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Chapter 18: Elaborating and presenting the accounts

A. Introduction

- 18.1 The preceding chapters explain both the accounting concepts of the SNA and the form of the sequence of accounts. This chapter, and those that follow, describe how to build on this information to use the SNA in a way best suited to serve the needs of users and illustrate the interaction of the SNA with other international statistical standards.
- 18.2 The present chapter is concerned with a number of issues of particular concern to those responsible for the maintenance of the national accounts data base and the presentation of the accounts in the most suitable form for different sorts of analysis. In particular it addresses:
- how to deal with revisions and discrepancies in the data and the trade-off between timeliness and accuracy,
 - which accounts to present in volume terms,
 - the role of data more frequent than annual,
 - regional accounts, and
 - what sort of detail might be included in publications.
- 18.3 Although no table in previous chapters has illustrated it, the prime use of the SNA is in a time series context so that users of the accounts can assess how the economy is evolving and developing over time. National accountants, like other statisticians, are regularly under pressure to produce estimates of the accounts as quickly as possible. Inevitably there is a tension between timeliness and accuracy since more comprehensive and robust data usually take longer to process than short-term indicators. Producing accounts as quickly as possible with the best information available at that time inevitably means that revisions to the initial estimates will be necessary. The publication of revisions to series is not a sign of weakness in the statistical system, rather it should be seen as a sign of the degree of confidence that the statistician has in both the original estimates and the later revisions. Some of the poorest quality national accounts are those that have remained unchanged for many years. Aspects associated with publishing time series, and the need to revise them, are discussed in section B.
- 18.4 Chapter 15 describes the theory of the price indices that can be used to deflate some aspects of national accounts from current values to estimates in volume terms. Section C describes briefly which parts of the accounts it is useful to express in this way.
- 18.5 Annual series are adequate to identify long-term shifts in the economy but to assess what is happening in the short term, higher frequency national accounts fill a key role in between short-term indicators and fully elaborated annual accounts. Discussing such accounts requires a manual in itself but an indication of some of the key issues is given in section D.
- 18.6 Another dimension of the accounts is that of regional accounts, where a region may be either a subdivision of a country or an economic region covering several economies. A brief mention of some aspects of regional accounting is given in section E.
- 18.7 The SNA is meant to be presented flexibly in order to respond most appropriately to local circumstances. Section F illustrates some ways in which key aspects of the accounts might be presented. It is important to stress that the tables in this section are not intended to be taken as strict guidelines but simply as indications of the sorts of details that might be condensed or expanded in different circumstances in order to highlight different aspects of the economy.

B. Time series, revisions and discrepancies

1. Time series

- 18.8 The tables in this manual are designed to be expository and therefore feature data only for a single time period. In practice it is time series of the aggregates that explain the movement of economic variables that are of most interest to analysts. The style of tables used in chapters 6 to 13 is well suited to time series presentations since the number of columns may be extended as necessary to accommodate increasingly long time series. For example, instead of one

table with one column for each of the five institutional sectors, one for the total economy and one for the rest of the world, it is straightforward to have seven tables, one for each of the columns but for multiple years.

- 18.9 The length of time series shown will depend on a number of factors. For some purposes, as long a run as possible may be interesting and some countries have series going back for over fifty years. However, most printed tables show no more than the ten to fifteen most recent years, with earlier data available only electronically. Usually more attention is given to ensuring the data for the recent past are as complete and accurate as possible with earlier years receiving less detailed attention. It is desirable, however, at a minimum to provide a link to earlier series so the long-term evolution of the economy can be examined.
- 18.10 There may be factors that imply that long time series are mainly of academic interest. For example, the change from command economy to market economy that took place in eastern Europe in the early 1990s resulted in such a fundamental change in the nature of economic activity that time series for a period from the late 1980's to the early 1990's are of limited analytical interest. In this case the political changes overshadowed the economic consequences. In all countries, the evolution of the economy over a long period in response to innovations in products, marketing mechanisms and changing import patterns means that comparisons over very many years need to be interpreted carefully.

2. Revisions

- 18.11 One consequence of preparing national accounts on a continuing basis over a number of years is that data sources change and improve. Intermittent sources, such as a survey held only every five years may become available and indicate that the earlier assumptions based on projecting the previous survey were flawed. In such a case it is not sufficient to simply replace the data for the most recent period (or even from the date of the new survey forward) but to ensure that the whole time series is suitably adjusted in order to portray the best possible evolution of the series in question over as long a period as possible. Failure to do so results in inappropriate discontinuities in the series that can be seriously misleading to analysts unaware that the source of the underlying data has changed.
- 18.12 This need to revise data brings to the fore the conflict inherent in statistics between making the data as accurate as possible and making them as timely as possible. Users would like data that are both timely and accurate but there are trade-offs between these goals in practice. Each statistical office must make judgements about how to balance these conflicting demands but whatever the ultimate conclusion, time series that are consistent over time and explanations to enable analysts to appreciate the trade-offs the statistical office has to take are essential.

3. Discrepancies

- 18.13 Although the SNA ensures there is perfect consistency between the three measures of GDP, this is a conceptual consistency that in general does not emerge naturally from data compilations. This is because of the wide disparity of

data sources that must be called on and the fact that any error in any source will lead to a difference between at least two of the GDP measures. In practice it is inevitable that many such data errors will exist and will become apparent in exercises such as the balancing of supply and use tables.

- 18.14 Often, the compilation process for the financial accounts and balance sheets is sufficiently separate from the rest of the accounts that the figures for net borrowing or net lending derived from each are different in practice even though they are conceptually the same.
- 18.15 Just as a statistical office must make choices about the trade-off between timeliness and accuracy, choices must also be made about how to deal with discrepancies. Resources can be invested in improving data surveys, the format of the questionnaire, sampling strategies, processing techniques including the treatment of missing data and so on. However, while ultimately desirable, such an approach is costly and long-term. Even with very sophisticated data collection methods, discrepancies between different estimates will persist due to differences in coverage, valuation and lags in recording. In addition, a statistical office is also dependent to a greater or lesser extent on administrative sources of data and may not be able to ensure these exactly meet the statistician's needs.
- 18.16 Two approaches are open to a statistical office. The first is to be open about the problem and publish a statistical discrepancy. When this is done, it is usual to attach it to the variant of GDP the office feels is least accurate. The aim is to show users something about the degree of reliability of the published data. For example, the office may feel that the production estimate of GDP is fairly sound but have doubts about some of the expenditure components.
- 18.17 The alternative is for the office to remove the discrepancy by examining the data in the light of the many accounting constraints in the SNA, making the best judgement possible about where the errors are likely to have arisen and modifying the data accordingly. The supply and use framework, described in chapter 14, is a very powerful tool for doing this sort of work. More information on such balancing techniques can be found in manuals on input-output tables such as those prepared by the UN and Eurostat.
- 18.18 In practice, some countries may not be able to compile all three measures of GDP. Indeed, it happens that sometimes only the production measure is compiled completely and only certain components of the expenditure measure are available, principally government expenditure, capital formation (perhaps with incomplete information on changes in inventories), exports and imports of goods only. If, in such a case, an estimate of GDP by expenditure is presented where household consumption is derived as a global balancing item, this estimate will cover not only the true but unknown value of household consumption but will also include the net effect of all errors cumulated from all other parts of the estimates.
- 18.19 Any errors in the production measure, missing figures for imports and exports of services, or the fact that government expenditure has been recorded on a cash rather than on an accrual basis, will distort the value of household

consumption. If, then, the figure for gross operating surplus is derived by subtracting compensation of employees and taxes less subsidies on production from this incorrect figure for GDP, the errors will be carried forward to this aggregate also. The lesson for users looking at accounts with no statistical discrepancy is to be sure to understand how it

was eliminated. The lesson for compilers is to study the possibilities of working at more detailed levels to avoid having to make gross assumptions about missing items, especially one as critical to an assessment of living conditions as household consumption.

C. Accounts in volume terms

18.20 A major purpose in constructing accounts covering a longer period of time is to be able to study the way in which the basic structure of the economy has changed. This can be seen by studying the changing composition of macro-economic aggregates in current values. To determine growth rates, however, it is necessary to abstract from the effects of price changes. This is done by constructing accounts in volume terms which enable the user to see the changes from one year to the next that would have resulted if there had been no change in prices. Chapter 15 describes in detail the theory and practice underlying the construction of price indices and the construction of volume measures. That chapter also explains the consequences of deriving time series in volume terms using chained indices where some impacts of price changes do affect the volume estimates.

18.21 It is only the elements of the goods and services account and non-financial capital stock for which volume measures are derived. In general, flows of property income, transfers and financial transactions are expressed only in nominal terms. In cases of high inflation, an alternative presentation where even these flows may be adjusted is possible but this is not the norm.

18.22 As well as expressing the elements of the goods and services account in volume terms, the whole supply and use tables can be expressed in volume terms. Compiling such a table ensures not only that goods and services balance when expressed in current values but that the prices used for their deflation are strictly consistent. Conceptually, a production index should be related to a weighted index of the input prices, the weights corresponding to the values of the different input categories. If the prices used to deflate output and those used to deflate intermediate consumption are not consistent, the implicit deflator for value added will be implausible. Discovering such implausibility is an indication that either the current value figures are not well balanced, the prices used are inconsistent or inappropriate, or both.

18.23 It is useful to consider the expenditure components of GDP and the production components of GDP separately first, then to consider the supply and use table and finally the capital stock measures.

1. The expenditure components of GDP

18.24 The measure of GDP easiest to express in volume terms is that of expenditure. As long as appropriate price indices exist, the estimates of household consumption, capital formation, exports and imports can be deflated without

much conceptual difficulty. It is desirable to work at as great a degree of detail as possible using the product detail available for each aggregate. Care must be taken, as explained in chapter 15, to ensure that differences in quality are properly accounted for in the price deflators. This is especially important in the case of capital formation where many items such as computers are subject to rapid technological change and many items are customized, for example pieces of heavy machinery built to individual specifications.

18.25 Price indices for services are more difficult to compile than for goods and this is especially so for non-market services. Because the current values of non-market services are usually determined as the sum of costs, the obvious approach is to deflate each of these (including calculating compensation of employees at constant compensation rates). However, this does not allow for any change in the quality of services provided and in particular for the impact of any productivity changes that may have been achieved. In some cases, direct volume measures may be considered as described in the Eurostat *Handbook on prices and volumes measures in national accounts* or the OECD *Handbook on measuring education and health output*. Research work is actively in progress to derive volume estimates of output that take account of changes in the quality as well as the quantity of the services provided.

2. The production components of GDP

18.26 Central to the production measure of GDP is value added, the balancing item in the production account. Statements can be found saying that it is not possible to think of a balancing item having price and volume dimensions. To date the most common practice is to deflate the values of output and intermediate consumption independently, industry by industry, and then derive the difference as value added for each industry. Different price indices are necessary for two reasons. The first is because the goods and services included in intermediate consumption for any industry are not the same as the output of that industry. The second reason is that intermediate inputs are always measured at purchasers' prices whereas output is measured at either basic prices or producers' prices.

18.27 More recently, though, there is increasing interest in trying to associate movements in value added, after price effects have been eliminated, with changes in labour and capital inputs. A description of the different concepts of productivity can be found in the OECD manual, *Measuring Productivity*. The manual discusses the question of whether the estimates of the costs of capital and labour exactly

exhaust the estimate of value added coming from direct volume estimates, a subject which is taken up in chapter 20 on capital services.

3. Supply and use tables in volume terms

18.28 The rows of a use table show the way in which the total supply of a product is used for intermediate consumption, final consumption, capital formation and exports. This identity must hold in value terms. If the product in question is one where there is an unambiguous measure of quantity, the identity must also hold in volume terms. If the volume figures are derived by deflating the current values, the identity will hold only if each use category is deflated using a price index that is strictly appropriate to it.

18.29 It is a good practice to compile supply and use tables in both current values and in volume terms at the same time so that the consistency of all the input data, including price indices, can be investigated together.

4. Capital stock

18.30 Derivation of estimates of the consumption of fixed capital requires estimates of capital stock excluding the effects of price changes, even if there is no thought of estimating capital services or productivity measures. The levels of capital stock are typically derived by cumulating capital formation in successive periods and deducting the amount that has been exhausted. It clearly makes no sense to aggregate estimates of capital formation at the prices actually paid since the effect of rising prices (even prices rising only moderately) will be to overstate the amount of “new” capital relative to “old”.

18.31 The preferred technique is to estimate all capital still in stock at the price of a single year and then revalue this to the price prevailing when the balance sheet is to be drawn up, typically the first and last day of the accounting period. This should be done at the most detailed level practicable. More on this can also be found in chapter 20.

D. Quarterly and other high frequency accounts

18.32 One response to the demand for timely data is to compile accounts more frequently than annually. In principle, the SNA can be applied to any length of time period but there are some special considerations that need to be respected for high frequency as opposed to annual accounts. A frequent choice for high frequency data is for quarterly accounts. For greater detail on compiling quarterly accounts, see the IMF *Quarterly National Accounts Manual: Concepts, Data Sources and Compilation* or the Eurostat manual *Handbook on Quarterly National Accounts*. These manuals discuss in detail issues such as using indicators to extrapolate data and bench-marking quarterly estimates to annual data. What follows here is simply an indication of some of the key considerations that apply to quarterly as opposed to annual accounting. Similar considerations apply to other high frequency accounts.

1. Conceptual issues

Time of recording

18.33 The time of recording principle is the same for quarterly national accounts as for annual accounts. The accounts are to be compiled on an accrual basis and not a cash basis. While there will always be amounts accrued but not yet paid or received, the proportion of these amounts, relative to the total flows in the period, will be larger for a shorter period.

Definitions involving a year or more

18.34 The qualifying criterion for a fixed asset is that it should be used in production for more than one year. For simplicity and consistency between quarterly and annual accounts, this period is maintained even for quarterly accounts.

18.35 Similarly the distinction between short-term and long-term in the classification of financial assets remains one year.

Seasonality

18.36 One aspect of quarterly accounts is the effects that arise because patterns of supply and demand may change with the season. For example, more electricity may be used in winter to heat buildings than in summer or, conversely, more may be used in summer to cool them. Many agricultural products are more readily available at one time of year rather than another and thus have lower prices then. For these reasons, although the quarterly accounts should first be compiled using the data as observed, it is desirable to calculate quarterly data on a seasonally adjusted basis in order to study the pattern of evolution of the economy abstracting from seasonal effects.

18.37 Many holidays fall at the same time each year leading to a different number of working days in each quarter. Thus it is common to calculate series adjusted for the number of working days in a period. It is thus desirable to adjust high frequency data for both seasonal and working day effects.

2. Data quality

18.38 When compiling quarterly accounts, it is necessary to compare the availability of quarterly data as compared with annual data. Usually there is more data available annually and it is more comprehensive or otherwise better quality than quarterly data. To the extent this is so, the quarterly accounts may be seen as being provisional in some sense and need to be revised when more reliable annual data become available. Simply bench-marking four quarterly observations to the eventual annual figure, though, may give unexpected and implausible changes from the last revised quarter to the next quarter (a “step”) unless

techniques are used that address this problem. Most commonly used computer programs available to statistical offices automatically adjust to ensure that no such step results.

- 18.39 Although it is usual to ensure that the sum of data for the four quarters is equal to the annual figures for data before adjustment, forcing this agreement on seasonally adjusted data may be difficult and thus ill-advised if the step problem just referred to is to be avoided.
- 18.40 Some data values are never available quarterly and quarterly estimates may need to be made by interpolating and projecting annual information. The use of mathematical techniques for deriving data, however, should be kept to a minimum since these are unlikely to pick up the fluctuations in the economy that quarterly accounts are intended to detect. Data values that have been derived by interpolation and projection are also unlikely to have a strong seasonal component so complete accounts with full seasonal variations may not exist.

Inventories

- 18.41 One possible exception to the general rule that the quality of annual data is superior to quarterly data concerns the measurement of changes in inventories. The level of inventories at the start and end of the period should be deflated and the change in inventories calculated as the difference. Holding gains (or losses) may occur when goods are held in inventories and the shorter the periods over which estimates of changes in inventories excluding holding gains and losses are made, the better those estimates will usually be. (A parallel case is that of shares,

for example, where holding gains are eliminated by using data quoted daily or, in some instances, more frequently.) It is simple to think of the situation where the level of inventories is the same at the same date in successive years (possibly zero) but where there has been considerable movement of goods into and then out of inventory in the intervening period. In such a case, the sum of the quarterly (or even shorter period) estimates of changes in inventories is to be preferred to the annual estimates.

3. Quarterly accounts in volume terms

- 18.42 Just as the goods and services account in annual accounts can be expressed in volume terms, so can the quarterly goods and services account. Although it is recommended that volume indices be chained, for quarterly accounts, it is recommended that the volume price indices should be chained on only an annual basis to avoid spurious results that could be caused by seasonal effects. The techniques are described in detail in paragraphs 15.45 to 15.55.

4. Coverage of quarterly accounts

- 18.43 It is possible in principle to compile the whole set of accounts in the SNA, including balance sheets, on a quarterly basis. The most common sets of quarterly accounts, though, are for the goods and services account, the income components of value added, government expenditure, the balance sheet and changes in balance sheets for financial assets and liabilities. The quarterly goods and services account should also be compiled in volume terms.

E. Regional accounts

- 18.44 Regional accounts are of special importance when there are important disparities between the economic and social development of the various regions of a country.
- 18.45 A full system of accounts at the regional level implies treating each region as a different economic entity. In this context, transactions with other regions are recorded as if they are external transactions. External transactions of the region have to distinguish between transactions with other regions of the country and transactions with the rest of the world.
- 18.46 Three types of institutional units have to be considered in the context of regional accounts.

- a. There are regional units, the centre of predominant economic interest of each of which is in one region and most of their activities take place in this region. Among regional units are households, corporations whose establishments are all located in the region, local and state governments, at least part of social security and many NPISHs.

- b. There are multi-regional units, the centre of predominant economic interest of each of which is in more than one region but does not relate to the country overall. Many corporations and a number of NPISHs are in this situation.

- c. A small number of units are national units, which means that their centres of predominant economic interest are not located geographically even in the sense of multi-regional location. This is usually the case of central government and may be the case for a small number of corporations (probably public), generally in a monopolistic or quasi-monopolistic situation, like the national railway corporation or the national electricity corporation.

- 18.47 Assigning transactions of the regional units to a specific region does not raise any conceptual problem. Assigning the transactions of multi-regional units between various regions raises more difficulties. When considering deliveries between units of the same enterprise in different regions, it is necessary to apply the recommendation in paragraph 6.104 about intra-enterprise deliveries. Such deliveries are recorded only when the receiving unit

assumes responsibility for making the decisions about the level of supply and prices at which their output is delivered to the market. When this is not the case, the receiving unit is regarded as providing only a processing service to the sending unit.

- 18.48 Further, some of the transactions of multi-regional units simply cannot be allocated between the different regions in which they operate. This is the case for most property income and financial transactions. Thus the only balancing items of multi-regional units that can be determined at the regional level are value added and operating surplus. These difficulties are parallel to those that arise when trying to construct accounts for industries where different types of activities are undertaken in separate establishments of the same enterprise.
- 18.49 Assigning the transactions of national institutional units by region raises even more complex issues to the point where the usefulness of attempting to do so may be questioned. While sales of electricity and railway services or compensation of employees paid by central government may be assigned to regions, interest on the public debt payable by central government or national corporations cannot be geographically located. Consequently, a reasonable solution is to introduce a kind of national “quasi-region”, not allocated as such between the regions and being treated as an extra region. This national “quasi-region” may include the head offices of enterprises that have establishments located in, and assigned to, the regions.
- 18.50 These conceptual difficulties partly explain why no country establishes the complete SNA accounts for every region. In

most cases regional accounts are limited to recording production activities (with conceptual problems arising for locating some of them, such as transportation and communication) by industry and more complete accounts for institutional sectors composed of regional units, such as households and local and state government. Establishing accounts for goods and services and input-output tables by region does not raise insoluble conceptual issues, though it involves treating deliveries to and from other regions as exports and imports. However, the practical difficulties of doing so are very considerable in the absence of a sophisticated system of transport statistics.

- 18.51 It should also be noted that in large countries there may be significant variation in prices of the same products across different regions. A full investigation of the impact of price variation on regional production and expenditure could involve the construction of a type of PPP exercise to be able to estimate the difference in purchasing power in different regions.
- 18.52 Nonetheless, regional accounts, even with the limitations mentioned above, are a very useful tool for economic policy. Partial regional accounts may be inserted in a set of regional statistical indicators on labour participation, unemployment, poverty, etc. The greater the contrast between the regions in a country, the more useful is such a system of regional indicators, including value added per capita, household disposable income and household consumption per capita. It is for countries themselves to devise their own regional accounts and statistical indicators, taking into consideration their specific circumstances, data systems and resources that might be devoted to this work.

F. Presentational issues

- 18.53 Although it is possible, as already noted, to introduce more detail into the integrated economic accounts by introducing more columns for sub-sectors and more rows for disaggregations of transactions, this may quickly result in a very complicated and unmanageable table. For this reason,

more detailed analysis of production and transactions in goods and services, financial transactions and detailed balance sheets, as well as analysis by purpose are shown in other types of tables. Some of these alternatives are described in following chapters. This section focuses on the

Table 18.1: High-level SNA/ISIC aggregation (A*10)

	ISIC Rev. 4 sections	Description
1	A	Agriculture, forestry and fishing
2	B, C, D and E	Manufacturing, mining and quarrying and other industry
2a	C	Of which: manufacturing
3	F	Construction
4	G, H and I	Wholesale and retail trade, transportation and storage, accommodation and food service activities
5	J	Information and communication
6	K	Financial and insurance activities
7	L	Real estate activities
8	M and N	Professional, scientific, technical, administration and support service activities
9	O, P, and Q	Public administration, defence, education, human health and social work activities
10	R, S, T and U	Other services

presentation of the main macro-aggregates with supporting detail. 18.54 It is fundamental to an understanding of the SNA to grasp the three different ways of compiling GDP, from the production, expenditure and income approaches. However, the definitions in chapter 16 concentrate on the different

Table 18.2: Industry level headings for a country with a large subsistence economy

Sections	ISIC, Rev. 4		Description
	Divisions	Groups	
<i>Monetary</i>			
A	01		Agriculture, forestry and fishing
			Crop and animal production, hunting and related service activities
			Cash crops Food crops
		014	Animal production
	02		Forestry and logging
	03		Fishing and aquaculture
B			Mining and quarrying
C			Manufacturing
			Formal
			Informal
D and E			Electricity, gas, steam and air conditioning supply; and Water supply; sewerage, waste management and remediation activities
F			Construction
G			Wholesale and retail trade; repair of motor vehicles and motorcycles
			Formal
			Informal
I			Accommodation and food service activities
H			Transportation and storage
		491	Transport via railways
		492	Other land transport
		511, 493, 522	Air transport, transport via pipeline and warehousing and support activities for transportation
	53, 60 and 61		Postal and courier activities; programming and broadcasting activities; and telecommunications
J to U			Other services
	84		Public administration and defence; compulsory social security
	85		Education
	86, 87 and 88		Human health and social work activities
	68		Real estate activities
			Miscellaneous
<i>Total Monetary</i>			
<i>Non-Monetary</i>			
A	01		Agriculture, forestry and fishing
			Crop and animal production, hunting and related service activities
			Food crops
		014	Animal production
	02		Forestry and logging
	03		Fishing and aquaculture
F			Construction
	68		Imputed rental of owner-occupied dwellings
			Other non-monetary activities
<i>Total Non-Monetary</i>			
Total value added at basic prices			
Taxes less subsidies on products and imports			
Gross domestic product			

types of flows at the most aggregate level to make the distinction between the three approaches as clear as possible. In practice when presenting the results to users, some more detail is necessary. The amount and kind of detail can vary from country to country but there are some broad guidelines that tend to be used by international organisations when producing tables for several countries at the same time.

1. Production measures of GDP

18.55 For the production measure, it is usually appropriate to give some level of industry detail. ISIC, Rev. 4 provides a top-level of 21 sections and a second level of 88 divisions. For national accounts summary data presentations, a high-level aggregation of 10 categories and an intermediate-level aggregation of 38 categories have been developed that are suitable for SNA data reporting from a wide range of countries. The structure of these two SNA/ISIC aggregations, which are denoted as A*10 and A*38, respectively, is described in more detail in ISIC, Rev 4, paragraphs 199 to 212. Table 18.1 shows the high-level (A*10) aggregation of industries.

Key industries

18.56 It is quite common in some countries to show very summary data for a range of industries with a breakdown by agriculture (ISIC section A), industry (ISIC sections B to F of which manufacturing, ISIC section C, is shown separately) and services (ISIC sections G to U). In countries where there are a small number of key industries, it may be useful to break some of these headings down further and to merge others. For example, it may be useful for an insight into the working of the economy to distinguish agriculture undertaken on a commercial scale to produce cash crops for export from small-scale informal agricultural activities or to distinguish the assembly of

electronic goods. Equally in some countries it may be sufficient to merge some service groups. However, it is good practice to follow the basic ordering adopted by ISIC whatever the level of detail shown.

18.57 In countries with a large subsistence economy, it may be desirable to show whether the production is monetary or non-monetary. Table 18.2 shows how the main ISIC industries can be elaborated to make this distinction. Depending on circumstances, a sub-set of these headings (or possibly with extra disaggregation if appropriate) may be a useful way to present information on the production activities in a country.

2. Expenditure measures of GDP

18.58 The most aggregate level of the expenditure measure of GDP is household final consumption expenditure, general government final consumption expenditure, gross capital formation, exports of goods and services and imports of goods and services. (Often in such an abbreviated presentation the item for household final consumption expenditure includes that for NPISHs also.) An example of a somewhat more detailed table is shown in table 18.3.

3. Income aggregates

18.59 There is much less standardisation in the presentation of income measures of GDP. Some presentations concentrate on showing compensation of employees and operating surplus (and mixed income) by the same industry breakdown as is shown for the output measure of GDP. Other presentations give the different components of compensation of employees (wages and salaries, and employers' social contributions), as well as the different types of taxes and subsidies levied on production. As already pointed out, income should, properly speaking, be measured net of consumption of fixed capital and thus

Table 18.3: GDP by expenditure

GDP: expenditure approach	
Final consumption expenditure	
Household final consumption expenditure	
<i>Possibly include summary detail by product or COICOP</i>	
Final consumption expenditure of NPISHs	
Government final consumption expenditure	
Individual consumption expenditure	
Collective consumption expenditure	
<i>of which Actual individual consumption expenditure</i>	
Gross capital formation	
Gross fixed capital formation, total	
<i>Possibly include summary detail according to the asset classification of capital formation</i>	
Changes in inventories	
Acquisitions less disposals of valuables	
External balance of goods and services	
Exports of goods and services	
Exports of goods	
Exports of services	
Imports of goods and services	
Imports of goods	
Imports of services	
Statistical discrepancy	
Gross domestic product	

show the composition of NDP, not GDP. The size of NNI relative to NDP is also of interest to analysts and should be shown.

- 18.60 Again national needs should be taken into account when determining the presentation of the accounts. In a country where income in kind or subsistence income is significant, a breakdown of compensation of employees that includes these items should be considered.

4. Accounts in volume terms

- 18.61 Accounts in volume terms may be presented in a number of ways that are not necessarily mutually exclusive. It is possible to present them in level terms so that for one year (the reference year) the figures in current prices and in volume terms will be identical. A consequence of this is that if, as recommended in the SNA, volume estimates are derived by means of chain-linking, then the aggregates may not be equal to the sum of the components for years other than the reference year. One alternative is to present the volume estimates in index number form. The year that previously was the same in level terms becomes 100 for both the aggregates and the components. This procedure makes changes easier to recognise but users can still calculate the level figures if desired by applying the base year level values to the volume indicators. However, this alternative is inappropriate for aggregates that can take zero or negative values, such as changes in inventories. A third alternative is to show the volume indicators only in terms of growth rates from either the previous year or from a base year. However, rounding problems suggest this may be an additional form of presentation rather than the only one. (See paragraph 15.63 for more on measuring the contributions of chain-linked indices to growth.)

5. Quarterly accounts

- 18.62 As noted in the discussion on quarterly accounts above, quarterly estimates should be presented on both a seasonally adjusted and an unadjusted basis. Often they will be presented in current prices and as volume series also.

6. Sector accounts

- 18.63 The rationale for making institutional sectors such an important part of the SNA is the key role that they play in understanding how economic developments affect one or

another groups of units in the economy. An account for each sector can be examined on its own, much as is suggested in following chapters, but some features of the accounts are only apparent from a presentation where all the sector accounts are available together. For example, an examination of property income flows shows which sectors pay interest and which receive it, what proportion of dividends are received by pension funds and whether rent is paid predominantly by households or not. The secondary distribution of income account allows a comparison to be made between the amount of current taxes on income, wealth, etc. are paid by corporations as compared with households, which sectors pay insurance premiums and which receive the claims and how important other current transfers are in the economy.

- 18.64 The chapters that discuss the interpretation of the sector accounts also consider matters of presentation as do the chapters showing the links with other statistical systems, notably the links to government finance statistics, external transactions and monetary and financial statistics. In all cases, though, attention should be paid to presenting the accounts in a manner most useful to the readers of the publication for which a presentation is being designed. This may well vary from one type of publication to another and flexibility in approach is essential to enable the readers to make best use of the data being presented.

7. Integrated accumulation accounts

- 18.65 Chapter 13 explains the articulation of the accumulation accounts for both non-financial and financial assets. The links between opening and closing balance sheets for non-financial assets are essential for the derivation of consumption of fixed capital and for measures of capital services and productivity as explained in chapter 20. Very often, though, the basic data on which such estimates are made are not published on a regular basis or even at all. Despite their obvious importance, even stocks of residential dwellings are not publicly available for more than a handful of countries.
- 18.66 For financial assets and liabilities, the situation is somewhat better and indeed in some cases the flow data are derived from opening and closing balance sheet data. Although these data are regularly published, when available, the tables are not always linked to the regular national accounts publication and so users are not always aware of the essential connection between the financial part of the accounts and the rest.

Chapter 19: Population and labour inputs

A. Introduction

- 19.1 Economic activity is essentially human activity and yet the sequence of accounts does not refer to persons except indirectly. All individuals that make up households (the population) are only identified in so far as they engage in consumption expenditure. Those individuals that are employees feature only as the recipients of compensation with no indication about whether there are a few very well paid employees or many very poorly paid (though in fact there are some of each and many in between). The purpose of this chapter is to show how data for population and labour can be used in conjunction with key entries in the sequence of accounts to show how much the average citizen benefits from economic activity and how much the average worker contributes to output. An indication of the first is given by measuring GDP per capita and of the second by estimating labour productivity. As well as being of interest in themselves, these figures are interesting in comparison with similar data in different time periods and in different countries.
- 19.2 This chapter considers total population, labour inputs and labour productivity only. Chapter 24 considers different types of households. The extension of productivity to include the impact of capital is covered briefly in chapter 20 and more extensively in other publications such as the OECD manual *Measuring Productivity*.
- 19.3 The SNA requires a definition of population to express GDP and consumption aggregates in per capita terms. In effect, expressing the volume of GDP (or of household final consumption expenditure) in per capita terms “standardizes” the volumes by adjusting for the size of countries based on their populations. Per capita volumes of major aggregates are often used as a measure of the relative standard of living in countries, despite the misgivings of some social analysts about the adequacy of this measure. Even though the per capita volumes of GDP have some shortcomings, it is clear there is a strong correlation between a country’s per capita volume of GDP and its standard of living.
- 19.4 Labour input variables are necessary to examine productivity. Changes in productivity over time are an important indicator of the efficiency of economic production. Likewise, differences in the level of productivity in a country compared with similar countries provide a useful indicator of the relative efficiency of the country’s production processes. Productivity can be measured in different ways, with the simplest being labour productivity, typically measured as the volume of GDP per hour worked. More complicated productivity measures, such as multifactor productivity (sometimes called total factor productivity) also require a measure of labour inputs, along with capital inputs, to obtain an overall input measure to divide into the GDP volume.
- ### 1. International standards on labour force statistics
- 19.5 Clearly, if a ratio is to be formed between measures of output and labour input, the concept of labour used must match the coverage of production in the SNA. The relevant standards on the labour force are maintained by the International Labour Organization (ILO). The ILO standards are contained in “resolutions”, which are adopted by sessions of the International Conference of Labour Statisticians (ICLS). The resolution of 2008 confirms that the economically active population is defined in terms of individuals willing to supply labour to undertake an activity included in the SNA production boundary.
- 19.6 A particularly important point for consistency is that the concept of residence underlying the population and labour force estimates must be the same as that used in the national accounts and that the employment estimates being used to calculate productivity are consistent with those underlying the income and production measures.
- ### 2. The structure of the chapter
- 19.7 The topic of population and the derivations of per capita figures for aggregates such as GDP are the subject of section B. Section C starts by describing how the total population can be divided into those in the labour force and those not in the labour force and the adjustments made to population totals to allow for residents working abroad and non-residents working in the national economy. It also describes how various categories of the labour force are defined and discusses some boundary issues.
- 19.8 Section D discusses how simple head counts of employed persons can be improved for use in productivity measures by different means of standardization. The derivation of labour productivity measures is the topic of section E and the chapter closes with a brief discussion of data sources in section F.

B. Population

19.9 Annual population estimates derive from less frequent population censuses. Censuses usually count the number of people present on a specified night or the number of people who usually live in a dwelling, even if they are not present when the census is enumerated. However, a census is often conducted only every five or ten years and sometimes less frequently. In years between censuses, updated information on the population of a country is provided by drawing on information on births and deaths and on net migration.

19.10 *The population of a country is most simply defined as all those persons who are usually resident in the country.* In this definition, the SNA and BPM6 concept of residence is used, that is persons are resident in the country where they have the strongest links thereby establishing a centre of predominant economic interest. Generally, the criterion would be based on their country of residence for one year or more. In most cases, the concept of residence is straightforward, being based on the dwelling a person occupies on a permanent basis, although there are some borderline cases discussed further in chapter 26.

19.11 Generally, persons who are resident in a country for one year or more, regardless of their citizenship, should be included in the population measure. An exception is foreign diplomatic personnel and defence personnel, together with their families, who should be included as part of the population of their home country. The “one-year rule” means that usual residents who are living abroad for less than one year are included in the population but foreign visitors (for example, holidaymakers) who are in the country for less than one year are excluded from the measured population. Further elaboration on the application on the residence criterion in special cases is given in paragraphs 4.10 to 4.15.

1. Per capita estimates of volume growth

19.12 The growth rate in the volume of GDP is one of the key economic indicators provided by the national accounts. Such growth rates can be compared directly between countries because they are expressed in common units (percentage changes) and are not affected by the currency

in which the GDP estimates are expressed. However, part of each country’s growth in GDP volumes is attributable to changes in population and so it is useful to “standardize” percentage growth rates by calculating per capita growth rates. For example, if a country’s population is increasing more rapidly than its GDP volume growth then the per capita output is falling. On the other hand, a country with a very low growth in GDP volume but with a declining population will be experiencing an increase in per capita output.

19.13 As noted in the introduction, there are some short-comings of per capita figures. Just two examples can be given to illustrate this. An economy with larger household sizes may have equivalent benefits from proportionately smaller expenditure on housing and other items covering all household members than a country with smaller household sizes. Giving the same weight to a small child and an adult in a physically demanding job may also give misleading information on the adequacy of food consumption.

19.14 Per capita growth rates in real national income or in real actual consumption generally provide a better measure of the changes in the average “welfare” of a country’s population than the changes in GDP volumes. GDP is a measure of production within a country but the inflows or outflows of income from or to the rest of the world can have a significant effect on both the level and growth rates in real national income per capita. Similarly, the level and growth rates in GDP volumes can differ significantly from those in the final consumption of households because of the varying shares across countries of capital formation and net exports within GDP.

2. Absolute levels of GDP per capita

19.15 As described in chapter 15, the International Comparison Program (ICP) makes estimates of absolute levels of GDP and GDP per capita across countries in order to try to establish a relative level of prosperity. These estimates involve measures of GDP, purchasing power parities (PPPs) and the same population estimates previously described as being used for volume growth measures.

C. Measuring the labour force

19.16 Not all individuals included in the population are engaged in production. Some are too young, some too old and some may simply choose not to work. Others may usually work but be temporarily not working because of illness, lack of employment or being on holiday, for example. A first step in moving from population data to data for employment, is thus to define what is meant by the labour force.

19.17 *The labour force consists of those who are actively prepared to make their labour available during any particular reference period for producing goods and services that are included within the production boundary*

of the SNA. The labour force is further divided into those who are employed and those who are unemployed. Thus the population of the country can be subdivided into three categories; employed, unemployed and not in the labour force. A person’s status depends on their activity (or lack of it) during a particular reference period (usually a week).

19.18 Because the labour force is defined with reference to a short period, the number of persons in the labour force at any time may be smaller than the economically active population. For example, seasonal workers may be

included in the economically active population but not in the labour force at certain times of year.

- 19.19 Employed persons may be either employees or self-employed persons. ***Employment is defined as all persons, both employees and self-employed persons, engaged in some productive activity that falls within the production boundary of the SNA.***

1. Employees

- 19.20 ***Employees are persons who, by agreement, work for a resident institutional unit and receive remuneration for their labour.*** Their remuneration is recorded in the SNA as compensation of employees. The relationship of employer to employee exists when there is an agreement, which may be formal or informal, between the employer and a person, normally entered into voluntarily by both parties, whereby the person works for the employer in return for remuneration in cash or in kind. There is no requirement that the employer should declare the agreement to any official authority for the status of employee to apply.

- 19.21 Employees include but are not confined to the following categories:

- a. persons (manual and non-manual workers, management personnel, domestic staff, people carrying out remunerated productive activity under employment programs) engaged by an employer under a contract of employment;
- b. civil servants and other government employees whose terms and conditions of employment are laid down by public law;
- c. the armed forces, consisting of those who have enlisted for both long and short engagements and also conscripts (including conscripts working for civil purposes);
- d. ministers of religion, if they are paid directly by general government or a non-profit institution;
- e. owners of corporations and quasi-corporations if they work in these enterprises;
- f. students who have a formal commitment whereby they contribute some of their own labour as an input into an enterprise's process of production in return for remuneration and (or) education services;
- g. disabled workers, provided that the formal or informal relationship of employer to employee exists;
- h. persons employed by temporary employment agencies, who are to be included in the industry of the agency which employs them, and not in the industry of the enterprise for which they actually work.

- 19.22 An outworker is a person who agrees to work for a particular enterprise or to supply a certain quantity of goods and services to a particular enterprise by prior arrangement or contract with that enterprise, but whose place of work is

not within it. An outworker is treated as an employee if there is an explicit agreement that the outworker is remunerated on the basis of the work done, that is the amount of labour contributed as an input into some process of production. There is further discussion of the classification of outworkers in paragraphs 7.33 to 7.37.

- 19.23 Persons temporarily not at work are also considered as employees provided they have a formal job attachment. This formal attachment should be determined according to one or more of the following criteria:

- a. the continued receipt of wage or salary;
- b. an assurance of return to work following the end of the contingency, or an agreement as to the date of return;
- c. the elapsed duration of absence from the job which, wherever relevant, may be that duration for which workers can receive compensation benefits without obligations to accept other jobs.

Persons included in the above classification are those temporarily not at work because of illness or injury, holiday or vacation, strike or lock-out, educational or training leave, parental leave, reduction in economic activity, temporary disorganization or suspension of work due to such reasons as bad weather, mechanical or electrical breakdown, or shortage of raw materials or fuels, or other temporary absence with or without leave. For some purposes, it may be useful to distinguish employees temporarily not at work if this is possible.

- 19.24 Managers of corporations (or quasi-corporations) are treated in the SNA as employees but the ILO classification regards them as self-employed.

2. Self-employed persons

- 19.25 ***Self-employed persons are persons who are the sole or joint owners of the unincorporated enterprises in which they work, excluding those unincorporated enterprises that are classified as quasi-corporations.*** Self-employed persons are classified here if they are not in paid employment that constitutes their principal source of income; in that latter case, they are classified as employees. They may be temporarily not at work during the reference period for any specific reason. The compensation for self-employment is included in mixed income because it is not possible to observe separately the return to labour from the return to any capital used in the unincorporated enterprise. (For some analytical purposes it may be useful to estimate a breakdown. See paragraphs 20.47 and 20.48.)

- 19.26 Self-employed persons also include the following categories:

- a. contributing family workers working in unincorporated enterprises;
- b. outworkers whose income is a function of the value of the outputs from some process of production for which they are responsible, however much or little work was put in;

- c. workers engaged in production undertaken entirely for their own final consumption or own capital formation, either individually or collectively. (An example of the last is communal construction).

19.27 Contributing family workers are sometimes called unpaid workers but they are other unpaid, or voluntary, workers.

19.28 In ILO statistics, self-employed persons include those working in enterprises that are legally unincorporated even if there is sufficient information available for them to be treated as quasi-corporations in the SNA. In the SNA the remuneration of these people is included in compensation of employees rather than in mixed income. Among others, this may include members of producers' cooperatives.

3. Unemployment

19.29 To complete the picture of the labour force, it is necessary to mention unemployment because the labour force is divided between employed persons (that is, employees plus self-employed persons) plus those who are unemployed. An unemployed person is one who is not in employment but available for work and actively seeking work. The concept of unemployed persons is not required in the national accounts because the unemployed do not contribute to production but their numbers are necessary to make the conceptual transition from the employed population to the economically active population.

4. Boundary problems

Jobs and employees

19.30 Individuals may have more than one source of income from employment because they work for more than one employer or, in addition to working for one or more employers, they work on their own account as self-employed. The agreement between an employee and the employer defines a job and each self-employed person has a job. The number of jobs in the economy thus exceeds the number of persons employed to the extent that some employees have more than one job. An individual with more than one job may do these successively as when the person works for part of the week in one job and the rest of the week in another or in parallel as when the person has an evening job as well as a daytime job. In some case, too, a single job may be shared by two persons.

19.31 Employers may not be aware of, and in any case are not asked to provide information on, secondary jobs undertaken by their employees. When employers supply information on the number of employees, they actually provide information on the number of jobs they provide. Care has to be taken that the number of jobs does not include vacancies when numbers of jobs are used for number of employees. The distinction between number of jobs and number of employees is one issue that has to be carefully addressed in productivity statistics.

Residence

19.32 Population numbers are dependent on the residence of individuals but employees do not have to be resident in the

economy where they work. The results of the activity of producer units can be compared with employment only if the latter includes both the residents and the non-residents who work for resident producer units. Employment therefore includes the following categories where there might be a question about whether they are considered resident or not:

- a. non-resident frontier workers, that is, persons who cross the border each day to work in the economic territory;
- b. non-resident seasonal workers, that is, persons who move into the economic territory and stay there for less than one year in order to work in industries which periodically require additional labour;
- c. members of the country's armed forces stationed in the rest of the world;
- d. nationals who are on the staff of national scientific bases established outside the geographic territory of the country;
- e. nationals who are on the staff of diplomatic missions abroad;
- f. members of the crews of fishing boats, other ships, aircraft and floating platforms operated by resident units;
- g. employees of general government bodies situated outside the economic territory resident where the general government body is located;
- h. students undertaking employment are included or not according to their classification as resident or non-resident as explained in chapter 26.

19.33 On the other hand, the following are excluded from employment:

- a. residents who are frontier workers or seasonal workers, that is, who work in another economic territory;
- b. nationals who are members of the crews of fishing boats, other ships, aircraft and floating platforms operated by non-resident units;
- c. residents who are employees of foreign government agencies located on the geographic territory of the country;
- d. the personnel of international civilian organizations located within the geographic territory of the country (including local employees directly recruited);
- e. members of the armed forces working with international military organizations located on the geographic territory of the country;
- f. nationals working in foreign scientific bases established in the economic territory.

19.34 The following adjustments are required to make the transition from the SNA concepts to the concepts generally used in labour force statistics (employment on a national basis):

- a. conscripted members of the armed forces are generally not included in labour force statistics but are included in the SNA under general government services;
- b. residents working for non-resident producer units are included in labour force statistics but are not included in employment as defined in the SNA;
- c. non-residents working for resident producer units are not included in labour force statistics but are included in employment as defined in the SNA;
- d. resident workers living in an institutional household (such as a religious institution or a prison) are generally not included in labour force statistics but are included in SNA employment;
- e. resident workers under the age limit defined for measurement of the labour force are included in SNA employment.

5. The non-observed economy

19.35 National accountants are particularly concerned about ensuring that the whole of economic activity within the SNA production boundary is measured comprehensively. This is often referred to as the “exhaustiveness” of the coverage of the national accounts. In practice, it means ensuring that the value of production activities that are illegal or hidden (that is, the “underground economy” or the “hidden economy”) as well as those that are simply described as informal is included in the accounts. In principle, for the SNA, the remuneration of all these workers should be included in either compensation of employees or mixed income. Therefore, when looking at comparisons between labour statistics and output, it is important the persons concerned should be included in labour statistics also.

6. Labour in NPISHs

19.36 The output of NPISHs is supplied free or at prices that are not economically significant so it is valued by the costs of production. One of these costs is compensation of employees. It is important that these employees be recorded in the employment measures used in deriving productivity changes. However, NPISHs often have volunteer workers so the treatment of these deserves special attention.

7. Volunteer labour

19.37 A distinction can be made between those who have an agreement to provide labour for token remuneration or only income in kind, those for whom there is explicitly no remuneration and those where there is apparently no remuneration but the workers benefit directly from the output to which they contribute. In ILO statistics, all three types of worker are included in the economically active population as employees.

19.38 In the SNA, the remuneration of those working for token amounts or only income in kind is measured by these costs. No imputation for an additional element of remuneration is included. For example, if doctors or teachers work for only food and lodging, there is no salary imputed to them. Such instances may arise in religious institutions or in the wake of natural disasters. If the unit employing these staff is responsible for whatever little remuneration is received, the staff are included in employment.

19.39 If staff are purely voluntary, with no remuneration at all, not even in kind, but working within a recognised institutional units) then these individuals are still regarded as being employed in SNA terms but there is no entry for compensation of employees (or mixed income) for them. (Individuals providing services to groups of other individuals, such as coaching a children’s football team, without any associated infrastructure are not regarded as employed but rather engaging in a leisure pursuit, however worthy their efforts might be.)

19.40 If family members contribute to the output of an unincorporated enterprise, the estimate of mixed income is supposed to include an element of remuneration for them and thus they are all treated as being in the economically active population from an SNA point of view. In ILO statistics such workers will not be included in the economically active population if they are under age. (The lower limits for working age will depend on national conditions.)

19.41 By convention, no labour services are attributed to the services provided by owner-occupied dwellings (see paragraph 24.27). In contrast, if a group of individuals agrees to construct a building or structure, for example a school or a well, these individuals are regarded as being in the labour force and receive mixed income for their efforts. Because it is difficult to value such projects, unless a direct comparison can be made with a similar building, the value of construction should be based on the costs incurred. Labour is a significant input into construction projects, so its value must be included as part of the total costs using wage rates paid for similar kinds of work on local labour markets (see paragraphs 6.127 and 7.30). This income is then used to acquire the result of their efforts which may subsequently be handed over to a third party for maintenance. The latter action is recorded as a capital transfer in kind.

D. Standardized measures of labour inputs

19.42 A crude estimate of the labour inputs required for productivity measures is provided by the numbers of persons employed. Using this as a starting point, the labour input measures can then be adjusted to provide various degrees of sophistication. Examples in increasing order of being difficult to measure are full-time equivalents, total actual hours worked and quality-adjusted labour inputs based on models. Each of these is discussed in turn below.

1. Employment measured on a full-time equivalent basis

19.43 Full-time equivalent employment is the number of full-time equivalent jobs, defined as total hours actually worked by all employed persons divided by the average number of hours actually worked in full-time jobs.

19.44 The definition does not necessarily describe how the concept is estimated. The method sometimes used, of simply counting all part-time jobs as half a full-time job, is the crudest possible way of making an estimate. Since the length of a full-time job has changed through time and differs between industries, more sophisticated methods are preferred, such as one that establishes the average proportion and average working time of less than full-week, full-time jobs in each job group separately.

19.45 The SNA does not recommend full-time equivalent employment as the preferred measure of labour inputs. However, if the data are good enough to permit an estimation of total hours actually worked, full-time equivalent employment should also appear in association with the national accounts. One reason is that this facilitates international comparisons with countries which can only estimate full-time equivalent employment. However, with the move by the ILO to recommend recording total hours actually worked as the preferred measure of labour input, the use of full-time equivalents is likely to be gradually phased out.

19.46 As just noted, the number of full-time equivalent employees is based on the number of hours worked, on average, in a full-time job. If the number of hours in a full-time job falls because of an increase in annual leave entitlements or public holidays, say, there may be little or no change in full-time equivalents even though the total number of hours actually worked has declined. A similar effect may be caused by an increasing incidence of sick leave. The estimate of the number of hours in a full-time job is therefore adjusted for the average amount of sick leave taken in the reference period as well as for annual leave taken.

2. Hours worked

19.47 Even with such adjustments made to full-time equivalent numbers, the preference is for total hours actually worked to be used in productivity estimates.

19.48 In practice, total hours actually worked and annual (full-time) hours actually worked may have to be estimated. In many countries, especially for monthly paid employee jobs,

only normal hours or hours usually worked, any paid overtime, plus annual and holiday leave entitlements can be ascertained. It may be impossible to estimate the deduction to be made for the average level of absence from work due to illness from either total hours actually worked or annual (full-time) hours actually worked. This error will not affect full-time equivalent employment if sickness rates in part-time jobs are the same as in full-time jobs.

19.49 If the reference weeks used in the surveys that provide the data are not fully representative, the best available information on variations throughout the year should be used in estimating data for the year as a whole.

Defining hours actually worked

19.50 For the purposes of the SNA, working time is defined as the time spent in undertaking activities that contribute to the production of goods and services within the SNA production boundary. Seven concepts of working time are defined in the Resolution concerning the measurement of working time adopted by the 18th ICLS, in December 2008:

- a. hours actually worked,
- b. hours paid for,
- c. normal hours of work,
- d. contractual hours of work,
- e. hours usually worked,
- f. overtime hours of work and
- g. absence from work hours.

19.51 The most important measure for the SNA, and the one most relevant for use in measuring productivity, is hours actually worked. This concept covers

- a. direct hours, the time spent carrying out the tasks and duties of a job in any location regardless of the amount of time agreed contractually between employer and employee,
- b. related hours, including time on call, travelling on work assignments training and other tasks itemised in the resolution,
- c. down time, covering periods when a person is available for work but cannot because of temporary interruptions of a technical, material or economic nature
- d. resting time such as short periods of rest, for refreshment, etc.

19.52 Hours worked excludes

- e. all types of leave (annual, public holidays, sick leave, parental leave civic duty etc.)
- f. commuting time when no productive work is done,
- g. education other than training
- h. meal breaks and other longer period of rest while travelling on business.

