other establishments of the same trade enterprise should be valued as though purchased. When this is not possible in practice, transfers might be valued at cost to the enterprise on delivery to the establishment, that is to say, original purchase price, delivery and similar charges, labour and material directly used and possibly overhead.

4.102. It is recommended that units' purchases of goods and services for resale in the same condition as received be recorded separately for: (a) fuels (item 4.5.1); (b) motor vehicles and motorcycle parts used solely in repair and servicing activities (item 4.5.2); all other goods (item 4.5.3); and services purchased for resale without further processing (item 4.5.4).

4.103. Subject to the country practice of recording the purchases, their value should be adjusted for changes in inventories of goods for resale. Some countries record the purchases of goods for resale when they enter into the production process; others, in contrast, record the purchases when they have acquired or invoiced them. It is expected that the purchases by the latter group of countries will be adjusted for the changes in inventories of goods for resale and, moreover, will be corrected for the value of any holding gains or losses generated in the prices of purchased goods in order that they may be estimated in the prices prevailing when the resale takes place.

4.104. As an alternative to the classification of turnover (sales) according to individual commodities, a commodity breakdown of purchases is recommended. In spite of the different markups and rates of turnover, data on purchases by commodity may be easier to collect, particularly for retail establishments, for there are fewer invoices from purchases than from sales and the data might be obtained from accounting records rather than from individual invoices.

4.105. The data items listed below are included within the total purchases of goods and services. The list provides a quite comprehensive and detailed disaggregation of total purchases. Some countries may have several data items available only in combination or a minor item may be grouped with one that is more significant. It is recommended that countries identify separately those data items on the list that are of importance to their economies and at the same time collect and compile purchases of goods and services as completely and accurately as possible. Collection of data on purchases at such a detailed level is recommended for infrequent surveys.

Rental payments (item 4.6)

4.106. This item includes all costs payable by the unit for hiring, leasing or renting capital goods and non-residential buildings. Financial leasing payments are excluded. Rental payments should be subdivided into:

- (a) Rental payments for machinery and equipment (item 4.6.1);
- (b) Rental payments for dwellings and structures (item 4.6.2).

Non-life insurance premiums payable on establishment property (item 4.7)

4.107. This item includes non-life insurance premiums payable by the unit during the reference period on the unit property (for example, against damages due to fire, natural calamities, losses, etc.).

5. Turnover, sales, shipments, receipts for services and other revenues

(a) Turnover, sales, shipments, receipts for services and other revenues

4.108. This item comprises the totals invoiced by the establishment during the reference period and corresponds to market sales (shipments,³⁶ receipts for services and other revenues) of goods or services of a trade unit supplied to other enterprises or transferred to other establishments of the same enterprise. Turnover³⁷ should exclude value-added tax and other similar deductible taxes directly linked to the sales as well as all duties and taxes on products invoiced by the unit, which turnover after valuation is equivalent to the valuation at basic prices. Included are all other invoiced charges for transport, packaging, etc., passed on to the customer, even if these charges are listed separately in the invoice. Price rebates, discounts and similar allowances granted on returned goods and the value of returned packaging should be deducted.

4.109. Included are all items made by or for the establishment from materials owned by it, whether sold, transferred to other establishments of the same enterprise, or shipped on consignment. The net selling value of products made in one establishment on a contract basis from materials owned by another should be reported by the establishment providing the material.

4.110. In principle, sales to other establishments within the same enterprise should be valued as though sold. In practice, however, it may be necessary to accept the book value of such transfers. Book value or production cost is equal to the sum of material and service costs, compensation of employees, other taxes on production, depreciation of the fixed assets used in production, and, if possible, an imputed margin for overhead costs and profits. Where both establishments are included in the collection programme, the receiving establishment should report the same items as purchases at the same value as the sales of the shipping establishment.

4.111. This item also includes sales of goods and services purchased for resale and commissions and fees from selling goods on account of others and all receipts for

³⁶ Value of shipments replaces sales when the establishment delivers the good to other establishments of the same enterprise.

³⁷ Hereinafter, this item will be referred to by its short name, "turnover".

industrial services rendered, such as receipts for contract work performed for others, installation and repair work, and research and development work of an industrial nature.

4.112. Revenues from activities other than the sale of goods or rendering of industrial services, such as revenues from rental or lease of buildings and machinery and equipment, and all other miscellaneous revenues, as well as the value of fixed assets manufactured or built by the establishment for its own use, are also included.

4.113. The terms “turnover”, “sales”, “receipts”, “shipments”, etc., are used interchangeably in economic statistics and business accounting to denote the revenues of statistical units. The term “turnover” was determined to be suitable for the purpose of the present recommendations; however, it is recognized that there exist wide variations between countries in respect of the scope of different types of revenues. The relationship between the concepts of turnover, sales, revenue and receipts in terms of their component items are summarized in table IV.1 below:

Table IV.1

Comparison between the concepts of turnover/sales, revenue and receipts

Component item	Turnover/ sales	Operating revenue	Total revenue	Total receipts
Gross sales of goods	Yes	Yes	Yes	Yes
Provision of services	Yes	Yes	Yes	Yes
Shipping and handling	Yes	Yes	Yes	Yes
Installation	Yes	Yes	Yes	Yes
Maintenance and repair	Yes	Yes	Yes	Yes
Alteration	Yes	Yes	Yes	Yes
Storage	Yes	Yes	Yes	Yes
Receipts from the rental of vehicles, equipment, instruments, tools and other merchandise	Yes	Yes	Yes	Yes
Commissions from the arrangement of financing	Yes	Yes	Yes	Yes
Payments for work in progress	Yes	Yes	Yes	Yes
Market value of compensation received in lieu of cash	Yes	Yes	Yes	Yes
Gross sales from departments, concessions, and amusement and vending machines operated by others	Yes	No	No	Yes
Units share of sales from departments, concessions, and amusement and vending machines operated by others	No	Yes	Yes	No
Amounts received from work subcontracted to others	Yes	No	No	Yes
Consumption, sales and value-added taxes	No	No	No	Yes
Proceeds from the sale of real estate, investments or other assets held for resale	No	No	No	Yes
Income from interest and dividends	No	No	Yes	Yes
Rental of real estate	No	No	Yes	Yes
Contribution, gifts, loans and grants	No	No	Yes	Yes
Reduction in prices, rebates, discounts and returned packaging	No	No	No	No
All duties and taxes on the goods or services invoiced by entity	No	No	No	No
Operating subsidies received from public authorities	No	No	No	No

Source: *Compilation Manual for an Index of Service Production* (Paris, Organization for Economic Cooperation and Development, 2007), available from: http://www.oecd.org/findDocument/0,2350,en_2649_34257_1_119669_1_1_1,00.html.

Sale, turnover, value of shipments, including transfers to other establishments of the same enterprise (item 5.1)

4.114. This item includes the value of sales, turnover, and shipments, including transfers during the reference period to other establishments of the same enterprise of all goods produced by the establishment, whether in the reference period or in previous periods (that is to say, all goods for which the establishment relinquished control during the period; all goods sent abroad for sale or processing should be included even though legal title may not yet have passed). Included as goods produced by the establishment are goods produced by other organizations from materials supplied by the establishment.

4.115. The valuation of goods shipped should be at the establishment price charged to the customer, whether ex-factory or delivered, including all charges invoiced to clients, even if those charges are listed separately, for expenses relating to transport (whether carried out by the establishment with its own transport facilities or by outside organizations), lost packaging and the like. Price rebates, discounts and allowances on returned goods allowed to the customer and the value of returned packaging should be deducted. This includes cash discounts where netted off sales in sales records. The valuation should exclude all duties and taxes imposed on products when they leave the factory, including the value-added tax invoiced by the producer to the client, where the value-added tax system is applicable.

Sale/turnover/value of shipment of goods produced by the establishment (item 5.1.1)

4.116. This item includes sales or shipments of goods produced by the establishment to other enterprises, as well as to other establishments of the same enterprise, including transfers to wholesale and retail trade establishments of the enterprise for which separate accounts are kept. Transfers from the producing establishment to another establishment of the same enterprise for further processing should also be included. These should be valued as if sold to an independent enterprise. If this is not possible, the actual production costs should be reported. Also included are the sales or shipments of goods produced by the establishment that have been exported to customers and also transfers to affiliated overseas branches.

Sale/turnover/value of shipments of all goods and services purchased for resale in the same condition as received (item 5.1.2)

4.117. This item includes the sale/turnover from goods and services sold or bartered by a trade unit on its own account. The sale/turnover should exclude value-added tax and other similar deductible taxes directly linked to the sale/turnover, which are collected from the customers and paid directly to government tax authorities, as well as all duties and taxes on the goods and services invoiced by the unit. Included are all other invoiced charges for transport, packaging, etc., passed on to the customer, even if these charges are listed separately in the invoice. Price rebates, discounts and similar allowances granted on returned goods and the value of returned packaging should be deducted from the sale/turnover.

4.118. This item also includes the goods withdrawn by the owners of a trade unit for their own use. Those goods should be valued at the appropriate market price (in other words, as if sold to a customer). If this is not possible, the owners' withdrawals should be valued at acquisition costs.

4.119. The goods and services purchased for resale may be sold either to final consumers or to other enterprises or transferred to other establishments of the same enterprise.

Gift cards sales (item 5.1.2.1)

4.120. This data item comprises sales/turnover from gift cards. The gift card, a prepaid card whose function is similar to that of a gift certificate, can be used to purchase merchandise at a fixed shop. Following generally accepted accounting principles, sales from gift cards are included in the retail sales/turnover of units at the time the gift card is redeemed.

Commissions and fees from selling goods and services on account of others (item 5.1.3)

4.121. This item includes the commissions/fees received by trade agents for the sale of goods or services on the account of others (that is to say, commission wholesale and retail trade where the unit does not hold title to the goods sold). The commission/fee is to be included but not the full transaction price. All other costs incurred and passed to the customers should also be included.

Receipts for industrial work done or industrial services rendered to others (item 5.1.4)

Contract and commission work (item 5.1.4.1)

4.122. This item covers receipts from contract and commission work. Contract and commission work includes cases where a production unit (the contractor) carries out, as ordered by another productive unit (the principal), functions constituting the whole or a part of the activity required to produce a good or a service (see also outsourcing, paras. 1.25-1.29).

Maintenance, repair and installation (except construction) services (item 5.1.4.2)

4.123. This item includes receipts from maintenance, repairs, alterations, storage and other such services.

Other revenues (item 5.2)

4.124. This item covers revenues receivable by the unit from activities other than the sale of goods or the rendering of services, which are not always ascertainable at the establishment level. The values reported should be the actual amounts received, excluding value-added tax and other similar deductible taxes directly linked to the sales as well as all duties and taxes on the goods and services invoiced by the unit. Information about revenues from the rental or lease of machinery and equipment (item 5.2.1) and from the rental or lease of buildings (item 5.2.2) should be identified separately. Machinery and equipment include vehicles, machinery, instruments and tools.

4.125. All remaining revenues not included in the above categories should be included in item 5.2.3, Other revenues n.e.c. These include:

- (a) Revenues from the operation of cafeterias, hostels, camps and other employee facilities, except dwellings (rent received from employee dwellings should not be included but rather netted off cost of workers' housing under compensation in kind);

- (b) Receipts for transport services rendered to others, other than delivery of own products (the latter should be included in the value of sale/turnover/shipments (item 5.1));
- (c) Revenue from sales of scrap;
- (d) Receipts for storage of goods, warehousing and the like, including cold storage;
- (e) Commissions from the arrangement of financing;
- (f) Receipts for the right to use patents, trademarks, copyrights and the like, manufacturing and quarrying rights, technical “know-how;”
- (g) Dealers’ margins and other transfer costs in respect of transactions involving second-hand goods and scrap, land, intangible assets (financial claims, leases, mineral rights, patents); these cover brokers’ commissions, legal fees and the like, which represent the only output generated in such transactions; the output may be shared by the buyer and seller and, in some cases, may be charged to the buyer;
- (h) Any other revenue arising from the production of goods or rendering of services.

4.126. The following items which do not arise from the production of goods and rendering of services by the statistical unit should not be included:

- Dividend receipts
- Interest and discount receipts
- Revenue from the outright sale of patents and licences
- Revenue from the sale of land and used capital goods

Value of own-account fixed assets (item 5.3)

4.127. This item includes the cost of all fixed assets, such as buildings and structures, machinery and equipment, etc., manufactured or built by the establishment for its own use during the reference period and having a service life of more than one year, as well as the costs of extensions, alterations, improvements and major repairs that are carried out by the establishment itself with its own labour force and that extend the service life or increase the productive capacity of existing fixed assets. Fixed assets produced for rental or lease should also be included.

4.128. The own-account fixed assets should be recorded at the time the work is put in place and the asset becomes part of the fixed capital formation of the establishment. The valuation should, in principle, be at the basic prices of the same assets sold in the market. However, it will frequently be necessary to impute the valuation at production cost by using information on item 3.1.1.5, Wages and salaries of employees engaged in own-account fixed asset formation and major repair; and item 4.1.3, Cost of materials for own-account fixed assets formation and major repair.

(b) E-commerce

E-commerce sale/turnover/value of shipments/receipts for services or other revenues (item 5.4)

4.129. E-commerce sales are sales of goods and services where an order is placed by the buyer or price and terms of sale are negotiated over the Internet, an Extranet, electronic data interchange (EDI) network, or other online systems. Payment may or may not be made online (see para. 3.32). Some countries have a separate “of which” item for e-commerce sales in their retail and wholesale trade question-

naires. For those countries that have not yet recognized e-commerce separately, it is recommended that they either launch a national survey on e-commerce or update the existing economic surveys with additional questions about e-commerce sales.

4.130. This item includes the sales value of all goods and services sold through a computer-mediated network (e-commerce). Both business-to-business and business-to-consumer transactions are included. The revenues from e-commerce sales are part of item 5 (a), Turnover, sales, shipments, receipts for services and other revenues.

4.131. E-commerce transactions involve buyers and sellers, but in general it is recommended that their measurement be carried out from the seller's perspective. Measuring electronic commerce in distributive trade is difficult and often it is not straightforward owing to a number of factors including problems connected with defining what constitutes electronic commerce, and the fact that a number of multiple Internet transactions and parties may be involved, as well as the fact that in many cases units conduct both electronic commerce and traditional commerce simultaneously.

4.132. The following are examples of e-commerce transactions relevant to distributive trade: a book or CD is purchased/sold over the Internet; a person or a company calls a toll-free number and orders a computer using the seller's interactive telephone system; an electronic marketplace sells parts to another business, that is to say, a business buys office supplies online or through an electronic auction; a retailer orders merchandise using an electronic data interchange network or a supplier's extranet. It is recommended that unpriced transactions such as downloading free software available on the Internet be excluded from e-commerce.

(c) Data items by products

Value of turnover by product categories (item Q5.1)

4.133. The sales/turnover of a distributive trade unit may be broken down according to the various products or product groups invoiced by the unit itself, whether on its own account or on that of others. The trade sales/turnover may be broken down by products, for both goods and services, in reference to the Central Product Classification (CPC, Ver.2)³⁸ or other international/national classifications by product.

³⁸ <http://unstats.un.org/unsd/cr/registry/regct.asp?Lg=1>.

Breakdown of turnover

4.134. Section G of ISIC, Rev.4, includes statistical units involved in operating a very wide range of distributive trade activities. This breakdown is intended to present the structure of the section in detail. At a detailed level, the statistical units can be assumed to perform more homogeneous activities; therefore, the more detailed the breakdown, the more useful for national and international purposes the turnover data can be expected to be. Also, the greater the number of activities distinguished, the better the estimation of the contribution of each individual division or group to the total turnover, sales, shipments, receipts for services and other revenues (item 5 (a)).

4.135. In practice, however, there is a limit to the extent to which the turnover/sales can be reliably broken down. Each classification makes considerable demands on respondents and requires that detailed records be available. Consequently, the turnover for which the detailed breakdowns are requested should be restricted to that for which the statistical unit is likely to have records. For the purpose of providing more in-depth analysis of the distributive trade sector as a whole and across the three divisions and achieving harmonization in the compilation and international comparability in data presentation, the following breakdowns of turnover are recommended:

- By kind of activity

- By product groups
- By size classes of enterprises

Turnover by kind of activity

4.136. The breakdown by kind of activity should be presented from two perspectives—one relevant to the more disaggregated level of ISIC, and the other one splitting the turnover according to any of the classification variables presented above (see paras. 4.8 and 4.9). Whenever a need arises for specific turnover variables at national level, it is recommended that the countries decide which are the most appropriate breakdowns in respect of meeting their own requirements. The recommended breakdowns offer the possibility of cross-classifying turnover (that is to say, the turnover of wholesale trade (46), for example, would be presented by both ISIC groups and size classes of enterprises), thus enhancing further the analytical potential of data.

4.137. For the purpose of these recommendations, the activity breakdown should be at least at the three-digit (group) level of ISIC, Rev.4, for annual data. Countries are encouraged to collect this information more frequently than annually—monthly, say, or quarterly—as the recommended activity breakdown for these data is at the two-digit (division) level of ISIC, Rev.4 (see chap. IX, Dissemination).

4.138. The turnover could be further disaggregated into:

- (a) Turnover from principal activity (one of the classes of ISIC, Rev.4, sect. G);
- (b) Turnover from secondary activities, if any:
 - (i) Agriculture, forestry, fishing activities;
 - (ii) Industrial activities;
 - (iii) Other service activities.

4.139. In addition to their principal activity, most producer units carry out at least some secondary activities. If the output from a secondary activity is significant and records permit its identification, it should be treated as an activity of a separate establishment (see para. 3.9). Otherwise, it may be useful to measure the secondary activities carried out by trade units. This breakdown is from second (low) priority; therefore, the secondary activities are presented in three broad groups. These data may be collected at longer intervals (for example, every five years).

4.140. Units of division 46 (wholesale trade) are distinguished from those of division 47 (retail trade) primarily on the basis of the predominant type of customer. Further breakdown of wholesale turnover by type of customer may be difficult if units do not keep detailed records. If precise numbers are not available, wholesale trade units should be encouraged to provide their best estimates.

Turnover by product groups

4.141. The turnover of a distributive trade unit may be broken down according to the various products or product groups invoiced by the unit itself, whether on its own account or on that of others. It is recommended that the trade turnover be broken down by products (data item Q5.1), both for goods and for services, according to the Central Product Classification (CPC, Ver.2).

4.142. Provision of turnover at the detailed Classification of Individual Consumption According to Purpose (COICOP) level is also recommended, as it will facilitate the compilation of individual consumption expenditure of households in national accounts.

4.143. The following aggregated breakdown of turnover by products is recommended (see also para. 1.19):

- Food, beverages and tobacco
- Clothing and footwear
- Household appliances, articles and equipment
 - Of which: Furniture
- Machinery, equipment and supplies
 - Of which: Information-processing equipment
 - Of which: Motor vehicles and associated goods
- Personal and other goods
- Construction materials
- Other

Turnover by size classes of enterprises

4.144. The size classes of enterprises are defined in terms of the average number of persons employed during the reference period rather than in terms of annual turnover, as the latter indicator may vary significantly from country to country (see paras. 3.47-3.53). The recommended level of size class breakdown is the following: 1, 2-9, 10-19, 20-49, 50-249, and 250 and more.

6. Inventories

Total inventories (item 6.1)

4.145. This item comprises the value of all inventories owned by the parent enterprise and held by, or under the control of, the establishment, either at the establishment's own premises or elsewhere. Inventories held at ancillary units, in bonded stores or warehouses, on consignment or in transit and materials being manufactured, processed or assembled on commission by others should be included. Materials owned by the others but held by the unit for processing should be excluded. Inventories held overseas or in transit abroad should be included if the economic ownership rests with the unit holding the inventories.

4.146. The information on inventories is required for measuring the value of changes in inventories (item 6.1.3). Changes in inventories consist in the difference (positive or negative) between the value of inventories at the end (item 6.1.2) and their value at the beginning (item 6.1.1) of the reference period. They may also be measured by the value of entries into inventories less the value of withdrawals and of any recurrent losses of goods held in inventories.

4.147. Changes in inventories should be valued at purchasers' prices including any duties and taxes payable by the purchaser and excluding deductible value-added tax, and also excluding any rebates or discounts given by the seller, if they are purchased from another unit, and at equivalent basic prices (market prices excluding taxes on products, transport costs and trade margin) or at production cost, if they are produced by the unit itself. Production costs are equal to the sum of material and services costs, compensation of employees, other taxes on production, depreciation of the fixed assets used in production, and an imputed margin for overhead costs and profits, if possible.

4.148. In principle, the book values of inventories, as maintained in the accounting records of units, are used to estimate their physical changes (and any holding gains caused by the changes in their prices). When inventories are valued at book

values, it is necessary to know, or assume, the order in which they are withdrawn since the withdrawals from inventories should be valued at the purchasers' prices at which the inventories can be replaced at the time they are withdrawn as distinct from the purchasers' prices that may have been paid for them when they were acquired. The common methods used by units in their business accounting practices for reporting withdrawals from stocks are:

- (a) FIFO (first-in-first-out): the cost of items sold or consumed during the reference period is calculated as though they were sold or consumed in the order of their acquisition;
- (b) LIFO (last-in-first-out): the cost of items sold or consumed during the reference period is deemed to be that of the most recent acquisitions or production. This implies that withdrawals are valued approximately at current prices;
- (c) Average cost: the cost of an item is determined by applying a weighted average of the cost of all similar items available for sale over a period of time;
- (d) Specific item cost: a method of tracking inventory when the actual cost of each item can be identified separately. This method is usually used for large, easily traceable items, such as vehicles or furniture.

4.149. Methods of valuation of inventories may vary according to the accounting practices of each unit; but for many companies, inventory represents a large portion of assets and, as such, makes up an important part of the balance sheet. It is therefore recommended that statisticians who are compiling data on distributive trade examine the units' practices with respect to the reported values of inventories in the beginning and at the end of the reporting period as well as the stock turnover period (see para. 5.25).

4.150. If inflation were non-existent, then all four of the inventory valuation methods would produce the exact same results. Unfortunately, over the long term, prices tend to rise, which means the choice of accounting method can significantly affect valuation. In order to estimate properly the changes in stocks that participate in the calculation of trade margin and other aggregates and balances, it is recommended that the method of valuation be requested on survey forms.

Inventories of materials, fuels and supplies (item 6.2)

4.151. This item comprises the value of all materials, fuels, components and other supplies that an establishment holds in stock with the intention of using them as intermediate inputs in production, repair and maintenance. The value of any inventories of materials and supplies for use in own-account capital formation should be included. In principle, the inventories should be valued at replacement cost, based on purchasers' prices (see item 6.1). Alternatively, the book values might be requested.

Work-in-progress (item 6.3)

4.152. This item refers to the value of output produced by an establishment that is not yet sufficiently processed to be in the state in which it is normally supplied to other enterprises or to other establishments of the same enterprise. It should include all work-in-progress for the account of others, irrespective of the arrangements for financing the work. However, that part of the work-in-progress on long-term contracts for which progress payments are received should be treated as shipments/sale and therefore should not be included in work-in-progress. If possible, an imputed valuation in terms of equivalent basic prices should be adopted. Alternatively, the book values might be requested.

Inventories of finished goods (item 6.4)

4.153. This item includes all goods produced by an establishment as output that the producing establishment does not intend to process further before supplying them to other enterprises or final consumers. Finished goods held by another establishment that were processed by that establishment from materials owned by the respondent establishment should also be included. Finished goods held by the respondent establishment that were made from materials owned by others should be excluded.

Inventories of goods purchased for resale in the same condition as received (item 6.5)

4.154. This item includes the value of all goods purchased by an establishment for the purpose of reselling them to their customers in the same condition as received. Stocks of goods purchased for resale do not include stocks of those goods that are provided to third parties on a commission basis.

4.155. Items 6.4 and 6.5 of inventories have significant implications for trade units, the most important one stemming from the fact that the inventories of goods purchased for resale in the same condition as received participate in the calculation of trade margin and other aggregates and balances. The inventories of materials, fuels and supplies are referred to the goods intended to be used by units for their intermediate consumption.

7. Taxes and subsidies

Taxes (item 7.1)

4.156. Taxes are compulsory unrequited payments, in cash or in kind, made by trade units to the government. Two main groups of taxes are identifiable: taxes on products and other taxes on production. The present section recommends collecting only other taxes on production as these payments are recorded in the business accounts of units. It is recommended that, in statistical questionnaires, countries refer to the specific names or descriptions of taxes as they exist in their national fiscal systems.

Other taxes on production (item 7.1.1)

4.157. Other taxes on production are taxes that units are liable to pay as a result of engaging in production. As such, they represent a part of production costs and should be included in the value of output. Units pay them irrespective of profitability of production. These taxes consist mainly of taxes on the ownership or use of land, buildings or other assets used in production, or on the labour employed or compensation of employees paid. Examples are motor road vehicle taxes, duties and registration fees, business licences, payroll taxes, taxes on non-life insurance on assets, and levies on the use of fixed assets. Also included are official fees and charges—that is to say, duties payable for specific public services, such as the testing of standards of weights and measures, provision of extracts from official registers of crime and the like.

