Provisional Draft

UNITED NATIONS
DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION

INTERNATIONAL RECOMMENDATIONS FOR DISTRIBUTIVE TRADE STATISTICS 2008

This document has not been officially edited

Foreword

*International Recommendations for Distributive Trade Statistics (*IRDTS) were prepared in accordance with the decision of the United Nations Statistical Commission at its thirty-seventh session (March 2006)[1]. The Commission endorsed the United Nations Statistics Division (UNSD) initiative to revise the existing in this area of statistics recommendations 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 substantial informal sector.

The provisional draft of IRDTS was prepared by UNSD following the conclusions of the first meeting of the United Nations Expert Group on Distributive Trade Statistics held on 22-25 August 2005. The draft incorporates inputs from national statistical offices and international organizations received during a worldwide consultation on its contents conducted during November 2006 - December 2007. The draft was reviewed and endorsed by the Expert Group at its second meeting on 16-19 July 2007 and submitted to the Commission at its thirty-ninth session (February 2008).

Preparation of IRDTS is a part of UNSD efforts to strengthen countries methodological and operational foundations of basic economic statistics in an integrated manner including enhancement of their coherence across different sectors of an economy and conceptual consistency with macroeconomic statistics as well as production of the official distributive trade statistics in the most cost efficient way.

IRDTS 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 contains a wealth of information which might be of interest to data users who would like to understand better the nature of distributive trade data.

[1] Official Records of the Economic and Social Council 2006, Supplement No. 4 (E/2006/24) Chapter I C 3(c) page 8

Contents

Foreword **3**

Introduction **8**

CHAPTER I. SCOPE OF DISTRIBUTIVE TRADE STATISTICS **15**

A. Distributive trade as an economic activity 15
B. Scope and structure of distributive trade in ISIC, Rev.4 16
C. Scope and structure of distributive trade in terms of CPC, Ver. 2 and COICOP . 20
D. Distributive trade in other activity classifications 21
E. Selected boundary issues 22
F. Scope of distributive trade statistics 25

CHAPTER II. STATISTICAL AND REPORTING UNITS **26**

A. An overview 26
B. Definition of selected statistical units 27

Box 1. Imputation of the output of an ancillary activity and its allocation to establishments 31

C. Recommendations on statistical, reporting and collection units 32
D. Mapping of selected entities specific to distributive trade to the statistical units. 33
E. Statistical units of informal sector 35

CHAPTER III. CHARACTERISTICS OF STATISTICAL UNITS **38**

A. Identification code 38
B. Location 39
C. Kind of activity 39

Figure 1. Decision tree to be used for the allocation of a wholesale trade unit 43
Figure 2. Decision tree to be used for the allocation of a retail trade unit 44

D. Type of operation 45

Box 2. Definition of e-commerce 47

E. Type of economic organization 49
F. Type of legal organization and type of ownership 49
G. Size 52
H. The demographic characteristics 53
I. Period of operation 53

CHAPTER IV. DATA ITEMS AND THEIR DEFINITIONS 55

A. Understanding the links between business accounting and basic economic statistics 55
1. Differences in terminology 56
2. Differences in business accounting rules 56
B. Data items definitions 57
A. Demography 57
Characteristics of statistical units 57
Number of statistical units 57
B. Employment 58
Number of persons employed 58
Average number of persons employed 65
Hours worked 65
C. Compensation of employees 67
D. Other expenditures 71
Purchases of goods and services 71
E. Turnover, sales, shipments, receipts for services and other revenues (excluding property income) 78
Turnover, sales, shipments, receipts for services and other revenues 78

Table 4.1. Comparison between turnover / sales, revenue and receipts concepts 79

E-commerce 83
Data items on quantity 84
F. Inventories 86
G. Taxes and subsidies 89
H. Output 90
I. Intermediate consumption and census input 92
J. Value added 93
K. Capital Formation 93

CHAPTER V. PERFORMANCE INDICATORS 100

A. Need for performance indicators 100
B. Objectives of performance indicators 100
C. Types of performance indicators 101
1. Growth rates 101
2. Ratio indicators 102
3. Share indicators 104
D. Additional indicators 105
E. How to interpret the performance indicators 106

CHAPTER VI. DATA SOURCES AND DATA COMPILATION METHODS . 108

A. Data sources 108

1. Statistical data sources 108
2. Administrative data sources 113
3. Business register as a frame for statistical surveys 115

Figure 3. Hierarchical links between a group of enterprises, an enterprise and its constituting establishments 117

B. Data compilation methods 118
C. Data collection strategy 122

Figure 4. Data collection strategy for different segments of the economy 124

D. Survey method 125
E. Scope and coverage of distributive trade surveys 128
F. Reference period 128

CHAPTER VII. SHORT-TERM DISTRIBUTIVE TRADE STATISTICS 130

A. Background 130
B. Indices of distributive trade 131
1. Indices of distributive trade: An overview 131
2. Indices of wholesale and retail trade turnover 132
C. Seasonal adjustments 134
1. Basic concepts for use in compilation of seasonally adjusted data 135
2. Main principles and models of seasonal adjustment 136
3. Calendar effects 138
4. Seasonal adjustments software packages 140
D. Benchmarking 142
1. Need for benchmarking in distributive trade statistics 142
2. Main principles and methods of benchmarking 143
3. Benchmarking and compilation of distributive trade statistics 145

CHAPTER VIII. DATA QUALITY AND METADATA 147

A. Enhancing Data Quality of Distributive Trade 147
B. Quality indicators versus direct quality measures 152
C. Metadata on distributive trade statistics 154

CHAPTER IX. DISSEMINATION 157

A. National reporting 157
B. International reporting 162

Table 9.1. List of data items on distributive trade statistics for international dissemination with annual periodicity 162

Table 9.2. List of data items on distributive trade statistics for international dissemination with quarterly periodicity 163

Table 9.3. List of data items on distributive trade statistics for international dissemination with monthly periodicity 164

References 165

ANNEXES 168

ANNEX I. List of Data Items for Use in Distributive Trade Statistics 169

ANNEX II. List of activities excluded from the scope of the relevant distributive trade divisions and classes 176

ANNEX III. Identifying the principal activity of a reporting unit using the top-down method within wholesale and retail trade 179

Introduction

1. *Background.* Distributive trade statistics (DTS) is a subject area of economic statistics concerned with provision of data about economic units whose main activity is wholesaling and retailing (i.e. 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 DTS is due to a steady increase of contribution of distributive trade to the total economy in terms of value added and employment in most countries. Increasingly, the distributive trade provides a link between producers and buyers of goods who are not only residents of a given economy, but also producers and buyers operating on the global markets as exporters and importers. 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, in developing countries a lot of distributive trade is still carried out in the informal sector of economy which complicates statistical observation.

2. The need of a better cross country comparability of data on distributive trade was recognized by the United Nations Statistical Commission in the early 1950s and after 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. It was based on the report of the Expert Group on Distribution Statistics (E/CN.3/L36), the country comments on this report and the report of the second session of the Working Group on Distribution Statistics of the Conference for European Statisticians. Subsequently, these recommendations were revised and the *International Recommendations on Statistics of Distributive Trades and Services* (ST/ESA/STAT/Ser.M/57) were adopted in 1974 at the eighteenth session of the Commission. In 1977, at the request of the Commission, UNSD published a manual entitled *Organization and Conduct of Distributive-Trade Surveys* (ST/ESA/STAT/SER.F/19). Since 1974 the Commission has not had distributive trade statistics as a separate item on its agenda. However, issues relevant to wholesale and retail trade were considered in the context of the Commission's work, primarily, on service statistics and economic classifications. The present *International Recommendations for Distributive Trade Statistics* (IRDTS) continues the series of international statistical standards that have been issued by UNSD for providing guidance to countries in the collection and compilation of distributive trade data.

3. *Purpose of the IRTDS.* The main purpose of the document 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. Also, the recommendations 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 are consistent with other fields of economic statistics such as industrial statistics, construction statistics and other related domains of structural and

short-term statistics, index numbers compilations, performance indicators, and last but not least they are harmonized with the *System of National Accounts, 2008* (2008 SNA).

4. IRDTS is to ensure production of distributive trade statistics which are policy relevant, meet the demands of user community, 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 appropriate to their own circumstances, including identified user needs, resources, priorities and respondent burden.

5. IRDTS deals with compilation of both structural and short terms 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 level. 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 is often produced from smaller sample sizes. Finally they can provide a benchmark population figure for analyzing infrequent, irregular or one-time trade surveys. By contrast, the 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 were not 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 distributive trade sector such as integration of distribution chains, growing importance of groups of enterprises, success of such modes of association as franchising, growing role of shopping centres, expansion of electronic commerce, globalization and the persistent importance of the informal sector in less developed countries;

(b) Ensure implementation of integrated approach to compilation of basic economic statistics for various types of economic activities, in particular to achieve harmonization with the recommendations on industrial statistics. It is recognized that distinct advantages would be attained in practice by the standardization of concepts and definitions, methods and procedures utilized for the common features in economic surveys. This includes harmonization of the recommendations on distributive trade statistics with the other recently updated international statistical standards such as the *International Recommendations for Industrial Statistics (IRIS)* being updated in parallel with IRDTS and the *System of National Accounts, 2008 (2008 SNA), ISIC, Rev.4*, and *CPC, Ver.2*;

(c) Ensure consistency with concepts, definitions and terminology used in statistical publications and regulations of other international organizations such as Eurostat regarding the development of statistical business register and implementation of regulations on short-term and structural business statistics; OECD in respect of measurement of non-observed economy, compilation of index of service production and data and metadata reporting and presentation; and the 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 into the 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 an easy access to information on structure and dynamics of global markets as well as performance of 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 compilation of basic economic statistics.* The present international recommendations on distributive trade statistics should be seen as a component of the common integrated framework for compilation of basic economic statistics, being developed by UNSD. The framework is to cover a wide range of topics including statistical units, 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, business community, regional, 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 1974 recommendations can be described as follows:

(a) *Scope*. The scope of present recommendations is limited to all statistical units primarily engaged in wholesale and retail trade activities and classified into section G of ISIC, Rev.4. The previous recommendations had a much broader scope as in addition to trade activities they also covered hotel and restaurants and some selected services such as real estate, advertising, radio and television broadcasting. Units primarily

engaged in repair of personal and household goods are also excluded. According to the ISIC, Rev.4 they are classified now in Division 95 of Section S - Other service activities.

(b) *Data items.* Both 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 and IRIS are fully harmonized;

(c) *Performance indicators.* The present recommendations cover not only compilation of the basic data items but identify also a list of indicators useful for assessment of performance of distributive trade sector. Such indicators were not part of the previous version of the recommendations;

(d) *Data sources and data compilation methods.* The description of data sources and data compilation methods is significantly expanded, e.g., by inclusion of discussion on business register, administrative sources of data and on an integrated approach to data collection;

(e) *Short term distributive trade statistics.* A new chapter on this subject is added covering, *inter alia* indices of distributive trade, seasonal adjustments and benchmarking;

(f) *Data quality and metadata.* Issues of data quality and metadata were not part of the previous recommendations. The present recommendations contain guidance on data quality dimensions, quality indicators, compilation and dissemination of metadata;

(g) *Data dissemination.* Recommendations on data dissemination are updated and harmonised with similar recommendations applicable in other areas of economic statistics;

(h) *Harmonization of IRDTS with the 2008 SNA*. Changes relevant to distributive trade statistics include:

- *Valuation of trade output*. Basic prices are recommended for valuation of trade margin and trade output (see para. 4.123 and para. 4.127). This valuation principle is not only implemented by the 1993 SNA, Rev.1, but also practiced in business accounting based on which data are extracted for responding to statistical surveys;

- *Ancillary units*. When separate accounts on production cost of an ancillary unit are available, or 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. 2.27) 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 on own account a number of data items, including a separate assets category, are introduced to allow its valuation at cost;

- *Large databases.* Similar to research and development, the large databases created by trade units either on own account or those 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. 4.48). This permits further harmonization not only with the 1993 SNA, but also with international business accounting standards;

- *Terminology and classification of non-financial assets* used in the IRDTS and the 2008 SNA is identical.

9. IRDTS is prepared in the context of *Fundamental Principles of Official Statistics* which call for official statistics that meet the test of practical utility, that are accessible for all and compiled in a cost effective way, i.e. sources and methods for data collection are appropriately chosen to ensure timeliness and other aspects of quality and to minimize the reporting burden for data providers[2]. *Principles Governing International Statistical Activities* calling 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 avoid duplication of work[3] were used as additional guidance.

10. Where appropriate, IRTDS incorporates the previous work and various methodological manuals of Statistical Office of the European Communities (Eurostat), International Labour Organization (ILO), International Monetary Fund (IMF) and Organization for Economic Co-operation and Development (OECD) as well as a number of UNSD international statistical standards in the preparation of the present recommendations. In addition, examples of recommended practice were also widely used. Sources quoted extensively are presented in the list of references (see page […]). Detailed source information and references have been provided throughout the recommendations to enable the user to obtain further information and background information.

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

[2] See *Fundamental Principles of Official Statistics* (http://unstats.un.org/unsd/methods/statorg/FP-English.htm)
[3] See more about *Principles Governing International Statistical Activities* on http://unstats.un.org/unsd/methods/statorg/Principles_stat_activities/principles_stat_activities.htm

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 their uses of distributive trade statistics are briefly described below:

(a) *Compilers of national accounts* make extensive use of distributive trade statistics including for (i) measuring the trade output and valued 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, combining and reconciling distributive trade statistics with data from household expenditure surveys and production statistics; (iii) estimation of households final consumption expenditures 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; (v) compilation of monthly or quarterly index of services production.

(b) *Policy makers* use distributive trade statistics, including indices of wholesale and retail trade, for assessing short and long-term movements not only in 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 the sub-national (regional/provincial) analysis and for international policy formulation.

(c) *Business community* is progressively more active user of the 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 sub-sectors 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 is 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. This includes monitoring of economic trends and developing forecasts for distributive trade sector; conducting market research for the sales of particular group of products, studying methods of sales and distribution etc.

(e) *General public* benefit from the availability of timely distributive trade statistics to evaluate conditions of the economy, employment and income perspectives in order to make more informed decisions.

13. *Organisation of IRDTS.* The present international recommendations cover all aspects of distributive trade statistics and consist of the following nine chapters and three annexes:

- Chapter I provides the description of the distributive trade activities in terms of International Standard Industrial Classification of All Economic Activities (ISIC) Rev.4 and other classifications, discusses boundary issues and defines scope of distributive trade statistics;

- Chapter II describes the statistical and reporting units that are useful for collection of distributive trade statistics and economic analysis of the economy;

- Chapter III explains the main characteristics of statistical units required for their unique identification and classification;

- Chapter IV presents the definitions of data items for use in distributive trade statistics with reference to the data items to be collected and statistics to be published;

- Chapter V describes a set of main indicators useful for evaluating the performance of the distributive trade sector;

- Chapter VI discusses the main data sources and methods used for compilation of distributive trade statistics;

- Chapter VII provides recommendations on short term distributive trade statistics including indices of distributive trade, seasonal adjustments 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 presents the list of data items for use in distributive trade statistics;

- Annex II provides the list of activities excluded from the scope of the relevant distributive trade divisions and classes; and

- Annex III provides and example of the identification of the principle 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 a process, that is to say, as 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 (i) an input of resources; (ii) a production process; and (iii) an output of products[4]. 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 different activity categories. 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 which make distributive trade different from other types of economic activity are mostly in specificity of its production process which is hereinafter referred to as "resale". The resale includes a number of actions which 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, packing, 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 para. 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 such that the goods existing after the change are new and different from those existing before the change. The following actions are not considered as substantial transformations of goods by ISIC, Rev.4: sorting, grading and assembling of goods, mixing (blending) of goods (for example wine or sand), bottling (with or without preceding bottle cleaning), packing, breaking bulk and repacking for distribution in smaller lots, storage (whether or not frozen or chilled), cleaning and drying of agricultural products, cutting out of wood fibreboards or metal sheets as secondary activities.

1.4. *The distributive trade as an activity* consists of (i) provision of a service to customers by storing and displaying a selection of goods in convenient locations and making them easily available for buying**;** and (ii) provision of other services incidental to

[4] See *International Standard Industrial Classification of All Economic Activities, Revision 4* (ISIC, Rev.4), United Nations publication, Series M/No .., Rev.4, para […].

the sale of goods or subordinated to the selling such as the delivery, after-sale repair and installation services.

B. Scope and structure of distributive trade in 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 is defined as the scope of section G - Wholesale and retail trade; repair of motor vehicles and motorcycles of ISIC, Rev.4. Countries which do not use ISIC, Rev.4 are encouraged to develop their national activity classifications in such a manner that the overall scope of distributive trade is the same as in ISIC, and implement it 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 in ISIC, Rev.4.

1.6. *Structure of distributive trade.* According to the ISIC, Rev.4 classification scheme distributive trade is structured into 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 division 46 (wholesale) and division 47 (retail sale) is based on the predominant type of customer. Within the divisions 46 and 47 the classification scheme considers two additional levels of distinction based on the type of operation of units involved in such a trade and 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, such as to industrial, commercial, institutional or professional users, or resale to other wholesalers, or 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, i.e. 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, 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 goods 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 incidental to selling, e.g. 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 4 groups each of which has one basic class.

1.10. *Structure of divisions 46*. The first distinction that is considered in this division is based on the type of operation, i.e. how the wholesale trade activity is organized. Two groups of activities are distinguished (i) commission trade consisting of group 461 "Wholesale on a fee or contract basis" only without any further detailing and (ii) wholesale trade on own account representing aggregation of groups 462-469 depending on categories of goods sold. The second distinction concerns 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 which cannot be defined as specialized (i.e. selling 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 as a store or not in store trade. The retail trade in stores includes groups 471-477. It 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 consists of groups 478 and 479 which are further broken down into five classes depending whether they represent retail trade via stalls and markets or other retail trade not in stores such as mail order houses and internet.

1.12. *The 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.

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

Division Group Class

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

4730 - Retail sale of automotive fuel

474 - Retail sale of ICT equipment in specialized stores

4741 - Retail sale of computers, peripheral units, software and telecommunications equipment

4742 - Retail sale of audio and video equipment

475 - Retail sale of other household equipment in specialized stores
4751 - Retail sale of textiles
4752 - Retail sale of hardware, paints and glass
4753 - Retail sale of carpets, rugs, wall and floor coverings
4759 - Retail sale of electrical household appliances, furniture, lighting equipment and other household articles

476 - Retail sale of cultural and recreation goods in specialized stores
4761 - Retail sale of books, newspapers and stationary
4762 - Retail sale of music and video recordings
4763 - Retail sale of sporting equipment
4764 - Retail sale of games and toys

477 - Retail sale of other goods in specialized stores
4771 - Retail sale of clothing, footwear and leather articles
4772 - Retail sale of pharmaceutical and medical goods, cosmetic and toilet articles
4773 - Other retail sale of new goods
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 be transformation of goods and *are included* in distributive trade:

- physical assembly
- packing
- sorting and grading of goods in large lots
- breaking bulk
- repacking for distribution in smaller lots (e.g., pharmaceuticals)
- mixing (blending) of goods (for example wine or sand)
- bottling (with or without preceding bottle cleaning)
- storage (whether or not 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 their customers including the label designing
- washing, polishing of vehicles

1.14. The following are activities considered as either transformation of goods or as not being part of relevant distributive trade divisions and classes and *are excluded:*

- renting of motor vehicles or motorcycles
- renting and leasing of goods

- packing 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 is 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 CPC, Ver. 2 and 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 (i) type of provided service (i.e. type of operation as it is discussed in para. 1.10-1.11 above) and (ii) the type of traded goods. As a result the list of commodities that can be sold is set against any of the two wholesale (commission and own account) and five retail trade types of operation (store and not in store retail trade; specialized and non-specialized and commission retail trade services).

1.16. International and national versions of the CPC exist in the same way as they exist for ISIC (see section D of this chapter). Statistical Classification of products by Activities (CPA), for example, is the European counterpart of CPC. ANZCS is the Australian and New Zealand Standard Commodity Classification. They differ significantly from CPC and each other not only in details and coding systems but also in their structuring[5].

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 CPC categories and activity classes of ISIC, Rev.4 as a guide on 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). It relates to 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

[5] More about the CPC and other product classifications such as SITS, HS etc. see at: http://unstats.un.org/unsd/cr/registry/regct.asp?Lg=1

this classification and present, as much as possible, the retail trade turnover by COICOP classes[6].

1.19. For the purpose of achieving broad international and national comparability of distributive trade data by products countries are encouraged to present the 45 retail product classes (four digit level of CPC, Rev.2) grouped into the following seven 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
Construction materials
Other

1.20. In order to 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 depending on the product classifications used in their trade surveys and the need to comply with the international standards. It is desirable that countries prepare more detailed lists for retail trade rather than for wholesale trade since the former is useful in describing the flow of goods to households. Whatever list or classification of product 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 of the countries either use the *International Standard Industrial Classification* (ISIC) directly or develop their national industrial classifications based on it. In the case of countries which 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 in compliance with at least the two-digit (division) level of ISIC. For a national industrial classification to be fully compatible with the 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 the ISIC.

[6] See *Classification of expenditure according to purpose*, United Nations publications, Series M No.84, Sales No. E00XVII.6, New York 2000 and http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=5&Lg=1

1.22. *NACE*. Statistical Classification of Economic Activities, Revision 2 (NACE, Rev.2) is the classification of economic activities implemented by European Union countries, 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 which 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 which differs from that 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 has been 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 this date onwards, and short term statistics from 1 January 2009. It is recommended that countries who 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) is developed to provide common industry definitions for Canada, Mexico, and the United States that facilitate economic analyses of the economies of the three North American countries. NAICS is built on 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. The system strives for compatibility at the two-digit level of ISIC, however, 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 is published on the UNSD web site (http://unstats.un.org/unsd/cr/registry).

