



# EUROPEAN UNION

THE EUROPEAN PARLIAMENT

THE COUNCIL

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**REGULATION**  
**OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**  
**ON THE EUROPEAN SYSTEM OF NATIONAL AND REGIONAL ACCOUNTS**  
**IN THE EUROPEAN UNION**

**(ESA 2010) - (ANNEX A - CHAPTER 1)**

## ANNEX A

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# CHAPTER 1

## GENERAL FEATURES AND BASIC PRINCIPLES

### GENERAL FEATURES

- 1.01 The European System of Accounts (hereinafter referred to as 'the ESA 2010' or 'the ESA') is an internationally compatible accounting framework for a systematic and detailed description of a total economy (that is, a region, country or group of countries), its components and its relations with other total economies.
- 1.02 The predecessor of the ESA 2010, the European System of Accounts 1995 (the ESA 95), was published in 1996<sup>1</sup>. The ESA 2010 methodology as set out in this Annex has the same structure as the ESA 95 publication for the first thirteen chapters, but then has eleven new chapters elaborating aspects of the system which reflect developments in measuring modern economies, or in the use of the ESA 95 in the European Union (the EU).

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<sup>1</sup> Council Regulation (EC) No 2223/96 of 25 June 1996 on the European system of national and regional accounts in the Community (OJ L 310, 30.11.1996, p. 1).

1.03 The structure of this manual is as follows. Chapter 1 covers the basic features of the system in terms of concepts, and sets out the principles of the ESA and describes the fundamental statistical units and their groupings. It gives an overview of the sequence of accounts, and a brief description of key aggregates and the role of supply and use tables and the input-output framework. Chapter 2 describes the institutional units used in measuring the economy, and how these units are classified into sectors and other groups to allow analysis. Chapter 3 describes all transactions with regard to products (goods and services), as well as non-produced assets, in the system. Chapter 4 describes all the transactions in the economy which distribute and re-distribute income and wealth in the economy. Chapter 5 describes the financial transactions in the economy. Chapter 6 describes the changes that can occur to the value of assets through non-economic events or price changes. Chapter 7 describes balance sheets, and the asset and liability classification scheme. Chapter 8 sets out the sequence of accounts, and the balancing items associated with each account. Chapter 9 describes supply and use tables, and their role in reconciling the measures of income, output and expenditure in the economy. It also describes the input-output tables that can be derived from the supply and use tables. Chapter 10 describes the conceptual basis for the price and volume measures associated with the nominal values found in the accounts. Chapter 11 describes the population and labour market measures which can be used with measures of the national accounts in economic analysis. Chapter 12 gives a brief description of quarterly national accounts, and how they differ in emphasis from the annual accounts.

1.04 Chapter 13 describes the purposes, concepts and compilation issues in drawing up a set of regional accounts. Chapter 14 covers the measurement of financial services provided by financial intermediaries and funded through net interest receipts, and reflects years of research and development by Member States in order to have a measure which is robust and harmonised across Member States. Chapter 15 on contracts, leases and licences is necessary to describe an area of increasing importance in the national accounts. Chapters 16 and 17 on insurance, social insurance and pensions describe how these arrangements are handled in the national accounts, as questions of redistribution become of increasing interest as populations age. Chapter 18 covers the rest of the world accounts, which are the national accounts equivalent to the accounts of the balance of payments measuring system. Chapter 19 on European Accounts is also new, covering aspects of the national accounts where European institutional and trading arrangements raise issues which require a harmonised approach. Chapter 20 describes the accounts for the government sector — an area of special interest as issues of fiscal prudence by Member States continue to be critical in the conduct of economic policy in the EU. Chapter 21 describes the links between business accounts and national accounts, an area of growing interest as multinational corporations become responsible for an increasing share in gross domestic product (GDP) for all countries. Chapter 22 describes the relationship of satellite accounts with the main national accounts. Chapters 23 and 24 are for reference purposes; Chapter 23 sets out the classifications used for sectors, activities and products in the ESA 2010, and Chapter 24 sets out the complete sequence of accounts for every sector.

- 1.05 The structure of the ESA 2010 is consistent with the worldwide guidelines on national accounting set out in the System of National Accounts 2008 (2008 SNA), apart from certain differences in presentation and the higher degree of precision of some of the ESA 2010 concepts which are used for specific EU purposes. Those guidelines were produced under the joint responsibility of the United Nations (UN), the International Monetary Fund (IMF), the Statistical Office of the European Union (Eurostat), the Organisation for Economic Cooperation and Development (OECD) and the World Bank. The ESA 2010 is focused on the circumstances and data needs in the EU. Like the 2008 SNA, the ESA 2010 is harmonised with the concepts and classifications used in many other social and economic statistics (for example, statistics on employment, statistics on manufacturing and statistics on external trade). The ESA 2010 therefore serves as the central framework of reference for the social and economic statistics of the EU and its Member States.
- 1.06 The ESA framework consists of two main sets of tables:
- (a) the institutional sector accounts;
  - (b) the input-output framework, and the accounts by industry.

- 1.07 The sector accounts provide, by institutional sector, a systematic description of the different stages of the economic process: production, generation of income, distribution of income, redistribution of income, use of income and financial and non-financial accumulation. The sector accounts also include balance sheets to describe the stocks of assets, liabilities and net worth at the beginning and the end of the accounting period.
- 1.08 The input-output framework, through the supply and use tables, sets out in more detail the production process (cost structure, income generated and employment) and the flows of goods and services (output, imports, exports, final consumption, intermediate consumption and capital formation by product group). Two important accounting identities are reflected in this framework: the sum of incomes generated in an industry is equal to the value added produced by that industry; and, for any product or grouping of products, supply is equal to demand.
- 1.09 The ESA 2010 encompasses concepts of population and employment. Such concepts are relevant for the sector accounts, the accounts by industry and the supply and use framework.
- 1.10 The ESA 2010 is not restricted to annual national accounting, but applies also to quarterly and shorter or longer period accounts. It also applies to regional accounts.

- 1.11 The ESA 2010 exists alongside the 2008 SNA because of the uses of national accounts measures in the EU. The Member States are responsible for the collection and presentation of their own national accounts to describe the economic situation of their countries. Member States also compile a set of accounts which are submitted to the Commission (Eurostat) as part of a regulatory data transmission programme, for key social, economic and fiscal policy uses in the Union. Those uses include determination of Member State monetary contributions to the EU budget via the 'fourth resource', aid to regions of the EU through the structural funds programme and surveillance of Member States' economic performance in the framework of the excessive deficit procedure and of the Stability and Growth Pact.
- 1.12 In order that levies and benefits are distributed according to measures compiled and presented in a strictly consistent manner, the economic statistics used for those purposes shall be compiled according to the same concepts and rules. The ESA 2010 is a regulation setting forth the rules, conventions, definitions and classifications to be applied in producing the national accounts in Member States which are to be part of the data transmission programme as set out in Annex B to this Regulation.

- 1.13 Given the very large sums of money involved in the contributions and benefits system operated in the EU, it is essential that the measurement system be applied consistently in each Member State. In such circumstances, it is important to adopt a cautious approach to estimates which cannot be observed directly in the market place, avoiding the use of model-based procedures for the estimation of measures in the national accounts.
- 1.14 The ESA 2010 concepts are in several instances more specific and precise than those of the 2008 SNA in order to ensure as much consistency as possible between Member States measures derived from the national accounts. This over-riding requirement for robust consistent estimates has resulted in the identification of a core set of national accounts in the EU. Where the level of consistency of measurement across Member States is insufficient, the latter estimates are generally included in so-called 'non-core-accounts' covering supplementary tables and satellite accounts.
- 1.15 An example of where it has been considered necessary to be cautious in the design of the ESA 2010 lies in the field of pension liabilities. The case for measuring these to assist in economic analyses is a strong one, but the critical requirement in the EU to produce accounts which are consistent across time and space has obliged a cautious approach.