19.53 More exhaustive definitions of these criteria can be found in the ICLS resolution.

19.54 The truism, for employee jobs, that hours worked equal hours paid less hours paid but not worked, plus hours worked but not paid, is a useful one, since many establishment surveys record hours paid, not hours worked, so that hours worked have to be estimated for each job group, using whatever information is available about paid leave, etc.

3. Quality-adjusted labour input

19.55 Using total hours actually worked as the input measure for calculating labour productivity changes over time implicitly assumes that each hour worked is of the same quality (that is, there are no differences in the qualifications and skill levels of the labour employed). In other words, each hour worked by a highly skilled person, such as a brain surgeon, is assumed to produce the same quantity and quality of output as each hour worked by an unskilled worker. It is possible to produce a quality-adjusted measure of the labour inputs that takes account of changes in the mix of workers over time by weighting together indicators of quality for different grades of workers. (The term quality-adjusted is used as being parallel to the idea of quality-adjusted price indices but it could also be seen as an adjustment for the change in the composition of the workers involved.)

19.56 The quality indicators used can relate to variables such as academic qualifications, trade qualifications, experience (typically based on age of the worker), industry of employment and so on. The various indicators are weighted together using average wages for a worker falling into each category. The premise behind this approach is that workers are hired only until their marginal price (that is, their wages, including on-costs) is less than the marginal revenue expected to result from their production. The index formula used can be a fixed-weight (Laspeyres) formula or a more sophisticated formula such as the Tornqvist, which takes account of changing weights by using weights from each of the periods in the analysis.

19.57 Calculating a quality-adjusted labour input measure using this approach is very data intensive and only those countries that have highly-developed statistical systems are likely to have the detailed data required.

4. Employee labour input at constant compensation

19.58 Total hours actually worked and full-time equivalent employment are both physical measures of labour input. Output too can usually be measured in physical terms, such as tonnes or cubic meters, but this is not done in the national accounts, because the basic value per tonne or cubic meter varies so much between products that these physical measures lack general economic significance. But compensation per hour or per full-time year of work varies enormously too. Physical measures of labour input are only valid if the mix of different kinds of labour is much the same in the different countries or at the different times examined.

19.59 Since output is measured both at current prices and in volume terms, it is natural to do the same with labour inputs as well as with intermediate inputs. However, the remuneration of the self-employed is included in mixed income and cannot be unambiguously identified separately. For this reason, the labour input of employees only is shown at constant compensation.

19.60 The measurement of employee labour inputs at current prices and in volume terms is symmetrical with the measurement of output and subject to the following caveats.

- a. Market prices and market compensation are assumed to measure the relative economic importance of different goods, services and jobs; the advantages and disadvantages of this assumption are the same for inputs as for outputs.
- b. Though the volume measure and constant compensation concepts are defined as revaluations of quantities at base period prices or compensation levels, they can be estimated in practice as the sum, over all groups, of values at current prices or compensation levels, each divided by an appropriate wage index.
- c. These group indices are estimates, calculated for a representative sample of jobs or of goods or services, with weights reflecting the relative importance of each of the sub-groups represented by a selected and specified job, or by a selected and specified good or service. In other words, a compensation index is constructed like a price index.

19.61 While the value of employee labour input at constant compensation can be estimated by deflating current values, as mentioned above, the data may also permit the direct approach of multiplying the current number of jobs in each job group by the base-period average annual compensation for jobs in that job group.

E. Estimating labour productivity

1. Labour productivity and MFP

- 19.62 Volumes of output per hour worked (or per person employed) are described as measures of labour productivity. However, this is a somewhat unsophisticated measure because changes in this measure can reflect a number of factors other than just the number of hours of labour employed. In particular, increases in the amount of capital used can affect this ratio as can changes in the composition of the labour force over time.
- 19.63 Measures of capital productivity, calculated by dividing the volume of output by an index of capital services provided suffer from similar drawbacks since they do not capture the effects of the amount of labour employed and the efficiency and composition of the capital inputs.
- 19.64 A measure that takes account of the contributions of both labour and capital to growth in output is multifactor productivity (MFP), which is sometimes referred to as total factor productivity (TFP). The advantage of using MFP as the measure of productivity is that it includes effects not included in the labour and capital inputs. This topic is discussed further in chapter 20 and in the OECD manual *Measuring Capital*.
- 19.65 The productivity model can be extended to include other factors such as the energy and materials used in production. This can be extended to producing productivity estimates at the most detailed level of the input-output tables. An example of such work can be found in the EU-KLEMS project (ref).

2. Employment estimates for productivity estimation

- 19.66 As explained in section D, neither the number of employees, nor even full-time equivalent employees are ideal measures for use in productivity studies. Total hours actually worked is preferred by many because it is a reasonable compromise between these cruder measures and data-intensive measures that adjust for differences in the qualifications, skill levels and composition of labour.
- 19.67 Whichever labour measure is used in calculating productivity, it is very important to ensure that the coverage of the labour data is consistent with that of the national accounts. In other words, the labour inputs must be estimated within the same production boundary and using the same criteria for residence that are used in the national accounts. Typically, the topics that cause most difficulty are residence (particularly with border workers), defence force and diplomatic personnel (who are commonly not covered by the labour force surveys often used to provide the basic data) and obtaining details of unpaid hours (for example, unpaid overtime) or of some self employment (for example, contributing family workers).
- 19.68 Increasingly, analysts are interested in measuring productivity on an industry basis as well as for the economy as a whole. Calculating industry employment and working time by industry adds an additional degree of

difficulty to the estimation process. Among other advantages, using hours worked overcomes the problems involved in measuring employment by industry when a worker has two or more jobs, not in the same industry.

- 19.69 In particular, the national accounting data come from surveys of businesses while the employment estimates are generally obtained using household surveys. It is often difficult to correctly match the data classified by industry from these separate sources. Similar difficulties potentially affect regional estimates, with the concept of residence having to be applied at a regional level rather than at the country level.
- 19.70 Labour productivity, including industry productivity, and MFP are all valid measures of an economy's performance. From a practical viewpoint, it is important to ensure that the employment and hours worked underlying these sets of estimates are consistent with each other as well as with output measures when calculating the productivity estimates.

3. Data consistency

- 19.71 Examining the relative productivity performance of different industries is of interest to many analysts. In practice, the labour input estimates for the whole economy can be estimated either "bottom up" or "top down". In the former case, the totals for the economy as a whole will be completely consistent with the industry estimates because they are summed to derive the total labour estimates. However, in the case of a top-down approach, a range of different data sources may be used to obtain the disaggregation by industry. In such cases, it is important to ensure that the sum of the industry estimates is consistent with the national totals.
- 19.72 Classifying employment by industry is not always straightforward. The main issue is to ensure that the employment estimates for each industry are as consistent as possible with the national accounts values and volumes so that the productivity estimates are reliable. One particular problem that arises is where staff are recruited via an external recruitment agency. Maintaining consistency with the industry output means that employment should be classified to the industry of the business that legally employs the workers. In practice, this will be the business that pays the employee's wages and any associated social contributions, which will usually be the employment agency and so the employees will be classified to industry class 7491 *Labour recruitment and provision of personnel*. The output of this industry includes the revenue derived from the activity of hiring out staff to those businesses that need the staff; generally, those businesses will be in other industries. The businesses using these staff pay the employment agency and then the employment agency pays the staff so the payments by the "using" businesses will be recorded as part of intermediate input for the using industry.
- 19.73 Ideally, for productivity purposes both the output attributable to these staff and the hours they work would be

recorded in the industry in which they are actually working rather than in the industry “Labour recruitment and provision of personnel”. However, in practice, it is unlikely that the data can be collected to enable the output and hours worked to be classified this way. It may be useful for some purposes for the staff hired out by employment agencies to be allocated to the industries that actually use the staff. However, any such allocation should be presented in a supplementary table and not in the main accounts.

4. International comparisons

19.74 Productivity growth is often expressed in percentage terms and comparisons across countries made in terms of these percentages. Assuming similar methods have been used to compile the estimates for the countries being compared, and that they have roughly comparable levels of productivity, this sort of comparison is interesting and much simpler than the alternative of comparing levels. Measuring the relative levels of production (for example, the volume of GDP or of GDP per capita) or productivity between countries is more complicated because it is

necessary to convert the national accounts data to a common currency. The best means of doing so is to calculate purchasing power parities (PPPs), which measure the rate of currency conversion that would be required to equalize the prices of a common basket of goods and services between the countries concerned. In practice, PPPs adjust for differences in price levels between countries as well as differences in exchange rates (see Section E of Chapter 15).

19.75 International comparisons of productivity below the level of GDP, such as by industry, are problematical. PPPs are calculated using the expenditure-based estimates of GDP so there are no PPPs for the individual industries that contribute to GDP. Therefore, it is necessary to make an assumption that the PPP for a single aggregate such as GDP is applicable to all industries. Examining the differences in the PPPs for the various expenditure components shows they can vary significantly so this is unlikely to be a very good assumption. Robust international comparisons of productivity at disaggregated levels is thus a very demanding exercise.

F. A note on source data

19.76 Broadly speaking, there are three types of data sources for employment data. These might be used singly or in combination especially when the periodicity of each differs. The usual caveats that the quality of a survey depends on the sample size, survey design, response rate and reference period obviously apply to the surveys used for employment data as for other surveys. So do the steps that need to be taken to allow for non-response and mis-reporting.

19.77 The three data sources are:

- a. household surveys, such as a labour force survey;
- b. business surveys;
- c. administrative data (for example, employment associated with a payroll tax).

Population census data may also be available infrequently.

19.78 The employment estimates from a household survey typically count the number of people who have jobs and, perhaps, the number of hours they work. If the labour input measure being used is the number of jobs in the country then the household survey will provide an under-estimate to the extent that some people work in more than one job, unless the survey collects information on multiple job holding. On the other hand, if the household survey collects details relating to the hours worked in all the jobs in which each person is employed then it should provide a good estimate of employment for the economy as whole.

19.79 Business surveys tend to have some shortcomings when used as a source of employment data. In the first place, it is

difficult to ensure that the survey frame on which they are based is completely up to date because of the lags inherent in the sources used to update the frame (for example, registration of new businesses with the appropriate authorities). Secondly, it is often difficult to collect data for self-employed persons, particularly if they are operating an unincorporated business. Even if the lags in updating the survey frame are consistent, their impact on the employment estimates will vary with the peaks and troughs in the business cycle. Further, there may be some cases of deliberately under-reporting the numbers of employees.

19.80 Administrative data provide a useful source of employment data for the national accounts but may need to be used with caution and in connection with other sources. Even when they have reasonably full coverage (for example, business tax data) the data may not be available until well after the reference year and provide only a snapshot of employment in that year rather than the average for the year. A source such as payroll tax data is often affected by having exemptions for smaller businesses (including unincorporated enterprises), which reduces the completeness of the data. In such cases, the coverage of businesses is likely to vary by industry because of the concentration of smaller businesses in industries such as agriculture, construction and retailing.

19.81 The problems connected with handling border workers in the national accounts have been described in the section on residence. As far as data sources are concerned, household surveys are likely to include employed persons in the country in which they are surveyed (that is, their country of residence) unless the survey contains specific questions to identify and exclude such workers.

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19.82 Employed persons who have more than one job during a reference week can only be classified by industry and by status in employment through the application of some essentially arbitrary criterion as to which of their jobs is the

most important one. On the practical plane, while household surveys can provide data about either or both of employed persons and jobs, establishment surveys only provide data about jobs.

Chapter 20: Capital services and the national accounts

A. Introduction

- 20.1 This chapter differs in content and style from those describing the accounts of the SNA. Its aim is to show how a link can be made between the value of assets used in production and the gross operating surplus generated. This link has been elaborated over a period of about fifty years in a body of knowledge described as the theory of capital services. However, it is only fairly recently that a few statistical offices have incorporated the ideas from the theory into the measurement of stocks of those assets used in production. Because there is evidence that this approach leads to improved measures of capital stock, it is proposed that, for those offices interested, a table supplementary to the standard accounts, could be prepared to display the implicit services provided by non-financial assets. The contribution of labour input to production is recognised in compensation of employees. By also associating estimates of capital services with the standard breakdown of value added, the contributions of both labour and capital to production can be portrayed in a form ready for use in the analysis of productivity in a way entirely consistent with the accounts of the SNA.
- 20.2 The rest of the introduction gives a very general overview of the ideas involved in linking capital services with national accounts. Section B shows how the measurement of capital stock can be aligned with the notion of the efficiency of an asset as well as its price. This is followed by section C showing how to identify flows of capital services within existing entries in the accounts. Section D shows how consideration of the basic link between asset value and contribution to operating surplus can be exploited to determine the appropriate way to account for costs associated with acquiring and disposing of assets and to place a value on assets where limited market price information is available. Finally, section E discusses a possible format for a supplementary table.
- #### 1. The basic ideas of capital services
- 20.3 Non-financial assets give rise to benefits either from being used in production or simply from being held over a period of time. This chapter concerns those non-financial assets that contribute to production and how this contribution is recorded in the accounts. The assets concerned are fixed assets, inventories and natural resources. Valuables give rise to benefits derived from holding them as stores of value rather than using them and so are not covered by this chapter.
- 20.4 Assets appear on the balance sheet of their economic owner and the changes in value between one balance sheet and the next have to be identified and included in the appropriate account. Changes in the value of assets due to changes in absolute or relative prices appear in the revaluation account. Changes due to unexpected events not reflected in transactions appear in the other changes in the volume of assets account. Every other change in value is treated as a transaction and must be recorded elsewhere in the SNA. If the user of the asset is not the legal owner, two sets of transactions are recorded, those giving rise to payments between the user and the owner and those that show the user receiving the benefits of using the asset. These latter are recorded as internal to the user. If the legal owner of the asset is also the user of the asset, only the internal transactions are recorded.
- 20.5 Assets used in production have to be paid for but the payment is not deducted from the value of production in the period the asset is acquired but is spread over the whole of the period the asset is in use in production. For fixed assets, this gradual payment for an asset is recorded as consumption of fixed capital, which is the decline in the value of the asset due to its use in production. However, assets are not just a charge on production, they also contribute to the profitability of an enterprise by being the source of operating surplus. It has long been commonplace to recognise that operating surplus is the return to capital used in production but an articulation of how this surplus is generated and how it relates to the value of an asset and the way in which this value changes during a period has not previously been included in the SNA. As noted, this articulation is known as the theory of capital services. This terminology sits a bit uncomfortably with national accountants since the services referred to are not the outputs of production in the way that transportation or education services, for example, are. Nevertheless, the terminology is well established and should not in itself give rise to problems as long as it is remembered that capital services are not produced services. Alternatively, capital services can be thought of as simply the term for the way in which the changes in the value of assets used in production are captured in the production account and the balance sheet.
- 20.6 Much of the impetus for identifying the entries associated with capital services in the national accounts has come from those interested in the analytical uses that can be made of the information, especially for productivity studies. Because much of this work has been undertaken by researchers, it is perhaps inevitable that the rationale and reasoning behind the proposals should have been expressed in a rather academic manner, in particular making extensive

use of sometimes rather complex algebra. This chapter takes a different approach. It aims to show that, rather than introducing a new concept into the SNA, capital services can, in theory, be identified within the existing accounts. Further, recognizing this can lead to improvements in the estimates of consumption of fixed capital, which are currently required in the production accounts, and of the values of capital stock, which are required in the balance sheets. The derivation of information analytically useful for productivity studies can thus be seen as a by-product of improved national accounts compilation practices and not an additional exercise. The explanation is done in terms of highly simplified numerical examples but still aims to demonstrate the connection between the concepts referred

to in studies referring to capital services and the national accounts approach to the valuation of capital and the derivation of stock levels.

20.7 The explanation given here is to some extent superficial since it is intended to give an overview of the concepts and indicate in general terms why the theory of capital services is relevant to national accountants. For a deeper understanding of the subject, reference should be made to the two OECD manuals on the subject, *Measuring capital* and *Measuring productivity* and some of the practical and theoretical work referenced in those manuals.

B. Valuing capital stock

20.8 Estimating the value of capital stock is not a straightforward process. Whereas it is possible to measure all new capital formation undertaken in a year directly and simply aggregate it, estimating the total value of a stock of assets, even of the same basic type, but with differing characteristics and of different ages, is not simple. In theory, if there were perfect second hand markets for assets of every specification, these observed prices could be used to revalue each asset at the prices prevailing in a given year, but in practice, this sort of information is very seldom available. Thus measures of capital stock must be derived indirectly and this is conventionally done by making assumptions about how the price of an asset declines over time and incorporating this in a model based on the perpetual inventory method (PIM). Basically the PIM writes down the value of all assets existing at the beginning of the year in question by the reduction in their value during the year, eliminates those assets that reach the end of their useful lives in the year and adds the written-down value of assets acquired during the year. This routine is so well established that it is possible to overlook the assumptions it rests on but it is an investigation of these assumptions that reveals the dual benefits of deriving capital service values.

20.9 In the absence of observable prices, the value of an asset may be determined by the present value of its future earnings. Economic theory states that in a well functioning market (suitably defined) even when prices are observable, this identity will hold also. There are thus two sorts of questions that may be posed about the value of an asset; (i) how much would it fetch if sold, and (ii) how much will it contribute to production over its useful life. The first of these is the traditional question asked by national accountants; the second is basic to studies of productivity. However, these two questions are not independent.

1. Knowing the contribution to production

20.10 Suppose an asset will add values of 100, 80, 60, 40 and 20 to production over the next five years. For simplicity assume all products have the same prices and there is no inflation. Assume, further, that the real rate of interest is five per cent per annum for all five years.

20.11 The value of the asset in all five years can be derived using present value techniques as shown in table 20.1. (For simplicity, in this and all the following examples, the values shown are values at the start of the year so that, when discounting, the factor for the whole year is used. This simplification is made only to facilitate exposition; in practice mid-year figures should be used. It should also be noted that the figures in the tables are rounded and therefore may appear not to add exactly. However, a reader who follows the examples in a spreadsheet will achieve exactly the figures shown.)

20.12 The addition to the value of the asset in year 1 from the expected earnings of 80 in year 2 is 76, that is 80 divided by 1.05. The addition to the value of the asset in year 2 from earnings in year 3 is 57 (60 divided by 1.05) and in year 1 is 54 (57 divided by 1.05) and so on. When the value of 100 for the earnings in the first year is added to 76, the value of the second year's earnings in the first year, and to 54, the value of the third year's earnings in the first year and to 35 and 16, representing the value of the earnings in years 4 and 5 in the first year, a value of the asset in year 1 of 282 is derived. When the table is complete, the value of the asset in each of the five years is seen to be 282, 191, 116, 59 and 20.

Table 20.1: Example of deriving the value of capital stock from knowledge of its contribution to production

Contribution to asset value from earnings in :	Discount rate 5%					Sum of 5 years
	Year 1	Year 2	Year 3	Year 4	Year 5	
Year 1	100					
Year 2	76 ← 80					
Year 3	54 ← 57 ← 60					
Year 4	35 ← 36 ← 38 ← 40					
Year 5	16 ← 17 ← 18 ← 19 ← 20					
Value in year	282	191	116	59	20	
Value index (year on year)	1.00	0.68	0.61	0.51	0.34	
Decline in value	91	74	57	39	20	282
Income	9	6	3	1	0	18

20.13 The decline in value of the asset from year to year can be calculated by deducting each succeeding year's value from the value of the present year. Thus a series of 91, 74, 57, 39

and 20, is derived, a series that sums to 282, the original value of the asset. If the decline in value of the asset (91 in the first year) is deducted from the contribution to production (100 in the first year), the value of income generated in a year results (9 for the first year). To see that this item represents income, consider that the sum of the elements in the first column for years 2 to 5 together (182) represents the value of the same capital stock existing in year 2 but valued in the first year. This value of 182 increases by 9 to 191 between year 1 and year 2. This amount satisfies the criterion for income that it is the amount that the owner of the capital can spend and still be as well off at the end of the period as at the beginning.

20.14 Over the five-year period, the value of income is equal to the difference between the sum of the diagonal elements (300) less the amount of the decline in value (282), or to put it another way, there is an identity between the value of income the asset yields and the discounting inherent in establishing its current value.

2. Knowing the value at any time

20.15 Now suppose nothing is known about the contribution of the asset to production but the decline in the value of the asset over the five years, due to ageing, is known. If this is postulated in terms of a value index relative to the preceding year's value, and the initial value is known to be 282, then the entries in table 20.2 can be calculated. By design, a value series consistent with the figures in table 20.1 is assumed. Applying the decline in value of 0.68 to the initial value of 282 gives a value of 191 for year 2; applying the value decline of 0.61 to 191 gives 116 for year 3 and so on. (Alternatively a time series of values could be postulated and applied to the initial value.) From this the declines in value of the asset from year to year can be deduced and seen to be identical with those in table 20.1.

Table 20.2: Example of deriving the value of capital stock from knowledge of its decline in price

		Discount rate 5%					
		Year 1	Year 2	Year 3	Year 4	Year 5	Sum of 5 years
Contribution to asset value from earnings in :	Year 1	100					
	Year 2	76	80				
	Year 3	54	57	60			
	Year 4	35	36	38	40		
	Year 5	16	17	18	19	20	
	Value in year	282	191	116	59	20	
Value index (year on year)	1.00	0.68	0.61	0.51	0.34		
Decline in value	91	74	57	39	20	282	
Income	9	6	3	1	0	18	

20.16 In general this is as far as the PIM goes. Its two-fold purpose is to calculate asset values for the balance sheet and the figures for consumption of fixed capital and these requirements are satisfied at this point. But it is in fact possible to go further. The contribution of the asset to production in the final year (20) is the same as the final year's value. If this is discounted by five per cent, the addition to the value of the asset at the start of year 4 is determined to be 19. Given the value of the asset at the start of year 4 is 59, there must be a figure of 40 contributed to production in that year. Extending this, for year 3 the value of 116 must consist of 18 representing the contribution to

production in year 5 of 20 discounted twice, 38 representing the value contributed to production in year 4 of 40 discounted once and so by residual the value contributed to production in year 3 must be 60. In this way all the top, diagonal, part of the table can be completed and the values of the amounts of income in a year be derived just as in table 20.1.

3. Age-efficiency and age-price profiles

20.17 Although tables 20.1 and 20.2 start from different assumptions, exactly the same complete table results even though they are filled in a different order in the two cases. Table 20.1 starts from assumptions about the declining contribution to production and derives stock values and the decline in value each year. Table 20.2 starts from assumptions about the decline in value of the stock and derives the contribution to production and the decline in value each year. Both techniques give values of stocks to include in the balance sheets and figures of consumption of fixed capital. The assumptions made in the two cases must be consistent. In fact it can be shown that every pattern of decline in the contribution of an asset to production (usually called the age-efficiency profile) corresponds to one and only one pattern of decline in prices (usually called the age-price profile).

20.18 Given this, it would seem possible to take the information in a set of PIM assumptions and simply derive the contributions to production from these. While it is possible to do this, it is generally held to be preferable to start again by postulating a set of age-efficiency profiles. The reason for this can be illustrated by table 20.3.

Table 20.3: Table 20.2 with a slightly different pattern of price decline

		Discount rate 5%					
		Year 1	Year 2	Year 3	Year 4	Year 5	Sum of 5 years
Contribution to asset value from earnings in :	Year 1	80					
	Year 2	96	101				
	Year 3	75	79	83			
	Year 4	24	26	27	28		
	Year 5	6	6	6	7	7	
	Value in year	282	211	116	35	7	
Value index (year on year)	1.00	0.75	0.55	0.30	0.20		
Decline in value	70	95	81	28	7	282	
Income	10	6	2	0	0	18	

20.19 Table 20.3 again starts from a series of relative price changes as in table 20.2 but these changes are somewhat different. Instead of a series of 1.00, 0.68, 0.61, 0.51 and 0.34, a series of 1.00, 0.75, 0.55, 0.30 and 0.20 is taken. These changes underestimate the rate of decline in value in the second year and assume a faster rate of decline in later years. At first sight they do not seem unreasonable. However, the effect on the contribution to production is considerable and the resulting series of 80, 101, 83, 28 and 7 is quite implausible. What sort of asset would be over twenty per cent more efficient in its second year than in its first and still more efficient in the third year than in the first before declining quickly thereafter? Yet this pattern of flows is still consistent with an initial value of 282, as in table 20.2 and with cumulative declines in value adding to this amount over five years.

20.20 These are the reasons why it is argued that making assumptions about efficiency decline is likely to lead to superior results for the value of stocks, their decline in value and the income they generate than making assumptions about the rate of price decline. As a further example of why this may also be easier, consider the case of an asset that contributes the same to production, let us say 100, for each of five years and then stops dead, like a light bulb. It is easy to postulate a constant age-efficiency profile but the corresponding age-price profile is much less intuitively obvious.

20.21 However, while there are good reasons for using age-efficiency profiles as the starting point, where actual information is available on age-price profiles, even partial information, it should be confirmed that the selected age-efficiency profile is consistent with the observed age-price movements.

4. The special case of geometrically declining profiles

20.22 A number of patterns can be postulated for either the age-price or age-efficiency profile. These include straight line depreciation and various non-linear forms discussed in *Measuring Capital*. One of particular interest is that where the price declines geometrically, that is each year the price (when adjusted for inflation) is a fixed proportion, f , of the year before. Because such a series converges to, but never actually reaches, zero, it is difficult to portray it in a table such as those shown above but the interesting characteristic can be derived by means of a little very simple algebra.

20.23 It can be seen from the tables above that the value of an asset at the start of any year, V_t , is equal to the capital services to be rendered in that year, a , plus a discount factor, r , times the value of the asset at the start of the next year, V_{t+1} . Thus

$$V_t = a + r V_{t+1}.$$

In the case where $V_{t+1} = f V_t$, $V_t = a/(1-rf)$.

By analogy, if the value of the capital services rendered by the asset in year $t=1$ is b , $V_{t+1} = b/(1-rf)$. But since $V_{t+1} = fV_t$, it follows that b must be equal to af . Thus we have the case that the shape of the age-price profile and the age-efficiency profile are exactly the same.

20.24 As noted above, there is one and only one age-price profile corresponding to one age-efficiency profile, so it follows that the geometrically declining profile is the only profile that is the same for both the decline in price and in efficiency. One consequence is that figures for capital stock adjusted for the decline in value are equal to those for capital stock adjusted for the decline in efficiency. This property adds to the reasons that can be advanced for choosing this profile to determine the value of capital stock.

5. Practical considerations

20.25 As noted at the outset of this section, there are many simplifications built into the examples presented, made in order to facilitate the explanation of the basic theory behind the idea of capital services to those new to the idea. The OECD manual *Measuring Capital* should be consulted for a more rigorous discussion and for considerations such as the rationale for choosing one age-price (or age-efficiency) profile rather than another, how to estimate life lengths and retirement patterns of assets and the role of expectations in the calculations.

20.26 The manual also discusses the fact that the return to capital must be sufficient to cover taxes levied on the asset in question, a point that is ignored here also in the name of simplification.

C. Interpreting the flows

20.27 The tables above generate three time series of particular interest. One is the contribution to production of an asset over time, one is the decline in the value of the asset and one is the income generated by the asset. Obviously the middle term corresponds to consumption of fixed capital as normally understood in the SNA. The contribution of capital to production is what is called gross operating surplus and so the third time series, income, corresponds fittingly to net operating surplus. However, these flows can be described by alternative names also. The diagonal element of the tables, showing the contribution to production, is also known as the value of capital services. The income element is the return to capital. The rate of return on capital is the ratio of income to the value of capital. For tables 20.1 and 20.2, the income flow as a proportion of the next year's capital stock value (that part not used in the current year) is also five per cent, the same as the discount factor. The alternative terminologies are illustrated in table 20.4.

1. Capital services and gross operating surplus

20.28 At this point, the national accountant asks how can gross operating surplus be estimated in this way when it is derived as a balancing item in the generation of income account? There are two possible answers to this question. The first answer is that there is not a complete identity with gross operating surplus but the value of capital services is implicitly within it so may be noted as an "of which" item relative to gross operating surplus. Suppose the discount rate chosen is the rate that can be obtained on a bank deposit or some other risk free investment. This determines the amount the user of the asset needs to generate as net operating surplus if the asset is to be cost effective. If the figures for capital services and gross operating surplus are both 100, then the producer has made a reasonable choice of asset; it is earning as much for him as leaving his money in the bank. If he earns a little more than 100, he has done better than leaving the money in the bank. If the national

accounts show he has earned 150, say, it may be that the producer has been very lucky indeed, perhaps realising some monopolistic profits. However, it is also possible that there is some sort of asset he is using that has not been identified in calculating capital services, one possibility being some form of intangible asset. Similarly if the value of gross operating surplus is much lower than the value of capital services estimated, there may be good reason to question the range and valuation of assets assumed to be used in production or the quality of the estimates of gross operating surplus. Thus deriving the value of capital services in this manner is also a valuable tool for checking data quality.

20.29 The alternative to treating capital services as an element of gross operating surplus is to equate gross operating surplus with capital services exactly and to do this by determining a rate of return (discount rate) that brings this about. Many traditional analyses of productivity have used this approach and some cross-country comparisons of productivity depend on this assumption. Other studies, used at the industry level, suggest that the variation in apparent rate of return obtained in this way needs to be used, if at all, with very great caution. There is still robust discussion in academic circles about the preferred way of determining the rate of return, exogenously as described in the preceding paragraph or endogenously as described here. One way of interpreting the difference is to say that using an exogenous rate of return simply confronts the cost of capital (capital services) with the benefits (gross operating surplus); the endogenous rate of return gives a single figure to be contrasted with the yardstick of a “normal” rate of return.

Table 20.4: Capital services and SNA terminology

		Discount rate 5%					
		Year 1	Year 2	Year 3	Year 4	Year 5	Sum of 5 years
Contribution to asset value from earnings in :							
Year 1		100					
Year 2		76	80				
Year 3		54	57	60			
Year 4		35	36	38	40		
Year 5		16	17	18	19	20	
Value in year		282	191	116	59	20	
Value index (year on year)		1.00	0.68	0.61	0.51	0.34	
Decline in value		91	74	57	39	20	282
		Consumption of fixed capital					
Income		9	6	3	1	0	18
		Return to capital or net operating surplus					

2. Prices and volumes

20.30 An examination of table 20.1, or indeed any of the others, shows that the value of an asset at a point in time, such as

D. Applying the capital service model

20.34 Once a theoretical link between the content of gross operating surplus and the capital services embodied in an asset used in production is accepted, there are a number of other beneficial implications for the national accounts. These include the question of the use of land in production,

the start of a year, can be expressed rather neatly as the sum of the capital services rendered in the year plus the discounted value of the asset at the end of the year. This is the starting point of much of the algebraic elaboration of capital services in the literature, but with one important difference. Whereas most national accountants tend to think first in terms of current price aggregates and later (possibly) a breakdown into a volume aggregate plus a corresponding price, most descriptions of capital services run in the other direction. They assume a volume and develop a theory of the corresponding price (the “user cost”). These could be multiplied together to give a current value but much analysis is done using volume or price information.

20.31 One reason for working this way is that the assumption underlying table 20.1, that the contributions to production over the life of the asset are known, is not often true in practice. What is known, estimated or simply assumed is an *index* of how the efficiency changes over time. Equally the value of the asset assumed known in table 20.2 is only known on an asset-by-asset basis when each is new; all other value figures are estimates for reasons explained above. It is possible to use the identity that the start-of-year value of an asset equals capital services rendered in the year plus the discounted end-of-year value, all expressed in index number form and assuming no inflation, into one that expresses the value of the capital services as dependent on the decline in the value of the asset due to ageing (the depreciation element) and the rate of return (the opportunity cost of money). If the impact of general inflation is now taken into account, the price of the capital services (usually called the user cost) can be expressed as depending on the increase in value of a new asset of the same type, the nominal cost of money and the relative year on year decline in value of the asset due to ageing.

20.32 It is also possible then to have different prices for different sorts of assets and look at differential movements between asset prices and the movements in the general level of inflation. (Table 20.1 was based on the very restrictive assumptions of there being neither absolute nor relative price inflation.)

20.33 Another important consideration passed over in the simple numeric tables is the following. For balance sheet data, values at the date the balance sheet is drawn up are needed. For estimates of capital services/gross operating surplus as well as for consumption of fixed capital and income flows, values at average-year prices are needed. In practice, the mid-year observations are often assumed to be close approximations to the annual averages but this is not always so especially in times of significant inflation.

the valuation of natural resources, the separation of mixed income into the labour and capital components, the measurement of assets with a residual value, the treatment of costs of ownership transfer on acquisition, the treatment of terminal costs, capital maintenance, the valuation of

work in progress on long-term projects, an alternative approach to estimating the imputed rentals of owner-occupied dwellings and the separation of the payments under a financial lease into the element to be regarded as the repayment of principle from the element regarded as interest. Each of these will be explained a little further below.

20.35 Before discussing land and natural resources, it is useful to recall the consequences of an asset being used by a unit not the legal owner of the asset. The important distinction is whether the user does or does not assume the risks associated with its use in production. When the user does not assume the risks, the asset is regarded as being subject to an operational lease. In such a case the payment to use the asset is a rental and forms part of intermediate consumption. The benefits from using the asset in production accrue to the owner in the operating surplus of the production account relating to his leasing activity. (See paragraphs 17.292 to 17.294.)

20.36 When the user does assume the risks associated with the use of the asset in production, the benefits from using the asset in production accrue to the user and appear in his operating surplus. This is true of both produced and non-produced assets. The difference between produced and non-produced assets concerns the type of lease existing between the legal owner and the user and the type of property income paid to the legal owner of the asset.

20.37 In the case of a produced asset, the user of the asset who assumes all risks associated with the asset becomes the economic owner of the asset. The asset appears on the balance sheet of the economic owner. If the legal owner is different, any payment from the economic owner to the legal owner is recorded as property income payable under a financial lease. (See paragraphs 17.295 to 17.300.)

20.38 In the case of a non-produced asset, when the user of the resource and legal owner differ, the asset remains on the balance sheet of the legal owner but a resource lease between the legal and user obliges the latter to pay the former property income in the form of rent. (See paragraphs 17.301 to 17.303.)

20.39 For all non-financial assets used in production, the estimation of the value of the capital services associated with the asset allows this to be contrasted with the property income payable for its use to determine whether the use of the asset is cost-effective.

1. Land

20.40 The first and oldest recognised form of non-produced capital is land. Land is special in that, under good management, the value is assumed to remain constant from year to year except for the effects of inflation in land prices. That is to say, there is no depreciation of land and all the contribution to production can be regarded as income. To show how this can be related to the previous examples, Table 20.5 shows part of a corresponding table for land that contributes 20 to production in perpetuity. A full table would have an infinite number of rows and columns. Here only a few are shown and some very simple algebra (with explanation) is used to explain how the totals are reached.

20.41 The value of the first column is the sum of 20, 20 discounted once (the second year's contribution to production discounted once), 20 discounted twice for the third year and so on if not for ever, at least for very many years. With a discount factor of 5 per cent as before, the sum of this column is 400. To see that this is so, consider a simple geometric progression. What is required is the sum of a series that can be written as:

$$S_n = a + ar + ar^2 + ar^3 + ar^4 + ar^5 + \dots + ar^n$$

where a is the return to the asset in every period and r is the discount factor. If every term in the equation is multiplied by an extra factor r the result is:

$$rS_n = ar + ar^2 + ar^3 + ar^4 + ar^5 + \dots + ar^{n+1}$$

Subtracting the second expression from the first gives:

$$S_n (1-r) = a (1-r^{n+1})$$

If r is less than unity (as it will be in a discounting framework) and n is very large, that last term becomes insignificant and the sum of the series, S_n, can be determined as a/(1-r). In table 20.5, a is 20 and r is 0.95, so the sum of the series is 400.

Table 20.5: The case of land

	Discount rate 5%					
	Year 1	Year 2	Year 3	Year 4	Year 5	... Year 10 ...
Contribution to asset value from earnings in:						
Year 1	20					
Year 2	19	20				
Year 3	18	19	20			
Year 4	17	18	19	20		
Year 10	14	14	15	16	16	... 20 ...
Year 25	7	7	7	8	8	... 11 ...
Year 40	3	3	3	4	4	... 5 ...
Value in year	400	400	400	400	400	... 400 ...
Value index (year on year)	1.00	1.00	1.00	1.00	1.00	... 1.00 ...
Decline in value	0	0	0	0	0	... 0 ...
Income	20	20	20	20	20	... 20 ...

20.42 However, since each of the columns of the table, though one term shorter than the previous one, is also an infinite series beginning in exactly the same way, the sum of each column is also 400. Thus the decline in value of the land from year to year is zero and the whole of the 20 is not just the contribution to production but also income. In national accounts parlance, the gross and net operating surplus are both 20 and there is no depreciation. Equally the value of the capital service and the return to capital are both 20. The rate of return to capital is 20 divided by 400 or five per cent.

20.43 As noted above, it may seem slightly odd to think of a non-produced asset contributing a "service" since in national accounts services are always produced. This is simply a reflection of the words chosen by economists to describe the contribution of capital to production without connecting the word "service" to the specific interpretation given to it

in the SNA. Similarly one may hear compensation of employees described as the cost of labour services.

- 20.44 Another term used for capital services is economic rent and this initially seems more applicable in the case of land but is also a pitfall. In table 20.5, the economic rent of land is the extent to which the farmer benefits from using the land for agricultural production (20). This rent accrues whether the farmer is farming his own land or is a tenant farmer. The amount that the tenant farmer is due to pay his landlord is what the national accounts show as rent under property income. In the days when a farmer paid his rent as a share of the crop yield, the link was more obvious. What he retained represented enough to cover his costs and the cost of his own (and any hired) labour. In a monetized economy, the rent payable to the landlord is often agreed a very long time in advance. Comparing the rent earned (as operating surplus) with the rent payable as property income shows whether the agreed rent is “fair” or perhaps excessive relative to the farming income.

2. Valuing natural resources

- 20.45 There is an increasing interest in placing a capital value on natural resources but, since these assets are seldom sold on the market, there has been doubt about how to do this. Looking at the economic rent to be earned by a mineral deposit or a natural forest, for example, is one way to solve the problem.
- 20.46 Suppose that a mining company knows the size of the deposit being mined, the average rate of extraction and the costs of extraction of one unit. After allowing for all intermediate costs, labour and the cost of fixed assets used, what is left must represent the economic rent of the natural resource. By applying this to the expected future extractions, a stream of future income can be estimated and from this, using the techniques already described, a figure for the value of the stock of the resource at any point in time.
- 20.47 In fact, the application of the capital service technique goes further than this. In the case of a natural forest, if the rate of re-growth is at least equal to the rate of harvest, then the value of the forest does not decline and the rate of harvest is sustainable. However, in the case of a mineral deposit with no natural renewable capability, then it is possible as before to separate the contribution to production into an element showing the decline in value of the deposit and a residual element. Because this residual amount is consistent with the idea of maintaining the level of wealth intact, it can be regarded as income. Clearly this leads into the area of so-called green accounting and the possibility of allowing for consumption of natural capital as well as consumption of fixed capital in an alternative presentation of national accounts in a satellite account. Indeed, this is the argument developed at greater length and with applications to specific resources in section D of chapter 7 in the *SEEA*.

3. Mixed income

- 20.48 When discussing land, above, it was pointed out that the economic rent of the land was the part that was not otherwise accounted for by intermediate consumption, the cost of hired labour and the capital services rendered by

fixed assets and the labour cost of the farmer. Very often, it is difficult to put a value on the labour of a self-employed person and so this may be merged with the economic rent on land and the capital services rendered by any fixed assets used and described as mixed income. In principle, though, if a separate estimate of the capital services rendered by fixed assets can be made from information about the services rendered by similar assets in other parts of the economy, then mixed income can be split into its labour and capital components.

- 20.49 In practice this has often proved difficult since the residual amount for self-employed income may turn out to be very small or even negative. The most obvious cause of this is that the estimates for the capital services are too high. This may be because larger companies are able to make more efficient use of capital, for example using a high value piece of equipment continuously rather than intermittently, or because they actually have other, intangible, assets, which have not been taken into account. This means the capital services for these unmeasured assets are attributed to those that are recognised but this addition is not appropriate for the self-employed worker. Thus the acceptance of the capital services model is unlikely to provide a quick and accurate breakdown of mixed income but it does show the way to probe the data for both large and small enterprises to ensure that capital is being measured comprehensively and consistently.

4. Assets with a residual value

- 20.50 Very many assets are used by a single owner until they are worn out and worth nothing. However, this is not the case for all assets. Some are disposed of after a few years, perhaps because the cost of regular maintenance is deemed by the current owner to be too high relative to the value the asset contributes to production. Some airlines, for example, may wish to use the fact that they keep up-to-date fleets of aircraft as part of their advertising appeal. In other cases, for example with construction equipment, the original owner may simply have no further use for the asset.
- 20.51 Table 20.6 shows an example of an asset that is used for only four years and then disposed of for a value of 300. Again for simplicity it is assumed that the disposal value after four years is known when the asset is acquired. For example, the market in used assets may be sufficient to ensure that the value at any point is equal to the remaining services to be delivered by the asset. Inflation is still assumed to be zero.
- 20.52 The top, triangular, part of the table shows the normal calculation of the value of the capital services to be rendered in these four years, a value that at the outset is seen to be 1 107. To this the discounted value of the residual value of 300 must be added. This value is 247, making the total value of the asset 1 354. As in the case where an asset is held to exhaustion, the decline in the value of the asset including the residual value is lower year by year than the decline in the capital services to be rendered in these four years because there is an income element coming from the fact that the remaining value increases as the time for disposal of the asset gets closer. The total of the decline in the value of the asset, to be shown as consumption of fixed capital, is 1 054. This value,

together with the residual value of 300, is equal to the original value of 1 354. The total income (net operating surplus) is 121, the sum of the income arising from the use in production (68) plus the income arising from the unwinding of the discount factor on the terminal value (53).

Table 20.6: An asset with a residual value

	Discount rate 5%				Residual value	Sum of 4 years
	Year 1	Year 2	Year 3	Year 4		
Contribution to asset value from earnings in :						
Year 1	400					
Year 2	286	300				
Year 3	227	238	250			
Year 4	194	204	214	225		
Value in year	1 107	742	464	225	0	
Decline in value	365	278	239	225		1 107
Income	35	22	11	0		68
Residual value	247	259	272	286	300	
Income	12	13	14	14		53
Joint value	1 354	1 001	736	511	300	
Decline in value	352	265	226	211		1 054
Income	48	35	24	14		121

Table 20.6 illustrates that the cumulative value of the consumption of fixed capital calculated in respect of an asset should be equal to the initial value of the asset, treated as fixed capital formation, less the value to the owner on disposal of the asset. This holds whether the asset passes into use as a fixed asset by another user, is used for another purpose in the same economy or is exported.

5. Costs of ownership transfer on acquisition

20.53 The costs of ownership transfer incurred on acquisition of an asset are treated as fixed capital formation. This assertion is equivalent to assuming that the services rendered by the asset must be sufficient to cover both the costs of the asset and the costs of ownership transfer. Table 20.7 shows an example where costs of 30 are incurred on the acquisition of the asset in table 20.6. In order for the asset to have exactly the same value as before on disposal, 300, the costs of ownership transfer have to be accounted for during the period in which the owner who incurred the costs uses the asset in production. The figures in the triangular part of table 20.7 are added to those in the corresponding part of table 20.6 giving increased value to the asset in each year until the end of year 4, increased consumption of fixed capital and slightly increased income, because the costs of ownership transfer are also viewed as the present value of the extra services required to meet the costs.

20.54 If the costs of ownership transfer were to be attributed to the whole life of the asset and not just that part for which the unit that paid the costs owns the asset, there is a mismatch between the calculated value of the asset and the market value demonstrated in the sale at a value of 300. In such a case, the data have to be brought back into reconciliation by means of an entry in the other changes in the volume of assets account but this means that not all of the costs incurred by the initial owner are shown as a charge against gross value added and so income is overstated. This may be inevitable when assets are sold unexpectedly but in the case of many vehicles and large mobile construction equipment, the purchaser may well take account of the value to be realised on sale after a given

period. When this is so, every effort should be made to take account not only of the residual value but also factor the expected life length into the calculations of the amount of consumption of fixed capital to be attributed to the costs of ownership transfer so there is no residual value of these costs left on disposal.

Table 20.7: Example of costs of ownership transfer on the acquisition of the asset in table 20.6

	Discount rate 5%				Residual value	Sum of 4 years
	Year 1	Year 2	Year 3	Year 4		
Contribution to asset value from earnings in :						
Year 1	10					
Year 2	9	9				
Year 3	6	7	7			
Year 4	5	5	6	6		
Value in year	30	21	13	6		
Decline in value	9	8	7	6		30
Income	1	1	0	0		2
Residual value	1 384	1 022	749	517	300	
Decline in value	361	273	232	217		1 084
Income	49	36	25	14		123

6. Terminal costs

20.55 Table 20.6 considered the case where an asset had a residual value at the time the current owner disposed of it. It is also possible to have assets that have significantly large costs associated with disposal. Examples include the decommissioning costs of nuclear power stations or oil rigs or the clean up costs of landfill sites. The following discussion is not meant to downplay the practical difficulty of estimating terminal costs, simply to demonstrate why in principle the existence of terminal costs should reduce the value of the asset throughout its life.

20.56 Terminal costs are similar to capital formation in that they should be covered by income generated during the time the asset is used in production. If this is not done during the asset's life these large costs may be treated as intermediate costs at a time when there is no longer any income being generated from production and so lead to negative value added. Alternatively, they are recorded as capital formation but instead of the costs being recovered from value added, these costs are simply written off in the other changes in the volume of assets account. This procedure omits from the macro-economic aggregates a legitimate cost to business and so overstates gross and net domestic product over a period of years.

20.57 Table 20.8 shows an example of how terminal costs should be recorded. The data in fact correspond to the numbers in table 20.6 for the contribution to production in each year, but in this case the residual value is negative rather than positive.

20.58 The analysis of the data follows that for table 20.6 exactly. The value of the capital services to be provided by the asset in use is still 1 107. However, since the present value of the terminal cost is -247, the total value of the asset is 860. As before, the cumulated value of consumption of fixed capital, 1 160 is equal to this value less the terminal value of -300. Not only is the value of the asset in each year lower than the value of the use in production, in year 4 the value is actually negative. The rationale of this is that although the asset will yield services of 225 in that year, the

impending costs of 300 mean that the owner would not be able to sell the asset; he would in fact have to pay another owner to take over the asset since it would then be the responsibility of the new owner to meet the disposal costs of 300.

Table 20.8: An asset with a terminal cost

Discount rate 5%						
	Year 1	Year 2	Year 3	Year 4	Residual value	Sum of 4 years
Contribution to asset value from earnings in :						
Year 1	400					
Year 2	286	300				
Year 3	227	238	250			
Year 4	194	204	214	225		
Value in year	1 107	742	464	225	0	
Decline in value	365	278	239	225		1 107
Income	35	22	11	0		68
Residual value	-247	-259	-272	-286	-300	
Income	-12	-13	-14	-14		-53
Joint value	860	483	192	-61	-300	
Decline in value	377	291	253	239		1 160
Income	23	9	-3	-14		15

20.59 Anticipated costs on ownership transfer on disposal of an asset, including legal fees, commission, transport and disassembly, etc., should in principle be treated in the same way as terminal costs.

7. Major repairs and renovations

20.60 Major repairs and renovations that extend the life of an asset are treated as capital formation and the value of the repairs and renovations is added to the value of the asset before the work was undertaken. The example of costs of ownership transfer on acquisition of an asset can be applied directly in this case, excepting only that the costs are incurred in a year other than the year of acquisition. The value of the capital repairs is supposed to be equal to the discounted value of the increased services that the asset will yield, either by increasing the services in each of the remaining years of the initial life length, or extending the life length, or both.

20.61 The value of the capital repairs can be analyzed by merging the value with that of the asset in question and reworking all the calculations of the services to be rendered, the income generated and the consumption of fixed capital for the asset and the maintenance taken together. However, as table 20.7 shows, it is also possible to leave the calculations for the asset as they were and simply aggregate them with a separate analysis of the maintenance undertaken as if it related to a wholly new asset.

8. Work-in-progress for long term projects

20.62 Table 20.9 relates to an asset with a final value of 200 that is to be constructed over a period of four years. One possibility is that, assuming no inflation, work in progress of 50 should be recorded in each of the four years. However, consistent with the notion of discounting future income an alternative view is preferable. Suppose still that there is a discount rate of five per cent. In each year, the value of the completed asset in each of years 1 to 3 will be 172.8, 181.4 and 190.5, each of which will cumulate to a value of 200 after, respectively, three, two or one years

accumulation in value of 5 per cent. Dividing each of these by four implies that even if equal amounts of work are put in place in each year, the values to be recorded should be 43.2, 45.4, 47.6 and 50.0. In addition, though, there will be income arising from a return to the work already put in place. This would give a time series for the work put in place and other income of 2.2, 4.5 and 7.1 in each of years two to four giving the value of the partially complete structure as 43.2, 90.7, 142.9 and 200.0. These are the values that a purchaser of the partially completed structure would be willing to pay, given that he would forgo the income from the finished structure for up to three years.

Table 20.9: Valuing work-in-progress spanning several years

Discount rate 5%				
	Year 1	Year 2	Year 3	Year 4
Value of final product in each year	172.8	181.4	190.5	200.0
Value of construction activity (one quarter of final value)	43.2	45.4	47.6	50.0
Income accruing on work put in place				
In year 1		2.2	2.3	2.4
In year 2			2.3	2.4
In year 3				2.4
End year value	43.2	90.7	142.9	200.0

9. Owner-occupied dwellings

20.63 The SNA specifies that an imputed rental on owner-occupied housing should be included in the production boundary and form part of household consumption. In a situation where there is either no rental market in such properties or only a very limited one, this is difficult to implement. Cross-country comparisons of the results (as in the International Comparison Program) show that the different techniques used produce highly variable results. Here too, the use of the techniques described in this chapter may be helpful.

20.64 In the example for land, it is possible to deduce a value of 400 for the land that yielded economic rent of 20 every year in perpetuity. While modern houses do not last for ever, if they are assumed to last for, say, fifty years the discount factor applied over this period gives contributions to the value of the asset that are negligible at the end and again it may be supposed that, if the value of the house is 400, then the imputed rent is 20. Given that the market for houses is much better established than for rented housing, this may also provide a source of useful and comparable data for a troublesome area of national accounts. However, this method should be used with caution since houses are often bought in the expectation of making significant real holding gains. It should also be recognised that the rental for a house usually includes land rent.

10. A financial lease

20.65 The process of discounting future income streams to determine present value applies to financial assets as well as to non-financial assets. Consider an agreement with a bank to borrow 1 000 over a period of five years at five per cent interest. The total amount to be paid to the bank will be 1 100 at a rate of 220 per year. But, as table 20.10 shows, each year's payment does not consist of repayment of principal of 200 and interest of 20. Interest is payable on

the remaining balance, so is highest in the first year and is zero in the last year. (This is a result of the simplifications used in the chapter. In practice, interest would be charged daily and so even in the last year some interest would be payable. However, the way in which the balance between interest and repayment of principal changes over time as the loan is repaid holds.)