1.24. *ANZSIC*. The Australian and New Zealand Standard Industrial Classification (ANZSIC) was revised in 2006 and accounts for industries which are specific to Australia and New Zealand. As with ISIC, the conceptual framework for ANZSIC has been re-evaluated to have a stronger emphasis on the supply side approach. The ANZSIC structure broadly follows the ISIC structure and ANZSIC aligns with ISIC, Rev. 4 at the subdivision level (2-digits) as far as practicable. A correspondence between ANZSIC and ISIC is available from the Australian Bureau of Statistics website.

E. Selected boundary issues

Outsourcing – boundary between wholesaling and manufacturing

1.25. *Outsourcing*. The term “outsourcing” of production is used when the principal unit (i.e. principal) contracts another productive unit (i.e. the contractor) to carry out specific aspects of the production activity of the principal, in whole or in part in the production of a good or a service. While the activity classification of the contractor is straightforward and does not change with the outsourcing, that of the principal is very

much affected by the nature and extent of the outsourcing and requires conventions for 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 manufacturing, wholesale (and retail trade) divisions.

1.26. *Types of outsourcing.* There could be three cases of outsourcing, namely (i) outsourcing of support functions; (ii) outsourcing parts of the production process; and (iii) 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 one of these unit.

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 remains classified to the respective 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 it is carrying out, e.g. ISIC class 6920 (Accounting, bookkeeping and auditing activities; tax consultancy) or 6202 (Computer consultancy and computer facilities management).

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 separate ISIC category. Also in the case of 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 done 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 done 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 characterized by the type of sale (e.g. wholesale or retail sale) and type of goods sold. In this case, it should also be evaluated if 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.

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 purchases on credit. For this purpose they may issue membership cards allowing customers to make purchases within a pre-arranged credit limit. Consumer credit is a form of a short-term loan extended to individuals for personal or household use, rather than to businesses. The consumer credit is offered also by finance companies which are active in the consumer credit industry, typically, the (i) a small loan company, which has contact with consumers as originators and makes loans to them directly; and (ii) finance company, which does not deal directly with consumers, but purchases and holds 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 (classified in section K of ISIC, Rev.4 "Financial and insurance activities") and it is not dealt with in the present recommendations. Compilers of distributive trade statistics however, must pay attention to the cases, when the originator and holder of consumer credits is a retail trade unit that has a separate establishment (or ancillary activities, see para. 3.10-3.11) dealing with consumer credits. Because the 2008 SNA[7] distinguishes separately non-financial and financial sectors, it is recommended to define two separate units in this case, one for the entity engaged in non-financial (trade) activity and the other one for the entity engaged in financial activity (provision of consumer credits), as long as the necessary financial accounts are available for each of them, whenever possible, 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 rights, as the second one will be a financial institution and not a distributive trade unit. However, if the unit providing consumer

[7] See System of National Accounts, 2008, Chapter 4 for institutional sectors and institutional sector classification

credits is not statistically observable separately (i.e., separate accounts of its activity are available), it is recommended that it should be treated as part of the relevant statistical unit involved in an ancillary activity and will not affect classification of that unit in distributive trade.

F. Scope of distributive trade statistics

1.32. In general, distributive trade statistics are statistics reflecting characteristics and activities of the units belonging to 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 is 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 Chapter 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: (i) the characteristics of entities belonging to the distributive trade sector; (ii) receipts and other revenues and purchases of those entities which are recorded in their profit and loss statements and used for calculation of trade output, intermediate consumption and value added; (iii) investment of entities in non-financial assets and changes in inventories; and (iv) employment information which is closely related to the most of previous groups of items (see Chapter V for detailed recommendations). Other data items such as, for example, data items on financial position of the entities are explicitly excluded. They are compiled as a part of financial or other relevant statistics.

CHAPTER II. STATISTICAL AND REPORTING UNITS

A. An overview

2.1. *Economic entities.* The universe of economic entities engaged in distributive trade is very vast. It varies from the small entities engaged in one or very few activities 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 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 hierarchical 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. They may have one structure or several structures to carry out different functions or to serve different purposes.

2.2. In the complex entities, management of the financial affairs of the business usually occurs at a higher organizational level than does 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. The accounts required to support the management and decision-making functions, whether financial or production, are usually maintained for the corresponding level of management responsibility. It follows that the ability to report data is different at various 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 those structures in order to compile data which are most useful for economic analysis. However, legal and operational structures of economic entities as well as their record keeping practices are not developed in most countries to suit statistical purposes. Therefore, it is desirable to have guidelines on 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 at the basis of 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 which are able, actually or potentially, to report data about 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 more detailed and more homogeneous statistics than it is possible by using data

on observation units. Analytical units are not able to report data themselves about their activities, but there exist indirect methods of statistical estimation including imputation of such data. Examples of analytical units are unit of homogeneous production and local unit of homogenous 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 a contact address or contact person than a unit. Any entity which 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. The typical case is when a given entity reports the required data about 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 unit.

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. It is recommended to distinguish between these units because they apply to different stages of 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 to which all data items refer. Collection and reporting units are especially relevant in the sampling and data collection stage.

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 obtain 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. While doing this it is important to ensure that the reported data does not contain double counting.

B. Definition of selected statistical units

2.9. Definitions of various kinds of statistical units are provided in the UNSD document *Statistical Units*[8]. Countries are encouraged to use that compendium to ensure better comparability on national practices in use of 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. A group of enterprises can have more than one decision-making centre, especially for the policy on production, sales and profits. It may centralize certain aspects

[8] The document is available at UNSD website:

of financial management and taxation. It constitutes an economic entity which is empowered to make choices, particularly concerning the units which it comprises. An enterprise group is controlled by the group head. The group head is a parent legal unit which is not 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 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. Corporate enterprise is a complete economic entity which is capable of engaging in the full range of transactions while "unincorporated enterprise" refers to the economic entity of a household only 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 interest of distributive trade units.

2.14. *Establishment*[9]. The 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, they should be small in magnitude compared with 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, described below (see para. 2.24).

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

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

one or more establishments, provided that smaller and more homogeneous production units can be identified for which production data can be meaningfully compiled.

2.16. *Kind-of-activity unit.* Although the way the enterprise unit is constructed and defined it may have already a certain degree of homogeneity with respect to its economic activities, some statistics, including distributive trade statistics, may require a higher degree of homogeneity. For this purpose kind-of-activity unit can be defined and used.

2.17. Kind-of-activity unit is an enterprise or part of an enterprise which engages in only one kind productive activity or in which the principal productive activity accounts for most of the value added. There is no restriction on the geographic area in which the activity is carried out. In order to obtain 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, data availability and organizational structure, should not be disregarded. Splitting enterprises into kind-of-activity units must be a trade-off between homogeneity of economic activities on the one hand and the data availability and organizational structure on the other. The three requirements in most cases are interrelated: the more homogeneous one defines the unit, the fewer data would be available, and less it will be 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 to 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 it can exist only as analytical statistical unit.

2.19. While deciding on definition of kind-of-activity unit it should be noted that any given kind-of-activity unit falling within a particular heading of an activity classification can be engaged in the secondary activities which cannot be separately identified from the available accounting documents.

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

(a) First, there is the pure location in the narrow sense of the word, i.e. a specific site such as an individual address or even a room in a multi-storey office building. This dimension of location should be made operational for statistical purposes because in some cases two or even more non-contiguous sites can be considered one location. This may happen when two stores of a trade enterprise are for example around the corner of the same block or just across the street 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 a separate location, especially when the sites fall within different most detailed geographical area for which series of data are to be compiled.

(b) Second, the location may be interpreted as the combination of all locations belonging to an enterprise within the 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[10]. Therefore, if activities are exercised at two or more locations, e.g. in the same municipality, township or similar restricted geographic areas, covering all of these locations in one single local unit will be acceptable from the point of view of concept of the local unit.

2.21. Which of the two interpretations is to be used depends on the statistics in question. If, for instance, they are counting the number of retail shops in a certain area, or if production processes are analyzed, the location as an individual site is the appropriate unit; if, on the other hand, employment is the subject of statistics, all locations of an enterprise within the smallest geographic area could as well be taken together in one local unit.

2.22. *The 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), which 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 establishments.* If an establishment undertaking purely ancillary activities (see para. 3.10) 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 consider it as a separate unit – 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 basic data as the value of the intermediate consumption, compensation of employees, gross fixed capital formation and employment are available.

2.24. The output of ancillary establishment should be derived on a sum of costs basis, i.e. all 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 (see Box 1). Holding companies are not ancillary units; the functions they perform to control and direct subsidiary companies are not ancillary activities.

[10] The basic concept of geographically referenced statistics is that data are aggregated for the area in which an activity actually takes place. A mesh block is a micro-level geographical unit to which individual people or businesses can be coded and individual or unit record data can be aggregated.

Box 1. Imputation of the output of an ancillary activity and its allocation to establishments

The example considered in case 1 below represents an enterprise with two establishments and one headquarter (ancillary activity). For simplicity, the entire outputs of establishments are assumed to be for the market so that their outputs can be derived from sales. The value added (VA) of the enterprise should be:

VA = output 1 + output 2 – total intermediate consumption (IC)
= 200 + 100 - (100 + 30 + 30) = 140.

Case 1: An enterprise with two establishments and one headquarter (ancillary) unit

Enterprise comprising		
Establishment 1	**Establishment 2**	**Headquarter**
$IC_1 = 100$	$IC_2 = 30$	$IC_3 = 30$
$VA_1 = 100$	$VA_2 = 70$	$VA_3 = 15$ [compensation of employees, consumption of fixed capital and other taxes on production = 15]
Output 1 = 200	Output 2 = 100	Output3 (imputed) = 45

In this case the headquarter (ancillary activity) should be treated as a separate establishment and classified according to its own activity (ISIC 8211). Its output (imputed on cost basis) should be distributed to the establishments 1 and establishment 2 in proportion to their output. The output of headquarter so distributed to establishments shall be treated as their intermediate consumption. Case 2 shows the allocation of the headquarters' output to each establishment. The allocation has been done using the output as the indicator (2/3 of the headquarters' output is allocated to establishment 1 and 1/3 to establishment 2).

Case 2. Treatment of the headquarter (ancillary) unit as an establishment

	Establishment 1	**Establishment 2**	**Headquarter (treated as an establishment)**
	$IC_1 = 100$	$IC_2 = 30$	
Output 3 consumed as IC (allocated in proportion to output)	2/3 output 3 + 30	1/3 output 3 + 15	$IC_3 = 30$
	$VA_1 = 70$	$VA_2 = 55$	$VA_3 = 15$
	Output1 = 200	Output2 = 100	Output3 (imputed) = 45

After the allocation, the value added of the enterprise remains the same as before, which is equal to $VA_1+VA_2+VA_3 = 70+55+15 = 140$, but the value added for each establishment is reduced by the share of the intermediate consumption of the headquarter unit imputed to it.

2.25. *Ancillary corporations*. A trading corporation may find it advantageous for tax or other reasons to create a subsidiary purely in order to 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. It is recommended that the ancillary corporations are not treated as separate statistical units because they can be regarded as 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

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 - (i) production data, based on management and cost accounts of trade units[11]; and (ii) financial data, based on their accounting records[12]. These types of statistics are required for analysis of 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 on such units are provided below.

2.27. Recognizing that the System of National Accounts 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 establishment as a statistical unit for distributive trade statistics. In majority of the cases the establishment and the enterprise are the same, so all types of data can be obtained from the same source. In this case, an establishment/enterprise can be not only statistical, but also reporting and collection unit. However, if an establishment is a part of a multi-establishment enterprise, it may not have access to all necessary (e.g., 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. Special care should be taken in the case of enterprises operating branches in economic territories of several countries in order not to include in distributive trade statistics of the compiling country data reflecting activities of establishments which are resident units in other economies.

2.29. If sufficient degree of homogeneity and desired geographic 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 may find it practical to use establishment as the statistical unit for collection of non-financial

[11] 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.

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

data items aiming to obtain maximum possible homogeneity and detailed geographical distribution, while use the enterprise to collect 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 on by a single legal entity. In certain instances, the availability of data on a kind-of-activity-unit basis may suggest the employment of this unit in trade surveys rather than the establishment. For example, in some cases, data on fixed capital formation, inventories, and sales may be available easily in respect of kind-of-activity units but not 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, for many purposes, be considered a suitable alternative to the establishment in those countries where the larger multi-establishment enterprises organize their records on this basis. If the kind-of-activity unit is used in such cases, it would, however, be useful to indicate the relationship between these units and the units used in other surveys.

2.31. Local unit is used as the statistical unit for compiling particular types of data, where no breakdown by activity is required and as such 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 in nature and unstable to be adopted as statistical unit in distributive trade statistics. However, 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 it will be of importance for analytical purposes.

2.33. The collection unit can be any entity which is in a position to provide national statistical office with a 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 that apply mainly to retail trade but also to some other service oriented businesses. Retail chains are a range of retail outlets which 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 first case when a retail chain operates under a single ownership there will be one trade enterprise with many establishments, corresponding to different locations. In the

second case when a retail chain operates under 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 (i.e. they are selling the same type of merchandise – food, furniture, etc.). By type of operation (see para. 3.28) retail chains are classified as retailing at stores. Many countries introduce the minimum number of retail locations operating by a retail chain as an additional criterion to distinguish them from other store retailing. Chain stores differ in many ways from the single location stores as an important difference is the difference in their size. Typically they offer low prices for the specific merchandise and derive their profits from high sales volume rather than high trade margin.

2.36. If a retail chain operates in more than one province or state and that sub-national data are important to the economy of a country, it is recommended that it should provide a list of all locations it operates in as well as totals on some of the important data items such as the number of employees, turnover, wages and salaries etc. about each location separately. Alternative methods such as using administrative data (e.g. employment data) from a business register as a proxy to allocate national economic activity to the sub-national level can 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 locations thus allowing the allocation of the trade activity to the location it actually takes place and facilitating the estimation of regional trade output and compilation of regional GDP.

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

2.38. Department stores are organizational forms of retail trade which 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 is the form of trade known as "shops-within-shops" trade when a department store is letting out part of its retail space to other retailers. Here, while to a casual customer there may appear to be only one shop, the definition of a local unit 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 are treated as separate statistical units.

2.39. *Franchising.* The operation of a franchise network is a method of doing business that is popular in a number of service activities, especially retail trade. Franchisees are independent legal units which 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, for instance imposing standards as to the goods and services to be produced, their quality and their price. The franchisee may be compelled to obtain supplies from the franchiser and must 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 taking away the autonomy of the franchisee, for example by taking care of collective marketing.

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

2.41. *Market places, street markets, etc.* These are outdoor locations where goods and services are exchanged. They are traditionally held in many countries and operate in a similar way irrespective of their location and name (on the street, at the market square or 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 to have them temporary, with stalls only present for one or two days a week. Some of the market places are gradually being replaced by shopping centres with sizable area and specially organized premises like in the 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 on these places, traders are required to obtain a license or pay a fee. In this case the recommended treatment for these units will be similar to the treatment of department stores (see para. 2.34 and 2.35) when they let out retail space to individual retailers – i.e. the individual retailers on the market place and its owner will be treated as separate statistical units. At the same time the market place will have as many local units as is the number of stalls. It should be noted that farmers selling their output at farmers' markets are not treated as trade units (see para. 1.14). Selling appears secondary activity to the production of agricultural goods and such units are classified in Division 01 of ISIC, Rev.4 - Crop and animal production, hunting and related service activities.

E. Statistical units of informal sector

2.43. *Informal sector*. The informal sector as an economic phenomenon 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, shoe shining and other activities that require little or no capital and skills to activities that involve a certain amount of

investment or level of skills such as tailoring and car repair. Many informal sector enterprises are operated by an individual working either alone, as self-employed entrepreneur, or with the help of unpaid family members, although other informal micro-entrepreneurs may engage paid workers.

2.44. The informal sector is defined by the International Conference of Labour Statisticians according to the types of production units of which it is composed. Thus, the informal sector[13] is characterised as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned and which operate within the production boundary of the SNA. These units typically operate at a low level of organisation, with little or no division between labour and capital as factors of production and on a small scale. Labour relations – where they exist – are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees. It is recommended that countries define the informal sector in terms of characteristics of production units in which the activities take place and not in terms of the characteristics of the persons involved or their jobs.

2.45. *Informal sector enterprises*. These are a sub-set of households unincorporated enterprises[14], i.e. 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. Therefore, these enterprises can not be treated as quasi-corporations and delegated to the corporate sector.

2.46. *Additional criteria for defining the informal sector enterprises.* Apart from excluding household enterprises producing exclusively for own final use, countries should extend the definition with additional criteria for the household enterprises to further restrict the scope of the informal sector. The following additional criteria should be used for defining the informal sector enterprises

(a) *Size.* The size of informal sector enterprises in terms of employment should be below a nationally determined threshold.

[13] For more details see the Resolution concerning statistics of employment in the informal sector, adopted by the Fifteenth International Conference of Labour Statisticians (January 1993)

[14] 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 cooperatives formed by members of different households, if they lack complete sets of accounts. See 2008 SNA Chapter 4. Institutional units and sectors.

and/or

(b) *Non-registration of the enterprises or its employees*. Informal sector enterprises should not be registered under specific forms of national legislation (such as factories' 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 regulations enacted by local authorities for the purpose of obtaining a trade license or a permit to operate a business are excluded from this criterion.

2.47. With these additional criteria, the production unit in the informal sector is defined as a household enterprise with at least some production for sale or barter for which one or more of the criteria of a limited size of employment, the non-registration of the enterprise and/or its employees are met.

2.48. *Types of informal sector enterprises.* The 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 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 employ 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, which employ one or more employees on a continuous basis.

2.49. *Informal sector enterprises engaged in distributive trade*. They refer to any production unit that is engaged in resale of new or used goods and services on the market and that has the characteristics described in para. 2.44 and 2.45. 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 (without a fixed location) units in distributive trade sector such as street vendors and hawkers should be considered as separate enterprises if they constitute self-employed persons or as employees if they work for enterprises of informal employers that meet the enterprise-bases criteria. It is recommended that informal sector enterprises engaged with trade activities include both enterprises in urban and rural areas.

CHAPTER III. CHARACTERISTICS OF STATISTICAL UNITS

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

3.2. The main characteristics of the statistical units 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 those characteristics represent the most important ones from the viewpoint of international comparability, as well as those considered to be of significant national interest. They allow for four distinct types of analysis:

- *Geographical analysis*, allowing for detailed analysis of performance between regions or sub-regions of an economic territory as compared to 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 ownership and control types like public, private and foreign-owned enterprises by economic activity and between economic activities;

- *Size class analysis*, showing the relationship between 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 for 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 its geographic 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: (i) allow their registration in statistical business register or inclusion sampling frame; (ii) permit the collection of information about them via administrative sources; (iii) provide a sampling base for statistical surveys; and (iv) permit demographic analysis

of the population of units. Identification code must not change throughout the life of the unit, although some of the other unit's characteristics 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 such is 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 as where its mailing address is. This characteristic serves two important purposes. First, to identify the units and to classify them by geographical regions, preferably at the most detailed level. Second, if a unit operates in more than one location, to allocate its economic activity to the location in which it actually takes place. The latter is important for measuring regional output (regional GDP and other economic indicators) and making 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) to 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 used for mailing the statistical questionnaires, written communication with the unit or making ad hoc queries about its activity. Up-to-date information about 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, they 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. It is recommended to work with caution when dealing with large complex enterprises. Depending on which is the reporting unit for a particular statistical survey, the multi establishment enterprise may be requested to provide location details about each establishment it has, or the establishment may be asked about the name and location of the enterprise that owns. In some cases, it may be necessary to correspond with both the establishment and the enterprise because in general, the unit supplying for example employment details is different from one providing financial details.

C. Kind of activity[15]

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 which

[15] The text in the section C. Kind of activity is based on the International Standard Industrial Classification of All Economic Activities (ISIC), Revision 4, Statistical Papers, Series M No.4, Rev.4 (United Nations publication, Sales No.)

determines whether or not a given statistical unit is included in scope of distributive trade statistics and to what activity class of distributive trade it belongs. The United Nations Statistical Commission at its thirty-seventh session recognized ISIC, Revision 4 as the international standard for economic activity classification[16]**.** In accordance with this decision it is recommended that the kind of activity of statistical units be determined in terms of ISIC, Rev.4[17] by application of classification rules laid out in its introduction. If a different scheme of national classification of activities is followed by countries, a full correspondence at least at the 2-digit level of ISIC, Rev.4 (i.e. at 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 the value added of which 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 have 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 found in 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 (see para 2.27), it may be desirable and useful to consider 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 kind 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 ISIC, Rev.4 class with the largest share of value added by

[16] For the report of Statistical Commission see: http://unstats.un.org/unsd/statcom/sc2006.htm
[17] http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27&Lg=1

using the "top-down" method. The "top-down" method means that first the appropriate highest classification level (one-digit) should be determined, then the lower (two- and three-digit) levels and finally the class (four-digit level);

(c) If value added cannot be determined for the activities involved, classification has to be done by using substitute criteria, provided that they are applied consistently for all involved activities. Such criteria are:

(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 below, where considerable proportions of the activities of a unit are included in more than one class of ISIC, Rev.4, are considered to ensure more uniformity of classification decisions.