## **Globalisation**

1.16 The increasingly global nature of economic activity has increased international trade in all its forms, and increased the challenges to countries of recording their domestic economies in the national accounts. Globalisation is the dynamic and multidimensional process whereby national resources become more internationally mobile, while national economies become increasingly interdependent. The feature of globalisation which potentially causes most measurement problems for national accounts is the increasing share of international transactions undertaken by multinational companies, where the transactions across borders are between parents, subsidiaries and affiliates. However other challenges exist, and a more exhaustive list of data issues is as follows:

- (1) transfer pricing between affiliated corporations (valuation of imports and exports);
- (2) the increase in toll processing, where goods are traded across international borders with no change in ownership (goods for processing), and merchanting;
- (3) international trading via the internet, both for corporations and households;
- (4) the trade and use of intellectual property assets across the world;
- (5) workers working abroad, and remitting significant amounts to the family in the domestic territory (workers' remittances, as part of personal transfers);



- (6) multinational corporations organising their business across national boundaries, to maximise production efficiency and minimise the global tax burden. This can give rise to artificial corporation structures which may not reflect the economic reality;
- (7) the use of off-shore financing vehicles (special purpose entities and other forms) to arrange finance for global activities;
- (8) re-exports of goods, and in the EU the transport of goods between Member States after entry into the Union (quasi transport);
- (9) increase in foreign direct investment relationships, and the need to identify and allocate direct investment flows.

1.17 All of these increasingly common aspects of globalisation make the capture and accurate measurement of cross-border flows a growing challenge for national statisticians. Even with a comprehensive and robust collection and measurement system for the entries in the rest of the world sector (and thus also in the international accounts found in the balance of payments), globalisation will increase the need for extra efforts to maintain the quality of national accounts for all economies and groupings of economies.

## **USES OF THE ESA 2010**

### **Framework for analysis and policy**

1.18 The ESA framework can be used to analyse and evaluate:

- (a) the structure of a total economy. Examples of types of measurement used are:
  - (1) value added and employment by industry;
  - (2) value added and employment by region;
  - (3) income distributed by sector;
  - (4) imports and exports by product group;
  - (5) final consumption expenditure by functional heading and product group;
  - (6) fixed capital formation and fixed capital stock by industry;
  - (7) the composition of the stocks and flows of financial assets by type of asset and by sector;
- (b) specific parts or aspects of an economy. Examples are:
  - (1) banking and finance in the national economy;
  - (2) the role of government and its financial position;

- (3) the economy of a specific region (in comparison to that of the nation as a whole);
- (4) household saving and debt levels;
- (c) the development of an economy over time. Examples are:
  - (1) the analysis of GDP growth rates;
  - (2) the analysis of inflation;
  - (3) the analysis of seasonal patterns in household expenditure on the basis of quarterly accounts;
  - (4) the analysis of the changing importance of particular types of financial instruments over time, e.g. the increased importance of financial derivatives;
  - (5) the comparison of the industrial structures of the national economy over the long term;
- (d) a total economy in relation to other economies. Examples are:
  - (1) the comparison of the roles and size of government in the Member States of the EU;

- (2) the analysis of the interdependencies between the economies of the EU, taking into account Member States and their regions;
- (3) the analysis of the composition and destination of the exports of the EU;
- (4) the comparison of GDP growth rates or disposable income per capita in the EU and other developed economies.

1.19 For the EU and its Member States, the figures from the ESA framework play a major role in formulating and monitoring their social and economic policies.

The following examples demonstrate uses of the ESA framework:

- (a) monitoring and guiding the euro area macroeconomic and monetary policymaking, and defining criteria of convergence for the economic and monetary union (EMU) in terms of national accounts figures (e.g. GDP growth rates);
- (b) defining criteria for the excessive deficit procedure: measures of government deficit and debt;
- (c) granting financial support to regions in the EU: the allocation of expenditure funds to regions uses regional accounts statistics;

- (d) determining the own resources of the EU budget. The latter depend on national accounts figures in three ways:
  - (1) the total resources for the EU are determined as a percentage of the sum of Member States' gross national incomes (GNI);
  - (2) the third own resource of the EU is the VAT own resource. The contributions by the Member States for this resource are largely determined by national accounts figures, because these figures are used to calculate the average VAT rate;
  - (3) the relative sizes of the contributions by the Member States for the fourth own resource of the EU are based on their gross national income estimates. These estimates are the basis for the majority of Member States' payments.

### **Characteristics of the ESA 2010 concepts**

1.20 In order to establish a balance between data needs and data possibilities, the concepts in the ESA 2010 have several important characteristics. The characteristics are that the accounts are:

- (a) internationally compatible;
- (b) harmonised with other social and economic statistical systems;

- (c) consistent;
- (d) operational, meaning that they can be measured in practice;
- (e) different from most administrative concepts;
- (f) well-established and fixed over a long period;
- (g) focused on describing the economic process in monetary and readily observable terms;
- (h) capable of applying in different situations and for different purposes.

1.21 The concepts in the ESA 2010 are internationally compatible because:

- (a) the concepts in the ESA 2010 are consistent with those in the worldwide guidelines on national accounting, i.e. the 2008 SNA;
- (b) for the Member States, the ESA 2010 is the standard for submitting national accounts data to all international organisations;
- (c) international compatibility of concepts is essential when comparing statistics for different countries.

1.22 The concepts in the ESA 2010 are harmonised with those in other social and economic statistics because the ESA 2010 employs concepts and classifications (e.g. Statistical classification of economic activities in the European Union 'NACE rev. 2'<sup>1</sup>) that are used for other social and economic statistics of Member States, e.g. in statistics on manufacturing, statistics on external trade and statistics on employment; conceptual differences have been kept to a minimum. Furthermore, the concepts and classifications in the ESA 2010 are harmonised with those of the United Nations.

This harmonisation with social and economic statistics helps the linkage to and comparison with these figures, so that the quality of the national accounts figures can be assured. Furthermore, the information contained in these specific statistics can be better related to the general statistics on the national economy.

1.23 The shared concepts used throughout the national accounting framework and the other social and economic statistical systems enable consistent measures to be derived. For example, the following ratios can be calculated:

- (a) productivity figures, such as value added per hour worked (these figures require consistency between the concepts of value added and hours worked);
- (b) national disposable income per capita (this ratio requires consistency between the concepts of national disposable income and measures of population);

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<sup>1</sup> Regulation (EC) No 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 (OJ L 393, 30.12.2006, p. 1).

- (c) fixed capital formation as a percentage of fixed capital stock (this ratio requires consistency between the definitions of these flows and stocks);
- (d) government deficit and government debt as percentages of gross domestic product (these figures require consistency between the concepts of government deficit, government debt and gross domestic product).

The internal consistency of concepts allows estimates to be derived by residual, e.g. saving can be estimated as the difference between disposable income and final consumption expenditure.

1.24 The concepts in the ESA 2010 are applied with data collection and measurement in mind. The operational character is revealed in several ways in the guidance for drawing up the accounts.

- (a) Activities or items are only described when significant in size. For example: own-account production of goods by households such as weaving cloth and the production of pottery shall not be recorded as production, because these are insignificant for EU countries.



- (b) Some concepts are accompanied by guidance on how to estimate them. For example, in defining consumption of fixed capital, reference is made to linear depreciation. For estimating fixed capital stock, the Perpetual Inventory Method is to be applied where direct information on the stock of fixed assets is missing. Another example is the valuation of own-account production: in principle, it is valued at basic prices, but if necessary the basic price valuation may be approximated by adding up the various costs involved.
- (c) Some conventions have been adopted. For example the collective services provided by government are all classified as final consumption expenditure.

1.25 However, the data needed for national accounts statistics may not be easy to collect directly, as the underlying concepts usually diverge from the concepts underlying administrative data sources. Examples of the administrative sources are business accounts, records for various types of taxes (VAT, personal income tax, import levies, etc.), social security data and data from supervisory boards on banking and insurance. These administrative data serve as inputs for compiling the national accounts. In general, they are transformed in order to comply with the ESA.

The concepts in the ESA usually differ from their administrative counterparts in that:

- (a) administrative concepts differ between countries. As a consequence, international compatibility is not possible using administrative concepts;

- (b) administrative concepts change over time. As a consequence, comparisons over time are not possible through administrative concepts;
- (c) the concepts underlying administrative data sources are usually not consistent among different administrative systems. However, linking and comparing data, which is crucial for compiling national accounts figures, is only possible with a consistent set of concepts;
- (d) the administrative concepts are generally not optimal for economic analysis and the evaluation of economic policy.