20.66 The arithmetic behind table 20.10 is indistinguishable from any of the other tables in this chapter demonstrating that the same principles hold for valuing financial assets as for non-financial assets. The same methodology that can be used to show how much of the contribution to production is consumption of fixed capital and how much contributes to net operating surplus can also be used to show how much of the payment to the bank is a repayment of capital and how much is interest. Both consumption of fixed capital and a repayment of capital feature in the accumulation accounts as changing the value of the stock of assets. The contribution to net operating surplus and interest are both income flows and are shown in the current accounts.

20.67 This duality is especially important when an asset is acquired under a financial lease. In this case table 20.10 can

be used to show both the change in value of the asset and the change in the loan taken out to pay for it. Cost benefit analyses of the merits of borrowing to acquire assets also depend on this sort of calculation. Unless the asset can contribute at least as much to production as the interest due to the lender, it is not a good investment. Even if a producer has sufficient funds available to purchase an asset without borrowing, it makes sense to undertake such an analysis since the alternative to acquiring the asset is to convert the funds to an asset that will either earn income or appreciate and yield holding gains.

Table 20.10: The case of a financial loan

	Interest rate 5%					Sum of 5 years
	Year 1	Year 2	Year 3	Year 4	Year 5	
Contribution to loan value from payments due in :						
Year 1	220					
Year 2	210	220				
Year 3	200	210	220			
Year 4	190	200	210	220		
Year 5	181	190	200	210	220	
Loan value in year	1000	819	629	430	220	
Repayment of principal	181	190	200	210	220	1000
Interest	39	30	20	10	0	100

E. A supplementary table on capital services

20.68 This section describes a table that could be compiled to compare data coming from the standard national accounts tables for the elements of gross value added with those derived from applying the theory of capital services to the national accounts data on capital stock. Before presenting the table, though, it is appropriate to recall briefly the various simplifying assumptions that underlie the numeric examples in the earlier part of the chapter, assumptions that would be totally inappropriate in serious estimation of capital service flows. The most important are:

- Somewhat different figures would emerge if any of the tables were to be calculated for the start of year, end of year or mid-year. Mid-year flows need to be discounted by half the annual discount rate to give start of year figures, for example.
- The assumption that there is no price inflation, either overall or between different assets, is clearly unrealistic. Changes due to price movements need to be separately identified and included in the revaluation account.
- The general preference for an age-efficiency approach to determine the value of capital stock should not be taken to mean that information on age-price decline, when such exists, is to be ignored. The solution is to find an age-efficiency pattern that matches the observed decline in prices. Where such a match can be made, this may inform the choice of age-efficiency declines where no matching price information is available.

20.69 There is a question about the appropriate level of detail to be used for assets. They are very diverse and even products that appear superficially similar, such as aircraft, may have quite different specifications. This is a problem that must be resolved whatever means of determining a stock figure for assets is used. The final choice may be a source of inaccuracies, or conversely, may lead to extra resource cost for little improvement in the results.

20.70 The first level of detail that might be examined is given in table 20.11. This assumes that information on value added by institutional sector is available. The figures for operating surplus for non-financial and financial corporations may be compared with capital services from fixed assets used by these sectors adjusted as necessary for natural resources and inventories. The figures for general government and NPISHs in the national accounts data and those for capital services data must be equal. This is because by convention no return to capital on assets used in production (whether produced or non-produced) is included when output is estimated as the sum of costs. Consequently gross operating surplus is equal to the consumption of fixed capital and net operating surplus is zero (possibly excepting small amounts of operating surplus coming from secondary market production). The capital services for household dwellings should match operating surplus for households and the figure for capital services for other household unincorporated enterprises is to be compared with the national accounts figure for mixed income (which should include a labour compensation element also).

Table 20.11: The outline of a possible supplementary table on capital services

National accounts data	Total/Gross	Consumption of fixed capital	Net
Gross value added			
Compensation of employees			
Mixed income			
Operating surplus			
Non-financial corporations			
Financial corporations			
General government			
NPISHs			
Households			
Taxes less subsidies on production			
Capital services	Capital services	Decline in value	Return to capital
Fixed assets			
Market producers (excluding households)			
Non-financial corporations			
Financial corporations			
Non-market producers			
General government			
NPISHs			
Households			
Dwellings			
Other unincorporated enterprises			
Natural resources			
Inventories			

Chapter 21: Measuring corporate activity

A. Introduction

- 21.1 The purpose of this chapter is to discuss aspects particular to corporations in both the financial and non-financial corporation sectors. It begins in section B by discussing the demography of corporations; how they come about, how they disappear and how they merge with one another. The consequences of these actions in the SNA are almost all to do with recording the acquisition of the owner's equity in corporations and in some cases reclassification of assets and liabilities between sectors.
- 21.2 Section C looks at some sub-sectoring of corporations and how this can be effectively deployed for analysis.
- 21.3 Section D considers the relationships between corporations in the domestic economy and in the rest of the world. Much of this section is concerned with aspects of globalisation and the derivation of relevant indicators.
- 21.4 Section E recalls some of the discussion in chapter 20 and looks further at the contribution of assets to production.
- 21.5 Section F looks at the consequences of financial distress and the implications of remedial action for recording within the SNA.
- 21.6 The last section, section G, covers a rather different subject and looks at the emergence of commercial accounting standards over the last several years and how the process of developing new standards can be instrumental in helping to develop new approaches within the SNA.

1. A note on terminology

- 21.7 As explained in section B of chapter 4, the term corporation is used in the SNA to cover a wide variety of legal forms of institutional units. In addition, the expression enterprise is used in connection with production activities. While corporation is normally the term of preference in the SNA, other documents, notably the *OECD Benchmark Definition on Foreign Direct Investment (BD)*, tend to use enterprise in preference to corporation. Further, the register of all enterprises or corporations is usually called a business register, even though "business" is not a term commonly used in national accounts. In this chapter, all three terms are used without implying a difference between them.

B. The demography of corporations

- 21.8 Maintaining a list of corporations is similar to maintaining a list of all individuals present in the country in that it is necessary to record new corporations as they come into being and to record those that cease to be. A business register normally serves an administrative function in keeping track of the existing businesses in the economy but also serves as the basic sampling frame for surveys directed at businesses. Thus it is normal for a business register to contain information on the activity, size, location, etc. of each business and to note when the main activity of a corporation changes from one type of activity to another. In addition a business register may also include information on the links one corporation may have to other resident and non-resident corporations.
- enterprise within the household sector becomes incorporated. (The exact process of incorporation, such as when this may or must happen and how it is effected, will depend on the company law in effect in the country concerned.) When this happens, the assets and liabilities that were previously indistinguishably part of the household are separated off and become those of the corporation. In return for giving up control of these assets, and responsibility for the liabilities, the household acquires equity in the new corporation, initially exactly equal in value to the assets and liabilities transferred to the corporation. Once an enterprise is incorporated, the owning household no longer has a claim on the assets and has no responsibility for the liabilities but instead owns the equity in the corporation.

1. The creation of corporations

- 21.9 Corporations can come into being in a number of ways. One is when what was previously an unincorporated
- 21.10 An individual may simply decide to set up a business, set up a legal entity and begin operations. Initially, there may be no assets of the entity and no liabilities but as these

accrue they belong to the corporation and the owner's equity changes correspondingly. On a larger scale, there may be an agreement between a number of units, one or more of whom propose a business plan and one or more of whom agree to finance the operation. A formal agreement results in which the split of the rewards from the corporation's activity is determined and also the division of the responsibilities. The assets of the new corporation are recorded as being acquired by it and an amount of owner's equity in the corporation incurred as a liability towards the parties supplying the finance is also recorded.

- 21.11 It is not necessary for the corporation to issue shares for the agreement on the share of the profit arising from the activities of the corporation to be binding. Co-operatives and limited liability partnerships are two examples of units the SNA treats as corporations where the way in which profits are shared between the owners is clear even though there are formally no shares.
- 21.12 Corporations may also come into being at the initiative of government, an NPISH or a unit in another economy. In addition, a corporation may come into existence by the splitting of a previously existing corporation. This possibility is discussed below under mergers and acquisitions.

2. The dissolution of corporations

- 21.13 Similarly there are several ways in which corporations may go out of existence. The first is when an entity is wound up after having been declared bankrupt. (The exact process varies from country to country. In some countries a declaration of bankruptcy means the corporation must stop trading immediately and the process of winding up its affairs begins. In other countries, there may be a time lag while the corporation has an opportunity to continue trading while it tries to recover its position and only if this fails is it wound up.) When a corporation is wound up, the receiver (the unit responsible for administering the liquidation of the corporation) sells all of its assets and distributes the proceeds amongst those having a claim on the corporation in a legally predetermined order. The shareholders are always the last to be allocated any proceeds. In the case where the corporation is bankrupt it is quite common that the shareholders receive nothing. Only in very exceptional circumstances will the shareholders have any responsibility to provide funds towards settling other liabilities of the corporation.
- 21.14 A corporation may be wound up voluntarily by its owners. When this happens the assets are sold and the proceeds are divided amongst the owners according to the shares each has in the corporation. If the corporation is one that had issued shares, it can only be wound up if a clear majority of shareholders agree or if a clear majority of the shares are first acquired by a sufficiently small number of units who can reach agreement to wind up the corporation.
- 21.15 The acquisition of all shares of a corporation need not be a preliminary to the corporation ceasing to exist; it may simply continue with a smaller number of shareholders or even as a private unlisted corporation. The advantage of remaining incorporated is that there is a limit to the liability of the owners to meet any shortfall on the corporation's

balance sheet. Thus even when an individual or group of individuals wants to control the whole of a corporation they may choose simply to make it an unlisted corporation but still one with the limited liability that comes with incorporation.

- 21.16 A third way in which a corporation may disappear is through it being merged with another corporation, though a merger does not automatically imply the merged corporation disappears. This too is discussed below under mergers and acquisitions.

3. Nationalisation and privatisation

- 21.17 The government may decide to take ownership of a corporation for a number of reasons, either because it is felt it is in the public interest for government to control the corporation, in response to financial distress or for other political motivations. When this happens the ownership of the corporation passes to the government, that is the government acquires the equity in the corporation, but the assets of the corporation remain on its balance sheet unless the government decides to nationalise the corporation and disband it at the same time. Often but not always, government may make a payment to the previous owners of the corporation but this may not necessarily correspond to their view of a fair price. Unless the corporation is dissolved, the process of nationalisation leads to a change in the ownership of the corporation from private units to the government but the assets and other liabilities of the corporation continue to be owned by the corporation. Owners' equity in the corporation is recorded as a transaction in the financial account. There is also a reclassification of the assets and liabilities of a corporation being nationalised from the national private sub-sector to the public sub-sector recorded in the other change in the volume of assets account.
- 21.18 The government may also decide to privatise a corporation it currently controls. When this happens the most usual mechanism is that its shares are offered to the public either for sale or, in some cases, without charge or perhaps at a price lower than the market would bear. When shares are offered free or at a reduced price, a capital transfer from government to the eventual shareholders needs to be recorded in the accounts as well as the acquisition of shares. As with nationalisation, only the equity in the corporation changes hands, not its assets and other liabilities, and the change in ownership of the equity is recorded as a transaction in the financial account. The ownership of the assets and liabilities remains with the corporation but they are reclassified from the public to national private sub-sector in the other changes in the volume of assets account.
- 21.19 There is more discussion on nationalisation and privatisation in chapter 22.

4. Mergers and acquisitions

- 21.20 The process of corporations merging and demerging is of interest within an economy but especially interesting when the merger (or de-merger) involves units in different economies. Foreign direct investment can hardly be discussed without considering the subject of mergers and

- acquisitions. Some of the expressions commonly used in this field are listed below. The descriptions come from the *BD* but similar concepts appear also in the *BPM6*. (A revised version of the *BD* was released in 2008. It is consistent with both the *SNA* and *BPM6*.)
- 21.21 A *merger* refers to the combination of two or more corporations to share resources in order to achieve common objectives. A merger implies that, as a result of the operation, only one entity will survive and frequently occurs following an acquisition (described below). There are several types of merger possible.
- A *statutory merger* relates to the business combination where the merged (or target) corporation will cease to exist. The acquiring corporation will assume the assets and liabilities of the merged corporations. In most cases, the owners of merged corporations remain joint owners of the combined corporation.
 - A *subsidiary merger* relates to an operation where the acquired corporation becomes a subsidiary of the parent corporation. In a reverse subsidiary merger, a subsidiary of the acquiring corporation will be merged into the target corporation.
 - Consolidation* is a type of merger which refers to a business combination whereby two or more corporations join to form an entirely new corporation. All corporations involved in the merger cease to exist and their shareholders become shareholders of the new corporation. The terms consolidation and merger are frequently used interchangeably. However, the distinction between the two is usually in reference to the size of the combining corporations. Consolidation relates to an operation where the combining corporations have similar sizes while merger generally implies significant differences.
 - A *reverse merger* is a deal where the acquiring corporation ceases to exist and merges into the target corporation. If a corporation is eager to get public listing in a short period of time, it can buy a corporation with listed shares and merge into it in order to become a new corporation with tradeable shares.
 - A *merger of equals* is a type of merger where the corporations involved are of similar size.
- 21.22 An *acquisition* is a transaction between two parties based on terms established by the market where each corporation acts in its own interest. The acquiring corporation achieves control of the target corporation. The target corporation becomes either an associate or a subsidiary or part of a subsidiary of the acquiring corporation.
- A *takeover* is a form of acquisition where the acquiring corporation is much larger than the target corporation. The term is sometimes used to designate hostile transactions. However, mergers of equals (in size or belonging to the same sector of activity) may also result in a hostile takeover.
- b. A *reverse takeover* refers to an operation where the target corporation is bigger than the acquiring corporation.
- 21.23 A *divestment (de-merger)* refers to the selling of the parts of the corporation due to various reasons:
- A subsidiary or part of the corporation may no longer be performing well in comparison to its competitors;
 - A subsidiary or a part may be performing well but may not be well positioned within the industry to remain competitive and meet long-term objectives;
 - Strategic priorities of the corporation to remain competitive may change over time and lead to divestments;
 - Loss of managerial control or ineffective management;
 - Too much diversification may create difficulties and thus lead the parent corporations to reduce the diversification of its activities;
 - The parent corporation may have financial difficulties and may need to raise cash;
 - Divestments may be realised as a defence against a hostile takeover.
- 21.24 Corporate divestments can be conducted in different ways:
- A *corporate sell-off* is the sale of a subsidiary to buyers that are other corporations in most cases.
 - A *corporate spin-off* occurs when the divested part of a corporation is floated on the stock exchange. The newly floated corporation is separately valued on the stock exchange and is an independent corporation. The shares in the newly listed corporation are distributed to the shareholders of the parent corporations who thereafter own shares of two corporations rather than one.
 - An *equity carve-out* is similar to a corporate spin-off but the parent retains the majority control. This form has the advantage of raising cash for the investor.
 - Management buy-outs and buy-ins* occur when the buyer is the manager or a group of managers of the corporation that is being sold off.
- 21.25 In all these cases, transactions in the equity of the two corporations involved need to be recorded in the financial account and, possibly, a change of classification by sector in the other changes in the volume of assets account.

C. Sub-sectors

- 21.26 The sub-sectoring of the corporations sectors is discussed in chapter 4. It is proposed that there should be a three-way split of corporations between those that are national private corporations, those that are controlled by the government and those that are foreign controlled. Within each of these it is desirable to identify market non-profit institutions (NPIs).
- 21.27 The reason for identifying NPIs is twofold. In the first place, in order to have a comprehensive picture of NPIs, as described in chapter 23, it is necessary to be able to identify those market NPIs that are assigned to the corporations sector. Identifying them separately may be unexpected to some users, since there is often a misconception that all NPIs are non-market and fall in the NPISH sector. The other reason for identifying NPIs separately is that for some analyses it may be desirable to analyse corporations excluding the NPIs if it is felt that their economic behaviour is significantly different.
- 21.28 In identifying publicly controlled corporations, there is a question about how to provide long time series if there has been a significant change in the number and type of corporations subject to public control during the period. It is usual to provide a time series that includes only those corporations that were subject to public control at each period in question. Because interest usually focuses on how much of the corporate sector was controlled by the government, and how this has changed over time, this gives an appropriate picture. However, if the intent is to explore the behaviour of the same group of corporations over time a supplementary table may be prepared that takes the current definition of publicly controlled corporations and uses this set of corporations over the time period considered regardless of whether or not they were publicly controlled for the whole of that period.
- 21.29 Identifying foreign controlled corporations is key to looking at the interaction between the domestic economy and the rest of the world. Exploring this in greater detail is the subject of the following section.

D. Relations between corporations in different economies

- 21.30 Deregulation of markets, technological innovations and cheaper communication tools have allowed investors to diversify their participation in competitive markets overseas. In consequence, a significant increase in cross-border financial movements including direct investment has become a key factor in international economic integration, more generally referred to as globalisation.
- 21.31 Regular analysis of direct investment trends and developments is an integral part of most macroeconomic and cross-border financial analysis. It is of prime importance to policy analysts to identify the source and destination of these investments. Several indicators based on direct investment statistics facilitate the measurement of the extent and impact of globalisation.
- 1. Foreign direct investment**
- 21.32 Foreign direct investment (FDI) is a key feature of the balance of payments and it is useful to review some of the basic concepts associated with this. Further details can be found in both *BPM6* and the *BD*. In the context of FDI, the term enterprise tends to be used rather than corporation, but as noted in the introduction, no difference of meaning is intended.
- 21.33 Direct investment statistics embody four distinct statistical accounts:
- Investment positions,
 - Financial transactions,
 - Associated income flows between enterprises that are related through a direct investment relationship, and
 - Other changes in the value of assets, especially revaluation terms.
- 21.34 Direct investment is a category of cross-border investment associated with a resident in one economy (*the direct investor*) having control or a significant degree of influence on the management of an enterprise (*the direct investment enterprise*) that is resident in another economy.
- 21.35 Direct investment may also allow the direct investor to gain access to the economy of the direct investment enterprise which it might otherwise be unable to do. The objectives of direct investors are different from those of portfolio investors who do not have significant influence on the management of the enterprise.
- 21.36 Direct investment enterprises are corporations which may either be subsidiaries in which over 50 per cent of the voting power is held, or associates in which between 10 per cent and 50 per cent of the voting power is held or they may be quasi-corporations, such as branches, which are effectively 100 per cent owned by their respective parents. Enterprises that have no direct investment influence upon one another (that is the 10 per cent voting power criterion is not met) but are directly or indirectly influenced in the ownership hierarchy by the same enterprise (which must be a direct investor in at least one of them) are included in direct investment and are described as fellow enterprises.
- 21.37 Direct investment relationships are identified according to the criteria of the Framework for Direct Investment

Relationships (FDIR, described in the *BD*), including both direct and indirect relationships, through a chain of ownership. Suppose that corporation A controls corporation B and B controls C then A in effect has control over C also.

2. FDI and globalisation

21.38 Direct investment positions show an important class of investment made abroad and received from abroad, divided between equity and debt, at a given reference point in time. FDI positions as a percentage of GDP give one indication of the extent of globalisation at that time. These structural indicators demonstrate the interdependence of economies.

21.39 Financial transactions show the net inward and outward investments with assets (acquisitions less disposals or redemptions) and liabilities (incurrence less discharges) presented separately by instrument in any given period. FDI financial transactions expressed as a percentage of GDP provide one indicator of the changes over that period in the degree of globalisation of an economy. This indicator provides early information on the relative attractiveness of economies (both domestic and foreign) for new investments after allowing for the withdrawal of investments or disinvestment during the same time period.

21.40 Direct investment income provides information on the earnings of direct investors and of the direct investment enterprises. Direct investment earnings arise (i) from distributed earnings as well as undistributed earnings which are treated as reinvestment of earnings in that enterprise and (ii) from interest on inter-company loans, trade credit and other forms of debt. FDI income flows as a percentage of GDP provide information on the relative importance of the earnings of direct investment in both the reporting economy and abroad.

3. The role of “pass through funds”

21.41 “Pass through funds” or “funds in transit” are funds that pass through an enterprise resident in one economy to an affiliate in another economy, so that the funds do not stay in the economy of the affiliate. These funds are often associated with direct investment. Such flows have little impact on the economy they pass through. While special purpose entities, holding companies, and financial institutions that serve other non-financial affiliates are particularly associated with funds in transit, other enterprises may also have pass through funds in direct investment flows.

21.42 Pass through funds are included in direct investment in standard presentations because they are an integral part of a direct investor’s financial transactions and positions with affiliated enterprises. Excluding these funds from direct investment would distort and substantially understate direct investment financial flows and positions at aggregate levels. Further, inclusion of these data in direct investment promotes symmetry and consistency among economies. However, for the economies through which the funds pass, it is useful to identify inflows and outflows not intended for use locally by the entity concerned.

21.43 FDI has a key role to play in development, especially in emerging countries. In order to explore how much of global FDI reaches these countries, and where it originates, a supplementary analysis is useful. Such an analysis identifies the country where the pass through funds originate by identifying the first unit other than a pass through fund in the host or investing economy (in the outward or inward chain) as appropriate.

4. Ultimate investing country

21.44 Presentations of FDI according to the *BD* show the country of the immediate counterparty and the industry of the immediate counterparty for outward FDI. For inward FDI, it is possible to determine not only the immediate counterparty but also the ultimate investor. The ultimate investor for this purpose is the enterprise that has control over the investment decision to have an FDI position in the direct investment enterprise. As such the ultimate investor controls the immediate direct investor. It is identified by proceeding up the immediate direct investors ownership chain through the controlling links (ownership of more than 50 per cent of the voting power) until an enterprise is reached that is not controlled by another enterprise. If there is no enterprise that controls the immediate direct investor, then the direct investor is effectively the ultimate investor in the direct investment enterprise.

21.45 The country in which the ultimate investor is resident is the ultimate investing country in the direct investment enterprise. It is possible that the ultimate investor is a resident of the same economy as the direct investment enterprise. (A controls B controls C. A and C are resident in the same economy but B is resident in another.)

21.46 In order to transform the usual presentation by country to the supplementary ultimate investing country presentation, the entire FDI position that is attributed to the country of residence of the immediate direct investor is allocated to the ultimate investing country. When there is more than one immediate direct investor in a direct investment enterprise, the entire inward FDI position of each immediate direct investor is reallocated to the respective ultimate investing country based on the ultimate controlling parent of each of the immediate direct investors. This method ensures that the levels of direct investment into a country according to the standard presentation and according to the supplementary presentation are the same.

5. Multinational enterprises

21.47 As well as information relating to foreign direct investment where only a 10 per cent voting power is required to identify a foreign direct investor, there is interest in analysing the activities of multinational enterprises (MNEs) where more than 50 per cent of the voting power is held. Thus the MNEs correspond to foreign controlled enterprises in the sense of sub-sectors in the SNA. (There is a small distinction between the *BD* and *BPM6* and the SNA on the question of control. For the *BD* and in the *BPM6*, the 50 per cent of voting power rule is applied rigidly but the SNA is more flexible. See chapter 4.)

21.48 In addition to statistics on the activities of MNEs, statistics are also available for the wider group of corporations with

links in other economies, not just those where there is majority ownership, called foreign affiliates. These statistics are known as Foreign Affiliate Statistics (FATS), and are elaborated in the *OECD Handbook on Economic Globalisation Statistics*. Work is ongoing to ensure the consistency of the various sets of statistics cited in this and other publications on globalisation.

6. Out-sourcing

21.49 There are two ways in which a corporation A in economy X may have another corporation B in economy Y assemble parts for it. Although the effect appears similar, the consequences for recording in the accounts are quite different. Suppose that A and B are unrelated enterprises, and B contracts to do work for A in return for a fee. (This case is described elsewhere, for example in chapter 28.) In this case there is no recorded transfer of the items from A to B (or X to Y). Only the agreed fee is recorded as a transaction between the two economies.

21.50 However, if A and B both belong to the same group of corporations, then it may be the case that there is a transfer of the risks and rewards of the items on their dispatch from A to B. The question is whether a realistic price is entered for the items in the trade figures for both A (and X) and B (and Y) as the items move internationally. When A and B are related, a practice known as “transfer pricing” is sometimes used. Suppose the tax regime in Y is more liberal than that in X. It may then be the case that A artificially lowers the price of the items dispatched to B in order to minimize profits in X while B records a higher profit subject to the lower tax regime in Y. In principle, international accounting standards and the balance of payments recommendations indicate that items transferring across borders should be valued at “arm’s-length” prices, that is to say prices that would prevail if there were no relationship between the two corporations involved. Making such an adjustment is not easy but it is in the interests of tax authorities, customs officials and the statistician to see whether appropriate adjustments can be made if the sums involved are significant and adjustments can be made with sufficient reliability.

E. The contribution of assets to production

21.51 Chapter 20 discusses the role of capital services in production and the calculation of multi-factor productivity (MFP). The assets to be considered in calculating productivity are those fixed assets that are both owned and used by the enterprise plus any natural resources and other non-produced assets including contracts, leases and licences and possibly marketing assets they both own and use in production. Assets that are not legally owned by the enterprise but are subject to a financial lease are included in the calculations in the same way that they are recorded on

the balance sheet of the enterprise. However, assets that are leased under an operating lease agreement are excluded. This may mean two enterprises undertaking similar activities using similar assets may show different productivity figures because one uses assets it owns and the other assets that it leases. An area for supplementary analysis is to consider compiling information on assets according to the using rather than the owning industry and to look at the implications for operating surplus and productivity of the use of leased rather than owned assets.

F. The consequences of financial distress

21.52 Signs that a non-financial corporation is suffering financial distress include the level of profits that it has been generating recently and possibly the level of dividends it is able to offer. It is also probable that it suffers a cash flow problem and is unable to meet its liabilities on a timely basis. Competitors may take the opportunity to launch a takeover bid. However, if no takeover bid is offered the question here is how the corporation may survive at all.

21.53 In a similar way, a financial corporation may suffer financial distress because it has difficulty in raising finance and is unable to service its liabilities. Again this is a circumstance in which a competitor may launch a takeover bid but this may not always be forthcoming.

21.54 If the corporation, whether financial or non-financial, is deemed to be of national importance this may be an instance where government steps in and offers either to take

over the corporation, in effect nationalising it, or may offer a major capital injection in return for a degree of control, possibly full control, of the corporation. The recording of nationalisation and capital injections by government as well as of the steps that may be taken under a bailout are discussed in chapter 22.

21.55 Another possibility is that the government offers a guarantee to the creditors of the corporation in distress. The activation of a one-off guarantee is treated in the same way as a debt assumption. The original debt is liquidated and a new debt is created between the guarantor and the creditor. In most instances, the guarantor is deemed to make a capital transfer to the original debtor, unless the guarantor acquires an effective claim on the creditor, in which case it leads to the recognition of a financial asset (a liability of the debtor). The recording of guarantees including those offered by government is discussed in part 3 of chapter 17.

1. Bad debts

- 21.56 All corporations, but especially financial corporations, may suffer from bad debts and this phenomenon may be particularly acute when other aspects of the economy also exert financial pressure on the corporation. Within the SNA, loans are always recorded as the amount that is due to be repaid to the creditor. In cases where the debtor has a bad credit rating this may overstate the market value of the loan. This is seldom done on a loan by loan basis but is regularly done for classes of loans.
- 21.57 In such cases the SNA recommends that memorandum items be compiled for the accounts showing the nominal and market value of bad loans and the implications for interest flows, the amount of interest accruing on the nominal value, the amount of interest outstanding from

previous periods and the amount relating to the current period that is unpaid. The proposed memorandum items are discussed in paragraphs 13.65 to 13.67.

- 21.58 Elaborating the accounting for assets where the market value suddenly diverges from past trend values and the whole question of when it might be appropriate to define and use “fair values” is one item on the research agenda as explained in annex 4.

2. Concessional lending and debt rescheduling

- 21.59 There is detailed discussion of government’s role in concessional lending and debt rescheduling in section D of chapter 22.

G. Links to commercial accounting

- 21.60 In recent years, the International Accounting Standards Board (IASB) has become increasingly important as the standard setter for commercial accounting. The IASB promulgates International Financial Reporting Standards (IFRS) and at present more than 100 countries are involved in this process of harmonisation. Many large companies, especially multinationals, already apply these international accounting standards.
- 21.61 The principles underlying the IFRS are in most cases entirely consistent with the principles of the SNA. In particular, it is worth noting that the introduction to the standards explains that economic substance should take precedence over legal form. The IFRS, like the SNA pays attention not only to the conceptually preferred approach but also practical possibilities.
- 21.62 The process of developing a new standard is a threefold one. In the first step, a document discussing the arguments for and against a new standard is proposed and it is released with an invitation to comment. Once the comments are received and analysed, if it is decided to proceed, an exposure draft is prepared and posted for global comment. Only if the exposure draft receives substantial favourable comment is a formal standard developed. At each stage, the

documentation available discusses the background to the standard as well as its formal wording.

- 21.63 Since it is inevitable that national accounting information for large companies in particular must be drawn from data compiled according to the international accounting standards, it would be advantageous for the national accounts fraternity to take a greater interest in the three stages of developing international accounting standards and contribute their points of view.
- 21.64 Two particular areas where the IFRS adopts approaches somewhat different from the SNA are in the area of the recognition of holding gains and losses as income and in the recording of provisions and contingent liabilities. Further examination of the IASB position could be helpful in refining the SNA treatment of these issues, if not by accepting the IASB position entirely, at least by showing a reconciliation between their position and that of the SNA.
- 21.65 In addition to the IASB that sets standards for private corporations, the International Public Sector Accounting Standards Board (IPSASB) performs a similar function for government bodies. There is reference to the IPSASB in chapter 22.

Chapter 22: The general government and public sectors

A. Introduction

- 22.1 A major strength of the SNA is the ability to compile accounts for whole sectors, individual units, or some intermediate levels and to aggregate the accounts in different ways. Disaggregating the economy into various sectors and sub-sectors makes it possible to observe and analyse the interactions between the different parts of the economy for purposes of policy-making. Particular interest is given to the general government sector, as defined in chapter 4 and the public sector, as defined in this chapter. Many of the concepts in this chapter have been described in a number of previous chapters. This chapter aims to bring these together, give some more elaboration on how they might be put into practice and gives a link to other systems of economic statistics particularly aimed at government such as the IMF's *Government Finance Statistics Manual 2001*, (*GFSM2001*), the Eurostat *Manual on Debt and Deficit*, and the *External Debt Guide* published by nine international agencies.
- 22.2 The powers, motivation and functions of government are different from those of other sectors. Governments use their powers to pass laws affecting the behaviour of other economic units. They are able to redistribute income and wealth largely by means of taxes and social benefits. The accounts for the general government sector show how goods and services provided to the community as a whole or to individual households are financed mainly by revenue raised. The range of goods and services government provides and the prices charged are based on political and social considerations rather than on profit-maximization.
- 22.3 Fiscal operations are carried out by the government and financed through the budget under the usual budgetary procedures. However, some operations originated by government units may require the intervention of entities which are not ruled by the legal government framework, including public corporations. These actions may be described as quasi-fiscal activities.
- 22.4 Operations related to privatisation and restructuring public corporations, securitisation of assets using the intervention of special purpose entities, including those abroad, may be described in this way. Though such operations are not reported in the budget and might escape the usual control procedures, they may have a significant impact on government revenue and expenditure.
- 22.5 As well as providing services directly, governments often fulfill their public policy objectives through public corporations (for example, railways, airlines, public utilities and public financial corporations). A public corporation may be required to provide services to areas of the economy that would not be covered otherwise by means of subsidised prices. As a result, the public corporation may operate with a reduced profit or at a loss.
- 22.6 In order to analyse the full impact of government on the economy, therefore, it is useful to form a sector consisting of all the units of general government and all public corporations. This composite sector is referred to as the public sector.
- 22.7 For the general government and the public sectors, in addition to the usual sequence of accounts of the SNA, the accounts can be presented in a manner that is more suitable for government finance analysts and policy makers. The latter increasingly use aggregates and balancing items defined in terms of the concepts, definitions, classifications and accounting rules of the SNA so that these aggregates can be related to other macro-economic variables and compared with the same items in other countries. Some of these items, such as saving and net lending or borrowing, are already available in the sequence of accounts. Other items, such as total revenue, total expense and total outlays, the tax burden, the net operating balance and total debt, do not appear as such in the SNA. Aggregates and balancing items of this nature can be used to assess the use of resources to produce individual and collective services, the need to collect taxes and other revenues, the ability of government to borrow and repay debt and the sustainability of the desired level of government operations.
- 22.8 The present chapter gives an overview of this so-called public finance or government finance presentation of the accounts. In order to derive this presentation, the transactions in the SNA current and capital accounts are rearranged to derive aggregates and balancing items of specific interest to the general government and public sectors. For example, a combination of taxes, user fees and grants from other governments can be aggregated to form total revenue, as the amount available to fund government services.
- 22.9 Section B summarizes the identification of government units and other units controlled by government units and explains how those units are grouped into sectors in the SNA.
- 22.10 Section C describes the presentation of government finance statistics.

- 22.11 Section D addresses a number of accounting issues that are unique to, or exceptionally important for, government.
- 22.12 Finally, section E shows how information about the public sector may be prepared in a manner roughly parallel to the government finance statistics presentation described in section D.

1. Data sources

- 22.13 In practice, macroeconomic accounts can seldom be built up by simply aggregating the relevant micro-data. Government is an exception in that the statistics for government units and public corporations are often derived directly from the micro-data in government financial accounting databases. As a result, compilers of statistics for the government units and public corporations sometimes act more as accountants than as statisticians. In particular, the development in recent years of International Public Sector Accounting Standards by the International Public Sector Accounting Standards Board of the International Federation of Accountants has increased the need for clear

guidance on the compilation of government finance statistics so that the detailed accounting data can be transposed correctly into the framework of the SNA. Such guidance is especially important when the government financial accounts are compiled on a cash basis and must be converted to an accrual basis to comply with the accounting basis of the SNA.

2. Consolidation

- 22.14 As a rule, the entries in the SNA are not consolidated. Consolidation involves the elimination of those transactions or debtor/creditor relationships that occur between two transactors belonging to the same institutional sector or sub-sector. As stated in chapter 3, however, consolidation may be relevant for the general government sector. For example, information on debt owed by government units to units outside the general government sector may be more relevant than gross figures that include debt owed to other government units. Guidance on consolidation is provided in Section C.

B. Defining the general government and public sectors

- 22.15 General government units include some NPIs and public enterprises not treated as corporations. The public sector includes general government and public corporations. To identify which NPIs are included in general government, conditions for control by government must be identified. To determine which enterprises are treated as public corporations and which as part of general government, it is necessary to specify conditions for control by government and the concept of economically significant prices.
- 22.16 In order to identify the units falling in both the general government sector and the public sector, it is helpful to begin by re-stating the definition of government units from chapter 4 (paragraphs 4.117 to 118). The discussion on what is meant by control by government and economically significant prices follows.

1. Government units

- 22.17 *Government units are unique kinds of legal entities established by political processes that have legislative, judicial or executive authority over other institutional units within a given area.* Viewed as institutional units, the principal functions of government are to assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes, to redistribute income and wealth by means of transfers, and to engage in non-market production. In general terms:

- a. A government unit usually has the authority to raise funds by collecting taxes or compulsory transfers from other institutional units. A government unit must have

funds of its own either raised by taxing other units or received as transfers from other government units and it must have the authority to disburse some, or all, of such funds in the pursuit of its policy objectives. It must also be able to borrow funds on its own account.

- b. Government units typically make three different kinds of final outlays:
- The first group consists of actual or imputed expenditures on the free provision to the community of collective services such as public administration, defence, law enforcement, public health, etc. that are organized collectively by government and financed out of general taxation or other income.
 - The second group consists of expenditures on the provision of goods or services free, or at prices that are not economically significant, to individual households. These expenditures are deliberately incurred and financed out of taxation or other income by government in the pursuit of its social or political objectives, even though individuals could be charged according to their usage.
 - The third group consists of transfers paid to other institutional units, mostly households, in order to redistribute income or wealth.

- 22.18 Within a single economy when there are different levels of government at central, state or local levels, there may be.

many separate government units. Social security funds also constitute government units.

- 22.19 In all countries, there is an institutional unit of the general government sector important in terms of size and power, in particular the power to exercise control over many other units. This unit is often referred to as national government and the unit covered by the main budget account. It is a single unit of the central government that encompasses the fundamental activities of the national executive, legislative and judiciary powers. Its revenues as well as its expenses and expenditures are normally regulated and controlled by a Ministry of Finance or its functional equivalent by means of a general budget approved by the legislature. Most of the ministries, departments, agencies, boards, commissions, judicial authorities, legislative bodies and other entities that make up this central government unit are not separate institutional units but are part of this primary central government unit. This is because they generally do not have the authority to own assets, incur liabilities, or engage in transactions in their own right. If there are state or local governments, as defined in sub-section 2 below, then it is likely that each of these governments will also have a primary government unit that includes the principal executive, legislative and judicial powers.
- 22.20 In addition, there may be government entities with a separate legal identity and substantial autonomy, including discretion over the volume and composition of their expenses and outlays and a direct source of revenue, such as earmarked taxes. (The terms expense, outlay and revenue are commonly used in the presentation of government accounts. Their definitions and relationship to SNA concepts are covered in section C.) Such entities are often established to carry out specific functions, such as road construction or the non-market production of health or education services. These entities should be treated as separate government units if they maintain full sets of accounts, own goods or assets in their own right, engage in non-market activities for which they are held accountable at law and are able to incur liabilities and enter into contracts. Such units are often referred to as extra-budgetary units because they have separate budgets and any transfers from the main budget account are supplemented by their own sources of revenue. Budgets vary widely among countries and various terms are often used to describe these units. These units are classified in the general government sector to the extent that they are non-market producers and are controlled by another government unit.
- 22.21 A social security fund is a particular kind of government unit that is devoted to the operation of one or more social security schemes. A social security fund must satisfy the general requirements of an institutional unit. That is, it must be separately organized from the other activities of government units, hold its assets and liabilities separately and engage in financial transactions on its own account.
- 22.22 As noted earlier, NPIs that are non-market producers and are controlled by a government are also units of the general government sector. Although they may legally be established to be independent from government, they are considered to be carrying out government policies and are effectively part of government. Governments may choose

to use non-profit institutions rather than government agencies to carry out certain government policies because NPIs may be seen as not subject to political pressures. For example, research and development and the setting and maintenance of standards in fields such as health, safety, the environment and education are areas in which NPIs may be more effective than government agencies.

- 22.23 The case of units engaged in financial activities needs special consideration. As described in paragraph 4.67, a unit set up by government with functions similar to a captive financial institution, if it has no powers to act independently, is restricted in the number of transactions it can engage in and does not carry the risks and rewards associated with the assets and liabilities it holds and is resident in the same economy, it is treated as an integral part of general government and not as separate units. If the unit is non-resident, it is treated as a separate unit but the transactions it undertakes as quasi-fiscal operations are reflected in transactions between that unit and the government. In particular, if the non-resident unit borrows abroad, it is regarded as ending the same amount to government and on the same terms.
- 22.24 At the same time, the general budget of any government level might control market producers satisfying the criteria to be a quasi-corporation as defined below. These units should not be classified in the general government sector, but in the non-financial or financial corporations sector, as appropriate. As public units, they are, however, part of the public sector.

2. NPIs controlled by government

- 22.25 The criteria for deciding whether an NPI is controlled by government or not is described in paragraph 4.92. They are summarised here for convenience.
- 22.26 Control of an NPI is defined as the ability to determine the general policy or programme of the NPI. All NPIs allocated to the general government sector should retain their identity as NPIs in statistical records, to facilitate analysis of the complete set of NPIs. To determine if an NPI is controlled by the government, the following five indicators of control should be considered:
- a. The appointment of officers;
 - b. Other provisions of the enabling instrument;
 - c. Contractual agreements;
 - d. Degree of financing by government; and
 - e. Risk exposure.

A single indicator could be sufficient to establish control in some cases but sometimes a number of separate indicators may collectively indicate control. A decision based on the totality of all indicators will necessarily be judgmental in nature but the judgements should be consistent for similar cases.

3. Corporations controlled by government

22.27 To be classified as a public corporation, a corporation must not only be controlled by another public unit, but it also must be a market producer. Control is defined as the ability to determine the general policy or program of an institutional unit. Government is in a position to exercise control over many kinds of units: miscellaneous extra-budgetary agencies, non-profit institutions and corporations (non-financial or financial). The criteria for control of a corporation are described in paragraphs 4.77 to 4.80. The key factors to be considered are

- a. Ownership of the majority of the voting interest;
- b. Control of the board or other governing body;
- c. Control of the appointment and removal of key personnel;
- d. Control of key committees of the entity;
- e. Golden shares and options;
- f. Regulation and control;
- g. Control by a dominant customer; and
- h. Control attached to borrowing from the government.

Although a single indicator could be sufficient to establish control in some cases, in others, a number of separate indicators may collectively indicate control. A decision based on the totality of all indicators must necessarily be judgmental in nature, but the judgements should be consistent for similar cases.

4. Economically significant prices

22.28 To be considered as a market producer, a unit provides all or most of their output to others at prices that are economically significant. *Economically significant prices are prices that have a significant effect on the amounts that producers are willing to supply and on the amounts purchasers wish to buy. These prices normally result when:*

- a. *The producer has an incentive to adjust supply either with the goal of making a profit in the long run or, at a minimum, covering capital and other costs; and*
- b. *Consumers have the freedom to purchase or not purchase and make the choice on the basis of the prices charged.*

22.29 These conditions usually mean that prices are economically significant if sales cover the majority of the producer's costs and consumers are free to choose whether to buy and how much to buy on the basis of the prices charged. Although there is no prescriptive numerical relationship between the value of output (excluding both taxes and

subsidies on products) and the production costs, one would normally expect the value of goods and services sold (the sales) to average at least half of the production costs over a sustained multi-year period.

22.30 Because economic circumstances vary considerably, it may be desirable to accept different thresholds to achieve consistent economic measurement over time, between units and across countries. In principle, the distinction between market and non-market should be made on a case-by-case basis.

22.31 It can be presumed that prices are economically significant when the producers are private enterprises. When there is public control, however, the unit's prices may be modified for public policy purposes. This may cause difficulties in determining whether the prices are economically significant. Public corporations are often established to provide goods that the market would not produce in the desired quantities or at the desired prices. Even when the sales of such corporations may cover a large portion of their costs, one can expect that they respond to market forces quite differently than would private corporations.

22.32 It is likely that corporations receiving substantial government financial support, or that enjoy other risk reducing factors such as government guarantees, will act differently from corporations without such advantages because their budget constraints are softer. A non-market producer is a producer that faces a very soft budget constraint so that the producer is not likely to respond to changes in the economic conditions in the same way as market producers.

Suppliers of goods and services to government

22.33 The question arises whether units supplying goods and services to government should be treated as market or non-market producers. The essential question is whether the unit provides the goods and services in competition with private producers and the choice of supplier is based on price. This is true whether the supplier is the only supplier and whether the government is the only customer of the supplier.

Definition of sales and costs

22.34 In order to assess whether a producer is a market producer, it is necessary to carry out a comparison between the receipts from sales and the production costs of the products. Sales are measured before any taxes applicable to the products are added. Sales exclude all payments received from government unless they are granted to any producer undertaking the same activity. Own account production is not considered as part of sales in this context.

22.35 Production costs are the sum of intermediate consumption, compensation of employees, consumption of fixed capital and [other] taxes on production. Further, if the unit is to be treated as a market producer, a return to capital is included in production costs. Subsidies on production are not deducted.

5. A decision tree for public units

22.36 Figure 22.1 shows the relationship between the general government sector, the public sector and the other main sectors of the domestic economy.

22.37 As explained in paragraph 4.117, government units are established by political processes and have legislative, judicial or executive authority over other institutional units within a given territory. These units belong to the general government sector and so to the public sector also. In order to determine what other institutional units belong to the general government sector and to the public sector, the decision tree described in figure 4.1 should be followed, using the following sequential questions:

- a. Is the entity of interest an institutional unit? If it is not, but is resident, then it is treated as part of the unit that controls it. If it is not an institutional unit but is non-resident it is treated as a quasi-corporation in the economy in which it is resident.
- b. Is the unit a market or non-market producer according to the criteria given immediately above?
- c. Is the unit controlled by government or another public corporation?

22.38 The answers to the last two questions lead to allocations to sectors as follows:

- a. If the unit is a market producer and not controlled by government it is a part of neither the general government sector nor the public sector.
- b. If the unit is a market producer and controlled by government or another public corporation, it is not part of general government but is part of the public sector.
- c. If the unit is a non-market producer and controlled by government, it is part of the general government sector and the public sector.
- d. If the unit is a non-market producer but not controlled by government, it is treated as an NPISH. It is a part of neither the general government sector nor the public sector.

6. Sub-sectors of the general government sector

22.39 As described in chapter 4, the general government sector may be sub-sectored in either of two ways. One method is to have up to three sub-sectors; one for central government, one for state government and one for local government. In some cases there may be only one or two levels of general government; in some cases more levels of government must be accommodated within the three level structure. The other method of sub-sectoring is to exclude social security funds from each level of government and have a separate sub-sector for social security funds covering all levels of government.

22.40 Greater detail on sub-sectoring general government is given in section F of chapter 4.

7. Sub-sectors of the public sector

22.41 It is possible to construct sub-sectors of the public sector to meet analytical demands. Two methods of sub-sectoring the public sector may be considered. In the first, the public sector could be divided into the general government sector as one sub-sector and the aggregate of all public corporations as a second sub-sector. The public corporations might be further divided into non-financial public corporations, financial public corporations other than the central bank, and the central bank.

22.42 Secondly, the public sector could be divided by level of government in the same way as the general government sector is. In this case, the sub-sectors would be the central government public sector, the state government public sector and the local government public sector. Each of these sub-sectors would consist of the corresponding sub-sector of the general government sector plus all public corporations controlled by a unit of that level of government. If a unit is controlled in part by a unit at one level of government and in part by a unit in another part of government, an allocation must be made to one or the other level of government depending on factors such as the degree of control exercised by each of the controlling units. Social security funds could form a separate sub-sector or could be combined with each level of government. It should be noted that government employee pension funds are excluded from social security funds.

Figure 22.1: The public sector and its relation to institutional sectors

Non-financial corporations	Financial corporations	General government	NPISHs	Households
Public	Public	Public	Private	Private
Private	Private			

8. Borderline cases

22.43 Specific guidance on when certain entities created by government units are to be included in the public sector or not is needed. The entities concerned include quasi-corporations, restructuring agencies, special purpose entities, joint ventures and supranational authorities.

Quasi-corporations

22.44 Quasi-corporations are unincorporated enterprises that function as if they were corporations. Quasi-corporations are treated in the SNA as if they were corporations: that is, as institutional units separate from the units to which they legally belong. Thus, quasi-corporations owned by government units are grouped with corporations in the non-financial or financial corporate sectors.

22.45 The intent behind the concept of a quasi-corporation is to separate from their owners those unincorporated enterprises that are sufficiently self-contained and independent of their owners that they behave in the same way as corporations. If they function like corporations, they must keep complete sets of accounts. Indeed, the existence or possibility to construct a complete set of accounts, including balance sheets, for the enterprise is a necessary condition for it to be treated as a separate institutional unit, otherwise it would not be feasible from an accounting point of view to distinguish the quasi-corporation from its owner.

22.46 In order to be treated as a quasi-corporation the government must allow the management of the enterprise considerable discretion not only with respect to the management of the production process but also the use of funds. Government quasi-corporations must be able to maintain their own working balances and business credit and be able to finance some or all of their capital formation out of their own saving, financial assets or borrowing. The ability to distinguish flows of income and capital between quasi-corporations and government implies that, in practice, their operating and financing activities must be separable from government revenue or finance statistics, despite the fact that they are not separate legal entities. The net operating surplus of a government owned quasi-corporation is not a component of government revenue and the accounts for government record only the flows of income and capital between the quasi-corporation and government.

The case of restructuring agencies

22.47 Some public units are involved in the restructuring of corporations, either non-financial or financial. These corporations may or may not be controlled by government. Restructuring agencies may be long-standing public units or agencies created for this special purpose. Government may fund the restructuring in various ways, either directly, through capital injections (capital transfer, loan or acquisition of equity) or indirectly, through granting guarantees. Units such as restructuring agencies have little output so the usual criterion of whether the output is market or non-market in determining when the unit is part of general government is not sufficient. Instead the following propositions should be considered:

- a. A unit that serves only government is more likely to be included in general government than one that deals with other units also;
- b. A unit that sells financial assets at other than market values is more likely to be in the general government sector than not;
- c. A unit that takes on low risk because it acts with strong public financial support and legally or effectively on behalf of the government is likely to be included within general government.

22.48 Restructuring agencies have been observed in two different contexts.

22.49 The first type of restructuring agency concerns the reorganisation of the public sector and the indirect management of privatisation. Two cases may be considered:

- a. The restructuring unit is a genuine holding company controlling and managing a group of subsidiaries and only a minor part of its activity is dedicated to channelling funds from one subsidiary to another on behalf of the government and for public policy purposes. The unit is classified as a corporation and the transactions made on behalf of the government should be rerouted through the general government.
- b. The restructuring unit, whatever its legal status, acts as a direct agent of the government and is not a market producer. Its main function is to redistribute national income and wealth, channelling funds from one unit to the other. The restructuring unit should be classified in the general government sector.

22.50 The second type of restructuring agency is mainly concerned with impaired assets, mainly in a context of a banking or other financial crisis. Such a restructuring agency must be analysed according to the degree of risk it assumes, considering the degree of financing of the government. Again, two cases may be considered:

- a. The restructuring agency borrows on the market at its own risk to acquire financial or non-financial assets that it actively manages. In this case the unit should be classified as an institution in the financial corporations sector.
- b. The restructuring agency deliberately purchases assets at above market prices with direct or indirect financial support from the government. It is primarily engaged in the redistribution of national income (and wealth), does not act independently of government or place itself at risk and therefore should be classified in the general government sector.

Special purpose entities

22.51 Government units are always considered resident because, by definition, the economic territory of a country consists of the geographic territory administered by a government, as well as some territorial enclaves in the rest of the world,

used by the government for diplomatic, military, scientific, or other purposes, normally with the formal agreement of the government of the country in which they are physically located. These enclaves are part of the general government sector.