4.158. It may not be possible to collect data on all these taxes at establishment level; therefore, in such cases the design of statistical questionnaires and subsequent data compilation should clearly indicate the type of taxes that have been reported.

Subsidies received (item 7.2)

4.159. This item covers payments that government units make to resident producing units on the basis of their production activities or the quantities or values of

the goods or services they produce, sell or import. Classification of subsidies follows closely the classification of taxes.

Subsidies on products (item 7.2.1)

4.160. Subsidies on products correspond to subsidies payable per unit of a good or service produced, either as a specific amount of money per unit of quantity of a good or service, or as a specified percentage of the price per unit; it may also be calculated as the difference between a specified target price and the market price actually paid by a buyer.

Other subsidies on production (item 7.2.2)

4.161. Other subsidies on production consist of subsidies, except subsidies on products, that resident enterprises may receive as a consequence of engaging in production, for example, subsidies on payroll or workforce and subsidies to reduce pollution.

8. Output

Gross output at basic prices (item 8.1)

4.162. This item illustrates the overall production activity of trade establishments. Output (production) cannot be directly observed from their accounting records. It is calculated from data items in the following groups: Turnover, sales, shipments, receipts for services and other revenues (item 5 (a)); Purchases of goods and services (item 4 (a)); and Inventories (item 6). Output of trade units is calculated in a specific way. Gross margin (item 8.1.1) accounts for the most significant part of total trade output. Calculation of trade output should be regarded as a first priority owing to its direct link with the compilation of national accounts.

4.163. The value of output corresponds to the sum of the value of all goods or services that are actually produced within a trade establishment and become available for use outside that establishment, plus any goods and services produced for own final use. The value of output at basic prices is calculated as follows:

Gross output =

- + Value of sale/turnover/shipments of goods produced by the establishment (item 5.1.1)
- + Value of sale/turnover/shipments of all goods and services purchased for resale in the same condition as received (item 5.1.2)
- Purchases of goods and services for resale in the same condition as received (item 4.5)
- + Commissions and fees from selling goods and services on account of others (item 5.1.3)
- + Receipts for industrial work done or industrial services rendered to others (item 5.1.4)
- + Other revenues (item 5.2)
- + Value of own-account fixed assets (item 5.3)
- + Change in work-in-progress (item 6.3.3)
- + Change in inventories of finished goods (item 6.4.3)
- + Change in inventories of goods purchased for resale in the same condition as received (item 6.5.3)

4.164. In order to maintain consistency with valuation concepts for output (production) of other international recommendations on business statistics and national accounts, it is recommended that countries value the trade output at basic prices. However, for countries where it may be difficult both for respondents and for survey statisticians to distinguish between “taxes and subsidies on products” and “other taxes on production”, valuation of output at factor cost can serve as second-best alternative. Depending upon the treatment applied to other taxes and subsidies on production, any of the following three valuations of output—at factor costs, basic prices or producers’ prices—can be derived.

Value of gross output at factor costs

- + Other taxes on production (item 7.1.1)
- Other subsidies on production (item 7.2.2)

= Value of gross output at basic prices

- + Taxes on products (excluding imports and any value-added tax or similar deductible taxes, invoiced to the purchaser)
- Subsidies on products (item 7.2.1)

= Value of gross output at producers’ prices

Gross margin (item 8.1.1)

4.165. Gross margin is defined as the difference between the actual or imputed price realized on a good purchased for resale (either wholesale or retail) and the price that would have to be paid by the distributor to replace the good at the time it is sold or otherwise disposed of. The valuation of gross margin, in principle, should be at basic prices, although, alternative valuation principles, similar to those for the valuation of gross output at basic prices (item 8.1) may also apply. The value of gross margin is derived through the following identity:

Gross margin =

- + Value of sale/turnover/shipments of all goods and services purchased for resale in the same condition as received (item 5.1.2)
- Purchases of goods and services for resale in the same condition as received (item 4.5)
- + Change in inventories of goods purchased for resale in the same condition as received (item 6.5.3)
- Value of recurrent losses due to normal rates of wastage

4.166. As a general recommendation, changes in stocks of goods for resale should be valued exclusive of holding gains and losses. Holding gains and losses are excluded from gross margin/output by valuing all entries to, or withdrawals from, inventories at the prices prevailing at the times the entries or withdrawals take place.

9. Intermediate consumption and census input

Intermediate consumption at purchasers’ prices (item 9.1)

4.167. Intermediate consumption consists of the value of goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital (depreciation (item 11.4)). The goods or services may be either transformed or used up in the production process. Intermediate consumption is normally valued at the purchaser’s price prevailing at the time goods and services enter the process of production, that is to say, at the price the producer would have to pay to replace them at the time they are used.

4.168. Intermediate consumption constitutes a national accounts category and is recorded at the time when the good or service enters the process of production, as distinct from the time it was purchased/acquired by the producer. The two times coincide for services, but not for goods. In practice, units keep records of purchases of goods and services intended to be used as inputs and also of any changes in the amounts of such goods held in inventories. This calls for an adjustment of purchases of goods for changes in inventories.

4.169. Intermediate consumption cannot be directly observed from the accounting records of trade establishments. It is calculated from data items in the following groups: Purchases of goods and services (item 4(a)) and Inventories (item 6).

$$\begin{aligned} \text{Intermediate consumption} = & \\ & + \text{Cost of raw materials and supplies except gas, fuels and electricity (item 4.1)} \\ & + \text{Cost of gas, fuel and electricity purchased (item 4.2)} \\ & + \text{Cost of water and sewerage services (item 4.3)} \\ & + \text{Purchases of services except rentals (item 4.4)} \\ & + \text{Rental payments (item 4.6)} \\ & + \text{Changes in inventories of materials, fuels and supplies (item 6.2.3)} \end{aligned}$$

10. Value added

Total value added at basic prices (item 10.1)

4.170. Value added at basic prices is calculated as the difference between the gross output at basic prices (item 8.1) and the intermediate consumption at purchasers' prices (item 9.1). The valuation of value added closely corresponds to the valuation of gross output (item 8.1). If the output is valued at basic prices, then the valuation of value added is also at basic prices (the valuation of intermediate consumption is always at purchasers' prices).

$$\begin{aligned} \text{Total value added at basic prices} = & \\ & + \text{Gross output at basic prices (item 8.1)} \\ & - \text{Intermediate consumption at purchasers' prices (item 9.1)} \end{aligned}$$

4.171. Alternative valuation principles, similar to the valuation of gross output (item 8.1), may also apply. In some circumstances, it will not be possible to segregate the taxes and subsidies on products and production. Therefore, this recommendation takes these specific country perspectives into account by allowing the measurement of value added at factor cost. The value added at factor cost is measured as:

$$\begin{aligned} \text{Total value added at factor cost} = & \\ & + \text{Gross output at factor cost} \\ & - \text{Intermediate consumption at purchasers' prices (item 9.1)} \end{aligned}$$

4.172. Value added can be expressed in gross or net terms depending on the inclusion/exclusion of the consumption of fixed capital (depreciation).

11. Assets, capital expenditures, retirements and depreciation

4.173. Gross fixed capital formation is measured by the total value of a trade unit's acquisitions, less disposals, of fixed assets during the reference period plus certain specified expenditures on services that adds to the value of non-produced assets.

Gross value of fixed assets (item 11.1)

4.174. This data item includes the value of all durable goods expected to have a productive life of more than one year and intended for use by the establishment (land, mineral deposits, timber tracts and the like, buildings, machinery, equipment and vehicles). Included are major additions, alterations and improvements to existing fixed assets which extend their normal economic life or raise their productivity. Also included is the value of new fixed assets and additions and improvements to existing fixed assets made by the establishment's own labour for its own use. While capital repair is included, expenditures for current repair and maintenance are excluded. Transactions in respect of financial claims and intangible assets (such as rights to mineral deposits, copyrights and the like) are excluded.

4.175. Distinction between new and existing fixed assets could be of significant national interest:

- New fixed assets include all those assets that have not been previously used in the country. Imported fixed assets are considered new whether or not they were used before they were imported. New fixed assets cover not only the acquisition of complete assets but also any renovations, reconstruction or enlargements that significantly increase the productive capacity or extend the service life of an existing asset.
- An existing fixed asset is one that has already been acquired by at least one user or produced on own account, and whose value has already been included in gross fixed capital formation.

Valuation

4.176. The fixed assets are valued as follows:

- (a) Fixed assets acquired by purchase from others are valued at purchasers' prices that include transport and installation charges and all costs incurred in the transfer of ownership in the form of fees and any taxes payable on the transfers;
- (b) Fixed assets acquired through barter are valued at their estimated basic prices plus any taxes payable and costs of transfer of ownership;
- (c) Fixed assets produced on own account are valued at their estimated basic prices or by their costs of production when satisfactory estimates of their basic prices cannot be made. Costs of production are equal to the sum of material and service costs, compensation of employees, other taxes on production, depreciation of the fixed assets used in production, and an imputed margin for overhead costs and profits, if possible;
- (d) Fixed assets produced by one establishment of a multi-establishment enterprise for the use of another establishment of the same enterprise are valued by the receiving establishment as though purchased from outside the enterprise;
- (e) Disposals of fixed assets are valued at the actual amounts realized rather than at book values.

Time of recording

4.177. The general principles governing the time of recording of acquisitions less disposals of fixed assets determine that the time of recording is when the ownership of the fixed assets is transferred to the unit that intends to use them in production. Fixed assets produced on own account are recorded when produced.

4.178. An exception to this rule is the recording of assets where the invoicing, delivery, payment and first use of the good may take place in different reference periods, as in the case of construction of buildings, structures, roads and other projects and immature animals and plantations. They are first treated as work-in-progress and reclassified from inventories to fixed assets when completed or matured and delivered to the unit intending to use them.

4.179. When the construction takes place under a contract of sale agreed in advance, the ownership of the structure is effectively transferred in stages as the work proceeds. When there is no contract of sale agreed in advance, the construction work produced by the (construction) unit must be recorded as part of its changes in inventories of either work-in-progress or finished goods, depending on whether the construction is completed.

4.180. The definition outlined above treats progress payments for construction work and for other fixed assets differently. For construction work, progress payments should be included in expenditure on fixed assets; for other fixed assets, progress payments should be excluded from expenditure on fixed assets and recorded as a financial claim. In some countries, this treatment may not be feasible and all progress payments may have to be recorded as expenditure on fixed assets.

Classification of fixed assets by type

4.181. The transactions in fixed assets are divided into the following categories:

Dwellings (item 11.1.1)

4.182. Dwellings are buildings that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences. Houseboats, barges, mobile homes and caravans used as principal residences of households are also included.

Other buildings and structures (item 11.1.2)

4.183. Other buildings and structures comprise non-residential buildings, other structures and land improvements:

- (a) *Non-residential buildings.* Non-residential buildings consist of buildings other than dwellings, including fixtures, facilities and equipment that are integral parts of the structures. For new buildings, costs of site clearance and preparation are included. Examples of non-residential buildings are warehouses and industrial buildings, and commercial buildings;
- (b) *Other structures.* Other structures include structures other than buildings, for which the cost of the streets, sewer, etc., are included as well as the costs of site clearance and preparation. Examples are highways, streets, bridges, shafts, tunnels and other structures associated with mining mineral and energy reserves, and the construction of sea walls, dykes, flood barriers, etc., intended to improve the quality and quantity of the land adjacent to them;
- (c) *Land improvements.* Land improvements are the result of actions that lead to major improvements in the quantity, quality or productivity of land, or prevent its deterioration, and are also treated as fixed capital formation. Activities such as land clearance, land contouring, and creation of wells and watering holes that are integral to the land in question are to be treated as resulting in land improvements.

4.184. Concerning land improvements, the value of natural land before improvement is not included. However, the costs of ownership transfer on land improvements are included.

4.185. The major additions, alterations and improvements of buildings and structures (that is to say, their renovation, reconstruction or enlargement) which prolong their service life or increase their productive capacity should be classified together with the acquisitions of new fixed assets of the same kind.

Machinery and equipment (item 11.1.3)

4.186. This category of assets includes the acquired new or second-hand assets during the reference period. Machinery and equipment covers transport equipment, machinery for information, communication and telecommunications (ICT) equipment, and other machinery and equipment. Tools that are relatively inexpensive and purchased at a relatively steady rate, such as hand tools, may be excluded. Also excluded are machinery and equipment integral to buildings that are included in dwellings and non-residential buildings.

Transport equipment (item 11.1.3.1)

4.187. Transport equipment consists of equipment for moving people and objects. This includes transport equipment such as motor vehicles, trailers and semi-trailers; ships; railway and tramway locomotives and rolling stock; aircraft and spacecraft; and motorcycles, bicycles, etc.

ICT equipment (item 11.1.3.2)

4.188. ICT equipment consists of devices using electronic controls and also the electronic components forming part of these devices. Examples are products within CPC, Ver.2, categories 452 and 472³⁹ (hardware (computers, laptops) and peripherals, different presentation devices, etc.).

³⁹ <http://unstats.un.org/unsd/cr/registry/cpc-2.asp>.

Other machinery and equipment (item 11.1.3.3)

4.189. Other machinery and equipment consists of machinery and equipment not elsewhere classified. Examples include general-purpose machinery; special-purpose machinery; office, accounting and computing equipment, electrical machinery and apparatus, and radio, television and communication equipment and apparatus; and medical appliances, precision and optical instruments, watches and clocks, etc.

Intellectual property products (item 11.1.4)

4.190. Intellectual property products are the result of research, development, investigation or innovation leading to knowledge that the developer can market or use to his or her own benefit in production because use of the knowledge is restricted by means of legal or other protection. Specific forms of intellectual property products are research and development, mineral exploration and evaluation, computer software and databases, and entertainment, literary or artistic originals. Each component of intellectual property products should be divided into two components: those that are investment goods procured from other enterprises and those that are developed on own account or for own use.

Research and development (item 11.1.4.1)

4.191. Research and (experimental) development (R&D) consists of the value of expenditures on creative work undertaken on a systematic basis in order to increase

the stock of knowledge and use it to devise new applications. The value of R&D should be determined in terms of the economic benefits that it is expected to provide in the future. Unless the market value of R&D is observed directly, it may be valued, by convention, at the sum of costs, including the cost of unsuccessful R&D.

4.192. The sum-of-costs approach for R&D undertaken on own account by enterprises is illustrated by the following identity:

$$\begin{aligned} \text{Output of R\&D on own account} = & \\ & + \text{Material and service costs} \\ & + \text{Compensation of employees engaged in research and development} \\ & + \text{Other taxes less subsidies on production} \\ & + \text{Depreciation of fixed assets used in R\&D} \end{aligned}$$

Mineral exploration and evaluation (item 11.1.4.2)

4.193. Mineral exploration and evaluation consists of the value of expenditures on exploration for petroleum and natural gas and for non-petroleum deposits and subsequent evaluation of the discoveries made. These expenditures include pre-licence costs, licence and acquisition costs, appraisal costs and the costs of actual test drilling and boring, as well as the costs of aerial and other surveys, transportation costs, etc., incurred to make it possible to carry out the tests. Re-evaluations that may take place after commercial exploitation of the reserve is also included in gross fixed capital formation.

Computer software and databases (item 11.1.4.3)

4.194. Computer software consists of computer programmes, programme descriptions and supporting materials for both systems and applications software. Gross fixed capital formation in computer software includes both the initial development and subsequent extensions of software as well as acquisition of copies that are classified as assets. The formula used to calculate output of computer software is similar to the formula used for research and development (item 11.1.4.1).

4.195. A database consists of files of data organized in such a way as to permit resource-effective access and use of the data. Databases may be developed exclusively for own use or for sale as an entity or for sale by means of a licence to access the information contained. Both database purchased as fixed assets and the cost of database development for own use are reported here. The development of a database for own use will generally have to be estimated by a sum-of-costs approach.

Entertainment, literary and artistic originals (item 11.1.4.4)

4.196. Entertainment, literary and artistic originals consist of the original films, sound recordings, manuscripts, tapes, models, etc., on which drama performances, radio and television programming, musical performances, sporting events, literary and artistic output, etc., are recorded or embodied. Such works are frequently developed on own account which may be estimated by a sum-of-costs approach.

Depreciation (item 11.4)

4.197. Depreciation as calculated in business accounting is a method of allocating the costs of past expenditures on fixed assets over subsequent accounting periods. Depreciation represents the loss in value of a fixed asset due to ageing and to its use in production. It is mostly calculated on the basis of historic costs of fixed assets.

Depreciation applies to all fixed assets; therefore, classification of depreciation should correspond to the classification of fixed assets as presented in data item 11.1.

4.198. Depreciation in business accounting deviates from the concept of consumption of fixed capital employed in the economic accounting standards. Consumption of fixed capital is defined in general terms as that part of the gross product that is required to replace fixed capital used up in the process of production during the reference period. This is based on the concept of the expected economic lifetime of the individual assets, and is designed to cover the loss in value owing to foreseen obsolescence and the normal amount of accidental damage that is not reparable, as well as to normal wear and tear. Unforeseen obsolescence is treated as a capital loss at the time at which it actually occurs, rather than as fixed capital consumption. In principle, the scope of the capital equipment for which consumption should be recorded is given by the definition of fixed capital formation. Consumption of fixed capital will be calculated by national accountants for analytical purposes later, not at the stage of data collection.

Chapter V

Performance indicators

A. Need for performance indicators

5.1. The increasing demand for information through which to assess businesses' status in the distributive trade sector in the areas of profitability, productivity and efficiency has led to an intense interest in wholesale and retail trade performance indicators. Performance indicators make it possible either to evaluate performance of individual retailers and wholesalers or to determine how well distributive trade is performing in relation to other industries in the national economy or internationally.

5.2. The information collected utilizing the data items described in chapter IV can be useful in analysing the structure and production activity of wholesale and retail trade units. However, direct use of those data items when policy or management decisions are to be made is not always sufficient. Another set of variables are clearly required to satisfy such needs. Those variables are referred to as performance indicators.

5.3. It is recognized that, given the diversity of users' needs and the fact that they may change over time, it is not possible to create a definitive list of performance indicators that can be applied in all countries and in all circumstances. The present chapter presents a limited set of indicators for monitoring and measuring the overall performance of the distributive trade sector as a whole or the performance of some of its divisions—a set that allows for meaningful national and international comparability. It also describes the objectives of performance indicators, and examines the key principles governing how they can be developed, best used and interpreted in distributive trade.

B. Objectives of performance indicators

5.4. In general, a performance indicator is a policy-relevant variable, a number or a quantitative description reflecting the conditions and functioning of any sector, including the distributive trade sector or its units. In practice, a performance indicator can be any ratio that summarizes two or more important measurements and that is tied directly to the performance rather than to the activity of a unit or a sector.

5.5. Performance indicators are also a powerful instrument for presenting complex information in a synthesized way and serve as means of summarizing and communicating the information to decision makers and to the public. As a tool for measuring the overall performance of the distributive trade sector, the performance indicators help policymakers and economic planners evaluate how effectively trade activity is organized, identify potential areas for improvement and make more informed strategic decisions regarding a future strategy of development.

5.6. Compilation and wide dissemination of performance indicators are also intended to help units active in distributive trade assess the business environment in which they operate. Performance indicators allow retailers and wholesalers to develop their own performance measurement programmes, to identify and set their long-term goals in performance and to measure their progress. Managing and reporting performance can lead to significant business benefits such as increased efficiency through reducing and managing resources, increased sales and improved reputation among customers.

5.7. Performance indicators are also a suitable tool for academicians and researchers who use them for making comparisons across countries and industries and over time and for identifying factors that lead to better performance.

C. Types of performance indicators

5.8. Performance indicators can be broadly divided into three types, namely: (a) growth rates; (b) ratio indicators; and (c) share indicators. Some performance indicators are applicable to any kind of economic activity, while a compilation of others is meaningful only for the distributive trade sector and its three subsectors. Most of the information necessary for calculation of performance indicators is generated in the accounting and payroll records of enterprises and is included in statistical surveys on distributive trade. In order to make use of certain particular measures, however, it may be necessary to generate new information.

5.9. The compilation of performance indicators should be regarded as a part of the distributive trade statistics programme by all countries. It is recommended that performance indicators be compiled annually at the three-digit (group) level of ISIC, Rev.4, and quarterly at the two-digit (division) level.

5.10. Most of the performance indicators have a comparative dimension or a reference point that permits time-series evaluation. Depending on the importance and availability of data, businesses can compile and track some of the indicators daily (for example, turnover), while other users may study them monthly (inventories-to-sales ratios), quarterly or annually.

5.11. Historically, the importance of any economic activity in the total economy, including distributive trade, is measured by means of two indicators: generated value added and employment and their respective proportions or growth rates. These and some additional performance indicators discussed below are recommended for compilation.

1. Growth rates

Value-added growth

5.12. Annual (quarterly) percentage change of value added of distributive trade activity (or value added of any other economic activity) constitutes the value-added growth rate. It is expressed in terms of an arithmetic growth rate as $(Y_t/Y_{t-1}) - 1$, where Y and t denote the value and the time period, respectively.

Employment growth in distributive trade

5.13. Employment growth in distributive trade activity is the annual (monthly or quarterly) percentage change of persons employed in the distributive trade sector.

The indicator can be compiled by kind of activity, by employment categories, by gender and by size class of enterprises.

*Retail trade/wholesale trade turnover index*⁴⁰

5.14. This index is an indicator of the monthly activity of the distributive trade sector in nominal and real terms. As such, it is included in the list of short-term distributive trade statistics, but it is also listed here as a performance indicator owing to its importance for the evaluation and analysis of the development in wholesale and retail trade turnover. It describes exclusively the development, and not the level, of turnover (item 5 (a)).

5.15. In real terms, the index is calculated by deflating the current values of turnover with the appropriate price indices. The deflators of retail trade turnover can be the corresponding consumer price indices (CPI), while deflators of wholesale trade should have a similar methodology to that of the Producer Price Index (PPI), as adapted to the particularities of wholesale trade and reflecting price changes in the goods traded rather than the trade services provided. If wholesale price indices are not compiled, the appropriate PPIs are accepted as a reasonable proxy for wholesale prices. Deflation in general is the preferred method for obtaining the turnover in real terms; however, direct volume indicators will be the alternative when price indices are missing.

5.16. It is preferable to have the data on turnover adjusted for calendar and seasonal variations by applying the appropriate seasonal adjustments methods.⁴¹ The rate of change (or growth) is determined as the percentage change of turnover with respect to the corresponding month of the preceding year (if chain-linked) or a base year. Alternatively, in lieu of the retail trade/wholesale trade turnover index, the volume of turnover may be used.

5.17. The nominal monthly turnover index (turnover value index) is calculated in a similar way, that is to say, as the percentage change of monthly turnover from the turnover of preceding year or a base year. The value for the base year (the preceding year is also a base year) is the arithmetic mean of the 12 monthly turnover results for the base year.

5.18. Following the approach of calculating monthly index numbers, these could be a compilation of quarterly and annual indices.

2. Ratio indicators

Output per person employed

5.19. Output per person employed is obtained by dividing the gross output, as defined in item 8.1, by the total number of persons employed (item 2.1). Relating gross output to labour measures (and capital and intermediate inputs) at the level of individual units or activities underlies different aspects of productivity measurement. This indicator reflects the change in the input coefficient of labour by activity and can help in the analysis of labour requirements by activity.

5.20. Any indicator that has the total number of persons employed as denominator has shortcomings, as it is influenced by sourcing of the labour input and the shifting share of part-time employment in the workforce. For example, it rises as a consequence of outsourcing and also does not reflect a change in the individual characteristics of the workforce. One way to correct for part-time employment is to take into account the number of hours worked.

⁴⁰ For additional information on the turnover index, see chap. VII, Short-term distributive trade statistics.

⁴¹ For additional information on seasonal adjustment methods, see chap. VII, Short-term distributive trade statistics.

Value added per person employed

5.21. This performance indicator is the ratio of the total value added (item 10.1) to the total number of persons employed (item 2.1). Determining the value added per person employed is the popular method for estimating the trends in labour productivity for the total economy and by activity.

Value added per hour worked

5.22. A simple headcount of employed persons hides changes in average hours worked, caused by the evolution of part-time work or the effects of variations in overtime or shifts in standard working hours. Labour input to the process of production is most appropriately measured as the total number of hours worked. Using the information on total hours worked, the value added per hour worked is obtained by dividing the total value added (item 10.1) by total hours worked (item 2.5) used to generate this value added. It is similar to value added per person employed; however, in order to provide accurate results, it requires the availability of good-quality data on hours worked. Depending on data availability, this indicator can be calculated with quarterly or annual periodicity. It shows the changes from period to period in the amount of goods and services produced per hour.

Turnover per person employed

5.23. This performance indicator is derived by dividing the total turnover (item 5 (a)) by the total number of persons employed (item 2.1). The trend in this regard can also be measured in real terms, that is to say, by dividing turnover in real terms (see para. 5.15) by the total number of persons employed. The indicator is useful for interpreting the development in individual distributive trade subsectors, because the turnover in some distributive activities (those of wholesalers and retailers on own account) could be relatively high compared with turnover in others (wholesaling on a commission basis). The indicator can be compiled by kind of activity, by employment categories, by size class of enterprises, etc.