1.26 Nevertheless, administrative data sources meet the data needs of national accounts and other statistics very well, because:

- (a) concepts and classifications originally devised for statistical purposes are also adopted for administrative purposes, e.g. the classification of government expenditure by type;
- (b) administrative data sources explicitly take account of the (separate) data needs of statistics; this applies, for example, to the Intrastat system for providing information about deliveries of goods between Member States.

- 1.27 The main concepts in the ESA are well-established and fixed over a long period, because:
- (a) they have been approved as the international standard for many years;
  - (b) in the successive international guidelines on national accounting, very few of the underlying concepts change.

This conceptual continuity reduces the need to recalculate time series. Furthermore, it limits the vulnerability of the concepts to national and international political pressure. For these reasons, the national accounts figures have been able to serve as an objective database for economic policy and analysis.

- 1.28 The concepts in the ESA 2010 are focused on describing the economic process in monetary and readily observable terms. Stocks and flows that are not readily observable in monetary terms, or that do not have a clear monetary counterpart, are not recorded in the ESA.

This principle has not been applied strictly, because account should also be taken of the requirement of consistency and the needs of users. For example, consistency requires that the value of collective services produced by government is recorded as output, because the payment of compensation of employees and the purchase of all kinds of goods and services by government are readily observable in monetary terms. Furthermore, for the purposes of economic analysis and policy, describing the collective services of government in relation to the rest of the national economy increases the usefulness of the national accounts as a whole.

1.29 The scope of the concepts in the ESA can be illustrated by considering some important borderline issues.

The following shall be recorded within the production boundary of the ESA (see paragraphs 3.07 to 3.09):

- (a) production of individual and collective services by government;
- (b) own-account production of housing services by owner-occupiers;
- (c) production of goods for own final consumption, e.g. of agricultural products;
- (d) own-account construction, including that by households;
- (e) production of services by paid domestic staff;
- (f) breeding of fish in fish farms;
- (g) production forbidden by law, as long as all units involved in the transaction enter into it voluntarily;
- (h) production from which the revenues are not declared in full to the fiscal authorities, e.g. clandestine production of textiles.

- 1.30 The following fall outside the production boundary, and shall not be recorded in the ESA:
- (a) domestic and personal services produced and consumed within the same household, e.g. cleaning, the preparation of meals or the care of sick or elderly people;
  - (b) volunteer services that do not lead to the production of goods, e.g. care-taking and cleaning without payment;
  - (c) natural breeding of fish in open seas.

1.31 The ESA records all outputs that result from production within the production boundary. However, the outputs of ancillary activities shall not be recorded. All inputs consumed by an ancillary activity shall be treated as inputs to the activity it supports. If an establishment undertaking only ancillary activities is statistically observable, in 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 has to be recorded as a separate unit and allocated to the industrial classification corresponding to its principal activity, in both national and regional accounts. In the absence of suitable basic data being available, the output of the ancillary activity may be estimated by summing costs.

- 1.32 If activities are regarded as production and their output is recorded, then the concomitant income, employment, final consumption, etc. are also recorded. For example, as the own-account production of housing services by owner-occupiers is recorded as production, so the income and final consumption expenditure it generates for these owner-occupiers are also recorded. As there is, by definition, no labour input to the production of the services of owner-occupied dwellings, no employment is recorded. This maintains consistency with the system of labour statistics, where no employment is recorded for ownership of dwellings. The reverse holds when activities are not recorded as production: domestic services produced and consumed within the same household do not generate income and final consumption expenditure and no employment is involved.
- 1.33 The ESA also lays down conventions, concerning:
- (a) valuation of government output;
  - (b) valuation of the output of insurance services and financial intermediation services indirectly measured;
  - (c) recording of the collective services provided by government as final consumption expenditure and not as intermediate consumption;

## Classification by sector

1.34 Sector accounts are created by allocating units to sectors and this enables transactions and balancing items of the accounts to be presented by sector. The presentation by sector reveals many key measures for economic and fiscal policy purposes. The main sectors are households, government, corporations (financial and non-financial), non-profit institutions serving households (NPISHs) and the rest of the world.

The distinction between market and non-market activity is an important one. An entity controlled by government, which is shown to be a market corporation, is classified in the corporation sector, outside the general government sector. Thus, the deficit and debt levels of the corporation will not be part of the general government deficit and debt.

1.35 It is important that clear and robust criteria for allocating entities to sectors are set out.

The public sector consists of all institutional units resident in the economy that are controlled by government. The private sector consists of all other resident units.

Table 1.1 sets out the criteria used to distinguish between public and private sector, and in the public sector between the government sector and public corporations sector, and in the private sector between the NPISH sector and the private corporations sector.

Table 1.1

Criteria	Controlled by government (public sector)	Privately controlled (private sector)
Non-market output	General government	NPISH
Market output	Public corporations	Private corporations

1.36 Control is defined as the ability to determine the general policy or programme of an institutional unit. Further details in relation to the definition of control are given in paragraphs 2.35 to 2.39.

1.37 Differentiating between market and non-market, and so, for public sector entities, classifying them into the general government sector or the corporations sector, is decided by the following rule:

An activity shall be considered as a market activity when the corresponding goods and services are traded under the following conditions:

- (1) sellers act to maximise their profits in the long term, and do so by selling goods and services freely on the market to whoever is prepared to pay the asking price;



- (2) buyers act to maximise their utility given their limited resources, by buying according to which products best meet their needs at the offered price;
- (3) effective markets exist where sellers and buyers have access to, and information on, the market. An effective market can operate even if these conditions are not met perfectly.

1.38 The detail in the conceptual framework of the ESA offers the opportunity for flexibility: some concepts are not explicitly present in the ESA but can nevertheless easily be derived from it. An example is the creation of new sectors by rearranging the subsectors defined in the ESA.

1.39 Flexibility exists also through the possibility to introduce additional criteria that do not conflict with the logic of the system. For example, these criteria can allow subsector accounts to be drawn up by the scale of employment for producer units or the size of income for households. For employment, subclassification by level of education, age and gender can be introduced.

#### **Satellite accounts**

1.40 For some data needs, separate satellite accounts should be drawn up.

Examples are:

- (a) social accounting matrices (SAMs);

- (b) the role of tourism in the national economy;
- (c) the analysis of the costs and financing of health care;
- (d) research and development recognised as capital formation of intellectual property;
- (e) recognition of human capital as assets in the national economy;
- (f) the analysis of the income and expenditure of households on the basis of micro-oriented concepts of income and expenditure;
- (g) the interaction between the environment and the economy;
- (h) production within households;
- (i) analysis of changes in welfare;
- (j) analysis of the differences between national accounts and business accounts figures and their influence on stock and exchange markets;
- (k) estimation of tax revenues.

1.41 Satellite accounts serve such data needs by:

- (a) showing more detail where necessary and leaving out superfluous detail;

- (b) enlarging the scope of the accounting framework by adding non-monetary information, e.g. on pollution and environmental assets;
- (c) changing some basic concepts, e.g. by enlarging the concept of capital formation by including expenditure on education.

1.42 A social accounting matrix (SAM) is a matrix presentation that elaborates the linkages between supply and use tables and the sector accounts. A SAM provides additional information on the level and composition of employment, via a subdivision of compensation of employees by type of person employed. This subdivision applies to both the use of labour by industry, as shown in the use tables, and the supply of labour by socio-economic subgroup, as shown in the allocation of primary income account for subsectors of the sector households. In this way, the supply and use of various categories of labour is shown systematically.

1.43 In satellite accounts, all basic concepts and classifications of the central framework of the ESA 2010 shall be retained. Changes in the concepts shall only be introduced when this is the purpose of the satellite account. In such instances, the satellite account shall also contain a table showing the link between the major aggregates in the satellite account and those in the central framework. In this way, the central framework retains its role as a framework of reference and at the same time more specific needs are addressed.

- 1.44 In general terms, the central framework does not include measures of stocks and flows that are not readily observable in monetary terms (or without a clear monetary counterpart). By their nature, the analysis of such stocks and flows is usually also well served by compiling statistics in non-monetary terms, e.g.:
- (a) production within households can be described in terms of hours allocated to the alternative uses;
  - (b) education can be described in terms of type of education, the number of pupils, the average number of years of education before obtaining a diploma, etc.;
  - (c) the effects of pollution can be described in terms of changes in the number of living species, the health of the trees in the forest, the volume of refuse, the amounts of carbon-monoxide and radiation, etc.
- 1.45 Satellite accounts enable such statistics in non-monetary units to be linked to the national accounts in the central framework. Using the classifications employed in the central framework for such non-monetary statistics enables the link to be made, e.g. the classification by type of household or the classification by industry. In this way, a consistent extended framework is drawn up. This framework can then serve as a database for the analysis and evaluation of interactions between the variables in the central framework and those in the extended part.