- 22.52 Some governments may set up special purpose entities (SPEs) for financial convenience, the SPE being involved in fiscal or quasi-fiscal activities (including securitisation of assets, borrowing, etc.). Resident SPEs that function in only a passive manner relative to general government and that carry out fiscal activities are not regarded as separate institutional units in the SNA and are treated as part of general government regardless of their legal status. If they act independently, acquire assets and incur liabilities on their own behalf, accepting the associated risk, they are treated as separate institutional units and are classified to sector and industry according to their principal activity.
- 22.53 Non-resident SPEs are always classified as separate institutional units in the economy where they are established. When such entities are created, care must be taken to reflect faithfully the fiscal activities of the government. All flows and stock positions between the general government and the non-resident SPE should be recorded when they occur in the accounts for general government and the rest of the world.
- 22.54 A government may create a non-resident SPE to undertake government borrowing or incur government outlays abroad. Even if there are no actual economic flows recorded between the government and the SPE related to these fiscal activities, transactions should be imputed in the accounts of both the government and the rest of the world to reflect the fiscal activities of the government undertaken by the SPE, including borrowing. The special case of securitisation units is discussed in section D.

Joint ventures

- 22.55 Many public units enter into arrangements with private entities or other public units to undertake a variety of activities jointly. The activities could result in market or non-market output. Joint operations can be structured broadly as one of three types: jointly-controlled units, referred to here as joint ventures; jointly-controlled operations; and jointly-controlled assets.
- 22.56 A joint venture involves the establishment of a corporation, partnership or other institutional unit in which each party legally has joint control over the activities of the unit. The units operate in the same way as other units except that a

legal arrangement between the parties establishes joint control over the unit. As an institutional unit, the joint venture may enter into contracts in its own name and raise finance for its own purposes. A joint venture maintains its own accounting records.

- 22.57 The principal question to be considered here is whether the effective economic control of the joint venture establishes a public or a private unit. If a joint venture operates as a non-market producer, it must be the case that government is in effective control and it is classified as part of general government.
- 22.58 If the joint venture is a market producer, it is treated as a public or private corporation according to whether it is or is not controlled by a government unit using the same indicators as described above. Normally, the percentage of ownership will be sufficient to determine control. If each owner owns an equal percentage of the joint venture, the other indicators of control must be considered.
- 22.59 Public units can also enter into joint operating arrangements that do not involve establishing separate institutional units. In this case, there are no units requiring classification, but care must be taken to ensure that the proper ownership of assets is recorded and any sharing arrangements of revenues and expenses are made in accordance with the provisions of the governing contract. For example, two units may agree to be responsible for different stages of a joint production process or one unit may own an asset or a complex of related assets but both units agree to share revenues and expenses.

Supranational authorities

- 22.60 Some countries may be part of an institutional agreement that involves monetary transfers from the member countries to the associated supranational authority and vice versa. The supranational authority also engages in non-market production. In the national accounts of the member countries, the supranational authorities are non-resident institutional units that are part of the rest of the world and can be classified in a specific sub-sector of the rest of the world.
- 22.61 Because the supranational authority is fulfilling the functions of a level of government, it is possible to construct a set of accounts for the authority as if it were a resident unit of the member country even though it remains non-resident. Such an additional account may provide a useful supplement for the analysis of the economic activities of the member countries.

C. The government finance presentation of statistics

1. Introduction

- 22.62 The sequence of accounts for all institutional units and sectors is described in chapters 6 to 13. For the general government sector and, in some cases, the public sector,

experience has shown that an alternative presentation, usually known as a government finance presentation or public finance presentation, of the stocks and flows is better suited to certain analytical requirements. This section gives a very brief overview of the way in which government accounts are presented in, for example, the *GFSM2001*,

which should be consulted for further explanation and discussion.

22.63 Basically the government finance presentation consists of transactions that increase net worth leading to an aggregate called revenue and transactions that decrease net worth leading to the aggregate of expense. In addition there are two main balancing items, net operating balance and net lending. Additional accounts can be shown for other economic flows and balance sheets.

22.64 The following section provides general information about the concepts involved in government finance.

2. Revenue

22.65 A revenue transaction is one that increases net worth. In the government finance presentation of the accounts, the concept of revenue is defined to include all resources acquired by government as recorded in the SNA current accounts and capital transfers receivable recorded in the capital account. Specifically, revenue can be determined as follows:

Revenue

equals Taxes,

plus Social contributions,

plus Other current revenue,

plus Capital transfers receivable.

22.66 Government revenue is usually dominated by compulsory levies in the form of taxes and social contributions. For some levels of government, grants (transfers from other government units and international organizations) are a major source of revenue. Other general categories of revenue include property income, sales of goods and services and miscellaneous transfers other than grants.

22.67 Estimating taxes and social contributions can be quite difficult. The problems involved and the recommended solutions are described in section D. Taxes are recorded in several of the accounts in the sequence of accounts. An advantage of the government finance presentation is that all taxes can be presented as one category of revenue, with sub-classifications according to the basis on which the tax was levied. In particular, both current and capital taxes can be shown under a single heading.

22.68 As non-market producers, most of the output of government units consists of goods and services that are not sold at all or sold for prices that are not economically significant. The distribution of this output does not accord with the general notion of revenue as a transaction that increases net worth. As a result, only actual sales of goods and services and certain imputed sales are included in revenue. Variations in implementation result from decisions about the treatment of changes in inventories, own-account capital formation and sales of goods purchased for resale without transformation, similar to a wholesale or retail trade enterprise.

22.69 Transfers from one government unit to another, often from the central or a state government to a lower level of government, can be quite important sources of government revenue. The government finance presentation allows all of these receipts to be collected into a separate category of revenue, usually labelled grants. Other transfers, including subsidies, normally amount to much less and are reported separately. Property income may or may not be an important source of revenue, but in either case it relates directly to the same category as in the allocation of primary income account.

3. Expense

22.70 An expense transaction is one that decreases net worth. In the government finance presentation of the accounts, the concept of expense is defined to include all uses incurred by government as recorded in the SNA current accounts and capital transfers payable as recorded in the capital account. Specifically, expense can be determined as follows:

Expense

equals Production expenses (compensation of employees, intermediate consumption and consumption of fixed capital),

plus Interest payable,

plus Grants,

plus Social benefits,

plus Other current expenses,

plus Capital transfers payable.

22.71 The government finance presentation differs from the sequence of accounts in a number of ways. The absence of a production account in the government finance presentation makes it impossible to show both the cost structure of own account production and its final use. Thus, for instance, the salaries of employees engaged in own account capital formation are directly classified as acquisitions of capital formation and not as compensation of employees. Conversely, the salaries of employees that produce social benefits in kind are recorded as compensation of employees and not again as (part of) expense on social benefits in kind. The government finance presentation uses some labels and definitions that differ from those in the sequence of accounts and also introduces various simplifications. For example, outlays on FISIM and insurance services are not distinguished from interest and net insurance premiums respectively.

22.72 Governments typically produce many services and some goods and then distribute them free or at prices that are not economically significant. In the SNA, the cost of these goods and services is recorded as a use when they are produced and again as a social benefit or final consumption expenditure when they are distributed. To reduce unnecessary duplication, these costs are recorded only as

production expenses in the government finance presentation.

- 22.73 In principle, retirement benefits paid to government employees are considered the liquidation of a liability rather than a payment of a current expense. However, in practice social benefits as reported in government accounts may include retirement benefits paid to government employees. If these transactions in pension liabilities are to be excluded, the contributions must also be excluded from revenue and the item adjustment for changes in pension entitlements excluded from expense.

4. Outlays

- 22.74 The purchase of a non-financial asset is not an expense because it has no net effect on net worth since it represents the exchange of one type of asset for another or the incurrence of a liability matched by the acquisition of an asset. It is however included in a total called outlays (or sometimes expenditure). Outlays are defined as follows:

Outlays

equals Expense,

plus Acquisitions less disposals of non-financial assets.

The net acquisition of non-financial assets is the sum of the gross capital formation and acquisitions less disposals of non-produced non-financial assets.

5. Net operating balance

- 22.75 The net operating balance is defined as revenue less expense. It is the balance of all transactions that affect net worth. It is equivalent to the changes in net worth due to saving and capital transfers in the SNA sequence of accounts. It provides a measure of the sustainability of government policies as it represents the resources acquired or consumed by the government's current operations. Specifically:

Net operating balance

equals Revenue,

less Expense.

6. Net lending or net borrowing

- 22.76 Net lending or net borrowing can be calculated as the net operating balance less the net acquisition of non-financial assets or total revenue less total outlays. It represents the amount the government has available to lend or must borrow to finance its non-financial operations. Specifically:

Net lending or borrowing

equals Net operating balance,

less Acquisitions less disposals of non-financial assets.

or, alternatively:

Net lending or borrowing

equals Revenue,

less Outlays.

- 22.77 Net lending or net borrowing is also the balancing item of the financial account, although in practice a statistical discrepancy could appear as a result of using different sources and of possible errors and omissions.

- 22.78 For analytical purposes, there is often interest in the relationship between net lending or net borrowing and the change in government liabilities. Attention to government liabilities usually centres on the amount owed to non-government units. There may be a substantial amount of liabilities incurred by one government unit and held by a second government unit. The government finance presentation consolidates all flows and stocks within each sub-sector and sector, and thus all asset and liability positions between units belonging to the same grouping are eliminated. This procedure still allows the separate identification of the debt of the general government sector, the central government sub-sector and the public sector, which are analytically useful.

7. Consolidation

- 22.79 Consolidation is a method of presenting statistics for a set of units as if they constituted a single unit. It involves eliminating transactions and reciprocal stock positions among the units that are being consolidated. Consolidation may be undertaken for any group of units, but it is particularly useful to consolidate the units within the general government sector and its sub-sectors. For example, assessing the overall impact of government operations on the total economy or the sustainability of government operations is more effective when the transactions between different levels of government are eliminated and include only those transactions that are with other sectors or non-residents remain. Consolidation is of particular relevance for transactions such as property income (in particular interest), current and capital transfers and transactions in financial assets and liabilities. For example, the consolidated figures on the ratio of revenue or expense to GDP are more useful for some purposes than the unconsolidated figures.

- 22.80 In the SNA, consolidation is discouraged. Even in the government finance presentation, where consolidation is often useful, it takes place only within a single account where the matching revenue and expense entries appear. For this reason, consolidation adjustments do not affect balancing items. For example, a grant (or transfer) from a central government to a local government unit is consolidated by eliminating the expense from central government and the revenue from the local government, thus leaving the net operating balance of the general government sector unchanged.

- 22.81 Conceptually, the nature of consolidation is to eliminate all flows among the consolidated units, but practicality should

be kept in mind. For example, it may be argued that transactions in the production account, such as output and intermediate consumption of goods and services, should not be consolidated. The decision about the level of detail employed in consolidation should be based on the policy usefulness of the consolidated data and the relative importance of the various types of transactions or stocks.

22.82 The major transactions considered for consolidation, in probable order of importance, are:

- a. Current and capital transfers, such as central government grants to lower levels of government;
- b. Transactions in financial assets and liabilities, such as loans to other governments for policy purposes, acquisitions of government securities by social security units and debt forgiveness;
- c. Interest revenue and expense on intergovernmental holdings of financial assets and liabilities;
- d. Acquisitions and disposals of non-financial assets, including inter-governmental transactions in land, buildings and equipment;
- e. Taxes paid by one government unit or entity to another;
- f. Purchases and sales of goods and services between government units.

22.83 Two types of transactions that appear to take place between two government units are never consolidated because they are re-routed in the SNA to other units. The first is that all employer social contributions, whether paid to social security or to government pension funds, are treated as being paid to the employee as part of compensation and then paid by the employee to the fund. The second is that all taxes withheld by government units from the compensation of their employees, such as pay-as-you-earn

(PAYE) taxes, and paid to other governments should be treated as being paid directly by the employees. The government employer is simply the collecting agent in this case for the second government unit. However, taxes on gross payroll and labour force that are not treated as social contributions should be consolidated when they are significant and can be identified.

22.84 Practical difficulties always arise with consolidation. For example, when a transaction to be consolidated is identified in the records of one unit, the corresponding transaction should appear in the accounts of the counterparty, but it may not be recorded there, it may be recorded in a different period, it may be recorded at a different value, or it may be classified as a different type of transaction. Such errors in the strict application of a quadruple accounting system may exist in relation to any transaction but become apparent when consolidation is attempted.

22.85 Even if transactions between the sub-sectors of government are being consolidated when presenting the accounts for general government as a whole, they should not be eliminated for the accounts of each sub-sector considered separately.

8. Classification of the functions of government

22.86 A classification of transactions on outlays using the Classification of Functions of Government (COFOG) is integral to the government finance presentation. This classification shows the purpose for which outlays are undertaken. These purposes may differ significantly from the administrative arrangements of governments. For example, an administrative unit responsible for health services may undertake some activities with an educational purpose, such as training of medical professionals. A cross classification of the transactions of government by both economic nature and according to functions, as shown for example in *GFSM2001*, is encouraged.

D. Accounting issues particular to the general government and public sectors

22.87 The accounting rules of the SNA apply to general government and public sectors in the same way that they apply to all other sectors of the economy. However, due to the particular nature of the activities of government units, some additional guidance is useful to assist with the treatment of selected transactions. These topics are grouped under four headings:

- a. Clarification of the recording of taxes;
- b. Interaction with non-resident government-type authorities (including taxes paid to another authority);
- c. Issues related to debt;
- d. Interaction with the corporations sectors.

A separate section for each of these headings follows.

1. Clarification of the recording of taxes

Government issued permits

22.88 Taxes are compulsory unrequited payments, in cash or in kind, made by institutional units to the general government exercising its sovereign powers or to a supranational authority. They usually constitute the major part of government revenue, up to 90 per cent in some countries. Taxes are described as unrequited because, in most cases, the government provides nothing commensurate in exchange to the individual unit making the payment. However, there are cases where the government does provide something to the individual unit in return for a

payment in the form of the direct granting of a permit or authorisation. In this case, the payment is part of a mandatory process that ensures proper recognition of ownership or that activities are performed under the strict authorisation by the law. The borderline between when such payments are to be treated as a tax and when as the sale of a service or as the sale of an asset by the government requires additional guidance.

22.89 As noted in chapters 7 and 8 when discussing the difference between a tax and a fee for a service, the borderline is not always clear cut in practice. The following recommendations apply.

- a. The payment is recorded as a tax when a licence or a permit is automatically granted by the government as a mandatory condition to perform an activity or acquire an asset and when the government unit performs little or no work other than a minimum control of the legal capacity of the acquirer to receive the permit (for instance, to confirm the applicant has not been convicted of a crime). The payment of the fee in such a case is not commensurate with the control function that the government exercises.
- b. The payment is recorded as the purchase of a service when, for instance, issuing the licence or permit implies a proper regulatory function of the government by exercising control on the activity, checking the competence or qualifications of the persons concerned, etc. In such a case, unless the payment is out of proportion to the costs of producing the service for all or any of the entities benefiting from the services and is borne by those benefiting.

22.90 Chapter 17 discusses the case of licences issued by government in strictly limited numbers.

- a. If the licence is not one to use a natural resource that qualifies as an asset and which the government controls on behalf of the community, then the payment for the licence is a tax. Notwithstanding, if the licence is legally and practically transferable to a third party, it may still be classified as an asset in the category of contracts, leases and licences.
- b. When the licence is to make use of a natural resource that qualifies as an asset and which the government controls on behalf of the community, payments for the licence are treated either as the acquisition of an asset in the category of contracts, leases or licences or as the payment of rent. The conditions that need to be considered in deciding between the acquisition of an asset and the payment of rent are described in detail in part 5 of chapter 17.

Permission to use a produced asset owned by government is treated as an operating or financial lease as appropriate.

Accrual recording of taxes

22.91 Like all transactions in the system, government transactions should be recorded on an accrual basis. This is true on both the revenue side (for example, taxes and social

contributions) and the expense side (for example, interest charges). Unless both parties to a transaction record their view of the transaction at the same point in time, the accounts do not balance.

22.92 For the government, recording revenue and claims when the underlying event occurs is particularly difficult since government recordings are often on a cash basis. This is especially the case for taxes. Further, when accrued taxes are calculated from assessments of taxes due, there may be a risk of over recording tax revenue. Since tax revenue is a crucial government finance aggregate, such an overstatement must be avoided.

22.93 As explained in chapter 3, the period of time between the moment a tax or any distributive transaction is recorded as accruing in the non-financial accounts and the moment the payment is actually made is bridged by recording an account receivable or payable in the financial account. In cases where a prepayment covering two or more accounting periods is made to government, an account payable is recorded in the financial account of government for the amounts due in future periods. In effect this is a financial advance made to government by the payee. It is a liability of the government and an asset of the payee. This liability is extinguished as the amounts fall due in future periods. However, such a liability is only recognised when the government has a legal or constructive obligation to make a refund to the payer for the pre-paid amounts in the event that they cease to be payable.

22.94 The amount of taxes recorded as accruing recognises that some taxes that may be due in principle are in practice unlikely to be collected. The alternative means of making the necessary adjustments are described in paragraphs 8.58 and 8.59.

Tax credits

22.95 Tax relief can take the form of a tax allowance, an exemption, a deduction or a tax credit. Tax allowances, exemptions and deductions are subtracted from the tax base before the tax liability is computed. A tax credit is an amount subtracted directly from the tax liability due by the beneficiary household or corporation after the liability has been computed. Tax credits can sometimes be payable, in the sense that any amount of the credit that exceeds the tax liability is paid to the beneficiary. In contrast, some tax credits are non-payable (sometimes called wastable) and are limited to the size of the tax liability.

22.96 In *OECD Revenue Statistics* and the *GFSM2001*, a tax relief that is embedded in the tax system is recorded as reducing the tax liability of the tax-payer and therefore as reducing government tax revenue. This is the case for tax allowances, exemptions and deductions, since they enter directly into the calculation of the tax liability. This is also the case for non-payable tax credits as their value to the taxpayer is limited to the size of their tax liability. For payable tax credits, only the excess over the corresponding liability, which corresponds to an outlay by government, is shown as an expense.

22.97 In contrast, in the SNA, the total amounts due as payable tax credits should be considered as expense and recorded as

such at their total amount. In consequence, tax revenue should be recorded without any deduction for payable tax credits.

- 22.98 Treating payable tax credits in this way has no impact on the net borrowing or net lending of the general government, but has an impact on both the tax burden and the ratios of public expense or expenditure to GDP. Because of the need to explain differences in presentation between different statistical systems, however, in the SNA the amounts of payable tax credits that are offset against tax liabilities should also be shown.

2. Transactions with other national, international and supranational organisations

- 22.99 Transactions may occur between government units and either international or supranational organisations, regarded as non-resident units. Even when government acts as the unit channelling funds to or from the non-resident unit, the transactions are recorded as taking place directly with the non-resident unit. Six cases may be considered:

- a. *Taxes*: Some taxes on products, such as import duties, excises and value added taxes, might be payable to a supranational organisation because they are considered to be levied directly by the supranational organisation.
- b. *Subsidies*: Any subsidies paid by a supranational organisation directly to a resident producer are recorded as payable by the supranational organisation rather than a resident government unit.
- c. *Current international cooperation*: This consists of current transfers in cash or in kind between the governments of different countries or between governments and international organizations and includes specifically:
 - Transfers between governments that are used by the recipients to finance current expenditures, including emergency aid after natural disasters; they include transfers in kind in the form of food, clothing, blankets, medicines, etc.;
 - Annual or other regular contributions paid by member governments to international organizations (excluding taxes payable to supranational organizations);
 - Payments by governments or international organizations to other governments to cover the salaries of those technical assistance staff who are resident in the country in which they are working and are employed by the host government.
- d. *Miscellaneous current transfers*: These consist of payments to international or supranational authorities that are regarded as being compulsory but are not taxes.
- e. *Capital transfers*: These include investment grants and other capital transfers, including the counterpart transaction of debt cancellation as a capital transfer

payable and the counterpart of debt assumption as a capital transfer receivable.

- f. *Financial transactions*: Some financial transactions, usually loans, may be recorded when granted by international organisations (for example, the World Bank and the International Monetary Fund) or granted to other governments.

International membership dues

- 22.100 In a few cases, such as the participation in SDRs, membership dues and subscription fees may be such that there is a possibility of repayment, even if unlikely. In this case the payment is treated not as a current transfer but the acquisition of a financial asset.

International assistance

- 22.101 International assistance sometimes takes the form of making goods, such as food and clothing or emergency equipment available following a natural disaster. In the SNA, these are recorded as a transfer in cash followed by a purchase of the goods, which are included in exports of the donor country and imports of the recipient country.
- 22.102 The prices of the goods or services in the receiving country might be quite different from the prices in the donor country. As a general principle, the value of the donation to the recipient should be regarded as equal to the cost of providing the assistance to the recipient. It follows that the prices of the donor country should be used as a basis for the calculation of the value of the donation. In addition to the goods or services themselves, all supplemental costs identifiable with the delivery of the goods or services should be included, such as transportation to the foreign country, delivery within that country, the compensation of government employees of the donating country to prepare the shipments or oversee their delivery, insurance and so forth.

3. Debt and related operations

Debt operations

- 22.103 Debt is a commonly used concept, defined as a specific sub-set of liabilities identified according to the types of financial instruments included or excluded. Generally, debt is defined as all liabilities that require payment or payments of interest or principal by the debtor to the creditor at a date or dates in the future. Consequently, all debt instruments are liabilities, but some liabilities such as shares, equity and financial derivatives are not debt. However, due to specific legal, institutional or practical arrangements some other definitions of debt may also exist. It is therefore useful in all cases to clearly identify the definition of debt according to the instruments included.
- 22.104 Debt operations are often used by government as a means of providing economic aid to other units. The general principle for any cancellation or assumption of debt of one unit by another unit made by mutual agreement is to consider that there is a voluntary transfer of wealth between the two units. This means that the counterpart transaction of

- the liability assumed or of the claim cancelled is a capital transfer.
- 22.105 *Debt assumption* occurs when one unit assumes responsibility for another unit's outstanding liability to a creditor. When a government assumes a debt, in most instances the counterpart transaction of the new government liability is a capital transfer in favour of the defaulting debtor. However, if the government acquires an effective legal claim against the defaulting unit and there is a realistic probability that the claim will be paid, the government may record, as the counterpart transaction of its new liability, the acquisition of a financial asset equal to the present value of the amount expected to be received. If this amount is equal to the liability assumed, no further entries are required. If the amount expected to be recovered is less than the liability assumed, the government records a capital transfer for the difference between the liability incurred and any asset acquired. Similarly, if a government has its debt assumed by another government, then it records a capital transfer receivable, a new debt to the assuming government unit, or a combination of the two.
- 22.106 Debt assumption frequently occurs when a government guarantees a debt of another unit and the guarantee is called (or activated). The treatment of the guarantee itself is described in a later item.
- 22.107 *Debt payments on behalf of others* are similar to debt assumptions, but the unit making the payments does not assume the entire debt. The transactions recorded are similar to those described in paragraph 22.108.
- 22.108 *Debt forgiveness* (or debt cancellation) Debt forgiveness is defined as the voluntary cancellation of all or part of a debt obligation within a contractual arrangement between a creditor and a debtor. Debt forgiveness is distinguished from debt write-off by the agreement between the parties and the intention to convey a benefit, rather than unilateral recognition by the creditor that the amount is unlikely to be collected. Debt forgiven may include all or part of the principal outstanding, inclusive of any accrued interest arrears (interest that fell due in the past) and any other interest costs that have accrued. Debt forgiveness does not arise from the cancellation of future interest payments that have not yet fallen due and have not yet accrued.
- 22.109 Debt forgiveness is recorded as a capital transfer received by the debtor from the creditor at the time specified in the agreement that the debt forgiveness takes effect with a repayment of the debtor's liability in the financial account and a matching a receipt by the creditor. In the balance sheet, the debtor's liability and creditor's asset are reduced by the amount of debt that is forgiven. Valuation of the amount of the debt forgiven is at market prices for flows and stocks, except for loans where the nominal value is used.
- 22.110 *Debt rescheduling and refinancing* involve a change in an existing debt contract and replacement by a new debt contract, generally with extended debt service payments. Debt rescheduling involves rearrangements on the same type of instrument, with the same principal value and the same creditor as with the old debt. Refinancing entails a different debt instrument, generally at different value and may be with a creditor different than that from the old debt.
- 22.111 *Debt rescheduling* is a bilateral arrangement between the debtor and the creditor that constitutes a formal deferment of debt-service payments and the application of new and generally extended maturities. The new terms normally include one or more of the following elements: extending repayment periods, reductions in the contracted interest rate, adding or extending grace periods for the repayment of principal, fixing the exchange rate at favourable levels for foreign currency debt, and rescheduling the payment of arrears, if any.
- 22.112 The treatment for debt rescheduling is that the existing contract is extinguished and a new contract created. The applicable existing debt is recorded as being repaid and a new debt instrument (or instruments) created with the new terms and conditions.
- 22.113 The transaction is recorded at the time both parties record the change in terms in their books, and is valued at the value of the new debt (which, under a debt rescheduling, is the same value as that of the old debt).
- 22.114 *Debt refinancing* involves the replacement of an existing debt instrument or instruments, including any arrears, with a new debt instrument or instruments. It can involve the exchange of the same type of debt instrument (loan for a loan), or different types of debt instruments (loan for a bond). For instance, the public sector may convert various export credit debts into a single loan. Also, debt refinancing can be said to have taken place when a debtor exchanges existing bonds for new bonds through exchange offers given by its creditor (rather than a change in terms and conditions).
- 22.115 The treatment of debt refinancing transactions is similar to debt rescheduling to the extent that the debt being refinanced is extinguished and replaced with a new financial instrument or instruments. However, unlike in rescheduling, the old debt is extinguished at the value of the new debt instrument except for non-marketable debt owed. The balance sheet reflects the transactions extinguishing the old debt instrument and the creation of the new debt instrument along with any valuation change recorded in the revaluation account.
- 22.116 *Debt rescheduling (or refinancing)* is an agreement to alter the terms and conditions for servicing an existing debt, usually on more favourable terms for the debtor. The debt instrument that is being rescheduled is considered to be extinguished and replaced by a new debt instrument with the new terms and conditions. If there is a difference in value between the extinguished debt instrument and the new debt instrument, it is a type of debt forgiveness by government and a capital transfer is necessary to account for the difference.
- 22.117 *A debt-for-equity swap* occurs when a creditor agrees to replace a debt owed to it by an equity security. For example, the government may agree with a public enterprise to accept an increase in its equity stake in the public enterprises instead of making a loan. If there is a difference in value between the extinguished debt

instrument and the new debt instrument, it is a type of debt forgiveness by government and a capital transfer is necessary to account for the difference.

22.118

22.119 *Debt write-offs* refer to unilateral reductions by a creditor in the amount owed to it, usually when a creditor concludes that a debt obligation has no value or a reduced value because part or all of the debt is not going to be paid. Frequently the debtor is bankrupt or has disappeared. An other change in the volume of assets is used to record the write-off. Unlike the case to debt assumption and debt forgiveness, no capital transfer is recorded and therefore there is no impact on net lending or borrowing of government.

22.120 *Debt arrears* occur when a debtor misses an interest or principal payment. The debt instrument will not normally change, but knowing the amount of debts in arrears can provide important information. When feasible and important, therefore, each category of debt should be divided into those instruments that are in arrears and those not in arrears.

22.121 *Debt defeasance* allows a debtor (whose debts are in the form generally of debt securities and loans) to remove certain liabilities from the balance sheet by pairing irrevocably assets of equal value to the liabilities. Defeasance may be carried out either by placing the paired assets and liabilities in a trust account within the institutional unit concerned, or by transferring the paired assets and liabilities to another institutional unit. In the former case, there are no transactions with respect to defeasance and the assets and liabilities should not be excluded from the balance sheet of the unit. In the latter case, the assets and liabilities in question are moved to the balance sheet of second unit as long as this unit is recognized as an institutional unit in the SNA. Often the unit to which the paired assets and liabilities may be moved is an SPE. The conditions under which an SPE is considered to be an institutional unit are describe in paragraphs 4.55 to 4.67. If the SPE is purely passive it is not considered to be an institutional unit and the assets and liabilities concerned do not move off-balance sheet.

22.122 *Debt issued on concessional terms*. There is no precise definition of concessional loans, but it is generally accepted that they occur when units lend to other units and the contractual interest rate is intentionally set below the market interest rate that otherwise would apply. The degree of concessional interest can be enhanced with grace periods, frequencies of payments and a maturity period favourable to the debtor. Since the terms of a concessional loan are more favourable to the debtor than market conditions would otherwise permit, concessional loans effectively include a transfer from the creditor to the debtor.

22.123 Loans with concessional interest rates to a foreign government could be seen as providing a current transfer equal to the difference between the actual interest and the market equivalent interest. If such a transfer were recognized, it would usually be recorded as current international cooperation, and the interest recorded would be adjusted by the same amount. However, the means of

incorporating the impact within the SNA and international accounts have not been fully developed, although various alternatives have been advanced. Accordingly, until the appropriate treatment of concessional debt is agreed, information on concessional debt should be provided in supplementary tables.

22.124 Further details on the recording of debt operations can be found in *GFSM2001*, the Eurostat *Manual on Debt and Deficit*, the *External Debt Guide* and Appendix 2 of *BPM6*.

Government guarantees

22.125 Three types of guarantees are recognised in the SNA, standardized guarantees, guarantees that meet the definition of a financial derivative and one-off guarantees. The recording of standardized guarantees (for government and other units offering such guarantees) is described in part 3 of chapter 17.

22.126 Guarantees that meet the definition of financial derivatives are those that are actively traded on financial markets, such as credit default swaps. The derivative is based on the risk of default of a reference instrument and so is not actually linked to an individual loan or bond. They have no effect on the net lending or borrowing of government.

22.127 One-off guarantees exist where the conditions of the loan or the security are so particular that it is not possible for the degree of risk associated with the loan to be calculated with any degree of accuracy. In most cases, the granting of a one-off guarantee is considered a contingency and is not recorded as a liability for the guarantor. Payments under a one-off guarantee are recorded when the call on the guarantee is made or when the fact that such a call will be made is very well established. As an exception, one-off guarantees granted by governments to corporations in certain financially distressed situations and with a very high likelihood to be called are treated as if these guarantees were called at inception. A particular case in point is a bailout by government, which is discussed below.

22.128 The activation of a one-off guarantee is treated in the same way as a debt assumption. The original debt is liquidated and a new debt is created between the guarantor and the creditor. In most instances, the guarantor is deemed to make a capital transfer to the original debtor, unless the guarantor acquires an effective claim on the creditor, in which case it leads to the recognition of a financial asset (a liability of the debtor).

22.129 The activation of a guarantee may or may not require repayment of debt at once. The accrual principle for time of recording requires that the total amount of debt assumed is recorded at the time the guarantee is activated and the debt assumed. Repayments of principal by the guarantor (the new debtor) and interest accruals on the assumed debt are recorded as these flows occur.

Securitisation

22.130 Securitisation occurs when a unit, named the originator, conveys the ownership rights over financial or non-financial assets or the right to receive specific future flows,

to another unit, named the securitisation unit. In return, the securitisation unit pays an amount to the originator from its own source of financing. The securitisation unit is often a special purpose entity. The securitisation unit obtains its own financing by issuing securities using the assets or rights to future flows transferred by the originator as collateral. Government units have made widespread use of this source of finance.

22.131 The first case involving government to be considered is when the securitisation comprises the sale (or the transfer) of an asset. (In the SNA, a stream of future tax receipts is not recognized as a government asset that could be used for securitisation.) The key question for how to record the transaction properly is to determine whether the transfer of the asset is a sale of an existing asset to the securitisation unit or a way to borrow using possible future flows of revenues as collateral. In order to be treated as a sale, the asset must already appear in the balance sheet of the government and there must be a full change of ownership to the securitisation unit as evidenced by the transfer of the risks and rewards linked to the asset. The following factors must also be considered:

- a. The purchase price should equal the current market price to be a sale.
- b. If the government, as the originator, guarantees repayment of any debt related to the asset incurred by the securitisation unit, it is unlikely that all of the risks associated with the asset have been transferred.

22.132 The second case involving government is the securitisation of future revenue flows. IN the SNA, a stream of future incomes is not recognised as an asset. In most of these cases, it is not the rights to the income that are used as collateral, but the obligation of the government to use a sufficient amount of the future income to repay the borrowing in full. If more income is earned than is needed to repay the borrowing, the excess is retained by the government. Because receipts of future income are uncertain, “rights” to considerably more income than is necessary to repay the borrowing of the securitisation unit are usually used as collateral. The amount received by the government as the originator is treated as borrowing, usually in the form of a loan.

Government assumption of pension liabilities

22.133 On occasion, large one-off transactions may occur between a government and another unit, usually a public corporation, linked to pension reforms or to privatizations of public corporations. The goal may be to make a public corporation competitive and financially more attractive by removing existing pension liabilities from the balance sheet of the public corporation. This goal is achieved by the government assuming the liability in question in exchange for a cash payment of the same value. If the cash payment is not equal in value to the liability incurred, a capital transfer is recorded for the difference.

4. Relations of general government with corporations

Earnings from equity investment

22.134 Any government unit has a close relationship with any public corporation or quasi-corporation that it controls. Despite this close relationship, flows related to the equity investment between a government unit and its controlled corporation are treated in the same way as flows between any corporation and its owners. An equity investment is the action by economic agents of placing funds at the disposal of corporations. The amounts invested, described as equity capital, are part of the own funds of the corporation and the corporation has a large degree of freedom in the way in which they are used. In return, the owners receive shares or some other form of equity securities. These financial assets represent property rights on corporations and quasi-corporations and entitle the holders to:

- a. A share of any dividends (or withdrawals of income from quasi-corporations) paid at the discretion of the corporation but not to a fixed and predetermined income, and
- b. A share in the net assets of the corporation in the event of its liquidation.

Dividends versus withdrawal of equity

22.135 It is important to distinguish between the return of the equity investment by the corporation to its owner and the payment of income in the form of dividends. Only regular distributions from the entrepreneurial income are recorded as property income either as dividends or withdrawals of income from quasi-corporations. Large and irregular payments, based on accumulated reserves or sale of assets are recorded as a withdrawal of equity.

Disposal of assets

22.136 The sale of non-financial assets owned by public corporations, such as buildings and land, does not by itself constitute privatization and is recorded in the capital account of the corporations sector as disposals of fixed assets or other non-financial assets. However, if the public corporation sells assets and then surrenders the proceeds of such a sale to general government, this is recorded as a withdrawal of government’s equity in the corporation. A withdrawal of equity is also recorded in the public corporation disposes of a financial asset and surrenders the proceeds to government.

Acquisition of equity, capital transfers and subsidies

22.137 Subsidies are current transfers, usually made on a regular basis, from government to corporations designed to influence their levels of production, the prices at which their outputs are sold or the remuneration of the corporations. Payments to public corporations on a large and irregular basis (often called “capital injections” in the

media) are not subsidies. They are treated as either a capital transfer or the acquisition of equity:

- a. Payments to cover cumulated losses arising as a result of public policy purposes should be recorded as a capital transfer.
- b. A payment made in a commercial or competitive context may be treated as an acquisition of equity. This should be limited to cases where the government is acting similarly to a private shareholder in that it has a valid expectation of a cash return in the form of future property income. In this case, the corporation will probably issue new shares to the government and enjoy a large degree of freedom over how the funds provided are used.

Treating the payments as the acquisition of equity depends on evidence of the corporation's profitability and its ability to pay dividends in future.

Privatization

22.138 Privatization is usually understood to consist of the sale of shares or other equity held by government in a public corporation to other units. Often these other units are outside the public sector but they need not be; for example, a public corporation may buy shares in a unit newly separated from government. Such sales are purely financial transactions, recorded in the financial account of the SNA. The assets owned by the public corporation continue to belong to the corporation; it is the ownership of the corporation itself, as represented by the ownership of the equity in it, that changes hands. In effect, the government's claim on the public corporation reduces because government exchanges shares or equity in the public corporation for cash or other financial assets. The cost of any financial services that government must purchase to achieve the sale are treated as an expense that should be recorded as intermediate consumption by general government in the SNA.

22.139 Privatization may be organized in more complicated institutional arrangements. For instance, some or all of the non-financial assets of a public corporation may be sold by a public holding company, or other public agency, controlled by a government and all or part of the proceeds paid to the government. In such cases, the public corporation will record the disposal of non-financial assets in the capital account, while the payment to the government of the proceeds from the sale is recorded as a withdrawal of equity.

22.140 The case where the privatisation is arranged via a restructuring agency is discussed in paragraphs 22.49 to 22.52.

Nationalization

22.141 Nationalization is a process whereby government takes control of specific assets or an entire corporation, usually by acquiring the majority or the whole stake in the corporation. The recording of flows differs according to the way the government takes control.

- a. *Appropriation or confiscation*: the change in ownership of assets is not the result of a transaction made by mutual agreement. There is no payment to the owners (or the compensation is not commensurate with the fair value of the assets). The difference between the market value of the assets acquired and any compensation provided is recorded as an uncompensated seizure in the other changes in the volume of assets account.
- b. *Purchase of shares*: the government buys all or some of the shares in the corporation at a price that is the market price or very close to it. There is usually a legal context for the transaction which ensures that it is made by mutual agreement, even though the former owner may have little choice whether or not to accept the offer, or to negotiate the price. The purchase of shares is a financial transaction recorded in the financial account.

Bailouts

22.142 A bailout is a term meaning a rescue from financial distress. It is often used when a government unit provides either short-term financial assistance to a corporation to help it survive a period of financial difficulty or a more permanent injection of financial resources to help recapitalize the corporation. A bailout may in effect constitute another means of nationalisation if the government acquires control of the corporation it is bailing out. Bailouts of financial institutions are particularly noteworthy. Bailouts are likely to involve highly publicized one-time transactions involving large amounts and are therefore easy to identify.

22.143 Intervention of general government may take various forms. For instance:

- a. A government might provide equity financing on exceptionally favourable terms.
- b. A government might purchase assets from the enterprise to be assisted for prices greater than their true market value.
- c. A government might create a special purpose entity or other type of public body to finance or to manage the sales of assets or liabilities of the enterprise to be assisted.

22.144 In most of these cases, the assistance provided by government to the unit suffering financial distress is recorded as a capital transfer. In determining the magnitude of the capital transfers, the following points need to be taken into account.

22.145 If the government buys assets from the enterprise to be assisted, the amount paid will normally be more than the true market price of the assets. The purchase of assets other than loans should be recorded at the actual market price and a capital transfer should be recorded for the difference between the market price and the total amount paid.

22.146 Governments often buy loans from financial institutions during a bailout. Unless a loan becomes tradeable and is traded with established market value, it is always recorded

in the SNA at nominal value. Only if a market for the loans develops and the loans are regularly traded there are they reclassified as securities and recorded at market value.

22.147 When a government buys a loan at nominal value when the fair value is much less, no capital transfer for the difference in value is recorded. However, if there is reliable information that some loans are irrecoverable, their value is reduced to zero as an other volume change in the balance sheet of the corporation and a capital transfer should be recorded from government to the corporation for their former nominal value. If there is some possibility that some part of the loan may be recoverable in the future, the loans are re-classified (at their zero value) from the balance sheet of the corporation to that of the government at the time the capital transfer is recorded. If the value of the loans subsequently increases, this is shown as a revaluation item in the government's balance sheet.

22.148 As part of a bailout, government may extend the range of guarantees it is prepared to offer. These guarantees should be recorded as described above in paragraphs 2.133 to 22.140 according to whether this is a one-off guarantee or part of a standardised guarantee scheme.

22.149 If a public institutional unit is created by government simply to assume management of the bailout, the unit should be classified in the general government sector. If the new unit has other functions and the bailout is a temporary task, its classification as a government unit or a public corporation is made following the general rules as described in the section above on restructuring agencies. Units that purchase financial assets from distressed financial corporations with the objective of selling them in an orderly manner cannot be considered financial intermediaries. If the unit has been created by government for this specific task, it is classified in the general government sector.

Restructuring, mergers and reclassifications

22.150 When a public corporation is restructured, financial assets and liabilities may appear or disappear reflecting new financial relationships. These changes are recorded as changes in sector classification and structure in the other changes in the volume of assets account. An example of such a restructuring is when a corporation is split into two or more institutional units and new financial assets and liabilities are created.

22.151 The purchase of shares and other equity of a corporation as part of a merger, on the other hand, is to be recorded as a financial transaction between the purchasing corporation and the previous owner.

22.152 Any change in the classification of assets and liabilities not related to restructuring or changes in sector classification is recorded as a change in the classification of assets or liabilities in the other changes in the volume of assets account.

Transactions with the central bank

22.153 It is appropriate to begin by recalling the definition of the central bank and associated explanations from chapter 4. The central bank is the national financial institution that exercises control over key aspects of the financial system. In general, the following financial institutions are classified in this sub-sector:

- a. The national central bank, including where it is part of a system of central banks; and
- b. Currency boards or independent currency authorities that issue national currency that is fully backed by foreign exchange reserves.
- c. Central monetary agencies of essentially public origin (for example, agencies managing foreign exchange or issuing bank notes and coin) that keep a complete set of accounts but are not classified as part of central government. Supervisory authorities that are separate institutional units are not included with the central bank but are included with financial auxiliaries.

As long as the central bank is a separate institutional unit, it is always allocated to the financial corporations sector even if it is primarily a non-market producer.

22.154 While the bank may be legally independent of government, it is charged with carrying out government policy under the legislation establishing it. The central bank is always treated as being controlled by government and is included in the financial corporations sector as a public corporation. It is the single exception to the rule that a unit whose output is primarily non-market is not to be classified as a corporation

22.155 Two types of payments by the central bank to the government require clarification:

- a. Payments made on a regular basis, usually in the form of dividends, based on the current activity of the central bank (such as managing foreign exchange reserves). These payments are recorded as dividends so long as they are not abnormally higher than the sum of net interest and net commissions receivable by the bank. Amounts in excess of this sum are to be recorded as a withdrawal of equity.
- b. Exceptional payments following sales or revaluation of reserve assets. These payments should be recorded as a withdrawal of equity. The rationale is that these assets are being managed as the economic property of the nation and not of the bank itself. Their valuation affects the equity liability of the central bank and the equity assets of the government. Holding gains on the reserve assets (assets of the central bank) have a counterpart in the equity liability of the central bank and the equity assets of the central government.

22.156 The measurement of output of the central bank is described in paragraphs 6.151 to 6.156. As part of government policy, the central bank may pay interest on deposits at artificially

high or low rates. The treatment of interest payments in this case is described in paragraphs 7.121 to 7.125.

Public-private partnerships

22.157 Public-private partnerships are long-term contracts between two units, whereby one unit acquires or builds an asset or set of assets, operates it for period and then hands the asset over to a second unit. Such arrangements are usually between a private enterprise and government but other combinations are possible, with a public corporation as either party or a private NPI as the second party. These schemes are described variously as Public-Private Partnerships (PPPs), Private Finance Initiatives (PFIs), Build, Own, Operate, Transfer schemes (BOOTs) and so on. The basic principles of all are the same and are treated the same way in the SNA.

22.158 Governments engage in PPPs for a variety of reasons, including the hope that private management may lead to more efficient production and that access to a broader range of financial sources can be obtained. In the contract period the PPP contractor has the economic ownership. Once the contract period is over, the government has both economic and legal ownership. It is not easy to establish which unit is the legal owner of an asset during the contract period or how the implicit transactions when its economic ownership changes should be recorded. There may be an advance agreement on the timing of the for the transfer of economic ownership part way through the service lives of the assets, under agreed terms that do not reflect market prices of the assets. In consequence, some actual transactions may have to be partitioned to reveal their true economic character.

22.159 PPPs vary greatly. A general description that includes the most common arrangement is as follows. A private enterprise agrees to acquire a complex of fixed assets and then to use those assets together with other production inputs to produce services. Those services may be delivered to the government, either for use as an input to its own production (for example, motor vehicle maintenance services) or for distribution to the public without payment (for example, education services), in which case the government will make periodic payments during the contract period. The private enterprise expects to recover its costs and earn an adequate rate of return on its investment from those payments. Alternatively, the private enterprise may sell the services to the public (for example, a toll road), with the price regulated by the government but set at a level that the private enterprise expects will allow it to recover its costs and earn an adequate rate of return on its investment. At the end of the contract period, the government may gain legal and economic ownership of the assets, possibly without payment. There can be many variations in PPP contracts regarding the disposition of the assets at the end of the contract, the required operation and maintenance of the assets during the contract, the price, quality and volume of services produced and so forth.

22.160 The private enterprise is responsible for acquiring the fixed assets, although the acquisition is often aided by the backing of the government. The contract may require, however, that the assets meet the design, quality and capacity specified by the government, be used in the manner specified by the government to produce the

services required by the contract and be maintained in accordance with standards specified by the government. Furthermore, the assets typically have service lives much longer than the contract period so that the government will control the assets, bear the risks and receive the rewards for a major portion of the assets' service lives. Thus, it frequently is not obvious whether the private enterprise or the government controls the assets over their service lives or will bear the majority of the risks and reap the majority of the rewards.

22.161 As with leases, the economic owner of the assets related to a PPP is determined by assessing which unit bears the majority of the risks and which unit is expected to receive a majority of the rewards of the assets. The factors that need to be considered in making this assessment can be broadly divided into two groups, those associated with acquiring the asset and those associated with using it in production. Some of the risks associated with acquiring the asset are:

- a. The degree to which the government controls the design, quality, size and maintenance of the assets;
- b. Construction risk, which includes the possibility of additional costs resulting from late delivery, not meeting specifications or building codes and environmental and other risks requiring payments to third parties.

Some of the risks associated with using the asset in production are:

- a. Supply risk, which covers the degree to which the government is able to control the services produced, the units to which the services are provided and the prices of the services produced;
- b. Demand risk, which includes the possibility that the demand for the services, either from government or from the public at large in the case of a paying service is higher or lower than expected;
- c. Residual value and obsolescence risk, which includes the risk that the value of the asset will differ from any price agreed for the transfer of the asset to government at the end of the contract period;
- d. Availability risk, which includes the possibility of additional costs or the incurrence of penalties because the volume and/or quality of the services do not meet the standards specified in the contract.

22.162 The relative importance of each factor is likely to vary with each PPP. It is not possible to state prescriptive rules that will be applicable to every situation in a satisfactory way. The provisions of each PPP must be evaluated in order to decide which unit is the legal owner.

22.163 Likewise, the complexity and variety of PPP contracts preclude the enumeration of detailed rules governing the transactions to be recorded concerning the control and use of the assets. Instead, all of the facts and circumstances of each contract should be considered and then an accounting treatment should be selected that best brings out the

underlying economic relationships. There are, however, a few common difficulties.

- 22.164 If the private enterprise is assessed as being the legal owner during the contract period and if, as usual, the government obtains legal and economic ownership at the end of the contract without an explicit payment, a transaction must be recorded for the government's acquisition of the assets. One general approach is for the government gradually to build up a financial claim and the private unit gradually to accrue a corresponding liability such that the value of both are expected to be equal to the residual value of the assets at the end of the contract period. Implementing this approach requires existing monetary transactions to be rearranged or new transactions to be constructed using assumptions about expected asset values and interest rates.
- 22.165 An alternative approach is to record the change of legal and economic ownership as a capital transfer. The capital transfer approach does not reflect the underlying economic reality as well, but data limitations, uncertainty about the

expected residual value of the assets and contract provisions allowing various options to be exercised by either party could make recording a capital transfer acceptable on pragmatic grounds.

- 22.166 If the government is assessed as being the legal owner during the contract period but does not make any explicit payment at the beginning of the contract, a transaction must be imputed to cover the acquisition. The most common suggestion is that the acquisition be made via an imputed financial lease because of the similarity with actual financial leases. The implementation of that choice, however, depends on the specific contract provisions, how they are interpreted and possibly other factors. For example, a loan could be imputed and actual government payments to the private unit, if they exist, could be partitioned so that a portion of each payment represents repayment of the loan. If there are no actual government payments, then non-monetary transactions could be constructed for the loan payments.

E. The public sector presentation of statistics

- 22.167 As described in section B, the public sector includes all resident institutional units controlled directly or indirectly by resident government units. In other words, the public sector consists of all units of the general government sector plus all resident public corporations.
- 22.168 Statistics for the public sector can be presented both within the sequence of accounts for institutional units and sectors or within the same government finance framework as described in Section C of this chapter, depending on the use to be made of the statistics.
- 22.169 With either method of presentation, it is useful to show both sub-sectors of the public sector and the entire public sector, with the total public sector statistics shown both unconsolidated and consolidated. For example, one column might have the statistics for the general government sector, a second column for the aggregate of all public corporations and a third column would have the unconsolidated totals for the entire public sector. Depending on the flows involved, a fourth column could show the amounts to be eliminated by consolidation and a fifth column could show the consolidated totals for the entire public sector.
- 22.170 Not all flows need to be consolidated for the public sector. Because the public sector is a mixture of market and non-market producers, most components of revenue and

expense will have limited economic meaning for the public sector. Elements of the financial account and the balance sheet are the most likely candidates to be consolidated.

- 22.171 The same balancing items as stressed for the general government sector are likely to be important for the public sector. The public sector net operating balance (or saving in the sequence of accounts) will indicate trends in net worth resulting from the public sector's current operations. This is particularly useful if there are public corporations operating at significant losses.
- 22.172 Net lending or net borrowing for the total public sector is known as the public sector borrowing requirement. Net lending indicates the net financing supplied to the rest of the economy or the rest of the world; net borrowing indicates net financing obtained by the public sector from the rest of the economy or the rest of the world.
- 22.173 The balance sheet provides information of net worth, determined as the value of total assets less total liabilities and financial net worth, determined as the difference between the value of total financial assets and the total liabilities. The latter is often cited because of the public sector's influence on the financial system and because it is often difficult to value government-unique non-financial assets.