Gross margin-to-turnover ratio

5.24. This performance indicator is obtained by dividing the gross margin on goods for resale (item 8.1.1) by the turnover from trading activities of purchase and resale only (item 5.1.2). The ratio is a good indication of trade units' performance and provides a basis for comparison between different types of trade.

Inventories-to-turnover ratio

5.25. The inventories-to-turnover ratio is the relationship of the end-of-month values of inventories to the monthly turnover. Inventories typically represent a large share in traders' total assets, therefore the improvement in inventory management can have a significant impact on their profitability. The ratio is more important for short-term trade statistics, although it may be calculated for any time period. For example, a ratio of 2.5 would indicate that the retailer or wholesaler has enough merchandise on hand to cover two and a half months of sales.

Sales per retail sales space

5.26. The sales per sales space ratio is derived by dividing turnover (item 5 (a)) by the sales space, that is to say, the estimated floor area of that part of the premises devoted to selling and display. The sales space includes the total space to which the

customers have access, including fitting rooms; counter space and window space; and the space behind the counters used by shop assistants. Sales space does not include offices, storage and preparation rooms, workshops, staircases, cloakrooms and other amenity rooms. The specific categories of sales space should be defined in the context of national circumstances. Owing to the non-uniformity of sales space classes and different country practices in this area, it is not possible to establish an international breakdown of sales space.

3. Share indicators

Share of distributive-trade value added in total value added

5.27. This performance indicator refers to the value added generated in distributive trade (or any other economic activity) as a proportion of total value added of the economy. When this indicator is calculated for all economic activities, it depicts the structural composition of the economy and shows contribution of individual economic activities to gross domestic product (GDP).

Employment in distributive trade activity as a share of total employment of the economy

5.28. This performance indicator serves as a useful tool for assessing the segmentation and trends in the labour market. It is calculated as the ratio of the total number of persons employed in distributive trade to the total number of persons employed in the total economy.

Share of e-commerce sales in total turnover

5.29. This performance indicator is calculated as the share of total turnover (item 5 (a)) accounted for by e-commerce sales (item 5.4). The importance of this indicator has increased in recent years with the tremendous expansion of transactions completed over a computer-mediated network.

D. Additional indicators

5.30. The indicators under this heading do not necessarily evaluate performance; rather, their compilation is suggested to help businesses and other users monitor some specific aspects of the organization of trade activity. However, it should be noted that such compilation requires the collection of additional data, thus significantly increasing the burden on respondents. Countries are advised to collect this information only if warranted by their own circumstances.

Accounts receivable (balances outstanding at the end of the year on instalment and charge account)

5.31. Retail accounts receivable are defined as the amounts of the credits extended by retail stores to their customers for purchases made that are outstanding as of the end of the reference period. Accounts receivable include amounts outstanding from consumer receivables such as (a) credit arising from retail sales of passenger cars and other vehicles; (b) retail credit extended on a credit-line basis and arising from the sale of consumer goods other than passenger cars and other vehicles; and (c) other consumer receivables, that is to say, all credit not extended under a revolving credit line and arising from retail sales of non-motor vehicle consumer goods. The

item excludes the amounts charged on credit cards issued by banks or other credit card-issuing organizations.

Number of retail stores

5.32. This is the total number of retail stores operated by an enterprise, either owned or rented. Stores are defined as fixed sales premises that are entered by customers to make their purchases.

Number of fixed market stands and/or stalls

5.33. This covers the total number of fixed market stands and/or permanent stalls operated by an enterprise, either owned or rented. Though they do enter stores, customers do not usually enter the sales premises of stands/stalls to make their purchases.

E. How to interpret performance indicators

5.34. Performance indicators are not absolute numbers: they acquire meaning in the context of comparison and analysis. Comparison with other measurement indicators puts the performance of a unit, or a sector, into perspective; analysis leads to an understanding of the factors responsible for a given level of performance.

5.35. In using the performance indicators for comparisons, care should be taken to ensure that the units or phenomena are alike enough to be compared, or at least that the differences are made explicit. It is not very meaningful, for example, to compare the performance of a small specialized shop with that of a large department store. Further, in cases when performance indicators are expressed as ratios between two or more data items drawn from the list provided in chapter IV, consistency in respect of their definitions and coverage should be ensured.

5.36. Performance indicators are best used to gauge the overall performance of the distributive trade sector (or any other sector of the economy), its structure or its ongoing processes; it is therefore recommended that this goal not be sacrificed for the sake of a highly detailed analysis or the calculation of performance indicators whose importance is minor but whose compilation requires much additional data. The purpose of performance indicators is to facilitate an understanding of the broad performance and trends of distributive trade sector business and the application of that understanding in a harmonized and internationally comparable manner.

Chapter VI

Data sources and data compilation methods

6.1. The present chapter contains general recommendations concerning data sources and data compilation methods for use in distributive trade statistics. More detailed guidance on the relevant good practices will be provided in the publication *Distributive Trade Statistics: Compilers Manual*, which is to be issued as a follow-up to the current recommendations.

A. Data sources

6.2. *Data sources for compilation of distributive trades statistics.* The generation of distributive trade statistics is based on data collected from numerous sources describing production activities and selected balance-sheet items of units engaged in distributive trade, as classified in section G of ISIC, Rev.4. Two basic categories of data sources can be distinguished according to their purpose or the provider of the statistical information. In both categories, however, the original sources of the data are the same, namely, the records kept by the trade units. These two data sources are:

- (a) Statistical data sources that provide data collected specifically for statistical purposes, such as census and survey data;
- (b) Administrative data sources that provide data created originally for purposes other than the production of statistical data.

1. Statistical data sources

6.3. *Statistical surveys.* Statistical surveys of the units concerned are traditionally the main source of information for compiling distributive trade statistics. The surveys are conducted either by enumerating all the units in the population (census) or by eliciting responses from only a few representative units scientifically selected from the population (sample survey).

6.4. The main advantages of statistical surveys as compared with administrative data sources are that the planning and execution of the surveys, data collection and the processing procedures are under the control of the statistical office itself. In principle, respondents have less reason to deliberately misreport the data as the statistical office guarantees that the data it collects are strictly confidential and will not be used for other than statistical purposes. The survey approach, however, has certain disadvantages such as the resource intensity (both financial and manpower-related), additional respondent burden, higher non-response rates and sampling errors.

6.5. *Economic census.* In general, an economic census⁴² is a statistical survey conducted at infrequent intervals of time (usually every 5 or 10 years) that aims at

⁴² There is not an internationally agreed definition of “economic census”. Countries may have different names for, and understandings of, one and same statistical survey type. Some of the known variations of this term are “census of economic units”, “establishment census” and “establishment and enterprise census”.

collecting comprehensive and detailed statistics on the operating characteristics and structure of units engaged in all (or certain) economic activities. Some of the main objectives of an economic census are to establish and maintain the business register and provide a sampling frame for more frequent statistical surveys.

6.6. *Census of trade units.* The census of trade units can be conducted either as a part of an economy-wide census, including all economic activities, or as an independent census for the distributive trade sector or its activities only. It should be noted that the planning and organization of the census and the subsequent transformation of the basic data derived therefrom into distributive trade statistics data items is a time-consuming and resource-intensive exercise. The approach is costly, imposes a high burden on respondent units, and may reduce the response rates and thus affect the quality of collected information. Conduct of a complete census of trade units may be useful in cases where a particular country does not maintain an up-to-date business register or there is significant interest on the part of users in detailed statistical data by geographical area. Censuses of trade units should not be conducted if there are other means of collecting and producing distributive trade statistics of sufficiently high quality.

6.7. Censuses of trade units tend to provide a complete enumeration of units engaged in trade activity (including the small units of the informal sector) at a particular point of time and constitute an appropriate approach for the generation of trade statistics required at longer intervals of time. Censuses are limited, however, in terms of data content. For countries implementing censuses of distributive trade units as part of their data-collection strategy, it is recommended that the censuses be followed as closely as possible by periodic (annual, quarterly or monthly) sample surveys so as to ensure the provision of a continuous measure of trade activity and the collection of more detailed sector-specific data.

6.8. In some countries, enterprise survey frames are derived from lists created during economic censuses or from a specially maintained area frame. This is not a recommended practice. At the very least, it is recommended that countries establish a permanent business register (see para. 6.30) including all trade enterprises.

6.9. *Sample surveys.* Statisticians often use a sample survey technique to obtain data about a large population of statistical units which entails selecting and measuring a sample from that population. Owing to the variability of characteristics among units in the population, scientific sample designs are applied in the sample selection process so as to reduce the risk of a distorted view of the population. Conclusions about the total population of units are reached on the basis of the estimates obtained from the sample survey data. The sample survey technique is a less costly means of collecting data compared with the economic census. It may or may not be used in conjunction with a cut-off point.

6.10. *Sample surveys for distributive trade.* In most of the national statistical offices, the wholesale and retail trade sample surveys are rarely restricted to one standard form, but tend to comprise a combination of forms differentiated by periodicity and major characteristics, namely:

- (a) Activity, size, legal form, type of operation and the types of variables covered (turnover, expenditures, employment, other specialized variables);
- (b) An occasional extra characteristic, such as the geographical location of the unit, which may influence the contents of a survey.

6.11. *Size threshold to determine the target population.* In respect of trade surveys, size thresholds play an important role in determining the target population and, where relevant, the sample population of units. Most sample surveys are conducted for

units above a certain size threshold. The reasons for this are diverse and include the desire to limit the size of the survey and the response burden on businesses and the wish to take account of the problems of maintaining registers for smaller units. There is no international recommendation on the appropriate size threshold. The decision is left to the judgement of each national statistical office and may vary between surveys for different trade activities and periodicities. However, countries are encouraged to make periodic assessments of the under-coverage of the surveys due to the thresholds and to include a description of such thresholds in their metadata that will be made available to users.

6.12. *Types of surveys for collecting data about trade units.* In general, three types of sample surveys are appropriate for collecting data about trade units depending on the units sampled and/or contacted, namely, *enterprise surveys*, *household surveys* and *mixed household-enterprise surveys*. Choice of the type of survey to be conducted depends upon the statistical system of a country and the resources available to its statistical office.

6.13. *Enterprise surveys* are those in which the sampling units are enterprises (or statistical units belonging to enterprises such as establishments or kind-of-activity units) in their capacity as the reporting and observation units from/about which data are obtained. In *household surveys*, on the other hand, the households are the sampled, reporting and observation units. In *mixed household-enterprise surveys*, a sample of households is selected and each household is asked whether any of its members own and operate an unincorporated enterprise (also called an informal sector enterprise in developing countries). The list of enterprises thus compiled is used as the basis for selecting the enterprises from which desired data are finally collected. Mixed household-enterprise surveys are useful for covering only unincorporated (or household) enterprises which are numerous and cannot be easily registered.

6.14. *Sampling frame.* Availability of a sampling frame for the statistical units is a prerequisite for conducting a given survey, as the frame provides a basis for the selection of sample units. Depending upon the source of the sampling frame, surveys may also be classified as either *list-based* or *area-based*. In a list-based survey, the initial sample is selected from a pre-existing list of enterprises or households. In an area-based survey, the initial sampling units are a set of geographical areas. After the completion of one or more stages of selection, a sample of areas is identified within which enterprises or households are listed. From this list, the sample is selected and the data are collected.

6.15. *Enterprise surveys.* The conduct of enterprise surveys assumes the availability of a sampling frame of trade enterprises. The sampling frame is made available from the business register, if such a register is maintained by the statistical office to support a range of surveys (see para. 6.30). For countries not maintaining a current up-to-date business register, it is recommended that the list of enterprises to be used as a sampling frame be drawn from the latest economic census. In an area-based enterprise survey, a sample of areas is selected first, and then selected areas are enumerated for the purpose of compiling the list of enterprises operating in the area that serves as the sampling frame for the selection of the enterprises in the sample and the collection of the required information. For surveys of distributive trade enterprises, generally list-based enterprise surveys are to be preferred to area-based surveys for the following reasons:

- (a) A list-based survey is more efficient from a sampling perspective in terms of sample size. The area-based approach involves cluster sampling which requires, in order to achieve a given level of accuracy, a larger sample than that of the list-based survey;

- (b) It may be difficult to enumerate the enterprises within an area. While many enterprises are likely to be readily identifiable, household-based enterprises which carry out their work within the household or do not have a fixed location are usually difficult to identify;
- (c) Maintenance of a list of enterprises via a general-purpose statistical business register is cheaper than maintenance of an area-based list;
- (d) Area-based sampling is inappropriate for large or medium-sized enterprises that operate in several areas because of the difficulty of collecting data from just those parts of the enterprises that lie within the areas actually selected. Furthermore, it is usually considered preferable, in order to avoid inadvertently missing parts of the enterprise, to collect data from the whole of an enterprise, not just a part;

6.16. It is recommended that countries use the area-based enterprise survey approach for collection of data from small trade enterprises generally operating in informal or unorganized segments of the economy. For such enterprises, a satisfactory register or list is normally not available.

6.17. *Household surveys.* Household enterprises that are unincorporated producer units are not recognized as legal entities separate from their owners (see para. 2.45). Fixed and other assets used in the production carried out by these enterprises do not belong to the enterprises but to their owners. Compiling a satisfactory list of such enterprises is either not feasible or a highly resource-intensive exercise. Household surveys are recommended for providing coverage of the production of such enterprises.

6.18. As household surveys exist for the purposes of collecting labour-force and household expenditure data, additional questions related to production activities can be added at relatively little extra cost. This makes the use of a household survey generally cheaper than conducting an area-based enterprise survey for the same purpose. It should be noted, however, that inasmuch as the responding unit in a household is a person, not an enterprise, the data that can be collected about trade activities of the enterprise may be correspondingly more limited. Some statistical offices maintain, or can access, population or household registers, at least for urban areas, and can thus conduct list-based household surveys. However, there are few such registers, so that most household surveys are area-based.

6.19. *Disadvantages of household surveys.* The main disadvantage of the use of household surveys for collecting data from the unincorporated trade enterprise is that the sample of such surveys is designed to provide a representative coverage not of trade activities, but of the distribution of households. Although, it is possible that the retail trade, which by definition sells goods and provides services to final consumers (households), may be spread across areas in a way similar to that of the population, in many cases the two distributions are different, as trade activities tend to be concentrated in commercial and market zones.

6.20. *Mixed household-enterprise surveys.* In the mixed household-enterprise surveys, a sample of households is selected and each household is asked whether any of its members is an *entrepreneur*, that is to say, the sole proprietor of, or a partner in, an unincorporated enterprise engaged in economic (including trade) activity. Data for all the enterprises thereby identified (or for a subsample of them) are then collected—either immediately from the respondent reporting on behalf of the enterprise or in a subsequent stage of data collection. Thus, the feature of a mixed household-enterprise survey that distinguishes it from a household survey is the fact that it collects information about enterprises per se, whereas a household survey collects information about

the persons in a household, including, possibly, their personal contributions to enterprises.

6.21. Mixed household-enterprise surveys are also recommended for providing data on small enterprises that are not included in list-based enterprise surveys. Countries should be aware that they suffer from disadvantages similar to those of area-based enterprise surveys, namely, the inefficiency of the sample design and the difficulty of handling enterprises with production units in more than one location. In general, mixed household-enterprise surveys are to be preferred to household surveys or area-based enterprise surveys when collecting the data for, and estimating the output of, small trade units that are excluded from list-based enterprise surveys.

6.22. *Modified mixed household-enterprise surveys approach.* To avoid the limitations of the mixed household-enterprise survey approach (see para. 6.21), some countries⁴³ adopt a modified version of the approach, which involves a dual, mutually exclusive, listing of: (a) households and household-based business operators; and (b) establishments in the sample areas. At the listing stage, each structure of the selected area units is visited to identify and prepare a complete list of all establishments falling within the domain of the survey. The modified mixed household-enterprise surveys approach is to be preferred to an area-based enterprise survey, as it improves the quality of the data of micro- and small units, especially mobile units as compared with those with a fixed location.

⁴³ For example, India and the Philippines.

6.23. *Respondent burden.* Minimizing the respondent burden should be an important objective for the national statistical offices when distributive trade surveys are designed and conducted.

6.24. Special attention should be given to the issue of the respondent burden. As a way of reducing the respondent burden, it is recommended that countries coordinate data collection both internally at the statistical office, by central supervision of the delimitation of sampling frames and selection of the samples drawn, and externally, by using existing sources of information, such as administrative registers, to the largest possible extent.

2. Administrative data sources

6.25. *Administrative data sources* are set up in response to legislation and/or regulation. Each regulation (or related group of regulations) results in a register of the units—enterprises, persons, etc.—bound by that regulation and in data resulting from the application of the regulation. The register and data are referred to collectively by the statistical offices as an *administrative source*. The administrative authorities keep records of the units in response to legislated administrative requirements or simply for internal purposes to assist the units in managing their operations. The data emanating from the administrative source can be used by the statistical offices. It is recommended that, when countries use administrative data sources for statistical purposes, they pay special attention to their limitations and describe those limitations in their metadata.

6.26. *Privately controlled administrative data sources.* Besides using administrative data sources set up in response to legislation and/or regulations, statistical offices may obtain certain data from a private-sector data supplier. Private-sector data suppliers⁴⁴ operate on a commercial basis; therefore, the transfer of data from them to the statistical offices involves a contract and the payment of a fee.

⁴⁴ An example of a private sector data supplier is Dun and Bradstreet in the United Kingdom of Great Britain and Northern Ireland.

6.27. *Main advantages of using administrative data sources.* The following is a list of the most important advantages of using administrative data sources:

- (a) Complete coverage of the population to which the administrative process applies and perceived low non-response rate of units;
- (b) Avoidance of response burden. The responding units make available the information as part of the administrative procedure;
- (c) It is cheaper for the statistical office to acquire data from an administrative source than to conduct a survey;
- (d) They are suitable for covering the smallest segment of the units' population which contributes relatively little to the estimates but makes up a substantial proportion of the number of units in the population;
- (e) Smaller errors than those in survey sampling;
- (f) Some data may be more accurate because of intense data checks by administrative authorities.

6.28. *Main disadvantages of administrative sources* include the following:

- (a) Discrepancy between administrative concepts and statistical concepts. As the administrative processes are not under statistical office control, concepts regarding variables and units in respect of data coverage, content, quality and consistency comply with administrative objectives. This limits the use of administrative data for statistical estimation and analysis purposes;
- (b) Poor integration with other data of the statistical systems. This is a problem, in particular, when administrative units do not correspond to statistical units either because of differences in concepts or because of deviating identification numbers. Even if the variables existing in the administrative register fit perfectly the needs of the statistical office, a matching problem can prevent their use;
- (c) Risks with respect to stability. Administrative processes are subject to change in response to new legislation, without there being much (or any) regard for the impact on the statistical series. This may cause systematic bias;
- (d) Even when the administrative authority checks data, it generally focuses on the variables that are material to their administrative processes. They may not apply the same level of scrutiny to variables that are of statistical interest;
- (e) Data may become available only after unacceptable delays;
- (f) Legal constraints with respect to access and confidentiality.

6.29. It is recommended that compilers of distributive trade statistics identify and review the available administrative data sources in their country and use the most appropriate among them for compilation of distributive trade statistics. This can be of great help in reducing significantly the response burden and the surveying costs. The relative advantages and disadvantages mentioned above have no absolute value. Whether they apply and to what extent depend on the specific situation. Therefore, the review should be perceived as providing a checklist that can be used in the process of decision-making. Examples of the most appropriate administrative sources are the tax authorities (for any fiscal or value-added tax-related information on units), customs authorities, social security registers, etc.

3. The business register as a frame for statistical surveys

6.30. *Need for a business register.* The organization and conduct of any enterprise survey of distributive trade units assume the availability of an adequate sampling

frame, that is to say, a set of units subject to sampling together with the details about them that will be used for stratification, sampling and contact purposes. In principle, the sampling frame should contain all the units that are in the survey target population, without duplication or omissions. The business register maintained by countries for statistical purposes is recommended as the most appropriate source from which to derive the sampling frame for distributive trade surveys.

6.31. *Statistical business registers.* In general, a statistical business register is a comprehensive list of all enterprises and other units together with their characteristics that are active in a national economy. It is a tool for the conduct of statistical surveys as well as a source for statistics in its own right. The establishment and maintenance of a statistical business register in most cases are based on legal provisions, as its scope and coverage are determined by country-specific factors. It is recommended, as the best option, that the frame for every list-based enterprise survey for distributive trade be derived from a single general-purpose, statistical business register maintained by the statistical office, rather than that standalone registers be used for each individual survey. There are two basic reasons for using a single statistical business register. First, and most important, the statistical business register operationalizes the selected model of statistical units and facilitates classification of units according to the agreed conceptual standards for all surveys. Second, it is more efficient for a single organizational unit within the national statistical office to be responsible for frame maintenance than for units responsible for the frames of each survey to be created separately.

6.32. *Establishment of a statistical business register.* The starting point for the establishment of a statistical business register should be the available administrative registers that are registers of enterprises created and maintained to support the administration of certain legislation or regulations. If only one administrative register is used, the resulting statistical business register would likely be deficient in terms of coverage and content and would not provide an adequate sampling frame for subsequent statistical surveys. Countries are encouraged to work towards improvement of the coverage and content of their statistical business registers by incorporating data from several administrative sources. Before being used, each administrative register should be examined carefully by statistical offices in terms of coverage of units and quality of data. It should be mentioned that combining the data would be possible only if a single business number for all enterprises was introduced.

6.33. *Maintenance of the register.* To serve as a central sampling and weighting frame for all statistical surveys, including distributive trade surveys, the statistical business register should be up to date and of satisfactory quality. In practice, however, the enterprises in the register do not remain the same over time: the legal units that own them may merge or split up or go out of business; they may change production activities or move their location; or new enterprises may be created (births) and existing enterprises may cease to exist (deaths). For these reasons, it is recommended that the statistical business registers be regularly maintained and updated to take note of the changes in enterprise dynamics. Unless the business register is regularly maintained, it will quickly lose its value by becoming dated and ceasing to adequately reflect the real world.

6.34. *Sources for the establishment and maintenance of a statistical business register.* In principle, the sources utilized for establishing a statistical business register are usually utilized for its maintenance as well. They include the following:

- (a) *Economic censuses.* Economic censuses (see para. 6.5) provide, in practice, the most comprehensive list of units in a given country and the links between them on whose basis a statistical business register can be estab-

lished and maintained. Economic censuses are recommended for use in the cases explained in paragraph 6.6 above;

- (b) *Administrative data sources.* Administrative data sources are one of the most important sources for establishing a statistical business register (see para. 6.32); however, there are also a number of problems associated with using them for its maintenance. Common examples of administrative data sources that may be used to establish and maintain business registers include business registration systems, value-added tax systems, payroll tax systems, and records maintained by Governments for the administration of unemployment insurance, social security or other programmes. Such records, however, need careful review to determine their completeness, suitability and accuracy, as they are not designed primarily to serve economic survey needs. These sources are known to contain inactive units; they may also be deficient in terms of providing an activity classification of units and contact information, and of their ability to track an unincorporated enterprise through a change of owners;
- (c) *Feedback from enterprise surveys.* Feedback from enterprise surveys is a vital source for establishing and updating the statistical business register, as it provides new information on changes in contact address, closure of business, change in the economic activity of the unit, etc.;
- (d) *Business register surveys.* Register updating information that cannot be obtained from the administrative source on which the register is based, or from surveys feedback, has to be obtained by *business register surveys* (sometimes termed *nature-of-business surveys*) and profiling operations conducted by business register staff;
- (e) *Other potential sources.* These include information maintained in trade associations about their members, telephone directories or special listings prepared by telephone companies, etc. Each type of source has its own special characteristics which must be studied carefully before a decision is made on how to use it.

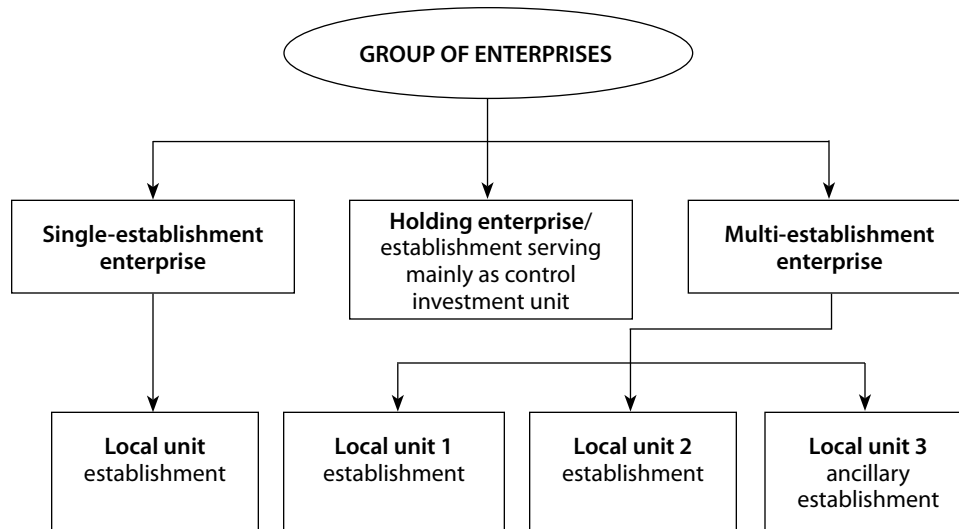
6.35. In general, the statistical business register is set up using one record for each establishment and one record for each enterprise, with the link identifiable between each establishment and its parent enterprise. For multi-establishment enterprises, this means that there will also be a record for the central office, and that each establishment should be cross-referenced to the central office. It is recommended that countries assign proper coding to the enterprises and establishments in order to establish hierarchic links between them as shown in figure VI.1 below. The coding of relationship would allow for the allocation of the operating surplus of the main establishment to its supporting ancillary units and the imputation of the outputs of ancillary units as intermediate consumption to consuming establishments. Holding companies are not ancillary units because the functions they perform to control and direct subsidiary companies are not ancillary activities. The 2008 SNA treats holding companies as financial corporations.