- 1.46 The central framework and its major aggregates do not describe changes in welfare. Extended accounts can be drawn up which include also the imputed monetary values of, for example:
- (a) domestic and personal services produced and consumed within the same household;
  - (b) changes in leisure time;
  - (c) amenities and disadvantages of urban life;
  - (d) inequalities in the distribution of income over persons.
- 1.47 The extended accounts can also reclassify the final expenditure on regrettable necessities (e.g. defence) as intermediate consumption, i.e. as not contributing to welfare. Similarly, the damage due to floods and other natural disasters may be classified as intermediate consumption, i.e. as a reduction in (absolute) welfare. In this way, one could try to construct a very rough and very imperfect indicator of changes in welfare. However, welfare has many dimensions, most of which are not best expressed in monetary terms. A better solution for measuring welfare is therefore to use, for each dimension, separate indicators and units of measurement. The indicators could be, for example, infant mortality, life expectancy, adult literacy and national income per capita. These indicators could be incorporated into a satellite account.

1.48 In order to attain a consistent, internationally compatible framework, administrative concepts are not employed in the ESA. However, for all kinds of national purposes, obtaining figures based on administrative concepts can be very useful. For example, for estimating tax revenues, statistics of taxable income are required. Such statistics can be provided by making some modifications to the national accounts statistics.

1.49 A similar approach could be taken for concepts used in national economic policy, e.g. for:

- (a) the concept of inflation used for increasing pensions, unemployment benefits or compensation of employees for civil servants;
- (b) the concepts of taxes, social contributions, government and the collective sector used in discussing the optimal size of the collective sector;
- (c) the concept of 'strategic' sectors/industries used in national economic policy or the economic policy of the EU;
- (d) the concept of 'business investments' used in national economic policy;
- (e) a table showing a complete recording of pensions.

Satellite accounts or supplementary tables can meet such data needs.

## The ESA 2010 and the 2008 SNA

1.50 The ESA 2010 is based on the concepts of the 2008 SNA, which provides guidelines on national accounting for all countries throughout the world. Nevertheless, there are several differences between the ESA 2010 and the 2008 SNA:

(a) Differences in presentation:

- (1) In the ESA 2010 there are separate chapters on transactions in products, distributive transactions and financial transactions. In contrast, in the 2008 SNA these transactions are explained in chapters arranged by account, e.g. chapters on the production account, the primary distribution of income account, the capital account and the rest of the world account.
- (2) The ESA 2010 describes a concept by providing a definition and a listing of what is included and what is excluded. The 2008 SNA describes concepts usually in more general terms and explains the rationale behind the conventions adopted.

- (b) The ESA 2010 concepts are in several instances more specific and precise than those of the 2008 SNA:
- (1) The 2008 SNA does not contain specific criteria on the distinction between market, for own final use and non-market categorisation of output. The ESA has therefore introduced more detailed guidance to ensure a uniform approach.
  - (2) The ESA 2010 assumes that several types of household production of goods, such as the weaving of cloth and the making of furniture, are not significant in Member States and therefore need not be recorded.
  - (3) The ESA 2010 makes reference to institutional arrangements in the EU, such as the Intrastat system for recording intra-EU flows of goods and the contributions by the Member States to the EU.
  - (4) The ESA 2010 contains EU-specific classifications, e.g. Classification of products by activity (CPA)<sup>1</sup> for products and NACE Rev. 2 for industries (both are harmonised with the corresponding UN classifications).
  - (5) The ESA 2010 contains an additional classification for all external transactions: they are divided into those between residents of the EU and those with residents from outside the EU.

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<sup>1</sup> Regulation (EC) No 451/2008 of the European Parliament and of the Council of 23 April 2008 establishing a new statistical classification of products by activity (CPA) (OJ L 145, 4.6.2008, p. 65).



- (6) The ESA 2010 contains a rearrangement of the 2008 SNA subsectors for the financial corporations sector, to meet the needs of the European Monetary Union. The ESA 2010 can be more specific than the 2008 SNA, because the ESA 2010 primarily applies to the Member States. For the data needs in the Union, the ESA should also be more specific.

### **The ESA 2010 and the ESA 95**

1.51 The ESA 2010 differs in scope as well as in concepts from the ESA 95. Most of the differences correspond to differences between the 1993 SNA and the 2008 SNA. The major differences are:

- (a) the recognition of research and development as capital formation leading to assets of intellectual property. This change shall be recorded in a satellite account, and included in the core accounts when sufficient robustness and harmonisation of measures is observable amongst Member States;
- (b) expenditures on weapon systems that meet the general definition of assets have been classified as fixed capital formation, rather than intermediate expenditure;
- (c) the analytical concept of capital services has been introduced for market production, so that a supplementary table may be produced showing them as a component of value added;

- (d) the financial assets boundary has been expanded to include a wider coverage of financial derivative contracts;
- (e) new rules for recording pension entitlements. A supplementary table has been introduced into the accounts, to allow estimates to be recorded for all entitlements in social insurance, whether funded or unfunded. The full range of information required for a comprehensive analysis is provided in this table that shows the entitlements and associated flows for all private and public pension schemes, whether funded or unfunded, and including social security pension schemes;
- (f) the application of the rules on change of ownership of goods has been made universal, resulting in changes to the recording of merchanting, and goods sent for processing, both abroad and in the domestic economy. This results in goods sent for processing abroad being recorded on a net basis, as opposed to a gross basis in the 1993 SNA and the ESA 95. This change has significant implications for the recording of such activities in the supply and use framework;
- (g) more guidance is given on financial corporations in general, and special purpose entities (SPEs) in particular. The treatment of government controlled SPEs abroad has been changed to ensure that liabilities incurred by the SPEs are shown in the government accounts;
- (h) the treatment of super dividends paid by public corporations has been clarified, i.e. they are to be treated as exceptional payments and withdrawals from equity;

- (i) the principles for the treatment of public-private partnerships have been set out, and the treatment of restructuring agencies expanded;
- (j) transactions between government and public corporations, and with securitisation vehicles, have been clarified to improve the recording of items that could significantly affect government debt;
- (k) the treatment of loan guarantees has been clarified, and a new treatment introduced for standardised loan guarantees, such as export credit guarantees and student loans guarantees. The new treatment is that, to the extent of the likely call on the guarantees, a financial asset and liability are to be recognised in the accounts.

1.52 The changes in the ESA 2010 in comparison with the ESA 95 are not restricted to conceptual changes. There are major differences in scope, with new chapters on satellite accounts, government accounts and the rest of the world accounts. There are also significant extensions to the chapters on quarterly accounts and regional accounts.

#### **BASIC PRINCIPLES OF THE ESA 2010 AS A SYSTEM**

1.53 The main characteristics of the system are:

- (a) statistical units and their groupings;
- (b) flows and stocks;

- (c) the system of accounts and the aggregates;
- (d) the input-output framework.

### **Statistical units and their groupings**

- 1.54 The ESA 2010 system uses two types of unit and two corresponding ways of subdividing the economy, which are quite different and serve separate analytical purposes.
- 1.55 The first purpose of describing income, expenditure and financial flows, and balance sheets, is met by grouping institutional units into sectors on the basis of their principal functions, behaviour and objectives.
- 1.56 The second purpose of describing processes of production and for input-output analysis is met by the system grouping local kind-of-activity units (local KAUs) into industries on the basis of their type of activity. An activity is characterised by an input of products, a production process and an output of products.

### ***Institutional units and sectors***

- 1.57 Institutional units are economic entities that are capable of owning goods and assets, of incurring liabilities and of engaging in economic activities and transactions with other units in their own right. For the purposes of the ESA 2010 system, the institutional units are grouped together into five mutually exclusive domestic institutional sectors:
- (a) non-financial corporations;

- (b) financial corporations;
- (c) general government;
- (d) households;
- (e) non-profit institutions serving households.