Chapter 23: Non-profit institutions

A. Introduction

1. Non-profit institutions in the SNA

- 23.1 Non-profit institutions (NPIs) play a somewhat unusual role in the SNA. Like corporations, some NPIs produce goods and services for sale with the intention to cover costs, that is to say as market production. In common with other market producers, they cannot undertake final consumption. Like government units, some NPIs are non-market producers and make their output available free or at prices that are not economically significant to individual households or the community at large. Some of these non-market NPIs are controlled by government and included in the general government sector but those that are not are grouped in their own sector, the non-profit institutions serving households (NPISHs).
- 23.2 Most NPIs are separately identified institutional units. That is, they are capable in their own right of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities. It follows that a complete set of accounts for the unit, including a balance sheet of assets and liabilities, exists or could be constructed if required. In some countries, especially developing countries, an NPI may be an informal entity whose existence is recognized by society but does not have any legal status.
- 23.3 The distinguishing feature that identifies an NPI is that its status does not permit it to be a source of income, profit or other financial gain for the units that establish, control or finance it. An NPI may make a profit, it may be exempt from taxes, it may have a charitable purpose but none of these are determining characteristics. The only essential criterion for a unit to be treated as an NPI is that it may not be a source of income, profit or financial gain to its owners.
- 23.4 All NPIs produce goods and services, most often services, intended for consumption by households or by corporations. Some NPIs produce services for corporations typically charging fees (sometimes described as subscriptions) intended to cover costs. They are often set up as associations that provide services exclusively to members. The level of fees charged, the price of membership, typically satisfies the SNA criteria of economically significant prices. For this reason these NPIs are allocated to the corporations sectors. An example of an NPI serving corporations is a trade association.
- 23.5 An NPI may be controlled by government in that government may appoint its officers and determine the objectives of the institution. It is treated as an institutional unit separate from government because it has independent control of its budget (even if much or all of the funding comes from government) but it is allocated to the general government institutional sector. Such institutions provide individual and collective services. An example is standard-setting organisations.
- 23.6 Other NPIs exist to provide goods and services to households either in return for a fee or free. When fees are charged, these may or may not cover a large proportion of the NPI's costs and therefore may or may not be deemed to be economically significant prices. When the fees charged are regarded as being economically significant, the NPIs concerned are treated as providing market services and are allocated to the corporations sectors. Otherwise the NPIs fall into the NPISHs institutional sector.
- 23.7 Thus it is possible to categorize NPIs as follows:
- a. those providing services to corporations whose output is sold to the corporations concerned and treated as intermediate consumption;
 - b. those that are controlled by government and provide individual or collective services on a non-market basis;
 - c. those providing goods and services to households individually or collectively, divided between:
 - those that provide goods and services at economically significant prices;
 - those providing services free or at prices that are not economically significant.
- 23.8 Those NPIs that fall under the first bullet point in category (c) are allocated to the corporations sectors and expenditure on their output is treated as final consumption expenditure by households. Those that fall under the second bullet point under (c) are allocated to the NPISH sector and their output is treated as actual final consumption of households delivered as social transfers in kind.
- 23.9 There are thus a number of sectors where NPIs appear in the SNA; in both the financial and non-financial corporations sectors, in the general government sector and in the separate sector of NPISHs. Sub-sectors of the first three sectors are established to contain NPIs only. Those NPIs in the corporations sectors may be further sub-divided to show those that are foreign controlled, those that are

publicly controlled and those that are subject to national private control. The NPIs in the general government sector may be sub-divided by level of government; central, state and local government. NPISHs may be divided between those that are foreign controlled and those subject to national private control.

2. A satellite account for NPIs

23.10 For some time, there has been growing interest in studying the contribution to the economy of institutions such as NPIs because they are seen to constitute a significant presence of growing economic and policy interest. Such institutions are variously referred to as “non-profit”, “voluntary”, “civil society” or “non-governmental” organizations and collectively as the “third”, “voluntary”, “non-profit” or “independent” sector. Such institutions attract interest because their operating characteristics are somewhat different from those of other units in the corporations and government sectors. Specifically:

- a. They are not permitted to distribute profits;
- b. They may produce public goods as well as private goods;
- c. They may receive as much or more from current transfers as they receive from selling their output;

- d. They may depend on volunteer labour as well as paid labour;
- e. Because they cannot pay dividends, they cannot attract equity capital in competition with corporations;
- f. They may be eligible for special tax advantages in many countries;
- g. They typically have special legal provisions covering the governance, reporting requirements, political participation and so on;
- h. Although they provide public goods and services, they do not have the same powers or restrictions as government in deciding what these goods and services should be and how they should be allocated.

23.11 Arising out of this interest, a satellite account for NPIs has been developed as described in the *Handbook on Non-Profit Institutions in the System of National Accounts*. Sections B and C describe the essential features of this satellite account. Section D discusses some other aspects of NPIs that it may be desirable to explore in addition to the satellite account.

B. The units included in the NPI satellite account

23.12 The starting point for the satellite account is to identify the units of interest. As will be seen, the units chosen coincide largely (but not quite entirely) with the units described as NPIs in the SNA. One way of approaching a satellite account, therefore, would be to consider compiling the complete sequence of accounts for a sector made up of the sub-sectors of NPIs in the non-financial corporations sector, the financial corporations sector, the general government sector and NPISHs. However, because many of those interested in accounts for NPIs only do not come from an SNA background, the handbook starts by identifying characteristics of the units of interest.

1. Determining characteristics of units for the satellite account

23.13 Various alternative concepts have been put forward around which a satellite account for non-profit institutions could be formulated.

23.14 The first of these is the concept of the “social economy” which depicts non-governmental institutions with a social or collective purpose. Typically mutual societies, cooperatives, associations and foundations would be included.

23.15 The second concept is of “public benefit” organisations. This typically covers a narrower range of institutions that

serve a broad public purpose and excludes institutions that serve only their own members.

23.16 In between these two is the concept of the non-profit sector on the lines initially pioneered by the Johns Hopkins Comparative Non-Profit Sector Project. In this project a definition of the non-profit units was elaborated along structural-operational lines. The requirements for inclusion are the following:

- a. Organisations should exist in an institutionalised form;
- b. They should be institutionally separate from government;
- c. They do not distribute profits;
- d. They are self-governing, that is to say they are not subject to control from other units;
- e. Membership of the unit is neither obligatory nor automatic but involves some degree of voluntary participation.

23.17 The main exclusions from the set of NPIs in the SNA are those NPIs allocated to the general government sector because, although they are institutionally separate from government, they are controlled by government units.

There are a small number of informal, usually temporary, NPIs that may be excluded also. These are discussed in section D.

2. Examples of units included

23.18 The following are illustrative examples of the kinds of entities that are likely to be found within the “non-profit sector” for the purposes of the NPI satellite account:

- a. *Non-profit service providers*, such as hospitals, higher education institutions, day-care centres, schools, social service providers and environmental groups;
- b. *Non-governmental organizations* promoting economic development or poverty reduction in less-developed areas;
- c. *Arts and culture organizations*, including museums, performing arts centres, orchestras, ensembles and historical or literary societies;
- d. *Sports clubs* involved in amateur sport, training, physical fitness and competitions;
- e. *Advocacy groups* that work to promote civil and other rights, or advocate the social and political interests of general or special constituencies;
- f. *Foundations*, that is, entities that have at their disposal assets or an endowment and, using the income generated by those assets, either make grants to other organizations or carry out their own projects and programs;
- g. *Community-based or grass-roots associations* that are member-based and offer services to or advocate for members of a particular neighbourhood, community or village;
- h. *Political parties* that support the placing of particular candidates into political office;
- i. *Social clubs*, including touring clubs and country clubs, that provide services and recreational opportunities to individual members and communities;
- j. *Unions, business and professional associations* that promote and safeguard labour, business or professional interests;
- k. *Religious congregations*, such as parishes, synagogues, mosques, temples and shrines, which promote religious beliefs and administer religious services and rituals. However, an official state church incorporated into the state administration, particularly one supported by obligatory taxes, would not meet the “institutionally separate from government” criterion and thus would be excluded from the set of NPIs in the satellite account. It should be noted that religious congregations are different from religiously affiliated service agencies in such fields as health, education and social services. Similarly, service organizations related to a state church might still be considered to be within the non-

profit sector, as long as they are separate institutional units and meet all the definitional criteria.

Both market and non-market units should be included in each of these categories, so long as the institution concerned is an NPI (and not just an NPISH).

3. Borderline cases

23.19 Certain other types of organizations are likely to occupy a grey area between the non-profit sector and either the corporations or government sectors. Some of those entities will properly belong within the non-profit sector for purposes of the NPI satellite account, while others will not. The following guidelines may be helpful for making those decisions. (Obviously, these guidelines will have to be applied to types of organizations and not on an organization-by-organization basis, but the decision rules can still be instructive.) The guidelines given here are those of the handbook, slightly modified in the light of experience with implementing the accounts. It is proposed that the modifications included here will be incorporated into the next edition of the handbook.

23.20 *Cooperatives* are organizations formed freely by individuals to pursue the economic interests of their members. The basic principles of cooperatives include:

- a. democratic control, that is, one person, one vote;
- b. shared identity, that is members are both owners and customers; and
- c. orientation to provide services to members “at cost”.

As with other institutional units, if the articles of association of a cooperative prevent it from distributing its profit, then it will be treated as an NPI; if it can distribute its profit to its members, it is not an NPI (in either the SNA or the satellite account).

23.21 *Mutual societies* include such organisations as mutual savings banks, savings and loan associations, mutual insurance companies, sickness and burial funds. Mutual societies, like cooperatives, are organized by individuals seeking to improve their economic situation through collective activity. They differ from cooperatives, however, in that they are mechanisms for sharing risk, either personal or property, through periodic contributions to a common fund. Normally the depositors in mutual societies formally control their operations.

23.22 Because mutual societies operate in the commercial sphere, they fall in the financial corporations sector. Only if their articles of association prevent them from distributing profits to their owners are they treated as NPIs in the SNA (but still within the financial corporations sector) and included within the NPI sector for the satellite account.

23.23 *Self-help groups* are similar to both cooperatives and mutual societies in that individuals join to accomplish goals of mutual support that would be unattainable on an individual level. They differ from both, however, in that they are not principally engaged in commercial activities.

As a general rule, self-help groups should be treated as membership organizations and included within the non-profit sector.

23.24 *Social ventures* are enterprises organized for the purpose of employing and training disadvantaged individuals (handicapped, long-term unemployed, etc.) who would otherwise not find employment. The enterprise is considered an NPI unless it generates and distributes its surplus to owners or stockholders.

23.25 *Quasi-non-governmental organizations*, which are found in many European countries and elsewhere, are designed to function at arm's length from government departments, thus avoiding direct political control. To the extent that they are truly self-governing entities, they are appropriately considered part of the non-profit sector, even if they exercise the limited authority delegated to them by government agencies.

23.26 *Universities*, like other institutions, can be either NPIs, public institutions or for-profit corporations. Differentiating NPIs from public institutions is especially difficult since both may receive significant amounts of government support, either directly or indirectly, and since even public institutions may have a significant degree of autonomy. The key, therefore, is whether the institution is clearly self-governing and not part of the government's administrative system. Educational institutions that are NPIs will have their own self-perpetuating boards that can determine all facets of organisational operations, without approval by government officials, and that can cease their operations without the approval of government authorities. Public educational institutions will have boards selected in significant part by government officials or agencies and

lack the power to cease operations without an act of the government.

23.27 *Hospitals*, like educational institutions, can also be either NPIs, public institutions or for-profit corporations. The same rules that apply to educational institutions also apply to hospitals.

23.28 *Indigenous or territorial groups*, such as "band councils" in Canada (a form of First Nation government) and peasant or native communities in Peru, are organized around either cultural or ethnic groupings or a particular geographic area, mainly with the purpose of improving the welfare of their members. The difficulty arises when such groups essentially operate as local governments, often making and enforcing their own laws. When that is the case, the groups do not meet the "institutionally separate from government" criterion and fall outside the boundaries of the NPI satellite account.

4. Classification of NPIs

23.29 NPIs can be classified according to the activity they undertake or the purpose for which they are envisaged. In terms of activity, the normal classification to be used would be ISIC. Because the detail available in ISIC, Rev. 3 for many of the social services covered by NPI was not sufficient, an elaboration of the basic ISIC codes was developed for use in conjunction with the NPI satellite account. This classification is known as the International Classification of Non-Profit Organizations (ICNPO). Similarly some elaboration of the classification of NPIs by purpose (COPNI) was developed. In ISIC, Rev. 4, however, an alternative aggregation for data reporting for non-profit institutions is given in part four, section D. The twelve main headings of interest are shown in table 23.1.

C. Accounts for non-profit institutions in the satellite account

23.30 The first set of accounts prepared in the satellite account corresponds exactly to those in the SNA sequence of accounts. Indeed this can be seen as a simple aggregations across the sub-sectors for NPIs in the corporations sectors plus NPISHs. NPIs in the general government sector are excluded from the satellite account as noted above.

23.31 The second version of the accounts is to consider those NPIs that provide services at economically significant prices but where the sales of their output bring in revenue that is significant but less than the whole of their costs. Two possible scenarios exist. The first is that the enterprise undertakes different types of activities, some on a market

Table 23.1: ICNPO: groups

Group	
1.	Culture and recreation
2.	Education and research
3.	Health
4.	Social services
5.	Environment
6.	Development and housing
7.	Law, advocacy and politics
8.	Philanthropic intermediaries and voluntarism promotion
9.	International
10.	Religion
11.	Business and professional associations, unions
12.	Not elsewhere classified

- basis and some on a non-market basis but with the market basis activities predominating. Although the two types of activity cannot be allocated to separate institutional units, separate establishments for each can be distinguished. In principle, the production account of the establishments undertaking market activities should be compiled as normal but the production account for the non-market establishments should be based on the sum of costs. The value of this output should be treated as distributed to households as social transfers in kind and added to household actual final consumption.
- 23.32 The second possibility is that only one sort of activity is undertaken but the sales cover a large part of the costs with the balance being made up of donations. The donations are treated in the SNA as current transfers (any donations designated for capital purposes being treated as capital transfers). The satellite account treats these donations as analogous to subsidies and so measures the value of the output as the total sum of costs. In this case, the excess of output measured in this way over the proceeds from sales is treated as non-market output, social transfers in kind and part of actual consumption of households.
- 23.33 The third variant on the accounts builds on the second version of the accounts by also including an estimate of the value of volunteer labour used in the NPIs. Volunteer labour constitutes a significant input to many NPIs. If a value is placed on this, it may exceed the value of monetary donations to some NPIs. In the satellite account, it is recommended that the value of voluntary labour is estimated on the basis of the remuneration rates of employees undertaking similar work and not at the opportunity cost of the volunteers.
- 23.34 The cost of the volunteer labour is treated as both part of compensation of employees and as a transfer back from these employees to the NPI where they work. The value of the output of the NPI, and the amount treated as social transfers in kind, is increased over the amount in the second version of the accounts by the estimated value of the volunteer labour.
- 23.35 The satellite account includes other tables apart from the sequence of accounts. One of these is to show details of revenue received with a breakdown by sector of origin and type of transaction. In particular, it is recommended to distinguish revenue coming from government split between sales and grants, and that coming from the rest of the domestic economy split between private sales and current transfers (donations). Where possible both sales and transfers should be separated into those coming from the domestic economy and from the rest of the world.
- 23.36 Another table includes information in physical units such as the number of employees, number of volunteers, number of entities and number of members of the organisation. In addition some information is given on the financial account and the assets held by the NPI.
- 23.37 Fully annotated descriptions of the tables are included in the handbook on the satellite account.

D. Other SNA considerations concerning NPIs

1. NPISHs and government

- 23.38 In some countries, NPISHs take responsibility for the provision of specific services to households that the government does not see as part of its role to provide. In others, especially developing countries, NPISHs may provide services government would like to provide but simply does not have sufficient resources to do so. This becomes very clear following a natural disaster when NPISHs may be very active in relief work. For this reason it may be helpful to identify NPISHs subject to foreign control separately from other NPISHs and to identify donations from abroad for all NPISHs.
- 23.40 When physical structures result, the activity is included in the production boundary. The value of the output is estimated by comparison with similar products elsewhere in the economy or, when it has to be estimated at the sum of costs, an estimate is made for the implicit value of the labour input. This labour input is treated as gross mixed income accruing to households who then are assumed to “purchase” the product. In fact they may then transfer the product to another unit, often government, for maintenance. However, the recommendation in the SNA, as described in paragraph 4.168, is that such organisations should be treated as informal partnerships rather than as NPISHs.

2. Informal and temporary NPISHs

- 23.39 Quite frequently, a number of households may get together to pool resources of knowledge and volunteer labour to serve their local community. This could include teaching in informal schools, offering medical assistance or the construction of roads, a well, a school building, etc. When only services are provided on the basis of volunteer labour, no value for the output of the activity is recorded in the SNA.
- 23.41 If a group of households cooperates to produce goods for sale, even if the objective is still to be able to pay for work on a communal asset, this is not treated as a non-profit institution but as an unincorporated enterprise in the household sector.
- 23.42 Many small groups of individuals or households may exist as a practical means of allocating shared costs. These may be as simple as a “coffee club” at the workplace or may be a more formal arrangement whereby the costs of common services provided to all tenants in a block of flats are shared equitably. Such groups are practical rather than economic.

They are not treated as NPIs and their activities are not recorded in the SNA. Such costs as they incur should be recorded as paid by the units to which the costs are eventually allocated.

- 23.43 In the case of micro-finance, the unit providing the service is most likely to be either a corporation or an unincorporated enterprise. Even though the owner of the enterprise may not keep the profits but uses them to generate new loans, this does not automatically make the unit an NPI. The definition of an NPI is not that the owners choose not to withdraw profits but that they are not legally entitled to do so.
- 23.44 In practice it may be difficult to compile information on such informal NPISHs unless the results are sufficiently important to come to general attention.

3. The output of NPISHs

- 23.45 NPISHs produce goods and services, but typically services, that are provided to individual households free or at prices that are not economically significant. However it is possible conceptually for an NPISH to provide collective services. An example may be a well-financed institution that engages in research and development but makes its results freely available. Such an institution is engaged in non-market production but, because it is not controlled by government, it falls in the NPISH sector. The value of its output is treated as final consumption expenditure and actual final consumption by the NPISH itself.
- 23.46 The services provided by non-profit institutions serving households are not only very similar to those provided by government. They present much the same difficulties of measuring their output and of selecting suitable price indices for deflating output to volume terms.

Chapter 24: The households sector

A. Introduction

- 24.1 The economy functions because people want goods and services and are prepared to work to obtain them. At the most basic level there is subsistence activity where people work to grow food to eat. Any sort of development gives opportunities to earn money by working for others and using it to buy goods and services different from those one's labour has created.
- 24.2 In addition society recognizes that some individuals cannot participate in the economy in this way and so makes transfers available to the young, the old and the sick, for example. Often these transfers are undertaken by government which redistributes income on behalf of the community at large. In addition, transfers may be made by non-profit institutions or by extended family members, or others, based on traditional and cultural norms. Some individuals do not spend all their income but use some to acquire wealth.
- 24.3 Lastly there is income arising from the ownership of wealth. At its simplest, wealth is due to the accumulation of income earned in earlier periods (possibly generations earlier). Wealth gives rise to income because others wish to make use of it and pay to do so. In the SNA such payments are called property income. Like income, wealth may be transferred from one owner to another.
- 24.4 The SNA gives a clear and full accounting of all income accruing to households in the period itemised by type of income. It also accounts clearly for how this income is spent on goods and services, transferred to others or used to acquire more wealth. However, while the sequence of accounts ensures that the accounts of all households are balanced it does not show how this balance is achieved for subsets of households.
- 24.5 This chapter is about how to use information from the SNA on the households sector in conjunction with other data sources to investigate the behaviour of households in greater detail. The focus here is on how income is used, how the patterns of income and use vary across sub-sectors and about the links between income and wealth at a detailed level. Such a focus is of both analytical and policy interest. It is a quite different view of economic behaviour from the predominant view of the SNA which is how income is generated.

1. The problems associated with sub-sectoring households

- 24.6 The difficulty in disaggregating the households sector arises for a number of reasons.
- The first is that income is earned by individuals but consumption is undertaken by households.
 - The second is that it is difficult to find a basis for sub-sectoring households such that the households in each sub-sector behave in a similar fashion to one another. Even if their income patterns are broadly similar, their expenditure patterns may differ according to the number and age of the members of the households. Grouping by the latter may give no similarity in the level of income.
 - The third reason concerns the source of data on household income and expenditure. Typically, information on corporations comes from business surveys and information on government comes from administrative sources. But these sources are fairly comprehensive and are in large part the only source, or at least the primary source, for the data to feed into the SNA. Data for households comes from household income and expenditure surveys but these surveys are based on smaller samples, may be less frequent than business surveys and the data from them may be difficult to reconcile with the totals for income and expenditure that emerge from the accounting constraints in the SNA.

2. Structure of the chapter

- 24.7 The households sector may be viewed in a number of different ways depending on whether the interest is primarily on what sort of production households undertake, what sort of income they earn or what patterns of consumption are portrayed. Given these different perspectives, it is not easy to come up with a single definitive set of sub-sectors for households. The conceptual and practical reasons for the difficulties are reviewed in section B. A review of possible sub-sectors is given in section C. The next three sections (D, E and F) in turn look at households as producers, households as consumers and household income. The last section, section G looks at household wealth and associated income flows.

B. Household composition and sectoring

1. Definition of a household.

24.8 It is useful to begin by recalling the definition of the household given in paragraphs 4.149-4.157. *For the purposes of the System, a household is defined as a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food.* In general, each member of a household should have some claim upon the collective resources of the household. At least some decisions affecting consumption or other economic activities must be taken for the household as a whole.

24.9 Households often coincide with families, but members of the same household do not necessarily have to belong to the same family so long as there is some sharing of resources and consumption. Households may be of any size and take a wide variety of different forms in different societies or cultures depending on tradition, religion, education, climate, geography, history and other socio-economic factors. The definition of a household that is adopted by survey statisticians familiar with the socio-economic conditions within a given country is likely to approximate closely to the concept of a household as defined in the SNA, although survey statisticians may add more precise, or operational, criteria within a particular country.

24.10 Domestic staff who live on the same premises as their employer do not form part of their employer's household even though they may be provided with accommodation and meals as remuneration in kind. Paid domestic employees have no claim upon the collective resources of their employers' households and the accommodation and food they consume are not included with their employer's consumption. They should therefore be treated as belonging to separate households from their employers.

24.11 Persons living permanently in an institution, or who may be expected to reside in an institution for a very long, or indefinite, period of time are treated as belonging to a single institutional household when they have little or no autonomy of action or decision in economic matters. Some examples of persons belonging to institutional households are the following:

- a. Members of religious orders living in monasteries, convents or similar institutions;
- b. Long-term patients in hospitals, including mental hospitals;
- c. Prisoners serving long sentences;
- d. Old persons living permanently in retirement homes.

24.12 On the other hand, persons who enter hospitals, clinics, convalescent homes, religious retreats, or similar institutions for short periods, who attend residential schools, colleges or universities, or who serve short prison sentences should be treated as members of the individual households to which they normally belong.

2. Residence

24.13 All households are resident in the economy but of increasing interest is the phenomenon of a person abroad, often but not necessarily a family member, who remits significant amounts to the family in the domestic economy. (The same phenomenon also exists within a country, between urban and rural areas, for example.) The aspect of people moving abroad in response to better employment prospects may be seen as another facet of globalisation and one that deserves to be monitored.

3. Determining sub-sectors

24.14 As noted in the introduction, the difficulty in disaggregating the households sector arises for a number of reasons. The first is that income is earned by individuals but consumption is undertaken by households. While all households contain all individuals, it is very difficult to associate particular income recipients with particular household groups. It is possible to have one table showing the types of income earned and the types of individuals receiving them. It is also possible to have a table of types of households and the pattern of household consumption of each. Only in the highly stylised situation of one income earner only per household (and only one source of income) can the type of income be matched with the type of household and even then only if households are categorised according to the type of income. The problem could be compared to that of the supply and use tables but whereas it is possible to establish which industries make which products, there is no natural relationship between individuals as income recipients and the household to which they belong when households are grouped by any criterion other than main income source.

24.15 The problem of trying to link income flows from the SNA with a desirable set of household characteristics is one of the most difficult aspects of building a social accounting matrix. Very often it is necessary to revert to modelling to reconcile income related to individuals to consumption related to households.

24.16 The second problem is related to the homogeneity of households. Various criteria may be used to disaggregate the sector (discussed in section C) but whatever criterion is used it is difficult to assert that the behaviour of the sample is typical of the whole. This is a difficulty not normally encountered, if a survey covers 50 per cent of firms in a given industry it is probably reasonable to suppose that the pattern of expenditure is typical of the whole. If an enterprise doubles its turnover, the level of intermediate consumption will probably approximately double but its composition may not alter significantly. Such assumptions are very suspect in the case of household groups. This is another area where it may be difficult to use a social accounting matrix for analysis without having further recourse to modelling, this time to determine how groups of households react to different stimuli.

24.17 The information for the corporations sectors derives from surveys. The household aggregates of income and

expenditure are known from the accounting identities in the sequence of accounts. While it is true that information from household surveys may sometimes reveal errors in industry data or vice versa it is more problematical to take information from household surveys on, say, expenditure patterns of one group of households and suppose all other members of the group behave in the same way. For this reason a household income and expenditure survey is often reported as a freestanding exercise and integration with the national accounts totals is not as frequently part of compiling the full set of national accounts as is the case with business surveys. In order to explore why this may be so, it is useful to look briefly at some of the problems experienced with household surveys

4. Household surveys

- 24.18 Any attempt to disaggregate the households sector is likely to be dependent on a household income and expenditure survey. The conventions adopted by survey statisticians and those of national accountants are not always the same. A household expenditure survey for example may not include estimates of imputed rent of owner-occupied dwellings or own account production. It may measure income after tax and measure expenditure on a cash and not on an accrual basis. Various publications have been prepared to examine such differences and make recommendations on how to reconcile survey data with national accounts requirements. Particularly relevant is the *Final report and recommendations of the expert group on household income statistics (the Canberra group)* published in 2001 and the 2003 resolution of the ICLS.
- 24.19 A major problem with household surveys is that it is very common for respondents to underestimate or under-report their income. This may be deliberate or may simply be a lack of understanding of what should be included or simple forgetfulness.
- 24.20 Similarly some items of consumption are regularly under-reported, most notably expenditure on alcohol and tobacco. On the other hand, consumption of some items are over-reported. For example, if a survey asks for expenditure on durables based on the recall of the respondent of what has been spent over the last two or three years, people often underestimate how long it is since purchases were made and will report more expenditure in this period than has actually been the case. This phenomenon does not only apply to very large items of expenditure; it is reported that household surveys have suggested that the purchase of toothbrushes, for example, is many times higher than in the sales reported by shops.
- 24.21 The problem of non-response is a concern in household surveys since it is quite likely that some of the households that refuse to respond have income and expenditure patterns that are different from respondents. For example people with incomes arising from illegal activities may be very reluctant to supply information and may choose not to participate in the survey. Similarly it is common for households at the very top and very bottom of the distribution to be omitted from the survey either by design or on the grounds of practicality.
- 24.22 Household surveys may be designed to investigate particular phenomena that are not necessarily of the primary interest for national accounts. For example, they may be restricted to low income earners in urban areas. While this information is highly valuable and useful it is not sufficient to produce aggregate figures for national accounts. Sometimes even if the coverage is more comprehensive, the sample size may not be such as to allow disaggregation along the lines desirable within the national accounts. It is important to realise that a desired pattern of sub-sectoring should be determined before the survey is undertaken to ensure the desired characteristics will be adequately represented in the survey sample.

C. Sub-sectoring households

1. The production perspective

- 24.23 A first consideration is to investigate the possibility of sub-sectoring households according to their involvement in production. This may be done following the pattern shown in chapter 25 to identify informal and other production activity undertaken by households.
- 24.24 The first division is to separate institutional households and those households that do encompass an unincorporated enterprise from those that do not. Thereafter it is straightforward to identify those households whose only productive activity is connected with the owner occupation of houses or the employment of domestic staff. The households that are left may be further divided between those that employ staff to work in their unincorporated enterprises and those that do not. As described in the chapter on the informal sector, when proceeding along these lines it is sometimes desirable to identify the type of activity of an unincorporated enterprise, in particular identifying agricultural activity separately from other types of activity.
- 24.25 Within the SNA, all household enterprises that can be treated as quasi-corporations because they have complete sets of accounts showing their ownership of assets (separately from those of the household to which they belong) and the withdrawal of income to their owners are classified in one of the corporations sectors. The number of household enterprises that can be treated as quasi-corporations, and thus removed from the households sector, varies considerably from country to country depending on the availability of accounting information and the resources available to identify such enterprises and treat them as quasi-corporations.
- 24.26 Although it is possible to identify households that only have owner-occupied housing as their unincorporated enterprise, in many cases other unincorporated enterprises will undertake owner occupation of their houses as well.

While from a production point of view it is possible to separate the different types of production activities, for the institutional unit as a whole it is not possible to make this separation.

24.27 In most countries, many households do not have unincorporated enterprises, so when sub-sectoring is done according to production undertaken by households, those without unincorporated enterprises are grouped together in a single sub-sector. The only common factor these households share is that they do not have an unincorporated enterprise. Thus while sub-sectoring households according to production is useful in some circumstances it has its limitations in terms of identifying the role of different types of households in the economy.

2. The consumption perspective

24.28 It is widely observed that as household income rises so the pattern of consumption changes. The proportion of expenditure devoted to food and other necessities declines as more income is available and is devoted to more luxury goods. Thus one approach to disaggregating households according to consumption patterns is in fact to disaggregate by level of income, assuming this captures the difference in consumption patterns. Studies showing consumption patterns according to income deciles are quite common and give interesting information about how patterns of consumption change as the overall level of income increases.

24.29 The question arises of how household consumption patterns may relate to incomes of individuals. There is no obvious way to identify how recipients of income fall into one or other income decile when these deciles are calculated on a household basis. Households with a high income may result from one very well-paid worker or from a number of middle income earners. Further, although the production account shows total compensation of employees and it may be possible to compare this to the total number of employees, this gives no information about the distribution of income across the labour force in the enterprise.

24.30 Not all income comes from compensation of employees and the effect on total household consumption of other sources of income is equally uncertain.

24.31 Using the level of household income as a proxy for consumption patterns has some significant problems. One possible disaggregation of households where consumption patterns might be significantly different would be according to whether the household includes children and, where it does not, whether the household is relatively young (and may be setting up home for the first time) or relatively old (where expenditure on consumer durables may be lower than for other groups). However, here again there is no easy way to link the source of the income with the type of the household in which the income recipient resides.

3. The income perspective

24.32 A more promising approach to sub-sectoring appears to come from considering not the level of income but the type

of income. As proposed in chapter 4, the following scheme might be considered.

24.33 Households may be grouped into sub-sectors according to the nature of their largest source of income. For this purpose, the following types of household income need to be distinguished:

- a. Income accruing to the owners of household unincorporated enterprises with paid employees (employers' mixed income);
- b. Incomes accruing to the owners of household unincorporated enterprises without paid employees (own-account workers mixed income);
- c. Compensation of employees;
- d. Property and transfer incomes.

24.34 Households are allocated to sub-sectors according to which of the four categories of income listed above is the largest for the household as a whole, even if it does not always account for more than half of total household income. When more than one income of a given category is received within the same household, for example, because more than one member of the household earns compensation of employees or because more than one property or transfer income is received, the classification should be based on the total household income within each category. The four sub-sectors are described as follows:

- a. Employers;
- b. Own-account workers;
- c. Employees;
- d. Recipients of property and transfer incomes.

24.35 The fourth sub-sector, households for which property and transfer incomes make up the largest source of income, constitutes a heterogeneous group and it is recommended that it should be divided into three further sub-sectors when possible. These sub-sectors are defined as follows:

- Recipients of property incomes;
- Recipients of pensions;
- Recipients of other transfer incomes.

4. Using a reference person

24.36 Other methods of sub-sectoring usually require a reference person to be identified for each household. The reference person is not necessarily the person that other members of the household regard as the "head of the household", as the reference person should be decided on grounds of economic importance rather than age or seniority. The reference person should normally be the person with the largest income although the reference person could also be

the person who makes the major decisions with regard to the consumption of the household.

24.37 Once a reference person has been identified, it is possible to group households into sub-sectors on the basis of the reference person's characteristics. For example, sub-sectors may be defined according to:

- a. Occupation of the reference person;
- b. Industry, if any, in which the reference person works;
- c. Educational attainment of the reference person;
- d. Qualifications or skills possessed by the reference person.

5. The consequences of demographic change

24.38 A growing policy interest in some countries is the effect of demographic change on household well-being and the response required by government. For example, in an

ageing population, there may be less demand for educational services and more for health services.

24.39 Another concern is whether pension provision is sufficient to ensure that individuals have an adequate level of income in retirement without looking to government for income support. A focus on such issues might suggest sub-sectoring households according to whether the main income earner is in work, of working age but not in work or in retirement. Again, categorization according to the main income earner will give different results from categorising income as a whole.

6. Other considerations

24.40 It is possible to consider sub-sectoring households on quite different grounds. Examples include the number of persons in the household, the region where the household is located, the qualifications or education level of the head of the household, the industry where the head of the household works, whether the household owns property or other assets and so on.

D. Households as producers

1. Households and the informal sector

24.41 In all countries, there are some production activities undertaken by households. Many of these may be described as informal and, as described in chapter 25, measuring the extent of the informal sector and how this changes as the economy develops gives particular insight into the extension of the market economy beyond formal enterprises.

24.42 The difficulty of separating the productive activity of a household from the rest of the institutional unit has been discussed in a number of places in earlier chapters, particularly in chapter 4, and is referred to above in discussion about the sub-sectors for households. This section therefore discusses only some aspects of those productive activities that inevitably remain within the households sector.

1. Agriculture

24.43 In some countries, subsistence agriculture, or indeed the results of any agricultural production which are used entirely by those responsible for the production, is a very significant part of household consumption and by extension of GDP. In countries where much of the staple food is grown for own consumption, and it is seasonal, it is necessary to consider whether some part of the increase in the value of the crop due to storage is part of production. There are details of how this may be done in the annex to chapter 6.

24.44 It should be recalled that the purchaser's price for agricultural products used for own consumption does not

mean the price at the nearest local market which would include transportation costs. The market price is the price that somebody would pay for the crops where they are grown. This is frequently called the farm gate price.

24.45 In principle, all fruit and vegetables grown for their own use by households with small allotments or large gardens should be included within the production boundary, even in developed countries. In practice it is unlikely to be worth the effort of making estimates unless the amounts involved are significantly large.

2. Housing

24.46 In almost all economies, a large number of households live in dwellings that they own. The size of the rental market may be very small and may be confined to some areas, for example urban areas, which makes the use of market rentals as a means of estimating the services provided by all owner-occupied dwellings difficult. In chapter 20, it is explained that in principle the rent on a capital asset can be calculated by applying a discount factor to the stock of capital at the beginning of a period, so if the value of the house is known, a figure for the services provided can be estimated. However, this approach also is problematic in those circumstances where there are no data on the stock of capital or where there is uncertainty on the rate of return to be estimated. For simple rural dwellings, it may be necessary to calculate the cost of construction and estimate how long the building is usable without major renovation.

24.47 All dwellings require regular maintenance. The production account for an owner-occupied dwelling treats as intermediate consumption only the goods and services

necessary to undertake the sort of repairs that are typically the responsibility of the landlord in the case of rented buildings. These may include payment to specialists in the building trade, for example plumbers or painters, and the cost of these specialists will include their compensation of employees. However when work is undertaken by the owner himself only the cost of the materials is included in intermediate consumption with no estimate made for the value of the owner's time spent on repairs. In consequence, there is no compensation of employees appearing in the production account for owner-occupied dwellings. (This may be seen to be a pragmatic convention. If labour costs were to be imputed to the owner undertaking repairs, this would be recorded as income accruing to the household but the income from the rental on the house would be reduced by an exactly off-setting amount.)

24.48 The whole of the imputed rental less actual costs (including costs other than those relating to repairs) incurred is treated as operating surplus of the owner. The accounts for the owner of the building show the whole of the value of the imputed rental as output, any costs incurred as intermediate consumption and the difference as gross operating surplus which is paid to the household in its capacity as the owner of the unincorporated enterprise. In the use of income account, the full value of the rental is shown as consumption of the imputed rental of owner-occupied dwellings.

24.49 When major repairs are undertaken, these are treated as gross fixed capital formation but the same conventions apply concerning the recording of compensation of employees.

24.50 Some houses are owned by households but leased out by them. In this case the rental paid by the tenant is the value of the output of the rental service. The production account for the earning household shows intermediate consumption charged against this output to derive the operating surplus of the activity, which is treated as income to the owning household. In some cases the whole of the intermediate consumption may be a service charge paid to a rental agency. It is conceivable that occasionally the service paid to the rental agency may exceed the rental income so that the rental activity produces a loss. For example, if a house stands empty for a time, there may still be a fee payable to the rental agency. The earning household will often regard this as acceptable because one reason for owning a house to rent is because it is hoped a holding gain will be made on owning the house over a long period.

24.51 By convention, all the value added arising from leasing dwellings is treated as operating surplus, not mixed income.

24.52 Some houses will be owned as second homes either in the same economy or abroad. The same principles apply as in the case of imputed rental of owner-occupied dwellings and rental services activities that come from renting out a house. If the house is in another country, it is treated as belonging to a notional resident unit in that country. The legal owner then has a financial claim on the notional resident unit. The notional resident unit therefore appears to be a direct investment enterprise wholly owned by a non-resident. However, the only asset of the unit is the value of

the property and the whole of the operating surplus from renting out the house is treated as being withdrawn from the notional unit and remitted to the owner so there are no retained earnings remain to be treated as reinvested earnings.

24.53 To the extent that the house abroad is used by nationals of the economy where the legal owner is resident, the rentals should be treated as exports of services from the foreign country and imports of services to the domestic economy. However, the operating surplus of the notional unit is remitted to the owner and appears as a property income outflow from the foreign country and inflow to the domestic economy, offsetting the flows of rental services (at least in part).

24.54 When a house is financed by a mortgage, in principle FISIM charges relating to interest payments on the loan should be treated as part of the intermediate consumption of the production activity associated with renting the property (either for use by the owner or by a tenant). However, it may be difficult to identify FISIM related only to interest on the mortgage and in some cases a loan using the property as collateral may not be used to secure the property for the purpose of having a dwelling available. In practice, if FISIM is not treated as part of the intermediate consumption of the rental activity, the operating surplus from the rental activity will be higher than otherwise but the consumption expenditure of the household will be higher by the same amount.

3. Domestic staff

24.55 Services provided by paid domestic staff are valued at the cost of the compensation of employees paid to those staff but including any income in kind such as free accommodation or free meals as well as any social insurance contributions that may be paid on behalf of the staff. By convention the production account for paid domestic services consists only of this compensation of employees. All of the products used in the performance of domestic services, such as cleaning materials and tools used, are treated as final consumption expenditure of the household.

24.56 Individuals who provide paid domestic services must be members of another household. Payments to children for performing tasks in the house are not treated as the provision of paid domestic services but simply as if the payment were a transfer within the household. On the other hand payments to a child for baby sitting a neighbour's children should in principle be treated as a domestic services but these may be too small and difficult to measure.

24.57 In practice, some countries may include full-time domestic employees as members of the households, in which case a transfer within the households is recorded, even though transfers within an institutional unit are not normally recorded. This in turn means there is an element of double counting for the household concerned with a payment to the domestic staff and the expenditure by those staff both being included in the household's consumption expenditure.

24.58 In chapter 29 there is discussion of the possibility of extending the production boundary within the context of a

satellite account to include all domestic services, including those that are not performed against payment.

E. Households as consumers

1. Consumption goods and services provided in kind

24.59 Chapter 9 describes the different concepts of consumption expenditure, actual consumption and the use of consumption goods and services. Within the SNA, only the first two are measured and the difference between them is accounted for by social transfers in kind provided by government and NPISHs to households. In principle it might be interesting to be able to distinguish social transfers in kind provided to children (for example most education), to the elderly (particularly health care) or perhaps on a regional basis. However, there are considerable difficulties in working at this level of detail and so it is probable that such extra detail could be provided only in the context of a satellite account.

24.60 In principle, transfers in kind between households should be recorded in the SNA. However, if there are no sub-sectors of the households sector, such transfers will not appear in the accounts when they occur between resident households. On the other hand transfers in kind between resident and non-resident households may be quite significant and should be captured through information on remittances in the balance of payments data. (A new manual on the measurement of remittances is available at <http://www.imf.org/external/np/sta/bop/remitt.htm>)

24.61 When there is a significant amount of consumption represented by own account production, income in kind, barter or transfers in kind it would be useful to itemise the distinction between consumption expenditure by households in kind from consumption purchased in the market place.

2. Expenditure by tourists

24.62 Most data sources for household consumption from the supply side are not able to distinguish whether purchases are made by resident households or by non-resident households. Equally, the same sources will not reveal purchases made abroad by resident households. These two items are often of a sufficiently significant size that it is important that they be estimated both for the impact on the balance of payments and in order to ensure that the supply and use table can be adequately balanced. Further consideration of expenditure by tourists is discussed in chapter 29 in the context of a tourism satellite account.

3. Consumption expenditure by type of product

24.63 Most household surveys itemise consumption according to the purposes it is intended to serve: food, housing, etc. This type of breakdown is the one used in the Classification Of Individual Consumption by Purpose (COICOP). For inclusion in the supply and use table, and indeed for other analyses, it is useful to prepare a table showing the cross classification of consumption by purpose and by type of product. This is useful not only in terms of providing the information for the supply and use tables but also in examining the information used to compile consumer price indices, which in turn are used to deflate consumption expenditure. If the data permits, it may also be useful to look at the composition of consumption expenditure by type of household with a view to calculating consumer price indices for different groups of households, for example for the elderly or for those with young children.

F. Household income

24.64 It is a well-established phenomenon in all countries that income is distributed unevenly and in a very skewed manner. Very many people have income significantly below the average or median income and very few people have extremely large incomes. A poverty line is sometimes quoted as half the median income but an income of twice the median does not imply great wealth; the wealthiest individuals in an economy may have incomes many times larger than the average or median income.

24.65 The reason that the sequence of accounts is important is that it gives a picture of how income is distributed and redistributed either compulsorily via taxes and benefits or voluntarily via transfers or because of ownership of

financial or other assets (property income). In order to examine whether the process of distribution and redistribution of income significantly changes the overall distribution of income in the economy it is necessary to be able to show the flows between different groups of households. As noted in the introduction, it is difficult to allocate income from one particular source to one household group rather than another. This is not straightforward and not a standard part of the SNA. However, it is straightforward to provide more information to analysts on the type of household income than the total contained in the standard sequence of accounts. As far as value added is concerned, it may be possible to distinguish compensation of employees paid by individual industries or

perhaps according to level of education or by region. Mixed income can similarly be distinguished. Consumption of fixed capital should be separated between that due to owner-occupied dwellings and that relating to other assets of unincorporated enterprises.

24.66 The standard accounts contain information on transfers in the form of taxes paid and social insurance contributions and benefits split between pensions and other benefits. In some countries it is especially relevant to show personal remittances from abroad to demonstrate the impact on the domestic economy of those with strong ties to economies abroad. For countries with a large migrant population it may be similarly useful to identify the corresponding outflows and their destination.

24.67 Within property income it is useful to distinguish those flows that place resources at the disposal of the recipients from those where the receipts are already pre-committed as saving, for example, pension entitlements, property income on life insurance and interest that derives from the increase in the value of bonds. It should be noted that it is particularly useful to identify the withdrawal of income from quasi-corporations if there are many household enterprises treated as quasi-corporations.

24.68 It may be useful to identify and show separately income in kind of all types, such as wages and salaries in kind and transfers in kind, and then derive a total excluding both these and the pre-committed saving which might be called discretionary income.

G. Household wealth and associated income flows

1. Household balance sheets

24.69 For many households, their main assets are their houses and accumulated pension entitlements. Investment in financial assets outside pension funds may also be important in some countries. However, set against the assets must be the liabilities of the households, including the loans involved in mortgages and other financial liabilities and, for example, credit card or other debt.

24.70 For households including an unincorporated enterprise, there may be other fixed assets recorded on the balance sheet but these tend to be small relative to housing.

2. The distribution of wealth

24.71 Increasing interest is being shown in conducting surveys of household wealth along lines similar to surveys of household income and expenditure. Again the interest is to look at a disaggregation of the households sector to discover the composition of household wealth and its relation to household income.

24.72 In general the distribution of wealth is even more strongly skewed than income. A family where the main earners are in mid career may have a comfortable level of income and occupy their own house but still have a considerable mortgage and may not yet have built up significant pension reserves.

3. Pension considerations

24.73 There is a question about whether the rundown of wealth post retirement should be recorded as income or as dis-saving.

24.74 By treating pension provisions as a social insurance scheme, pension benefits are shown as current transfers, and thus income, rather than as a run-down of saving. If a pension scheme is not treated in this way, though, there is still income accruing to the pension beneficiary in the form of the property income payable on the pension entitlements.

For a defined benefit scheme, this property income represents the unwinding of the discount factor on future entitlements. The decrease in the entitlements is equal to the difference between the benefits payable and this property income, similar to the position for an annuity explained at the end of part 1 of chapter 17.

24.75 To the extent that the value of the pension as a form of wealth is based on the net present value of future income flows, pension receipts can be partitioned into the rundown of savings and income accruing. In cases where there are no pension entitlements, a household with a significant level of financial assets is still likely to receive significant property income, though the mix of property income and holding gains and losses will depend on the investment strategy of the household concerned.

24.76 For a household where one or more of the members is building a pension, significant income will accrue each year but this is not accessible to the household to spend. It must be accumulated to fund future pension entitlements and thus shows as an increase in wealth.

24.77 It is possible to construct an asset account for pension entitlements showing the start of year level of entitlements, increments due to work done in the year, increases due to the fact that retirement has become a year nearer (the unwinding of a discount factor) and other changes such as an allowance for inflation, less decreases due to pension payments or other changes that reduce entitlements.

4. Consumer durables

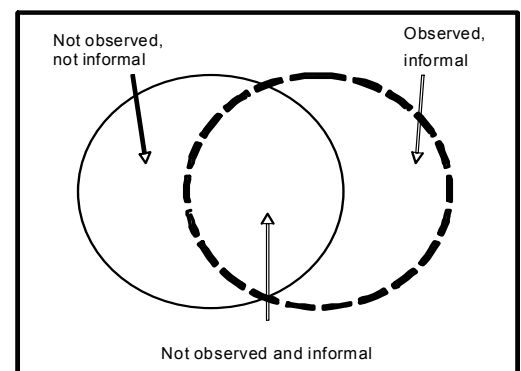
24.78 Within the SNA, consumer durables are not treated as a form of wealth but as a form of expenditure. However, there may be considerable interest in having a memorandum item in the balance sheets to show the worth of consumer durables. The acquisition of durables may well be cyclical and there is interest in a satellite account that would replace the purchase of consumer durables as current expenditure by figures for the flow of services provided from the same items treated as fixed capital. This is discussed further in chapter 29.

Chapter 25: Informal aspects of the economy

A. Introduction

- 25.1 No economy is completely regulated and captured perfectly by statistical enquiries. Steps have to be taken, therefore, to attempt to cover unregulated activity and survey imperfections as special exercises. There are two approaches that, although they share a lot of common ground, are directed towards two rather different goals. The first is to ensure that all activities including those that may be described as “hidden” or “underground” are encompassed in measures of total activity. The second is to define what is meant by the sub-set of economic units that can be considered “informal” and to measure this.
- 25.2 The rationale for the first activity is obvious; to have a view of the economy as a whole that is as complete as possible and as comparable over time and across countries as possible. The part of the economy difficult to measure has become known as the Non-Observed Economy (NOE) and several publications have been dedicated to measuring it, notably the handbook *Measuring the Non-Observed Economy* published by OECD on behalf of a number of international organisations. As the techniques in the handbook make clear, a specific measure of the NOE is not important in itself. Attention focuses on ensuring that the measurement of total activity is complete or “exhaustive”.
- 25.3 The second alternative recognizes the analytical importance, especially in developing countries, of being able to measure that part of the economy that reflects the efforts of people without formal jobs to engage in some form of monetary economic activity. This part of the economy has become known as the informal sector. It is by estimating the size of the informal sector that the activity of people living on the street or in shanty towns is captured and it becomes possible to assess how far the benefits of development reach them. Those supporting the second approach do not deny the importance of the comprehensive measure of the economy but for them this is not sufficient. Despite the difficulty of doing so, attempts must be made to identify and measure an informal sector.
- 25.4 There is a large overlap between both concerns. However, while the NOE and the informal sector overlap, neither is a complete subset of the other. This can be seen in figure 25.1. The solid circle represents the non-observed economy and the dotted circle the informal sector. Thus the overlap consists of activities that are not observed and undertaken informally but there are some activities that are not observed but are not undertaken informally and some that are undertaken informally but are observed. The relative size of the three segments in figure 25.1 will vary from country to country.
- 25.5 Efforts to cover the NOE ensure that all enterprises are covered in statistical estimates even if not covered by statistical enquiries. Some of the supplementary estimates may well relate to informal enterprises but some will relate to large enterprises, not regarded as informal. In addition, the NOE aims to cover mis-reporting in large enterprises, whether this is inadvertent or deliberate. The NOE thus covers some activity by informal units but also information for some formal enterprises.
- 25.6 Within the informal sector, some information may be captured statistically. Consider a household that lets rooms to visitors for one or several nights. The activity cannot be treated as a quasi-corporation because it is impossible to make a clear separation of costs from regular household costs and to partition that fraction of the house treated as an asset associated with the letting of rooms from its main function as a family home. However, the value of the letting activity may be captured in a survey directed at tourism activities, for example.
- 25.7 Other examples might be considered. Street traders or taxi-drivers may be both not observed and informal. A vehicle repair shop with 5-10 employees may be formal but too small to be covered by statistical enquiries and therefore not observed. Teaching assistants may be informal but observed. The situation is complicated by the fact that street traders, taxi drivers, vehicle repair shops and teaching assistants may be formal in some countries and informal in others, just as they may be observed in some and not in others.

Figure 25.1: The non-observed economy and the informal sector



25.8 It should be noted that all countries have both non-observed parts of their economies and informal enterprises though the scale of each and the policy interest in identifying the latter may vary.

1. The policy interest in measuring activity undertaken in the informal economy

25.9 Production in the informal economy appears in different ways in different countries. When the motivation is a pure survival strategy or a desire for flexible work arrangements, it is likely to be encouraged. However, when the motivation is to avoid taxes and regulations, or to engage in illegal activities, efforts are likely to be made to curtail these. Most kinds of production activities may be undertaken by an informal unit. These units may operate without a fixed location, or in homes, small shops or workshops. The activities covered range 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 expertise such as tailoring, car repair and professional services. Many informal enterprises are operated by an individual working alone, as a self-employed entrepreneur (own-account worker), or with the help of unpaid family members, while other informal unincorporated enterprises may engage paid workers.

25.10 The size and significance of production undertaken by informal units depends on the social structures, national and local economic regulations, and enforcement efforts of a given country. The level of policy interest varies from country to country depending on the type of activity and magnitude of it. The size, registration and other characteristics of the production units involved are key variables in determining whether to encourage or discourage certain modes of production or enlarge the scope of the formal economy by recognising units operating below previous thresholds. Specific social support and assistance programmes may be designed and monitored to see how far they support goals such as increased production, job creation and security, poverty reduction and the empowerment of women.

2. Structure of the chapter

25.11 Section B looks at the characteristics of production units to try to identify the characteristics significant for the non-observed economy, the informal sector or both.

B. Characteristics of units acting informally

As noted in the introduction, it is not straightforward to define what is meant by the informal economy. Is the description one of the nature of activities, the way in which they are carried out, or the way in which they are captured in statistical enquiries? In order to try to formulate a precise delineation of what is the subject of interest, a number of potential characteristics can be listed of what the informal economy might encompass. Although different commentators place more emphasis on some criteria and

25.12 In the context of compiling national accounts, much attention focuses on the non-observed economy. This topic is addressed briefly in section C.