6.36. As a minimum, the statistical business register should include the following information about trade units:

- Name and physical location of each enterprise
- Mailing address, which may be different from physical location
- Name and address of the central office or the headquarters of the enterprise and establishments that are part of a multi-establishment enterprise

Figure VI.1

Hierarchic links between a group of enterprises, an enterprise and its constituting establishments



- Kind of economic activity, description or code
- Legal organization: incorporated or unincorporated
- Type of ownership: public (by central, State and local governments); national private and foreign controlled
- Number of persons employed
- Volume of sales or value of output
- Source and date of information

B. Data compilation methods

6.37. Data as they have been received from the respondents to the statistical surveys are the starting point for the compilation of distributive trade statistics. The process of data compilation comprises more than just aggregating the questionnaire items. Statistical offices perform a number of checks, validation and statistical procedures on collected data with the aim of bringing them to the level of the intended statistical output. The most important of these procedures are explained directly below.

6.38. *Data validation and editing.* Like any other survey respondent, a trade statistics respondent is prone to commit errors while completing a statistical questionnaire. Thus, data collected in the best of statistical surveys are affected by response and non-response errors of different kinds. To resolve these problems of missing, invalid or inconsistent responses, editing and imputation have become an integral part of all types of data-processing operations of statistical surveys. Editing is the systematic examination of data collected from respondents for the purpose of identifying and eventually modifying the inadmissible, inconsistent and highly questionable or improbable values, according to predetermined rules. It is an essential process for assuring quality of the collected information. Microediting (also called input editing) focuses on the individual record or questionnaire, as opposed to macroediting, where checks are performed on aggregated data.

⁴⁵ For more details, see OECD STES Timeliness Framework: Selective (or Significance) Editing, at: http://www.oecd.org/document/21/0,2340,en_2649_34257_30214485_1_1_1_1,00.html.

6.39. *Selective (significance) editing.*⁴⁵ Selective editing is an approach for prioritizing and further reducing the costs of editing, which is one of the most resource-consuming processes in the production of official statistics. It is a procedure that targets only those microdata items or records that would have a significant impact on the distributive trade surveys results. It is recommended that, while deciding on allocation of resources on various stages of the statistical process, countries give priority to the use of selective editing as a more efficient method of editing distributive trade data.

6.40. The data editing may take place during the data entry phase (input editing) or after (output editing). The following edit checks are recommended as useful for detecting errors in distributive trade data:

- (a) *Routine checks:* used to test whether all questions that should have been answered have in fact do been answered;
- (b) *Validation checks:* used to test whether answers are permissible. Response to a particular data item in the questionnaire is checked against a valid value range specified for the purpose. Any observation lying outside the valid value range should be reviewed by the compilers of data and corrective actions taken;
- (c) *Rational checks:* a set of checks based on the statistical analysis of respondent data. Many checks take the form of a ratio between two variables, which should be within specified limits. Another type of rational check is the arithmetic check specifying, for instance, that a sum of variables should equal a stipulated total.

6.41. Large random errors by respondents can usually be picked up through plausibility checks on the data, for example, by comparing the data reported with previous values, or the ratios of data reported with reasonable bounds for the types of enterprise. Not all errors committed by respondents can be traced by the statistical office and therefore not even the most exhaustive data editing will ever result in an error-free data file. For example, sustained systematic errors, such as under-reporting of turnover and over-reporting of expenditures by trade units, can hardly be detected.

6.42. *Influential observations.* Some data-item responses in particular will have the most significant impact upon the main estimates. These are often termed *influential observations*. Editing efforts should generally be more focused on such data-item responses. In particular, very large enterprises are usually a source of influential observations and their data should be checked individually.

6.43. *Imputations.* Missing data are often encountered in most of the trade surveys, which creates problems for the data editing. Either the data may be missing for a particular data item of the questionnaire (item non-response) or the selected unit may not have returned the filled-in questionnaire at all (unit non-response). The technique of imputation is used for estimating the missing data in case of item non-response. The problem of unit non-response is usually dealt with either by re-weighting or imputing the data from previous available periods of that unit (substitution) or on the basis of the available administrative information for it.

6.44. *Item non-response.* Item non-response or partial non-response occurs when the sampled unit has not answered all relevant questions, but responded to only part of them. Cases may arise where a respondent has reported on all questions but either some of the answers may be illogical or there may be inconsistencies between some of the answers provided by the respondent. Presence of such item non-response or invalid data in the data set ultimately affect the quality of the survey results. Many of these problems are eliminated when the appropriate editing rules are followed.

6.45. *Unit non-response.* Although the units selected in the sample are legally required to provide responses to the survey conducted by the statistical offices and are liable to be penalized in case of a non-response, the fact remains that this requirement does not eliminate the problem of non-response. Non-response may occur for any number of reasons: non-existence of the unit included in the survey, lack of appreciation on the part of the respondents of the importance of the data, refusal, lack of knowledge on how to respond, lack of resources and non-availability of the desired information.

6.46. There do exist means to minimize non-response including raising the awareness of the importance of the data to be collected, appealing to the respondents to cooperate with the statistical authorities through print and electronic media at the launch of the survey and sending reminders to the non-respondents, as well as applying the enforcement measures laid down in national legislation.

6.47. *Approaches for dealing with item non-response.* Presence of non-response requires that steps should be taken to reduce its effect on the estimates. There are two general strategies for dealing with missing data items (non-response):

- (a) All forms with missing values are ignored and analysis is confined to the fully completed forms;
- (b) Missing data are imputed so that the data matrix will be complete. Statistical analysis techniques are applied to the full data set completed with the help of imputation.

6.48. Adopting the first strategy leads to discarding even the valid data contained in the partially complete forms. Thus, it is desirable to adopt the second strategy to deal with item non-response. The values of individual data items that are missing from the original response or believed to be in error should not be automatically interpreted as zeros; rather, appropriate methods for imputation should be applied. When all of the data have been edited using the predetermined rules and the file is found to have missing data, imputation is usually carried out as a separate step. It resolves inconsistencies that remained unresolved in the earlier stages of manual and computer-aided scrutiny.

6.49. Imputation consists in replacing one or more erroneous responses or non-responses in a record or more than one record with plausible and internally consistent values. It is that process through which gaps are filled and inconsistencies eliminated and it is the means by which a complete and consistent file containing imputed data is produced. There are a variety of imputation methods, ranging from simple and intuitive statistical procedures to rather complicated ones. The choice of the appropriate method depends on the objective of the analysis and on the type of missing data. Some of the commonly used imputation methods include:

- (a) *Subjective treatment:* impute on the basis of values that appear reasonable. For example, one might deduce the labour costs if the number of employees are known;
- (b) *Mean/modal value imputation:* impute the mean value of a variable for missing data. For categorical data, impute the modal value. One improvement may entail imputing the median in order to eliminate the effect of the extreme values;
- (c) *Post-stratification:* more precision will be achieved in respect of keeping the imputed value closer to the true value if the mean/mode/median is imputed using the observations from those units that are homogeneous with the one with missing data. For this purpose, post-stratification is used,

that is to say, the sample is divided into strata and the stratum mean/mode/median is then imputed;

- (d) *Substitution*: relies on the availability of comparable data. Imputed data can be the values for the enterprise from the same survey occasion in the previous year, as adjusted to reflect the average increase (decrease) of the value of the data item in the stratum;
- (e) *Cold deck*: makes use of a fixed set of values, which covers all of the data items. Values can be constructed with the use of historical data, subject-matter expertise, etc. A “perfect” questionnaire is created in order to fulfil complete or partial imputation requirements;
- (f) *Hot deck*: replaces each missing value by the available value from a “donor”, that is to say, a similar participant in the same survey. The donor can be randomly selected from a pool of donors with the same set of predetermined characteristics. A list of possible donors matching these criteria is created and one of them is randomly selected. Once a donor is found, the donor response (for example, on yearly income) replaces the corresponding missing or invalid response;
- (g) *Nearest-neighbour imputation or distance function matching*: assigns an item value for a failed edit record from a “nearest” passed edit record. In this case, the nearest is defined using a distance function in terms of other known variables. The unit with the value closest to the missing value is then used as the donor;
- (h) *Sequential hot-deck imputation*: the values from passed edit records are stored and the missing value is replaced by a function of the stored values. It begins with a cold-deck value. The main disadvantage of this method is that it often leads to multiple uses of donors, thus affecting the distribution;
- (i) *Regression (model-based) imputation*: a set of predictor variables of the passed records are used to regress the variable. The regression equation is then used to impute the values for the missing or inconsistent item values.

6.50. In most imputation systems, a mix of imputation methods is used. The following are the desirable properties of all imputation methods:

- (a) The imputed records should closely resemble the failed edit record, while retaining as much respondent data as possible. Thus, a minimum number of variable (or fields) should be imputed;
- (b) The imputed records should satisfy all edit checks;
- (c) It is desirable to flag the imputed values and identify the methods and sources of imputation.

6.51. *Approaches for dealing with unit non-response*. Re-weighting is the most commonly applied approach when no response to a statistical questionnaire is received from the respondent unit. This case is referred to as unit non-response. The sample is re-weighted so as to include only the responding sample units. It is common practice for the statistical offices to attach weights to the elements in the sample. These weights are used, among other functions, to expand the sample information to the level of the target population. Alternatively, the problem of unit non-response can be dealt with using approaches similar to those used for item non-response, namely, various forms of imputing either from previous available periods of that unit (substitution) or on the basis of the available administrative information for it.

6.52. *Grossing up procedures, aggregation.* After having been treated through editing for non-response, etc., the data are used to estimate the level of the variable. Grossing up consists in raising the sample value by a factor based on the sampling fraction (or a factor using returned data) for each cell in the stratified sample in order to obtain the levels of data for the frame population. The grossing up will use edited data to calculate a value representative of all units. In the case where information on the auxiliary variable related to the variable under study is available for units in the sample as well as in the sampling frame, more sophisticated statistical techniques can be applied to this information for the purpose of grossing up.

6.53. *Outlier values.* Outliers are a particular category of influential observations that are correct but unusual in the sense that they do not represent the sampled population and hence will tend to distort the estimates. Therefore, it is recommended that outlier values be identified and handled carefully, as they may affect the estimates significantly. If the grossing up factor is large and the outlier value is included in the sample, the final estimate will be substantially larger than needed and highly unrepresentative, as it is driven by one extreme value. The simplest way to deal with the outlier is to reduce its weight in the sample so as to ensure that it represents only itself. Alternatively, statistical techniques can be used to calculate a more appropriate weight for the outlier unit.

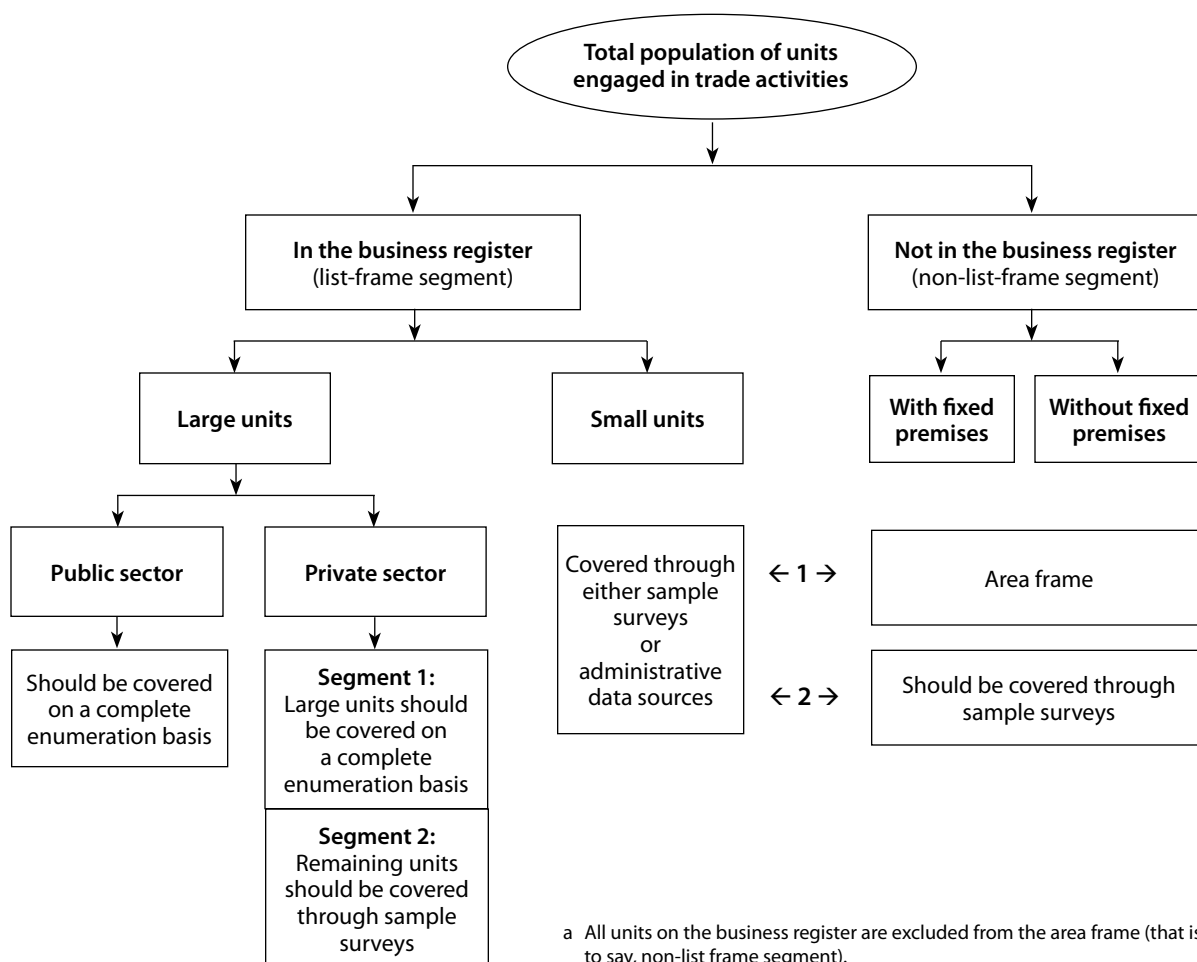
C. The data-collection strategy

6.54. All units in the economy engaged in economic activities within the scope of the distributive trade sector (sect. G of ISIC, Rev.4) should be covered by the statistical surveys and/or administrative data sources for the purpose of collecting and compiling distributive trade statistics. This embraces units of all sizes and types including corporations and unincorporated (household) units. Household units include small trade enterprises that are household-based, operate outside the household at a separate location (for example, a fixed stall at a marketplace) or have no fixed location (for example, a movable stall along a public road or the vehicle of a street vendor). “Unincorporated household unit” (or “informal sector unit”) is a term utilized in developing countries. In most of the developed countries, a household unit generally assumes the more formal form of a small enterprise and is incorporated. However, some small household units may still remain unincorporated.

6.55. In order to ensure a complete coverage of distributive trade activity, countries should develop their own data-collection strategy based on an integrated approach covering in principle all trade units across all class sizes of enterprises, and commensurate with their specific statistical and organizational circumstances. Within the scope of distributive trade statistics, there are significant differences between units in respect of legal organization (incorporated or unincorporated), size (ranging from large multi-establishment enterprises with more than 250 employees to small single-establishment enterprises with less than 10 employees) and type of ownership (public sector, privately owned or foreign-controlled). An illustration of a general data-collection strategy for different segments of the economy is presented in figure VI.2 below.

6.56. At one end of the spectrum lie corporate trade units which are incorporated under the statute of a country (public enterprises) and are comparatively large; at the other end are unincorporated trade enterprises characterized by a low level of organization. The types of enterprises may be described as follows:

Figure VI.2

A general data-collection strategy for different segments of the economy^a

- (a) *Public incorporated enterprises.* These enterprises are highly organized and are required to keep account of their transactions and to present their annual statements to the authorities with whom they are registered. A directory of such units is always available. Their number is not expected to be large and such enterprises should be covered on a complete enumeration basis;
- (b) *Private and foreign-controlled incorporated enterprises.* The coverage of these enterprises should be achieved by dividing them into two segments: one containing the large-scale units and the other containing the rest. It might be determined that the large-scale segment of the economy is not suited for sample surveys because the differentiation in terms of size and activity is great compared with the number of units involved. Enterprises in the large-scale segment should therefore be covered on a complete enumeration basis, if possible. The smaller enterprises, whose number tends to be much larger, are relatively homogeneous as compared with their large-scale segment counterparts. A sample survey can be more appropriately used to cover this segment of enterprises;

- (c) *Small enterprises.* The segment of small incorporated enterprises or unincorporated household enterprises can be covered by either of two approaches, depending on whether the enterprises are registered or not:
- (i) Through sample surveys, if those enterprises are on the statistical business register or through the use of administrative data (tax returns of small enterprises);
 - (ii) Through the Fully Integrated Rational Survey Technique (FIRST) if the register of unincorporated enterprises is not available (see sect. D below).

D. Survey method

6.57. Countries are encouraged to review the Fully Integrated Rational Survey Technique (FIRST)⁴⁶ as one option for a survey programme that efficiently captures comprehensive statistical information from all enterprises, including distributive trade enterprises, of all sizes operating in an economy. Application of this survey technique requires two basic statistical sets of information, namely: (a) some census enumeration, preferably through an economic census, to establish the complete statistical population of units for construction of the sampling frame and sample selection. In the absence of an economic census, a population census will generally also be sufficient; and (b) good supporting documentation on sample areas/enumeration blocks for the benchmark enumeration. Once these two basic requirements are met, the field conditions should determine the selection of the most appropriate design for any particular distributive trade survey.

⁴⁶ See *Strategies for Measuring Industrial Structure and Growth*, Studies in Methods, No. 65 (United Nations publication, Sales No. E.94.XVII.11).

6.58. The FIRST methodology requires the statistical universe to be divided into two parts:

- (a) A list frame of a relatively small number of large units (hereinafter called the *list-frame segment*) which are clearly distinguished by their legal status from the rest of the units. For this segment, either a complete enumeration or a unistage (most often stratified) sampling scheme is adopted;
- (b) The rest of the units (hereinafter called the *non-list-frame segment*) for which drawing up an exhaustive list is not feasible and which can thus be covered only by a (geographical) area frame approach. A two-stage sample design (in specific cases, may be multistage) is adopted for this segment.

6.59. The FIRST methodology allows for covering all economic activities of the economy in an integrated manner and has a distinct advantage over conducting a set of separate activity surveys (each carried out independently on a single group of economic activities) to cover the same domain. Reduction of survey costs is one of the main advantages of FIRST. In addition, an integrated survey ensures a non-overlapping coverage of groups of establishments by kind of economic activity. Each establishment is classified in one and only one sector. The FIRST methodology provides comprehensive information collected in a short timespan with relatively modest means. If properly implemented, FIRST obviates the need for trade-offs between survey contents and the timeliness of release of results, which often plays an important role in survey designing.

6.60. *List-frame-based survey of the list-frame segment.* In the surveys conducted using FIRST, the list frame is usually drawn from a business register or a directory of units that consists of all the units of the list-frame segment using the criterion of the legal and/or administrative status that distinguishes the “large” units from the

rest. This list is used for carrying out a FIRST survey preferably by mailed questionnaire with follow-up visits where required. The definition of large-scale used here is based on practical considerations and differs from country to country. The ease of maintaining the list frame forms the single most important criterion for the definition of the large-scale subsector. The list frame is usually made up of the following groups which are easily identifiable:

- (a) Publicly traded companies (in other words, companies listed on a stock exchange);
- (b) Non-traded companies (in other words, companies registered with a government agency such as the Department of Justice, the Ministry of Commerce or the like);
- (c) Government-owned enterprises (public enterprises that may also have been included under (a) or (b) above).

6.61. Besides a single unduplicated frame, it is essential to use an integrated sample design to ensure complete and unduplicated coverage of the large-scale units. Availability of a list frame permits a single-stage sampling for this subsector. However, further stratification of the list frame is necessary if additional details by economic activity or geographical location are required.

6.62. The population of units in the large-scale segment tends to be very heterogeneous in respect of its size and characteristics. A relatively small number of units often account for a major share of the production or value added of the economy. Inclusion of all such units in the sample is expected to provide estimates of higher efficiency. Therefore, for most establishment surveys, all units above a certain cut-off point are included in the survey, while only a sample is drawn from the rest of the units. The stratum comprising all such units is referred to as the “certainty” or “self-representing” stratum.

6.63. The units falling outside the self-representing stratum within the list-frame segment can be covered appropriately on a sample basis for both the annual and infra-annual surveys. Adopting an integrated sample design for both kinds of surveys often helps resolve problems of inconsistency arising between the two sets of estimates obtained from them. Estimates of parameters of both annual and infra-annual change as well as level parameters can be obtained using a suitably framed *rotating panel sample design* for the integrated survey. A rotating panel design has a number of advantages over *repeated cross-sectional design* (independent samples on different occasions) and *fixed panel sample design*, namely:

- (a) It is cost-effective and strikes a balance between the conflicting objectives of obtaining reliable annual estimates and obtaining reliable infra-annual ones;
- (b) Level of cooperation of the respondents tends to decline progressively with increasing number of revisits, thereby affecting the quality of response. Sample rotation eases the burden on respondents participating in the survey;
- (c) The series of estimates obtained from repeated surveys employing a rotating panel sampling scheme is usually free from large and unrealistic temporal variations. Moreover, use of rotation sampling permits use of composite estimates which further restricts such temporal variations resulting from sampling error;
- (d) This provides the scope for including new units in survey coverage.

6.64. All units *not* covered in the list-frame segment fall within the part of the universe described as the non-list-frame segment. Data collection for this subsector requires sampling of area units from an area frame formed from the data collected in the latest economic or population census.

6.65. *Area-frame-based survey of the non-list-frame segment.* The FIRST methodology of integrated surveys for the list-frame segment and non-list-frame segment captures complete data on all economic activities for an economy as a whole in a consistent manner. This requires devising an operational rule to ensure that the units on the business register are excluded from the area frame for the non-list-frame segment. Those establishments whose activities are consolidated in a parent company's accounts have to be deleted from the area sample. This refers, for example, to warehouses or depots operated by trade companies in different parts of the country.

6.66. In principle, the FIRST entails an establishment-type survey but for the *non-list-frame segment* it uses area sampling techniques. In an area sampling technique for surveying households and establishments, a sample of area units is selected at the first stage. Next, in each of the selected first-stage units, the identification and listing are required of all establishments operating in the selected area that are neither included in nor linked to any enterprise appearing in the list frame used for the survey of the list-frame segment. The establishments thus identified and falling within the coverage of the survey are then classified by kind of activity and a sample of units is drawn from the listed establishments for each kind of activity.

6.67. The group of activities that are given special treatment in this approach is that of the mobile units, such as those in trade and some other services activities, which form an important group in most developing countries. This approach permits covering of the enterprises/establishments that are run by the households, even those without fixed premises.

6.68. In this approach, all identifiable establishments outside the owners' home located in the selected area unit as well as household-based enterprises located within the home are listed by a house-to-house (structure-to-structure) visit. In addition, the units without any fixed premises of operation, like those of hawkers, street vendors and service-providing freelancers (mobile units), are identified through additional questions put to the households at the listing stage and are listed against the household where the proprietor (or a partner of a partnership concerned) resides. In this way, it is ensured that all establishments in the selected areas that are within the scope of the survey are included in the list, which is then used for selection of samples of establishments.

E. Scope and coverage of distributive trade surveys

6.69. *Annual surveys.* All countries, regardless of the development of their statistical system, conduct annual distributive trade surveys. It is recommended that, through annual surveys, countries endeavour to provide estimates that cover all wholesale and retail trade establishments. This recommendation does not imply that a comprehensive survey is always necessary. Countries may apply one of the following options: (a) the survey may completely enumerate all establishments above a given cut-off point (for example, one based on size criteria) and sample the others; (b) all units may receive a survey form, but an abbreviated version may be used for the small establishments; and (c) estimates for the small establishments may be made from administrative data or from other statistical inquiries such as mixed household-enterprise surveys.