3.14. *Classification in the case of vertical integration.* It is recommended that a unit with vertically integrated chain of activities, that is 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 multiple activities, i.e. a unit with a vertically integrated chain of activities should be classified to the class corresponding to the principal activity within this chain, i.e. 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 (e.g. based 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 that a unit with a horizontal integration of activities, that is when activities are carried out simultaneously using the same factors of production, and it is not possible to separate them statistically into different processes, assign them to different units or generally provide separate data for these activities, nor will rules relying on allocation of value added or similar measures be applicable, this 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 in 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 principal activity to be determined by using substitute criteria (see para. 3.12 (iii)). It is recommended that for the purposes of distributive trade statistics output based substitutes should be preferred for determining the principal activity of trade units. Gross margin (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, it is not readily available in trade surveys and value of turnover the second best alternative output indicator. It should be noted that problems with using the turnover criteria as an output substitute exist because in certain cases the proportionality of turnover and value added may vary within a single 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 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 as other substitutes for determining the principal activity of units where no other output substitutes are available.

(b) ISIC, Rev.4 is more explicit when the top-down method should be applied for classifying units in divisions 46 - Wholesale trade, except of motor vehicles and motorcycles and division 47 - Retail trade, except of motor vehicles and motorcycles. Due to the specific sub-structure of the divisions two additional levels of classification describing various types of operation have to be taken into account (see para. 3.24-3.36). In case of wholesale trade the division is first subdivided into commission trade and wholesale trade on own account, then the latter is 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 for retail sale not in stores. Secondly, the 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 as explained above is followed. On the basis of the listed activities carried out by the unit and corresponding to them value added or other relevant measures the following steps are recommended by ISIC, Rev.4 for the identification of the code:

Step 1. Identify the section which has the highest share of the value added

Step 2. Within this section identify the division which has the highest share of the value added within this section

Step 3. Within this division identify the group which has the highest share of the valued added within this division

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 which has the highest share of value added within this group

3.18. The figures 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 1. Decision tree to be used for the allocation of a wholesale trade unit

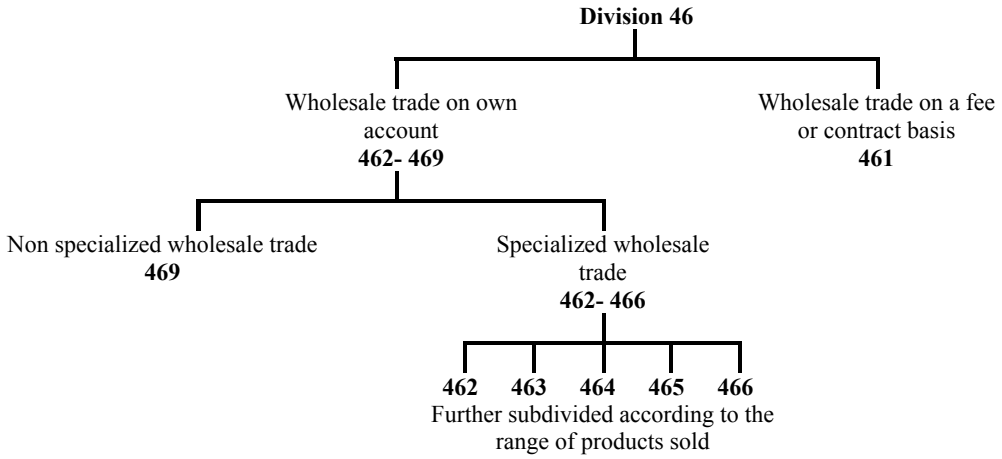
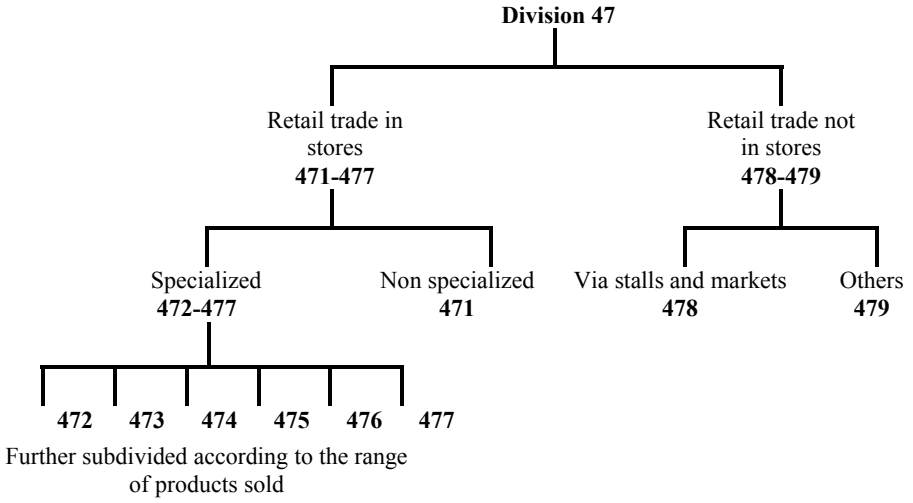


Figure 2. Decision tree to be used for the allocation of a retail trade unit



3.19. When choosing between specialized retail trade in ISIC 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 group level importance. It is recommended that the following rules are applied to make that determination (similar considerations apply to specialized vs. non-specialized wholesale trade activities.):

(a) If the products sold comprise up to four classes in ISIC, Rev.4 groups 472 to 477, none of which accounts for a share of 50% or more in terms of value added, but each represents 5% or more of value added, a specialized trade is still involved. It is then necessary only to determine the focus of the activities on the basis of value added. Selecting first the main group and then the class within that group, will then determine the allocation of the principal activity.

(b) If the products sold comprise five or more classes in groups 472 to 477, each representing 5% or more of value added, but none of which accounts for a share of 50% or more, this should be classified as a non-specialized store and allocated to group 471. If food, beverages and tobacco represent at least 35% 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, i.e. the 5% rule above applies to 5% of the value added of all retail sale activities, not 5% of value added of all activities of the unit

3.20. Illustration on how to adjust the top-down method to the specific substructure 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 would 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 distort the statistics to the extent of making interpretation extremely difficult.

3.22. It is recommended that countries avoid frequent changes in the classification of units. Countries are encouraged to develop a stability rule. Without such a rule there would be apparent changes in the economic demography of the business population which would be 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 for 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 national and international point of view and can be used to monitor dynamic of 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 conforms 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 groups 462-469). The wholesale trade on own account is further subdivided into 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 which, 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 (type a) 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 makes the current definition of wholesale or retail operations quite broad and difficult for implementation.

3.27. *Specialized and non-specialized wholesale trade*. Wholesales can be either commodity/product specific or general in nature, 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 illustration on how the retail sector units operate in individual countries. It is recommended that the following types of retail trade operations are 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 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 where the sale takes place. This group includes also 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, i.e. direct delivery of fuel, newspapers, etc. to the customer 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. E-commerce 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 the 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 internet.

3.32. *Definition of e-commerce*. There are two definitions of e-commerce[18] in use – broad and narrow (see the box below). The only difference between the broad and narrow aspect of the definition is 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, EDI and Minitel. For the purpose of the IRDTS either one of the definitions is accepted. If the broad definition of E-commerce is followed, this type of operation will be more close to the scope of the entire class 4791 - Retail sale via mail order houses or via Internet, where in addition to the units selling predominantly through Internet, mail order houses (see para. 3.34-3.35) are also included.

Box 2. Definition of e-commerce

Broad definition - an electronic transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, governments, and 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 off-line. E-commerce includes orders received or placed on any online application used in automated transactions such as Internet applications, Electronic Data Exchange (EDI), Minitel* or interactive telephone systems.

Narrow definition - an internet transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, governments, and 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 off-line. E-commerce include orders received or placed on any internet application used in automated transactions such as Web pages, Extranets and other applications that run over the Internet, such as EDI over the Internet, Minitel over the Internet, or over any other Web enable application regardless of how the Web is accessed (e.g. through a mobile or a V set, etc.). Excluded are orders received or placed by telephone, facsimile or conventional e-mail.

* Minitel is a videotext online service accessible through the telephone lines. It was launched in France, 1982.

[18] The definitions are endorsed by the OECD member countries. For more details see: http://www.oecd.org/document/22/0,3343,en_2649_34449_34508886_1_1_1_1,00.html

3.33. For many units, e-commerce is just one of the varieties of means by which sales are transacted. It is recommended that the rules for classifying such units by activities remain unchanged: they are classified to the industry of their principal activity by implementing 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" 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 through 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 the customer to pick up. Some merchants also allow the goods to be shipped directly to a third party consumer, which is an effective way to send a gift to an out-of-town recipient.

3.35. Nowadays however, most traditional mail order companies also sell over the internet. A company's website became the more usual way to order merchandise for delivery by mail which makes the e-commerce and mail order sales hard to distinguish, Therefore, the ISIC, Rev.4 classifies both kinds of activities in one class - 4791 Retail sale via mail order houses or via 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 predominantly selling food products and others. If required or if there is a users' demand, more details of the store retailers' category may be sought. A distinction can be further made between retailers being retail chains, department stores and others.

3.37. *Additional breakdowns of non-store retailing*. The types of non-store retailers' operation also vary because of the different methods of transaction and delivery of merchandise. Due to the expansion of e-commerce and other forms of mail in order trade in almost each country it is recommended their separate distinction 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 is 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 to have the links between individual entities and any parent enterprise clearly defined. More importantly, these links are fundamental for the efficient sampling design because one survey might gather information on value added, employment and production statistics usually available at 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 characteristics and possible criterion for stratification of units in statistical surveys. The type of legal organization is the legal form of the economic entity which 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 of incorporated units by *incorporated enterprises* (corporations) except limited liability partnerships and co-operatives*, limited liability partnerships* and *co-operatives*, and *non-profit institutions;* and of unincorporated units by sole proprietors and partnerships not recognized as independent legal entities may also be of interest.

(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 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 their 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 which are not incorporated as legal entities separately from their owners. They may include public agencies which 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 NPIs which are market producers, i.e. which sell most of their output at economically significant prices, and which are serving and promoting the interests of distributive trade units should be included in the scope of IRDTS. They consist mainly of trade associations or trade employers' organizations. NPIs 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 NPIs 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 of unincorporated units (see para 3.40 (b)) that have characteristics of quasi-corporations. The concept of a quasi-corporation is intended to separate from their owners those unincorporated units that are engaged in commercial activities and are sufficiently self-contained and independent from their owners and which behave in the same way as corporations. In order to be recognized as a separate unit, the quasi-corporation must keep complete set of accounts, including balance sheet or must be in a position to construct such accounts. However, experience has shown that distinguishing the quasi-corporations owned by households in certain cases might be difficult.

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

3.44. *Type of ownership.* In addition to the kind of legal organization, it is recommended to consider the main types of ownership, i.e., the *private* ownership and the various forms of *public* ownership of units as useful optional characteristics. The criterion to distinguish 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 defined as those units that are owned or controlled by government units. By contrast, the privately owned units are those owned or controlled by private parties. The 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. The control over a unit means 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 further be disaggregated into the main divisions of public ownership existing in each country, which would normally differentiate between 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 differentiates between nationally owned and foreign controlled units, can be applied.

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

Incorporated enterprises except limited liability partnerships and co-operatives
- Public ownership
  - By central government
  - By state government
  - By local government
- National private
- Foreign controlled

Co-operatives 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. A size measure of a statistical unit is an important stratification characteristic, essential for sample design and grossing up techniques, providing an indication about the structure of an activity. In general, the size classes of statistical units can be defined in terms of physical units like employment or in terms of monetary units like turnover or amount of net assets. Monetary criteria can be used separately or in conjunction with employment criterion. Exposition area could be used as a specific criterion for the purpose of classifying retail trade unites 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 of the 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, 250 and more.

3.50. In order to maintain the international comparability of data, countries are encouraged to follow the classifications outlined in the preceding paragraph to the extent possible. If necessary, in light of the national circumstances, both the large size classes might be combined or, inversely, more detailed classification should be developed within this framework. It is recognized however, that differences resulting from administrative, organizational or legal reasons may exist at national level. In addition, the wide variety 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. The employment in full-time equivalence (FTE) can also be used as criterion for classifying statistical units by size. This measure provides more accurate measurement of employment, avoiding the problem with part-time workers. However, the concept of FTE does not make the data really comparable since it may vary significantly from country to country. It may also not be possible to calculate employment in FTE in some countries due to the necessity of 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 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.* Sales space or/and the exposition area are also inferable for the size of retail trade units characteristics. Sale space could be used as a stratification variable for classifying retail trade units, most of which are identifiable with 'shops' or 'outlets'. However, due to non-uniformity of sales space classes and different country practices, the specific categories of sales space as mentioned in chapter III and IV of the present recommendations should be defined in the context of national circumstances.

H. The demographic characteristics

3.54. The demographic characteristics provide information about the period of economic activity of a given unit and include the date of commencement and cessation of its activity. Given the dynamics in creation (birth)/cessation (death) of economic units in trade sector nowadays, the demographic characteristics have their significance for identifying units as a target population for statistical surveys. Moreover, where the statistics about the demography of trade units exists on a regular basis, it can provide useful information on the rate of creation of new units, the chance of units' survival, and the differences in dynamics of units between ISIC classes. 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 exists and it is stored in the business register or area frame. However, due to a slow administrative process of death registration or cessation of unit's activity or the intention of the unit to resume its activity after an indefinite period of time, it is more difficult to obtain information about the date (period) at which the unit actually ceases its activity. Therefore, between the period of operation and death of the unit, there might be a period of inactivity, in which the unit will be considered as temporarily inactive (dormant). The information on births and deaths of units may be obtained also from administrative sources such as fiscal or juridical authorities, social security or similar sources or an update of area frames through inter census enumeration, while statistical surveys will detect the status of the unit - i.e. whether the unit is active, temporarily inactive (dormant) or ceased its activity.

I. Period of operation

3.56. 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 the information that this characteristic provides about the activity status of the unit (active or temporarily inactive), it also helps in interpreting the returns

made by statistical units that are affected by seasonal factors and those made by statistical units that began or ceased operations during the reference period.

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 additional items of data derived from the basic system. Some of the data items may not be existent or they may be of minor importance for some of the economies. Compilers are encouraged to use the list of data items as reference in order to develop a list of data items in accordance with their own statistical circumstances, respondent load and available resources and having determined the data items should consistently use the definitions presented.

4.2. The list of data items for use in distributive trade statistics is presented in Annex II. It is based on the *Integrated List of Data Items for use in Basic Economic Statistics*[19] developed by UNSD with the aim of providing countries with a tool which can be used in building up their economic statistics programmes, including the development of statistical questionnaires and other data collection instruments. It is intended for use in the development of any industry-specific lists, 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. For designing questionnaires with appropriate terms, it is desirable therefore, to understand the links between the concepts used in business accounting and basic economic statistics, mainly for two reasons, namely[20]:

- Terms used in the questionnaires must be familiar to business accountants; and
- Understanding of business accounting is essential for conversion of data collected from businesses' records 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 in different segments of the accounts depending on

[19] The Integrated List of Data Items for use in Basic Economic Statistics and their definitions is available at the UNSD website:……..

[20] *Links between Business Accounting and National Accounting*, Studies in Methods, Series F, No. 76, United Nations, 2000

the country's business accounting tradition. While in some countries income and costs are recorded together, for others these are recorded in three different segments: (i) production (distribution or marketing in the case of distributive trade), (ii) general administration (enterprise overhead, advertising, distribution, etc.) and (iii) other incomes and other expenses. Also, it is important to know that most of the time, other operating revenues, which represent secondary incomes such as rental of buildings, charges for miscellaneous services which are recorded in business statistics as output and intermediate consumption, are recorded net (i.e., income receivable less costs incurred) in business accounting.

1. Differences in terminology

4.5. Terminology used in business accounting may vary greatly from one country to another. For example, while the word "turnover" means total sales in the UK and many European countries, for OECD[21] "turnover" means the sum of gross sales plus 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, "turnover" is the number of times an asset is replaced during a financial period; often used in the context of inventory turnover or accounts receivable turnover. In securities, for either a portfolio or exchange, turnover is the number of shares traded for a period as a percentage of the total shares.

4.6. Another example of differences in terminology is the term "operating expense". In the UK, operating expense is limited to costs that vary strictly with the quantity produced such as raw materials and purchased components. In the United States and Canada however, operating expense refers to non-manufacturing, non-inventoriable cost 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 be the same in many countries but accounting rules vary from one country to another. These rules affect the adjustment required to be made to the data collected from business accounts in order to use them for the purpose of 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 which 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

[21] Compilation Manual for an Index of Service Production, OECD, 2007 available at http://www.oecd.org/findDocument/0,2350,en_2649_34257_1_119669_1_1_1,00.html

in two adjacent periods because assets in business statistics are to be valued at replacement costs in terms of economic accounting standards.

B. Data items definitions

A. Demography

1. (a). Characteristics of statistical units

4.8. Statistical units engaged in distributive trade activities may be distinguished and classified following different criteria and variables[22]. In addition to the financial and production data each statistical survey aims at collecting detailed information associated with the statistical unit itself and asks for its location, period of operation, type of ownership and economic organization, kind of activity, type of operation, size, etc.

4.9. Most of data items included in this heading are generally set forth for the purposes of cross tabulation of the data. It should be noted that in the case of multi-establishment enterprises, some of these 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 may be collected at the enterprise level for subsequent allocation to the statistical units supporting it.

1. (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 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. ***The population of units for the present recommendations is defined as all units which are primarily engaged in the trade activities, i.e. 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, also called a multi-establishment enterprise, is one consisting of more than one establishment. Individual establishments of a complex enterprise may generally be engaged in different economic activities, belonging to different ISIC classes but they may be engaged in the same activity as well.

[22] See Chapter III. Characteristics of statistical units for more details.

(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. It is a count of the number of establishments operating in 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

B. Employment[23]

2. (a). Number of persons employed

4.15. It is recommended that the employment data are collected for a number of categories of employed persons, as specified below, with a breakdown by gender in each category as resources permit. Countries are also encouraged to collect other characteristics that are of national interest such as a distinction between part-time, full-time and seasonal workers 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 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;

[23] 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 (January 1993), http://www.ilo.org/public/english/bureau/stat/res/index.htm

- persons working outside the unit who belong to it (e.g., 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. This includes all individual proprietors and partners actively engaged in the work of the establishment, excluding silent or inactive partners whose principal activity is outside of the establishment. This category is not applicable to any incorporated or similar enterprise the ownership of which is represented by 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 regular pay (that is, without an agreed amount to be paid for work done). 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 which 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. **Unpaid family workers who at the same time are in paid**

employment with another unit as their principal occupation should not be considered as employed in the concerned unit.

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 receive compensation in cash or in kind at regular intervals of time. The compensation is normally based on either the time spent at work or 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 paid by and under the control of the concerned unit. Employees in activity ancillary to the main activity of the unit are also included.

4.23. Employees should be considered as 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 included are students who have a formal commitment whereby they contribute to the unit's process of production in return for remuneration and/or education service.

Breakdown of number of employees

4.24. It is typical for distributive trade units to keep non-standard time of working hours (24 hours, 7/11 or the entire weekends). This 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 that 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*[24]. Working time arrangements relate to those arrangements as stipulated in laws and

[24] See the Resolution concerning statistics of hours of work, adopted by the Tenth International Conference of Labour Statisticians (October 1962), http://www.ilo.org/public/english/bureau/stat/res/index.htm

regulations, collective agreements, arbitral awards or employment contracts or as determined by rules or customs of establishments or community, 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 period on work activities that contribute to the production of trade services. Individual working time arrangements of persons in paid employment jobs may differ ranging from shorter/longer daily or weekly hours of work, or fewer or more days per week, or 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. Due 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 a sufficient national interest, that the item 2.1.3. Employees be presented into the following three categories: full-time employees; part-time employees; and employees in fill-time equivalents. All three categories should be calculated by reference to the number of hours actually worked out (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 a week, etc.). Part-time employees and intermittent/seasonal employees (who may work full time but for a fixed short period, e.g. temporary workers, film crew, etc.) should not be confused.

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

4.30. Based on the total number of hours worked by all part-time employees, their number could be converted into full-time equivalents. The conversion should be carried out with regard 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. Full-time equivalent is defined as the total hours worked in a unit is divided by average (annual, quarterly, monthly or weekly) hours worked by a full-time employee. That conversion will facilitate international comparisons with countries which can only estimate full-time equivalents employment. Due to the differences in the length of the full-time employment by activities, employees' categories etc. it is recommended calculating the conversion at the most detail level possible.

Employees engaged in research and development (item 2.1.3.1.1)

4.31. The output of research and experimental development is recognized as an asset in the 1993 SNA, Rev.1. The present recommendations adopt the definition of research and development as given in the Frascati Manual[25] which defines it as "Research and experimental development 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.

4.32. This item comprises all employees directly engaged with 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 on education and training,
- personnel employed on other scientific and technological activities (e.g., information services, testing and standardization, feasibility studies, etc.),
- personnel employed on other industrial activities (e.g., industrial innovations n.e.c.),
- personnel employed on administration and other indirect supporting activities.

Employees engaged in software and databases development (item 2.1.3.1.3)

4.33. The 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 1993 SNA, Rev.1. When produced on own account it represents the cost

[25] Frascati Manual, Proposed Standard Practice for Surveys on Research and Experimental Development, Paris 2002, http://www.tubitak.gov.tr/tubitak_content_files/BTYPD/kilavuzlar/Frascati.pdf

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)

4.34. The item comprises the total number of employees working in the own account fixed assets formation and major repair. Fixed assets formation and major repair when undertaken on own account is considered as capitalized production that is retained by their producers as investment. Capitalized production is unsold production therefore it is valued at production costs, i.e., by summing up the cost of inputs, including labour inputs.

Outworkers on the pay-roll (item 2.1.3.3)

4.35. An outworker is a person who agrees to work for a particular enterprise or to supply a certain quantity of goods or services to a particular enterprise, by prior arrangement or contract with that enterprise, but whose place of work is not within any of the establishments that make up that enterprise. Only those outworkers are included here 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 repacking of goods in smaller lots, assembling etc.