The five sectors together make up the total domestic economy. Each sector is also divided into subsectors. The ESA 2010 system enables a complete set of flow accounts and balance sheets to be compiled for each sector, and subsector, as well as for the total economy.

Non-resident units can interact with these five domestic sectors, and the interactions are shown between the five domestic sectors and a sixth institutional sector: the rest of the world sector.

### ***Local KAUs and industries***

- 1.58 When institutional units carry out more than one activity, they shall be partitioned with regard to the type of activity. Local KAUs enable this presentation to be made.

A local KAU groups all the parts of an institutional unit in its capacity as producer which are located in a single site or in closely located sites, and which contribute to the performance of an activity at the class level (four digits) of the NACE Rev. 2.

1.59 Local KAUs are registered for each secondary activity; however, if the accounting documents necessary to separately describe such activities are not available, a local KAU will combine several secondary activities. The group of all local KAUs engaged on the same, or similar, kind-of-activity constitutes an industry.

An institutional unit comprises one or more local KAUs; a local KAU belongs to one and only one institutional unit.

1.60 For analysis of the production process, use is made of an analytical unit of production. This unit is only observable when a local KAU produces one type of product, with no secondary activities. This unit is known as a unit of homogeneous production. Groupings of such units constitute homogeneous branches.

***Resident and non-resident units; total economy and rest of the world***

1.61 The total economy is defined in terms of resident units. A unit is a resident unit of a country when it has a centre of predominant economic interest on the economic territory of that country — that is, when it engages for an extended period (one year or more) in economic activities on this territory. The institutional sectors referred to in paragraph 1.57 are groups of resident institutional units.

- 1.62 Resident units engage in transactions with non-resident units (that is, units which are resident in other economies). These transactions are the external transactions of the economy and are grouped in the rest of the world account. So the rest of the world plays a role similar to that of an institutional sector, although non-resident units are included only in so far as they are engaged in transactions with resident institutional units.
- 1.63 Notional resident units, treated in the ESA 2010 system as institutional units, are defined as:
- (a) those parts of non-resident units which have a centre of predominant economic interest (usually which engage in economic transactions for a year or more) on the economic territory of the country;
  - (b) non-resident units in their capacity as owners of land or buildings on the economic territory of the country, but only in respect of transactions affecting such land or buildings.

### **Flows and stocks**

- 1.64 Two basic kinds of information are recorded: flows and stocks.

Flows refer to actions and effects of events that take place within a given period of time, while stocks refer to positions at a point of time.

## *Flows*

1.65 Flows reflect the creation, transformation, exchange, transfer or extinction of economic value. They involve changes in the value of an institutional unit's assets or liabilities. Economic flows are of two kinds: transactions, and other changes in assets.

Transactions appear in all accounts and tables where flows appear, except the other changes in volume of assets account and the revaluation account. Other changes in assets are recorded only in those two accounts.

Elementary transactions and other flows are grouped into a relatively small number of types according to their nature.

## *Transactions*

1.66 A transaction is an economic flow that is an interaction between institutional units by mutual agreement or an action within an institutional unit that it is useful to treat as a transaction, because the unit is operating in two different capacities. Transactions are split into four main groups:

- (a) transactions in products: which describe the origin (domestic output or imports) and use (intermediate consumption, final consumption, capital formation — covering consumption of fixed capital — or exports) of products;



- (b) distributive transactions: which describe how value added generated by production is distributed to labour, capital and government, and the redistribution of income and wealth (taxes on income and wealth and other transfers);
- (c) financial transactions: which describe the net acquisition of financial assets or the net incurrence of liabilities for each type of financial instrument. Such transactions occur both as counterparts of non-financial transactions, and as transactions involving only financial instruments;
- (d) transactions not included in the three groups above: acquisitions less disposals of non-produced non-financial assets.

### *Properties of transactions*

#### Interactions versus intra-unit transactions

1.67 Most transactions are interactions between two or more institutional units. However, the ESA 2010 system records some actions within institutional units as transactions. The purpose of recording these intra-unit transactions is to give a more analytically useful picture of output, final uses and costs.

- 1.68 Consumption of fixed capital, which is recorded as a cost by the ESA 2010 system, is an intra-unit transaction. Most of the other intra-unit transactions are transactions in products, typically recorded when institutional units operating as both producers and final consumers, choose to consume some of the output they have produced. This is often the case for households and general government.
- 1.69 All own-produced output used for final uses within the same institutional unit shall be recorded. Own-produced output used for intermediate consumption within the same institutional unit shall be recorded only when production and intermediate consumption take place in different local KAUs within the same institutional unit. Output produced and used as intermediate consumption within the same local KAU shall not be recorded.

## Monetary versus non-monetary transactions

- 1.70 Transactions are monetary transactions when the units involved make or receive payments, or incur liabilities or receive assets denominated in units of currency.

Transactions that do not involve the exchange of cash, or assets or liabilities denominated in units of currency, are non-monetary transactions. Intra-unit transactions are non-monetary transactions. Non-monetary transactions involving more than one institutional unit occur among transactions in products (barter of products), distributive transactions (remuneration in kind, transfers in kind, etc.) and other transactions (barter of non-produced non-financial assets). The ESA 2010 system records all transactions in monetary terms. The values to be recorded for non-monetary transactions must therefore be measured indirectly or otherwise estimated.

## Transactions with and without counterparts

- 1.71 Transactions involving more than one unit are of two kinds. They can be 'something for something', i.e. requited transactions, or they can be 'something for nothing', i.e. unrequited transactions. Requited transactions are exchanges between institutional units, i.e. provision of goods, services or assets in return for a counterpart, e.g. money. Unrequited transactions are payments in cash or in kind from one institutional unit to another without counterpart. Requited transactions occur in all four transaction groups, while unrequited transactions are mainly distributive transactions, for example, taxes, social assistance benefits or gifts. Such unrequited transactions are called transfers.

## Rearranged transactions

- 1.72 The transactions are recorded in the same way as they appear to the institutional units involved. However, some transactions are rearranged in order to bring out the underlying economic relationships more clearly. Transactions can be rearranged in three ways: rerouting, partitioning and recognising the principal party to a transaction.

### **Rerouting**

- 1.73 A transaction that appears to the units involved as taking place directly between units A and C may be recorded in the accounts as taking place indirectly through a third unit B. Thus, the single transaction between A and C is recorded as two transactions: one between A and B, and one between B and C. In this case the transaction is rerouted.
- 1.74 An example of rerouting is the way in which employers' social contributions paid directly by employers to social insurance funds are recorded in the accounts. The system records these payments as two transactions: employers pay employers' social contributions to their employees, and employees pay the same contributions to social insurance funds. As with all rerouting, the purpose is to bring out the economic substance behind the transaction, which in this case is to show employers' social contributions as contributions paid for the benefit of employees.

- 1.75 Another type of rerouting is that of transactions recorded as taking place between two or more institutional units, even though, according to the parties involved, no transaction takes place at all. An example is the treatment of property income earned on certain insurance funds, which is retained by insurance enterprises. The system records this property income as being paid by insurance enterprises to policyholders, who then pay the same amount back to the insurance enterprises as premium supplements.

### **Partitioning**

- 1.76 When a transaction appearing to the parties involved as a single transaction is recorded as two or more differently classified transactions, the transaction is partitioned. Partitioning does not imply including additional units in the transactions.
- 1.77 The payment of non-life insurance premiums is a typical partitioned transaction. Although policyholders and insurers regard these payments as one transaction, the ESA 2010 system divides them into two quite different transactions: payments in return for non-life insurance services provided, and net non-life insurance premiums. Recording the sale of a product as the sale of the product and the sale of a trade margin is another example of partitioning.

### **Recognising the principal party to a transaction**

- 1.78 When a unit carries out a transaction on behalf of another unit (the principal) and is funded by that unit, the transaction is recorded exclusively in the accounts of the principal. As a rule, one should not go beyond this principle by trying, for instance, to allocate taxes or subsidies to ultimate payers or ultimate beneficiaries under the adoption of assumptions.

An example is the collection of taxes by one government unit on behalf of another. A tax is attributed to the government unit that exercises the authority to impose the tax (either as a principal or through the delegated authority of the principal) and has final discretion to set and vary the rate of the tax.