6.70. *Infra-annual surveys.* The coverage of the infra-annual distributive trade surveys (quarterly or monthly) is necessarily more restricted than that of the annual surveys. Even in countries with a highly developed statistical system, the coverage of small establishments with monthly or quarterly surveys for the production of short-term distributive trade statistics is not feasible. If small establishments are significant in a particularly important distributive trade activity class and there is no reliable administrative data source to cover them, then these units should be included in the coverage of infra-annual surveys by using the appropriate sampling techniques.

6.71. *Infrequent surveys.* In addition to annual and infra-annual surveys, some countries may conduct infrequent surveys of distributive trade units. These surveys are used for collection of data items on specialized topics or in greater detail. In general, the use of infrequent benchmark surveys, usually conducted from 5- to 10-year intervals, is not appropriate for the purpose of collecting and compiling structural-type distributive trade statistics.

6.72. For countries characterized by a significant contribution of unincorporated units to distributive trade activity (the non-list-frame segment in figure VI.2) it is essential to collect data for those units as well. As explained above, the coverage of those units requires conducting surveys based on area-frame sampling, which are resource-intensive and time-consuming. A benchmark survey normally carried out every five years can be used for comprehensive structural-type data collection, while similar or fewer data are collected through annual or more frequent inquiries. The benchmark estimates may be projected forward using the estimates of change and growth obtained from annual and infra-annual surveys of the non-list-frame segment or any other surveys of relevance.

F. Reference period

6.73. *Reference period for annual surveys.* In general, the data compiled in annual surveys should relate to a 12-month period, which should preferably be the calendar year beginning on 1 January and ending on 31 December. However, where data are more readily available for particular establishments on a different fiscal-year basis, it may be necessary to accept data on that basis. In such instances, it would be desirable that some items of data, such as wages and salaries be collected on both a fiscal-year and a calendar-year basis to facilitate the building up of calendar-year aggregates. If a fiscal year different from the calendar year is the normal accounting period for most establishments, the data may be compiled uniformly on a fiscal-year rather than on a calendar-year basis. There are advantages to be derived from the submission by all establishments of returns covering an identical 12-month period, particularly in respect of integrating the annual data with monthly or quarterly data. In many countries, the closing dates of the financial years of companies are spread widely over the year, and statistical offices find it difficult to obtain returns from establishments for a consistent 12-month period. If reporting periods differ in this way, a supplementary table may be prepared in the published report showing the distribution of end-year dates by months, which will help users of the figures estimate the period that they cover.

6.74. *Reference period for infra-annual surveys.* The corresponding calendar month/quarter is recommended as the reference period for infra-annual surveys. However, some establishments work in quarterly periods of four, four and five weeks, and in such cases it will be necessary for the statistical offices to make every effort to standardize by some estimation procedure the information provided in the monthly returns.

Chapter VII

Short-term distributive trade statistics

A. Background

7.1. Short-term distributive trade statistics are an important source of information for developing and monitoring the effectiveness of economic policy and carrying out business-cycle analysis. Whereas annual statistics, such as structural-type statistics described in previous chapters, have detailedness, comprehensiveness and accuracy as priorities, the priority of short-term statistics is to produce monthly and quarterly indicators of the dynamics of distributive trade sector in the most timely manner, even if this will likely result in lower accuracy, less detailedness and reduced scope. These statistics are usually produced according to a strict timetable, and they are required as soon as possible by policymakers. Sometimes, this means that initial figures are subsequently revised or adjusted as more data are collected and analysed.

7.2. Most commonly, short-term statistics in general and short-term distributive trade statistics in particular are presented in the form of indices (relative to a base period) or as growth rates, although it is a widespread practice for absolute figures to be compiled and disseminated as well.

7.3. Although there are many users of short-term distributive trade statistics with many different motivations for using the data, the analyses performed with them generally fall into one of two types:

- (a) Comparison of activities of distributive trade units at two different points in time;
- (b) Comparison within one reference period of two or more different sub-populations of units, such as units in different geographical locations; or between trade units and other units classified in service activities, or between wholesalers and retailers, etc.

7.4. The existence of different objectives and priorities in respect of structural and short-term distributive trade statistics requires that countries develop and implement appropriate statistical techniques in order to combine these two sets of data. The main aim of such techniques is to reconcile the statistical data derived from different data sources with different frequencies in order to obtain short-term data series which, while respecting the constraints imposed by the more reliable and accurate long-term information sources, preserve as much as possible the dynamic time-profile of the high-frequency time-series.

7.5. To facilitate the achievement of this aim, both sets of statistics should be based on identical concepts and measurement principles, statistical units, classifications and definitions of data items. Short-term statistics should be built on a foundation of timely and accurate infra-annual data sources which cover an adequate proportion of units (size of samples). They also should be made consistent with their annual equivalents, partly for the convenience of users and partly—and more funda-

mentally—because the benchmarking process incorporates the information content of the annual data into the monthly/quarterly estimates. In principle, the econometric methods and indirect estimation procedures should not be a substitute for the collection of short-term statistics by countries. However, the use of such methods is unavoidable in the production of flash estimates (for example, production of quarterly data within 30 days after the end of the quarter), when the availability of data are generally scarce. In those cases, it is recommended that countries make available to users both the methods used and the reliability of the estimates, and revise the estimates as soon as new and more accurate information becomes available.

7.6. The present chapter discusses some of the important issues pertinent for short-term distributive trade statistics, such as the compilation of distributive trade indices, their time-series character and the necessity for seasonal adjustment and benchmarking.

B. Indices of distributive trade

1. Overview

7.7. *Types of distributive trade indices.* To analyse various aspects of distributive trade dynamics, a number of indices can be constructed ranging from a rather simple index of turnover changes in nominal terms (value index) to a more detailed and complex index of turnover volume and output of the distributive trade sector (reflecting volume of production of retail and wholesale trade services). To obtain volume indices, the indices of retail and wholesale prices or appropriate volume indicators should be available. The development of international recommendations on compilation of such price indices is not considered in IRDTS 2008; however, some guidance on this topic can be found below.

7.8. *Purpose.* One of the main purposes of compilation of distributive trade indices is to describe the short-term changes in value and volume of turnover of wholesale and retail trade as well as in the output of the distributive trade sector as a whole and of its components. If available on a monthly/quarterly basis, indices of volume of turnover complement indices of other economic activities in the short-term analysis of the entire economy, including the identification of the turning points in economic cycles. Indices of output of the distributive trade sector, in addition to their importance for short-term analysis, provide a key input into the compilation of quarterly national accounts.

7.9. *Periodicity.* It is recommended that indices of turnover volume and output be compiled on a monthly basis, as this better reveals short-term fluctuations. Monthly indices are even more meaningful if produced without a significant time lag, that is to say, within the month (or within the two months) immediately following the reference period. In recognition of the fact that national statistical offices may not have the capacity to produce reliable monthly indices, countries are advised, in such cases, to compile quarterly indices, as this gives sufficient flexibility in terms of time and resources. It should be noted, however, that the use of quarterly indices entails a dilution of the effects of current market conditions, seasonal changes and other factors related to short-term production.

7.10. *The choice of index formula and base year.* A detailed discussion of index types, their theoretical properties and their comparative advantages and drawbacks is provided in various international sources⁴⁷ and is therefore not reproduced in this publication. It is recommended that compilers of distributive trade indices use those

⁴⁷ See 2008 SNA, chap. XVI; *Compilation Manual for an Index of Service Production* (Paris, OECD, 2007), sect. 5, Eurostat, *Handbook on Price and Volume Measures in National Accounts*, (Luxembourg, Office for Official Publications of the European Communities, 2001); manuals on consumer and producer price indices, etc.

manuals when developing their countries' distributive trade indices. Although some policy guidelines on the subject are provided in this chapter, a more detailed discussion of good practices in that area is beyond the scope of the present recommendations. Such a discussion will be provided in the publication *Indices of Distributive Trade: A Handbook of Good Practices*, which is to be issued as a follow-up to the current recommendations.

7.11. *General recommendations for the compilation of volume indices of distributive trade.* As a general guideline, it is recommended that use of the chain-linked Laspeyres index with the weights being updated at least every five years, be the preferred approach in the compilation of volume indices. This index formula satisfies most of the desired criteria such as monotony, homogeneity, up-to-date weighting structure, real comparison of volumes, cost-efficiency, timeliness, etc. The Paasche formula does not have any strong advantages over the Laspeyres index and is more difficult to implement, as it requires the availability of current weights. The chained Fisher index, where the current and the base period weights are used in its Laspeyres and Paasche components, possesses several theoretical advantages such as symmetry and time reversal but it has disadvantages in terms of interpretability and is the most difficult index to implement. It is worth mentioning that annual chain-linking takes better account of changes in relative prices and thus should be considered appropriate for the compilation of indices of distributive trade services whose structure of weights evolves rapidly.

7.12. The Laspeyres volume index, with weights that remain unchanged for a long period of time (more than five years), is used by countries with limited resources and persistent problems with respect to obtaining updated weights. This approach has the advantageous property of producing data at constant prices that are additive (the sum of the components is equal to the total value) and therefore has a clear economic interpretation and is convenient for use. However, as the time gap between the base year and current period increases, the quality of such an index deteriorates, as it does not reflect the dynamics of distributive trade. If a country uses the Laspeyres volume index with fixed weights, it is recommended that the periods between the times at which weights are updated be as close to five years as possible. In the process of updating the weights, countries are encouraged to make every effort to chain-link the series with the new weights.

7.13. It is recommended that in choosing the index type, countries take into account the purpose of the index and practical considerations, such as the general policy of a given national statistical office in the area of price statistics, the availability and quality of data, resource constraints, etc. As further guidance for the compilation of distributive trade indices, countries are advised to use seasonally adjusted series, when appropriate and available. Subsection 2 below provides some additional recommendations with respect to the indices of turnover volume and the output of distributive trade services.

2. Indices of wholesale and retail trade turnover

7.14. *Turnover value index.* The turnover value index is a direct index that compares the value of turnover in the current period (at current prices) with the value of turnover in the base year (at base-year prices). This index can be calculated for both retail trade and wholesale trade and their components.

7.15. *Turnover volume index.* The turnover volume index, especially the volume of retail trade turnover, is one of the most closely monitored series. In order to eliminate the price effect on turnover, it has to be deflated. In principle, the deflator

of turnover should be a price index representative of the particular distributive trade activity class and reflecting price changes in the goods sold rather than in the trade services provided. Retail price indices (RPI) and wholesale price indices (WPI), or consumer price indices (CPI) and producer price indices (PPI), can be used as proxies for such deflators. The price deflator for a given activity should be calculated as a weighted average of the price indices for the relevant category of goods sold through that activity in the current period.

7.16. In order to compile the turnover volume indices at the higher levels of section G of ISIC, Rev.4, the indices at the lowest level have to be aggregated. This aggregation is carried out by using weights based on value added (or turnover) share of each activity in the base year. For example, the index for group 471, Retail sale in non-specialized stores, is derived from all the indices of the lower level (that is to say, classes included in group 471). The index of section G will be calculated by taking a weighted average of all the component divisions in the section.

7.17. *Alternative methods for measuring turnover volume.* If appropriate price indices are not available to deflate turnover owing to the difficulties in measurement of price changes or the complexity of data sources, its volume might be estimated using output volume indicators or input indicators, as described below:

- (a) *Output volume indicators.* Output variables (for example, physical quantity of goods sold) are accepted as the second-best option if they represent well-defined products and are applied in sufficient level of details;
- (b) *Input indicators.* Employment is considered one of the main input indicators and can be used as a proxy measure of production. There are many situations where information on input measures, although not recommended, is the only readily available source. In this case, it is assumed that the changes in input and output are proportional to each other. Compilers should be very cautious regarding use of estimates based on input variables.

7.18. *Turnover volume index and index of output of wholesale and retail trade.* The objective of the turnover index is to show the evolution of the market for goods and services. It should be noted, in this connection, that there are significant conceptual differences between this index and the index of output of wholesale and retail trade services (also called the index of production of wholesale and retail services). The main differences are as follows:

- (a) Turnover includes sales of goods bought for resale in the same condition as received which are not considered in the indices of output of wholesale and retail trade services;
- (b) Goods produced (or purchased) and stocked before sale are included in both output and turnover, but are considered at different moments in time;
- (c) The index of output of wholesale and retail trade services takes account of changes in the quality of the trade *service* supplied.

7.19. Both indices are important in their own right. While the volume of turnover is recommended for compilation within the framework of short-term statistics, the indices of output of wholesale and retail trade services are meaningfully compiled only within the framework of national accounts, preferably within the framework of supply and use tables.

7.20. The indices of output measure changes in production of services by various distributive trade activities. One of the major incentives for compilation of these

indices is their use as inputs in the compilation of quarterly national accounts as an appropriate estimate of short-term changes in gross value added for wholesale and retail trade services. Therefore, in principle, they should be calculated as weighted averages of the outputs of these activities using value-added weights, with the assumption that the ratio of value added to output is constant in the short run. In practice, however, the required value-added data might not be available at such a detailed level for the required periods. Therefore, in the absence of value added, alternative measures for producing these indices, such as volume of turnover, should be used.

C. Seasonal adjustment

7.21. *Need for seasonally adjusted distributive trade statistics.* Monthly and quarterly data on distributive trade statistics are an important tool for economic policymaking, business cycle analysis, modelling and forecasting. However, they are often characterized by seasonal fluctuations and other calendar/trading-day effects, which are obstacles to the clear identification of important features of time series such as their short- and long-term movements, turning points and consistency with other economic indicators. Seasonal adjustment is a process by which changes that are due to seasonal or calendar influences are removed from time series in order that a better knowledge of the underlying behaviour may be achieved. The present section contains a brief overview of the basic concepts and recommendations for compilation of seasonally adjusted time series. More detailed guidance on this issue will be provided in the forthcoming *Distributive Trade Statistics: Compilers Manual*. Seasonal adjustment issues of particular interest for distributive trade statistics like trading-day and moving holiday effects are presented in subsection 3, Calendar effects.

7.22. As a general recommendation, countries should consider producing seasonally adjusted series as an integral part of their long-term programme of quality enhancement of their distributive trade statistics. They are encouraged to begin production of seasonally adjusted series of distributive trade data items as a matter of priority. The seasonal adjustment method, once chosen, should not be changed often. If changes are necessary, they should be thoroughly justified.

1. Basic concepts for application in the compilation of seasonally adjusted data

7.23. *Time series.* When statistical data are collected at regular intervals, they form a time series. Turnover of retail trade for each subperiod (week, month, quarter) of the year, in a given country, is a good example of a time series. In contrast, data collected irregularly or only once do not represent a time series. There are two types of time series: stock and flow. Stock series are measures of activity *at a point* in time, while flow series measure the level of activity *over* a time interval.

7.24. *Components of time series.* A time series is generally considered to be made up of the following components:

- (a) The *trend component* (T_t) which reflects long-term movements lasting many years. It is generally associated with structural phenomena, for example, institutional events, demographic and technological changes, new methods of organization, general economic development, etc. In many series, such as wholesale and retail sales, or production of goods and services, this may be termed the growth element;

- (b) The *cycle component* (C_t) indicates the fluctuation around the trend, characterized by alternating periods of expansion and contraction, usually referred to as a business cycle. In much analytical work, the trend and the cycle components are combined because, for series covering a short period of time, the long-term trend cannot be estimated adequately. The trend-cycle component is thus the underlying path or general direction reflected in the data, that is to say, the combined long-term trend and business-cycle movements encompassed by the data;
- (c) The *seasonal component* (S_t) is a movement within the year, with a characteristic shape for each time series, representing the effect of climatic and institutional events that are repeated more or less regularly each year. This component includes seasonal effects narrowly defined and calendar-related systematic effects that are not stable in annual timing, such as trading-day and moving holiday effects (see paras. 7.36-7.42). The seasonal effect narrowly defined is one that is reasonably stable in terms of magnitude. Possible causes for this effect are natural factors, administrative or legal measures, social/cultural traditions, and calendar-related effects that are stable in respect of annual timing (for example, public holidays such as Christmas);
- (d) The *irregular component* (I_t) represents unforeseeable movements related to events of all kinds. It comprises residual variations due to developments or to momentous occurrences, such as wars or national catastrophes, which affect a number of series simultaneously. In general, the irregular component has a stable random appearance and captures effects that are unpredictable, unless additional information is available, in terms of timing, impact and duration. The irregular component includes the following: (a) irregular effects narrowly defined; (b) outlier effects; (c) other regular effects such as those of unseasonable weather, natural disasters, strikes, irregular sales campaigns, etc. However, it should be noted that these effects can be estimated separately from the irregular component and that it is important to carry out such estimates in order to ensure that the best-quality seasonal adjustment is achieved.

7.25. *Seasonal adjustment.* The process of estimating and removing the seasonal component from a time series is known as seasonal adjustment. Through this process, all variations are removed that are systematic (seasonal effects) or calendar-related (institutional events that are repeated more or less regularly every year).

2. Main principles and models of seasonal adjustment

7.26. As a general rule, the seasonal adjustment process should be performed at the end of a survey cycle when the survey has been designed and conducted; data have been collected, processed and edited; and estimates are produced. The seasonal adjustment process starts once the original estimates are available and the original time series of data are formed.

7.27. *Basic principles of seasonal adjustment.* In order to remove the seasonal component from a time series, it should first be decomposed into its constituting components: the trend cycle, the seasonal component and the irregular component, each of which may be made up of several sub-components. The seasonal variations can be distinguished from the trend by their oscillatory character, from the business cycle by having annual periodicity and from irregulars by being systematic. The four above-

mentioned components can be combined in a number of ways. The most commonly found combinations are represented by two types of decomposition model: the additive decomposition model and the multiplicative decomposition model.

7.28. *Additive decomposition model.* The additive model assumes that the components of the time series behave independently of each other. In particular, the size of the seasonal oscillations is independent of the level of the series. For example, an increase in the trend cycle will not cause an increase in the seasonal component. This model is used if the irregular and the seasonal effects are independent of the trend behaviour, that is to say, if the seasonal effects are the same from year to year. In this case:

$$X_t = T_t + C_t + S_t + I_t$$

7.29. *Multiplicative decomposition model.* The multiplicative model is generally taken as the default model in seasonal adjustment software packages. This model assumes that the components of the series are interdependent and thus that the seasonal variation's size increases and decreases with the level of the series, which is a characteristic of most seasonal macroeconomic series. For example, an increase in the trend will cause an increase in the magnitude of the seasonal component. In this case:

$$X_t = T_t \times C_t \times S_t \times I_t$$

7.30. *Quality of seasonal adjustment.* The most fundamental requirement of seasonal adjustment quality is that there be no estimable seasonal effect still present in the seasonally adjusted series. The presence of estimable seasonal effects in either the seasonally adjusted series or the de-trended seasonally adjusted series (in other words, the irregular component) is generally what is referred to as *residual seasonality*. To detect whether the seasonally adjusted time series contains residual seasonality and trading-day effects, a special "spectral diagnostic" should be carried out for monthly data or for sufficiently long quarterly series. Depending upon the package used for seasonal adjustment, there are other diagnostics that can be used to assess the presence of residual seasonality.

7.31. Other important requirements for a good seasonal adjustment are a lack of bias in the level of the series and the stability of the estimates. A lack of bias in the level means that the level of the series will be similar for both the original series and the seasonally adjusted series. Stability of the estimates means that as new data become available and are incorporated into the estimation procedure, the revisions to the past estimates will be small. Large revisions can indicate that the estimates are misleading or even meaningless.

7.32. *Concept of direct and indirect seasonal adjustments.* Many distributive trade data represent aggregates or residual items. For instance, the trade margin and value added are both calculated as the difference between two components. In the case of the trade margin, these components are the values of turnover and goods bought for resale; in the case of value added, the components are the values of output and intermediate consumption. A seasonally adjusted estimate of value added can be derived either by seasonally adjusting value added directly, or by calculating the difference between the seasonally adjusted output and intermediate consumption.

7.33. Under most circumstances, the direct and indirect adjustments for an aggregate series are not identical. There are some very limited situations in which the two types of adjustment coincide, particularly if the adjustments are additive. Whether direct or indirect adjustment is more appropriate for a given set of series will depend to a great extent on the set of series in question. Because neither theoretical nor empir-

ical evidence uniformly favours one approach over the other, countries are advised to deal with this issue on a case-by-case manner after a thorough analysis based on the characteristics of the series in question and on the aggregation constraints imposed by the context (national accounts, geographical breakdown, etc.). The following represents practical guidance on how to deal with direct/indirect seasonal adjustment in some particular cases:

- (a) Indirect seasonal adjustment should be preferred when the component series that make up the aggregate series have both distinctively dissimilar seasonal patterns and adjustments of good quality. The indirect seasonal adjustment in this case is of better quality than the direct adjustment;
- (b) Direct seasonal adjustment should be preferred when the component series have similar seasonal patterns and summing the series may result in noise cancellation.

7.34. *Outliers in seasonal adjustment.* Outliers are abnormal values in the time series, usually caused by a one-off economic or social event. Their detection and correction prior to implementation of the adjustment process is an important determination of the quality of seasonal adjustment. It is essential to distinguish between different types of outliers because their treatment differs. Outliers are divided into two groups: (a) errors in the data; and (b) “true” special events. The first step of any outlier analysis should be the detection and correction of plain data errors and, after that, the detection and correction of “true” outliers. The correction of outliers aims at preventing the trend path from undergoing distortion. The trend path is intended to measure the long-term growth of time series and it is not desirable that it respond to a one-off irregular movement. It should be noted that all seasonal adjustment packages have a built-in option for the detection and treatment of outliers, at least for the historical part of the series. For the most recent values, however, a sophisticated automatic correction is not possible.

7.35. *Concurrent versus extrapolated seasonal factors.* For the current year, seasonally adjusted data can be computed either by running the seasonal adjustment procedure every month/quarter or by using extrapolated coefficients computed once a year. In the first case, data are revised every month/quarter. In the second, data are not revised within the year but only once a year. In terms of accuracy of seasonally adjusted series, the concurrent approach is the recommended one. It allows the production of up-to-date seasonally adjusted data by recalculating the values every time new data become available. The use of extrapolated seasonal factors, although preferred by some users, can lead to biased results, especially when unexpected events occur during the year. It is recommended that countries schedule the revisions of seasonally adjusted series in a regular manner, preferably in accordance with the established common revision policy.

3. Calendar effects

7.36. *Calendar effects.* Variations associated with the composition of the calendar play an important role in the analysis of distributive trade statistics. Calendar effects are regular effects that do not necessarily occur in the same month or quarter each year but that can be identified and removed from the series. The most important of them are moving holiday effects and trading-day variations, the latter representing “within-month effects”. These variations are usually treated as seasonal in character and should be removed together with other seasonal variations when producing a seasonally adjusted series.

7.37. *Moving holidays.* Moving holidays are holidays whose exact timing shifts systematically each calendar year based on the Gregorian calendar, which is widely used as a world standard for statistical time series. The influence of these moving holidays on economic and social behaviour can usually be country-specific, making it difficult to build them into standards routines and practices. Examples of moving holidays include Easter, Chinese New Year, Korean Thanksgiving Day and Ramadan. *Easter* generally falls in April but can also fall in late March and can affect a variety of types of series, for example, industrial production or retail trade sales, especially in the western hemisphere. The Easter effect is the variation due to the displacement from April to March of the volume of activity when Easter falls in March instead of occurring, as is usual, in April. *Chinese New Year* has an effect similar to that of Easter on trade activities and has a predictable magnitude and direction.

7.38. Two types of effects are generally associated with moving holidays: (a) an immediate effect associated with the fact that some retail stores are closed during the holidays; and (b) a gradual effect associated with the fact that the level of trade activity is affected during several days preceding the holidays.

7.39. *Trading day effect.* The trading-day effect is a common calendar-related effect that is often expressed in economic time series, especially distributive-trade time series. This effect is dependent on the number of times each day of the week occurs in a given month/quarter and the length of the month/quarter. The number of trading days is also affected by the number of holidays in the given time period that do not fall on weekends. The number of trading days may differ not only from period to period, but also between the same time periods in different years.

7.40. The trading-day effect is present when the level of activity varies with the days of the week. Trading-day variations imply the existence of an underlying daily pattern of activity defined over the course of the week. This daily pattern illustrates the relative importance of the days in the week. For example, five Sundays in a month impacts retail trade series because Sunday is not a business day and marks a low point in economic activity. The number of Fridays and Saturdays also has a significant impact on those series, as these are the days when people do much of their shopping. Trading-day variations are associated also with the accounting and reporting practices of trade units. Stores that conduct their bookkeeping activities on Friday tend to report higher sales in months with five Fridays than in months with four Fridays. Trading-day effects need to be accounted for because they lead to apparent changes in level of activity when the underlying level is in fact unchanged.

7.41. *Length-of-month effect.* Because different months of the year have different lengths, namely, 28, 29, 30 or 31 days, one way to concretize the trading-day effect is to consider each month of the year as a block of 28 days (4 days of each type of weekday) plus one additional block, containing zero, 1, 2 or 3 extra days. If the level of activity for each type of weekday is to be constant through the year, the only difference between the months in a given year will be due to the number of extra days (0, 1, 2 or 3). Hence, if June and July have the same levels of activity on the respective days of the week, the total level of activity for July may still be greater than that for June purely because July has an extra day. This is called the *length-of-month effect*. If a series does not have a trading-day correction, then the length-of-month effect will be accounted for automatically in the seasonal factors. If the series does have a trading-day correction, then the length of the month can still be accounted for in the seasonal factors or, alternatively, in the trading-day factors.