4.36. Outworkers paid by sub-contractors are not included; the amounts paid to sub-contractors in respect of outworkers are treated as "cost of industrial services purchased" (item 4.4.1.2.1).

4.37. Outworkers on the pay-roll should be enumerated for a single period. Where the numbers are significant and fluctuate, it may also be useful to collect the average number in the inquiry periods as defined for employees.

Leased employment (item 2.2)

4.38. Leased employment entails the provision of human resources for trade units for a fee. 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 and not on the payroll of the establishment paying the fee. The provision of human resources is typically done on short-term basis (the employment agency will be classified in ISIC, Rev.4 7820) or on a long-term and permanent basis (the employment agency will be classified in ISIC, Rev.4 7830). The information about leased employment is important for the meaningful labour and productivity analyses, however, the number of

the 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 the 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.

Number of persons employed in informal sector (item 2.3)

4.40. For countries that utilize the concept of informal sector in their statistical systems the total number of persons employed in the informal sector is defined as comprising 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) which is classified in section G of ISIC, Rev.4 irrespective of their status in employment but only if this is 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 (item 2.3.2) in the informal sector.

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 being excluded from the scope of informal sector for practical reasons;
- self-employed persons engaged in rendering the following 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 15th ICLS[26] as a subset of unincorporated enterprises owned by households, i.e. as a subset of production units which are not constituted as separate legal entities independently of the households or household members who own them, and for which no complete sets of accounts (including balance sheets of assets and liabilities) are available which would

[26] International Labor Organization, *Resolution concerning statistics of employment in the informal sector*, adopted by the Fifteenth International Conference of Labour Statisticians (January 1993).

permit a clear distinction of the production activities of the enterprises from the other activities of their owners and the identification of any flows of income and capital between the enterprises and the owners.

4.43. The 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 the total employment (based on the population census or labour force survey data) and the formal employment (based on economic census, establishment survey or administrative data sources).

2. (b). Average number of persons employed

Average number of persons employed (item 2.4)

4.44. The item 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. This data item 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.

2. (c). Hours worked

Number of hours worked by employees[27] (item 2.5)

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

[27] See draft ICLS Resolution on Working Time Measurement (http://www.insee.fr/en/nom_def_met/colloques/citygroup/2006_meeting.htm)

4.47. Some small units, particularly those with less formal records, may be unable to report hours worked. In this case it is recommended to impute hours worked from the responses to alternative questions such as the number of workers, average number of working days, length of the productive hours in an 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 and may be paid or unpaid, regardless of the place where they are carried out, such as the establishment, the home, in the fields, on the street, and include work taken home from the place of work.

(b) *Hours spent on ancillary activities*. Hours spent on activities not directly intended for the production of trade services but which are necessary to enable such production. This includes hours spent on:

(i) the design, preparation, cleaning of workplace or work instruments, repairs or maintenance of work processes;

(ii) professional training (for persons in paid employment) authorised and provided directly or indirectly by the employer ; travelling or itinerant activities required or paid for and inherent to the employment as in 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 done but when payment is made under a guaranteed employment contract;

(iv) travel time, as a function of specific work assignments or 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; may be authorised 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, such as 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 actually time spent working, even if paid by the employer.

4.50. 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. The information is more easily obtainable from pay-roll records than the hours worked are. Days worked should refer to the total number of days spent at work and not to days paid for. Days spent on annual leave, 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 ascertain as well as he days worked by part-time employees may be separately collected. Provision is made for the 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, as resources permit, should distinguish between male and female. Important for constructing labour compensation price indices in distributive trade sector will be if those categories include breakdown by occupation preferably following the International Classification of Occupation (ISCO)[28].

C. 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; i.e., it is measured by the value of the remuneration in cash or in kind which an employee becomes entitled to receive from an employer in respect of work done during the relevant period, whether paid in advance, simultaneously or in arrears of the work itself.

[28] Available at: http://www.ilo.org/public/english/bureau/stat/isco/index.htm

Compensation of employees does not include any taxes payable by the employer on the wage and salary bill, i.e., payroll tax. Compensation of employees consists of two main components (i) wages and salaries payable in cash or in kind (item 3.1), and (ii) social insurance contributions payable by the employers (item 3.3). Employees are those as defined in data item 2.1.3.

4.53. No compensation of employees is payable in respect of unpaid work undertaken voluntarily, including the work done by the 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 salaries[29] 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 and whether it is paid regularly or not. They include the values of any social contributions, income taxes, etc., 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, at weekends or 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;

[29] See 2008 SNA, Chapter 7. The Distribution of Income Accounts for more details on the components of wages and salaries of employees

(e) Commissions, gratuities and tips received by employees: these should be treated as payments for services rendered by the enterprise employing the worker, and so should also be included in the output and gross value added of the employing enterprise when they are 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 in order to enable them to take up their jobs or to carry out their work. For example:

(a) The reimbursement of travel, removal or related expenses made by employees when they take up new jobs or are required by their employers to move their homes to different parts of the country or to another country;

(b) The reimbursement of expenditures 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 or their survivors who lose their jobs because of redundancy, incapacity, accidental death, etc. In practice, it may be difficult to separate payments of wages or salaries during short periods of absence due to sickness, accidents, etc., from other payments of wages and salaries, in which case they 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 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 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 foregone by employers when they provide loans to employees at reduced, or even zero rates of interest for purposes of buying houses, furniture or other goods or services. Its value may be estimated as the amount 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. Stock options are a form of income in kind that results from the practice of some employers to give the employees an option to purchase a company's stocks (shares) at some future dates at a certain price and under some specific conditions. They provide employees the right, but not the obligation, to purchase stock options. Options are usually granted to encourage employees to stick around and help the company 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 that employer and so forfeits his option. 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 under certain conditions (for example, that the employee is still in the enterprise's employ, or conditional on the performance of the enterprise). The "grant date" is when the option is provided to the employee, the "vesting date" is the earliest date when the option can be exercised, the "exercise date" is when the option is actually exercised (or lapses). In some countries the permissible length of time between vesting and exercise date 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 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 development of software and databases and of own account fixed assets formation and major construction will be properly estimated, it is recommended wages and salaries data for these two particular categories of employees to be reported separately.

4.65. To provide a more precise measure of wage and salary levels, it is also recommended in infrequent surveys to collect data on wages and salaries paid to full- and

part-time employees, by occupation and for both status groups to obtain details by gender.

Remuneration of outworkers on the pay-roll (item 3.1.3)

4.66. This item covers all remunerations, as defined under "wages and salaries of employees" (item 3.1), paid to outworkers on the pay-roll. The amounts paid to subcontractors and other agents in respect of outworkers are not recorded here, but under the item "cost of industrial services purchased" (item 4.4.1.2).

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

4.67. 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)

4.68. 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, one of three conditions must be met: (i) benefactor (or policy holder) must be obliged or encouraged by law or by the conditions of employment to participate; (ii) the scheme must be operated on behalf of the group and restricted to group members; and (iii) 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

4.69. Employers may pay at their own will to the employees for sickness, maternity, employment injury, family allowance, termination pay and other employee benefits, these payments are treated as part of wages and salaries of employees.

D. Other expenditures

4. (a). Purchases of goods and services

4.70. 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 either resold with or without further transformation, completely used up in the production process or, finally, be stocked.

4.71. Included in these purchases are the materials that enter directly into the goods produced (raw materials, pre-fabricated parts (intermediary products), components etc. that are physically incorporate into 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 the own account fixed assets formation and major repair by the unit.

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

4.73. Cost payable for purchase of services during the reference period is also included regardless of whether they 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.

4.74. 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.

4.75. Purchases of goods and services should be valued at purchasers' prices - that is, the price at which they are delivered to the establishment, including transport charges either invoiced by the producer or by other organizations, the cost of insurance, the value of packaging materials charged for, all taxes and duties on the goods but, where applicable, excluding 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.

4.76. Goods received by the establishment from other establishments of the same enterprise 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 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).

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

4.77. This item includes 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 considered as received at the time such goods are entered in the inventory account of the establishment. Alternatively, goods may be considered as received when the establishment has acquired economic ownership of the goods. In general, this definition coincides 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)

4.78. This item includes the value of raw materials and supplies and the like or pre-fabricated parts (intermediate products) as enumerated under item 4.1 which 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)

4.79. This item covers the value of raw materials and supplies and the like or pre-fabricated 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 assets formation or major repair (item 4.1.3)

4.80. 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.

4.81. The cost of materials for own account fixed assets 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 construction (item 4.1.3.5).

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

4.82. This item includes the cost of all purchased gas, fuels and electricity received by the establishment only if they are 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.

4.83. 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)

4.84. 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)

4.85. 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)

4.86. 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)

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

Purchase of services except rentals (item 4.4)

4.88. 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.

Cost of industrial services purchased and also delivered by other establishments of the same enterprise (item 4.4.1)

4.89. This 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.

Repair and maintenance work (item 4.4.1.1)

4.90. This item covers current repair and maintenance work on buildings and other fixed assets of the establishment and in respect of rented buildings other than housing accommodation. 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.

4.91. 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.

Contract and commission work (item 4.4.1.2)

4.92. This item covers the cost of work done by others on materials owned by the establishment, which generally entails the transformation or processing of raw materials; specialized work performed on products made by the establishment is included. Also included are payments made through sub-contractors to outworkers not on the payroll (leased employment – item 4.4.1.2.1). Sales commissions should not be included.

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

4.93. This item covers amount payable by the establishment during the reference period for services of a non-industrial nature. The actual payments made should be reported, excluding deductible VAT and other deductible taxes. Costs on following are included: (a) communication services; (b) transport services; (c) advertising and promotional services; (d) financial services (excluding interest payments); and (e) other non-industrial services.

4.94. 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; depreciation.

Purchase of communication services (item 4.4.2.1)

4.95. 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 4.4.2.2)

4.96. 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 4.4.2.3)

4.97. 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 relation activities carried out by a third party. Market research undertaken by the unit itself should be excluded.

Financial services (item 4.4.2.4)

4.98. 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, service charges in respect of loans. Interest payments are not included.

Other non-industrial services (item 4.4.2.9)

4.99. 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 conditions as received (item 4.5)

4.100. 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, packing, breaking bulk and repacking of goods, etc.

4.101. Purchases of goods should be recorded net of returns, discounts, rebates, and other allowances received. The value of goods and services which 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, or physical supports for services (e.g., paying a third party to deliver your goods and then passing on the cost to the consumer who is buying them).

4.102. Purchases of goods should be valued at purchasers' prices that are the delivered value to trade unit, including delivery and similar charges involved in the purchase (e.g. transport charges, the costs of insurance, the value of packaging etc.) and all taxes and duties on the products, but excluding deductible VAT and other deductible taxes linked directly to turnover. The purchase price by the unit should also include the value of goods traded in 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, original purchase price, delivery and similar charges, labour and material directly used and possibly overhead.

4.103. It is recommended that units purchases of goods and services for resale in the same conditions as received are recorded separately for: (a) fuels (item 4.5.1); (b) motor vehicles and motor cycles 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).

4.104. 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 in the production process, other in contrast, record the purchases when acquired or invoiced them. The purchases by the latter group of countries are expected to be adjusted for the changes in inventories of goods for resale and moreover, be corrected for the value of any holding gains or losses generated in the prices of purchased goods in order to estimate them in the prices prevailing when the resale takes place.

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

4.106. 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 from the list that are of importance to their economies as 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)

4.107. 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 equipments (item 4.6.1);
(b) Rental payments for dwellings and structures (item 4.6.2).

Non-life insurance premiums payable on establishment property

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

E. Turnover, sales, shipments, receipts for services and other revenues (excluding property income)

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

4.109. This item comprises the totals invoiced by the establishment during the reference period and corresponds to market sales (shipments, 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. Turnover[30] should exclude VAT (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 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.

4.110. 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.

4.111. 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 an imputed margin for overhead costs and profits if possible. 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.

4.112. 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

[30] In the rest of the document 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, research and development work of an industrial nature.

4.113. Revenues from activities other than the sale of goods or rendering of industrial services like revenues from rental or lease of buildings and machinery and equipment, 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.

4.114. The terms turnover, sales, receipts, shipments etc. are used interchangeably in the economic statistics and business accounting to denote the revenues of statistical units. For the purpose of present recommendations the term turnover is used, however it is recognized that there is a wide variation between countries in 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 summarised in the table below[31]:

Table 4.1. Comparison between turnover / sales, revenue and receipts concepts

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

[31] Source: Compilation Manual for an Index of Service Production (OECD, 2007), http://www.oecd.org/findDocument/0,2350,en_2649_34257_1_119669_1_1_1,00.html

Reduction in prices, rebate, discounts and returned packing	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

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

4.115. This item includes the value of sales, turnover, 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, 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.

4.116. 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 these 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 and 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.

4.117. 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 which has 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)

4.118. 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 VAT (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.

4.119. The 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 (i.e. as if sold to a customer). If this is not possible, the owners' withdrawals should be valued at acquisition costs.

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

Gift cards sales (item 5.1.2.1)

4.121. This data item comprises sales/turnover from gift cards. The gift card is a pre-paid card that works similar to a gift certificate and 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)

4.122. This item includes the commissions/fees received by trade agents for the sale of goods or services on the account of others (i.e., 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)

4.123. This item covers the value, at actual invoice prices, of industrial work done and services rendered to other enterprises (item 5.1.4.5) and to other establishments of the same enterprise (item 5.1.4.6). The invoice prices should exclude VAT (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. The amounts charged for materials supplied by the establishment in the course of the work should also be included. Services provided to other establishments within the same enterprise should be valued as though sold. If this is not possible, the actual production costs should be reported. The following categories of industrial work should be identified separately:

Contract and commission work (item 5.1.4.1)
Repair, maintenance and construction work (item 5.1.4.2)
Installation work (item 5.1.4.3)
Research and development work of an industrial nature (item 5.1.4.4)

Contract and commission work (item 5.1.4.1)

4.124. Contract and commission work includes cases when a production unit (contractor) carries out specific aspects of the production activity as ordered by another productive unit (principal), in whole or in part in the production of a good or a service (see outsourcing). A sub-category (item 5.1.4.1.1) has been provided to permit the measurement of industrial work performed for units not residing in the country.

Other revenues (item 5.2)

4.125. This item covers revenues receivable by the unit from activities other than the sale of goods or the rendering of services, which is not always ascertainable at the establishment level. The values reported should be the actual amounts received, excluding VAT (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 revenue from the rental or lease of machinery and equipment (item 5.2.1) and the rental or lease of buildings (item 5.2.2) should be identified separately. Machinery and equipment includes vehicles, machinery, instruments, tools and others.

4.126. 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) Revenue from the operation of cafeterias, hostels, camps and other employee facilities, except dwellings (rent received from employee dwellings should not be included but should be 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"

(h) 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

(g) Any other revenue arising from the production of goods or rendering of services

4.127. The following items that 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)

4.128. 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.

4.129. 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, in principle, should 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 assets formation and major construction and item 4.1.3. Cost of materials for own account capital formation.

5. (b). E-commerce

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

4.130. 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 system. 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 questionnaires. For those countries not recognizing yet e-commerce separately it is recommended either to launch a national survey on e-commerce or to update the existing economic surveys with additional questions about e-commerce sales.

4.131. 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 Turnover, sales, shipments, receipts for services and other revenues (item 5. (a)).

4.132. E-commerce transactions involve buyers and sellers, but in general it is recommended that their measurement be made from the seller's perspective. Measuring electronic commerce in distributive trade is difficult and often not straightforward for a number of reasons including defining what constitutes electronic commerce, involvement of a number of multiple internet transactions and parties, as well as the fact that in many cases units conduct both electronic commerce and traditional commerce simultaneously.

4.133. The following are examples relevant to distributive trade: a purchase/sale of a book or CD 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 selling parts to another business i.e. a business buys office supplies on-line or through an electronic auction; a retailer orders merchandise using an EDI network or a supplier's extranet. It is recommended that unpriced transactions such as downloading free software available on the Internet have to be excluded from e-commerce

5. (c). Data items on quantity

Quantity and value of individually important products (item Q5.1)

4.134. 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, both for goods and services, in reference to the Central Product Classification (CPC, Ver.2)[32] or other international/national product classifications by product.

Breakdown of turnover

4.135. 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 details. At a detailed level the statistical units can be assumed to perform more homogeneous activities, therefore, the more detailed the breakdown is the more useful for national and international purposes the turnover data can be expected to be. Also, by distinguishing more activities, the contribution of each individual division or group to the total turnover, sales, shipments, receipts for services and other revenues (item 5. (a)) will be better estimated.

4.136. In practice, there is however a limit to what extent the turnover/sales can be reliably broken down. Each classification makes considerable demands on respondents and requires detailed records to be available. Consequently, the turnover for which the detailed breakdowns are requested should be restricted to this for which the statistical

[32] http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=25&Lg=1

unit is likely to have records. For the purpose of providing more in depth analysis of 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;
- by type of customer (presented under performance indicators chapter).

Turnover by kind of activity

4.137. 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 para. 4.8 and 4.9. Whenever there will be a need for specific turnover variables at national level, it is recommended that the countries decide which are the most appropriate breakdowns meeting their own requirements. The recommended breakdowns provide possibility for cross-classification of turnover (i.e. the turnover of wholesale trade (46) for example, will be presented by both the ISIC groups and size classes of enterprises) thus enhancing further the analytical potential of data.

4.138. For the purpose of these recommendations, the recommended level of activity breakdown should be at least the three digit level of ISIC Rev.4 (groups' level) for annual data. Countries are encouraged to collect this information more frequently than annual – monthly or quarterly, as the recommended activity breakdown for these data is two digit level of ISIC, Rev.4 (divisions' level)(see Chapter X. Dissemination).

4.139. The turnover could be further disaggregated into:

(a) turnover from principal activity (one of the ISIC Rev.4 G section's classes);
(b) turnover from secondary activities, if any:

    (i) agriculture, forestry, fishing activities
    (ii) industrial activities;
    (iii) other service activities.

4.140. Most producer units in addition to their principal activity 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 each 5 years).

4.141. The primary distinction of units between division 46 (wholesale) and division 47 (retail sale) is based on the predominant type of customer. Further breakdown of wholesale turnover by type of customer may be difficult if units do not keep detail records. A data item breaking the turnover according to the type of customer is presented under performance indicators chapter (see para. 5.31). If precise numbers are not available, wholesale trade units should be encouraged to provide their best estimates.

Turnover by product groups

4.142. 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 is broken down by products (data item Q5.1), both for goods and services, according to the Central Product Classification (CPC Ver.2).

4.143. Provision of turnover at detailed COICOP level is also recommended as it will facilitate the compilation of individual consumption expenditure of households in national accounts.

4.144. 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

Turnover by size classes of enterprises

4.145. 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 para. 3.47-3.52). The recommended level of size class breakdown is the following - 1, 2-9, 10-19, 20-49, 50-99, 100—249, 250 and more.

F. Inventories

Total inventories (item 6.1)

4.146. 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, 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.

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

4.148. Changes in inventories should be valued at purchaser's prices including any duties and taxes payable by the purchaser and excluding deductible VAT, and also excluding any rebates and discounts given by the seller if they are purchased from another unit, otherwise 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.

4.149. 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 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. Method, usually used for large, easily traceable items, such as vehicles or furniture.

4.150. 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 the end of the reporting period as well as the stock turnover period (see para. 5.25).

4.151. If inflation were nonexistent, 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 which 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)

4.152. 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)

4.153. This item refers to the value of output produced by an establishment that is not yet sufficiently processed to be in a 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 not 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)

4.154. 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 conditions as received (item 6.5)

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

4.156. The items 6.4 and 6.5 of inventories have significant implication for trade units as the most important one is the inventories of goods purchased for resale in the same conditions as received which participates 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.

G. Taxes and subsidies

Taxes

4.157. 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. This 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)

4.158. 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 licenses, payroll taxes, taxes on non-life insurance on assets, levies on the use of fixed assets. Also included are official fees and charges – that is, duties payable for specific public services, such as the testing of standards of weights and measures, provision from official registers of crime and the like.

4.159. It may not be possible to collect data about 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)

4.160. 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)

4.161. 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)

4.162. Other subsidies on production consist of subsidies, except subsidies on products, which resident enterprises may receive as a consequence of engaging in production (e.g., subsidies on payroll or workforce, or subsidies to reduce pollution).

H. Output

Gross output at basic prices (item 8.1)

4.163. This item illustrates the overall production activity of trade establishments. Output (production) can not be directly observed from their accounting records. It is calculated from data items in the following groups: Turnover, sales, shipments, receipts and other revenues (item 5. (a)); Purchases of goods and services (item 4. (a)); and Inventories (item 6). The data collected make it possible to calculate both the census output and the gross output difference being the exclusion or inclusion of the output from the activities that are non-industrial in nature. Output of trade units is calculated in a specific way. Gross margin (item 8.1.1) accounts for a most significant part of total trade output. Calculation of trade output should be considered from first priority due to its direct link with the compilation of national accounts.

4.164. 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)

4.165. 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 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, one of the following three valuations of output can be derived - factor costs, basic prices and producers' prices:

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 VAT or similar deductible tax, invoiced to the purchaser)
- Subsidies on products (item 7.2.1)

= Value of gross output at producers' prices

Gross margin (item 8.1.1)

4.166. 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 the valuation of gross output (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)
- The value of recurrent losses due to normal rates of wastage

4.167. 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.

I. Intermediate consumption and census input

Intermediate consumption at purchasers' prices (item 9.1)

4.168. 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, at the price the producer would have to pay to replace them at the time they are used.