#### Borderline cases

- 1.79 The definition of a transaction implies that an interaction between institutional units be by mutual agreement. When a transaction is undertaken by mutual agreement, the prior knowledge and consent of the institutional units is implied. The payments of taxes, fines and penalties are by mutual agreement, in that the payer is a citizen subject to the law of the land. However, uncompensated seizure of assets is not regarded as a transaction, even when imposed by law.

Illegal economic actions shall be considered as transactions when all units involved enter the actions by mutual agreement. Thus, purchases, sales or barter of illegal drugs or stolen property are transactions, while theft is not.

*Other changes in assets*

1.80 Other changes in assets record changes that are not the result of transactions. They are either:

- (a) other changes in the volume of assets and liabilities; or
- (b) holding gains and losses.

Other changes in the volume of assets and liabilities

1.81 Other changes in the volume of assets and liabilities records changes divided into three main categories:

- (a) normal appearance and disappearance of assets other than by transactions;
- (b) changes in assets and liabilities due to exceptional, unanticipated events which are not economic in nature;
- (c) changes in classification and structure.

1.82 Examples of changes within the category referred to in point (a) of paragraph 1.81 are discovery or depletion of subsoil assets, and natural growth of non-cultivated biological resources. Examples of changes within the category referred to in point (b) of paragraph 1.81 are losses in assets due to natural disasters, war or severe acts of crime. Unilateral cancellation of debt and uncompensated seizure of assets also belong to category (b). An example of a change within the category referred to in point (c) of paragraph 1.81 is the reclassification of an institutional unit from one sector to another.

#### Holding gains and losses

1.83 Holding gains and losses occur when there are changes in the prices of assets. They occur on all kinds of financial and non-financial assets, and on liabilities. Holding gains and losses accrue to the owners of assets and liabilities purely as a result of holding the assets or liabilities over time, without transforming them in any way.

1.84 Holding gains and losses measured on the basis of current market prices are called nominal holding gains and losses. These may be decomposed into neutral holding gains and losses, reflecting changes in the general price level, and real holding gains and losses, reflecting changes in the prices of assets beyond that of the general price change.



## *Stocks*

- 1.85 Stocks are the holdings of assets and liabilities at a point in time. Stocks are recorded at the beginning and end of each accounting period. The accounts that show stocks are called balance sheets.
- 1.86 Stocks are also recorded for population and employment. However, such stocks are recorded as mean values over the accounting period. Stocks are recorded for all assets within the system's boundaries; that is, for financial assets and liabilities and for non-financial assets, both produced and non-produced. However, the coverage is limited to those assets that are used in economic activity and that are subject to ownership rights.
- 1.87 Thus, stocks are not recorded for assets such as human capital and natural resources that are not owned.

Within its boundaries, the ESA 2010 system is exhaustive in respect of both flows and stocks. This implies that all changes in stocks can be fully explained by recorded flows.

## **The system of accounts and the aggregates**

### ***Rules of accounting***

1.88 An account records changes in value accruing to a unit or sector according to the nature of the economic flows shown in the account. It is a table with two columns. The current accounts are those which show production, generation and allocation of income, distribution and redistribution of income, and its use. The accumulation accounts are the capital and financial accounts, and the other changes in volume accounts.

### ***Terminology for the two sides of the accounts***

1.89 The ESA 2010 system shows 'resources' on the right side of the current accounts where transactions appear which add to the economic value of a unit or a sector. The left side of the accounts shows 'uses' — transactions that reduce the economic value. The right side of the accumulation accounts show 'changes in liabilities and net worth' and the left side shows 'changes in assets'. Balance sheets are presented with 'liabilities and net worth' (the difference between assets and liabilities) on the right side and 'assets' on the left. Comparison of two successive balance sheets shows changes in liabilities and net worth and changes in assets.

1.90 A distinction is made in the ESA between legal ownership and economic ownership. The criterion for recording the transfer of goods from one unit to another is that the economic ownership passes from one to the other. The legal owner is the unit entitled in law to the benefits of possession. However, a legal owner can contract with another unit for the latter to accept the risks and rewards of using the goods in production, in return for an agreed payment. The nature of the agreement is a financial lease, where the payments reflect only the placing of the asset at the disposal of the borrower by the provider. For example, when a bank legally owns a plane, but enters into a financial lease arrangement with an airline to operate the plane, then the airline is held to be the owner of the plane as far as transactions in the accounts are concerned. At the same time as the airline is shown as purchasing the plane, a loan is imputed from the bank to the airline reflecting the amounts due in the future for use of the plane.

*Double entry/quadruple entry*

1.91 For a unit or sector, national accounting is based on the principle of double entry. Each transaction shall be recorded twice, once as a resource (or a change in liabilities) and once as a use (or a change in assets). The total of transactions recorded as resources or changes in liabilities and the total of transactions recorded as uses or changes in assets must be equal, thus permitting a check on the consistency of the accounts.

- 1.92 National accounts — with all units and all sectors — shall be based on a principle of quadruple entry, since most transactions involve two institutional units. Each transaction shall be recorded twice by the two transactors involved. For example, a social benefit in cash paid by a government unit to a household is recorded in the accounts of government as a use under transfers and a negative acquisition of assets under currency and deposits; in the accounts of the households sector it is recorded as a resource under transfers and an acquisition of assets under currency and deposits.
- 1.93 Transactions within a single unit (such as the consumption of output by the same unit that produced it) shall require only two entries, whose values have to be estimated.

### *Valuation*

- 1.94 With the exception of some variables concerning population and labour, the ESA 2010 system shows all flows and stocks in monetary terms. Flows and stocks shall be measured according to their exchange value, i.e. the value at which flows and stocks are in fact, or could be, exchanged for cash. Market prices are, thus, the ESA's reference for valuation.

- 1.95 In the case of monetary transactions and cash holdings and liabilities, the values required are directly available. In most other cases, the best method of valuation is by reference to market prices for analogous goods, services or assets. This method is used for e.g. barter and the services of owner-occupied dwellings. When no market prices for analogous products are available, for instance in the case of non-market services produced by government, valuation is made by summing production costs. If there is no market price to refer to, and costs are not available, then flows and stocks may be valued at the discounted present value of expected future returns. This last method is only to be used as a last resort.
- 1.96 Stocks are valued at current prices at the time to which the balance sheet relates, not at the time of production or acquisition of the goods or assets that form the stocks. It is necessary to value stocks at their estimated written-down current acquisition values or production costs.

*Special valuations concerning products*

- 1.97 As a result of transport costs, trade margins and taxes less subsidies on products, the producer and the user of a given product usually perceive its value differently. In order to keep as close as possible to the views of the transactors, the ESA 2010 system records all uses at purchaser's prices, which include transport costs, trade margins and taxes less subsidies on products, while output is recorded at basic prices, which exclude those elements.

1.98 Imports and exports of products shall be recorded at border values. Total imports and exports are valued at the exporter's customs frontier, or free on board (FOB). Foreign transport and insurance services between the importer's and the exporter's frontiers are not included in the value of goods but are recorded under services. As it may not be possible to obtain FOB values for detailed product breakdowns, the tables containing details on foreign trade show imports valued at the importer's customs frontier (CIF value). All transport and insurance services to the importer's frontier are included in the value of imported goods. As far as these services concern domestic services, a global FOB/CIF adjustment is made in this presentation.

*Valuation at constant prices*

1.99 Valuation at constant prices means valuing the flows and stocks in an accounting period at the prices of a previous period. The purpose of valuation at constant prices is to decompose changes over time in the values of flows and stocks into changes in price and changes in volume. Flows and stocks at constant prices are described as being in volume terms.

1.100 Many flows and stocks, e.g. income, do not have price and quantity dimensions of their own. However, the purchasing power of such variables can be obtained by deflating the current values with a suitable price index, e.g. the price index for final national uses, excluding changes in inventories. Deflated flows and stocks are also described as being in real terms. An example is real disposable income.

### *Time of recording*

- 1.101 Flows shall be recorded on an accrual basis; that is, when economic value is created, transformed or extinguished, or when claims and obligations arise, are transformed or are cancelled.
- 1.102 Output is recorded when produced and not when paid for by a purchaser. The sale of an asset is recorded when the asset changes hands, not when the corresponding payment is made. Interest is recorded in the accounting period when it accrues, regardless of whether or not it is paid in that period. Recording on an accrual basis applies to all flows, monetary as well as non-monetary and intra-unit as well as flows between units.
- 1.103 It may be necessary to relax this approach for taxes and other flows concerning general government, which are often recorded on a cash basis in government accounts. It may be difficult to carry out an exact transformation of such flows from cash basis to accrual basis, and so an approximate method may be used.
- 1.104 As an exception to the general rules governing the recording of taxes and social contributions payable to the general government, they can either be recorded net of the part unlikely to be collected or, if this part is included, it is neutralised in the same accounting period by a capital transfer from the general government to the relevant sectors.