7.42. *Methods for trading-day adjustment.* Trading-day adjustment can be carried out by using either the proportional or the regression method for adjustment.

Under the first approach, the effects of trading days are estimated by counting the proportion of them in the month/quarter, while under the second, the effects of trading days are estimated within a regression framework. In general, the regression-based approach as a method of carrying out trading-day adjustment should be the preferred one for countries. As for the other calendar effect such as the moving holidays, statistical packages have built-in options for the detection and treatment of their trading-day effects. Although those packages offer default calendars, it is recommended that in respect of trading-day adjustment, countries use country-specific calendars, as they ensure more accurate results.

4. Seasonal adjustment software packages

7.43. The most commonly used seasonal adjustment packages can be grouped into two main categories based on: (a) univariate time-series decomposition, namely, moving average techniques; and (b) explicit models with a small number of parameters for each component. Countries should choose between the two packages on the basis of a thorough analysis of the time-series, subject to seasonal adjustment and/or on past experience.

7.44. *Seasonal adjustment packages based on moving average methods.* The majority of seasonal adjustment methods used by statistical offices belong to the class of moving averages. The seasonal adjustment methods that belong to this category are mainly descriptive, non-parametric procedures, in the sense that they lack explicit parametric models for each unobserved component. Major computational differences between the various approaches of this class are usually due to different techniques used at the end of the time series. Some methods use asymmetric filters at the end, while others extend the series using autoregressive integrated moving average (ARIMA) models and apply symmetric filters to the extended series. The general approach within the class of moving average models follows an iterative estimation procedure, the core of which is based on a series of moving averages. Census X-11/X-12 and ARIMA are among the seasonal adjustment techniques based on moving average methods.

7.45. *Seasonal adjustment packages based on model methods.* The model-based approach requires such components of the original time series as the trend, seasonal and irregular components to be modelled separately. This approach assumes that the irregular component is “white noise”. Major computational differences between various methods in the model-based approach are usually due to model specification. In some cases, the components are modelled directly; in others, the original series is modelled and the component models are derived from that model. Model-based seasonal adjustment programmes include, among others, TRAMO-SEATS, STAMP and BV4.

7.46. *Seasonal adjustment diagnostics.* A set of diagnostics to assess the outcome, from both the modelling and the seasonal adjustment steps, are provided in the programmes and should be used. These diagnostics range from advanced tests targeted at the experts attempting to fine-tune the treatment of complex series to simple tests that, at a minimum, should be looked at by all users of the programmes. While the programmes are sometimes used as a black box without the diagnostics, they should not be so used because many of the tests can be readily understood.

7.47. *Minimum length of the time series for seasonal adjustment.* Five years of data and relatively stable seasonality are required in general as the minimum length of time for obtaining properly seasonally adjusted estimates. For series that show particularly strong and stable seasonal movements, it may be possible to obtain seasonally adjusted estimates based on only three years of data. A longer time series is required,

however, to identify more precisely the seasonal pattern and to adjust the series for calendar variations (that is to say, trading days and moving holidays), breaks in the series, outliers, and particular events that may have affected the series and may cause difficulties in properly identifying the seasonal pattern of the series. If a country has gone through severe structural changes resulting in radical changes in the seasonal patterns, it may not be possible to seasonally adjust its data until several years after the break in the series. In such cases, it may be necessary to seasonally adjust the pre-break and post-break parts of the series separately.

7.48. *Seasonal adjustment and consistency with annual data.* Annual totals based on the seasonally adjusted data will not automatically (and conceptually) be equal to the corresponding annual totals based on the original unadjusted data. The number of working days, the impact of moving holidays, and other calendar-related effects vary from year to year. Similarly, moving seasonality implies that the impact of the seasonal effect narrowly defined will vary from year to year. Thus, conceptually, for series with significant calendar-related effects or moving seasonality effects, the annual totals of a seasonally adjusted series *should differ* from those of the unadjusted series. In such cases, consistency with the annual series would be achieved at the expense of the quality of the seasonal adjustment and would be wrong conceptually.

7.49. However, in some particular cases, for the purpose, say, of national accounts or geographical breakdowns, it may be necessary to maintain the additivity constraints in order to ensure consistency of data. In those cases, annual totals of the seasonally adjusted series must be “forced” to equal the annual total of the raw series. X-11-ARIMA and X-12-ARIMA provide options for forcing the annual totals from the seasonally adjusted data to be equal to the original totals.

7.50. *Revision policy and re-estimation of ARIMA models.* An important issue associated with model-based methods concerns how often the ARIMA models should be re-identified and re-estimated as new data become available. The stability of the models and their associated parameters depend on the nature of the series. In principle, the ARIMA models change slowly over time, while their associated parameters are more sensitive to new data. The recommended approach in such cases is to re-identify the models once per year and re-estimate the parameters every time seasonal adjustment is performed.

7.51. *Data dissemination and seasonal adjustment.* After removing seasonality and all calendar effects, distributive trade data can be presented in either seasonally adjusted form or trend-cycle form. The difference between them is the irregular component. In general, it is recommended that countries make available to users both the original and seasonally adjusted series. Dissemination of other series depends on users’ interests and needs and the country’s capacity. Seasonally adjusted data, for example, are often considered more informative for univariate and multivariate purposes while trend-cycle data are, in principle, recommended for graphical representations and for series characterized by a high degree of volatility.

7.52. *Partially adjusted data.* Some countries publish as “non-seasonally adjusted data” data that have been adjusted for some seasonal effects, particularly the number of working days. It should be noted that partially adjusted data can be misleading and are of limited analytical usefulness. First, data presented as non-seasonally adjusted should be fully unadjusted, showing what actually happened, not partially adjusted for some seasonal effects. Working-/trading-day effects are part of the overall seasonal variation in the series, and adjustment for these effects should be treated as an integral part of the seasonal adjustment process, not as a separate process. Second, working-day adjustments made outside the seasonal adjustment context are often con-

ducted using simple methods that are not appropriate procedures involving, for example, fixed coefficients based on the ratio of the number of working days in the month or quarter to the number of working days in a standard month or quarter. Countries should make every effort to discontinue such practices. Nevertheless, if the partially adjusted data are published, the appropriate explanatory note should be provided to warn users about the limitations of such data. It is important that the seasonal adjustment procedures used be appropriately documented and included in the distributive trade statistics metadata.

D. Benchmarking

1. Need for benchmarking in distributive trade statistics

7.53. Common features of short-term statistics (monthly and quarterly) are their reduced scope, and lower level of accuracy and details. For example, there may be differences in the coverage of units, degree of detail in respect of data items included, or activities, or geographical areas represented, etc. Thus, short-term statistics in comparison with the more comprehensive annual data, suffer more from the bias arising from factors such as sampling error, differences in terms of the use of the business register (different versions of the register, grossing up methods, reclassifications of establishments), and different monthly/quarterly and annual accounting methods used by respondents. The present section deals with the processes involved in producing optimal short-term distributive trade data that are consistent with annual data. The general term for these processes is “temporal disaggregation” and the common variants are benchmarking and interpolation.

7.54. *Benchmarking*, which refers to the case where there are two sources of data for the same target variable with different frequencies, is concerned with correcting inconsistencies between the different estimates, for example, differences between short-term and annual estimates of the turnover of the distributive trade sector derived from different sources. Benchmarking can be applied either to historical time series (distribution), where monthly/quarterly estimates have to add up at the end of the year to the new levels obtained by annual estimates, or to forward series (extrapolation), where the time series are extended with the estimates for months/quarters for which no annual data are yet available.

7.55. *Interpolation* refers to the case where no genuine monthly (or quarterly) measurements exist, and annual totals are distributed across months (quarters), using a proxy indicator for the monthly (quarterly) pattern where possible, or a simple curve-fitting algorithm otherwise. A short-term pattern for interpolation may be derived from previous (discontinued) survey data or from proxy variables or through a smooth mathematical function.

7.56. *Objective of benchmarking*. The main objective of benchmarking is to combine the relative strengths of the low- and high-frequency data while preserving as much as possible the short-term movements in the source data under the constraints provided by the benchmarks. The low- and high-frequency data can be derived from conducted censuses or more accurate sample surveys, administrative data or even some combination of these sources. It should be noted that the issue of benchmarking also arises with annual data, when a survey is conducted only every few years, and with monthly data, when they should be benchmarked to the quarterly estimates.

2. Main principles and methods of benchmarking

7.57. *Benchmark-to-indicator ratio.* For any year, it is essential to ensure consistency between annual and infra-annual estimates of the levels of any variable. To understand the relationship between the corresponding annual and monthly/quarterly data, it is useful to observe the ratio of the annual benchmark to the sum of the 12 monthly (or four quarterly) values of the indicator, that is to say, the annual benchmark-to-indicator ratio (BI ratio). Usually, the value of the BI ratio differs from 1 if estimates are obtained from data sources with different frequencies.

7.58. In the BI ratio framework, the indicator determines the short-term movement of the estimates, while the annual data determine the overall level of the estimates and long-term movements. The BI ratio usually changes from year to year but it is necessary to make adjustments so that the BI ratio always becomes 1.

7.59. The BI ratio may also be an expression of the relationship between sample survey levels and annual population levels. For example, consider the situation where a sample of trade enterprises is selected to cover 20 per cent (sm) of population sales (SM) each month. Therefore, for any month, population totals are estimated as $SM = sm \times 100/20$. The BI ratio in this case is 100/20 or 5.0; however, the coefficient of 100/20 will become outdated as the sample becomes unrepresentative. Hence, when comprehensive data (SA) from an annual enterprise census become available, it is likely that they will differ from the sum of 12 monthly sales (SM).

7.60. *Benchmarking methods.* There are two main approaches to benchmarking of time series: a purely numerical approach and a statistical modelling approach. The numerical approach differs from the statistical modelling approach in not specifying a statistical time-series model that the series is assumed to follow. The numerical approach encompasses the prorating method and the family-of-least-squares minimization methods, that is to say, the family of Denton methods. The statistical modelling approach encompasses ARIMA model-based methods and a set of various regression models.⁴⁸ The most commonly used numerical approach methods are briefly described below. Further guidance on the implementation of the benchmarking techniques will be provided in the forthcoming *Distributive Trade Statistics: Compilers Manual*.

7.61. *Pro rata distribution method and the step problem.* For any benchmark year for which annual estimates of a particular variable are available, the BI ratio can be calculated. Usually, it differs from 1 and to adjust the ratio for the bias, the annual-level data are simply distributed according to the distribution of the monthly/quarterly values of the variable, that is to say, a pro rata distribution across months/quarters. As a result, the prorating method preserves the proportional movement within each year. BI ratios for adjacent years, however, are different and pro rata adjustment introduces a potentially large discontinuity between the last month (or quarter) of a year and the first month (or quarter) of the next year known as the “step problem”. The pro rata distribution technique is the simplest benchmarking method; however, because of the step problem, it is not recommended for the reconciliation of low- and high-frequency distributive trade data.

7.62. *The Denton family of benchmarking methods.* The Denton method is an integrated way of dealing with both aspects of benchmarking (distribution and extrapolation). It has several versions which make up the Denton family of benchmarking methods. The Denton family methods are based on the principle of movement preservation, which requires that: (a) the month-to-month (or quarter-to-quarter) growth in the adjusted monthly series and the original monthly (or quarterly) series should be as similar as possible; or (b) the adjustment to neighbouring months should be

⁴⁸ Detailed explanations of these methods, as well as an analysis of the available software for reconciliation, can be found in Eurostat, *Handbook on Quarterly National Accounts* (Luxembourg, Office for Official Publications of the European Communities, 1999); and Adriaan M. Bloem, Robert J. Dippelsman and Nils Ø. Maehle, *Quarterly National Accounts Manual: Concepts, Data Sources, and Compilation* (Washington, D.C., International Monetary Fund, 2001).

as similar as possible. The basic requirement of this technique is that the calculation must be based on the original monthly/quarterly indicator (not revised or seasonally adjusted). Usually, the incorporation of new annual data for one year requires the revision of previously published monthly/quarterly estimates because the adjustment for the bias in the indicator is spread over several periods, not just within the same year. In practice, the impact of the implementation of Denton benchmarking methods becomes insignificant after three to four years.

7.63. *The proportional Denton method* is preferred over the other versions of the Denton family method because: (a) it is substantially easier to implement; (b) it results, in most practical circumstances, in approximately the same estimates for the back series as are provided by the other versions; and (c) it provides a simple and efficient framework for extrapolation using the enhanced proportional Denton method, which takes fully into account the existence of any systematic bias or lack thereof in the year-to-year rate of change in the indicator.

7.64. The proportional Denton technique is relatively simple and well suited for large-scale applications and as such is considered appropriate for dealing with benchmarking in distributive trade statistics. The key feature of this particular technique is that, through the implementation of the least squares method, it minimizes the differences in relative adjustments to the month-to-month (or quarter-to-quarter) movements in the BI ratio between the benchmarked series and the indicator. This means that the method also smooths the changes made to month-to-month or quarter-to-quarter growth in the indicator series and constructs a time series of monthly/quarterly benchmarked estimates-to-indicator ratios from annual observed BI ratios. The technique can be used particularly to avoid the step problem, that is to say, the distortion in the monthly/quarterly time series associated with the implementation of the pro rata distribution method (see para. 7.61), mainly caused by the change from one BI ratio to another. The practical implementation of the proportional Denton technique does require, however, the application of special software.

3. Benchmarking and compilation of distributive trade statistics

7.65. Countries are encouraged to consider benchmarking an integral part of the compilation process of short-term distributive trade statistics and to carry it out at the sufficiently detailed compilation level. In practice, this may imply benchmarking different series in stages, where data for some series, which have already been benchmarked, are used to estimate other series, followed by a second or third round of benchmarking. The actual arrangements will vary depending on the particularities of each case. The issues pertinent to the practical implementation of benchmarking will be further discussed in the forthcoming *Distributive Trade Statistics: Compilers Manual*. At present, however, countries may, in undertaking the benchmarking of distributive trade data, consider the following as constituting a form of guidance:

- (a) The estimates of one and the same variable produced with different frequencies should be consistent, so that the users will not be confused;
- (b) As soon as new annual data become available, the monthly/quarterly estimate should be aligned with them;
- (c) The growth rates of the indicator series should be preserved;
- (d) The importance of good benchmarking methods increases in cases where the quarterly indicators show considerable deviation from the annual data. In this regard, the consistency between estimates of the infra-annual and annual data sources should be reviewed; this may identify biases or other

problems and lead to improved estimation and compilation practices for both sources;

- (e) The benchmarking methods should be regularly reviewed;
- (f) Mechanical methods for distributing the difference between the monthly/quarterly and annual estimates, such as pro rata distribution, should be avoided because they introduce steps between years;
- (g) Improved accuracy for short-term statistics achieved through benchmarking may enable lower sample sizes and reduce costs and/or provide opportunities for improving timeliness.

7.66. *Benchmarking and revisions.* To avoid introducing distortions in the series, incorporation of new annual data for one year will generally require revisions of previously published data for several years in order to achieve maximal preservation of the short-term movements of the infra-annual series. This is a basic feature of all acceptable benchmarking methods. In practice, however, with most benchmarking methods, the impact of new annual data will gradually diminish to zero for sufficiently distant periods. As a practical recommendation, countries might allow at least two to three preceding (and following) years to be revised each time new annual data become available.

7.67. *Benchmarking and quality.* A broader application of benchmarking techniques has a key role to play in improving the quality of distributive trade statistics. In fact, the fundamental characteristics of benchmarking closely relate to the dimensions of quality such as accuracy, timeliness and coherence. In the short-to-medium term, when resources are restricted and the capacity of statistical offices to expand data collection is limited, these techniques often succeed in filling the gaps caused by missing data and dealing with shortcomings. In the longer term, where data quality to a large degree depends on the availability and quality of basic data sources, benchmarking techniques can play an important role in optimizing the use of available data.

7.68. *Benchmarking and seasonal adjustment.* As has been explained in the previous section, benchmarking is also utilized in the context of seasonal adjustment. Seasonally adjusting a monthly or quarterly time series can cause discrepancies between the yearly sums of the raw series and the corresponding yearly sums of the seasonally adjusted series, especially for series with significant calendar-related effects or moving seasonality (see paras. 7.48 and 7.49). In order to comply with certain geographical or national accounts-related constraints, such seasonally adjusted series should be benchmarked to the yearly sums of the raw series. As a general rule in this case, the benchmarking should be performed at the end of a survey cycle when data have been collected, processed and edited and estimates are produced. The benchmarking process starts once the original estimates are available and the original time series of data are formed. In most cases, benchmarking is performed before the seasonal adjustment process so as to fine-tune the raw series that will be used as an input to the seasonal adjustment process. However, in some cases, benchmarking is performed on the seasonally adjusted data. For example, the need for consistency with the annual data (for geographical or national accounts-related reasons) may require that benchmarking be performed within the seasonal adjustment process.

Chapter VIII

Data quality and metadata

A. Enhancing data quality of distributive trade

8.1. *Quality measurement of distributive trade statistics.* Data on distributive trade statistics are the end product of a complex process comprising many stages starting from the collection and processing of data to compilation and dissemination of statistics. Quality measurement of distributive trade statistics is concerned with providing users with sufficient information to judge whether or not the data are of adequate quality for their intended use, that is to say, to judge their “fitness for use”. For example, data users must be able to verify that the conceptual framework and definitions that would satisfy their particular data needs are the same as, or sufficiently close to, those employed in collecting and processing the data. Users need also to be able to assess the degree to which the accuracy of the data is consistent with their intended use or interpretation. All the measures that a statistical office takes to assure quality of statistical information constitute quality management.

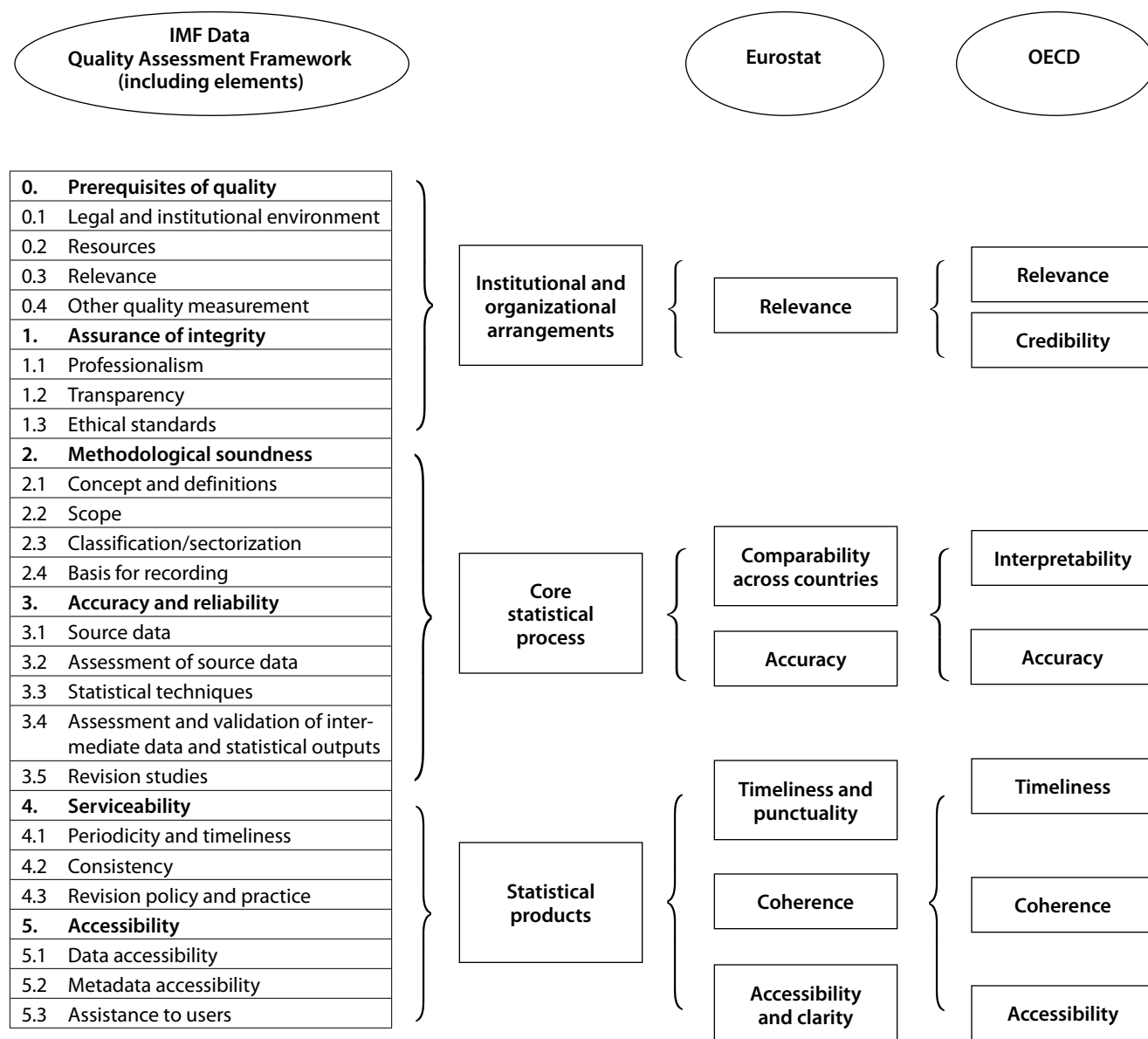
8.2. *Data quality assessment frameworks.* Most international organizations and countries have developed definitions of quality, outlining the various dimensions (aspects) of quality and quality measurement and integrated them into quality assessment frameworks.⁴⁹ Although the existing quality assessment frameworks differ to some extent in their approaches to quality and number, name and scope of quality dimensions (see figure VIII.1), they complement each other and provide comprehensive and flexible structures for the qualitative assessment of a broad range of statistics. For example:

- (a) The *IMF Data Quality Assessment Framework (DQAF)* takes a holistic view of data quality and includes governance of statistical systems, core statistical processes and statistical products. The Framework is organized as a cascading structure covering the prerequisites and five dimensions of quality: assurance of integrity, methodological soundness, accuracy and reliability, serviceability and accessibility;
- (d) The *European Statistical System (ESS)* focuses more on statistical outputs and defines the quality of statistics with reference to six criteria: relevance, accuracy, timeliness and punctuality, accessibility and clarity, comparability and coherence;
- (c) The *OECD quality measurement framework* views quality as a multifaceted concept. As with the Eurostat approach, the quality characteristics depend on user perspectives, needs and priorities, which vary across groups of users. Quality is viewed in terms of seven dimensions: relevance, accuracy, credibility, timeliness, accessibility, interpretability and coherence.

⁴⁹ See International Monetary Fund Data Quality Assessment Framework (<http://dsbb.imf.org/Applications/web/dqrs/dqrsdqaf/>); Eurostat, Working Group “Assessment of quality in statistics”, “Definition of quality in statistics” (document Eurostat/A4/Quality/03/General/Definition), prepared for the sixth meeting (Luxembourg, 2 and 3 October 2003); Organization for Economic Cooperation and Development, Statistics Directorate, “Quality framework for OECD statistics” (Paris, June 2002); United Kingdom of Great Britain and Northern Ireland, Office for National Statistics, *Guidelines for Measuring Statistical Quality*, version 3.1 (London, 2007); *Statistics Canada’s Quality Assurance Framework* (Ottawa, September 2002); Statistics Finland, *Quality Guidance for Official Statistics*, 2nd revised ed. (Helsinki, 2007), etc.

Figure VIII.1

The relationship between the International Monetary Fund Data Quality Assessment Framework, the Eurostat quality definition and the Organization for Economic Cooperation and Development quality measurement framework



Source: Lucie Laliberte (IMF), Werner Grunewald and Laurent Probst (Eurostat), "Data quality: A comparison of IMF's Data Quality Assessment Framework (DQAF) and Eurostat's quality definition", January 2004. The last column showing the relationship with the OECD Quality Measurement Framework was contributed by the United Nations Statistics Division.

8.3. The overall aim of the three quality assessment frameworks is to standardize and systematize statistical quality measurement and reporting across countries. They allow an assessment of national practices to be made against internationally (or regionally) accepted statistical approaches for quality measurement. The quality assessment frameworks could be used in a number of contexts, including for (a) guiding countries' efforts towards strengthening their statistical systems by providing a self-assessment tool and a means of identifying areas for improvement; (b) technical assistance purposes; (c) reviews of particular statistical domains as performed by international organizations; and (d) assessment by other groups of data users.