25.13 The International Labour Organization (ILO), in adopting a resolution of the International Conference of Labour Statisticians (ICLS), has been instrumental in establishing a concept of an informal sector to identify a set of production units within the SNA households sector that are particularly relevant for policy analysis and formulation, especially in many developing countries and countries in transition. This work addresses the question of how the market economy is penetrating areas outside the formal parts of the economy. This topic is addressed in sections D and E.

25.14 The ILO work is pragmatic in realising that it is very difficult to establish a definition of the informal sector that is strictly comparable across countries given the difference in the structure of micro and small enterprises, the national legislation covering registration of enterprises and the labour laws. An Expert Group on Informal Sector Statistics (known as the Delhi Group) was set up in 1997 to address both the conceptual and operational aspects of the ILO definition. Work of the Delhi Group is reported in section F.

25.15 Section G discusses the borderline of units that might be regarded as informal but not in the households sector, as well as some activities in the households sector that are not regarded as informal. It goes on to indicate how data matching the concepts of the informal sector may be derived from the SNA accounts.

25.16 Section H complements this by discussing some approaches relating to collecting data on activities undertaken by informal units and on informal employment.

25.17 The interest in the informal sector has led to the production of a number of handbooks and studies of current practices. It is impossible to report these in depth in this chapter but section I gives a brief description of some of these and indicates where they may be consulted.

some on others, there is broad agreement that no single criterion on its own is sufficient to determine what is meant by informal; a composite of several indicators must be used.

25.18 Two criteria need to be kept in mind when considering each possible criterion:

- a. is this really central to the definition of activity undertaken by a unit in the informal economy, and
- b. is it the basis for reaching a definition that will yield internationally comparable results?
- 25.19 *Registration.* One interpretation of what is informal is whatever is not required to be registered formally with some arm of government. The problems with this criterion are obvious. Different countries have different practices on registration. Some may insist that all activities, however small and casual, should be registered; others may be more pragmatic and require activities to be registered only when their turnover exceeds a given amount or when the number of employees exceeds a given number. Further, whatever the official requirements for registration, the degree of compliance with the requirements will vary according to the extent to which they are enforced in practice. A definition of the informal sector based on registration is therefore not going to give international comparability or, possibly, comparability over time within a country if the requirements for registration or degree of compliance with the requirements vary.
- 25.20 *Legal incorporation.* Closely related to the characteristic of registration is one of legal incorporation. It is the case that all legally incorporated enterprises are treated in the SNA as falling into one of the corporations sectors but these sectors also include quasi-corporations. A quasi-corporation is defined in the SNA as a unit where either a full set of accounts, including the balance sheet, is available or can be drawn up. In this way some units that the owners choose not to incorporate (in many cases quite legitimately) are treated in the SNA as if they are incorporated but having a full set of accounts is a fairly stringent requirement. Some units may have very detailed information about their production activities and satisfy the notion of being formal without being treated as quasi-corporation and thus being excluded from the households sector. Moreover, laws requiring or permitting incorporation vary from country to country thus limiting international comparability.
- 25.21 *Covered by statistical surveys.* The coverage of statistical surveys, particularly establishment surveys, varies considerably from country to country and also from industry to industry within a country. Often small-scale enterprises are excluded because the statistical office considers the costs of collecting information from such units is too expensive considering the proportion of output they account for and the potential for inaccuracies in the reported data. However, there may be a “grossing up” procedure to allow for the non-coverage of the smaller units. In such a case, the production activities of these units are likely to appear attributed to the corporations sectors even though strict conformity with SNA guidelines would place these in the households sector.
- 25.22 *Size.* Faced with this variation of statistical and administrative practices, one possibility for identifying units in the informal economy might be to rely simply on the size of the enterprise, defined either in terms of turnover or number of employees. The problem with turnover is again the potential variability across countries and over time. Using a maximum number of employees to identify informal units may result in some units with full accounts, and thus allocated to the corporations sector being identified as informal and some units in the households sector without a full set of accounts as formal.
- 25.23 *Borderline of activity.* In chapter 6 there is discussion of the production boundary of the SNA. As noted there, some activities that are economic in nature are excluded from the production boundary, specifically services produced by households for their own consumption other than the services provided by owner-occupied housing and services provided by paid domestic staff. While there is interest in measuring these activities for some forms of analysis, there is agreement that in measuring activity undertaken by units in the informal economy the boundary of production in the SNA should be taken as appropriate. However, the services from owner-occupied dwellings are excluded since there is no labour input to the activity.
- 25.24 *Illegal activity.* Chapter 6 makes clear that, in principle, the fact that an activity may be illegal is not a reason to exclude it from the production boundary. In some countries, the difficulties of capturing illegal activities may mean that they are either not well covered or deliberately ignored on pragmatic grounds. However, for some countries ignoring the production of drugs, for instance, would seriously underestimate the overall level of economic activity. In general, as discussed further in section C, some illegal activity may be included in the SNA, if only indirectly, and so complete exclusion is impracticable in any case.
- 25.25 *Location.* Some analysts may be interested mainly in the development of the informal economy in urban areas, particularly in so-called shanty towns on the outskirts of large conurbations. While the policy implications of such an approach can be appreciated, the role of the informal economy in areas outside the main urban areas is also important and for international comparability, and for comparison over time when internal migration is significant, restricting coverage by location is undesirable.
- 25.26 *The terms of employment.* Some employees have terms of employment that entitle them to various benefits in addition to their wages and salaries. These benefits typically include paid annual and sick leave and pension entitlement. Even production units offering such terms to some of their workers may also employ people on less generous terms offering no benefits beyond wages and salaries. People who work on their own account (the self-employed) may do so to provide some supplementary income, may do so because they are unable to obtain a job with benefits or may simply choose to do so for a number of reasons, including the flexibility of choosing what they do, for whom and for how long. Many of the latter may work under terms that offer not employment as such but a service contract.

C. The non-observed economy

- 25.27 At the time the 1993 revision of the SNA started, it was assumed that identifying an informal sector was mainly a problem for developing countries. However, even by the time that revision was complete, it was obvious that the problem affected all economies, whatever their state of development. Within the EU, the need to ensure strict comparability of coverage of the national accounts among member states led to a series of initiatives to ensure the accounts were “exhaustive” (that is, fully comprehensive). Also in the early 1990’s as countries in Central and Eastern Europe made the transition to market economies, the need to cover activities outside the scope of previous reporting methods, whether undertaken within formal units or in informal units, became pressing.
- 25.28 The extent of economic activity missing from statistical data collections and from administrative sources became known as the “non-observed economy”. In some countries, the emphasis has been placed not on identifying the non-observed economy as such but simply ensuring that the accounts are fully comprehensive (“exhaustive”), but it is easiest to describe factors affecting exhaustiveness through the notion of the non-observed economy.
- 25.29 As explained in the introduction, the non-observed economy overlaps with, but is not the same as, the informal sector. As well as attempting to cover activities slipping under the net of statistical collection (sometimes called the “underground” or “hidden” economy), attention was paid to ensuring that reported information was both complete and accurate.
- 25.30 As noted in chapter 6, the fact that some activities are illegal in themselves or may be carried out illegally does not exclude them from the production boundary. Exercises to measure the non-observed economy should also, in principle, cover such illegal activity. How far this is pursued in practice will depend on assessments of the importance of illegal activities, how it might be done and the resources available.
- 25.31 Trying to assess the additions to be made to the national accounts for the non-observed economy is not just a question of examining the comprehensiveness and accuracy of statistical enquiries. The process of assembling a set of national accounts, especially when the supply and use framework is used, already casts light on missing information and helps improve the estimates overall. Consider the case of some types of illegal activities. Because avoiding taxes is illegal and tax collection may be pursued more vigorously than statistical reporting, a prostitute may report her (or his) earnings more or less accurately but describe her activity as modelling, acting or any number of other ways. Similarly, while smugglers of cigarettes may not report their activities, the fact that households purchase the cigarettes may be much better documented and thus implicitly the illegal imports are captured in the accounts.
- 25.32 It has been argued that a completely balanced set of supply and use tables is unlikely to omit any significant activity. While it is possible that something may be omitted, if the tables are to balance, there must be exactly matching omissions in other aspects of the accounts, which is not very likely. However, while the act of balancing the tables may in effect estimate some non-observed activity, it may not be sufficient to capture all of it.
- 25.33 It should be noted that, again as pointed out in the introduction, concern about the non-observed economy does not lead to a separable measure of it. The example of using the balancing of supply and use tables as a means of ensuring exhaustiveness is an illustration of why this may not be possible.
- 25.34 Measures of the non-observed economy will overlap with activities undertaken informally but not exactly match them. Elements not observed will include corrections to measures of informal units that are adequately captured in statistical enquiries. Nevertheless, many of the techniques used to estimate aspects of the non-observed economy, as described in the manual *Measurement of the Non-Observed Economy: a Handbook* are useful for measuring the informal units also.

D. The informal sector as defined by the ILO

1. The ILO concept of the informal sector

25.35 A major focus of this chapter is to present a concept of an “informal sector” as a sub-set of household unincorporated enterprises. This is the characterization of the informal sector in the Resolution of the 15th ICLS on statistics of employment in the informal sector, which described in detail the definitions used by the ILO, as follows:

(1) The informal sector may be broadly characterized 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. 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.

(2) Production units of the informal sector have the characteristic features of household enterprises. The fixed and other assets used do not belong to the

production units as such but to their owners. The units as such cannot engage in transactions or enter into contracts with other units, nor incur liabilities, on their own behalf. The owners have to raise the necessary finance at their own risk and are personally liable, without limit, for any debts or obligations incurred in the production process. Expenditure for production is often indistinguishable from household expenditure. Similarly, capital goods such as buildings or vehicles may be used indistinguishably for business and household purposes.

25.36 Although the expression “informal sector” is used in the context of the ILO work, the word sector is used with a different meaning from the SNA sense of a grouping of institutional units. The ILO work focuses only on production activities and does not include the consumption and accumulation activities of the unit.

2. Defining the sector

25.37 In the SNA, household enterprises do not constitute separate legal entities independently of the household members who own them. Fixed capital used in production may also be used for other purposes, for example the premises where the activity is carried out may also be the family home or a vehicle may be used to transport items produced within the household as well as for normal household transport. The items do not belong to the enterprise as such but to the household members. As a result, it may be impossible to compile a complete set of accounts for the household productive activities including the assets, both financial and non-financial, attributable to those activities. It is for this reason, the lack of complete accounts, that the activity remains within the households sector as an unincorporated enterprise rather than being treated as a quasi-corporation in one of the corporations sectors.

25.38 The ILO concept of the informal sector takes household unincorporated enterprises and further subdivides them into three; one part forming the informal sector, a second part being units treated as formal, because of the numbers of employees or registration, the third part being referred to simply as households. (A note on the different uses of terms such as sector and households follows at the end of this section.)

25.39 The subset of household enterprises treated as belonging to the informal sector have economic objectives, behaviour and a form of organization that sets them apart from other unincorporated enterprises. Specifically, the informal sector is defined according to the types of production the enterprise undertakes, still maintaining the production boundary of the SNA and not extending it to include own-use household services, for example.

Exclusion of units producing purely own final use

25.40 The first restriction is that at least some of the production must be sold or bartered. Thus some household enterprises that the SNA treats as producing “for own final use” because most of their production is so used are included but those that produce exclusively for own final use are excluded. It follows that the activity of dwelling services produced purely for owner-occupation is thus excluded from the informal sector.

Exclusion of units with formal characteristics

25.41 In addition, the coverage of the informal sector is restricted by using additional criteria of numbers of employees and registration. The minimum number of employees chosen is left to the country to decide based on national circumstances. Only those not registered under specific forms of national legislation (such as commercial laws, tax and social security laws and regulatory laws) should be treated as informal.

Figure 25.2: Identifying units in the ILO informal sector

General government	Non-financial and financial corporations	Households			NPISHs
		Households that are registered or have more than a given number of employees	<p align="center">Informal sector enterprises</p> <p align="center">(a) without employees</p> <p align="center">"informal own-account workers"</p> <p align="center">(b) with employees</p> <p align="center">"enterprises of informal employers"</p>	Institutional households, households with no unincorporated enterprises, households only undertaking production for own final use (including owner occupation of dwellings)	

Two categories of informal enterprises

25.42 Although the scope of the informal sector may vary from country to country, depending on the conditions for registration or the minimum number of employees chosen to determine which units are treated as formal, it is always a subset of household unincorporated enterprises operating within the production boundary of the SNA.

25.43 The remaining units are divided into the following two subsets:

- a. *Unincorporated enterprises without employees.* The ILO term for such units is “informal own-account enterprises”.
- b. *Unincorporated enterprises with employees.* The ILO term for such units is “enterprises of informal employers”.

25.44 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 or its employees are met. The delineation of this set of units in terms of the SNA sectors is shown in figure 25.2.

Exclusions on grounds of activity

25.45 Apart from defining the informal sector, the 15th ICLS recommended the following additional considerations about the scope of informal sector and its statistical treatment.

- a. In principle, all goods and services producing activities are within scope. These might be presented according to the alternative aggregation recommended for the analysis of the activities of the informal sector in ISIC Rev. 4. This alternative presentation takes into account that some economic activities such as public administration and defence (ISIC 84) are undertaken by units in general government and so cannot qualify as informal sector activities. However, the ICLS recommends that:
 - agricultural activities (ISIC section A) are measured separately from other economic activities to ensure international comparability and to facilitate the selection and application of appropriate statistical data collection tools and sample design. (Units undertaking only subsistence activity are already excluded as they do not sell any of their output.)
 - activities of households as employers of domestic personnel (ISIC 97) with households being producers for own final use are outside the scope of the informal sector.
- b. Geographical coverage includes both urban and rural areas even if preference may be given initially to informal enterprises operating in urban areas.

- c. Outworkers are included if the units for which they work as self-employed persons or as employees are included in the informal sector.

3. Clarifying the use of familiar terminology

Sector

25.46 The term “sector” in the expression “informal sector” does not have the same basis as the usual use of the word sector throughout the SNA. In the SNA, sectors are made up of complete institutional units; in the context of the informal sector only the productive activities are concerned. Thus, for example and importantly, households having no productive activity are simply not considered in the steps to identify those unincorporated enterprises operated by households that are to be included in the informal sector.

Enterprise

25.47 It follows that the use of the term “enterprise” as used in the ILO description of the informal sector is, in the SNA sense, more like an establishment since it is only the productive activity that is considered and not the existence of a complete set of accounts. For households with unincorporated enterprises, the distinction is a fine one though it is possible that a household may undertake more than one sort of activity. This would still be regarded as a single unincorporated enterprise in the SNA but would be treated as more than one enterprise according to ILO guidelines.

25.48 One reason for this is that the ILO assumes that individual members of a household can own the enterprise and employ workers. In the SNA, the household is not divisible into individuals.

Sub-sectoring production

25.49 The SNA sub-divides production into market production, production for own final use and non-market production. Non-market production is not at issue here, since it is never undertaken by households. However, to meet the ILO guidelines it is necessary to sub-divide producers for own final use into those where some of the production is for sale or barter and those where the production is exclusively for own final use. In the case of unincorporated enterprises where only some of the production is sold or bartered, all of the production of the unit of the goods and services being sold or bartered is still included in production by the informal sector.

Formal sector, informal sector and households

25.50 The SNA does not use the expression formal sector but it is not difficult to conceive of all units in the corporations sectors, general government and NPISHs as being part of a formal sector as far as production is concerned. Quasi-corporations are included because they are included in the corporations sectors. However, this is not the same as saying that any unit that is not informal is formal, since households with unincorporated enterprises not included in the informal sector are divided between those that are

treated as formal and the rest that are not treated as informal but are left simply in a group called households.

25.51 The ILO meaning of households is thus quite different from that of the SNA since the SNA includes all the units included under ILO guidelines as informal, plus those units

with unincorporated enterprises treated as formal, plus those unincorporated enterprises excluded because they produce exclusively for own final use, plus those households with no unincorporated enterprises plus institutional households.

E. Informal employment

1. Informal employment

25.52 Increasingly it has been realised that production alone is not the only aspect of the economy where a distinction between formal and informal is informative, it is also relevant for employment.

25.53 The ILO defines formal employment as employment under terms that bring associated benefits such as paid leave and pension entitlement. All other forms of employment they regard as informal unless the individual establishes a quasi-corporation (or actual corporation).

25.54 As noted in section B, it is possible for formal units to have informal employees and it is also possible (though less likely) that units that are classed as informal may have terms of employment for some of their workers that make them formal employees. The extent of informal employment can be seen in the shaded part of figure 25.3

25.55 As explained in chapter 19, there is a distinction between a job and an employee, one employee being capable of holding several jobs. There are five categories of jobs considered by the ILO. These are:

- a. own-account workers (the self-employed in SNA terms),
- b. heads of unincorporated enterprises with employees, treated as employers,
- c. family workers contributing labour to the unincorporated enterprise,
- d. employees,

e. members of producers' cooperatives.

25.56 Formal enterprises provide informal jobs only as employees or contributing family workers. Households (in the ILO sense) provide informal jobs as own-account workers and employees and no formal jobs. Informal units may offer any of the five types of informal jobs.

Figure 25.3: Informal employment and employment in the informal sector

	Formal jobs	Informal jobs
Formal enterprises		
Informal enterprises		
Other household unincorporated enterprises		

2. Employment in the informal sector

25.57 As well as informal employment in total, it is useful to identify the extent of employment in informal units. This excludes informal jobs in formal units, excludes any informal jobs in other household unincorporated enterprises and includes formal jobs in informal units. The ICLS defines the population employed in the informal sector as comprising all persons who, during a given reference period, were employed in at least one informal sector unit, irrespective of their status in employment and whether it was their main or a secondary job. The coverage of employment in the informal sector is indicated by the heavy border in figure 25.3.

F. Work of the Delhi Group

25.58 In 1997 an expert group on the informal sector statistics was set up by the United Nations Statistical Commission as a "city group" and is known as the Delhi Group. One of its objectives was to try to identify internationally comparable data for the informal sector or, at least, a common subset of it.

25.59 The third meeting of the Delhi Group in 1999 proposed a subset of the informal sector that could be defined uniformly across countries, though this sub-set presently covers only a relatively small part of the informal sector. These recommendations are as follows:

- a. All countries should use the criteria of legal organisation (unincorporated enterprises), of type of accounts (no complete set of accounts) and of product destination (at least some market output).
 - b. Specification of the employment size limit of the enterprise in the national definition of the informal sector is left to the country's discretion. For international reporting, however, countries should provide figures separately for enterprises with less than five employees. In the case of multiple-establishment enterprises, the size limit should apply to the largest establishment.
 - c. Countries using the employment size criterion should provide disaggregated figures for enterprises that are not registered, as well as for enterprises that are registered.
 - d. Countries using the criterion of non-registration should provide disaggregated figures for enterprises with less than five employees as well as for enterprises with five and more employees.
 - e. Countries that include agricultural activities should provide figures separately for agricultural and non-agricultural activities.
 - f. Countries should include persons engaged in professional or technical activities if they meet the criteria of the informal sector definition.
 - g. Countries should include paid domestic services unless these are provided by employees of the household where the services are rendered.
 - h. Countries should follow paragraph 18 of the Resolution adopted by the 15th ICLS regarding the treatment of outworkers/home-workers. Countries should provide figures separately for outworkers/home-workers included in the informal sector.
 - i. Countries covering urban as well as rural areas should provide figures separately for both urban and rural areas.
 - j. Countries using household surveys or mixed surveys should make an effort to cover not only persons whose main job is in the informal sector, but also those whose main job is in another sector and who have a secondary activity in the informal sector.
- 25.60 Subsequent work of the Delhi Group examined many studies on national practices in the collection of data on the informal sector to lead up to the provision of a manual on the informal sector and informal employment to be published by the ILO.

G. Deriving data on activities undertaken informally from the SNA accounts

25.61 In trying to identify activities undertaken informally by units in the economy within the national accounts, three steps are necessary. The first is to identify those unincorporated enterprises within the whole of the SNA households sector that are candidates to be included. The second is to consider national practices in establishing the households sector to see if any adjustment to the first step is necessary. The third step is to provide a breakdown by type of activity so that common exclusions according to type of activity can be made.

1. Candidate households

25.62 The households sector includes some institutional units that should be excluded at the outset. These are:

- a. Institutional households such as prisons, religious orders and retirement homes;
- b. Households with no production activity (that is do not include an unincorporated enterprise);
- c. Households whose only activity is the production of services from owner-occupied dwellings, the production of services by employing domestic staff, or both.

25.63 The remaining households all contain some production activity. However, it will include both market production and production for own final use. The ILO guidelines on categorising households include a definition of market production that does not conform to the SNA category. The ILO treats an enterprise as a market producer if any of the output is sold whereas the SNA requires that most or all of the output be sold. To overcome this difference, it is recommended that a three-way split of production be made,:

- a. market production according to the SNA criterion whereby most or all output is sold,
- b. output for own final use where some is sold, and
- c. output exclusively for own final use.

The sum of the first two categories then accords with the ILO guidelines for inclusion in the informal sector.

25.64 The ILO also distinguishes households between those that do not have workers employed on a continuous basis and those that do, as follows:

- a. Unincorporated enterprises without employees on a continuing basis,

- b. Unincorporated enterprises with employees on a continuing basis.

This categorization is combined with the preceding one as indicated in figure 25.4.

2. Adjustments for national practices

- 25.65 Although the SNA recommends separating NPISHs into a sector separate from households, not all countries do this. If they are not already separated from households, they should be removed at this stage.
- 25.66 Production units that are not formally incorporated but have complete accounts should be treated as quasi-corporations and excluded from the households sector. If this is not national practice, a further adjustment is necessary to remove them.
- 25.67 The SNA also recommends that small enterprises without complete sets of accounts should be included in the households sector as unincorporated enterprises. Some countries, however, prepare production estimates by type of activity for inclusion in a supply and use framework without regard to whether a full set of accounts exists. By default, all may be included in the corporations sectors with little production remaining in the households sector apart from the imputed services of owner-occupied dwellings and the services provided by paid domestic staff. It is therefore recommended that estimates for unregistered enterprises with less than five employees be extracted from the figures for the corporations sector to set alongside the figures from the households sector. Similarly any enterprises that are unincorporated but registered should be separately identified.
- 25.68 Figure 25.4 demonstrates how the potential units for treatment according to the ILO definition of the informal

sector relate to the institutional sectors of the SNA. The light shading under corporations indicates that in principle any enterprise that is not registered and has fewer than a given number of employees should be identified if it has been included in corporations. In practice, it may not be possible to separate those that are registered from those that are not.

3. Disaggregation by type of activity

- 25.69 The third step is to disaggregate the production activities from households, grouped as suggested above, and those extracted from the corporations sectors for small-scale activities according to the type of activity concerned. Because the separation is initially in terms of units and not activities, there will still be some services from owner-occupied dwellings included and these should be eliminated. If a cross-classification by activity and type of unit is available, a choice can be made about whether to include or exclude an activity that is exclusively for own use even when another activity by the same unit includes sales outside the households.
- 25.70 Some further exclusions may also be made, for example services provided by paid domestic staff and agricultural production.
- 25.71 The problem remains about how to treat individuals supplying labour under a service contract. Institutionally there may be no difference in terms of legal requirements to register the activity, submission of tax returns and so on between a retired international civil servant acting as a consultant with a formal contract and a carpenter working for a household on the basis of a written estimate.
- 25.72 It is possible that some rules of thumb may be conceived, for example depending on the type of activity, the rates of pay or the duration of the task, but objections to any of

Figure 25.4: Identifying units for the ILO informal sector from within the SNA institutional sectors

General government	Non-financial and financial corporations		Households						NPISHs
	Those that are registered or with greater than a given number of employees	Those that are unregistered or with fewer than a given number of employees	Those that are registered or with greater than a given number of employees	Self-employed (informal own-account worker)		Unincorporated enterprise with employees (enterprises of informal employers)			Institutional households, households with no unincorporated enterprises, households only undertaking production for own final use (including owner occupation of dwellings)
				Market producers	Producers for own final use		Market producers	Producers for own final use	
				Selling most or all production	Selling some production	Not selling any production	Selling most or all production	Selling some production	Not selling any production

these are easy to formulate and implementation would be extremely difficult.

4. Presenting the data on the informal sector and informal employment

25.73 The information relating to activities undertaken informally extends only as far as the production and generation of income account. It is not possible to go farther in the sequence of accounts because of the impossibility of identifying which other income flows, consumption and capital formation relate only to the activity in question rather than to the household to which they belong as a full institutional unit. Thus the informal sector, as explained previously, is not strictly a sector in the SNA sense and so the figures for it cannot be presented in terms of the full sequence of accounts. However, it is recommended that where possible two supplementary tables should be prepared, one covering production and the generation of income and one covering employment.

Production

25.74 It is suggested that the following type of information be provided for each of the shaded areas in table 25.4:

- a. Production
 - of which for own use
- b. Intermediate consumption
- c. Value added
- d. Compensation of employees (for unincorporated enterprises with employees only)
- e. Gross mixed income

f. Consumption of fixed capital

g. Net mixed income.

25.75 Further information may also be useful if available. For example, a breakdown of production by type of activity and, possibly, the proportion of the total production in the industry produced by informal units.

25.76 In countries where some small units that might be considered part of the informal sector are covered by enterprise surveys and included in the coproations sector, there may be units of interest in the lightly shaded cell in table 25.4. If this is so, and if separate estimates for them can be identified, it would be useful to show these alongside the entries for those units clearly within the households sector.

Employment

25.77 Information on the number of jobs should be presented showing:

- a. Employment in the informal sector
 - Formal jobs
 - Informal jobs
- b. Informal employment outside the informal sector
 - In the formal sector
 - In other household unincorporated enterprises

25.78 If possible, information on the hours worked in each of these categories would be useful.

H. Approaches to measuring activities undertaken in the informal economy

25.79 It is neither possible nor appropriate to give detailed information in the SNA on survey methodology and questionnaire design. However, it is useful for national accountants to be aware of some of the options that may be available to help in collecting data on production in units in the informal economy. More detailed discussion is available in, for example, the manual on *Measuring the Non-Observed Economy*.

25.80 The choice of the appropriate method for measuring the informal sector depends upon how adequately established data collection methods cover the activities of interest. Three main measurement approaches are considered here. The choice between them will depend upon what information is missing from existing collections, the organization of statistical systems, the resources available and user needs.

1. Household surveys

25.81 A household survey (or labour force survey) may provide a means to collect information on production by household enterprises that are not included in the sampling frames used for establishment surveys. It may also be possible to collect data on informal sector employment in household or labour force surveys. Questions seeking this sort of information could be addressed to everyone in the sampled households during the reference period of the survey, irrespective of their status in employment and in respect of their main and secondary jobs since in many countries a large number of informal sector activities are undertaken as secondary jobs. Special questions may be required for unpaid work in small family enterprises, activities undertaken by women and children, activities undertaken away from home, undeclared activities and informal sector businesses conducted as secondary jobs. The success of

such an approach is dependent on the survey sample including representative geographical areas where household activities take place and informal sector workers live.

- 25.82 It should be borne in mind, though, that although employees, contributing family workers and proxy respondents may be engaged in household and informal enterprises, they may have limited knowledge of the operations of the enterprises in question and may not be able to respond to such questions.

2. Establishment surveys

- 25.83 In most cases, an establishment survey can be used to measure activity undertaken by a unit in the informal economy only when a household establishment survey is carried out just after an economic or establishment census because the sampling frame may not include information, or not up-to-date information on household enterprises.
- 25.84 Even when an establishment survey is used to measure household production units including those of the informal sector, it should be noted that production units without a fixed location or with unrecognizable business premises are easily omitted in the collection. In addition, double counting of household production may occur if the collections for different types of economic activity are undertaken at different times rather than simultaneously in an integrated design. For example, the manufacturing

activity of a household producing goods in a small workshop or at home may be included in one collection round while the retail sales activity undertaken by the same family of those produced goods is measured in another round.

3. Mixed household-enterprise surveys

- 25.85 A mixed household-enterprise survey is generally designed with enterprise modules attached to existing labour force or other household modules. Such a survey could cover all household entrepreneurs of the sampled households including informal entrepreneurs (including units operating without fixed premises such as mobile units) and their activities, irrespective of the size of the enterprises, the kind of activity and the type of workplace used and of whether the activities are undertaken as main or secondary jobs.
- 25.86 When a mixed household-enterprise survey is used as the preferred method, attention should be paid to the question of whether the sample adequately reflects the geographical distribution of economic activities of household production. It is also necessary to consider how enterprises with production units in more than one location are handled and how duplication of coverage for enterprises that are operated under partnerships may be avoided if the same enterprise is reported by each of its partners who may belong to different households.

I. Guidelines, studies and handbooks on the informal economy

- 25.87 Since the publication of the *1993 SNA*, significant advances in methodology have taken place in fields related to the informal economy. Also, countries have gained extensive experience in collecting and working with data on the informal sector. These developments, which are highlighted below, suggest that there is a body of work to be taken into account in updating the treatment of the informal sector in the SNA.
- The proceedings and papers of the meetings of the Delhi Group on Informal Sector Statistics, beginning in 1997, contain the results of extensive conceptual and analytical work, including country practices in the area of the informal sector. Various papers of the Expert Group on Informal Sector Statistics (Delhi Group), at http://www.mospi.nic.in/mospi_informal_sector.htm.
 - The United Nations handbook *Household Accounting: Experience in Concepts and Compilation, Volume 1: Households Sector Accounts* (UN, 2000), the product of a 1997 expert group, contains papers on various aspects of the treatment and measurement of the informal sector. The chapter “The informal sector as part of the households sector” is of particular interest.
 - The results of the work started by Eurostat in the mid-1990s and carried out through its Task Force for Accuracy Assessment of Basic data in European Union member countries and the related pilot tests conducted in candidate countries revealed the extent of exhaustiveness adjustments and their implications for the value of the GDP.
 - Research on statistical methods for improving the exhaustiveness of measures of economic production lead to the preparation by OECD, IMF, ILO, and CISSTAT of the handbook *Measuring the Non-observed Economy* (OECD, 2002). The handbook’s chapter on informal sector production provides a core definition, clarifies the distinctions between informal sector production and concepts with which it is often confused, and outlines the main methods for measurement.
 - The UNECE has carried out surveys of country practices three times and published the results. The first was in respect of 1991 and covered nine countries. The results were published as an *Inventory of national practices in estimating hidden and informal activities for national accounts* in 1993. The second survey was

in respect of 2001/2 and covered 29 countries, The results are summarized in the 2003 UNECE manual *Non-observed Economy in National Accounts*. The third survey was carried out for 2005/6 and 45 countries responded. Both the second and third surveys asked for estimates of the size of the non-observed economy as well as elaborating on the methods used. The results of the third survey were published in 2008 with the same title as the second survey, *Non-observed Economy in National Accounts*.

There are many ILO documents that elaborate the concept of informal sector and informal employment. These include the Resolution concerning statistics of employment in the informal sector, adopted by the 15th ICLS (January 1993), at <http://www.ilo.org/public/english/bureau/stat/res/index.htm>, and *Guidelines concerning a statistical definition of informal employment* adopted by the 17th ICLS, 2003. Other useful information can be found in *Women and Men in the Informal Economy: A Statistical Picture*. (ILO,

2002); Hussmanns, “*Measuring the Informal Economy: From employment in the informal sector to informal employment*.” (ILO Working Paper No. 53, December 2004). Hussmanns, “*Measurement of Informal Employment: Recent International Standards*,” at the Commonwealth Statisticians Conference, 2005. ILO Compendium of Official Statistics on Employment in the Informal Sector, at <http://www.ilo.org/public/english/bureau/stat/papers/comp.htm>

Over the decade, a number of workshops with a focus on the informal sector were held, organized singly or jointly by UNSD, the regional commissions, ILO, and others. The most recent of these were the OECD/UNESCAP/ADB Workshop on Assessing and Improving Statistical Quality: Measuring the Non-observed Economy, held in Bangkok in May 2004 and the Workshop on Household Surveys and the Measurement of the Labour Force with focus on the Informal Economy held for SADC countries in Maseru, Lesotho in April 2008.

Chapter 26: The rest of the world accounts and links to the balance of payments

A. Introduction

26.1 This chapter is about the relationship between the rest of the world sector in the SNA and the international accounts as described in *BPM6*. It shows that the two manuals use the same macroeconomic framework, with the international accounts providing additional detail on aspects of particular relevance in international transactions or positions.

1. The rest of the world account in the SNA

26.2 In the SNA, transactions between a resident unit and the rest of the world are recorded as if the units in the rest of the world were another sector of the economy. The production and generation of income accounts relate only to transactions within the national economy but flows in all other accounts potentially have an entry for the rest of the world. These entries are necessary to balance each row of the sequence of accounts but they do not enter the aggregate balancing items. For example, the difference between GDP and GNI derives from transactions for both uses and resources recorded in the allocation of primary income account where the counter-party is a unit in the rest of the world. If the counter-party entries for the rest of the world were also included, there would be no difference between the balancing items.

Current accounts

26.3 Because the rest of the world account is shown in this way, flows to the rest of the world are shown as a use by the rest of the world and flows from the rest of the world as resources. For example, exports are shown as uses of the rest of the world and imports as resources from the rest of the world. Entries for imports and exports form part of the goods and services account in the SNA sequence of accounts.

26.4 As well as entries for imports, exports and the items appearing in the allocation of primary income account, there are potential transactions with the rest of the world to be recorded for all entries in the secondary distribution of income account and for the adjustment item for the net change in pension liabilities appearing in the use of income account.

26.5 There are no entries for the rest of the world account for intermediate or final consumption (or for fixed capital formation) because the use made of the goods and services in another economy is not relevant for the national economy; only the total amount exported is.

26.6 Although balancing items are not calculated in the SNA for the rest of the world account for each individual account, two balancing items relevant to the current accounts are important. The first is the external balance on goods and services, which is the difference between imports and exports. The second is the current external balance which is the sum of all resources coming from the rest of the world less all uses going to the rest of the world, including imports and exports. The current external balance thus shows how far residents call on saving by non-residents.

Accumulation accounts

26.7 In the rest of the world capital account, there is no entry for fixed capital formation, as noted above. It is possible for a transaction to be recorded for a natural resource, for a contract, lease or licence or for goodwill and marketing assets. By their nature, though, and given that land is almost always acquired by a resident unit, such entries will not be common. On the other hand, capital transfers to and from the rest of the world may be quite important.

26.8 The financial account and balance sheets detailing transactions in, and stocks of, financial assets and liabilities where one party is non-resident are viewed as a particularly important part of the rest of the world accounts. Indeed, in *BPM6* more text is devoted to these items than to the items in the current accounts.

26.9 In addition, there are possible entries for other changes in the volume of assets and liabilities and revaluation items for both, relevant to the rest of the world account.

2. The international accounts in *BPM6*

26.10 In the description of the rest of the world accounts above, it was noted that exports, for example, are treated as a use by the rest of the world and imports as a resource from the rest of the world. As its name implies, the rest of the world account is drawn up from the perspective of the rest of the world. *BPM6* looks at the same stocks and flows from the point of view of the domestic economy. Thus the *BPM6* entries are the mirror image of the SNA entries relating to the rest of the world.

26.11 Further, in the context of *BPM6*, stock levels are usually referred to as positions and the balance sheet accounts for all financial assets and liabilities where one party to the

arrangement is non-resident is called the international investment position.

26.12 The international accounts for an economy summarize the economic relationships between residents of that economy and the rest of the world. They comprise:

- a. the balance of payments, which summarizes transactions between residents and non-residents during a specific time period;
- b. the international investment position (IIP), which shows at a point in time the value of: financial assets of residents of an economy that are claims on non-residents or are gold bullion held as reserve assets; and the liabilities of residents of an economy to non-residents; and
- c. the other changes in financial assets and liabilities accounts, a statement that shows other flows, such as valuation changes, which reconcile the balance of payments and IIP for a specific period by showing changes due to economic events other than transactions between residents and non-residents.

These accounts correspond with the transactions, balance sheets and other changes in assets accounts in the SNA,

respectively. Note, though, that what appear as assets in the rest of the world account appear as liabilities in the international accounts and vice versa.

3. The structure of the chapter

26.13 Section B of the chapter discusses the accounting rules of the international accounts. These are consistent with the SNA accounting rules and agreement has been reached on when the SNA and when *BPM6* takes the lead in defining the rules to be applied in both contexts. Residence is a case in point where the SNA follows *BPM6*.

26.14 The structure of the international accounts, and their relation to similar SNA accounts is the subject of section C.

26.15 A feature of the financial accounts and IIP of the international accounts is the introduction of functional categories that describe the main purpose of financial investment abroad. This is the subject of Section D.

26.16 Section E touches on some considerations of particular importance to the international accounts; global imbalances, exceptional financing, debt reorganisation, currency unions and currency conversions.

B. Accounting principles

1. Comparison with SNA accounting principles

26.17 The balance of payments has a double-entry accounting system. In principle, every time a resident unit undertakes a transaction with the rest of the world, it should also record the consequential financial transaction. However, national compilers are unable to verify independently from accounts recorded in the rest of the world that the national entries are complete and consistent. As a result, although in principle the balance of payments is balanced, in practice, there may be an imbalance due to shortcomings in source data and compilation so that there is a mis-match between financial transactions and their counterparts within the domestic economy. This imbalance, a usual feature of published balance of payments data, is labelled net errors and omissions. The balance of payments manuals have traditionally discussed this item, to emphasize that it should be published explicitly, rather than included indistinguishably in other items and that it should be used to indicate possible sources of mismeasurement.

26.18 However, there has been increasing interest in estimates that are derived from counterpart reporting that has better coverage, valuation, etc. As well, there has been much work done on reconciling data from the view of both parties (for example, exports of one country, with the counterpart imports recorded by the partner country) and global totals. Counterparty data are also necessary to prepare consolidated data for a currency or economic union from the data of individual member countries. In effect, all

this work is built on the fact that balance of payments statistics effectively become a quadruple-entry system when used at the bilateral or global level.

Valuation

26.19 Valuation principles are the same in the SNA and the international accounts. In both cases, market values are used, with nominal values used for some positions in instruments where market prices are not observable. In the international accounts, the valuation of exports and imports of goods is a special case where a uniform valuation point is used, namely the value at the customs frontier of the exporting economy, that is, the FOB-type valuation (free on board). This treatment brings about consistent valuation between exporter and importer and provides for a consistent basis for measurement in circumstances where the parties may have a wide range of different contractual arrangements, from “ex-works” at one extreme (where the importer is responsible for arranging all transport and insurance) to “delivered duty paid” at the other (where the exporter is responsible for arranging all transport, insurance and any import duties). In international transactions, there may be motivations for under- or over-invoicing in order to evade taxes or exchange controls, so *BPM6* provides guidance on how to develop market-equivalent prices when these cases are identified, and how to make the necessary adjustments needed to other items affected. There is further discussion on the recording of imports and exports in chapters 14 and 28.

Time of recording and change of ownership

- 26.20 Time of recording and ownership principles are the same in the SNA and the international accounts. In practice, the change of economic ownership of goods is often taken to be when the goods are recorded in customs data. To the extent that there are differences between customs data and actual changes in ownership, such as for items with large values or goods sent on consignment (that is, dispatched before they are sold), adjustments are made.
- 26.21 There are no longer any exceptions to the recording basis of the change of economic ownership. However, there is a different presentation in the case of merchanting; that is, where an owner buys and resells goods in the same condition without the goods passing through the territory of the owner. In that case, the acquisition of the goods is identified as a change of ownership, but shown as a negative export rather than an import on acquisition of the goods and as a positive export on disposal. If the goods are acquired in one period and not disposed of until a subsequent period, they will appear in changes in inventories of the merchant even though these inventories are held abroad.
- 26.22 The principle of recording imports and exports when change of ownership takes place applies also to items such as high-value capital goods where change of ownership is recorded as work is put in place. (See paragraphs 10.54 and 10.55.)

Netting

- 26.23 The same rules on netting are applied in *BPM6* as in the SNA. In general, netting is not advised except in the special case of recording transactions in financial assets and liabilities. However, only acquisitions and disposals of the same type of asset (or incurrence and redemption of the same type of liability) are netted. There is no netting of assets against liabilities, even of the same sort of instrument and no netting across different sorts of instruments.

2. Units

- 26.24 The international accounts and the SNA are built on the same definitions of institutional units and residence. Because the international accounts focus on economic relationships between residents and non-residents, more elaboration of borderline cases is provided in *BPM6*.

Economic territory

- 26.25 The most commonly used concept of economic territory is the area under the effective economic control of a single government. However, currency or economic unions, regions, or the world as a whole may be used, as they may also be a focus for macroeconomic policy or analysis.
- 26.26 An economic territory includes the land area including islands, airspace, territorial waters and territorial enclaves in the rest of the world (such as embassies, consulates, military bases, scientific stations, information or immigration offices, that have immunity from the laws of

the host territory) physically located in other territories. Economic territory has the dimensions of physical location as well as legal jurisdiction, so that corporations created under the law of that jurisdiction are part of that economy. The economic territory also includes special zones, such as free trade zones and offshore financial centres. These are under the control of the government so are part of the economy, even though different regulatory and tax regimes may apply. (However, it may also be useful to show separate data for such zones.) The territory excludes international organizations and enclaves of other governments that are physically located in the territory.

Institutional units

- 26.27 The concept of an institutional unit is the same in the SNA and *BPM6*. Because of the focus on the national economy, there are some special treatments of units in cross-border situations. As discussed below, in some cases, legal entities are combined into a single institutional unit if they are resident in the same economy, but are not combined if they are resident in different economies. Similarly, a single legal entity may be split when it has substantial operations in two or more economies. As a result of these treatments, the residence of the resulting units concerned becomes more clear-cut and the concept of the economic territory is strengthened.
- 26.28 As discussed in Chapter 4, resident artificial subsidiaries and special purpose entities (SPEs) are combined with their owners into single legal entities. However, a legal entity that is resident in one jurisdiction is never combined with a legal entity resident in another. As a result, SPEs and other similar corporate structures owned by non-residents are considered to be resident of their territory of incorporation, even though most or all of their owners and most or all of their assets are in another economy.
- 26.29 Similarly, members of a household must all be resident in the same economy. If a person resides in a different economy from the other members of a household, that person is not regarded as a member of that household, even though they may share income and expenses, or hold assets together.

Branches

- 26.30 A branch is an unincorporated enterprise that belongs to a non-resident unit, known as the parent. It is resident and treated as a quasi-corporation. The identification of branches as separate institutional units requires indications of substantial operations that can be separated from the rest of the entity. A branch is recognized in the following cases:
- Either a complete set of accounts, including a balance sheet, exists for the branch, or it is possible and meaningful, from both an economic and legal viewpoint, to compile these accounts if required. The availability of separate records indicates that an actual unit exists and makes it practical to prepare statistics.

In addition, one or both of the following factors tend to be present:

- b. The branch undertakes or intends to undertake production on a significant scale which is based in a territory other than that of its head office for one year or more:
 - if the production process involves physical presence, then the operations should be physically located in that territory;
 - if the production does not involve physical presence, such as some cases of banking, insurance, other financial services, ownership of patents, merchanting and “virtual manufacturing,” the operations should be recognized as being in the territory by virtue of the registration or legal domicile of those operations in that territory;
- c. The branch is recognized as being subject to the income tax system, if any, of the economy in which it is located even if it may have a tax-exempt status.

26.31 The identification of branches has implications for the statistical reporting of both the parent and branch. The operations of the branch should be excluded from the institutional unit of its head office and the delineation of parent and branch should be made consistently in both of the affected economies. A branch may be identified for construction projects or mobile operations such as transport, fishing or consulting. However, if the operations are not substantial enough to identify a branch, they are treated as an export of goods or services from the head office by delivering them to another location.

26.32 In some cases, preliminary operations related to a future direct investment project prior to incorporation are sufficient evidence of establishing residence that a quasi-corporation is established. For example, licenses and legal expenses for a project are shown as being incurred by a quasi-corporation, and are part of direct investment flows into that unit rather than sales of licenses to non-residents, or exports of services, respectively, to the head office.

Notional resident units

26.33 When land located in a territory is owned by a non-resident entity, a notional unit that can be treated as resident is

identified for statistical purposes as being the owner of the land. This notional resident unit is a kind of quasi-corporation. The notional resident unit treatment is also applied to associated buildings, structures and other improvements on that land, leases of land for long periods, and ownership of natural resources other than land. As a result of this treatment, the non-resident is owner of the notional resident unit, rather than owning the land directly, so there is an equity liability to the non-resident, but the land and other natural resources are always assets of the economy in which they are located. The notional resident unit usually supplies services to its owner, for example accommodation in the case of vacation homes.

26.34 In general, if a non-resident unit has a long-term lease on an immovable asset such as a building, this is associated with it undertaking production in the economy where it is located. If for any reason there is no associated production activity, a notional resident unit is also created to cover such a lease.

Multi-territory enterprises

26.35 A few enterprises operate as a seamless operation over more than one economic territory, typically for cross-border activities such as airlines, shipping lines, hydroelectric schemes on border rivers, pipelines, bridges, tunnels and undersea cables. If possible, separate branches should be identified, but if the entity is run as a single operation with no separate accounts or decision-making for each territory that it operates in, it is not possible to delineate branches. In such cases, because of the central focus on data for each national economy, it is necessary to split the operations between economies. The operations should be prorated according to an appropriate enterprise-specific indicator of the proportions of operations in each territory. The prorating treatment may also be adopted for enterprises in zones subject to joint administration by two or more governments.

3. Residence

26.36 *The residence of each institutional unit is the economic territory with which it has the strongest connection, expressed as its centre of predominant economic interest.* An institutional unit is resident in an economic territory when there exists, within the economic territory, some

Table 26.1: Selected effects of a household’s residence status on the statistics of the host economy

Economic flow or position	Resident (for example, long-term guest worker)	Non-resident (for example, short-term guest worker)
Compensation of employees received from enterprises in the reporting economy	Resident-to-resident compensation of employees	Resident-to-non-resident compensation of employees
Personal expenditure in the reporting economy	Resident-to-resident transaction	Exports of services, mainly travel
Transfers to relatives in home economy	Resident-to-non-resident current or capital transfers	Non-resident-to-non-resident transfer (There is often some international financial transaction of the short-term worker returning funds from his host to his home economy, for example via a bank in the host economy)
A resident institutional unit’s financial claims on or liabilities to the household	Resident-to-resident financial claim	International financial claim
Land and buildings owned in host economy	Non-financial asset	Non-financial asset and direct investment liability of a notional resident unit
Land and buildings owned in home economy	Direct investment asset in notional resident unit	Not in balance sheet of host economy

location, dwelling, place of production, or other premises on which or from which the unit engages and intends to continue engaging, either indefinitely or over a finite but long period of time, in economic activities and transactions on a significant scale. The location need not be fixed so long as it remains within the economic territory. Actual or intended location for one year or more is used as an operational definition. While the choice of one year as a specific period is somewhat arbitrary, it is adopted to avoid uncertainty and facilitate international consistency. Most units have strong connections to only one economy but with globalization, a growing number have strong links to two or more economies.

Residence of households

26.37 A household is resident in the economic territory in which household members maintain or intend to maintain a dwelling or succession of dwellings treated and used by members of the household as their principal dwelling. If there is uncertainty about which dwelling is the principal dwelling, it is identified from the length of time spent there, rather than other factors such as cost, size, or length of tenure. Being present for one year or more in a territory or intending to do so is sufficient to establish a principal dwelling there. The implications of the residence of a household for the recording of its flows and stocks are summarized in table 26.1.

26.38 In addition to the general principles, additional guidance in determining the residence of households is given in the following specific cases:

- a. *Students.* People who go abroad for full-time study generally continue to be resident in the territory in which they were resident prior to studying abroad. This treatment is adopted even though their course of study may exceed a year. However, students change to being residents of the territory in which they are studying when they develop an intention to continue their presence in the territory of study after the completion of the studies. Members of the same household who are accompanying dependents of students are also considered to be residents of the same economy as the student.
- b. *Patients.* People who go abroad for the purpose of medical treatment maintain their predominant centre of

interest in the territory in which they were resident prior to the treatment, even in the rare cases where complex treatments take a year or more. As with students, accompanying dependents are treated in the same way.

- c. *Crew of ships etc.* Crew of ships, aircraft, oil rigs, space stations or other similar equipment that operate outside a territory or across several territories are treated as being resident in the territory of their home base.
- d. *Diplomats, military personnel, etc.* National diplomats, military personnel and other civil servants employed abroad in government enclaves and their households are considered to be residents of the economic territory of the employing government. However, other employees, such as locally recruited staff and international organization staff are resident in the location of their principal dwelling.
- e. *Cross-border workers.* There is no exception for these workers. The residence of the persons concerned is based on the principal dwelling, rather than the territory of employment, so employees who cross borders to undertake a job still have their residence determined from their principal dwelling.
- f. *Refugees.* No special treatment is adopted for refugees, so their residence will change from their home territory if they stay or intend to stay in another economy for a year or more, regardless of their legal status or intention to return.
- g. *Highly mobile individuals.* Some individuals have close connections with two or more economies. In cases of no principal dwelling, or two or more principal dwellings in different economies, the residence is determined on the basis of the territory in which the predominant amount of time is spent in the year. While these individuals need to be classified as residents of a single economy for statistical purposes, additional information may be needed in recognition of strong ties to another economy.

26.39 When households change their economy of residence, there are changes to the status of the assets they own and liabilities they owe. These changes are recorded as reclassifications through the other changes in volume

Table 26.2: Selected effects of the residence status of an enterprise owned by a non-resident on the statistics of the host economy

Economic flow or position	Resident enterprise (for example, major long-term construction project)	Non-resident enterprise (for example, minor short-term construction project)
Sales by enterprise to residents	Resident-to-resident transaction	Imports of goods and services
Purchases by enterprise from residents	Resident-to-resident transaction	Exports of goods and services
Compensation of employees payable to residents of host economy	Resident-to-resident compensation of employees	Non-resident-to-resident compensation of employees
Compensation of employees payable to residents of home economy	Resident-to-non-resident compensation of employees	Not a transaction of host economy
Net operating surplus	Dividends payable or reinvested earnings	Not a transaction of host economy
Injections of funds by owners	Direct investment liabilities of the reporting economy	Not a transaction of host economy
A resident institutional unit's financial claims on or liabilities to the enterprise	Resident-to-resident financial claims	International financial claims

account. Because of the treatment of having a notional resident unit for ownership of land by non-residents, new notional units may be identified or old ones converted to ownership of the assets as a result of changes in residence of the owners.