4.169. Intermediate consumption is a national accounts category 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.

4.170. Intermediate consumption can not 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).

Intermediate consumption =

+ Cost of raw materials and supplies except gas, fuels and electricity (item 4.1)
+ Cost of gas, fuel and electricity purchased (item 4.2)
+ Cost of water and sewerage services purchased (item 4.3)
+ Purchases of services except rentals (item 4.4)
+ Rental payments (item 4.6)

+ Changes in inventories of materials, fuels and supplies (item 6.2.3)

J. Value added

Total value added at basic prices (item 10.1)

4.171. 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).

Total value added at basic prices =

+ Gross output at basic prices (item 8.1)
– Intermediate consumption at purchasers' prices (item 9.1)

4.172. 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:

Total value added at factor cost =

+ Gross output *at factor cost*
- Intermediate consumption *at purchasers' prices* (item 9.1)

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

K. Capital Formation

4.174. 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 expenditure on services that adds to the value of non-produced assets.

Gross value of fixed assets (item 11.1)

4.175. 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 that 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.

4.176. 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 the gross fixed capital formation.

Valuation

4.177. 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 ownership transfer.

(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 can not 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) Disposal of fixed assets are valued at the actual amounts realized rather than at book values.

Time of recording

4.178. The general principles governing the time of recording of acquisitions less disposals of fixed assets 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.

4.179. 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 such as 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 and delivered to the unit intending to use them.

4.180. .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.

4.181. 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

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

Dwellings (item 11.1.1)

4.183. 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)

4.184. 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, including the cost of the streets, sewer, etc. The costs of site clearance and preparation are also included. 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 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, are also treated as fixed capital formation. Activities such as land clearance, land contouring, creation of wells ad watering holes which are integral to the land in question are to be treated as resulting in land improvements.

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

4.186. The major additions, alterations and improvements of buildings and structures (i.e. 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)

4.187. 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)

4.188. 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)

4.189. ICT equipment consists of devices using electronic controls and also the electronic components forming part of these devises. Examples are products within CPC categories 452 and 471[33] (hardware (computers, laptops) and peripherals, different presentation devices etc.).

[33] http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=25&Lg=1

Other machinery and equipment (item 11.1.3.3)

4.190. 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, 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)

4.191. Intellectual property products are the result of research, development, investigation or innovation leading to knowledge that the developer can market or use to their own benefit in production because use of the knowledge is restricted by means of legal or other protection. Specific form 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 product 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)

4.192. 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 it is expected to provide in the future. Unless the market value of R&D is observed directly, it may, by convention, be valued at the sum of costs, including the cost of unsuccessful.

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

Output of R&D on own account =

+ material and service costs
+ compensation of employees engaged in research and development
+ other taxes less subsidies on production
+ depreciation of fixed assets used in R&D

Mineral exploration and evaluation (item 11.1.4.2)

4.194. 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)

4.195. Computer software consists of computer programs, program 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)

4.196. A database consists of files of data organised 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 is 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)

4.197. 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)

4.198. 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 lost in value of a fixed asset due to ageing and 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.

4.199. 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. It is based on the concept of the expected economic lifetime of the individual assets, and it 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 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 to asses businesses' status in distributive trade sector in the areas of profitability, productivity and efficiency have led to 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 see how well the distributive trade is performing in relation to other industries in national economy or internationally.

5.2. The information collected using the data items described in the previous chapter is useful in analyzing the structure and production activity of wholesale and retail trade units. However, direct use of those data items in policy or management decisions is not always sufficient. There is a clear need for another set of variables to satisfy these needs. This set of variables is 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. This chapter suggests a limited set of indicators for monitoring and measuring the overall performance of distributive trade sector as a whole or the performance of some of its divisions and allows meaningful national and international comparability. It describes also the objectives of performance indicators, the key principles on 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 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 to present 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 distributive trade sector, the performance indicators help policy makers and economic planners to evaluate how effectively trade activity is organized, to identify potential areas of improvement and to make more informed strategic decisions regarding future strategy of development.

5.6. Compilation and wide dissemination of performance indicators is intended also to help units active in distributive trade in assessing 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 trends 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 the resources, increased sales, improved reputation among costumers.

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. The performance indicators can broadly be distinguished into three types, namely: (i) growth rates; (ii) ratio indicators; and (iii) share indicators. Some of the performance indicators are applicable to any kind of economic activity, while compilation of others is meaningful for distributive trade sector and its three sub-sectors only. Most of the information necessary for calculation of performance indicators is generated in the accounting and payroll records of enterprises and it is included in the statistical surveys on distributive trade. In order to make use of some particular measures, however, it may be necessary to generate new information.

5.9. The compilation of performance indicators should be considered as a part of distributive trade statistics programme by all countries. It is recommended that annually the performance indicators are compiled at the 3-digit (group) level of ISIC, Rev.4, and quarterly - at the 2-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 data availability 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, including distributive trade, in total economy is measured by means of two indicators – generated value added and employment and their respective proportions or growth rates. Those, and some additional performance indicators in the sections 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) is 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.

Distributive trade employment growth

5.13. Employment growth in distributive trade activities is the annual (monthly or quarterly) percentage change of persons employed in 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[34]

5.14. This index is an indicator of the monthly activity of 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 performance indicator due 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 corresponding CPI indices while deflators of wholesale trade should have a similar methodology to that of the PPI 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 PPI 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[35]. The rate of change (or growth) is determined as a percentage change of turnover over corresponding month of the preceding (if chain linked) or a base year. Alternatively in lieu of 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, i.e. as a percentage change of monthly turnover over the turnover of preceding or a base year. The base year (preceding year is also a base year) value is the arithmetic mean of the twelve monthly turnover results for the base year.

5.18. Following the approach of monthly index numbers calculation, quarterly and annual indices could be compiled.

2. Ratio indicators

[34] For addition information on turnover index, see Chapter VII. Short-term distributive trade statistics
[35] For additional information on seasonal adjustment methods, see Chapter VII. Short-term distributive trade statistics

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 number of persons employed (item 2.1). Relating gross output with 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 the 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.

Value added per person employed

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

Value added per hour worked

5.22. 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 the 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) to generate this value added. The performance indicator is similar to value added per person employed, however in order to provide accurate results it requires good quality data on hours worked. Depending on data availability the indicator can be calculated with quarterly or annual periodicity. The indicator 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 as the total turnover (item 5. (a)) is divided by a total number of persons employed (item 2.1). To demonstrate the trend, it can also be measured in real terms, i.e. as turnover in real terms (see para. 5.60) is divided by total number of persons employed. The indicator is useful for interpreting the development in individual distributive trade sub-sectors, because the turnover in some distributive activities could be relatively high (turnover of wholesalers and retailers on own account)

comparing to turnover of 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 as the gross margin on goods for resale (item 8.1.1) is divided 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 have 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 as turnover (item 5. (a)) is divided by the sales space, i.e. 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. Due to non-uniformity of sales space classes and different country practices in this area is not possible to establish 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 proportion of value added generated in distributive trade (or any other economic activity) to 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 GDP.

Share of distributive trade activity employment in the total employment of the economy

5.28. This performance indicator serves as a useful tool for assessing the segmentation and trends in labour market. It is calculated as ratio between the total number of persons employed in distributive trade to total number of persons employed in 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 the e-commerce sales (item 5. 4). The importance of this indicator has increased in recent years with the tremendous expansion of transaction completed over a computer-mediated network.

D. Additional indicators

5.30. The indicators under this heading do not necessarily evaluate the performance; rather they are suggested to help businesses and other users to monitor some specific aspects of organization of trade activity. Many of them can be applied to an individual store, an entire enterprise or a class of section G of ISIC, Rev.4 on a monthly, quarterly or annual basis. However, it should be noted that their compilation require collection of additional data, thus increasing significantly the burden on respondents. Countries are advised to collect this information only if their own circumstances warranted the collection of such data.

Structure of wholesale trade turnover

5.31. By definition, the wholesale trade enterprises (units classified in Division 46 of ISIC, Rev.4) resell goods and services to retailers; professional users (businesses, institutions, government bodies, etc.) and other wholesalers; and in some cases to final consumers. It may be advantageous for certain types of analysis to ascertain separately the shares of wholesale trade enterprises' turnover to these particular groups of users. The following performance indicators can be calculated:

(a) ***Percentage share of turnover to retailers***. This share corresponds to the traditional scheme producer → wholesaler → retailer → consumer.

(b) ***Percentage share of turnover to professional users (wholesalers, others).*** The wholesalers may form a complex distribution network involving several wholesalers prior to the final user.

(c) ***Percentage share of turnover to final consumers.*** This corresponds to a secondary activity of the wholesalers, acting in a retail capacity.

5.32. These performance indicators form together an exhaustive breakdown of wholesale trade turnover from trading activities of purchase and resale. The shares shall be calculated on the basis of turnover from trading activities of purchase and resale only (item 5.1.2).

Structure of retail trade purchases

5.33. This performance indicator, describing the supply network of retail trade, is an approximation made by the retailer to assess the share of direct purchases from producers, wholesalers and through purchasing groups. The share of purchases shall be calculated on the basis of purchases of goods and services for resale in the same condition as received (item 4.5). An important shortcoming of this indicator is that the shares may not correspond to the total purchases of the retailer for resale (item 4.5). They may not include, for example, the purchases from other retailers, if any and purchases from private users.

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

5.34. Retail accounts receivable are defined as the amounts of the credits, extended by retail stores to their customers for purchases made, outstanding as of the end of the reference period. Accounts receivable include amounts outstanding from consumer receivables such as (i) credit arising from retail sales of passenger cars and other vehicles; (ii) retail credit that is extended on a credit-line basis and that arises from the sale of consumer goods other than passenger cars and other vehicles; and (iii) other consumer receivables, i.e. all credit arising from retail sales of non-motor vehicle consumer goods that is not extended under a revolving credit line. The item excludes the amounts charged on credit cards issued by banks or other issuing credit cards organizations.

Number of retail stores

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

Number of fixed market stands and/or stalls

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

E. How to interpret the performance indicators

5.37. 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 for a given level of performance.

5.38. In using the performance indicators for comparisons, care should be taken to ensure that the units or phenomena are alike enough to compare, or at least that the differences are made explicit. It is not very meaningful, for example, to compare 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 from those listed in the previous chapter, consistency of their definitions and coverage should be ensured.

5.39. The performance indicators are best used to gauge the overall performance of distributive trade sector (or any other sector of the economy), its structure or ongoing processes, therefore, it is recommended not to sacrifice this goal for the sake of a very detailed analysis and compilation of performance indicators of minor importance but requiring a lot of additional data. The purpose of performance indicators is to arrive at an understanding of the broad performance and trends of the trade business in a harmonized and internationally comparable manner.

CHAPTER VI. DATA SOURCES AND DATA COMPILATION METHODS

6.1. This chapter contains general recommendations on data sources and data compilation methods for use in distributive trade statistics. More detailed guidance on the relevant good practices will be provided in *Distributive Trade Statistics: Compilers Manual*, which is to be issued as a follow-up publication 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 either category, 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 units concerned are traditionally the main source of information for compiling distributive trade statistics. The surveys are done either by enumerating all the units in the population (census) or by eliciting response only from few representative units scientifically selected from the population (sample survey).

6.4. The main advantages of statistical surveys as compared to the administrative data sources are that the planning, 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 that they 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), additional respondent burden, higher non-response rates and sampling errors.

6.5. *Economic census*. In general, an economic census[36] is a statistical survey that is conducted at infrequent intervals of time (usually every five or ten years) aiming at collecting comprehensive and detailed statistics about the operating characteristics and structure of units engaged in all (or some) of the 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 distributive trade sector/activities only. It should be noted that the census planning and organization and the subsequent transformation of census's basic data into distributive trade statistics data items is a time consuming and resource intensive exercise. This approach is costly; imposes a high burden on respondent units; may reduce the response rates and thus affects the quality of collected information. Conduct of a complete census of trade units may be useful in cases when a particular country does not maintain an up-to-date business register or there is a significant users' interest for detailed statistical data by geographical area. Censuses of trade units should not be conducted if there are other ways of collecting and producing distributive trade statistics of a high enough quality.

6.7. Censuses of trade units tend to provide a complete enumeration of units engaged with trade activity (including the small units of informal sector) at a particular point of time and are an appropriate approach for generation of trade statistics required at longer intervals of time. Censuses, however, are limited 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 are followed as closely as possible by periodic (annual, quarterly or monthly) sample surveys, providing a continuous measure of trade activity and collecting 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) containing all trade enterprises.

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

[36] There is no an internationally agreed definition of economic census. Countries may have different names and understandings for 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"

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 be a combination of forms, differentiated by periodicity and major characteristics, namely:

(a) the activity, size, legal form, type of operation and the type of variables asked (turnover, expenditures, employment, other specialized variables);

(b) occasionally an extra characteristic, such as the geographical location of the unit, may influence the contents of a survey.

6.11. *Size threshold to determine the target population*. When considering the trade surveys size thresholds play an important role in determining the target population and, where relevant, the sample population of units. Most of the 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, to limit the response burden on businesses and also to take account of the problems of maintaining registers for smaller units. There is no international recommendation for an appropriate size threshold. The decision is left to the judgment of each national statistical office and may vary between surveys for different trade activities and periodicity. 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 country's metadata which 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 survey, 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 comprise enterprises (or statistical units belonging to these 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 the *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 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 to cover only unincorporated (or household) enterprises which are numerous and cannot be easily registered.

6.14. *Sampling frame*. Availability of a sampling frame of the statistical units is a prerequisite for conducting given survey as it provides a basis for 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 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 data collected.

6.15. *Enterprise surveys.* Enterprise surveys assume 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, the list of enterprises drawn from the latest economic census is recommended to be used as a sampling frame. In an area based enterprise survey, a sample of areas is selected first, and then selected areas are enumerated for compiling the list of enterprises operating in the area which serves as the sampling frame for selection of the enterprise in the sample and to collect the required information. It is recommended that for surveys of distributive trade enterprises the list based enterprise surveys be generally 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 require a larger sample than in the case of list based survey sample in order to achieve a given level of accuracy.

(b) It may be difficult to enumerate the enterprises within an area. While many enterprises are likely to be readily identifiable, household-based enterprises that 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, in order to avoid inadvertently missing parts of the enterprise, it is usually considered preferable to collect data from the whole of an enterprise not just a part of it

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

6.17. *Household surveys.* Household enterprises which are unincorporated producer units are not recognized as a legal entity separate from their owners (see para. 2.44). Fixed and other assets used in the production 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 is a very resource intensive exercise. Household surveys are recommended in providing coverage of 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 the responding unit is a person in a household, not an enterprise and 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 thus can conduct list-based household surveys. However, there are few such registers, so 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 not designed to provide a representative coverage of trade activities, but on 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 similar way as 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, i.e.,* the sole proprietor of, or a partner in, an unincorporated enterprise engaged with economic (including trade) activity. Data for all the enterprises thereby identified (or for a sub-sample 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 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 similar to area based enterprise surveys disadvantages, namely the inefficiency of the sample design and the difficulty of handling enterprises with production units in more than one location. In general, the mixed household-enterprise surveys are recommended as the preferred to household surveys or area based enterprise surveys approach for collecting the data 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 countries[37]

[37] For example India and Philippines

adopt a modified version of the approach, which involves a dual, mutually exclusive, listing of (i) households and household-based business operators; and (ii) 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 in the domain of the survey. Modified mixed household-enterprise surveys approach is recommended as preferred to an area-based enterprise survey as it improves the quality of data of micro and small units specially the mobile units as compared with those with fixed location.

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 made to the issue of the respondent burden. As a way of reducing the respondent burden it is recommended that countries co-ordinate 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 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 when countries use administrative data sources for statistical purposes they pay special attention of their limitations and describe them in their metadata.

6.26. *Privately controlled administrative data sources*. Besides from the administrative data sources set up in response to legislation and/or regulation, statistical offices may obtain certain data from a private sector data supplier. Private sector data suppliers[38] operate on a commercial basis so the transfer of data from them to the statistical offices takes the form of a contract with a payment of a fee.

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

(a) Complete coverage of the population to which the administrative process applies and perceived as low non-response;

[38] An example of a private sector data supplier is Dun and Bradstreet in the United Kingdom

(b) Avoidance of response burden. The responding units make available the information as part of the administrative procedure;

(c) Cheaper for the statistical office to acquire data from an administrative source than to conduct a survey;

(d) Suitable for covering the smallest segment of the units' population which contributes relatively little to the estimates but makes up a substantial percentage of the number of units in the population;

(e) Smaller than a survey sampling errors;

(f) Some data may be more accurate because of intense data checks by administrative authorities

6.28. *Main disadvantages of the administrative source* 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 the 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 in particular a problem when administrative units do not correspond to statistical units either because of difference in the concept or because of deviating identification numbers. Even if the variables existing in the administrative register perfectly fit to the needs of the statistical office, matching problem can prevent from using them.

(c) Risks with respect to stability. Administrative processes are subject to change in response to new legislation without much (or any) regard for the impact on the statistical series. This may cause systematic bias.

(d) Data may become available with unacceptable delay.

(e) 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 source in their countries and use the most appropriate of them for compilation of distributive trade statistics. This can be of a great help in reducing significantly the response burden and the surveying costs. The relative advantages and disadvantages mentioned above have no absolute value. It depends on the specific situation whether they apply and to what extent. Therefore, the review has to be seen as a checklist which can be used in the process of decision making. Examples of the most appropriate administrative sources are the tax authorities (any fiscal or VAT information on units), customs authorities, social security registers etc.

3. 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 assumes availability of an adequate sampling frame, i.e., the 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. A business register, maintained by the countries for statistical purposes is recommended as the most appropriate source for deriving the sampling frame for distributive trade surveys.

6.31. *Statistical business registers*. In general, statistical business register means 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 of the cases is based on legal provisions as its scope and coverage is determined by country specific factors. As the best option it is recommended that the frame for every list-based enterprise survey for distributive trade is derived from a single general purpose, statistical business register maintained by the statistical office, rather than the option of using stand-alone registers for each individual survey. There are two basic reasons for using a single statistical business register. First, and most importantly, the statistical business register operationalises 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 to create units responsible for the frames of each survey 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 to 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. Each administrative register should be examined carefully by statistical offices in terms of units' coverage and quality of data before being used. It should be mentioned that combining the data would be possible only if a single business number for all enterprises is introduced.

6.33. *Maintenance of the register*. To be a central sampling and weighting frame for all statistical surveys, including distributive trade surveys, the statistical business register should be up-to-date and with satisfactory quality. In practice, however, the enterprises in it 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 the 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 the enterprise dynamics. Unless the business register is regularly maintained, it will quickly loose its value as it becomes dated and ceases to adequately reflect the real world.

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

(a) *Economic census.* Economic censuses (see para. 6.5) provide in practice the most comprehensive list of units and links between them in a given country on which basis a statistical business register can be established and maintained. Economic census is recommended for use in the cases explained in para. 6.6.

(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 their use for its maintenance. Common examples of administrative data sources that may be used to establish and maintain business registers include business registration systems, VAT tax systems, payroll tax systems, and records maintained by the 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; 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 activity classification of units, of contact information, and of the 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 contact address changes, closure of business, change in the economic activity of the unit, etc.

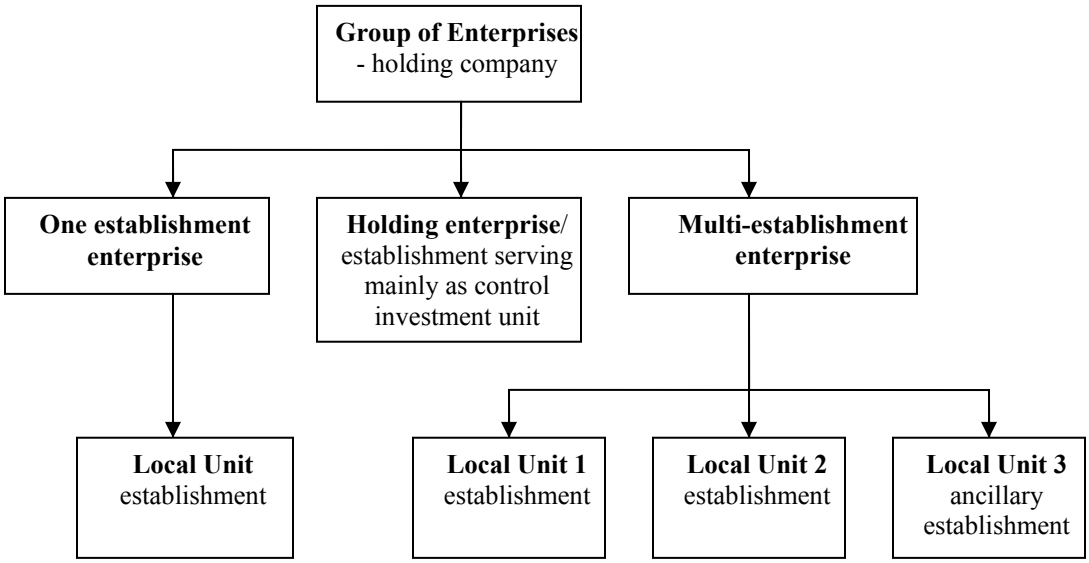
(d) *Business register surveys*. Register updating information that cannot be obtained from the administrative source on which the register is based, or from survey feedback, has to be obtained by *business register surveys* (sometimes termed *nature of business surveys*) and profiling operations conducted 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 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 each establishment should be cross-referenced to the central office. It is recommended that countries assign proper coding to the enterprises and establishments as to establish hierarchical link between them as shown in the graph 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.

Figure 3. Hierarchical links between a group of enterprises, an enterprise and its constituting establishments



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 its physical location;
- name and address of the central office or the headquarter of the enterprise and establishments that are part of multi-establishment enterprise;
- kind of economic activity, description or code;

- legal organisation - incorporated and 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 is 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 to bring them to the level of the intended statistical output. The most important of these procedures are explained in the paragraphs 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 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 statistical surveys data processing operations. 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. Micro editing (also called input editing) focuses on the individual record or questionnaire, as opposed to macro editing where checks are performed on aggregated data.