8.4. *Dimensions of quality.* National statistical offices can decide to implement one of the existing frameworks for quality assessment of any type of statistics, including distributive trade statistics, either directly or by developing, on the basis of those frameworks, national quality assessment frameworks that fit best their country's practices and circumstances. The following dimensions of quality, which reflect a broad perspective and in consequence have been incorporated in most of the existing frameworks, should be taken into account in developing quality assessment frameworks for measuring and reporting the quality of statistics in general and distributive trade statistics in particular: prerequisites of quality, relevance, credibility, accuracy, timeliness, methodological soundness, coherence and accessibility. They are described in greater detail directly below:

- (a) *Prerequisites of quality.* Prerequisites of quality refer to all institutional and organizational conditions that have an impact on the quality of distributive trade statistics. The elements within this dimension include the legal basis for compilation of data; adequacy of data sharing and coordination among data-producing agencies; assurance of confidentiality; adequacy of human, financial, and technical resources for implementation of distributive trade statistics programmes and implementation of measures to ensure their efficient use; and quality awareness;
- (b) *Relevance.* The relevance of distributive trade statistics reflects the degree to which they meet the real needs of users. Therefore, measuring relevance requires identification of user groups and their needs. The statistical offices should balance the different needs of current and potential users with a view to producing a programme that goes as far as possible towards satisfying the most important needs of users for both coverage and content of distributive trade data, given the resource constraint. The indicators of relevance are the requests of users, conducted users' satisfaction surveys and their results, and the identified gaps between key user interests and compiled distributive trade statistics in terms of concepts, coverage and details;
- (c) *Credibility.*⁵⁰ The credibility of distributive trade statistics refers to the confidence that users place in those data based on the image of the statistical office or agency that produces the data. Confidence by users is built over time. One important aspect of credibility is trust in the objectivity of the data, which implies that the data are perceived to be produced professionally in accordance with appropriate statistical standards, and that policies and practices are transparent. For example, data should not be manipulated, nor should their release be timed in response to political pressure;
- (d) *Accuracy.* The accuracy of distributive trade statistics refers to the degree to which the data correctly estimate or describe the quantities or characteristics that they have been designed to measure. It has many facets and in practice there is no single aggregate for or overall measure of accuracy. In general, it is characterized in terms of errors in statistical estimates and

⁵⁰ This dimension is referred to as assurance of integrity in the IMF Data Quality Assessment Framework.

is traditionally decomposed into bias (systematic error) and variance (random error) components, but it also encompasses the description of any processes undertaken by statistical offices to reduce measurement errors. In the case of sample surveys-based distributive trade estimates, the accuracy can be measured using the following indicators: coverage, sampling errors, non-response errors, response errors, processing errors, and measuring and model errors. Revisions and revision studies of distributive trade statistics undertaken at regular intervals are considered a gauge of reliability;

- (e) *Timeliness.* The timeliness of distributive trade statistics is a function of the amount of time between the end of the reference period to which the data pertain, and the date on which the data are released. The concept of timeliness applies equally to short-term and structural data, as the only difference is the time frame. Timeliness is closely tied to the existence of a publication schedule. A publication schedule may comprise a set of target release dates or may entail a commitment to release distributive trade data within a prescribed time period following their receipt. This factor usually involves a trade-off with respect to accuracy. The timeliness of information also influences its relevance. Punctuality is another aspect of timeliness. It reflects the amount of time elapsing between the identified release date and the effective dissemination date of distributive trade data;
- (f) *Methodological soundness.* Methodological soundness is a dimension that encompasses the application of international standards, guidelines and good practices in the production of distributive trade statistics. The adequacy of the definitions and concepts, target populations, variables and terminology underlying the data, and the information describing the limitations of the data, if any, largely determines the degree of adherence of a particular data set to international standards. The metadata provided along with distributive trade statistics play a crucial role in assessing the methodological soundness of data. They inform the users on how close to the target variable (for example, any of the data items) are the input variables used for their estimation. When there is a significant difference, there should be an explanation of the extent to which this may cause a bias in the estimation of data items. Methodological soundness is closely related to the interpretability of data, which depends on all of the features of the information on distributive trade data mentioned above and reflects the ease with which the user may understand and properly use and analyse the data;
- (g) *Coherence.* The coherence of distributive trade statistics reflects the degree to which the data are logically connected and mutually consistent, that is to say, the degree to which they can be successfully brought together with other statistical information within a broad analytical framework and over time. The use of standard concepts, classifications and target populations promotes coherence, as does the use of a common methodology across surveys. Coherence, which does not necessarily imply full numerical consistency, has four important sub-dimensions:
 - (i) *Coherence within a data set.* This implies that the elementary data items are based on compatible concepts, definitions and classifications and can be meaningfully combined. For distributive trade statistics, this sub-dimension governs the need for all data items to be compiled in conformity with the methodological basis of the recommendations presented in IRDTS 2008;

- (ii) *Coherence across data sets.* This implies that the data across different data sets are based on common concepts, definitions and classifications. The coherence between distributive trade statistics and industrial statistics and then the coherence of distributive trade statistics with national accounts will be ensured if all data sets are based on common concepts, definitions, valuation principles, classifications, etc., and as long as any differences are explained and can be allowed for;
- (iii) *Coherence over time.* This implies that the data are based on common concepts, definitions and methodology over time. This property will be established if, for example, an entire time series of distributive trade data is compiled on the basis of the recommendations in IRDTS 2008. If this is not the case, it is advisable that countries clearly note the divergences from the recommendations;
- (iv) *Coherence across countries.* This implies that the data are based on common concepts, definitions and methodology across countries. Coherence of distributive trade statistics across countries may be dependent upon the extent to which the recommendations in IRDTS 2008 have been adopted;
- (h) *Accessibility.* The accessibility of distributive trade statistics refers to the ease with which they can be obtained from the statistical office, including the ease with which the existence of information can be ascertained, as well as the suitability of the form or the media of dissemination through which the information can be accessed. Aspects of accessibility also include the availability of metadata and the existence of user support services. Accessibility requires development of an advance release calendar (see para. 9.13) so that the users will be informed well in advance on when and where the data will be available and how to access them.

8.5. These dimensions of quality are overlapping and interconnected and as such are involved in a complex relationship. Action taken to address or modify one aspect of quality will tend to affect other aspects. For example, there may be a trade-off between aiming for the most accurate estimation of the total annual turnover of trade units, and providing this information in a timely manner and when it is still of interest to users. It is recommended that if, while compiling a particular distributive trade statistics data set, countries are not in a position to meet the accuracy and timeliness requirements simultaneously, they should produce a provisional estimate, which would be available soon after the end of the reference period but would be based on less comprehensive data content. This estimate would be supplemented at a later date with information based on more comprehensive data content but would be less timely than its provisional version. If there is no conflict between these two quality dimensions, there will of course be no need to produce such estimates.

8.6. The measurement of quality of any statistical data, including distributive trade statistics data, is not a simple task. Problems arise from the difficulties involved in quantifying the levels of individual dimensions and in aggregating the levels of all dimensions. Under these circumstances, deriving a single quantitative measure of quality is not possible. In the absence of such a single measure, countries are encouraged to use a system of quality measures/indicators (see sect. B below) to develop their own quality assessment frameworks based on the above-mentioned approaches and dimensions and the specific circumstances of their economies and to regularly issue quality reports as part of their metadata. The quality framework offers statistical offices a practical approach to providing data that meet different users' needs, while the pro-

vision of quality information allows users to judge for themselves whether a data set meets their particular quality requirements. It is recommended that a quality review of distributive trade statistics be undertaken every four to five years or more frequently if significant methodological changes or changes in the data sources occur.

B. Quality indicators versus direct quality measures

8.7. *Quality measures.* Quality measures are defined as those items that directly measure a particular aspect of quality. For example, the time lag from the reference date to the release of particular distributive trade statistics is a direct quality measure. However, in practice, many quality measures can be difficult or costly to calculate. Instead, quality indicators can be used in quality measurement. Quality measures and quality indicators can either supplement or act as substitutes for the desired quality measurement.

8.8. *Quality indicators.* Quality indicators are summarized quantitative data that provide evidence about the quality or standard of the data produced by national and international statistical agencies. They are linked to the achievement of particular goals or objectives. Unlike ordinary raw statistics, quality indicators are generally conceptualized in terms of having some reference point and, so structured, can assist in making a range of different types of comparisons.

8.9. Quality indicators usually consist of information that is a by-product of the statistical process. They do not measure quality directly but can provide enough information for the assessment of a quality. For example, in respect of accuracy, it is almost impossible to measure non-response bias, as the characteristics of non-respondents can be difficult and costly to ascertain. In this instance, the response rate is often utilized as a proxy quality indicator to provide a measure of the possible extent of non-response bias.

8.10. It is not intended that all quality dimensions should be addressed for all data. Instead, countries are encouraged to select those quality measures/indicators that together provide an assessment of the overall strengths, limitations and appropriate uses of a given data set. Certain types of quality measures and indicators will be produced for each data item; for example, item response rate for total turnover (see data item 5.1) would be calculated with each new estimate. Alternatively, some others would be produced once for all data items and would be rewritten only if there were changes. The latter case is exemplified in the description of survey approaches to data collection for the quality dimension "methodological soundness" (see para. 8.4. (f)), which would be applicable to all distributive trade statistics data items.

8.11. *Defining quality indicators.* When countries define the quality indicators for distributive trade statistics, it is recommended that they ensure that the indicators satisfy the following criteria: (a) they cover part or all of the dimensions of quality as defined previously; (b) the methodology for their compilation is well established; and (c) the indicators are easy to interpret.

8.12. *Types of quality indicators.* Quality indicators can be classified according to their importance as follows:

- (a) *Key indicators*, which ought to fulfil the criteria given in paragraph 8.11. Examples of key quality indicators are the coefficient of variation, measuring the accuracy of distributive trade statistics obtained through sample surveys, and the time lag between the end of the reference period and the date of the first release of data, measuring the timeliness of distributive trade statistics;

- (b) *Supportive indicators*, which fulfil the criteria in paragraph 8.11 to the extent that they are considered important as indirect measures of the data quality. Such an indicator, for example, is the average size of revisions undertaken between the provisional and final estimates of a particular data set, which measures the accuracy of distributive trade statistics;
- (c) *Indicators for further analysis*, which are subject to further examination and discussion on the part of statistical offices. After a careful analysis of statistical office capabilities and available resources, for example, some countries may decide to conduct a user satisfaction survey and calculate a user satisfaction index for measuring the relevance of distributive trade statistics.

8.13. It is recommended that careful attention be paid by countries to maintaining a correct 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 follow over time the quality of the distributive trade data produced by the statistical office 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.

8.14. *Minimum set of quality measures/indicators*. Table VIII.1 below presents a limited set of key indicators⁵¹ which countries are encouraged to use on a regular basis for measuring the quality of distributive trade statistics. Their utilization is easy to implement and they provide users with a clear and up-to-date overview of the overall quality of distributive trade statistics.

⁵¹ For more quality indicators, see the European Statistics Code of Practice, at: http://epp.eurostat.ec.europa.eu/portal/page?_pageid=2273,1,2273_47140765&_dad=portal&_schema=PORTAL; the IMF Data Quality Assessment Framework website at: <http://dsbb.imf.org/Applications/web/dqrs/dqrsdqaf/>; and the United Kingdom of Great Britain and Northern Ireland Office for National Statistics, *Guidelines for Measuring Statistical Quality*, at: <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=13578>.

Table VIII.1

Key indicators for measuring the quality of distributive trade statistics

Quality dimension	Quality measure/indicator
Relevance	R ₁ Identification of gaps between key user interests and compiled distributive trade statistics in terms of concepts, coverage and detail R ₂ Conducted users' satisfaction surveys
Accuracy	A ₁ Sampling errors ➤ Coefficient of variation A ₂ Non-sampling errors ➤ Unit response rate ➤ Item response rate A ₃ Quantity response rate (percentage of total sales reported) A ₄ Number and average size of revisions of distributive trade data
Timeliness	T ₁ Time lag between the end of the reference period and the date of the first release (or the release of final results) of distributive trade data
Methodological soundness	MS ₁ Number and rates of divergences from the relevant international statistical standards in concepts and measurement procedures used in the collection/compilation of distributive trade statistics
Coherence	CO ₁ Comparison and joint use of related distributive trade data from different sources
Accessibility	AC ₁ Number and types of means used for dissemination of distributive trade statistics AC ₂ Distributive trade statistics data sets made available, by mode of dissemination, as a percentage of total distributive trade statistics data sets produced

C. Metadata on distributive trade statistics

8.15. *Content of statistical data.* Generally, statistical data consist of the following:

- (a) *Microdata:* data on the characteristics of units of a population, such as establishments, collected by a census or a survey;
- (b) *Macrodata:* data derived from microdata by grouping or aggregating them, such as total number of establishments or total value added;
- (c) *Metadata:* data that describe the microdata, macrodata or other metadata.

8.16. *Metadata.* The term metadata defines all information used to describe other data. A very short definition of metadata, then, is “data about data”. Metadata descriptions go beyond the pure form and content of data to encompass administrative facts about data (who has created them and when), and how data were collected and processed before they were disseminated or stored in a database. In addition, metadata facilitate an efficient search for and location of data.

8.17. *Statistical metadata.* Statistical metadata describe or document statistical data, that is to say, microdata, macrodata or other metadata. They facilitate sharing, querying and understanding of statistical data over the lifetime of the data. They also refer to any methodological descriptions on how data are collected and manipulated. For distributive trade statistics data items, for example, metadata include the name of the data item, the unit from which the information has been collected, data sources, information about classifications used and series breaks, definitions and methodologies used in their compilation. Metadata are essential for the interpretation of statistical data. Without appropriate metadata, it would not be possible to fully understand statistical data.

8.18. *Metadata and quality.* There is a bidirectional relationship between metadata and quality. On the one hand, metadata describe the quality of statistics. On the other hand, metadata are themselves a quality component, which improves the availability and accessibility of statistical data.

8.19. *Users and uses of metadata.* There are many types of users and uses for any given set of data. The wide range of possible users and uses means that a broad spectrum of metadata requirements have to be addressed. In particular, the statistical offices as data suppliers must make sufficient metadata available to enable the least and the most sophisticated users to readily assess data and their quality. It is recommended that segmentation of users into groups and a layered approach to metadata presentation, in which each successive layer provides more detail, be accepted by countries. As a minimum segmentation, metadata at the following two levels are recommended:

- (a) *Structural metadata* presented as an integral part of the data tables;
- (b) *Reference metadata* providing details on the content and quality of data which may accompany the tables or be presented separately via the Internet or in occasional publications.

8.20. *Use of metadata to promote international comparability of data.* Metadata provide a mechanism for comparing national practices in the compilation of statistics. This may help and encourage countries to implement international standards and to adopt best practices in the compilation of statistics in particular areas. Better harmonization of approaches adopted by different countries will improve general quality and coverage of key statistical indicators.

8.21. *Purposes of distributive trade statistics metadata.* The most fundamental purpose of metadata is to help the users of distributive trade statistics to interpret,

understand and analyse the data, even if they have not themselves participated in the process of the production of those data. In other words, distributive trade statistics metadata should help users transform statistical data into information. Distributive trade statistics metadata also help producers of statistics. The new knowledge gained from interpreting the data may also lead to enhancements both of production (through lowering the costs and improving the data quality) and of dissemination (through dissemination of comprehensive, timely, accessible and reliable data).

8.22. *Components of metadata.* For the purpose of disseminating comprehensive distributive trade statistics, their corresponding metadata should encompass the following six main components: (a) data coverage, periodicity and timeliness; (b) access by the public; (c) integrity of disseminated data; (d) data quality; (e) summary methodology; and (f) dissemination formats. Each of these components may be characterized by a few monitorable elements which can be observed by the users of statistics.

8.23. Countries are encouraged to accord the development of metadata a high priority and to consider their dissemination an integral part of the dissemination of distributive trade statistics. Moreover, it is recommended that, in consideration of the integrated approach to the compilation of economic statistics, a coherent system and a structured approach to metadata across all areas of economic statistics be developed and adopted, focusing on improving their quantity and coverage.

8.24. Various international organizations such as the International Monetary Fund (IMF), Statistical Office of the European Communities (Eurostat) and the Organization for Economic Cooperation and Development (OECD) have developed metadata standards and collected metadata for different areas of statistics. Further guidance on metadata for purposes related to distributive trade statistics will be elaborated and presented in the future *Distributive Trade Statistics: Compilers Manual*. Statistical Data and Metadata Exchange (SDMX)⁵² technical standards and content-oriented guidelines provide common formats and nomenclatures for exchange and sharing of statistical data and metadata using modern technology. The dissemination of national data and metadata using web technology and SDMX standards is recommended as a means to reduce the international reporting burden.

⁵² For additional information on SDMX, see: <http://www.sdmx.org/>.

Chapter IX

Dissemination

A. National reporting

9.1. *Data dissemination.* Data dissemination is one of the key activities in which national statistical offices are involved. It is a means not only of providing policymakers, the business community and other users with high-quality statistical information but also of motivating respondents to participate in statistical surveys. If national statistical offices have the legal power to collect and disseminate statistical information, they also have the obligation to protect the confidentiality of respondents.

9.2. *Statistical confidentiality.* Most of the information about individual statistical units classified in section G of ISIC, Rev.4, that is either directly collected by statistical offices or obtained from other sources is considered to be confidential. Statistical confidentiality is necessary in order to gain and keep the trust of both those required to respond to statistical surveys and those using the statistical information.

9.3. Principle 6 of the United Nations Fundamental Principles of Official Statistics provides the basis for managing statistical confidentiality. It states:

Individual data collected by statistical agencies for statistical compilation, whether they refer to natural or legal persons, are to be strictly confidential and used exclusively for statistical purposes.

9.4. Legal provisions governing statistical confidentiality at national level are set forth in countries' statistical laws or other supplementary governmental regulations. National definitions of confidentiality and rules for microdata access may differ, but they should be consistent with this fundamental principle. This is especially relevant for countries where the distinction between statistical and non-statistical use of microdata is not hallowed by a long tradition, or is not laid down in any legislation.

9.5. Distributive trade data are usually disseminated by national statistical offices in the form of various statistical tables. Statistical confidentiality is protected if tabulated data do not allow statistical units to be identified either directly or indirectly, thereby disclosing individual information. Direct identification is possible if data of only one statistical unit are reported in a cell, while indirect identification may take place if individual data can be derived from disseminated data (for example, because there are too few units in a cell, or because of the dominance of one or two units in a cell). To determine whether a statistical unit is identifiable, account shall be taken of all means that might reasonably be used by a third party to identify it.⁵³

9.6. *Statistical disclosure control.* Statistical disclosure control techniques are defined as the set of methods used to reduce the risk of disclosing information on individual units. While application of such methods occurs at the dissemination stage, they are pertinent to all stages of the process of statistical production.

9.7. Statistical disclosure control techniques related to the dissemination step are usually based on restricting the amount of data or modifying the data release. Dis-

⁵³ See Eurostat definition of confidentiality, as set out in chap. V (Statistical confidentiality) of Council of the European Union Regulation No. 322/97 of 17 February 1997 on Community statistics; and Council Regulation No. 1588/90 of 11 June 1990 on the transmission of data subject to statistical confidentiality.

closure control methods attempt to achieve an optimal balance between the improvement in confidentiality protection and the reduction in data quality. Different types of data pose different types of confidentiality problems and inevitably require different solutions. On the basis of available international guidelines⁵⁴ in this area, countries are encouraged to develop their own statistical disclosure methods which best suit their specific circumstances. Examples of the most often used methods are presented in paragraph 9.8 below.

⁵⁴ See *Principles and Guidelines for Managing Statistical Confidentiality and Microdata Access*, background document prepared for the Statistical Commission at its thirty-eighth session, held in New York from 27 February to 2 March 2007 (<http://unstats.un.org/unsd/statcom/sc2007.htm>).

9.8. *Methods of protecting confidentiality.* As the first step in statistical disclosure control of tabular data, the sensitive cells need to be identified. The sensitive cells are those that tend to reveal directly or indirectly information about individual statistical units (see para. 9.5). The most common practices carried out to protect against the disclosure of confidential data include:

- (a) *Aggregation.* A confidential cell in a table is aggregated with another cell and the information is then disseminated for the aggregate and not for the two individual cells. This often results, for example, in grouping of distributive trade data at the class level of ISIC that are confidential with data from another class and presenting and disseminating them at the group level of ISIC;
- (b) *Suppression.* Suppression means removing records from a database or a table that contains confidential data. This is a method that allows statisticians not to publish the values in sensitive cells while publishing the original values in the others (primary suppression). Suppressing only one cell in a table means, however, that the calculation of totals for the higher levels to which that cell belongs cannot be performed. In this case, some other cells must also be suppressed in order to guarantee the protection of the values under the primary cells, leading to secondary suppression;
- (c) *Other methods.* Controlled rounding and perturbation are more sophisticated techniques for protecting confidentiality of data. Controlled rounding allows statisticians to modify the original value of each cell by rounding it up or down to a near multiple of a base number. Perturbation represents a linear programming variant of the controlled rounding technique.

9.9. In cases where countries prefer suppression as a method for protecting confidentiality of distributive trade data, it is recommended that any data deemed confidential be reported in full detail at the next higher level of classification that adequately protects confidentiality, if data are presented by activities, or the next higher level of aggregation, for any other characteristics. Apart from satisfying the confidentiality protection, this technique must result in a minimum loss of information.

9.10. *Confidentiality of complex enterprises.* Careful measures to respect confidentiality should be taken in the case of large trade enterprises. In general, large units are more easily identifiable than small ones, and have a higher probability of being selected in trade surveys; and most likely, their data will dominate the totals in a number of cells, thus allowing identification of such units.

9.11. *Confidentiality rules for distributive trade data.* Rules for protecting confidentiality of distributive trade data should be in line with the provisions of countries' national legislation and practice. As a minimum requirement, the following two factors should be taken into account when defining the confidentiality rules: (a) number of units in a tabulation cell; and (b) dominance of a unit's or units' contribution over the total value of a tabulation cell. A decision with respect to the exact definition of the confidentiality criteria, for example, in terms of the number of units per cell and percentage of dominance, is left to the national statistical offices. In individual cases,

confidentiality rules may be relaxed by requesting the permission of the dominating respondent(s) to authorize the statistical office to disclose the data.

9.12. *Internationalization of confidentiality.* Data collected and disseminated by international organizations depend to a large degree on the quality and completeness of the data supplied by the countries concerned. Therefore, not only does the issue of confidentiality have a national dimension but it is also becoming international in scope, and for the following reasons: (a) high degree of interest in cross-country comparisons; (b) internationalization of users of statistical data (including international organizations); and (c) increase of data dissemination over the Internet. As a result, there is a growing demand for countries' data at a very detailed level and in some cases, even a demand for countries' microdata.

9.13. *Data dissemination timetable.* In producing statistical information, there is usually a trade-off between the timeliness with which the information is prepared and the accuracy and level of detail of the published data. A crucial factor, therefore, in the maintaining of good relations between national statistical offices as producers of distributive trade statistics and the user community is that of devising an appropriate compilation and release schedule. As this is important for the measurement of timeliness, which is one of the quality dimensions of distributive trade statistics (see para. 8.4 (e)), it is recommended that countries develop and announce in advance the precise dates at which distributive trade statistics will be released. The advance release calendar should be posted in the beginning of each year on the country's statistical office website.

9.14. The most important elements that should be taken into account in determining the compilation and release schedule of distributive trade statistics include:

- (a) Timing of the collection of initial data from major distributive trade surveys;
- (b) The extent to which data derived from the major data sources are subject to revisions;
- (c) Timing of preparation of important national economic policy documents that need distributive trade data as inputs;
- (d) Modes of data dissemination (press release, electronic or hard copy).

9.15. Timeliness of release of initial monthly, quarterly and annual distributive trade data varies greatly from country to country, mainly reflecting different perspectives on the timeliness-reliability-accuracy trade-off. In keeping with sound statistical practices, countries are encouraged to release their initial monthly data 45 days after the end of the month in question; their quarterly data, 3 months after the end of the quarter; and their annual data, 18 months after the end of the year. Monthly and quarterly data should refer to a discrete month or quarter. Most countries use a separate system for compilation of annual distributive trade statistics. In this case, the data for the fourth quarter (or for the twelfth month) need to be published 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 11 months).

9.16. *Data revisions.* Revisions are an essential part of country practices in respect of the compilation of distributive trade statistics. Their production is a consequence of the trade-off between the timeliness of published data and their reliability, accuracy and comprehensiveness. To resolve these issues, statistical offices compile provisional data which are later revised when new and more accurate information becomes available. Although, in general, repeated revisions may be perceived as reflecting negatively on the reliability of official distributive trade data, the attempt to

avoid them by producing accurate but very untimely data will ultimately fail to satisfy users' needs. It is important to emphasize that the revisions of distributive trade data are produced for the benefit of users, in order to provide them with data that are as timely and accurate as possible. The revisions affect both annual and short-term distributive trade statistics but they are more significant for the short-term data.

9.17. *Reasons for revisions of data.* In general, there are two types of revisions: (a) revisions arising from "normal" statistical procedures (for instance, availability of new information, change in the methodology, change in data source, change of base year, etc.); and (b) revisions in the form of the correction of errors that may occur in source data or in processing. For normal statistical data revisions (also called current revisions), countries should develop a revision policy. At any moment of time, statistical offices may decide to carry out a special revision, in addition to the normal statistical data revisions, for the purpose of reassessing the data or investigating in depth some new economic structures. Such revisions are carried out at longer, irregular intervals of time. Often, they may require changes in the time series going as far back as the beginning of the series to retain methodological consistency. It is recommended that these revisions be subject to prior notification from the countries' statistical offices to users—notification that covers the reasons and provides information on the impact of the revisions on the data.