Residence of enterprises

- 26.40 An enterprise is resident in an economic territory when the enterprise is engaged in a significant amount of production of goods or services from a location in the territory. Taxation and other legal requirements tend to result in the use of a separate legal entity for operations in each legal jurisdiction. In addition, a separate institutional unit is identified for statistical purposes where a single legal entity has substantial operations in two or more territories (for example, for branches, land ownership and multi-territory enterprises, as noted above). As a result of splitting such legal entities, the residence of each of the subsequently identified enterprises is usually clear. The implications of the residence of an enterprise for the recording of its flows and stocks are summarized in table 26.2.
- 26.41 In some cases, the physical location of an enterprise is not sufficient to identify its residence because the enterprise has little or no physical presence, for example its administration is entirely contracted out to other entities. Banking, insurance, investment funds, securitization vehicles and some special purpose entities may operate in this way. Many trusts, corporations, or foundations that hold private wealth also have little or no physical presence. Similarly, with virtual manufacturing, all the physical processes are outsourced to other units. In the absence of any significant physical dimension to an enterprise, its residence is determined according to the economic territory under whose laws the enterprise is incorporated or registered. The incorporation and registration represent a substantial degree of connection to the economy, associated with jurisdiction over the enterprise's existence and operations. In contrast, other connections such as ownership, location of assets, or location of its managers or administrators may be less clear-cut.

- 26.42 In some cases, laws allow enterprises to change their economy of residence, such as within an economic union. In such cases, as for households, a change of residence means that their assets and liabilities change their status through other changes in volumes. More commonly, what is called "corporate migration" involves the conveyance of assets and liabilities from a corporation in one economy to a related entity in another economy rather than a change of residence of the entity.

Residence of other entities

- 26.43 General government includes extraterritorial enclaves, such as embassies, consulates, military bases and other enclaves of foreign governments. However, an entity created by a government under the laws of another jurisdiction is an enterprise resident in the host jurisdiction and not part of the general government sector in either economy.
- 26.44 International organizations are resident in an economic territory of their own and not of the economy in which they are physically located. An international organization that operates military forces or acts as the interim administration in a territory remains as an international organization and is non-resident in that territory, even if it undertakes general government functions there. In cases where these organizations are significant, it may be desirable to identify them separately. Some international organizations cover a group of economies in a particular region, such as with economic or currency unions. If statistics are prepared for that region as a whole, these regional organizations are residents of the region as a whole, even though they are not residents of any member economy.
- 26.45 A non-profit institution serving households (NPISHs) has a centre of economic interest in the economy where the institution is legally created or otherwise officially recognized. When an NPISH is engaged in charity or relief work on an international scale, the foreign operations may be sufficiently substantial to be recognized as branches.

C. A comparison between the international accounts and the SNA rest of the world accounts

- 26.46 Like the SNA, the international accounts cover accounts for current transactions, accumulation accounts and balance sheets. The transaction accounts are collectively called the balance of payments. An overview of the international accounts presentation (using the *SNA* numerical example) is given in tables 26.3. The three current accounts are the goods and services account, the primary income account and the secondary income account. The primary income account corresponds to the allocation of primary income accounts in the *SNA*, the secondary income account to the secondary distribution of income account in the *SNA*. The income accounts in *BPM6* do not use distribution and redistribution in their titles, since they do not show distribution and redistribution from one party to another, but just show the income from the point of view of one

party. Because there is no account corresponding to use of income in the international accounts, the change in pension entitlements term appears as a single item after the secondary income account. (Cross-border pensions are minor for most economies.)

- 26.47 There are no exact parallels in the international accounts for the production account, the generation of income account and use of income account because the international accounts do not describe production, consumption (or capital formation). Products imported and exported are treated as simple transactions in all cases; whether the products will eventually be used for intermediate consumption, final consumption, capital formation, or will be re-exported is unknown in the context of the

international transaction. The use made of products is entirely domestic in nature.

change of economic ownership from a unit in one economy to a unit in another country. Although there is usually a physical movement of goods when there is a change of ownership, this is not necessarily the case. In the case of merchanting, goods may change ownership and not change location until they are resold to a third party.

26.48 Tables 26.3 also shows the restricted form of the capital account in the international accounts and the financial account using the functional classification of financial transactions rather than the instrument classification used in the SNA. Because the functional classification is a grouping of instruments, the two forms of presentation are strictly consistent. The functional classification is described below in section D. (The explanation of the shaded cell for reserves liabilities is explained in section D also.)

26.50 Goods that change location from one economy to another but do not change economic ownership do not appear in imports and exports. Thus goods sent abroad for processing, or returned after processing, do not appear as imports and exports of goods; only the fee agreed for processing appears as a service.

1. Goods and services account

26.49 The goods and services account consists only of imports and exports of goods and services because these are the only transactions in goods and services with a cross-border dimension. Goods and services are recorded when there is a

26.51 The balance of payments gives emphasis to the distinction between goods and services. This distinction reflects policy interests, in that there are separate international treaties covering goods and services. It also reflects data issues, in that data on goods are usually obtained from customs

Table 26.3: Overview of Balance of Payments

	Credits	Debits	Balance
Current accounts			
Goods and services account			
Goods	462	392	
Services	78	107	
<i>Goods and services</i>	540	499	41
Primary income account			
Compensation of employees	6	2	
Interest	13	21	
Distributed income of corporations	36	17	
Reinvested earnings	14	0	
<i>Primary income account</i>	69	40	29
<i>Goods, services and primary income</i>	609	539	70
Secondary income account			
Current taxes on income, wealth, etc.	1	0	
Net non-life insurance premiums	2	11	
Non-life insurance claims	12	3	
Current international transfers	1	31	
Miscellaneous current transfers	1	10	
<i>Secondary income</i>	17	55	-38
<i>Current account balance</i>			32
Capital account			
Acquisition or disposals of non-produced assets	0	0	
Capital transfers	1	4	
<i>Capital account balance</i>			-3
<i>Net lending (+) or net borrowing (-)</i>			29
Financial account (by functional category)			
Direct investment	-4	8	
Portfolio investment	17	7	
Financial derivatives (other than reserves) and ESOs	3	0	
Other investment	42	22	
Reserve assets	8		
<i>Total changes in assets or liabilities</i>	66	37	
<i>Net lending (+) or net borrowing (-)</i>			29
<i>Net errors and omissions</i>			0

sources, while data on services are usually obtained from payments records or surveys.

26.52 The main source of data for goods is international merchandise trade statistics. International standards are given in *International Merchandise Trade Statistics: Concepts and Definitions (IMTS)*. *BPM6* identifies some sources of difference that may occur in some or all countries. It also recommends a standard reconciliation table to assist users in understanding these differences. One major source of difference is that the standards for IMTS use a CIF-type (cost, insurance and freight) valuation for imports, while the balance of payments use a uniform FOB valuation for both exports and imports. It is therefore necessary to exclude freight and insurance costs incurred between the customs frontier of the exporter and the customs frontier of the importer. Because of variations between the FOB-type valuation and actual contractual arrangements, some freight and insurance costs need to be rerouted.

26.53 The change of ownership basis used for the balance of payments means that goods entries will have a time of reporting consistent with the corresponding financial flows. In *BPM6*, there are no longer exceptions to the change of ownership principle. In contrast, IMTS follow the timing of customs processing. While this timing is often an acceptable approximation, adjustments may be needed in some cases, such as goods sent on consignment. In the case of goods sent abroad for processing with no change of ownership, the values of goods movements are included in IMTS, but changes in ownership are the primary presentation in the balance of payments. (However, the value of goods movements are recommended as supplementary items to understand the nature of these arrangements.) Further details of the recording of these processing arrangements are given in Chapter 21. Other adjustments to IMTS may be needed to bring estimates into line with the change of economic ownership of goods, either generally or because of the particular coverage of each country. Possible examples include merchanting, non-monetary gold, goods entering or leaving the territory illegally, goods procured in ports by carriers, and goods where there has been no change of ownership.

26.54 Re-exports are foreign goods (goods produced in other economies and previously imported with a change of economic ownership) that are exported with no substantial transformation from the state in which they were previously imported. Because re-exported goods are not produced in the economy concerned, they have less connection to the economy than other exports. Economies that are major trans-shipment points and locations of wholesalers often have large values of re-exports. Re-exports increase the figures for both imports and exports and when re-exporting is significant the proportions of imports and exports to economic aggregates are increased also. It is therefore useful to show re-exports separately. Goods that have been imported and are waiting to be re-exported are recorded in inventories of the resident economic owner.

26.55 Goods are presented at an aggregate level in the balance of payments. More detailed commodity breakdowns can be obtained from IMTS data.

26.56 Detail is produced for the following 12 standard components of services:

- a. Manufacturing services on physical inputs owned by others;
- b. Maintenance and repair services n.i.e.;
- c. Transport;
- d. Travel;
- e. Construction;
- f. Insurance and pension services;
- g. Financial services;
- h. Charges for the use of intellectual property n.i.e.;
- i. Telecommunications, computer and information services;
- j. Other business services;
- k. Personal, cultural and recreational services; and
- l. Government goods and services n.i.e.

26.57 In addition, there are supplementary items and an extended list. Three of the standard components are transactor-based items, that is, they relate to the acquirer or provider, rather than the product itself. These categories are travel, construction and government goods and services n.i.e.

- a. Travel covers all goods or services acquired by non-residents during visits whether for own use or to give away. Travel includes goods, local transport, accommodation, meals and other services.
- b. Construction covers the total value of the product delivered by the contractor, including any materials sourced locally that are not recorded in imports and exports of goods because they do not physically leave the country and are thus not captured in merchandise trade data.
- c. Government goods and services n.i.e. cover a range of items that cannot be allocated to more specific headings.

Besides the three transactor-based items, the remaining components are product-based, built from the more detailed classes of the Central Product Classification. Additional standards for services trade are shown in the *Manual of Statistics of International Trade in Services (MSITS)*, which is fully harmonized with the international accounts.

2. The primary income account

26.58 The entries in the primary income account are concerned with compensation of employees and property income,

exactly as in the allocation of primary income account in the SNA. Rent may arise in cross-border situations, but rarely, because all land is deemed to be owned by residents, if necessary by creating a notional resident unit. An example where rent may be recorded in the international accounts may be short-term fishing rights in territorial waters provided to foreign fishing fleets. It is therefore common in the international accounts to use the term investment income meaning property income excluding rent. Investment income therefore reflects income arising from the ownership of financial assets and the disaggregation of investment income matches that of financial assets and liabilities so that rates of return can be calculated.

- 26.59 In *BPM6*, interest flows are measured on exactly the same basis as in the SNA with FISIM separated and treated as an import or export of financial services.

Income of direct investment enterprises

- 26.60 The role of direct investment enterprises is particularly important and reflected in both the flows and positions in the international accounts. There is extended discussion on the identification and role of direct investment enterprises in section D.

- 26.61 As explained in paragraphs 7.135 to 7.138, in the case of a direct investment enterprise, it is assumed that a proportion of the enterprise's retained earnings is distributed to the direct investor as a form of investment income. The proportion corresponds to the direct investor's holding in the enterprise.

- 26.62 Retained earnings are equal to the net operating surplus of the enterprise plus all property income earned less all property income payable (before calculating reinvested earnings) plus current transfers receivable less current transfers payable and less the item for the adjustment for the change in pension entitlements. Reinvested earnings accrued from any immediate subsidiaries are included in the property income receivable by the direct investment enterprise.

- 26.63 Reinvested earnings may be negative, for example where the enterprise makes a loss or where dividends are distributed from holding gains, or in a quarter when an annual dividend is paid. However, if the dividends are disproportionately large relative to recent levels of dividends and earnings, the excess should be recorded as a withdrawal of owner's equity from the corporation as explained in paragraph 7.130.

- 26.64 For a direct investment enterprise that is 100 per cent owned by a non-resident, reinvested earnings are equal to retained earnings and the saving of the enterprise is exactly zero.

3. Secondary income account

- 26.65 The entries in the secondary income account are current transfers. The range of entries corresponds exactly to those in the secondary distribution of income account in the SNA. Several of these are particularly important in the

international accounts, especially current international cooperation and remittances sent to their home countries by individuals working abroad.

- 26.66 Cross-border personal transfers are household-to-household transfers and are of interest because they are an important source of international funding for some countries that provide large numbers of long-term workers abroad. Personal transfers include remittances by long-term workers, that is, those who change their economy of residence.

- 26.67 Other workers, such as border and seasonal workers do not change their economy of residence from the home economy. Instead of transfers, the international transactions of these workers include compensation of employees, taxes and travel costs. A supplementary presentation of personal remittances brings together personal transfers with these related items. Personal remittances include personal transfers, compensation of employees less taxes and travel, and capital transfers between households. For further details, see Appendix 5 Remittances in *BPM6*.

- 26.68 Insurance flows, especially flows relating to reinsurance, can be important internationally. These flows are recorded in the same way as in the SNA, both as regards the separation of a financial service charge and the treatment of direct insurance and reinsurance flows separately and not on a consolidated basis.

4. Balancing items in the current accounts of the international accounts

- 26.69 The structure of the balancing items in the balance of payments is somewhat different from that in the SNA, in that each account has its own balancing item and another that carries down to the next account. To illustrate, the primary account has its own balancing item (balance on primary income) and a cumulative balance (balance on goods, services and primary income). The external balance on primary income corresponds to balance of primary incomes and is the item feeding into GNI. The current external balance corresponds to saving by the rest of the world relative to the domestic economy. The balancing items in the *BPM6* structure of accounts are shown in table 16.3, reproduced here for convenience as table 26.4.

5. The capital account

- 26.70 The elements of the capital account subject to international transactions are more restricted than those covered in the SNA. The entries in the capital account cover acquisitions and disposals of non-produced non-financial assets and capital transfers. There are no transactions recorded as capital formation of produced assets because, as explained earlier, the ultimate use of exports is not a concern for the national economy.

- 26.71 Like the SNA, net lending or net borrowing is the balancing item for the sum of the current and capital accounts and for the financial account. As in the SNA, it covers all instruments used for providing or acquiring funding, not just lending and borrowing. Conceptually, it has the same value as the national accounts item for the total economy,

and the same as the national accounts item for the rest of the world but with the sign reversed.

6. The financial account and IIP

26.72 The financial account of the balance of payments and the IIP are of particular importance because they provide an understanding of international financing as well as of international liquidity and vulnerability. The integrated IIP statement, including the IIP and associated financial and other changes accounts, is shown in Table 26.5. The primary classification is based on functional categories, with additional data on instruments and institutional sectors.

26.73 The functional categories, described in section D, convey more information about the motivation and relationship between the parties, which are of particular interest to international economic analysis. Data by functional category are further subdivided by instrument and institutional sector, which makes it possible to link them to the corresponding SNA and monetary and financial statistics items. The institutional sector classification is the same as in the SNA, although it is usually abbreviated (to five sectors in the standard components). In addition, a supplementary sub-sector is used for monetary authorities, which is a functional sub-sector linked to reserve assets. It covers the central bank and any parts of general government or financial corporations other than the central

bank that hold reserve assets, so is relevant for countries where some or all reserves are held outside the central bank.

26.74 The part of the balance sheets covered in the international accounts is called the IIP. The terminology highlights the specific components of the national balance sheet which are included. The IIP covers only financial assets and liabilities because, to be included in the IIP, there must be a cross-border element. In the case of financial claims, the cross-border element arises when one party is a resident and the other party is a non-resident. In addition, while gold bullion is an asset that has no counterpart liability, it is included in the IIP when held as a reserve asset, because of its role in international payments. However, non-financial assets are excluded as they do not have a counterpart liability or other international aspect.

26.75 The balancing item on the IIP is the net IIP. The net IIP plus non-financial assets in the national balance sheet equal national net worth, because resident-to-resident financial claims net to zero in the national balance sheet.

26.76 The same level of detail is used for investment income and the IIP. As a result, average rates of return can be calculated. Rates of return can be compared over time and for different instruments and maturities. For example, the trends in return on direct investment can be analyzed, or the return can be compared with other instruments.

Table 26.4: Balancing items in the international accounts in relation to the SNA sequence of accounts

Uses		Resources	
Rest of the world	Transactions and balancing items	Rest of the world	
	Goods and services account		
	Imports of goods and services	499	
540	Exports of goods and services		
- 41	<i>External balance of goods and services</i>		
	Primary income account		
6	Compensation of employees	2	
	Taxes on production and imports		
	Subsidies		
63	Property income	38	
- 29	<i>External balance of primary income</i>		
- 70	<i>External balance of goods, services and primary income</i>		
	Secondary income account		
17	Current transfers	55	
38	<i>External balance of secondary income</i>		
- 32	<i>Current external balance</i>		
	Capital account		
	Acquisitions less disposals of non-produced assets		
	Capital transfers, receivable	4	
	Capital transfers, payable	- 1	
3	<i>External capital account balance</i>		
- 29	<i>Net lending (+) / net borrowing (-)</i>		

7. The other changes in assets accounts

26.77 The breakdown into assets and liabilities denominated in domestic and foreign currency may be of particular interest in international accounts because of the different implications of exchange rate movements.

26.78 International assets and liabilities may be subject to all the possible types of other changes in the volume of assets and liabilities and to revaluation changes. However, because instruments are often denominated in foreign currencies and analysis of the effect of exchange rate movements is particularly important, there is a breakdown of revaluations into exchange rate changes and other factors.

D. International accounts functional categories

26.79 The international accounts functional categories are the primary classification used for each of investment income, financial transactions and positions in the international accounts. The following five categories are identified:

- a. direct investment;
- b. portfolio investment;
- c. financial derivatives (other than reserves) and employee stock options;
- d. other investment; and
- e. reserve assets.

26.80 Detailed definitions are given later in this section. The functional categories are built on the classification of financial instruments discussed in Chapters 11 and 13, but with an additional dimension that takes into account some aspects of the relationship between the parties and the motivation for investment. As a result, the different categories exhibit different patterns of behaviour. For example, there is a different type of relationship between the parties for direct investors compared to portfolio investors holding equity. Direct investment is related to control or a significant degree of influence, and tends to be

associated with a lasting relationship although it may be short-term. In addition to financial resources, direct investors often supply additional factors such as know-how, technology, management and marketing. As well, related companies are more likely to trade with and lend to each other. In contrast, portfolio investors typically have a smaller role in the decision-making of the enterprise, with potentially important implications for future flows, and for the volatility of the price and volume of positions. Portfolio investment differs from other investment in that it provides a direct way to access financial markets, and so can provide liquidity and flexibility.

26.81 Reserve assets include a range of instruments that are shown under other categories when not owned by monetary authorities or other units authorised by the monetary authorities. However, as reserve assets they have the distinctive motivation of being available to meet international payments financing needs and undertake market intervention to influence the exchange rate.

26.82 The instrument classification alone does not fully reflect these behavioural differences. For example, a loan can appear under direct investment or other investment, but the different nature of the relationship between the parties means that the risks and motivations behind the transaction tend to differ. A direct investment loan is more likely to be provided and involves less vulnerability on the part of the

Table 26.5: Overview of Integrated International Investment Position Statement

	Opening position	Transactions (Financial account)	Other changes in the volume of assets	Revaluation	Closing position
Assets (by functional category)					
Direct investment	42	-4	0	1	39
Portfolio investment	40	17	0	2	59
Financial derivatives (other than reserves) and ESOs	0	3	0	0	3
Other investment	152	42	0	0	194
Reserve assets	63	8	0	0	71
<i>Total</i>	297	66	0	3	366
Liabilities (by functional category)					
Direct investment	132	8	0	2	142
Portfolio investment	180	7	0	5	192
Financial derivatives (other than reserves) and ESOs	0	0	0	0	0
Other investment	261	22	0	0	283
<i>Total</i>	573	37	0	7	617
Net IIP	-276	29	0	-4	-251

borrowing economy because of the relationship between the parties. Table 26.6 shows the relationship between instruments and functional categories.

1. Direct investment

26.83 *Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy.* As well as the equity that gives rise to control or influence, direct investment also includes associated debt (except debt between affiliated financial intermediaries).

26.84 Control is determined to exist if the direct investor owns more than 50 per cent of the voting power in the direct investment enterprise. Such an enterprise is called a subsidiary. A significant degree of influence is determined

to exist if the direct investor owns from 10 to 50 percent of the voting power in the direct investment enterprise. Such an enterprise is called an associate. In order to achieve bilateral consistency and avoid subjective decisions about actual control or influence, these operational definitions should be used in all cases.

26.85 As well as immediate direct investment relationships, there may be indirect direct investment relationships, as a result of a chain of ownership. In addition, fellow enterprises may be an important part of direct investment. (Fellow enterprises are direct investment enterprises that have less than ten per cent equity in each other but which share a common investor that is a direct investor of at least one of the fellows). Reverse investment arises when direct investment enterprises invest in their own direct investors but have less than ten per cent of the voting power in the direct investor.

Table 26.6: Link between Financial Assets Classification and Functional Categories

SNA /MFSM Financial Assets and Liabilities Classification	Functional categories				
	Direct investment	Portfolio investment	Financial derivatives (other than reserves) and ESOs	Other investment	Reserve assets
Monetary gold					X
Special drawing rights				X ¹	X ¹
Currency and deposits:					
Currency				X	X
Interbank positions				X	X
Other transferable deposits	X			X	X
Other deposits	X			X	X
Debt securities	X	X			X
Loans	X			X	X
Equity and investment fund shares:					
Equity:					
Listed shares	X	X			X
Unlisted shares	X	X			x
Other equity	X			X	
Investment fund shares/units:					
Money market fund shares/units	x	X			X
Other investment fund shares/units	x	X		x	X
Insurance, pension and standardized guarantee schemes:					
Nonlife insurance technical reserves	x			X	
Life insurance and annuity entitlements	x			X	
Pension entitlements				X	
Claims of pension funds on sponsors	X			X	
Entitlements to nonpension benefits				X	
Provisions for calls under standardized guarantees	X			X	
Financial derivatives and employee stock options:					
Financial derivatives			X		X
Employee stock options			X		
Other accounts receivable/payable:					
Trade credit and advances	X			X	
Other accounts receivable/payable	X			X	

Footnote 1: SDR assets are reserve assets; SDR liabilities are other investment;

26.86 Direct investment includes debt between the parties as well as equity. Such debt between related companies may be called intercompany lending. One of the features of a group of direct investment enterprises is that its members are more likely to extend loans and trade credit to each other than are unrelated enterprises.

26.87 Because of the relationship of control or influence, the direct investor's share of retained earnings of a subsidiary or associate is imputed as first being paid out as an income flow and then reinvested, as a financial transaction. The income item is called reinvested earnings; the corresponding equal entry in the financial account called reinvestment of earnings. Reinvested earnings are defined as the direct investor's share in the retained earnings of the enterprise, and so are consistent with the corresponding SNA items. A consequence is that there will be no saving by an enterprise that is 100 per cent foreign owned, because all saving will be attributed to its direct investor.

26.88 Those direct investment enterprises that are controlled by non-residents correspond to the SNA sub-sectors of foreign-controlled enterprises. However direct investment enterprises include those not subject to control from abroad but still subject to a significant degree of influence. The SNA's foreign-controlled enterprises are limited to inward direct investment, while the international accounts are also concerned with outward direct investment. Reinvested earnings on foreign direct investment in the SNA have the same scope as in the balance of payments (although "foreign" is not used because it is redundant in the context of the international accounts).

26.89 In addition to the statistics on the international financial flows associated with direct investment, information on foreign-controlled enterprises is provided through statistics on the Activities of Multinational Enterprises (AMNE statistics) and the closely related Foreign Affiliates Statistics (FATS). These cover items such as exports, imports, domestic sales and domestic purchases of goods and services. They therefore provide a wider picture of the operations of multinational enterprises. Additional information is available in Eurostat *Recommendations Manual on the Production of Foreign Affiliates Statistics*, the OECD *Handbook on Economic Globalisation Indicators* and *MSITS*.

2. Portfolio investment

26.90 ***Portfolio investment is defined as cross-border transactions and positions involving debt or equity securities, other than those included in direct investment or reserve assets.*** Securities are instruments designed for convenient negotiability between parties, such as shares, bonds, notes and money market instruments. The negotiability of securities is a way of facilitating trading, allowing them to be held by different parties during their lives. Negotiability allows investors to diversify their portfolios and to withdraw their investment readily.

26.91 Portfolio investment depends on organized financial markets, and with associated bodies such as dealers, exchanges, and regulators. In contrast, the parties to direct and other investment instruments usually deal directly with each other. The negotiability of portfolio investment

instruments makes them a convenient and flexible investment channel, but also may be associated with volatility.

3. Financial derivatives (other than reserves) and employee stock options

26.92 The definition of the functional category financial derivatives (other than reserves) and employee stock options largely coincides with the corresponding financial instrument class, discussed in Chapters 11 and 13. The difference in coverage between the functional category and the financial instrument is that financial derivatives associated with reserve asset management are excluded from the functional category and included in reserve assets. This category is identified separately because it relates to risk transfer, rather than supply of funds or other resources.

4. Other investment

26.93 Other investment is a residual category that includes positions and transactions other than those included in direct investment, portfolio investment, financial derivatives and employee stock options and reserve assets. It includes the remainder of the following classes of financial assets and liabilities:

- a. other equity;
- b. currency and deposits;
- c. loans (including use of IMF credit and loans from the IMF);
- d. non-life insurance technical reserves, life insurance and annuities entitlements, pension entitlements and provisions for calls under standardized guarantees;
- e. trade credit and advances;
- f. other accounts receivable/payable; and
- g. SDR allocations (SDR holdings are included in reserve assets.).

5. Reserve assets

26.94 Reserve assets are those external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate and for other related purposes (such as maintaining confidence in the currency and the economy, and serving as a basis for foreign borrowing). Reserve assets must be denominated and settled in foreign currency. Underlying the concept of reserve assets are the notions of "control" and "availability for use" by the monetary authorities.

26.95 In general, only external claims actually owned by the monetary authorities can be classified as reserve assets. Nonetheless, ownership is not the only condition that confers control. In cases where institutional units (other

than the monetary authorities) in the reporting economy hold legal title to external foreign currency assets and are permitted to do so only on terms specified by the monetary authorities or only with their express approval, such assets can be considered reserve assets. This is because such assets are under the direct and effective control of the monetary authorities.

26.96 Reserve assets must be readily available in the most unconditional form. A reserve asset is liquid in that the asset can be bought, sold and liquidated for foreign currency (cash) with minimum cost and time, and without unduly affecting the value of the asset. This concept refers

to both non-marketable assets, such as demand deposits, and marketable assets, such as securities where there are ready and willing sellers and buyers. In order to be readily available to the authorities to meet balance of payments financing needs and other related purposes under adverse circumstances, reserve assets generally should be of high quality.

26.97 Reserve assets are limited to assets, but a memorandum item is provided for reserve-related liabilities that are included in other functional categories, mainly portfolio and other investment. (This is why the liabilities cell for reserves in table 26.3 is shaded.)

E. Special international accounts considerations

1. Global imbalances

26.98 In recent years, the IMF has done extensive work on global imbalances. By summing data for all economies, global totals can be derived. (Although as a functional category, reserve assets have no counterpart liability, the constituent instruments can be allocated to their counterpart liabilities for an exercise of the type described here.) The extent of actual inconsistency has been used to identify systematic biases that can indicate reporting problems, for example, that services credits have higher coverage than services debits.

2. Exceptional financing

26.99 Exceptional financing brings together financial arrangements made by the authorities to meet balance of payments needs. Exceptional financing therefore identifies transactions according to their motivation. In addition, the incurrence of arrears is included in exceptional financing. Although it is not a transaction, it is an action the monetary authorities may take to manage their payments requirements.

26.100 Exceptional financing is presented in the “analytic” presentation of the balance of payments, as published in the IMF’s *Balance of Payments Statistics Yearbook*. In this presentation, entries relating to reserves, IMF credit and exceptional financing are presented “below-the-line” while all the other entries, which will require funding, are shown above-the-line. This presentation facilitates looking at the monetary authorities’ international liquidity.

26.101 There is more discussion on exceptional financing in appendix 1 of *BPM6*.

3. Debt instruments

26.102 It is useful to group the different types of debt instruments, because debt instruments have particular implications for international liquidity and risk. Debt instruments are those instruments that require the payment of principal or interest or both at some point(s) in the future. Debt instruments

comprise special drawing rights, currency and deposits, debt securities, loans, insurance technical reserves and provision for calls under standardized guarantees, and other accounts receivable/payable. Financial derivatives are not debt instruments, but an overdue obligation on a financial derivative contract is classified as an account payable and thus is included as a debt instrument.

26.103 Debt instruments can be contrasted with equity and investment shares in the nature of the liability and risk. While equity gives a residual claim on the assets of the entity, a debt instrument involves an obligation to pay an amount of principal or interest usually according to a predefined formula, which means that the creditor has a more limited risk exposure. In contrast, the return on equity is largely dependent on the economic performance of the issuer, so the holders bear more of the risk. Additional information is provided in IMF, *External Debt Statistics: Guide for Compilers and Users*.

26.104 Debt instrument flows and positions are shown divided between long-term and short-term. Primarily, this split is according to their original maturity, that is, the period from issue until contractually scheduled final payment. In addition, because of the international accounts concern with international liquidity issues, liability data can also be prepared on the basis of remaining maturity, that is, the period from the reference date until contractually scheduled final payment, on a supplementary basis.

4. Debt reorganization

26.105 Debt reorganization (also referred as debt restructuring) is defined as arrangements involving both the creditor and the debtor (and sometimes third parties) that alter the terms established for servicing an existing debt. Governments are often involved in debt reorganization, as a debtor, or a creditor or a guarantor, but debt reorganization can also involve the private sector, such as through debt exchanges. Debt reorganization involves a range of different types of transactions as well as valuation and timing issues.

26.106 The four main types of debt reorganization are:

- a. Debt forgiveness; a reduction in the amount of, or the extinguishing of, a debt obligation by the creditor via a contractual arrangement with the debtor;
- b. Debt rescheduling or refinancing; a change in the terms and conditions of the amount owed, which may result, or not, in a reduction in burden in present value terms;
- c. Debt conversion; the creditor exchanges the debt claim for something of economic value, other than another debt claim on the same debtor, such as debt-for-equity swaps, debt-for-real-estate swaps, debt-for-development swaps, debt-for-nature swaps, and for debt prepayments, debt-for-cash; and
- d. Debt assumption and debt payments on behalf of others when a third party is also involved.

Debt forgiveness across economies often involves government and there is further guidance on the treatments of these arrangements in chapter 22, *BPM6* and specialised manuals such as the *External Debt Guide*.

5. Regional arrangements, including currency unions

26.107 Regional arrangements include:

- a. monetary and currency unions, which provide for a single monetary policy across an area. Some of the same issues apply when one economy unilaterally adopts the currency of another economy, such as with “dollarization”;
- b. economic unions, which harmonize certain economic policies to foster greater economic integration; and
- c. customs unions, which have common tariff and other trade policies with non-member economies.

BPM6 gives detailed guidance on the treatments of these arrangements. Among the issues that are dealt with are the production of consolidated data for a union as a whole, the treatment of regional organizations, including the central bank, treatment of bank notes in a currency union, and revenue-sharing arrangements in a currency union.

6. Currency conversion, including multiple exchange rates

26.108 Exchange rates must be considered carefully when measuring international transactions and positions, as changes can distort measurement. Flows denominated in a foreign currency are converted to their value in the domestic currency at the rate prevailing when the flows take place, and positions are converted at the rate prevailing on the balance sheet date. The midpoint between the buying

and selling rates should be used at the time of transaction (for transactions) and at the close of business on the reference date for positions. The difference between buying/selling prices and midpoint prices represents a service charge.

26.109 In principle, the actual exchange rate applicable to each transaction should be used for currency conversion. The use of a daily average exchange rate for daily transactions usually provides a very good approximation. If daily rates cannot be applied, average rates for the shortest period should be used. Some transactions occur on a continuous basis, such as the accrual of interest, over a period of time. For such flows, therefore, an average exchange rate for the period in which the flows occur should be used for currency conversion.

26.110 Under a multiple exchange rate regime, two or more exchange rates are applicable to different categories of transactions; the rates favour some categories and discourage others. Such rates incorporate elements similar to taxes or subsidies. Because the multiple rates influence the values and the undertaking of transactions expressed in domestic currency, net proceeds implicitly accruing to authorities as a result of these transactions are calculated as implicit taxes or subsidies. The amount of the implicit tax or subsidy for each transaction can be calculated as the difference between the value of the transaction in domestic currency at the actual exchange rate applicable and the value of the transaction at a unitary rate that is calculated as a weighted average of all official rates used for external transactions. For conversion of positions of external financial assets and liabilities in a multiple rate system, the actual exchange rate applicable to specific assets or liabilities at the beginning or end of the accounting period is used.

26.111 Parallel (unofficial) or black market rates cannot be ignored in the context of a multiple rate regime and can be treated in different ways. For instance, if there is one official rate and a parallel market rate, the two should be handled separately. Transactions in parallel markets should be converted using the exchange rate applicable in that market. If there are multiple official rates and a parallel rate, the official rates and the parallel rate should be treated as distinct markets in any calculation of a unitary rate. Transactions effected at the parallel rate usually should be separately converted at that rate. However, in some instances, parallel markets may be considered effectively integrated with the official exchange rate regime. Such is the case when most or all transactions in the parallel market are sanctioned by the authorities or when the authorities actively intervene in the market to affect the parallel rate, or do both. In this instance, the calculation of the unitary rate should include both the official and parallel market rates. If only limited transactions in the parallel market are sanctioned by the authorities, the parallel rate should not be included in the calculation of a unitary rate.

Chapter 27: Links to monetary statistics and the flow of funds

A. Introduction

- 27.1 Chapter 11 describes the financial account of the sequence of accounts of the SNA. It shows transactions in each category of financial assets and liabilities for each of the institutional sectors of the national economy and of the rest of the world.
- 27.2 As explained when describing the principle of quadruple accounting in both chapter 11 and chapter 4, each transaction leads to two pairs of entries in the SNA accounts. For many transactions, one pair is recorded in one of the non-financial accounts and one pair in the financial account. For others, which are concerned with changing the composition of a portfolio of financial assets and liabilities, both pairs of entries are recorded in the financial account. It is for this reason that only by including the financial account in the sequence of accounts is the full articulation of the accounting system achieved.
- 27.3 However, the information in the financial account is of analytical and policy interest in its own right and are an important part of monetary and financial statistics. These statistics are used to monitor the state of the money and other capital markets in particular and as an indicator of the state of the economy in general. For the latter, the link to the rest of the SNA accounts is usually implicit rather than explicit.
- 27.4 The purpose of this chapter is to give an introduction to the sorts of analyses involved in monetary and financial statistics more generally and to show how the data in the sequence of accounts can be linked to these other presentations. Further detail on monetary and financial statistics can be found in the IMF publications *Monetary and Financial Statistics Manual (MFSM)* and its companion *Compilation Guide* and in the ECB *Monetary and Financial Statistics Manual*.

1. Monetary statistics

- 27.5 Monetary statistics cover the stocks and flows of the financial assets and liabilities of financial corporations,

both within an economy and between units in the economy and units in the rest of the world. However, a more aggregate level of sub-sectoring is used than in the SNA. Financial corporations are divided into two sub-sectors only at the highest level, depository corporations and the other financial corporations sub-sector. The former is then further sub-sectored into the central bank sub-sector and the other depository corporations sub-sector. More information on monetary statistics is given in section B.

2. Financial statistics

- 27.6 Financial statistics extend the range of monetary statistics to include the stocks and flows of financial assets and liabilities between all sectors of the economy and between the sectors of the economy and the rest of the world.
- 27.7 The basic accounting rules, concepts of residence, time of recording and the classification of financial assets and liabilities are consistent between the SNA, *BPM6* and *MFSM*. The *MFSM* uses a more aggregate level of sectoring than the SNA but one that is strictly consistent with it.
- 27.8 Some further aspects of financial statistics building on the classifications used in the financial account are discussed in section C.

3. Flow of Funds

- 27.9 The flow of funds is a three dimensional presentation of financial statistics where both parties to a transaction as well as the nature of the financial instrument being transacted are elaborated. A similar three dimensional presentation is also presented in respect of the stocks of financial assets and liabilities where the creditor and debtor of each instrument are shown. The flow of funds is discussed in section D.

B. Monetary statistics

1. Defining depository corporations

27.10 Money is very important as a financial variable, but the wide range of ways in which money is defined in different countries precludes a simple definition within the SNA.

27.11 The composition of broad money and other monetary aggregates varies widely among countries and encompasses many classes of deposits and certain categories of short-term securities, particularly negotiable certificates of deposit. In addition, many countries compile a range of money measures, as well as broader liquidity measures. Even within a single country, innovation, deregulation or technical progress cause definitions of broad money to shift over time in response to changes in financial instruments and the organization of money markets.

27.12 In the *MFSM*, a country-specific concept of broad money as nationally defined is used. Although the specific components of broad money may vary across countries, in all cases the nationally defined concept is used to identify those financial corporations that issue liabilities included in broad money. Such corporations are described as depository corporations.

27.13 The set of nine sub-sectors of the financial corporations sector described in chapter 4 and listed in table 27.1 is such that it should be possible to identify depository corporations as just defined as a combination of two or more of these sub-sectors. At a minimum, the group will include the central bank and deposit-taking institutions. In countries where the instruments held by money market funds are exclusively short-term securities, these funds may also be included because they are considered to be part of broad money.

27.14 Once depository corporations are identified, the three sub-sectors used for monetary statistics, the central bank sub-sector, the other depository corporations sub-sector and the other financial corporations sub-sector, can be established.

2. Presentation of monetary statistics

27.15 Monetary statistics are presented for all financial corporations, with the following disaggregation:

- a. Depository corporations sub-sector,
 - Central bank sub-sector,
 - Other depository corporations sub-sector,
- b. Other financial corporations sub-sector.

27.16 The instrument classification is the standard one from the financial account, as shown in table 27.2, with possible some further breakdown according to whether the instrument is denominated in local currency or foreign currency.

27.17 For each instrument, a set of entries equivalent to an asset account is shown, that is:

- a. Opening stock,
- b. Transactions,
- c. Valuation changes,
- d. Other changes in volume,
- e. Closing stock.

Table 27.1: Sub-sectors of the financial corporations sector

1. Central Bank
2. Deposit-taking corporations except the Central Bank
3. Money market funds (MMF)
4. Non-MMF investment funds
5. Other financial intermediaries except insurance corporations and pension funds (ICPF)
6. Financial auxiliaries
7. Captive financial institutions and money lenders
8. Insurance corporations (IC)
9. Pension funds (PF)

C. Financial statistics

27.18 As noted in the introduction, financial statistics extend the range of monetary statistics to include the stocks and flows of financial assets and liabilities between all sectors of the economy and between the sectors of the economy and the rest of the world. The format is similar to that used for monetary statistics except that all sectors are covered. As indicated, though, the sectors outside the financial corporations sector may be aggregated. It is usual to show general government separately and also the rest of the

world. If it is of particular interest, public non-financial corporations may also be shown as a separate sector.

27.19 The classification of financial assets, shown in table 27.2, is based primarily on two kinds of criteria: the liquidity of the asset and the legal characteristics that describe the form of the underlying creditor/debtor relationship. The concept of liquidity embraces other more specific characteristics such as negotiability, transferability, marketability or

Table 27.2: The classification of financial assets and liabilities

Monetary gold and special drawing rights (SDRs) Monetary gold Special drawing rights
Currency and deposits Currency Transferable deposits Interbank positions Other transferable deposits Other deposits
Debt securities * Short-term Long-term
Loans Short-term Long-term
Equity and investment fund shares ** Equity Listed shares Unlisted shares Other equity Investment fund shares/units* Money market fund shares/units Other investment fund shares/units
Insurance, pension and standardized guarantee schemes Non-life insurance technical reserves Life insurance and annuity entitlements Pension entitlements Claims by pension funds on sponsors Provisions for calls under standardised guarantees
Financial derivatives and employee stock options Financial derivatives Options Forwards*** Employee stock options
Other accounts receivable / payable Trade credit and advances Other
<i>Memorandum item: Direct foreign investment</i> Equity Loans Debt securities Trade Credit Other

* The listed/unlisted split is relevant for debt securities and investment funds also.

**Reinvested earnings can exist under any of these.

***Credit default swaps to cover for guarantees are included within this item.

convertibility. These characteristics play a major role in determining the categories, although they are not separately identified in a systematic way. The classification is designed to facilitate the analysis of transactions of institutional units and is a framework for assessing the sources and uses of financing and degree of liquidity for these units.

27.20 Maturity distinction is recognized as a secondary classification criterion. Short-term is defined for the classification as one year or less, while long-term is defined as more than one year. To monitor

27.21 possible liquidity risks, it may also be helpful to distinguish those long-term instruments with a residual maturity of less than a year. (Residual maturity is the time left before maturity.)

27.22 The classification does not contain functional categories, such as direct investment, portfolio investment, and international reserves, which are basic classification criteria for the balance of payments financial account. In view of the importance of these categories, the classification does provide for a memorandum item for financial account transactions related to direct foreign investment relationships. This topic is treated in greater detail in chapters 21 and 26.

D. Flow of funds

27.23 The form of table described under the section on monetary statistics shows how the closing stock of a comprehensive set of assets for a particular sector may be analysed by seeing how the opening stock is changed by transactions in the asset, revaluation changes and other changes in the volume of assets to reach the closing stock. This is a particular application of the asset accounts described in chapter 13.

27.24 Another popular form of table is that known as a flow of funds table. This may take one of several forms. The most common presentation consists of an articulation of flows (or stocks) showing for each instrument which sector or sub-sector is the creditor and which the debtor. Another variation is to combine the elements of the capital and financial accounts to examine all accumulation transactions and not just those concerning financial assets. The rationale for this is that the balancing item of the financial account should be exactly equal in magnitude but opposite in sign to that in the capital account. By including the items from the capital account, discrepancies in this account may be revealed by the exercise of completing the flow of funds table, instead of assuming the net borrowing or lending total is already determined. (This still assumes that saving is determined correctly. The act of balancing the flow of

funds table may suggest a re-examination of the current accounts if it is difficult to reconcile the saving figure for a sector with the recorded capital and financial transactions.)

1. Flow accounts

27.25 The financial account, as presented in table 11.1 and repeated for convenience here as table 27.3, records the net acquisition of financial assets and net incurrence of liabilities for all institutional sectors by type of financial asset. For each sector, the financial account shows the liabilities that the sector incurs to mobilize financial resources and the financial assets that the sector acquires. For each financial asset and liability, the financial account shows the overall change in the level of assets acquired by each sector and the change in the level of liabilities incurred by each sector. This information is very valuable in identifying the financial assets that net borrowing sectors use to finance their deficits and the assets that net lending sectors use to allocate their surpluses. Although the movement of financial flows can be mapped at this level of recording, the question of who is financing whom is not answered. Table 27.3 shows that non-financial corporations incur liabilities predominantly in the form of loans and other equities and investment fund shares. Financial

Table 27.3: The financial account - concise form - changes in assets

Changes in assets

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Net acquisition of financial assets/liabilities	63	167	-6	220	6	450	37		487
Monetary gold and SDRs		-1				-1	1		0
Currency and deposits	19	10	-22	85	5	97	11		108
Debt securities	7	62	3	10	0	82	9		91
Loans	19	52	3	3	0	77	4		81
Equity and investment fund shares	10	28	3	76	0	117	2		119
Insurance, pension and standardized guarantee schemes	1	7	1	39	0	48	0		48
Financial derivatives and employee stock options	3	8	0	3	0	14	0		14
Other accounts receivable/payable	4	1	6	4	1	16	10		26

- corporations incur net liabilities by using the full range of financial instruments. While the instrument by which the liabilities are incurred is clearly presented in this account, it is not possible to identify the sector that is providing the funds. Similarly, the net acquisition of financial assets can be tracked. Households acquire net financial assets spread across a range of assets, while financial corporations acquire net financial assets mostly in the form of loans and securities. However, it cannot be determined from this level of recording to which sectors the financing is being provided.
- 27.26 For a full understanding of financial flows and the role they play in the economy, it is often important to know more detailed financial relationships between sectors and the financial assets by which these relationships are carried out. For example, it is useful to show what types of liabilities government is using to finance its deficit and which sectors (or the rest of the world) are providing the financing. For financial corporations (and those supervising them), it is interesting to show not only the composition of financial assets (loans and securities) that they have acquired but also which sectors these are claims upon. In addition, it is often desirable to analyse financial flows between sub-sectors within a sector (central government financial transactions with local governments or central bank financial transactions with deposit-taking institutions) and across sector boundaries (changes in deposit-taking institutions' claims on public non-financial corporations). Such detailed information is necessary to understand how financing is carried out and how it changes over time.
- 27.27 This more detailed approach is particularly important in spelling out the role that financial corporations play in financial transactions. Financial corporations often have very small net lending or borrowing balances in comparison with their total transactions in both financial assets and liabilities. This reflects the basic role of financial intermediation of mobilizing financial resources and making them available to other sectors in forms suitable to these sectors through transformation of the maturity of exact form of the assets available. More generally, financial corporations play a major role assisting institutional units to re-balance their portfolios of assets and liabilities taking account of their preferences between investment safety and rate of return, liquidity preference and convenience amid constantly changing market conditions. Thus, financial corporations play a critical role in directing financing flows from net lending sectors to net borrowing sectors and allow lenders to choose their asset instruments and borrowers their forms of indebtedness.
- The format of the account**
- 27.28 Table 27.4 facilitates the more detailed financial analysis just described by showing transactions in assets cross-classified by type of asset and by the debtor sector in the first part and the type of liability cross-classified by the creditor sector in a similar, second part. The sectors transacting in assets or liabilities form the columns of the table while the type of asset, disaggregated by sector of debtor, is shown in the rows. It would be conceptually possible to present all the relationships between creditors and debtors in a single table but this would require a table of very many cells, many of which would be blank.
- 27.29 Table 27.4 is merely illustrative of the type of detail that a country may wish to develop. Initially it may be possible to show columns only for general government, the financial sector and the rest of the world separately from all other sectors, but even at this level if monetary statistics exist, it should be possible to disaggregate the financial sector into three sub-sectors as described earlier.
- 27.30 Ultimately it is desirable to show all the institutional sectors of the SNA and possibly sub-sectors such as central government and publicly controlled corporations
- 27.31 The degree of detail shown for the financial instruments will depend on data availability and the relative importance of each. What follows is a list of possible disaggregations.
- 27.32 Currency and deposits may be distinguished according to currency, transferable deposits and other deposits identifying that part of each that is denominated in local currency or foreign currency and whether the creditor or debtor is a resident or non-resident.
- 27.33 Debt securities and loans may be divided by maturity (short and long-term) as well as by sector.

Table 27.3 (cont): The financial account - concise form - changes in liabilities and net worth

Transactions and balancing items	Changes in liabilities and net worth								
	Non-financial corporations	Financial corporations	General government	Households	NPIs/SHs	Total economy	Rest of the world	Goods and services	Total
<i>Net lending (+) / net borrowing (-)</i>	-72	-15	-93	206	3	29	-29		0
Net acquisition of financial assets/liabilities	135	182	87	14	3	421	66		487
Monetary gold and SDRs									
Currency and deposits		73	37			110	-2		108
Debt securities	6	31	34	0	0	71	20		91
Loans	17	0	6	10	3	36	45		81
Equity and investment fund shares	83	22				105	14		119
Insurance, pension and standardized guarantee schemes		48	0			48	0		48
Financial derivatives and employee stock options	3	8	0	0	0	11	3		14
Other accounts receivable/payable	26		10	4		40	-14		26

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- 27.34 For equity a distinction between resident and non-resident enterprises as well as the distinction between listed, unlisted and other equity may be helpful.
- 27.35 For insurance, standardised guarantee schemes and for financial derivatives the presentation may be simplified because one party to the transaction must be a financial corporation, either resident or non-resident. For employee stock options, the debtor must be either a financial or non-financial corporation. Most pension schemes are operated by financial corporations but some may be operated by non-financial employers without involving a financial corporation.
- 27.36 Trade credit and advances may be made by any sector. The claims of pension funds on sponsors may, in principle, relate to any sector but is likely not to involve households. Other accounts receivable or payable may be separated into whether they are with residents or non-residents.
- 27.37 The form of table 27.4 should be interpreted as a general model, and substantial flexibility should be allowed in specific country circumstances. In many countries, the dimensions of the tables will be severely constrained by data availability. It should also be noted that these tables are extensions of the basic financial account and that the third dimension to the analysis can be added on a selective basis by identifying particular asset or sector (or sub-sector) relationships for which this level of detail would be useful.

Analytical uses

- 27.38 A detailed flow of funds tables can be used in at least three important areas related to economic policy. Data from these tables can be used in economic analysis and description of activity and trends in current periods. They can be used as an aid to projections in the context of the production of economic plans or to assess the effect of current economic policies, or changes in them, on the future path of the economy. They can also be used in projects that undertake modelling of the economy to study economic behaviour as an aid to the formulation of economic policy. Such studies, of course, would be complementary to similar work on data from other accounts in the SNA. In particular it is useful, when using the flow of funds accounts to facilitate the

study of the operation of the financial system in the economy, to relate these transactions to the behaviour of the non-financial economy. Similarly, the flow of funds accounts facilitate study of the process of making the equality between saving and investment, by tracing the channels by which net lending reaches ultimate borrowing, after passing through various financial corporations and assets.

- 27.39 In the policy area, a few examples will illustrate the usefulness of these tables. Common policy problems faced by many nations include questions such as: How will the central government's deficit be financed? How will the major non-financial public corporations be financed and by whom? In each of these examples, the provision of answers to the questions requires an impact analysis on various sectors and types of transaction. The articulation of the accounts within the flow of funds facilitates the analysis and provides a framework in which to assess the answers.
- 27.40 In the area of financial projections, the use of time-series from relevant parts of the flow of funds tables enables an examination for consistency of a number of separately prepared sector or market forecasts, and the implications for future financial transactions of a particular set of assumptions about future events (for example, interest rates, exchange rates, growth, sector surpluses or deficits).
- 27.41 Other policy areas where these projections and studies can be of assistance are in considering the long-term development of financial markets and institutions in the economy and assessments of the need for new types of assets to satisfy the potential demand of savers and investors requiring access to reliable liquid assets.

2. Stock accounts

- 27.42 Just as tables like those above can be compiled and very usefully analysed in terms of flows, so it is instructive to compile exactly similar tables in terms of the stocks of financial assets and liabilities. Where flows may be fairly volatile from one period to the next, the level of stocks is likely to be more stable and the degree of fluctuation from the stock level may convey particularly useful additional information.