6.39. *Selective (significance) editing*[39]. Selective editing is an approach for prioritizing and further reducing costs of editing, which is one of the most resource-consuming processes in the production of official statistics. It is a procedure which targets only those of the micro data 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 statistical process countries give priority to the use of selective editing as a more efficient method of editing of distributive trade data.

[39] 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

6.40. The data editing may take place during (input editing) or after the data entry phase (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 which should have been answered in fact do have 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* - set of checks based on the statistical analysis of respondent data. Many checks take form of a ratio between two variables, which should be within specified limits. Another type of rational check is the arithmetic check, for instance specifying that a sum of variables should equal a 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 even exhaustive data editing will never result in 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 particular data item responses have most significant impact upon the main estimates. These are often termed as *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 individually checked.

6.43. *Imputations.* Missing data is often encountered in most of the trade surveys which creates problems for the data editing. The data may either be missing for a particular data item of the questionnaire (item non-response) or the selected unit may not return 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 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 did respond to only part of them. Cases may arise wherein a respondent has reported on all questions but either some of the answers may not be logically correct or there may be inconsistencies between some of the answers provided by a respondent. Presence of such item non-response and invalid

data in the data set ultimately affect the quality of the survey results. Much of these are removed by following appropriate editing rules.

6.45. *Unit non-response*. Though the units selected in the sample are legally required to provide response to the survey conducted by the statistical offices and are liable to be penalized in case of a non-response this does not efface the problem of non-response. The non-response remains a problem which may occur for one reason or the other, namely, non existence of the unit included in the survey, lack of appreciation of the importance of the data on part of the respondents, refusal, not knowing how to respond, lack of resources and non-availability of the desired information.

6.46. There are ways to minimize the non-response including the awareness of the importance of the data to be collected and appeal to the respondents to cooperate with the statistical authorities through the print and electronic media at the launch of the survey, reminders to the non-respondents and resorting to the enforcement measures laid down in the 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 to deal with missing data item (non-response):

(a) All forms with missing values are ignored and confined to analysis of the fully completed forms; or

(b) Missing data are imputed so that the data matrix is complete. Statistical analysis techniques are applied on 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 the 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 zeroes; 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, then imputation is usually done as a separate step. It takes care of inconsistencies that remain 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 the process of filling the gaps and eliminating inconsistencies and the means of producing a complete and consistent file containing imputed data. There is variety of methods for imputation, ranging from simple and intuitive to rather complicated statistical procedures. 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 which 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. An improvement may be to impute the median in order to eliminate the effect of the extreme values;

(c) *Post stratification* - more precision will be achieved in keeping the imputed value closer to the true value if the mean/mode/median are imputed using the observations from those units which are homogeneous with the one with missing data. For this purpose, post stratification is used, i.e. the sample is divided into strata and then stratum mean/mode/median is imputed.

(d) *Substitution* - relies on the availability of comparable data. Imputed data can be the value for the enterprise from the same survey occasion in the previous year, adjusted to reflect the average increase (decrease) 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 answer complete or partial imputation requirements;

(f) *Hot deck* - replaces each missing value by the available value from a 'donor', i.e. 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, the 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 closest unit to the missing value is then used as the donor;

(h) *Sequential hot deck imputation* - this method also uses classes and requires single pass. 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 regression technique is used to impute the missing data for defining the predictor variable suitably.

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, 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 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, amongst other attributes, to expand the sample information to the level of target population. Alternatively, the problem of unit non-response can also be dealt with 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.* The data after it has been treated through editing for the non-response etc. is used to estimate the level of the variable. The grossing up comprises raising the sample value with a factor based on the sampling fraction (or the factor using returned data) for each cell in the stratified sample for obtaining the levels of data for the frame population. The grossing up will use edited data to calculate a value representative of all units. In case information on auxiliary variable related to the variable under study are available for units in the sample as well as in the sampling frame, more sophisticated statistical techniques can be used for using this information for grossing up.

6.53. *Outlier values*. Outliers are a particular category of influential observations which are correct but are 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 it may affect the estimates significantly. If the grossing up factor is large and outlier value is included in the sample, the final estimate will be substantially large and 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 that it represents itself only. Alternatively, statistical techniques can be used to calculate more appropriate weight for the outlier unit.

C. Data collection strategy

6.54. All units in the economy engaged in economic activities within the scope of the distributive trade sector (Section 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. The household units include small trade enterprises that are household-based, operate outside the household at a separate location (i.e. fixed stall at a market place), or have no fixed location (i.e. a movable stall along a public road or a street vendor). An unincorporated household unit (called also an informal sector unit) is a term utilized in developing countries. In most of the developed countries, a household unit generally takes a more formal form of small enterprise and is incorporated. Some small household units, however, 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 enterprises, commensurate with their specific statistical and organizational circumstances. The legal organisation (incorporated or unincorporated), size (from large multi-establishment enterprises with more than 250 employees to small single establishment enterprises with less than 10 employees) and the ownership pattern (public sector, privately owned and foreign controlled) of units within the scope of distributive trade statistics differ significantly. An illustration of a general data collection strategy for different segments of the economy is presented in the diagram below.

6.56. At one end of the spectrum are the corporate trade units which are incorporated under the statute of a country (public enterprises) and are comparatively large, while at the other end are the unincorporated trade enterprises characterised by a low level of organisation.

(a) *Public incorporated enterprises.* These enterprises are quite organised 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.

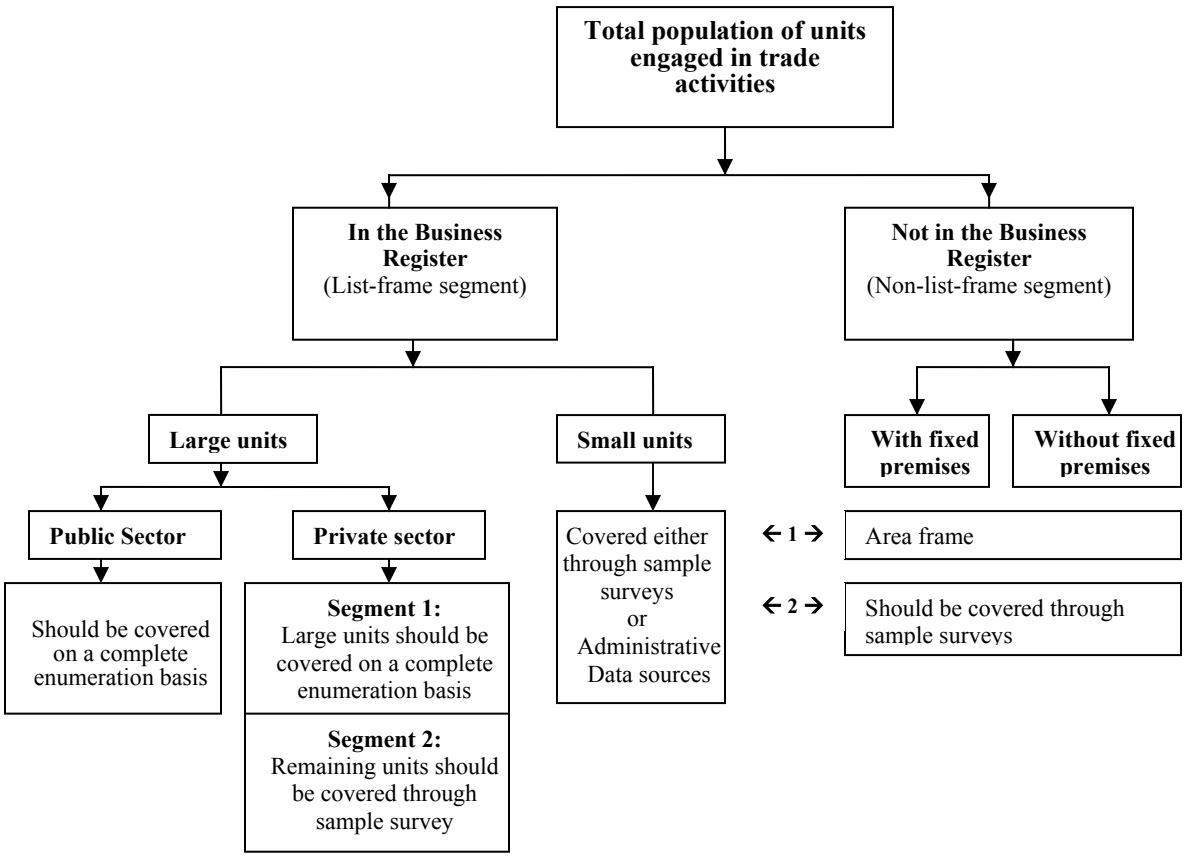
(b) *Private and foreign controlled incorporated enterprises.* The coverage of these enterprises should be achieved by dividing them into two segments – one containing the large-scale units and the second containing the rest. It might be considered that the large-scale segment of the economy is not suited for sample surveys because the differentiation in size and activity is great compared with number of units involved. Enterprises in large-scale segment, therefore, should be covered on a complete enumeration basis if possible. The smaller enterprises, whose number tends to be much larger, are relatively homogenous as compared to the large-scale segment counterparts. Sample survey can gainfully be used to cover this segment of enterprises

(c) *Small enterprises*. The segment of small incorporated enterprises or unincorporated household enterprises can be covered by two approaches, depending on whether the enterprises are registered or not:

(i) Through sample surveys if these 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 section D below).

Figure 4. Data collection strategy for different segments of the economy[40]



[40] All units on the business register are excluded from the area frame (i.e. non-list frame segment); All units in the sample that are part of a list frame segment and included therein are excluded from the sample of non-list frame segment.

D. Survey method

6.57. Countries are encouraged to review the Fully Integrated Rational Survey Technique (FIRST)[41] as an option for a survey programme that efficiently capture 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: (i) some census enumeration, preferably an economic census, to establish the complete statistical population of units for construction of sampling frame and sample selection. In the absence of an economic census, a population census will generally be also sufficient; and (ii) 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.

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'*) that are clearly distinguished by their legal status from the rest of the units. For this segment either a complete enumeration or a uni-stage (most often stratified) sampling scheme is adopted; and

(b) The rest of the units (hereinafter called the '*non-list-frame segment'*) for which drawing an exhaustive list is not feasible and thus can be covered only by an (geographical) area frame approach. A two-stage (in specific cases may be multi-stage) sample design 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. Reducing survey costs is one of the main advantages of FIRST. Besides it, 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 time-span with relatively modest means. If properly implemented, FIRST obviates the need for trade-offs between survey contents and the timeliness of release of results that 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

[41] *Strategies for Measuring Industrial Structure and Growth*, United Nations, 1994, Studies in Methods, Series F, No.65 (United Nations Publication, Sales No. E.94.XVII.11).

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 sub-sector. The list frame is usually made up of the following groups which are easily identifiable:

(a) Publicly traded companies (i.e. companies listed on a stock exchange);

(b) Non-traded companies (i.e. companies registered with a government agency such as the Justice Department, Ministry of Commerce or the like);

(c) Government-owned enterprises (public enterprises which 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 sub-sector. However, further stratification of the list-frame is necessary if additional details by economic activities or geographical location are required.

6.62. The population of units in the large-scale segment tends to be very heterogeneous in 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 constituted of 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 gainfully be covered on a sample basis for both the annual and infra-annual surveys. Adopting an integrated sample design for the both kinds of surveys often help resolve the problems of inconsistency between the two sets of estimates obtained from them. Estimates of both annual and infra-annual change parameters 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 estimates of annual and infra-annual estimates.

(b) Level of co-operation 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 rotation panel-sampling scheme is usually free from large and unrealistic temporal variations. Moreover, use of rotation sampling permits use of composite estimates that further restricts such temporal variations resulting from sampling error.

(d) This provides the scope of including the 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 sub-sector 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 of 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 *'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. The FIRST is an establishment-type survey in principle, but, for the *'non-list-frame segment'* uses area sampling techniques. In an area sampling technique of surveying households and establishments, a sample of area units is selected at the first stage. Next, in each of the selected first stage unit, it is required to identify and list all establishments operating in the selected area that are neither included 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 in 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 home are listed by a house-to-house (structure-to-structure) visit. In addition, the units without any fixed premises of operation like hawkers, street vendors and service providing free-lancers (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 concern) resides. 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 sample 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: (i) the survey may completely enumerate all establishments above a given cut-off point (for example, based on size criteria) and sample the others; (ii) all units may receive a survey form, but an abbreviated version may be used for the small establishments; and (iii) 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 specialised topics or in greater details. In general, the use of infrequent benchmark surveys, usually conducted at 5 to 10 year interval, is not appropriate for the purpose of collecting and compiling structural type distributive trade statistics.

6.72. For the countries with significant contribution of unincorporated units to distributive trade activity (the non-list frame segment in figure 4.) it is essential to collect data for these units as well. As explained in the previous sections, the coverage of these units requires conducting surveys based on area-frame sampling, which are resource intensive and time consuming. A benchmark survey normally carried out every 5 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, either on 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. This 12-month period should preferably be

the calendar year beginning with 1 of January and ending with 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 are collected on both a fiscal-year and calendar-year basis to facilitate building up 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 a calendar year basis. There are advantages if all establishments can submit returns covering an identical 12-month period, particularly in 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 to estimate the period over which they are centred.

6.74. *Reference period for infra-annual surveys* 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 efforts to standardize the information provided in the monthly returns by some estimation procedures.

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 effectiveness of economic policy and carrying out business cycle analysis. Whereas annual statistics, such as structural type statistics described in previous chapters, have details, comprehensiveness and accuracy as priorities, short-term statistics' priority is to produce monthly and quarterly indicators of dynamics of distributive trade sector in the most timely manner, but with likely lower accuracy, less details and reduced scope. These statistics are usually produced to a strict timetable, and they are required as soon as possible by policy makers. Sometimes this means that initial figures are subsequently revised or adjusted as more data is collected and analyzed.

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 between two different points in time; and

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

7.4. Different objectives and priorities of structural and short-term distributive trade statistics require from countries that appropriate statistical techniques are developed and implemented in order to combine these two sets of data. The main aim of the these techniques is the reconciliation of the statistical data derived from different data sources with different frequency, in order to obtain short-term data series that, while obeying 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 the 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 that cover an adequate proportion of units (size of the samples). Econometric methods and indirect estimation procedures should not be

accepted as a substitute for data collection. They also should be made consistent with their annual equivalents, partly for the convenience of users and partly and more fundamentally because the benchmarking process incorporates the information content of the annual data into the monthly/quarterly estimates.

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

B. Indices of distributive trade

1. Indices of distributive trade: An overview

7.7. *Types of distributive trade indices.* To analyze various aspects of distributive trade dynamics a number of indices can be constructed ranging from a rather simple indices of turnover changes in nominal terms (value index) to a more detailed and complex index of turnover volume and output of distributive trade sector (indices 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 a part of IRDTS, however some guidance on this topic can be found in paragraphs below.

7.8. *Purpose.* One of the main purposes of compilation of distributive trade indices is the description of the short-term changes in value and volume of turnover of wholesale and retail trade as well as in the output of 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 entire economy including the identification of the turning points in economic cycles. Indices of output of distributive trade sector, in addition to their importance for short-term analysis, provide a key input in the compilation of quarterly national accounts.

7.9. *Periodicity.* It is recommended that indices of turnover volume and output are compiled on a monthly basis as this better reveals the short-term fluctuations. Monthly indices are even more meaningful if produced without significant time lag that is within the month immediately following the reference period. Recognizing that national statistical offices may not have capacity to produce reliable monthly indices countries, in such cases, are advised to compile quarterly indices, as it gives sufficient flexibility in terms of time and resources. It should be noted, however that use of quarterly indices dilutes 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.* The detailed discussion of index types, their theoretical properties and comparative advantages and drawback is provided

in various international sources[42] and is not reproduced in this publication. It is recommended that compilers of distributive trade indices use those manuals while developing their countries' distributive trade indices. Although, some policy guidelines in this respect are provided in this chapter, a more detailed discussion of good practices in this area is beyond the scope of these recommendations. That will be provided in *Distributive Trade Indices: A Handbook of Country practices,* which is to be issued as a follow-up publication to the current recommendations.

7.11. *General recommendations for the compilation of volume indices of distributive trade*. As a general guideline the chained-linked Laspeyres index with the weights being updated at least every five years is recommended as a preferred approach for the compilation of volume indices. This index formula satisfies most of the desirable criteria such as the monotony, homogeneity, up-to-date weighting structure, real comparison of volumes, cost efficiency and timeliness etc. Paasche formula does not have any strong advantages over the Laspeyres index and is more difficult to implement as it requires availability of current weights. Chained Fisher index where the current and the base period weights are used in its Laspeyres and Paasche components possesses several theoretical advantages such symmetry and time reversal but it looses on interpretability and is the most difficult one to implement..

7.12. Laspeyres volume index with the weights not been changed for a long period of time (more than five years) is used by countries with limited resources and persistent problems with obtaining updated weights. This approach has an advantageous property of producing data at constant prices which are additive (sum of 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 dynamics of distributive trade. If a country uses Laspeyres volume index with fixed weights it is recommended that the periods between which weights are updated are as close to five years as possible. In the process of updating the weights countries are encouraged to make every effort and to chain-link the series with the new weights.

7.13. It is recommended that while choosing the index type, countries take into account the purpose of the index and practical considerations such as general policy of a given national statistical office in the area of price statistics, the availability and quality of data, resource constrains etc. As a further guidance for the compilation of distributive trade indices, countries are advised to use seasonally adjusted series when appropriate and available. Section 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

[42] See 2008 SNA, Chapter XVI; Compilation Manual for an Index of Service Production, OECD, 2007, Section 5; Handbook on price and volume measurement in national accounts, Eurostat, 2001; Manuals on Consumer and Producer Price Indices etc.

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 and wholesale trade and its 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 the trade services provided. The 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 by 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 done by using weights based on 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 (i.e. classes included in 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 of turnover volume*. If appropriate price indices are not available to deflate turnover due 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.

(a) *Output volume indicators.* The output variables (e.g., 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 as one of the main input indicators, which can be used as a proxy measure of production. Although, not recommended, there are many situations where information on input measures 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 activities (also called 'index of production of wholesale and retail services'). The main differences are:

(a) Turnover includes sales of goods bought for resale in the same condition as received which is not considered in the indices of output of wholesale and retail trade service;

(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) 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 rights. 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 reasons for compilation of these indices is their use as inputs in the quarterly national accounts compilation as an appropriate estimate of short-term changes in gross value added for the 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 adjustments

7.21. *Need for seasonally adjusted distributive trade statistics*. Monthly and quarterly data on distributive trade statistics are an important tool for economic policy making, business cycle analysis, modelling and forecasting. However, they are often characterised by seasonal fluctuations and other calendar/trading-day effects, which are obstacles in 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 to achieve a better knowledge of the underlying behaviour. This section contains a brief overview of the basic concepts and recommendations for compilation of seasonally adjusted time series. The 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 holidays effects are presented in section 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 chosen once should not be changed often. If the changes are necessary, they should be thoroughly justified.

1. Basic concepts for use in compilation of seasonally adjusted data

7.23. *Time series.* When statistical data are collected at regular intervals of time they form a time series. Turnover of retail trade for each sub-period (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 the 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 causes, for example, institutional events, demographic and technological changes, new ways 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 longer term irregular fluctuations, usually referred to as business cycle. In much analytical work, the trend and the cycle are combined because, for series covering a short period of time, the long-term trend cannot be estimated adequately. As such, the trend-cycle component is the underlying path or general direction reflected in the data, that is, the combined long-term trend and the business-cycle movements in the data.

(c) *The seasonal component* (S_t) is a movement within the year with a characteristic shape for each time series which represents the effect of climatic and institutional events that repeat 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 effects and moving holiday effects (see para. 7.31-7.37). The seasonal effect narrowly defined is an effect 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 annual timing (e.g., public holidays such as Christmas).

(d) *The irregular component* (I_t) represents unforeseeable movements related to events of all kinds. It is the 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 it captures effects that are unpredictable unless additional information is available, in terms of timing, impact, and duration. The irregular component includes the following: i) irregular effects narrowly defined; ii) outlier effects; iii) other regular effects such as the effects of unseasonable weather, natural disasters, strikes, irregular sales campaigns, etc. However, it should be noted that these effects can be estimated separately to the irregular component and that it is important to do this 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. It removes all variations that are systematic (seasonal effects) and calendar related (institutional events which repeat 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 has 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 subcomponents. The seasonal variations can be distinguished from the trend by their oscillatory character, from 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 are two types of decomposition models: 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 the 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, i.e. if the seasonal effects are the same from year to year.

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

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 the seasonal variation's size increases and decreases with the level of series, 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.

$$X_t = T_t.C_t.S_t.I_t$$

7.30. *Quality of seasonal adjustment*. The most fundamental requirement of seasonal adjustment quality is that there is 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 (i.e. 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 of a good seasonal adjustment are 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 are small. Large revisions can indicate that the estimates are misleading or even meaningless.