9.18. *Revision policy.* To deal with the issues surrounding revisions of distributive trade data, countries are encouraged to develop a revision policy that is well designed, carefully managed and well coordinated with other areas of statistics. The development of a revision policy should be aimed not at impeding revisions but rather at providing users with the information necessary for coping with revisions in a more systematic manner. The absence of coordination and of planning of revisions is considered a quality problem by users. Essential features of a well-established revision policy are a predetermined schedule, reasonable stability from year to year, openness, advance notice of reasons and effects, and easy access of users to sufficiently long time series of revised data, as well as adequate documentation of revisions included in the statistical publications and databases.

9.19. *Recommended practices for data revisions.* A sound revision policy is recognized as an important aspect of good governance in statistics, as it will not only help the national users of the data but will also promote international consistency. With a view to assisting countries that have not yet set out such a policy, the following good practices are recommended:⁵⁵

- (a) There should be consultations with users to elicit their views on revisions practices;
- (b) A clear, short summary statement of when to expect revisions and why should be readily accessible to users;
- (c) The current revision cycle should be relatively stable from year to year;
- (d) Major conceptual and methodological revisions should usually be introduced every four to six years, balancing need for change and users' concern;
- (e) Revisions should be carried back several years to yield consistent time series;
- (f) Documentation on revisions should be readily available to users;
- (g) Users should be reminded of the size of the likely revisions based on past history;
- (h) When a mistake in reporting or processing is made, the revision should be carried out in a transparent and timely manner.

⁵⁵ For details, see Organization for Economic Cooperation and Development *Data and Metadata Reporting and Presentation Handbook* (Paris, 2007), chap.7, "Guidelines on key reporting practices".

9.20. *Dissemination formats.* A key to the usefulness of distributive trade statistics is the availability of data and hence its extensive dissemination. Data can be disseminated both electronically and in paper publications. It is recommended that countries choose the dissemination format that best suits their users' needs. For example, press releases of distributive trade statistics have to be disseminated in ways that facilitate redissemination by mass media; more comprehensive or detailed statistics need to be disseminated in electronic and/or paper formats. If resources permit, current statistics and longer time series can be organized and accessed (free of charge or for a fee) through the electronic databases maintained by the statistical office. In addition to statistics that are routinely disseminated, statistical offices can make available to users distributive trade data upon request. For some specific purposes, customized tabulations of data (non-standard activity classification, specific types of units, etc.) can be provided. It is advisable that countries ensure that users are clearly made aware of the availability of additional statistics and the procedures for obtaining them.

9.21. *Dissemination of metadata.* Provision of adequate metadata and quality assessment of distributive trade statistics are as important to users as provision of data. Countries are encouraged to follow the recommendations provided in chapter VIII on data quality and metadata for distributive trade statistics and to develop and disseminate metadata comprising the following components: (a) data coverage, periodicity and timeliness; (b) access by the public; (c) integrity of disseminated data; (d) data quality; (e) summary methodology; and (f) dissemination formats. It is recommended that countries indicate in the metadata all deviations from internationally accepted statistical standards and guidelines. Distributive trade statistics metadata should be made readily accessible through websites and/or publications of statistical offices. Countries might consider developing different levels of detail of metadata so as to meet the requirements and needs of specialized users.⁵⁶

⁵⁶ For further details on data and metadata reporting, see Organization for Economic Cooperation and Development, *Data and Metadata Reporting and Presentation Handbook* (Paris, 2007).

B. International reporting

9.22. Countries are encouraged to make distributive trade data available on their websites or to disseminate them internationally as soon as they become available to national users.

9.23. Tables IX.1, IX.2 and IX.3 below provide a list of data items on distributive trade statistics recommended for international dissemination and their level of detail and periodicity.

Table IX.1

List of data items on distributive trade statistics for international dissemination with annual periodicity

Item number	Data item	Level of detail	Minimum requirements (in terms of ISIC, Rev.4)	Deadline
A	Demography			
1.10	Number of enterprises	Broken down by activity and size class	Three-digit level for activity breakdown One-digit level for size class breakdown	18 months
B	Employment			
2.1	Total number of persons employed	Broken down by activity and size class	Three-digit level for activity breakdown One-digit level for size class breakdown	18 months
2.1.3	Total number of employees	Broken down by activity and size class	Three-digit level for activity breakdown One-digit level for size class breakdown	18 months

Item number	Data item	Level of detail	Minimum requirements (in terms of ISIC, Rev.4)	Deadline
C	Compensation of employees			
3.1	Wages and salaries in cash and in kind of employees	Broken down by activity	Three-digit level	18 months
H	Output			
8.1	Gross output at basic prices	Broken down by activity	Three-digit level	18 months
8.1.1	Gross margin	Broken down by activity	Three-digit level	18 months
J	Value added			
10.1	Total value added at basic prices	Broken down by activity	Three-digit level	18 months
K	Gross fixed capital formation		One-digit level	18 months

Table IX.2

List of data items on distributive trade statistics for international dissemination with quarterly periodicity

Item number	Data item	Level of detail	Minimum requirements (in terms of ISIC, Rev.4)	Deadline
B	Employment			
2.1	Total number of persons employed	Broken down by activity	Two-digit level	3 months
2.1.3	Total number of employees	Broken down by activity	Two-digit level	3 months
C	Compensation of employees			
3.1	Wages and salaries in cash and in kind of employees	Broken down by activity	Two-digit level	3 months
E	Turnover, sales, shipments, receipts for services and other revenues			
5 (a)	Turnover, sales, shipments, receipts for services and other revenues	Broken down by activity	Two-digit level	3 months

Table IX.3

List of data items on distributive trade statistics for international dissemination with monthly periodicity

Item number	Data item	Level of detail	Minimum requirements (in terms of ISIC, Rev.4)	Deadline
	Wholesale and retail trade turnover indices (value and/or volume)	Broken down by activity	Two-digit level	45 days for retail trade (division 47, of ISIC, Rev.4); 60 days for wholesale trade and motor vehicle trade (divisions 45 and 46 of ISIC, Rev.4)

Annex I

List of data items for use in distributive trade statistics

A. Demography

1 (a) Characteristics of statistical units

Item number	Data item
1.1	Identification code
1.2	Location
1.3	Period of operation
1.4	Type of economic organization
1.4.1	Single-establishment enterprise
1.4.2	Multi-establishment enterprise
1.4.2.1	Number of establishments in the multi-establishment enterprise
1.5	Type of legal organization and ownership
1.5.1	Incorporated enterprises except limited liability partnerships and cooperatives
1.5.1.1	Public ownership
1.5.1.1.1	By central government
1.5.1.1.2	By state government
1.5.1.1.3	By local government
1.5.1.2	National private
1.5.1.3	Foreign-controlled
1.5.2	Cooperatives and limited liability partnerships
1.5.2.1	Public ownership
1.5.2.1.1	By central government
1.5.2.1.2	By state government
1.5.2.1.3	By local government
1.5.2.2	National private
1.5.2.3	Foreign-controlled
1.5.3	Non-profit institutions
1.5.3.1	Public ownership
1.5.3.1.1	By central government
1.5.3.1.2	By state government
1.5.3.1.3	By local government
1.5.3.2	National private

* This item will often be derived by the statistical office from other items of collected data. In some cases, countries may prefer to include the item on the questionnaire, for example, to verify the accuracy of other figures supplied.

Item number	Data item
1.5.3.3	Foreign-controlled
1.5.4	Unincorporated enterprises, <i>of which:</i>
1.5.4.1	Informal sector enterprises
1.6*	Size
1.7	Kind of activity
1.8	Type of unit
1.8.1	Principal producing unit
1.8.2	Ancillary unit
1.9	Type of operation
1.9.1	Wholesale trade
1.9.1.1	Wholesale trade on own account
1.9.1.1.1	Specialized wholesale trade
1.9.1.1.2	Non-specialized wholesale trade
1.9.1.2	Commission trade
1.9.2	Retail trade
1.9.2.1	Retail trade in stores
1.9.2.1.1	Specialized stores
1.9.2.1.2	Non-specialized stores
1.9.2.2	Retail trade not in stores
1.9.2.2.1	Retail trade via stall or markets
1.9.2.2.2	Others

1 (b) Number of statistical units

Item number	Data item
1.10*	Number of enterprises
1.10.1*	Multi-establishment enterprises
1.10.1.1*	Number of establishments
1.10.2*	Single-establishment enterprises

B. Employment

2 (a) Number of persons employed

Item number	Data item
2.1*	Total number of persons employed, <i>of which:</i>
2.1.1	Working proprietors
2.1.2	Unpaid family workers
2.1.3	Employees, <i>of which:</i>
2.1.3.1.1	Employees engaged in research and development
2.1.3.1.3	Employees engaged in software and databases development
2.1.3.1.5	Employees engaged in own-account fixed asset formation and major repair

Item number	Data item
2.2	Number of leased employees
2.3*	Total number of persons employed in informal sector
2.3.1	Employees in the informal sector
2.3.2	Other persons employed in the informal sector

* This item will often be derived by the statistical office from other items of collected data. In some cases, countries may prefer to include the item on the questionnaire, for example, to verify the accuracy of other figures supplied.

2 (b) Average number of persons employed

Item number	Data item
2.4	Average number of persons employed, <i>of which</i> :
2.4.1	Average number of employees

2 (c) Hours worked

Item number	Data item
2.5	Hours worked by employees, <i>of which</i> :
2.5.1.1	Employees engaged in research and development
2.5.1.3	Employees engaged in software and databases development
2.5.1.5	Employees engaged in own-account fixed asset formation and major repair
2.6	Hours worked by leased employees

C. Compensation of employees

3. Compensation of employees

Item number	Data item
3.1	Wages and salaries in cash and in kind of employees, <i>of which</i> :
3.1.1.1	Employees engaged in research and development
3.1.1.3	Employees engaged in software and databases development
3.1.1.5	Employees engaged in own-account fixed asset formation and major repair
3.2	Payments to directors of incorporated enterprises for their attending meetings
3.3	Social insurance contributions payable by employers

D. Other expenditures

4 (a) Purchases of goods and services

Item number	Data item
4.1	Cost of raw materials and supplies except gas, fuels and electricity, <i>of which</i> :
4.1.1	Purchases or receipts of raw materials and supplies from other enterprises
4.1.2	Value of raw materials and supplies delivered by other establishments of the same enterprise

Item number	Data item
4.1.3	Cost of materials for own-account fixed asset formation and major repair, of which:
4.1.3.1	For research and development
4.1.3.3	For software and databases development
4.1.3.5	For own-account fixed asset formation and major repair
4.2	Cost of gas, fuels and electricity purchased
4.2.1	Cost of individual fuels and gas purchased
4.2.2	Cost of electricity purchased
4.3	Cost of water and sewerage services
4.3.1	Cost of water purchased
4.3.3	Cost of sewerage services purchased
4.4	Purchases of services except rentals
4.4.1	Cost of industrial services purchased and also delivered by other establishments of the same enterprise
4.4.1.1	Maintenance, repair and installation (except construction) services
4.4.1.2	Contract and commission work
4.4.1.2.1	Fees paid for leased employment
4.4.2	Cost of non-industrial services purchased and also delivered by other establishments of the same enterprise
4.4.2.1	Maintenance and repair of buildings and structures
4.4.2.2	Communication services
4.4.2.3	Transport services
4.4.2.4	Advertising and promotional services
4.4.2.5	Financial services (excluding interest payments)
4.4.2.9	Other non-industrial services
4.5	Purchases of goods and services for resale in the same condition as received
4.5.1	Fuels bought for resale without further processing
4.5.2	Motor vehicle and motorcycle parts used solely in repair and servicing activities
4.5.3	All other goods purchased for resale without further processing
4.5.4	Services purchased for resale without further processing
4.6	Rental payments
4.6.1	Rental payments for machinery and equipment
4.6.2	Rental payments for dwellings and structures
4.7	Non-life insurance premiums payable on establishment property

E. Turnover, sales, shipments, receipts for services and other revenues

5 (a) Turnover, sales, shipments, receipts for services and other revenues

Item number	Data item
5.1	Sale/turnover/value of shipments, including transfers to other establishments of the same enterprise

Item number	Data item
5.1.1	Sale/turnover/value of shipments of goods produced by the establishment
5.1.2	Sale/turnover/value of shipments of all goods and services purchased for resale in the same condition as received
5.1.2.1	Gift cards sales
5.1.3	Commissions and fees from selling goods and services on account of others
5.1.4	Receipts for industrial work done or industrial services rendered to others
5.1.4.1	Contract and commission work
5.1.4.2	Maintenance, repair and installation (except construction) services
5.2	Other revenues
5.2.1	Revenues from the rental or lease of machinery and equipment
5.2.2	Revenues from the rental or lease of buildings
5.2.3	Other revenues n.e.c.
5.3*	Value of own-account fixed assets

5 (b) E-commerce

Item number	Data item
5.4	E-commerce sale/turnover/value of shipments/receipts for services or other revenues

* This item will often be derived by the statistical office from other items of collected data. In some cases, countries may prefer to include the item on the questionnaire, for example, to verify the accuracy of other figures supplied.

5 (c) Data items by products

Item number	Data item
Q5.1	Value of turnover by product categories

F. Inventories

6. Inventories

Item number	Data item
6.1*	Total inventories
6.1.1	At the beginning of the period
6.1.2	At the end of the period
6.1.3*	Change (plus or minus)
6.2	Inventories of materials, fuels and supplies
6.2.1	At the beginning of the period
6.2.2	At the end of the period
6.2.3*	Change (plus or minus)
6.3	Work-in-progress
6.3.1	At the beginning of the period
6.3.2	At the end of the period
6.3.3*	Change (plus or minus)
6.4	Inventories of finished goods
6.4.1	At the beginning of the period

* This item will often be derived by the statistical office from other items of collected data. In some cases, countries may prefer to include the item on the questionnaire, for example, to verify the accuracy of other figures supplied.

Item number	Data item
6.4.2	At the end of the period
6.4.3*	Change (plus or minus)
6.5	Inventories of goods purchased for resale in the same condition as received
6.5.1	At the beginning of the period
6.5.2.	At the end of the period
6.5.3*	Change (plus or minus)

G. Taxes and subsidies

7. Other taxes and subsidies on production

Item number	Data item
7.1	Taxes
7.1.1	Other taxes on production
7.2	Subsidies received
7.2.1	Subsidies on products
7.2.2	Other subsidies on production

H. Output

8. Output

Item number	Data item
8.1*	Gross output at basic prices
8.1.1*	Gross margin

I. Intermediate consumption and census input

9. Intermediate consumption and census input

Item number	Data item
9.1*	Intermediate consumption at purchasers' prices

J. Value added

10. Total value added and census value added

Item number	Data item
10.1*	Total value added at basic prices

K. Gross fixed capital formation

11. Assets, capital expenditures, retirements and depreciation

Item number	Data item
11.1	Gross value of fixed assets (at acquisition costs) at the beginning of the period
11.1.1	Dwellings
11.1.2	Other buildings and structures
11.1.3	Machinery and equipment
11.1.3.1	Transport equipment
11.1.3.2	ICT equipment
11.1.3.3	Other machinery and equipment
11.1.4	Intellectual property products
11.1.4.1	Research and development
11.1.4.2	Mineral exploration and evaluation
11.1.4.3	Computer software and databases
11.1.4.4	Entertainment, literary and artistic originals
11.1.4.5	Other
11.2	Capital expenditures on new and used fixed assets (acquisitions) during the period
11.2.1	Dwellings
11.2.2	Other buildings and structures
11.2.3	Machinery and equipment
11.2.3.1	Transport equipment
11.2.3.2	ICT equipment
11.2.3.3	Other machinery and equipment
11.2.4	Intellectual property products
11.2.4.1	Research and development
11.2.4.2	Mineral exploration and evaluation
11.2.4.3	Computer software and databases
11.2.4.4	Entertainment, literary and artistic originals
11.2.4.5	Other
11.3	Gross value of fixed assets sold, retired and scrapped (disposals) during the period
11.3.1	Dwellings
11.3.2	Other buildings and structures
11.3.3	Machinery and equipment
11.3.3.1	Transport equipment
11.3.3.2	ICT equipment
11.3.3.3	Other machinery and equipment
11.3.4	Intellectual property products
11.3.4.1	Research and development
11.3.4.2	Mineral exploration and evaluation
11.3.4.3	Computer software and databases

Item number	Data item
11.3.4.4	Entertainment, literary and artistic originals
11.3.4.5	Other
11.4	Depreciation
11.4.1	Dwellings
11.4.2	Other buildings and structures
11.4.3	Machinery and equipment
11.4.3.1	Transport equipment
11.4.3.2	ICT equipment
11.4.3.3	Other machinery and equipment
11.4.4	Intellectual property products
11.1.4.1	Research and development
11.1.4.2	Mineral exploration and evaluation
11.1.4.3	Computer software and databases
11.4.4.4	Entertainment, literary and artistic originals
11.4.4.5	Other
11.5*	Gross value of fixed assets at the end of the period
11.5.1*	Dwellings
11.5.2*	Other buildings and structures
11.5.3*	Machinery and equipment
11.5.3.1	Transport equipment
11.5.3.2	ICT equipment
11.5.3.3	Other machinery and equipment
11.5.4*	Intellectual property products
11.1.4.1	Research and development
11.1.4.2	Mineral exploration and evaluation
11.1.4.3	Computer software and databases
11.5.4.4	Entertainment, literary and artistic originals
11.5.4.5*	Other

* This item will often be derived by the statistical office from other items of collected data. In some cases, countries may prefer to include the item on the questionnaire, for example, to verify the accuracy of other figures supplied.

Annex II

List of activities in terms of ISIC, Rev.4, excluded from the scope of the relevant distributive trade divisions and classes

The following activities are regarded either as transformation of goods or as not being part of the relevant distributive trade divisions and classes and *are excluded*:

1. Division 45: Wholesale and retail trade; repair of motor vehicles and motorcycles:

- Retail sale of automotive fuel and lubricating or cooling products
- Renting of motor vehicles or motorcycles

ISIC, Rev.4, class	Excluded activity
4510	Wholesale and retail sale of parts and accessories for motor vehicles, see 4530
	Renting of motor vehicles with driver, see 4922
	Renting of trucks with driver, see 4923
	Renting of motor vehicles and trucks without driver, see 7710
4520	Retreading and rebuilding of tyres, see 2211
4530	Retail sale of automotive fuel, see 4730
4540	Wholesale of bicycles and related parts and accessories, see 4649
	Retail sale of bicycles and related parts and accessories, see 4763
	Renting of motorcycles, see 7730
	Repair and maintenance of bicycles, see 9529

2. Division 46: Wholesale trade, except of motor vehicles and motorcycles:

- Wholesale of motor vehicles, caravans and motorcycles, as well as motor vehicle accessories (see division 45)
- Renting and leasing of goods (see division 77)
- Packaging of solid goods and bottling of liquid or gaseous goods, including blending and filtering, for third parties (see class 8292)

ISIC, Rev.4, class	Excluded activity
4610	Wholesale trade in own name, see groups 462-466 and 469
	Activities of commission agents for motor vehicles, see 4510

ISIC, Rev.4, class	Excluded activity
	Auctions of motor vehicles, see 4510
	Retail sale by non-store commission agents, see 4799
	Activities of insurance agents, see 6622
	Activities of real estate agents, see 6820
4620	Wholesale of textile fibres, see 4669
4630	Blending of wine or distilled spirits, see 1101, 1102
4641	Wholesale of jewellery and leather goods, see 4649
	Wholesale of textile fibres, see 4669
4649	Wholesale of blank audio and video tapes, CDs, DVDs, see 4652
	Wholesale of radio and TV broadcasting equipment, see 4652
	Wholesale of office furniture, see 4659
4651	Wholesale of electronic parts, see 4652
	Wholesale of office machinery and equipment, (except computers and peripheral equipment), see 4659
	Wholesale of computer-controlled machinery, see 4659
4652	Wholesale of recorded audio and video tapes, CDs, DVDs, see 4649
	Wholesale of consumer electronics, see 4649
	Wholesale of computers and computer peripheral equipment, see 4651
4659	Wholesale of motor vehicles, trailers and caravans, see 4510
	Wholesale of motor vehicle parts, see 4530
	Wholesale of motorcycles, see 4540
	Wholesale of bicycles, see 4649
	Wholesale of computers and peripheral equipment, see 4651
	Wholesale of electronic parts and telephone and communications equipment, see 4652
4662	Wholesale of metal scrap, see 4669
4663	Collection of household and industrial waste, see group 381
	Treatment of waste, not for a further use in an industrial manufacturing process, but with the aim of disposal, see group 382
	Processing of waste and scrap and other articles into secondary raw material when a real transformation process is required (the resulting secondary raw material is fit for direct use in an industrial manufacturing process, but is not a final product), see 3830
	Dismantling of automobiles, computers, televisions and other equipment for materials recovery, see 3830
	Shredding of cars by means of a mechanical process, see 3830
	Ship-breaking, see 3830
	Retail sale of second-hand goods, see 4774

3. Division 47: Retail trade, except of motor vehicles and motorcycles:

- Sale of farmers' products by farmers (see division 01)
- Manufacture and sale of goods, which is generally classified as manufacturing in divisions 10-32
- Sale of motor vehicles, motorcycles and their parts (see division 45)
- Trade in cereal grains, ores, crude petroleum, industrial chemicals, iron and steel and industrial machinery and equipment (see division 46)
- Sale of food and drinks for consumption on the premises and sale of take-away food (see division 56)
- Renting of personal and household goods to the general public (see group 772)

ISIC, Rev.4, class	Excluded activity
4711	Retail sale of fuel in combination with food, beverages, etc., with fuel sales predominating, see 4730
4721	Manufacturing of bakery products, i.e., baking on premises, see 1071
4730	Wholesale of fuels, see 4661
	Retail sale of fuel in combination with food, beverages, etc., with food and beverage sales predominating, see 4711
	Retail sale of liquefied petroleum gas for cooking or heating, see 4773
4741	Retail sale of blank tapes and disks, see 4762
4751	Retail sale of clothing, see 4771
4753	Retail sale of cork floor tiles, see 4752
4759	Retail sale of antiques, see 4774
4761	Retail sale of second-hand or antique books, see 4774
4764	Retail sale of video game consoles, see 4741
	Retail sale of non-customized software, including video games, see 4741
4771	Retail sale of textiles, see 4751
4774	Retail sale of second-hand motor vehicles, see 4510
	Activities of internet auctions and other non-store auctions (retail), see 4791, 4799
	Activities of pawnshops, see 6492
4781	Retail sale of prepared food for immediate consumption (mobile food vendors), see 5610
4799	Delivery of products by stores, see groups 471-477

Annex III

Identifying the principal activity of a statistical unit using the top-down method within wholesale and retail trade

Example

A statistical unit may carry out the following activities:

Section	Division	Group	Class	Description of the class	Share of value added (percentage)
G	46	465	4651	Wholesale of computers, computer peripheral equipment and software	10
	47	474	4741	Retail sale of computers, peripheral units, software and telecommunications equipment in specialized stores	8
			4742	Retail sale of audio and video equipment in specialized stores	15
		475	4759	Retail sale of electrical household appliances, furniture, lighting equipment and other household articles in specialized stores	4
		476	4761	Retail sale of books, newspapers and stationery in specialized stores	3
			4762	Retail sale of music and video recordings in specialized stores	12
		479	4791	Retail sale via mail-order houses or via Internet	35
	N	77	772	7722	Renting of video tapes and disks

The principal activity is then determined as follows:

Step 1. Identify the section

Section G	Wholesale and retail trade; repair of motor vehicles and motorcycles	87
Section N	Administrative and support service activities	13

Step 2. Identify the division (within section G)

Division 46	Wholesale trade, except of motor vehicles and motorcycles	10
Division 47	Retail trade, except of motor vehicles and motorcycles	77

Step 3. Identify the group (within division 47)

Step 3 (a). Identify store or non-store trade (within division 47)

Groups 471-477	Retail trade in stores	42
Groups 478-479	Retail trade not in stores	35

Step 3 (b). Identify specialized or non-specialized trade (within groups 471-477)

Recalculate shares of value added relative to total retail trade:

4741	= 8% / 77%	10
4742	= 15% / 77%	19
4759	= 4% / 77%	5
4761	= 3% / 77%	4
4762	= 12% / 77%	16

Only four classes account for a share of 5 per cent or more. Therefore, the unit is classified to specialized retail sale.

Step 3 (c). Identify the group (within specialized retail trade)

Group 474	Retail sale of information and communications equipment in specialized stores	23
Group 475	Retail sale of other household equipment in specialized stores	4
Group 476	Retail sale of cultural and recreation goods in specialized stores	15

Note: To identify the largest share, it does not matter if the original or recalculated figures for value added are being used.

Step 4. Identify the class (within group 474)

Class 4741	Retail sale of computers, peripheral units, software and telecommunications equipment in specialized stores	8
Class 4742	Retail sale of audio and video equipment in specialized stores	15

The principal activity is therefore **4742: Retail sale of audio and video equipment in specialized stores.**

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