- 1.105 Flows shall be recorded at the same point of time for all institutional units involved and in all accounts. Institutional units do not always apply the same accounting rules. Even when they do, differences in actual recording may occur for practical reasons such as delays in communication. Consequently, transactions may be recorded at different times by the transactors involved. Such discrepancies shall be eliminated by adjustments.

### ***Consolidation and netting***

#### *Consolidation*

- 1.106 Consolidation refers to the elimination, from both uses and resources, of transactions that occur between units when units are grouped, and to the elimination of reciprocal financial assets and liabilities. This occurs commonly when the accounts of subsectors of general government are combined.
- 1.107 As a matter of principle, flows and stocks between constituent units within subsectors or sectors must not be consolidated.
- 1.108 However, consolidated accounts may be built up for complementary presentations and analyses. Information on the transactions of such (sub)sectors with other sectors and the corresponding 'external' financial position may be more significant than overall gross figures.



1.109 Moreover, the accounts and tables showing the creditor/debtor relationship provide a detailed picture of financing of the economy and are considered very useful for understanding the channels through which the financing surpluses move from final lenders to final borrowers.

### *Netting*

1.110 Individual units or sectors may have the same kind of transaction both as a use and as a resource (e.g. they both pay and receive interest) and the same kind of financial instrument both as an asset and as a liability. The approach in the ESA is gross recording, apart from the degree of netting which is inherent in the classifications themselves.

1.111 Netting is implicit in various transaction categories, the most outstanding example being 'changes in inventories', which underlines the analytically significant aspect of overall capital formation rather than tracking daily additions and withdrawals. Similarly, with few exceptions, the financial account and other changes in assets accounts record increases in assets and in liabilities on a net basis, bringing out the final consequences of those types of flows at the end of the accounting period.

### *Accounts, balancing items and aggregates*

- 1.112 For units or groups of units, different accounts record transactions which are connected to an aspect of economic life (for instance, production). For the production account, the transactions will not show a balance between uses and resources without the introduction of a balancing item. Similarly, a balancing item (net worth) must be introduced between the total of assets and the total of liabilities of an institutional unit or sector. Balancing items are meaningful measures of economic performance in themselves. When summed for the whole economy, they are significant aggregates.

#### **The sequence of accounts**

- 1.113 The ESA 2010 system is built around a sequence of interconnected accounts. The full sequence of accounts for the institutional units and sectors is composed of current accounts, accumulation accounts and balance sheets.
- 1.114 Current accounts deal with the production, generation, distribution and redistribution of income and the use of such income in the form of final consumption. Accumulation accounts cover changes in assets and liabilities and changes in net worth (the difference for any institutional unit or group of units between its assets and liabilities). Balance sheets present stocks of assets and liabilities and net worth.
- 1.115 The sequence of accounts for local KAUs and industries is shortened to the first current accounts: production account and generation of income account, the balancing item of which is the operating surplus.

### *The goods and services account*

- 1.116 The goods and services account shows, for the economy as a whole or for groups of products, the total resources (output and imports) and uses of goods and services (intermediate consumption, final consumption, changes in inventories, gross fixed capital formation, acquisitions less disposals of valuables, and exports). This account is not an account in the same sense as the others in the sequence, and does not generate a balancing item which is passed on to the next account in the sequence. It is rather the presentation in table form of an accounting identity, according to which supply is equal to demand for all products and groups of products in the economy.

### *The rest of the world account*

- 1.117 The rest of the world account covers transactions between resident and non-resident institutional units and the related stocks of assets and liabilities.

As the rest of the world plays a role in the accounting structure similar to that of an institutional sector, the rest of the world account is established from the point of view of the rest of the world. A resource for the rest of the world is a use for the total economy and vice versa. If a balancing item is positive, it means a surplus of the rest of the world and a deficit of the total economy, and vice versa if the balancing item is negative.

The rest of the world account is unlike the other sector accounts in that it does not show all the accounting transactions in the rest of the world, but only those which have a counterparty in the domestic economy being measured.

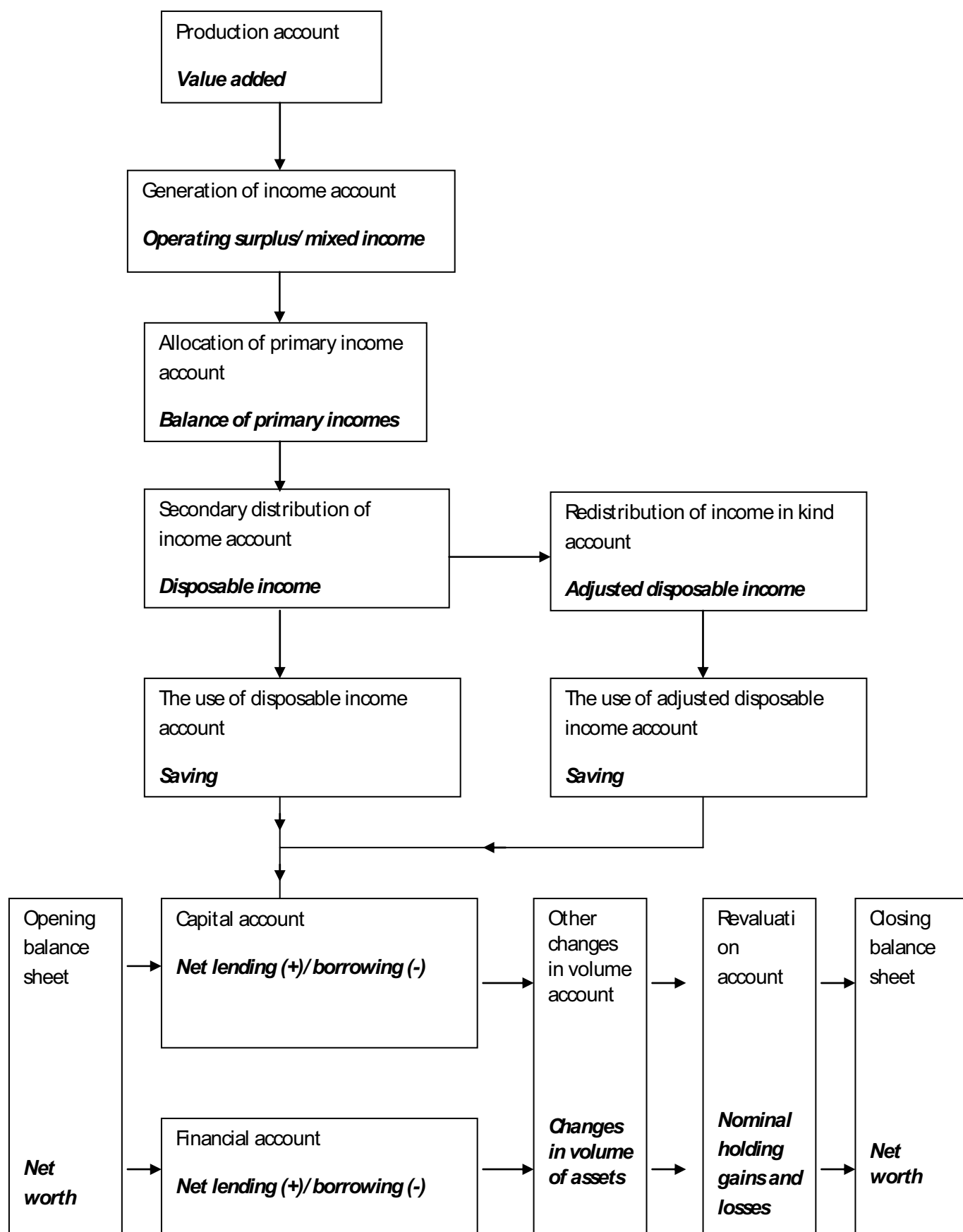
### ***Balancing items***

1.118 A balancing item is obtained by subtracting the total value of the entries on one side of an account from the total value on the other side.