7.32. *Concept of direct and indirect seasonal adjustments*. Many of distributive trade data represent aggregates or residual items. For instance, the trade margin or value added is calculated as a difference between two components. In the first case these are values of turnover and goods bought for resale; and in the second case these are the output and intermediate consumption. A seasonally adjusted estimate of value added can be derived either as seasonally adjusting value added directly, or as a 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 to a greater extent depend on the set of series in question. Because neither theoretical nor empirical 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 is a 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 quite distinctively different seasonal patterns and have 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 one-off economic or social event. Their detection and correction prior to implementation of the adjustment process is an important precondition for 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 (i) errors in the data; and (ii) the "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 distortion. The trend path is intended to measure the long-term growth of time series and it is not desirable for it to respond to a one-off irregular movement. It should be noted that all seasonal adjustment packages have built-in option for the detection and the 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 every month/quarter the seasonal adjustment procedure or by using extrapolated coefficients computed once a year. In the first case, data are revised every month/quarter. In the second one, 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 producing 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 can be identified and removed from the series. The most important of them are the moving holidays' effects and the "trading-day" variations which represent the "within-month effects". These variations are usually treated as seasonal in character and should be removed together with the other seasonal variations when producing a seasonally adjusted series.

7.37. *Moving holidays.* Moving holidays are holidays that occur at the same time each year based on the different calendars other than Gregorian calendar which is widely used as a world standard for statistical time series. Therefore, their exact timing shifts systematically each Gregorian calendar year. The influence of these moving holidays in 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.

(a) *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. 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 the usual April occurrence.

(b) *Chinese New Year* affects in a similar way trade activities. It mostly occurs in February but can also occur in January. As for Easter, Chinese New Year's effects have a predictable magnitude and direction.

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

7.39. *Trading day.* Trading day is a common calendar related effect that is often found in economic time series, especially in distributive trade time series. This effect is due to 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 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 it may also vary between the same time periods in different years.

7.40. 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 week. This daily pattern states 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 the economic activity. Also, for these series, the number of Fridays and Saturdays has a significant impact, as these days are those when people do much of their shopping activities. Trading day variations are associated also with the accounting and reporting practices of trade units. Stores that do 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 - 28, 29, 30 or 31 days, one way to think of the trading day effect is to consider

each month of the year as a block of 28 days (four days in each type of weekday) plus one, containing zero, two or three extra days. If the level of activity for each type of weekday is to be constant through the years, 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 that that for June purely because July has an extra day. This effect is called a *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 have a trading day correction, the length of 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 in either the proportional or regression methods for adjustment. Under the first approach, the effects of trading days is estimated by counting the proportion of them in the month/quarter while under the second the effects of trading days is estimated in a regression framework. In general, the regression based approach should be preferred by countries as a method of trading day adjustment. As for the other moving holidays effects, statistical packages have built-in options for the detection and treatment of trading day effects. They offer default calendars, however**,** it is recommended that in trading day adjustment countries use country-specific calendars as they ensure more accurate results.

4. Seasonal adjustments software packages

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

7.44. *Seasonal adjustment packages based on moving average methods*. The majority of seasonal adjustments 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 ends of the time series. Some methods use asymmetric filters at the ends while others extend the series using ARIMA models and apply symmetric filters to the extended series. The general procedure in 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 belong to the seasonal adjustment techniques based on moving average methods.

7.45. *Seasonal adjustment packages based on model methods*. The model based approach requires the components of the original time series, such as the trend, seasonal

and irregular to be modelled separately. This approach, assumes 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 other cases, the original series is modelled and the component models are derived from that model. Model based seasonal adjustment programs include, among others, TRAMO-SEATS, STAMP, and BV4.

7.46. *Seasonal Adjustment Diagnostics.* A set of diagnostics to assess the outcome, both from the modelling and the seasonal adjustment parts are provided in the programs and should be used. These diagnostics range from advanced tests targeted for the experts attempting to fine-tune the treatment of complex series to simple tests that as a minimum should be looked at by all users of the programs. While the programs sometimes are used as a black box without the diagnostics, they should not be used that way, because many 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 minimum length to obtain 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, however, is required to identify more precisely the seasonal pattern and to adjust the series for calendar variations (i.e. 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 part 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 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 conceptually wrong.

7.49. However, in some particular cases like for national accounts or geographical breakdowns purposes, 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 refers to 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 depends on the nature of the series. In principle, the ARIMA models change slowly in time while their associated parameters are more sensible 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 either in seasonally adjusted 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 country's capacity. Seasonally adjusted data, for example, are often considered more informative for uni-variate and multivariate purposes while trend-cycle data are in principle recommended for graphical representations and for series characterised 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 data should be fully unadjusted, showing what actually has 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 conducted by simple methods such as using 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 which is not an appropriate procedure. Countries should make any effort to discontinue such practice. While still publishing the partially adjusted data, the appropriated explanatory note should be provided to warn users about limitations of such data. It is important that seasonal adjustment procedures used are appropriately documented and included in 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, lower level of accuracy and details. For example, there may be differences in the coverage of units, degree of details of data items included, activity or geographical areas represented, etc. Thus, short-term statistics suffer more from bias in comparison to the more comprehensive annual data, arising from factors such as sampling error,

differences in use of the business register (different versions of the register, grossing methods, reclassifications of establishments), different monthly/quarterly and annual accounting methods used by respondents. This section deals with the processes involved in producing optimal short-term distributive trade data consistent with annual ones. The general term for this is 'temporal disaggregation' and the common variants are benchmarking and interpolation

7.54. *Benchmarking* refers to the case where there are two sources of data for the same target variable, with different frequencies, and is concerned with correcting inconsistencies between the different estimates, e.g. differences between short-term and annual estimates of turnover of 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, otherwise using a simple curve-fitting algorithm. A short-term pattern for interpolation may be derived from previous (discontinued) survey data, from proxy variables or as 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 on the basis of conducted censuses or more accurate sample surveys or administrative data or even, some combination of these sources. It should be noted that the issue of benchmarking arises also with annual data, when a survey is only conducted 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 important to have consistency between annual and infra-annual estimates of 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 months (or four quarters) of the indicator - the annual benchmark-to-indicator ratio (BI ratio). Usually, the value of BI ratio differs from 1 if estimates are obtained from data sources with different frequency. .

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 the adjustments are necessary to be made so BI ratio becomes always 1.

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

7.60. *Benchmarking methods*. There are two main approaches to benchmarking of time series - a purely numerical approach and a statistical modeling approach. The numerical approach differs from the statistical modeling approach by 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, i.e. the family of proportional Denton methods. The statistical modeling approach encompasses ARIMA model-based methods and a set of various regression models[43]. 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, i.e. pro-rata distribution across months/quarters. As a result, the pro-rating 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 a "step problem". The pro-rata distribution technique is the simplest benchmarking method but because of the step problem, it is not recommended for the reconciliation of low- and high-frequency distributive trade data.

7.62. *Proportional Denton technique.* This technique is an integrated way of dealing with both aspects of benchmarking (distribution and extrapolation). The Denton family is based on the principle of movement preservation, which can be expressed as requiring that (i) 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 (ii) the adjustment to neighbouring months should be as similar as possible. Basic requirement of the technique is that the calculation has to be based on the original monthly/quarterly indicator (not revised or seasonally adjusted). Usually the incorporation of new annual data for one year requires revision of previously published monthly/quarterly estimates because the adjustment for the bias in the indicator is spread over several periods, not just

[43] Detailed explanations on these methods, as well as an analysis of the available software for reconciliation can be found in the Eurostat *Handbook on Quarterly National Accounts* and the IMF *Quarterly National Accounts Manual – Concepts, Data Sources, and Compilation*

within the same year. In practice, the impact of the implementation of proportional Denton benchmarking technique becomes insignificant after 3 to 4 years.

7.63. The proportional Denton technique is relatively simple and well suited for large scale applications and as such is the recommended approach 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 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 smoothes the changes made to month/quarter to month/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 particularly be used to avoid the step problem, i.e. the distortion in the monthly/quarterly time series associated with the implementation of pro-rata distribution method (see para. 7.57), mainly caused by the change of one BI ratio to another. The practical implementation of proportional Denton technique, however, requires application of special software.

3. Benchmarking and compilation of distributive trade statistics

7.64. Benchmarking should be considered by countries as an integral part of the compilation process of short-term distributive trade statistics and should be conducted at the most 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. While undertaking the benchmarking of distributive trade data, countries may consider the following as a way of guidance:

- The estimates of one and the same variable produced with different frequencies should be consistent, so the users will not be confused;
- As soon as new annual data become available, the monthly/quarterly estimate should be aligned with them;
- The growth rates of the indicator series, should be preserved;
- The importance of good benchmarking methods increases in the cases when the quarterly indicators show considerable deviation from the annual data. In this relation, the consistency of estimates between the infra-annual and annual data sources should be reviewed, which may identify biases or other problems and lead to improved estimation and compilation practices for both sources;
- The benchmarking methods should be regularly reviewed;
- Mechanical methods for distributing the difference between the monthly/quarterly and annual estimates, such pro-rata distribution, should be avoided because they introduce steps between years;
- Improved accuracy for short-term statistics achieved through benchmarking may enable lower sample sizes and reduce costs and/or provide opportunities for improving timeliness.

7.65. *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 maximally preserve 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 diminishing to zero for sufficiently distant periods. As a practical recommendation, countries may allow at least, two to three preceding (and following) years to be revised each time new annual data become available.

7.66. *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 filing the gaps of missing data and solving 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.

7.67. *Benchmarking and seasonal adjustment*. As it has been explain in the previous section benchmarking also occurs 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. In order to fulfil some geographical or accounting 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 has 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, 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, consistency with the annual data (for geographical or accounting reasons), can impose 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 from the collection and processing of data to compilation and dissemination of statistics. Quality measurement of distributive trade statistics is concerned with providing the user with sufficient information to judge whether or not the data are of adequate quality for their intended use, i.e. 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 a quality management.

8.2. *Data quality assessment frameworks*. Most international organisations and countries[44] have developed definitions of quality, outlining the various dimensions (aspects) of quality and quality measurement and integrated them into quality assessment frameworks. Although the existing quality assessment frameworks differ to some extent in their approaches to quality and number, name and scope of quality dimensions (see Box 4 for reference[45]) they compliment each other and provide comprehensive and flexible structures for the qualitative assessment of a broad range of statistics.

(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 organised in a cascading structure covering the prerequisites and five dimensions of quality – assurance of integrity, methodological soundness, accuracy and reliability, serviceability and accessibility.

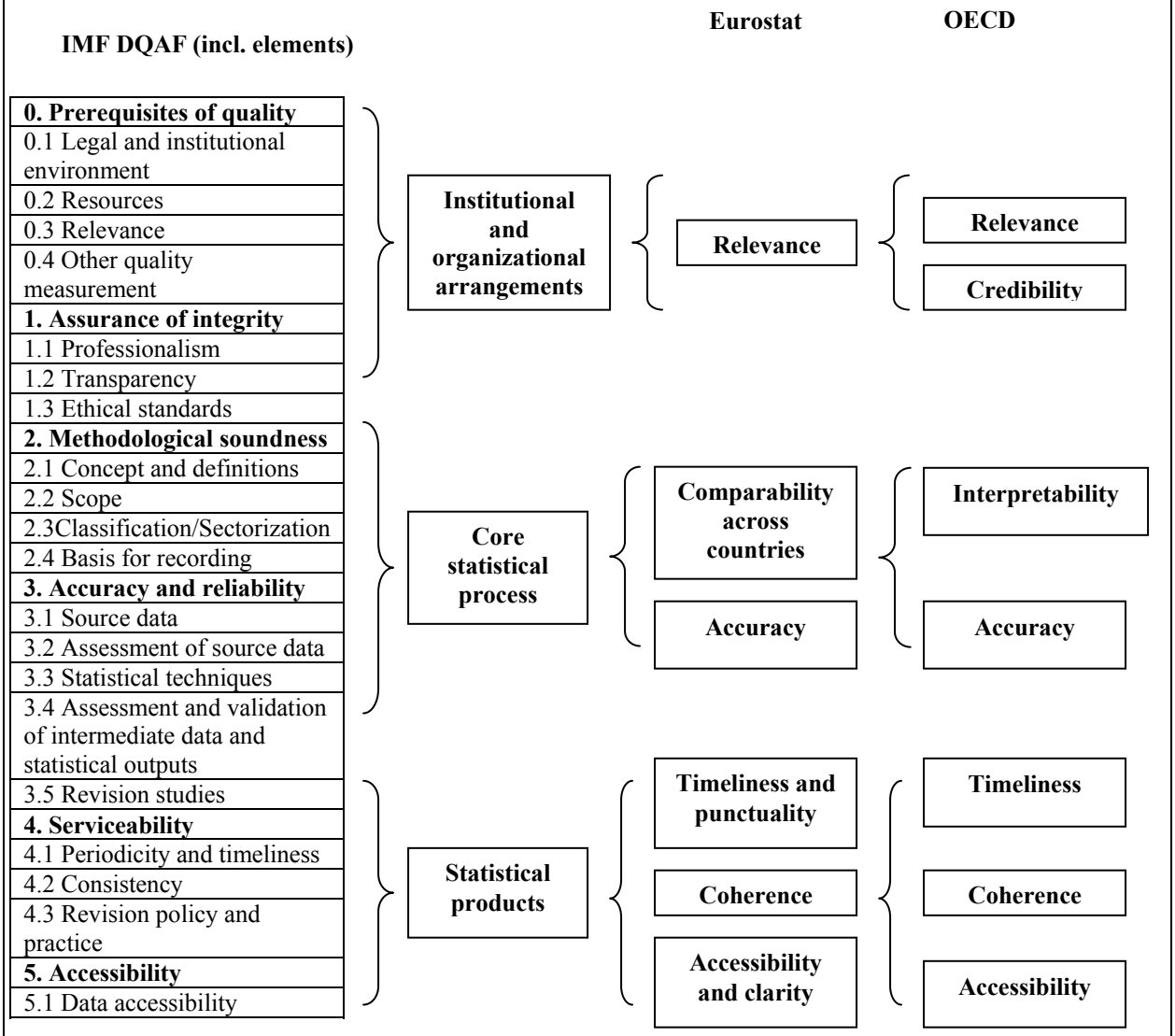
(b) The *European Statistical System (ESS)* focuses more on statistical outputs and defines the quality of statistics with reference to six criteria – relevance, accuracy, timeliness and punctuality, accessibility and clarity, comparability and coherence.

[44] IMF Data Quality Assessment Framework - http://dsbb.imf.org/Applications/web/dqrs/dqrsdqaf/; Eurostat, "Assessment of quality in statistics - Definition of Quality in Statistics", Working Group, Luxembourg, October 2003; OECD, "Quality Framework for OECD Statistics", Paris, June 2002 UK Office for National Statistics Guidelines for Measuring Statistical Quality, Statistics Canada's Quality Assurance Framework , Statistics Finland's Quality Guidance for Official Statistics etc.

[45] Source Data Quality: A Comparison of IMF's Data Quality Assessment Framework (DQAF) and Eurostat's Quality Definition – Licie Laliberte (IMF), Werner Grunewald, and Laurent Probst (Eurostat), January 2004. The last column showing the relationship with the OECD Quality Measurement Framework is by the UNSD.

(c) The *OECD Quality Measurement Framework* views quality as a multi-faceted concept. Likewise Eurostat approach, the quality characteristics depend on user perspectives, needs and priorities, which vary across groups of users. The quality is viewed in terms of seven dimensions – relevance, accuracy, credibility, timeliness, accessibility, interpretability and coherence.

Box 3. Relationship between IMF DQAF, Eurostat Quality Definition and OECD Quality Measurement Framework



8.3. The overall aim of the three quality assessment frameworks is to standardise and systematise 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 aspects, including for (i) guiding countries'

efforts for strengthening their statistical systems by providing a self-assessment tool and for identifying areas of improvement; (ii) technical assistance purposes; (iii) reviews of particular statistical domains performed by international organization; and (iv) 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 develop on their basis national quality assessment frameworks that fit best their countries practices and circumstances. The following dimensions of quality 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 form a broad view of quality and as such participate in most of the existing frameworks.

(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 it meets 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 to produce a program that goes as far as possible in 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, the identified gaps between key user interests and compiled distributive trade statistics in terms of concepts, coverage and details.

(c) *Credibility*[46]. 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 the trust in objectivity of the data. This 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 their release should be timed in response to political pressure (see Box 1, Principle 2).

(d) *Accuracy.* The accuracy of distributive trade statistics is the degree to which the data correctly estimate or describe the quantities or characteristics they are

[46] This dimension is referred to as assurance and integrity in IMF DQAF

designed to measure. It has many attributes and in practice there is no a single aggregate or overall measure of accuracy. In general, it is characterized in terms of errors in statistical estimates and is traditionally decomposed into bias (systematic error) and variance (random error) components, but also it includes 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 indicators: coverage, sampling errors, non-response errors, response errors, processing errors, measuring and model errors. Revisions and revision studies of distributive trade statistics undertaken at regular intervals are considered as a gauge of reliability.

(e) *Timeliness*. The timeliness of distributive trade statistics refers to 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 timeframe. Timeliness is closely related to the existence of a publication schedule. A publication schedule may comprise a set of target release dates or may involve a commitment to release distributive trade data within prescribed time period from their receipt. This dimension is usually involved in a trade-off against accuracy. The timeliness of information also influences its relevance. Punctuality is another aspect of timeliness. It shows the amount of time between the identified release data and the effective dissemination data of distributive trade data.

(f) *Methodological soundness*. The methodological soundness is a dimension that refers to the application of international standards, guidelines and good practices in production of distributive trade statistics. The adequacy of the definitions and concepts, target populations, variables and terminology, underlying the data, and information describing the limitations of the data, if any, largely determines the degree of adherence of a particular dataset to international standards. The metadata provided along with distributive trade statistics play a crucial role for assessing the methodological soundness of data. They inform the users on how close to the target variable (for example any of the data items) the input variables used for their estimation are. When there is a significant difference, it should be explained to what extent this may cause a bias in the estimation of data items. The methodological soundness is closely related to the interpretability of data. The interpretability depends on all aspects of information on distributive trade data mentioned above. It reflects the ease with which the user may understand and properly use and analyze the data.

(g) *Coherence.* The coherence of distributive trade statistics reflects the degree to which the data are logically connected and mutually consistent, i.e. 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 common methodology across surveys. Coherence does not necessarily imply full numerical consistency. Coherence has four important sub-dimensions:

(i) *Coherence within a dataset* 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 means that all data items are compiled on the methodological basis of the recommendations presented in the IRDTS.

(ii) *Coherence across datasets* implies that the data across different datasets are based on common concepts, definitions and classifications. The coherence between distributive trade statistics and industrial statistics and then with national accounts will be ensured if all data sets are based on common concepts, definitions, valuation principles, classifications etc., or that any differences are explained and can be allowed for.

(iii) *Coherence over time* implies that the data are based on common concepts, definitions, and methodology over time. This property will be achieved if, for example, an entire time series of distributive trade data is compiled on the basis of the recommendations in the IRDTS. If this is not the case, it is advisable that countries clearly note the differences from the recommendations.

(iv) *Coherence across countries* 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 degree of adoption of recommendations in the IRDTS..

(h) *Accessibility.* The accessibility of distributive trade statistics refers to the ease with which they can be obtained from the statistical office. This includes 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. The aspects of accessibility are also the availability of metadata and the existence of user support services. Accessibility requires development of an advance released calendar (see para. 10.13) so the users will be informed well in advance on when the data will be available, where and how to access them.

8.5. These dimensions of quality are overlapping and interrelated and as such form a complex relationship. An action taken to address or modify one aspect of quality will tend to affect other elements of quality. 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 it in a timely manner when this information is still of interest to the users. It is recommended that if countries are not in a position to meet simultaneously the accuracy and timeliness requirements while compiling a particular distributive trade statistics dataset, a provisional estimate, which is available soon after the end of the reference period but which is based on less comprehensive data content, should be produced. This estimate is supplemented at a later date with information that is based on more comprehensive data content but which is less timely than its provisional version. If there is no conflict between these two quality dimensions, there would be no need of producing both estimates.

8.6. The measurement of quality of any statistical data, including distributive trade statistics data, is not a simple task. The problems arise from the difficulties in quantifying the level of individual dimensions and in aggregating the levels of all dimensions. By reason of these 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 the section B below) and develop their own quality assessment frameworks based on the above mentioned approaches and dimensions and the specific circumstances in their economies and to regularly issue quality reports as part of their metadata. The quality framework allows statistical offices for a practical approach to providing data that meet different users' needs, while the provision of quality information allows users to judge for themselves whether a dataset 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 as having some reference point and as such, can assist with 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 the case of accuracy it is almost impossible to measure non-response bias as the characteristics of non-responders can be difficult and costly, to ascertain. In this instance, response rate is often used as a proxy quality indicator which provides a measure of the possible extent of non-response bias.

8.10. It is not the intention 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 dataset. Some types of quality measures and indicators will be produced for each data item, for example item response rate of 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 re-written only if there are changes. An example of the latter case is the description of survey approaches to data collection (see para. 9.4. (vi)) for the quality dimension "methodological soundness") 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 satisfy the following criteria: (i) cover part or all of the dimensions of quality as defined previously; (ii) the methodology for their compilation is well established; and (iii) the indicators are easy to interpret.

8.12. *Types of quality indicators*. According to their importance the quality indicators can be classified as:

(a) *Key indicators* that ought to fulfil the criteria in para. 9.11. 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 first release of data, measuring the timeliness of distributive trade statistics;

(b) *Supportive indicators* that fulfil the criteria in para. 9.11. in the sense that they are considered important as indirect measures of the data quality. Such an indicator, for example, is the average size of revisions between provisional and final estimates of particular dataset which measures the accuracy of distributive trade statistics;

(c) *Indicators for further analysis* which are subject to further examination and discussion 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 is paid by the countries to maintain a correct balance between different dimensions of quality and use of a minimum number of indicators. The objective of quality measurement is to have a limited set of indicators that can be used to measure and follow over time the quality of the distributive trade data produced by the statistical office and that the 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*. The table below provides a limited set of key indicators[47] which countries are encouraged to use on a regular basis for

[47] For more quality indicators see European Statistics Code of Practice at http://epp.eurostat.ec.europa.eu/portal/page?_pageid=2273,1,2273_47140765&_dad=portal&_schema=PORTAL and IMF; IMF DQAF site at http://dsbb.imf.org/Applications/web/dqrs/dqrsdqaf/; UK Office for National Statistics Guidelines for Measuring Statistical Quality at http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=13578

measuring quality of distributive trade statistics. They are easy to be implemented and give users a clear and up to date overview of the overall quality of distributive trade statistics.

Quality dimension	Quality measures/indicators
Relevance	R1. Identification of gaps between key user interests and compiled distributive trade statistics in terms of concepts, coverage and detail R2. Conducted users' satisfaction surveys
Accuracy	A1. Sampling errors - Coefficient of variation A2. Non-sampling errors - Unit response rate - Item response rate A3. Quantity response rate (% of total sales reported) A4. Number and average size of revisions of distributive trade data
Timeliness	T1. 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	MS1. Number and rates of differences in concepts and measurement procedures used in the collection/compilation of distributive trade statistics from the relevant international statistical standards
Coherence	CO1. Comparison and joint use of related distributive trade data from different sources
Accessibility	AC1. Number and types of means used for dissemination of distributive trade statistics AC2. Distributive trade statistics datasets made available by mode of dissemination as a percentage of total DTS datasets produced

C. Metadata on distributive trade statistics

8.15. *Content of statistical data*. Generally, statistical data consists 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 micro data by grouping or aggregating them, such as total number of establishments or total value added;

(c) *Metadata* - data which describe the micro data, macro data 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 contents of data. They are used to describe administrative facts about data (who creates them, and when), how data were collected and processed before they were disseminated or stored in a database. In addition, metadata facilitate efficient searching and locating of data.

8.17. *Statistical metadata*. Statistical metadata describe or document statistical data, i.e. 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 is 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 user and uses for any given set of data. The wide range of possible users and uses means that a broad spectrum of metadata requirements has 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 assess data and their quality readily. It is recommended that segmentation of users into groups and a layered approach to metadata presentation be accepted by countries, in which each successive layer provides more detail. As a minimum segmentation, the following two levels of metadata 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 that 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 particular area of statistics. 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 users of distributive trade statistics to interpret, understand, and analyze the data, even if they have not themselves participated in the process of production of these data. In other words, distributive trade statistics metadata should help users to transform statistical data into information. Distributive trade statistics metadata help also producers of statistics. The new knowledge gained from interpreting the data may also lead to both production (lower the costs and improving the data quality) and dissemination (dissemination of comprehensive, timely, accessible, and reliable data) enhancements.

8.22. *Components of metadata*. In view of disseminating comprehensive distributive trade statistics their corresponding metadata should include the following six main components – (i) data coverage, periodicity, and timeliness; (ii) access by the public; (iii) integrity of disseminated data; (iv) data quality; (v) summary methodology; and (vi) dissemination formats. Each of these components is characterized with a few monitorable elements that can be observed by the users of statistics.

8.23. Countries are encouraged to accord development of metadata a high priority and to consider their dissemination an integral part of dissemination of distributive trade statistics. Moreover, it is recommended that in consideration of the integrated approach to compilation of economic statistics development of a coherent system and a structured approach to metadata across all areas of economic statistics be adopted, focusing on improving their quantity and coverage.

8.24. Various international organizations such as the IMF, Eurostat and the OECD have developed metadata standards and collected metadata for different areas of statistics. Further guidance on metadata for the purpose of distributive trade statistics will be elaborated and presented in the future *Distributive Trade Statistics: Compilers Manual*. Statistical Data and Metadata Exchange[48] (SDMX) 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 way to reduce the international reporting burden.

[48] 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 the national statistical offices are involved. It is a way of providing the policy makers, business community and other users with high quality statistical information and also, it is a way 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 confidentiality of respondents.

9.2. *Statistical confidentiality*. Most of the information about individual statistical units classified in section G of ISIC, Rev.4 which 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. The sixth United Nations Fundamental Principle of Official Statistics provides the basis for managing the statistical confidentiality.

> "Individual data collected by statistical agencies for statistical compilation, whether or not 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 the 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 does not have a long tradition, or is not laid down in any legislation.

9.5. Distributive trade data are usually disseminated by the national statistical offices in the form of various statistical tables. The 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 (e.g. 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[49].

[49] Eurostat definition of confidentiality, Chapter V of the Statistical Law and Council Regulation No 1588/90

9.6. *Statistical Disclosure Control*. Statistical disclosure control techniques are defined as the set of methods to reduce the risk of disclosing information on individual units. While such methods manifest themselves 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. Disclosure control methods attempt to find 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 guidelines[50] in this area, countries are encouraged to develop their own statistical disclosure methods suiting best their specific circumstances. Examples of the most often used methods are presented in para. 10.8.

9.8. *Methods of protecting confidentiality*. As the first step in the 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. 10.5). The most common practices to protect the disclosure of confidential data include:

(a) *Aggregation*. A confidential cell in a table is aggregated with another cell and then the information is disseminated for the aggregate and not for the two individual cells. This, for example, often results in grouping of distributive trade data which are confidential at the class level of ISIC with another class and present and disseminate 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 of the others (primary suppression). Suppressing only one cell in a table however, means 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 to guarantee the protection of the values under the primary cells, leading to the 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 when countries prefer suppression as a method for protecting confidentiality of distributive trade data, it is recommended that any data deemed

[50] Principles and Guidelines for Managing Statistical Confidentiality and Microdata Access, Statistical Commission, 38th session (http://unstats.un.org/unsd/statcom/sc2007.htm)

confidential be reported in full detail at the next higher level of classification that adequately protect confidentiality, if data are presented by activities, or 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 the confidentiality should be taken in the case of large trade enterprises. In general, large units are more easily identifiable than small ones, have higher probability for 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 criteria should be taken into account when defining the confidentiality rules: (i) number of units in a tabulation cell; and (ii) dominance of a unit or units' contribution over the total value of a tabulation cell. Decision in respect to the exact definition of the confidentiality criteria, e.g. in terms of 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. Therefore, the issue of confidentiality has not only a national dimension. It is also becoming an international issue, for the following reasons – (i) high interest in cross-country comparisons; (ii) internationalization of users of statistical data (including international organization); and (iii) increase of data dissemination over the Internet. As a result, there is a growing demand for countries data at very detailed level, even in some cases – 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 moment, therefore, for the well established relations between national statistical offices as producers of distributive trade statistics and the user community is devising an appropriate compilation and release schedule. Being important for the measurement of timeliness, as one of the quality dimensions of distributive trade statistics (see para. 9.4 (v)) 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 collection of initial data from major distributive trade surveys;

(b) To what extent 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 forty five days after the end of the month in question, quarterly data - three months after the end of the quarter, and their annual data – eighteen 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 (respectively the twelfth month) need to be published in their own right, and not be derived as a difference between the annual totals and the sum of the first three quarters (or eleven months).

9.16. *Data revisions.* Revisions are an essential part of countries practices on compilation of distributive trade statistics. They occur as a consequence from the trade-off between the timeliness of published data and their reliability, accuracy and comprehensiveness. To solve these issues statistical offices compile provisional data that later are revised when new and more accurate information become 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 result in failing to satisfy the users' needs. It is important to emphasize that the revisions of distributive trade data are conducted for the benefit of users, namely, 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 reasons for revisions - (i) revisions due to "normal" statistical procedures (for instance, new information becomes available, change in the methodology, change in data source, change of base year, etc.); and (ii) revisions due to the correction of errors that may occur in source data or in processing. For normal statistical data revisions (also called current revisions) countries should developed 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 reasons of re-assessing 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 to be taken back as far as the beginning of the series to keep the methodological consistency. It is recommended that these revisions are subject to

prior notification from the countries statistical offices to users that covers the reasons and the 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 well-designed, carefully managed and coordinated with other areas of statistics revision policy. The development of a revision policy should not aim at impeding revisions but rather it should aim at providing users with the necessary information to cope with revisions in a more systematic manner. The absence of coordination and planning of revisions is considered a quality problem by users. Essential features of a well-established revision policy are its predetermine schedule, reasonable stability from year to year; openness; advance notice of reasons and effects; 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 it also will promote international consistency. To assist countries which have not yet set out such policy the following good practices are recommended[51]:

(a) Consultations with users elicit views about revisions practices;

(b) A clear, short summary statement of when to expect revisions and why is readily accessible to users;

(c) The current revision cycle is relatively stable from year to year;

(d) Major conceptual and methodological revisions are usually introduced every four to six years, balancing need for change and users' concern;

(e) Revisions are carried back several years to give consistent time series;

(f) Documentation on revisions is readily available to users;

(g) Users are reminded of the size of the likely revisions based on past history;

(h) When a mistake in reporting or processing is made, the revision is made in a transparent and timely manner.

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 suits their users' needs best. For example, press releases of distributive trade statistics have to be disseminated in ways that facilitate re-

[51] For details see *Data and Metadata reporting and presentation Handbook, OECD, 2007,* Chapter 7

dissemination by mass media; more comprehensive or detailed statistics have 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 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 make well known to users the availability of additional statistics and the procedures for obtaining them.

9.21. *Dissemination of metadata*. Provision of an adequate metadata and quality assessment of distributive trade statistics is as important to users as provision of data. Countries are encouraged to follow the recommendations provided in chapter *IX. Data quality and metadata on distributive trade statistics* and develop and disseminate metadata comprising the following components: (i) data coverage, periodicity and timeliness; (ii) access by the public; (iii) integrity of disseminated data; (iv) data quality; (v) summary methodology; and (vi) 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 statistical offices websites and/or publications. Countries may consider development of different levels of metadata detail so to meet the requirements and needs of specialized users[52].

B. International reporting

9.22. Countries are encouraged to make available on their websites or to disseminate distributive trade data internationally as soon as they become available to national users.

9.23. The following tables provide the minimum list of data items on distributive trade statistics recommended for international dissemination, their level of details and periodicity.

Table 9.1. List of data items on distributive trade statistics for international dissemination with annual periodicity

Code	Data item	Level of details	Minimum requirements (in terms of ISIC, Rev.4)	Deadline
A	**Demography**			

[52] For more details on data and metadata reporting see *"Data and Metadata reporting and presentation Handbook", OECD, 2007*

1.10	Number of enterprises	Broken down by activity and size class	3-digit level for activity breakdown 1-digit level for size class breakdown	18 months
B	**Employment**			
2.1	Total number of persons employed	Broken down by activity and size class	3-digit level for activity breakdown 1-digit level for size class breakdown	18 months
2.1.3	Total number of employees	Broken down by activity, and size class	3-digit level for activity breakdown 1-digit level for size class breakdown	18 months
C	**Compensation of employees**			
3.1	Wages and salaries in cash and in kind of employees	Broken down by activity	3-digit level	18 months
H	**Output**			
8.1	Gross output at basic prices	Broken down by activity	3-digit level	18 months
8.1.1	Gross margin	Broken down by activity	3-digit level	18 months
J	**Value added**			
10.1	Total value added at basic prices	Broken down by activity	3-digit level	18 months
K	**Gross Fixed Capital Formation**		1-digit level	18 months

Table 9.2. List of data items on distributive trade statistics for international dissemination with quarterly periodicity

Code	Data item	Level of details	Minimum requirements (in terms of ISIC, Rev.4))	Deadline
B	**Employment**			
2.1	Total number of persons employed	Broken down by activity	2-digit level	3 months
2.1.3	Total number of employees	Broken down by activity	2-digit level	3 months
C	**Compensation of employees**			
3.1	Wages and salaries in cash and in kind of employees	Broken down by activity	2-digit level	3 months
E	**Turnover, sales, shipments, receipts for services and other revenues (excluding property income)**			
5 (a)	Turnover, sales, shipments, receipts for services and other revenues	Broken down by activity	2-digit level	3 months

Table 9.3. List of data items on distributive trade statistics for international dissemination with monthly periodicity

Code	Data item	Level of details	Minimum requirements (in terms of ISIC, Rev.4)	Deadline
	Wholesale and retail trade turnover indices (value and volume)	Broken down by activity	2-digit level	45 days

References

(Provisional)

Links between Business Accounting and National Accounting, Studies in Methods, Series F, No. 76, United Nations, 2000

European System of Accounts 1995, Luxembourg: Office for Official Publications of the European Communities, 1996

Handbook on the Design and Implementation of Business Surveys, Luxembourg, Eurostat, 1998

Business Register Recommendations Manual, Eurostat, 2003, available from http://circa.europa.eu/irc/dsis/bmethods/info/data/new/embs/registers/embs1_5.html

Handbook on Quarterly National Accounts. Luxembourg: European Communities, 1999

International Labour Organisation (ILO) 1982, *Resolution concerning statistics of the economically active population, employment, unemployment and underemployment*, adopted by the Thirteenth International Conference of Labour Statisticians (ICSE), (October 1982)

ILO 1993, *Resolution concerning the International Classification of Status in Employment,* adopted by the Fifteenth ICLS (January 1993), available from http://www.ilo.org/public/english/bureau/stat/download/res/icse.pdf

ILO 1993, *Resolution concerning statistics of employment in the informal sector*, adopted by the Fifteenth ICLS (January 1993), available from http://www.ilo.org/public/english/bureau/stat/download/res/infsec.pdf

Quarterly National Accounts Manual – Concepts, Data Sources, and Compilation, Washington, DC, International Monetary Fund, 2001

Measuring the Non-observed Economy – A Handbook, Organisation for Economic Co-operation and Development (OECD) 2002, available from http://www.oecd.org/dataoecd/9/20/1963116.pdf

Frascati Manual, Proposed Standard Practice for Surveys on Research and Experimental Development, OECD 2002, available from http://www.tubitak.gov.tr/tubitak_content_files/BTYPD/kilavuzlar/Frascati.pdf

Data and Metadata Reporting and Presentation Handbook, OECD 2007, available from http://www.oecd.org/dataoecd/46/17/37671574.pdf

Fundamental Principles of Official Statistics, United Nations Statistical Commission, 1994, available from http://unstats.un.org/unsd/goodprac/bpabout.asp

Report on the thirty-seventh session of the United Nations Statistical Commission, 7-10 March 2006, Official Records 2006 Supplement No. 4, page 7, available from http://unstats.un.org/unsd/statcom/doc06/ Report-English.pdf

International Recommendations on Statistics of the Distributive Trades and Services, United Nations, 1975, Statistical Papers, Series M, No. 57 (United Nations Publication, Sales No. E.75.XVII.9).

International Recommendations for Industrial Statistics, Statistical Papers, Series M, No. 48,Rev. 1, United Nations, 1984, (United Nations Publication, Sales No. E.83.XVII.8).

Strategies for Measuring Industrial Structure and Growth, United Nations, 1994, Studies in Methods, Series F, No.65 (United Nations Publication, Sales No. E.94.XVII.11).

International Recommendations for Construction Statistics, United Nations, 1997, Statistical Papers, Series M, No. 47, Rev. 1 (United Nations Publication, Sales No. E.97.XVII.11).

Principles Governing International Statistical Activities, United Nations Statistics Division, New York, available from http://unstats.un.org/unsd/methods/statorg/Principles_stat_activities/principles_stat_activities.asp

International Standard Industrial Classification of All Economic Activities (ISIC) Rev. 4, United nations, 2006, available from http://unstats.un.org/unsd/cr/registry/docs/isic4-061120.pdf

Eurostat guidelines on Seasonal Adjustment, Euroindicators Working Group, 9th meeting – 4 and 5 December 2006, Luxembourg

Measuring Electronic Business: Definitions, Underlying Concepts, and Measurement, Plans, Thomas L. Mesenbourg, Assistant Director for Economic Programs Bureau of the Census

Measuring the information economy, OECD, 2002, available at: www.oecd.org/sti/measuring-infoeconomy

Principles and Guidelines for Managing Statistical Confidentiality and Microdata Access, Statistical Commission, 38th session (http://unstats.un.org/unsd/statcom/sc2007.htm)

System of National Accounts, 2008, United Nations, electronic version available at the UNSD website:.....

Compilation Manual for an Index of Service Production, OECD, 2007 available at http://www.oecd.org/findDocument/0,2350,en_2649_34257_1_119669_1_1_1,00.html

Guidelines for measuring statistical quality, Office for National Statistics, London 2006

Links between Business Accounting and National accounting, Studies in methods, Series F, No. 76, United Nations Publication, Sales No. E.00.XVII.13, 2000

International Standard Industrial Classification of All Economic Activities (ISIC) Rev. 4, available from http://unstats.un.org/unsd/cr/registry/docs/isic4-061120.pdf

Central Product Classification (CPC) Version 2, available from http://unstats.un.org/unsd/cr/registry/cpc-2.asp

ANNEXES

ANNEX I. List of Data Items for Use in Distributive Trade Statistics

A. Demography

1. (a) Characteristics of Statistical units

Code		Data items
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
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		Co-operatives 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
1.5.3.3		Foreign controlled
1.5.4		Unincorporated enterprises Of which:
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		Specialised wholesale trade
1.9.1.1.2		Non-specialised wholesale trade

Code		Data items
1.9.1.2		Commission trade
1.9.2		Retail trade
1.9.2.1		Retail trade in stores
1.9.2.1.1		Specialised stores
1.9.2.1.2		Non-specialised 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

Code		Data items
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

Code		Data items
2.1	*	Total number of persons employed Of which:
2.1.1		Working proprietors
2.1.2		Unpaid family workers
2.1.3		Employees Of which:
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
2.1.3.3		Outworkers on the pay-roll
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 informal sector

2. (b) Average number of persons employed

Code		Data items
2.4		Average number of persons employed Of which:
2.4.1		Employees

2. (c) Hours worked

Code		Data items
2.5		Hours worked by employees Of which:
2.5.1.3		Employees engaged in research and development
2.5.1.3		Employees engaged in software & database development
2.5.1.5		Employees engaged in own account fixed asset formation and major repair
2.5.3		Hours worked by outworkers on the pay-roll
2.6		Hours worked by leased employees

C. Compensation of employees

3. Compensation of employees

Code		Data items
3.1		Wages and salaries in cash and in kind of employees Of which:
3.1.1.1		Employees engaged in research and development
3.1.1.3		Employees engaged in development of software and databases
3.1.1.5		Employees engaged in own account fixed asset formation and major construction
3.1.3		Remuneration of outworkers on the pay-roll
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

Code		Data items
4.1		Cost of raw materials and supplies except gas, fuels and electricity Of which:
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
4.1.3		Cost of materials for own-account capital formation Of which:
4.1.3.1		for research and development
4.1.3.3		for software & database development
4.1.3.5		for own account fixed asset formation and major repair
4.2		Cost of gas, fuel 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 rental
4.4.1		Cost of industrial services purchased and also delivered by other establishments of the same enterprise Of which:
4.4.1.1		Repair and maintenance work
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		Communication services
4.4.2.2		Transport services
4.4.2.3		Advertising and marketing services
4.4.2.4		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 conditions as received
4.5.1		Fuels bought for resale without further processing

Code		Data items
4.5.2		Purchases of motor vehicle and motor cycle parts used solely in repair and servicing activities
4.5.3		All other goods bought 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 equipments
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 (excluding property income)

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

Code		Data items
5.1		Sale/Turnover/Value of shipments, including transfers to other establishments of the same enterprise
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		Repair, maintenance and construction work
5.1.4.3		Installation work
5.2		Other revenues
5.2.1		Revenue from the rental or lease of machinery and equipment
5.2.2		Revenue 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

Code		Data items
5.4		E-commerce sale/turnover/value of shipments/receipts for services or other revenues

5. (c) Data items on quantity

Code		Data items
Q5.1		Value of Turnover by product categories

F. Inventories

6. Inventories

Code		Data items
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 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
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

Code		Data items
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

Code		Data items
8.1	*	Gross output at basic prices
8.1.1	*	Gross margin

I. Intermediate consumption and census input

9. Intermediate consumption and census input

Code		Data items
9.1	*	Intermediate consumption at purchasers' prices

J. Value added

10. Total value added and census value added

Code		Data items
10.1	*	Total value added at basic prices

K. Gross Fixed Capital formation

11. Assets, capital expenditures, retirements and depreciation

Code		Data items
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 expenditure 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
11.1.4.1		Research and development
11.1.4.2		Mineral exploration and evaluation
11.1.4.3		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 (disposal) 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
11.1.4.1		Research and development
11.1.4.2		Mineral exploration and evaluation
11.1.4.3		Computer software and databases
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

Code		Data items
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 stock 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

References

* 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.

** Measurements of ‘census output’, ‘census intermediate consumption’ and ‘census value added’ are not part of the present recommendations. If countries wish to maintain time series on these aggregates, they may opt for continuing their measurements.

*** The indicated data items are believed to be of limited significance for distributive trade units; therefore, they are not recommended to be part of the IRDTS list. 3.

ANNEX II. List of activities excluded from the scope of the relevant distributive trade divisions and classes

The following activities are considered as either 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 activities
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)
- packing 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 activities
4610	• *wholesale trade in own name, see groups 462 to 469* • *activities of commission agents for motor vehicles, see 4510* • *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 takeaway food (see division 56)
- renting of personal and household goods to the general public (see group 772)

ISIC, Rev.4 class	Excluded activities
4711	• *retail sale of fuel in combination with food, beverages etc., with fuel sales dominating, 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 dominating, 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 pawn shops, 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 reporting unit using the top-down method within wholesale and retail trade

EXAMPLE

A reporting 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 stationary 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	13

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	10

	motorcycles	
Division 47	Retail trade, except of motor vehicles and motorcycles	**77**

Step 3. Identify the group (within division 47)

Step 3a. 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 3b. 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% or more. Therefore the unit is classified to specialized retail sale.

Step 3c. 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	8

	telecommunications equipment in specialized stores	
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**.