Balancing items embody a great deal of information and include some of the most important entries in the accounts, as can be seen from the following examples of balancing items: value added, operating surplus, disposable income, saving, net lending/net borrowing.

The following diagram shows the sequence of accounts in flow form — each balancing item is shown in bold.

A diagram of the sequence of accounts



- 1.119 The first account in the sequence is the production account, which records the output and inputs of the production process, leaving value added as the balancing item.
- 1.120 The value added is taken forward to the next account which is the generation of income account. Here the compensation of employees in the production process is recorded, as well as taxes due to government because of the production, so that the operating surplus (or mixed income from the self-employed of the households sector) can be derived as the balancing item for each sector. This step is necessary so that the amount of value added retained in the producing sector as operating surplus or mixed income can be measured.
- 1.121 Then the value added, broken down between compensation of employees, taxes and operating surplus/mixed income, is taken forward with this breakdown to the allocation of primary income account. The breakdown allows the allocation of each factor income to the receiving sector, as opposed to the producing sector. For example, all compensation of employees is allocated between the households sector and the rest of the world sector, whereas operating surplus remains in the corporations sector where it was generated. Also recorded in this account are the property income flows into the sector, and those out of the sector, so that the balancing item is the balance of primary incomes flowing into the sector.
- 1.122 The next account records redistribution of these incomes through transfers — the secondary distribution of income account. The major instruments of redistribution are government taxes on, and social benefits for, the households sector. The balancing item is disposable income.

- 1.123 The main sequence of core accounts carries on to the use of disposable income account; an account relevant to the households sector, as it is here that household final expenditure is recorded, leaving household saving as the balancing item.
- 1.124 At the same time a parallel account is created, the redistribution of income in kind account. This account has the specific purpose of showing social transfers in kind as an imputed transfer from government to the households sector, so that household income can rise by the value of individual government services. In the next account (use of adjusted disposable income account), the household use of disposable income is increased by the same amount, as if the households sector were buying the individual services provided by government. Those two imputations cancel out, so that the balancing item is saving, identical to saving in the main sequence of accounts.
- 1.125 Saving is taken on to the capital account where it is used to fund capital formation, allowing for capital transfers in and out of the sectors. Underspend or overspend on the acquisition of real assets results in the balancing item net lending or borrowing. Net lending is a surplus loaned out, and net borrowing is the financing of a deficit.
- 1.126 Finally, the financial accounts are met, where the detailed lending and borrowing of each sector is laid out so that a balancing item of net lending or borrowing is observed. This should exactly match the net lending/borrowing balancing item of the capital account, and any difference must be a measurement discrepancy between the real and financial recordings of economic activity.

- 1.127 Considering the bottom row of the diagram, the left-hand account is the opening balance sheet, showing the level of all assets and liabilities, both real and financial, at the start of a specified period. The wealth of an economy is measured by its net worth (assets less liabilities) and this is shown at the bottom of the balance sheet.
- 1.128 Moving from left to right from the opening balances, the various changes to assets and liabilities that occur in the period of account are recorded. The capital account and financial account show the changes due to transactions in real assets and financial assets and liabilities respectively. In the absence of other effects, this would enable the immediate calculation of the closing position, by adding the changes to the opening position.
- 1.129 However, changes can occur outside the economic cycle of production and consumption, and such changes will affect the values of assets and liabilities at the closing period. One type of change is a change in volume of assets — real changes to fixed capital brought about by events which are not part of the economy. An example would be a catastrophic loss — a large earthquake, when a significant amount of assets were destroyed not through an economic transaction of exchange or transfer. This loss must be recorded in the other changes in volume account, to account for the lower level of assets than expected purely by looking at economic events. A second way in which assets (and liabilities) can change in value, other than as the result of an economic transaction, is through a change in price resulting in holding gains and losses in the stock of assets held. This change is recorded in the revaluation accounts. Allowing for these two extra effects on the values of the stock of assets and liabilities enables the closing balance sheet values to be estimated as the opening position adjusted for the changes in the flow accounts of the bottom row of the figure.



## *Aggregates*

- 1.130 The aggregates are composite values which measure the result of the activity of the total economy; for example, output, value added, disposable income, final consumption, saving, capital formation, etc. Although the calculation of the aggregates is not the sole purpose of the ESA, they are important as summary indicators for purposes of macroeconomic analysis and comparisons over time and space.
- 1.131 Two types of aggregates are distinguished:
- (a) aggregates which refer directly to transactions in the ESA 2010 system, such as the output of goods and services, final consumption, gross fixed capital formation, compensation of employees, etc.;
  - (b) aggregates which represent balancing items in the accounts, such as GDP at market prices, operating surplus of the total economy, GNI, national disposable income, saving, current external balance, and net worth of the total economy (national wealth).
- 1.132 There are important uses for national accounts measures per head of population. For broad aggregates such as GDP or national income or household final consumption, the denominator commonly used is the total (resident) population. When subsectoring the accounts or part of the accounts of the households sector, data on the number of households and the number of persons belonging to each subsector are used.

*GDP: a key aggregate*

1.133 GDP is one of the key aggregates in the ESA. GDP is a measure of the total economic activity taking place on an economic territory which leads to output meeting the final demands of the economy. There are three ways of measuring GDP at market prices:

- (1) the production approach, as the sum of the values added by all activities which produce goods and services, plus taxes less subsidies on products;
- (2) the expenditure approach, as the total of all final expenditures made in either consuming the final output of the economy, or in adding to wealth, plus exports less imports of goods and services;
- (3) the income approach, as the total of all incomes earned in the process of producing goods and services plus taxes on production and imports less subsidies.

1.134 These three approaches to measuring GDP also reflect the different ways in which GDP can be considered in terms of components. Value added can be broken down by institutional sector, and by the type of activity or industry which is contributing to the total, e.g. agriculture, manufacturing, construction, services, etc.

Final expenditures can be broken down by type: household expenditure, NPISH final expenditure, government final expenditure, change in inventories, fixed capital formation and exports, less the cost of imports.

Total incomes earned can be broken down by type of income — compensation of employment, and operating surplus.

1.135 In order to achieve the best estimate of GDP, it is good practice to feed the elements of these three approaches into a supply and use framework. This enables value added and income estimates by industry to be reconciled, and supply and demand for products to be balanced. This integrated approach ensures consistency between the components of GDP, and a better estimate of the level of GDP than from only one of the three approaches. By deducting consumption of fixed capital from GDP, net domestic product at market prices (NDP) is obtained.

## **The input-output framework**

1.136 The input-output (I-O) framework brings together components of Gross Value Added (GVA), industry inputs and outputs, product supply and demand, and the composition of uses and resources across institutional sectors for the economy. This framework breaks the economy down to display transactions of all goods and services between industries and final consumers for a single period (for example, a quarter or a year). Information may be presented in two ways:

- (a) supply and use tables;
- (b) symmetric input-output tables.

### ***Supply and use tables***

1.137 Supply and use tables show the whole economy by industry (e.g. motor vehicles industry) and products (e.g. sports goods). The tables show links between components of GVA, industry inputs and outputs, and product supply and demand. Supply and use tables link different institutional sectors of the economy (e.g. public corporations) together with detail of imports and exports of goods and services, government expenditure, household and NPISHs expenditure and capital formation.

- 1.138 Producing supply and use tables allows an examination of consistency and coherence of national accounts components within a single detailed framework and, by incorporating the components of the three approaches to measuring GDP (i.e. production, income and expenditure), enables a single estimate of GDP to be determined.
- 1.139 When balanced in an integrated manner, supply and use tables also provide coherence and consistency in linking the components of the following three accounts:
- (1) goods and services account;
  - (2) production account (by industry and by institutional sector); and
  - (3) generation of income account (by industry and by institutional sector).

*Symmetric input-output tables*

- 1.140 Symmetric input-output tables are derived from the data in supply and use tables and other additional sources to form the theoretical basis for subsequent analyses.
- 1.141 These tables contain symmetric (product by product or industry by industry) tables, the Leontief Inverse and other diagnostic analyses such as output multipliers. These tables show separately the consumption of domestically produced and imported goods and services, providing a theoretical framework for further structural analysis of the economy, including the composition as well as the effect of changes in final demand on the economy.
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