Table 27.4: Format for detailed flow of funds table or stocks of financial assets analysed by debtor and creditor

Asset and creditor /Liability and debtor	Sectors and sub-sectors
<p>Monetary gold and SDRs <i>Monetary gold</i> SDRs Currency and deposits Currency Local currency Residents Non-residents Foreign currency Transferable deposits <i>Interbank positions</i> <i>Other transferable deposits</i> Local currency Residents Non-residents Foreign currency Residents Non-residents Other deposits Local currency Residents Non-residents Foreign currency Residents Non-residents Debt securities Short-term {Sectors} Long-term {Sectors} Loans Short-term {Sectors} Long-term {Sectors} Equity and investment fund shares Equity <i>Listed shares</i> Resident enterprises Non-resident enterprises <i>Unlisted shares</i> Resident enterprises Non-resident enterprises <i>Other equity</i> Resident enterprises Non-resident enterprises Investment fund shares/units Money market fund shares/units Resident enterprises Non-resident enterprises Other investment fund shares/units Resident enterprises Non-resident enterprises Insurance, pension and standardised guarantee schemes Non-life insurance technical reserves Life insurance and annuity entitlements Pension entitlements Claim of pension fund on sponsor Entitlements to non-pension benefits Provisions for calls under standardised guarantees Financial derivatives and employee stock options Financial derivatives Options Forwards Employee stock options Other accounts receivable/payable Trade credits and advances {Sectors} Other accounts receivable/payable {Sectors}</p>	

Chapter 28: Input-output and other matrix-based analyses

A. Introduction

28.1 The purpose of this chapter is to build on the presentation of the supply and use tables in chapter 14 to examine in greater detail the possibilities offered by using a matrix form of presentation of the accounts. As has been noted on a number of occasions, the SNA is intended to offer a degree of flexibility in implementation as long as the inherent accounting rules are observed. The fact that the requirement to balance uses and resources is immediately obvious within a matrix framework makes this a powerful way in which to explore different options while still ensuring the balances are satisfied. One aim of this chapter is to demonstrate the power of a matrix presentation in this way.

1. Input-output tables

28.2 A second aim is to describe the basic ideas of input-output matrices. Supply and use tables are an integral part of the SNA and the process of compiling these tables is a powerful way of ensuring consistency between the various data sources available to the compiler. For many analytical purposes, though, a transformation from a pair of supply and use tables into a single input-output table where row and column totals are equal brings very considerable advantages. Input-output tables cannot be compiled without passing through the supply and use stage (except under very restrictive assumptions). They are therefore analytical constructs that inevitably involve some degree of modelling in their compilation.

28.3 There is a vast literature on the compilation and use of input-output tables and it is impossible in a short chapter to give a full appreciation of the range of complexities of compilation and inventiveness of applications. The chapter aims only to give a feel for the sort of operations necessary to transform supply and use tables into input-output tables and to give some ideas of their possible applications. The *Eurostat manual of Supply, Use and Input-Output Tables* and a visit to the web site of the International Input-Output Association (www.iioa.org) are good places to start a more detailed investigation of the potential in this field.

2. Social accounting matrices

28.4 Both the supply and use tables and input-output tables are matrix representations of the goods and services account. It

is possible to cast the whole of the sequence of accounts, including the goods and services account, in a matrix format also. Such a matrix is called a social accounting matrix (SAM).

28.5 It is possible to extend and elaborate a SAM by introducing alternative disaggregations of existing flows or new types of flows, just as long as the use and resource of these flows balance in the usual way. This is such a common extension of a SAM that the usual understanding of what a SAM is often goes further than a matrix encompassing the standard sequence of accounts to include extensions, particularly of the household sector.

3. The structure of the chapter

28.6 Chapter 14 describes how the supply and use tables may be used in order to ensure the internal consistency of disparate data sets. Section B of this chapter looks at two particular aspects of the supply and use tables where it may be useful to adopt a different approach to that described in chapter 14. The first of these concerns the treatment of insurance and freight on imported goods and the second concerns the treatment of goods that are processed by a unit that is not the legal owner of them. Section B also discusses how information cross-classified by establishment and industry can be transformed into information relating to institutional sectors.

28.7 Section C is concerned with how a pair of supply and use tables may be transformed into a single symmetric input-output matrix. Each of the supply and use tables shows disaggregation by products and industries. In an input-output table, one of these dimensions is eliminated. Thus a single table may show the relationship between the supply and use of products or alternatively the output of industries and the demand for the output of industries.

28.8 Section D goes on to show how the whole of the accounting system can be represented in matrix form. This is a useful pedagogical tool and may be instructive as a stepping-off point for extensions of the accounts such as social accounting matrices.

B. Flexibility in the supply and use tables

1. The treatment of margins on imports

28.9 In discussing valuation in section B of chapter 14, consideration is given to how transport margins should be incorporated into the accounts and in particular how international transport charges should be recorded. Paragraphs 14.61 to 14.77 explain that the parallel between basic and producer prices does not carry forward simply to a distinction between CIF and FOB-based prices. The distinction depends on whether it is the unit providing the goods or the unit taking delivery of the goods that is responsible for providing the transport and insurance.

28.10 Suppose that the total CIF to FOB adjustment is 10 and that 6 relates to transport and 4 to insurance. A complete articulation of imports of goods and services can be seen in table 28.1.

Table 28.1: Imports of goods valued CIF and FOB

	Value CIF	Transport	Insurance	Value FOB
1. Agriculture, forestry and fishery products (0)	37	1		36
2. Ores and minerals; electricity, gas and water (1)	61	1	1	59
3. Manufacturing (2-4)	284	4	3	277
Purchases abroad by residents	20			20
Total	402	6	4	392

28.11 The traditional way in which international trade and transport have been recorded in supply and use tables is shown in table 14.4, reproduced here as table 28.2. The basic idea underlying this table is that the value of goods remain at their CIF values but a deduction is made for the total value of transport and insurance margins embedded in these valuations.

Table 28.2: An example of imports entries in the supply table with the global CIF-to-FOB adjustment

	CIF/FOB adjustment	Goods	Services
1. Agriculture, forestry and fishery products (0)		37	
2. Ores and minerals; electricity, gas and water (1)		61	
3. Manufacturing (2-4)		284	
4. Construction (5)			
5. Trade, accommodation, food and beverages; transport services (6)	-6		62
6. Finance and Insurance (7) excluding real estate	-4		17
7. Real estate services; and rental and leasing services (72-73)			
8. Business and production services (8)			5
9. Community, social services (9) excluding other services and public administration			
10. Other services (94-99)			
11. Public Administration (91)			
Total			
CIF/FOB adjustment	10	-10	
Purchases abroad by residents		20	23
Total	0	392	107

28.12 In table 28.2, it is assumed that all the margins are supplied by non-residents, so a further adjustment table for services can be compiled as shown in table 28.3.

28.13 A recording of the product detail of goods and services strictly in accordance with balance of payments recommendations would be the right-most column of table 28.1 and the left-most column of figures of table 28.3 (392 plus 107, total 499) but it can be seen that the same overall result is achieved by taking the left-most column of figures from table 28.1 and the right-most column from table 28.3 (402 plus 97). This is because the total is invariant to exactly how the adjustment from CIF to FOB takes place; whether it is by deducting elements from goods or deducting the same total amount from services. One of the tasks of compiling supply and use tables is to decide how to allocate the margins on imports and ensure that the product detail of goods and services is in overall conformity with balance of payments totals.

Table 28.3: Imports of services adjusted for the CIF-to-FOB element in goods

	Value	Of which: included in goods CIF	Value FOB
5. Trade, accommodation, food and beverages; transport services (6)	62	6	56
6. Finance and Insurance (7) excluding real estate	17	4	13
8. Business and production services (8)	5		5
Purchases abroad by residents	23		23
Total	107	10	97

28.14 There is a complication not addressed in chapter 14. This is the assumption that all margins are supplied by non-residents. Suppose that only 7 out of the total value of 10 are provided by non-residents, 4 out of 6 for transport and 3 out of 4 for insurance. Table 28.1 is still correct as a means of converting a set of CIF values to FOB values but table 28.3 is not correct. It should be as shown in table 28.4.

Table 28.4: Imports of services adjusted for the non-resident only CIF-to-FOB adjustment in goods

	Value	Of which: included in goods CIF	Value FOB
4. Construction (5)			0
5. Trade, accommodation, food and beverages; transport services (6)	62	4	58
6. Finance and Insurance (7) excluding real estate	17	3	14
8. Business and production services (8)	5		5
Purchases abroad by residents	23		23
Total	107	7	100

- 28.15 Two possibilities present themselves. One is to keep tables 28.1 and 28.3 and to treat the amount of margins supplied by residents as in effect an export that is then re-imported. Though this is not consistent with balance of payments recommendations, the current balance on goods and services is not affected. The alternative is to treat the 3 as the true CIF to FOB adjustment and record the articulation of goods and services by product in the supply and use tables as shown in table 28.5.

Table 28.5: Detailed imports of goods and services for the supply and use table

	Value
1. Agriculture, forestry and fishery products (0)	37
2. Ores and minerals; electricity, gas and water (1)	61
3. Manufacturing (2-4)	284
4. Construction (5)	
5. Trade, accommodation, food and beverages; transport services (6)	58
6. Finance and Insurance (7) excluding real estate	14
7. Real estate services; and rental and leasing services (72-73)	
8. Business and production services (8)	5
9. Community, social services (92-93)	
10. Other services (94-99)	
11. Public Administration (91)	
CIF/FOB adjustment	-3
Purchases abroad by residents	43
Total	499

2. Goods processed by a unit not assuming economic ownership

- 28.16 A producer may carry out the same physical activity under quite different economic conditions. Consider a farmer growing grain which is milled into flour before use. Suppose a farmer acquires a mill to process his own grain but once this is acquired he may offer to mill grain for others for a fee. The production account for a farmer with a mill will look somewhat different from that for a farmer who does not have a mill but pays the first farmer a fee for milling.

- 28.17 In the case of milling the reasons for sub-contracting the activity to another may be the availability of suitable fixed capital. Increasingly, however, similar processes are being carried out internationally and in respect of activities more usually associated with manufacturing such as the assembling of component parts. Here the motivation is less one of the availability of capital than of the costs of labour. If the average wages in country X are half of those in country Y, it may be cost-effective for a unit in Y to dispatch the components to a unit in X for assembly and then have the completed product returned to Y or even shipped directly to a final purchaser.

- 28.18 Previous editions of the SNA have recommended that components for assembly should be recorded as delivered

to the unit in country X and that the whole of the value of the completed product should be recorded as output of X and exports from X to Y. This does not match the treatment of grain milling or, for example, repairs to machinery where no such change of ownership of the goods being processed is imputed. Imputing a change of ownership of the parts to be assembled gives rise to significant data compilation problems because the value of the assembled product may be greater than the cost of the components plus the fee to assemble them. The value of the finished product may incorporate the results of research and development of the unit contracting the assembly, for instance. The SNA now recommends that products should only be recorded as being delivered to another unit if there is a change of ownership or, in the case where both producing units belong to the same enterprise, the producing unit taking delivery also assumes responsibility for subsequent risks and rewards of production such as deciding how much to process, what price to charge and when to sell.

- 28.19 The question arises of how to record the activity of assembling goods to order for another unit in the supply and use tables and the input-output table. The processes of assembly for oneself and for another are physically similar but the economics are different.

- 28.20 Suppose in year 1 a processing unit converts products only on own account. In year 2 the unit processes the same amount on its own account but also processes a similar amount on behalf of another. Suppose the cost of items processed in year 1 is 90, the cost of associated products needed to assemble them is 10 and the value added is 35. The total value of output is thus 135. In year 2, all other things being equal, intermediate consumption increases by another 10 to 110 and value added to 70 bringing the value of output to 180. The change in the structure of production is difficult to understand in the absence of information on the change in the role of the producer who is operating no longer only on his own behalf but also on behalf of others.

- 28.21 There are essentially two ways to proceed. The first is to treat processing on own account and on behalf of another as different types of activity and different products. In this way in the second year the producer would have one activity with inputs of 100, value added of 35 and output of 135 as in the first year, plus another activity with inputs of 10, value added 35 and output of 45.

Table 28.6: Options for recording goods not changing economic ownership

	Year 1	Year 2	Option 1	Option 2
Cost of materials	90	90	90	180
Other costs	10	20	10	20
Total intermediate consumption	100	110	100	200
Value added	35	70	35	70
Output	135	180	135	270

- 28.22 The second alternative is to show the intermediate inputs in the second year as 200, value added as 70 and output as 270. Value added is the same under both options and the comparison between the second and the first year makes more sense from a transformation point of view under option 2. However, adding an extra 90 to both output and intermediate consumption is essentially artificial. Further,

as noted above, it may be difficult for the processor to put a value on the components he receives and the output he provides to the other unit. The chances are that he only knows that he receives a fee of 45 to cover his incidental expenses of 10 and leave an amount of value added, 35 in this case. These options are shown in table 28.6.

28.23 It should be emphasised that it is option 1 that is the recommendation of the SNA and, for goods sent abroad for processing, *BPM6*. Option 2 is shown as a supplementary presentation that may be adopted for reasons of continuity with past practices. Option 1 more accurately reflects the economic processes taking place while option 2 focuses on the physical transformation process.

28.24 When goods are sent abroad for processing, they are recorded as neither exports of goods by the country holding economic ownership, nor as imports of goods by the processing country. Similarly, after processing they are recorded neither as exports by the processing country nor as imports of goods by the country of economic ownership. The only item recorded as imports and exports is the fee agreed between the economic owner and the processor.

28.25 The physical flows of the goods may appear as memorandum items in the merchandise trade figures. If they do, the product code after processing may be different from the code on entry.

28.26 The presentation of option 2 suggests that the fee can be derived as the difference between the value of the goods on arrival and departure from the processing country but while

this may sometimes give a reasonable approximation of the processing fee, there are many reasons why this may not be so.

a. If processing takes any significant amount of time, there may be holding gains and losses affecting the value of the goods. These accrue to the economic owner, not the processor.

b. Goods may be lost or damaged or may simply become obsolete while in process. (This has been observed in the case of electronic components.) These other volume changes also apply to the economic owner and not the processor.

c. The value of the processed goods may be greater than the costs of the components and the processing fee to the extent that the finished product incorporates part of the value of R&D treated as fixed capital formation of the economic owner.

28.27 All these situations reinforce the preference for option 1 over option 2 in table 28.6.

3. Supply and use tables and sector accounts

28.28 As explained in chapter 14, it is possible to derive the three estimates of GDP from a set of supply and use tables. Since these tables can be expressed in volume terms, estimates can also be made of growth rates based on the tables. However, to complete the sequence of accounts, production

Table 28.7: Part of the use table from table 14.12

Use of products	Market											Sub-total market
	Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	Information and communication	Finance and insurance	Real estate activities	Business services	Education, human health and social work	R-T and U	Other services	
	(A)	(B-E)	(F)	(G-I)	(J)	(K)	(L)	(M-N)	(P-Q)	(R-T and U)	Other services	(16)
	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)		(16)
<i>Goods and services, (by CPC section)</i>												
Total uses												
1. Agriculture, forestry and fishery products (0)	2	71	0	3	1	2	1	2	0	0		82
2. Ores and minerals; electricity, gas and water (1)	3	190	1	6	3	2	1	2	0	0		208
3. Manufacturing (2-4)	27	675	63	44	16	16	9	19	4	5		878
4. Construction (5)	1	9	5	3	1	1	1	1	0	0		22
5. Trade, accommodation, food and beverages; transport services (6)	3	65	3	25	4	4	2	4	0	0		110
6. Finance and Insurance (7) excluding real estate	1	36	5	18	2	2	3	7	1	1		76
7. Real estate services; and rental and leasing services (72-73)	1	15	1	8	2	5	2	4	0	1		39
8. Business and production services (8)	2	70	12	15	9	19	9	19	7	9		171
9. Community, social services (92,93)	0	1	0	0	0	0	0	1	0	0		2
10. Other services (94-99)	1	1	0	1	1	1	0	1	0	0		6
11. Public Administration (91)	0	0	0	0	0	0	0	0	0	0		0
14 Total	41	1 133	90	123	39	52	28	60	12	16		1 594
17. Total gross value added/GDP	37	728	118	139	61	94	66	123	51	66		1 483
28. Total output	78	1 861	208	262	100	146	94	183	63	82		3 077
Compensation of employees	19	546	79	102	32	44	49	79	43	47		1 040
Gross mixed income	5	30	3	9	0	0	0	0	0	0		47
Gross operating surplus	15	109	31	33	30	46	11	40	7	18		340
Taxes less subsidies on production and imports	-2	43	5	-5	-1	4	6	4	1	1		56
Consumption of fixed capital	9	83	11	31	7	12	5	12	1	2		173
of which: mixed income	1	3	0	1	0	0	0	0	0	0		5
Net operating surplus	7	29	20	3	23	34	6	28	6	16		172

accounts are needed by institutional sector. To ensure that the supply and use table and the sequence of accounts are perfectly integrated and consistent, it is desirable to take the part of the use table showing intermediate consumption and the components of value added and allocate the columns to institutional sectors.

- 28.29 The starting point for the compilation is the part of the use table in table 14.12 relating to intermediate consumption and value added. This is shown in a somewhat aggregated form in table 28.7.
- 28.30 The easiest allocation is for financial corporations since typically such corporations do not undertake secondary activity and other institutional units do not undertake any financial activity. When these conditions prevail, the column for the finance and insurance activity can be taken in its entirety as appropriate for the institutional sector. It is possible that financial corporations may undertake some production for own final use (as capital formation), in which case some part of an appropriate column in the section of table 28.7 relating to own account production should be added. No such adjustment has been made in this example.
- 28.31 The columns relating to non-market producers must be allocated between general government and NPISHs. In addition, though not in this example, it is possible that either general government or NPISHs may have an establishment undertaking market production. This is how it is possible that non-market producers may have small amounts of operating surplus. It is also possible that both general government and NPISHs may have some production for own final use (as capital formation) but none has been assumed here.
- 28.32 The last step is to allocate all columns not yet accounted for between non-financial corporations and households. An indication that some part of a market production activity should be allocated to households is the presence of mixed income as part of the value added of the activity. Thus, some parts of market production of agriculture, manufacturing, construction and trade are attributable to households as well as production for own final use. (As noted in general some of production for own final use will be attributable to other sectors. It is not done so here for reasons of simplicity at such an aggregate level.)
- 28.33 Once these calculations are complete, table 28.8 results, showing for each sector not just total intermediate consumption but also a product breakdown of this as well as the items for value added.
- 28.34 The figures shown for intermediate consumption, output and the elements of value added for each institutional sector are those that appear in the production account and generation of income account in the sequence of accounts.

Table 28.7 (cont):Part of the use table from table 14.12

Use of products	Own final use				Non-market			Total industry
	Agriculture, forestry and fishing	Construction	Real estate and private household services	Sub-total own final use	Education, human health and social services	Public Administration	Sub-total non-market	
	(A) (17)	(F) (18)	(L) (19)	(20)	(P-Q) (21)	(O) (22)	(23)	
<i>Goods and services, (by CPC section)</i>								
<i>Total uses</i>								
1. Agriculture, forestry and fishery products (0)	1	0	0	1	3	2	5	88
2. Ores and minerals; electricity, gas and water (1)	0	0	0	0	5	4	9	217
3. Manufacturing (2-4)	5	17	10	32	42	38	80	990
4. Construction (5)	0	0	0	0	11	7	18	40
5. Trade, accommodation, food and beverages; transport services (6)	0	0	0	0	4	5	9	119
6. Finance and Insurance (7) excluding real estate	0	2	3	5	6	17	23	104
7. Real estate services; and rental and leasing services (72-73)	0	0	0	0	8	10	18	57
8. Business and production services (8)	0	5	7	12	15	24	39	222
9. Community, social services (92-93)	0	0	0	0	24	8	32	34
10. Other services (94-99)	0	0	0	0	2	2	4	10
11. Public Administration (91)	0	0	0	0	1	1	2	2
14. Total	6	24	20	50	121	118	239	1 883
17. Total gross value added/GDP	5	12	80	97	91	50	141	1 721
28. Total output	11	36	100	147	212	168	380	3 604
Compensation of employees	0	0	0	0	70	39	109	1 149
Gross mixed income	2	12	0	14				61
Gross operating surplus	3	0	80	83	20	10	30	453
Taxes less subsidies on production and imports	0	0	0	0	1	1	2	58
Consumption of fixed capital	4	0	15	19	20	10	30	222
of which mixed income	3	0	0	3				8
Net operating surplus	2	0	65	67	0	0	0	239

C. Deriving an input-output table

1. What is an input-output table?

28.35 Essentially an input-output table is derived from a use table where either the columns representing industries in the two left-most quadrants are replaced by products or where the products in the two top-most quadrants are replaced by industries. The resulting intermediate consumption matrix is then square, showing products in both rows and columns or industries in both. In both cases the row totals for the complete matrix match the column totals for the complete matrix, product by product or industry by industry as the case may be. The resulting matrices are therefore referred to as being symmetric.

28.36 The process of replacing the product dimension by an industry one is based on one of several possible models, to be discussed below. This process necessarily means that a symmetric input-output matrix is further removed from basic data sources than a supply and use table and it is therefore useful to review why making this transition is so useful.

28.37 Note that in table 14.12, there is a product for ores and minerals, electricity and water but no column for it. If there is no industry for which this is the principal product, identifying the primary producers rather than the number of products will determine the final size of the symmetric (square) matrix.

2. Analytical potential of an input-output matrix

28.38 Such tables have algebraic properties that make them particularly suitable for analyses that enable estimates to be made of the effects of changing relative prices, of labour and capital requirements in the face of changing output levels, of the consequences of changing patterns of demand and so on. They may also be used as the basis for an expanded version that may be used to estimate the demands made by the economy on the environment, for instance.

28.39 Suppose the entries in the inter-industry matrix are each divided by the figure for output at the bottom of the corresponding column, and the resulting matrix is designated as A; the vector of outputs is written as x and the vector of total final demand is written as y. Then

$$Ax + y = x$$

This can be re-written as

$$(I-A)x = y$$

or

$$x=(I-A)^{-1}y.$$

28.40 The matrix (I-A) is known as the Leontief matrix, after the man who pioneered the use of input-output tables and the

Table 28.8: Intermediate consumption and value added cross-classified by industry and institutional sector

Use of products	Non-financial corporations									Financial corporations		
	Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	Information and communication	Real estate activities	Business services	Education, human health and social work	Other services	Total industry	Finance and insurance	Total industry
<i>Goods and services, (by CPC section)</i>												
Total uses												
1. Agriculture, forestry and fishery products (0)	2	68	0	3	1	1	2	0	0	77	2	2
2. Ores and minerals; electricity, gas and water (1)	3	182	1	6	3	1	2	0	0	198	2	2
3. Manufacturing (2.4)	24	643	61	38	16	9	19	4	5	819	16	16
4. Construction (5)	1	8	5	3	1	1	1	0	0	20	1	1
(6)	3	61	3	23	4	2	4	0	0	100	4	4
6. Finance and insurance (7) excluding real estate	1	36	5	18	2	3	7	1	1	74	2	2
7. Real estate services; and rental and leasing services (72-7.3)	1	15	1	8	2	2	4	0	1	34	5	5
8. Business and production services (8)	2	68	11	14	9	9	19	7	9	148	19	19
9. Community, social services (9) excluding other services and public administration	0	1	0	0	0	0	1	0	0	2	0	0
10 Other services (94-99)	1	1	0	1	1	0	1	0	0	5	1	1
11. Public Administration (91)	0	0	0	0	0	0	0	0	0	0	0	0
14 Total	38	1 083	87	114	39	28	60	12	16	1 477	52	52
17. Total gross value added/GDP	31	691	115	127	61	66	123	51	66	1 331	94	94
28. Total output	69	1 774	202	241	100	94	183	63	82	2 808	146	146
Compensation of employees	18	539	79	99	32	49	79	43	47	985	44	44
Gross mixed income												
Gross operating surplus	15	109	31	32	30	11	40	7	18	293	46	46
Taxes less subsidies on production and imports	-2	43	5	-4	-1	6	4	1	1	53	4	4
Consumption of fixed capital of which mixed income	8	80	11	31	7	5	12	1	2	157	12	12
Net operating surplus	7	29	20	1	23	6	28	6	16	136	34	34

- matrix $(I-A)^{-1}$ is known as the Leontief inverse. It is the last formulation that gives the analytical power to input-output analysis.
- 28.41 Suppose there is an increase in demand, for manufactured products, say. Looking at even the supply and use table it can be seen that to increase the output of these goods, more inputs of almost all types of products are needed. This increase in demand for a range of products is called the direct effect of a change in demand. However, the increase in demand in all these products causes a further round of increases in output for all products and this in turn triggers another set of increases in output and so on. Each round of effects is smaller than the last until it eventually becomes insignificant. The total of all second and subsequent round effects is called the indirect effect of a change in demand.
- 28.42 In terms of the algebra just introduced, the direct effect is equal to Ay , the second round effect to A^2y , the third round effect to A^3y and so on. It can be shown that $(I-A)^{-1}$ can be written as $A+A^2+A^3+A^4$ etc. This is where the power of having a symmetric matrix comes from since A needs to be square for this formulation to work.
- 28.43 As long as changes in demand, y , are sufficiently small that the average coefficients in A are likely to be good approximations to the new situation, the new level of x can be calculated. The approach breaks down if the changes in demand are so great that significant changes in A are likely to follow and marginal rather than average coefficients are needed.
- 28.44 The matrix A is also sometimes called a matrix of technology coefficients and can provide insights into the way an economy works. In an economy dominated by primary products with little processing carried out in the domestic economy, there are relatively few non-zero elements in A . As the economy develops and processing of primary products becomes more common-place, A becomes more populated with entries reflecting greater vertical and horizontal integration of activities within the economy. By exploring different industries associated with different stages in the production process it is possible to say where value added is generated. For example, cotton is grown as an agricultural product. It is then subject to separation into lint and seed (ginning), then the lint is converted to yarn and the yarn to fabric. If each of these activities appears in a different industry, it is possible to see where the value added between the growing of the cotton and the eventual fabric in which it is used arises.
- 28.45 There is a vast literature on how to compile and use input-output tables. The purpose of this section is simply to indicate the key aspects of converting a pair of supply and use tables into an input-output table.

3. Secondary products

- 28.46 An industry classification such as ISIC essentially identifies industries in terms of the sorts of goods or services they typically produce. However, there are more products than industries and, for all sorts of reasons, some products may be made in several industries.

Table 28.8 (cont): Intermediate consumption and value added cross-classified by industry and institutional sector

Use of products	General government		NPISHs		Households					Total industry	Total	
	Education, human health and social work	Public Administration	Education, human health and social work		Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	Real estate activities			
<i>Goods and services, (by CPC section)</i>												
Total uses												
1. Agriculture, forestry and fishery products (0)	3	2	5	0	0	1	3	0	0	0	4	88
2. Ores and minerals; electricity, gas and water (1)	4	4	8	1	1	0	8	0	0	0	8	217
3. Manufacturing (2-4)	36	38	74	6	6	8	32	19	6	10	75	990
4. Construction (5)	9	7	16	2	2	0	1	0	0	0	1	40
(6)	4	5	9	0	0	0	4	0	2	0	6	119
6. Finance and Insurance (7) excluding real estate	5	17	22	1	1	0	0	2	0	3	5	104
7. Real estate services; and rental and leasing services (72-73)	7	10	17	1	1	0	0	0	0	0	0	57
8. Business and production services (8)	13	24	37	2	2	0	2	6	1	7	16	222
9. Community, social services (9) excluding other services and public administration	21	8	29	3	3	0	0	0	0	0	0	34
10. Other services (94-99)	1	2	3	1	1	0	0	0	0	0	0	10
11. Public Administration (91)	1	1	2	0	0	0	0	0	0	0	0	2
14 Total	104	118	222	17	17	9	50	27	9	20	115	1 883
17. Total gross value added/GDP	76	50	126	15	15	11	37	15	12	80	155	1 721
28. Total output	180	168	348	32	32	20	87	42	21	100	270	3 604
Compensation of employees	59	39	98	11	11	1	7	0	3		11	1 149
Gross mixed income						7	30	15	9		61	61
Gross operating surplus	17	10	27	3	3	3	0	0	1	80	84	453
Taxes less subsidies on production and imports	0	1	1	1	1	0	0	0	-1	0	-1	58
Consumption of fixed capital of which mixed income	17	10	27	3	3	5	3	0	0	15	23	222
Net operating surplus	0	0	0	0	0	4	3	0	1	0	8	8
						2	0	0	2	65	69	239

28.47 In order to limit the number of products per unit and to allow integration with basic production statistics, the concept of establishment is introduced. In principle, an establishment produces only one product at one location but the SNA recognizes that in practice it is not possible to separate production into such fine detail. Dealing with the fact that many establishments produce more than one product is fundamental to the idea of calculating a symmetric input-output matrix.

28.48 The reason that manipulation of supply and use tables is needed to produce an input-output table is the existence of secondary products. If there were the same number of industries as products, and if each industry only produced one product, the supply table for the domestic economy would be unnecessary; the column totals for industries would be numerically equal to the row totals for products and the inter-industry matrix would be square as originally compiled. As noted elsewhere, the intent behind using establishments rather than enterprises, and working at a fairly detailed level in the supply and use tables, is to get as close to this situation as is reasonably practicable. Inevitably though some secondary production remains.

28.49 There are three types of secondary production

- a. Subsidiary products: those that are technologically unrelated to the primary product. Just a few examples include a large retailer with a fleet of trucks used primarily for its own purposes that may occasionally offer transport services to another unit; a farmer who use part of his land as a caravan site, or a mining company that builds access roads and accommodation for its workers.

b. By-products: products that are produced simultaneously with another product but which can be regarded as secondary to that product, for example gas produced by blast furnaces.

c. Joint products: products that are produced simultaneously with another product that cannot be said to be secondary (for example beef and hides).

In order to reduce the supply and use tables to one single input-output matrix two possibilities exist. One is to express the input-output matrix in terms of products only; the other is to express the input-output table in terms of industries.

4. Reallocating secondary products

28.50 There are two basic approaches to eliminating secondary products. Both come from making assumptions about the use matrix and applying these to the supply matrix to reduce it to a purely diagonal one.

28.51 In deriving a product by product matrix in the simplest possible way, the final demand quadrant of the use matrix is unaltered. It already expresses demand by product and does not need changing. The intermediate consumption and value added parts of the matrix, though, need to be changed from an industry dimension to a product one. The row totals of the matrix already show the correct product totals so the exercise consists of reallocating entries from one column to another but not changing the row allocation. This is called a technology approach. It assumes that the demand for intermediate consumption and labour and capital inputs are determined by the nature of the products made.

Table 28.9:A numerical example of reallocating products from construction to manufacturing

Use of products	Manufacturing and other industry		Construction		Manufacturing and other industry		Construction	
	Use table	Coefficient form	Industry technology	Product technology	Industry technology	Product technology	Industry technology	Product technology
1. Agriculture, forestry and fishery products (0)	71	0	3.8	0.0	71.0	0.0	71.2	-0.2
2. Ores and minerals; electricity, gas and water (1)	190	1	10.2	0.5	190.0	1.0	190.6	0.4
3. Manufacturing (2-4)	675	63	36.3	3.03	676.8	61.2	677.2	60.8
4. Construction (5)	9	5	0.5	2.4	9.1	4.9	9.0	5.0
5. Trade, accommodation, food and beverage; transport services (6)	65	3	3.5	1.4	65.1	2.9	65.2	2.8
6. Finance and Insurance (7) excluding real estate	36	5	1.9	2.4	36.1	4.9	36.1	4.9
7. Real estate services; and rental and leasing services (7.2-7.3)	15	1	0.8	0.5	15.0	1.0	15.0	1.0
8. Business and production services (8)	70	12	3.8	5.8	70.3	11.7	70.2	11.8
9. Community, social services (9.2, 9.3)	1	0	0.1	0.0	1.0	0.0	1.0	0.0
10. Other services (9.4-9.9)	1	0	0.1	0.0	1.0	0.0	1.0	0.0
11. Public Administration (9.1)	0	0	0.0	0.0	0.0	0.0	0.0	0.0
14. Total	1 133	90	61	43	1 135.6	87.4	1 136.7	86.3
17. Total gross value added/GDP	728	118	39	57	731.4	114.6	730.3	115.7
28. Total output	1 861	208	100	100	1 867	202	1 867	202

- 28.52 In deriving an industry by industry matrix in the simplest possible way, the value added part of the use matrix is unaltered and because the level of output will not alter, only the composition of intermediate consumption changes, not its total. Thus the exercise is one of reallocating items between rows but not between columns. In contrast to the product by product case, the quadrant relating to final demand will change and will show demand related to the industry supplying the products and not to the products themselves. This is called a sales structure approach. It assumes that as the level of output of an industry changes, the pattern of sales will remain the same.
- 28.53 Both these assumptions, the technology assumption and the sales structure assumption, are rather simplistic and in practice a more generalised approach may be used but it is helpful first to examine each of the assumptions in a little more detail.

Product by product tables

- 28.54 There are two ways in which a product by product matrix can be derived. These are:
- The industry technology assumption where each industry has its own specific means of production irrespective of its product mix.
 - The product technology assumption where each product is produced in its own specific way irrespective of the industry where it is produced.
- 28.55 It is simplest to explain these by example. In the upper part of table 14.12, the construction industry is shown as producing 6 units (out of 208) of manufacturing products. In the lower part of table 14.12, reproduced as table 28.10, the inputs necessary for manufacturing and for construction are shown. These are reproduced in the first two numeric columns in table 28.10. The next two numeric columns express these in percentage form. Thus, for example, one unit of manufacturing requires 0.038 units of agricultural products, 0.102 units of ores and minerals and so on. Construction uses no agricultural products, 0.005 units of ores and minerals and so on.

Industry technology assumption

- 28.56 Under the industry technology assumption, the coefficients showing how manufactured products are produced are assumed to depend on the industry they happen to be produced in. Thus to reallocate the 6 units of manufacturing products from the construction industry to a column that will now refer to manufactured products only (ignoring other secondary products for the moment) a set of inputs, derived as 6 times the coefficients for construction is added to the manufacturing column and deducted from the construction column. The results of this are shown in the fifth and sixth numeric columns of table 28.9.

Product technology assumptions

- 28.57 Under the product technology assumption, the coefficients showing how manufactured products are produced depends

on the manufacturing industry regardless of where they are actually produced. They thus vary according to where they happen to be produced. In this case, to reallocate the 6 units of manufacturing products from the construction industry a set of inputs derived as 6 times the coefficients for manufacturing is added to the manufacturing column and deducted from the construction column. The results are shown in the seventh and eighth numeric columns of table 28.9.

- 28.58 It is important to note a problem that arises under this assumption. When the product technology assumption is used, manufactured products produced by the construction industry are assumed to use a small amount of food. However, no agricultural products are actually recorded as being used in the construction industry so deducting these inputs from the recorded entries for construction leads to a negative entry. Negative entries cannot appear under the industry technology assumption.

Industry by industry tables

- 28.59 Just as there are two ways in which a product by product matrix can be derived, there are two ways in which an industry by industry matrix can be derived. These are:
- The fixed product sales structure where it is assumed the allocation of demand to users depends on the product and not the industry from where it is sold.
 - The fixed industry sales structure where it is assumed that users always demand the same mix of products from an industry.
- 28.60 Although a table similar to table 28.10 is not presented for the industry by industry tables, its construction is similar and straightforward but would show the entries across the rows of the use tables rather than down the columns.

Fixed product sales structure

- 28.61 In this case, to allocate the 6 units of manufactured goods supplied by construction to manufacturing, a proportion of the row for construction is allocated to the manufacturing rows using the proportions in the construction row. It follows that such a matrix will not contain negative entries.

Fixed industry sales structures

- 28.62 Here the 6 units of manufactured goods supplied by the construction industry are re-allocated from the construction row to the manufacturing row using the proportions of the manufacturing row. Such a matrix can contain negative elements.

The choice of approach to be used

- 28.63 There are four basic choices open to the input-output compiler.
- A product by product approach using a product technology assumption,

Table 28.11: Example of an industry by industry input-output matrix

Use of products	Intermediate consumption by product groups											Exports		General government						Total economy						
												Goods	Services													
	Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	Information and communication	Finance and insurance	Real estate activities	Business and information services	Education, human health and social work	Other services	Public Administration			Total industry	Subtotal	Households	NPSHS	Subtotal	Collective		Individual					
of products	3	44	0	3	0	2	1	3	3	3	0	2	61	7	0	18	16	0	2	0	2	3	2	1	0	89
culture, forestry and fishing	32	632	72	43	0	18	20	39	46	5	41	948	392	2	430	427	0	3	0	3	89	66	5	0	1861	
ufacturing and other industry	1	13	5	3	0	1	1	2	11	0	7	44	8	0	5	5	0	0	0	0	0	167	16	22	0	244
de, transport, accommodation and food	4	74	7	21	0	4	2	8	9	0	6	135	20	53	45	45	0	0	0	0	0	8	7	0	0	262
arce and insurance	1	31	7	18	0	-1	6	4	7	1	17	91	0	2	53	53	0	0	0	0	0	0	0	0	0	146
at estate activities	1	15	1	8	0	5	2	6	8	1	10	56	0	1	116	116	0	0	0	0	0	21	21	0	0	194
ress and information services	2	76	17	14	0	18	15	28	21	9	23	224	5	9	41	41	0	0	0	0	5	4	0	0	0	283
ization, human health and social work	0	1	0	0	0	0	0	0	1	24	0	8	34	0	2	239	21	14	204	0	204	0	0	0	0	275
er services	1	1	0	1	0	0	0	2	2	0	2	9	0	0	73	73	0	0	0	0	0	0	0	0	0	82
ic Administration	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	166	5	2	18	166	3	0	0	0	0	168
is/rer/its	1	35	5	2	0	1	1	0	1	0	1	47	0	10	0	59	59	0	0	0	0	17	17	0	0	133
orts	0	213	0	10	0	3	0	6	0	0	0	232	0	0	0	140	140	0	0	0	84	74	0	10	436	
ect purchases abroad by residents																										
urchases, domestic market by non-residents																										
at at purchaser's prices	47	1133	114	123	0	52	48	99	133	16	118	1883	462	78	1389	1015	16	388	166	212	414	376	28	10	4236	
gross value added/GDP	42	728	130	133	100	94	146	184	142	66	50	1721	1854													
mpensation of employees	9	346	58	60	30	40	13	72	94	31	39	762	133													
ices less subsidies on production and imports																										
Taxes on products																										
Subsidies on products																										
Other taxes less subsidies on production	-2	43	5	-5	-1	4	6	3	2	1	1	58	-8													
ed income, net	14	225	35	48	2	3	35	37	19	16	0	432	134													
arnings surplus, net	10	34	21	5	23	35	67	53	6	16	0	247	133													
nsumption of fixed capital	11	80	11	31	7	12	25	19	21	2	10	222	133													
ed income, gross	17	226	36	49	2	4	36	39	19	16	0	442	133													
arnings surplus, gross	18	113	31	35	30	46	91	70	27	18	10	459	133													
tal output	89	1861	244	262	100	146	194	283	275	82	168	3104	462	78	1389	1015	16	388	166	212	414	376	28	10	4236	

- b. A product by product approach using an industry technology assumption,
- c. An industry by industry approach assuming a fixed product sales structure,
- d. An industry by industry approach assuming a fixed industry sales structure.

28.64 Options a and d may result in negative entries; options b and c do not.

28.65 Both product by product and industry by industry tables may be compiled. They serve different analytical functions. For example, to ensure that a full range of price indices are strictly consistent, a product by product matrix is to be preferred. For a link to labour market questions, an industry by industry table may be more useful. Although traditionally a lot of interest focused on the product by product tables, this was accompanied in large part by an attention to the underlying technology. Increasingly the economic interaction of different industries has brought more interest in the industry by industry tables.

Hybrid approaches

28.66 In practice, no single method is used on its own. Knowledge of the type of product or industry in question should dictate whether an industry-based conversion procedure or a product-based one is most appropriate. Some secondary products may be dealt with one way and others another despite the fact that, on occasion, negative values may initially appear.

28.67 The extent of variation between the various approaches will depend on a number of factors, including in particular the extent of secondary production in the supply matrix. In general, the greater the degree of disaggregation and thus the less secondary production to be reallocated, the closer the input-output tables will resemble the supply and use tables. Indeed some countries prefer to work with very

detailed supply and use tables and not produce symmetric tables at all.

28.68 As an illustration of the differences involved, tables 28.10 and 28.11 show the results of converting the supply and use tables in chapter 14 to, first, a product by product matrix using only the industry technology assumption and then an industry by industry matrix using only the product sales structure.

The database required for the transformation

28.69 The starting point for the production of a symmetric input-output table is a pair of supply and a use tables both at basic prices. Even the calculation of a use table in basic prices is one step away from basic statistics and actual observations, reinforcing the fact that the input-output tables are analytical constructs, not a compilation of directly observed phenomena.

28.70 Further, it is advantageous to separate the use table at basic prices into two, one showing those elements relating to domestic output and the other those elements relating to imports. The statistical requirements for such a separation are demanding but the results allow considerable flexibility in the treatment of imports and permit a clear analysis of the impact of demand on supplies from resident producers and on foreign suppliers.

28.71 The exact manner of dealing with imports is a subject of considerable complexity where a number of options are available also. In some economies, some important products will only be imported and so separating these "non-competing" imports from the rest may be of particular interest.

28.72 Another topic that requires careful consideration is the degree of detail that is desirable for product and industry classifications. This may vary depending on the resources available to the statistical office and the sort of use to be made of the results.

Table 28.12: The goods and services account in matrix form

	Goods and services account		Production account		Use of income accounts		Capital accounts		Total use
	E	R	E	R	E	R	E	R	
Goods and services account			Intermediate consumption		Final consumption		Gross capital formation		
	E	R	E	R	E	R	E	R	
	Exports	Imports							
			540	1 883	1 399		414		4 236
Production account	Output								
	E	R							
			3 737						
Total supply									
			4 236						

D. Social accounting matrices

1. Expressing the sequence of accounts in matrix form

28.73 The part of the use table relating to the destination of products represents one side of the goods and services account in matrix form. However, it can also be expressed as a series of sub-matrices; one for intermediate consumption, one for final consumption, one for capital formation and one for exports. These sub-elements can be associated with the production account, the use of income account, the capital account and the rest of the world account respectively. Similarly the supply table represents the other side of the goods and services account but can also be written as two sub-matrices, one associated with the production account (output) and one with the rest of the world (imports). By writing the supply table horizontally and the supply table vertically in terms of these sub-matrices and their associated accounts, table 28.12 emerges. The rows and columns labelled E denote the total economy and those labelled R the rest of the world.

28.74 The attraction of this format is that the total across the set of rows for the goods and services account is equal to the total down the columns for the same account. There is no match for the second set of rows for the production account, but it is not difficult to bring this about. The entries for value added can be inserted in a third set of rows with the entries underneath intermediate consumption. In this way the sum down the columns for the production account is then equal to the rows for the same account. But there is now an unmatched third set of rows containing value added. Since value added ultimately carries forward to the primary distribution of income account, the third set of rows can be so labelled as in table 28.13.

28.75 If, to match this third set of rows, a third set of columns is inserted between the production account columns and those for the use of income account, property income can be inserted at the intersection of the third set of rows and

columns and a fourth set of rows inserted to show the balance of primary income as it appears in the secondary distribution of income account. Proceeding in this way, successive sets of rows and columns can be introduced until the whole sequence of accounts is covered, as in table 28.14.

28.76 By including the entries for the rest of the world as well as for the total economy, the balancing items from the balance of payments can be shown as, for instance, the -41 in table 28.13.

28.77 It is also possible to extend table 28.14 to show the incorporation of the balance sheets as in table 28.15. For this, a row above the initial table is introduced to show the opening balance sheet and three rows below it. The first of these shows the entries for the other changes in the volume of assets account, the second relates to the revaluation account and the last is the closing balance sheet. Two adjustments also need to be made to table 28.10. The first concerns the item for the consumption of fixed capital, which is transposed from the row for the capital account and column for the production account and placed in the column for the capital account and row for the production account but with a negative sign. The second is to subdivide the capital account with the first set of rows and columns covering all items in the account but the second set covering the product details for gross capital formation and thus forming part of the asset account for non-financial assets.

28.78 Reading down the columns starting with the opening balance sheet entry for fixed assets, for example, this value plus the value of capital formation, less consumption of fixed capital, plus other changes in the volume of assets plus revaluation items is equal to the value on the closing balance sheet. For financial assets less liabilities the matching identity holds.

Table 28.13: The supply and use table in matrix form

	Goods and services account		Production account		Use of income accounts		Capital accounts		Total
	E	R	E	R	E	R	E	R	
Goods and services account	Exports		Intermediate consumption		Final consumption		Gross capital formation		
E									
R	499	540			1 399			4 14	4 236
Production account	Output								
E									
R	3 737								3 737
Primary distribution of income accounts			Value added						
Total	4 236	499			3 737				

2. Expanding the matrix

- 28.79 It is possible to expand and rearrange the rows and columns of the matrix so long as this is done consistently in both dimensions. It is not strictly necessary to adhere to the order of the sequence of accounts or the degree of detail shown there. The transactions to be included can be expanded or contracted as can the sets of institutional units to be identified.
- 28.80 The example of transposing consumption of fixed capital from being a positive entry on one side of the account to a negative entry on the other demonstrates how the matrix formulation may be used to enhance the articulation of the asset accounts.
- 28.81 It is also possible to include alternative classifications of key items. For example a row called “human needs” could be included showing how much food, housing etc was needed for each group of households, based on the functional classification of household consumption. In the column for consumption expenditure, the set of needs can be then cross-classified by product and household group.
- 28.82 A further expansion of the matrix may be to show the from-whom-to-whom details of such flows as property income and transfers.
- 28.83 The matrix presentation is very powerful in terms of the flexibility it can encompass, and in displaying the interaction of the accounts in a compact and graphic manner. On the other hand, there are disadvantages to the matrix presentation also.
- Without explanatory text describing each of the main elements, a reader has to have a very good understanding of the SNA to interpret the numeric entries in the table.
 - Such a table always contains lots of white space which means that it is not an effective way of presenting a large amount+ of data.

In general, the matrix format is best used to explain the structure of the accounts being presented with individual cells, or a combination of cells, following in a more traditional format.

3. Disaggregating households

- 28.84 Expanding the accounting matrix of the sequence of accounts to incorporate the disaggregation of the households is the usual form of a satellite account known as a social accounting matrix (SAM). As such it moves beyond a rigorous accounting structure based on observations to make an allocation of income into household groups possibly based on a household income and expenditure survey. In some cases this is based on a single survey. The problem, as explained in chapter 24 on

the household sector, is that income flows in the SNA relate to individuals whether as employees, recipients of property income or transfer recipients while expenditure relates to households. Mapping individuals to households is necessarily difficult and depends to a greater or lesser extent on a set of assumptions. Any analysis of how government policies will affect households and their consumption depends on making such a mapping.

4. A SAM for labour accounts

- 28.85 One example of where a SAM is useful is in the case of labour accounts, showing the level and composition of employment and unemployment. SAMs have often provided additional information on this issue, 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 supply and use table, and the supply of labour by socio-economic subgroup, as shown in the allocation of primary income account for households. It implies that the matrix presents not only the supply and use of various products, but also the supply and use of various categories of labour services.
- 28.86 In order to have a comprehensive picture of the relationship between households and the labour market, the following sets of information are likely to be needed:
- Various stocks underlying the flows in the SAM, such as size and composition of the population by household group (including the potential labour force) and production capacity by industry;
 - For the self-employed, it may be desirable to have information on the possession of assets (for example, agricultural land, consumer durables) as well as information on financial assets and liabilities;
 - Related non-monetary socio-economic indicators, such as life expectancy, infant mortality, adult literacy, nutrient intake, access to (public) health and education facilities, and housing situation by household group (see the United Nations publication *Towards a System of Social and Demographic Statistics*);
 - Some re-routings such as social transfers in kind by groups of households.

- 28.87 Comparing (a) labour incomes of all employed persons as shown in the SAM, (b) a decomposition of these incomes into full-time equivalent employment and average wage rates, and (c) the potential labour force by type of person and household group (expressed in “full-time” equivalents), yields detailed information on the composition of unemployment and an aggregate indicator (“full-time equivalent unemployment”) which is consistent, both conceptually and numerically, with the other macroeconomic indicators; these can also be derived from the SAM-framework.

Table 28.14: The flow accounts in the sequence of accounts in matrix form

	Goods and services account	Production account		Primary distribution of income accounts		Secondary distribution of income accounts		Use of income accounts		Capital accounts		Financial accounts		Total
		E	R	E	R	E	R	E	R	E	R	E	R	
Goods and services account	Exports		540	Intermediate consumption	1883			Final consumption	1399	Gross capital formation	414			4 236
	Imports	499												499
Production account	Output	3 737												3 737
														0
Primary distribution of income accounts				Value added	1 632	Property income	438	69						2 139
							40							- 1
Secondary distribution of income accounts						Balance of primary income	1 661		Current transfers	1 174	17			2 852
														- 15
Use of income accounts								Disposable income	1 623	Change in pension entitlements	11			1 634
														- 32
Capital accounts				Consumption of fixed capital	222			Saving		Capital transfers	61	1		508
											4			- 28
Financial accounts										Net borrowing or net lending	29			29
														- 29
Total		4 236	499		3 737	0	2 139	- 1	2 852	- 15	1 634	- 32	508	- 28

Table 28.15: The sequence of accounts including the balance sheets in matrix form

Opening balance sheet														Non-financial assets		Financial assets less liabilities			
														4 821		269			
Goods and services account	E	Production account		Primary distribution of income accounts		Secondary distribution of income accounts		Use of income accounts		Capital account		Asset account		Financial accounts		Total			
		E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R		
Goods and services account	E	Intermediate consumption				Final consumption						Gross capital formation				4 236			
	R	Exports	540	1 883			1 399						414				499		
Production account	E	Output										Consumption of fixed capital				3 515			
	R	Imports	499										- 222				0		
Primary distribution of income accounts	E	Value added		Property income												2 139			
	R			1 632	438	69											- 1		
Secondary distribution of income accounts	E	- 41		Balance of primary income		Current transfers										2 852			
	R				1 661	- 70	1 174	17									- 15		
Use of income accounts	E					Disposable income		Change in pension entitlements								1 634			
	R						1 623	- 32	11								- 32		
Capital account	E							Saving		Capital transfers						286			
	R							224		61	4						- 28		
Asset account	E									Acquisition of non-financial assets						192			
	R											192					0		
Financial accounts	E									Net borrowing or net lending						29			
	R											- 29					0		
Total		4 236	499	3 515	0	2 139	- 1	2 852	- 15	1 634	- 32	286	- 28	192	0	29	0		
Other changes in the volume of assets account														10		7			
Revaluation account														280		8			
Closing balance sheet														5 303		313			

Chapter 29: Satellite accounts and other extensions

A. Introduction

- 29.1 The sequence of accounts is fully integrated in large part because of the underlying rigour of the accounting system. However, the guidelines given in earlier chapters are not necessarily to be followed without variation. A great strength of the SNA is that its articulation is sufficiently robust that a great deal of flexibility can be applied in its implementation while still remaining integrated, economically complete and internally consistent. The purpose of this chapter is to illustrate some of the ways in which this flexibility can be applied.
- #### 1. Functional classifications
- 29.2 As noted in several earlier chapters, moving away from what is purchased to answer the question of why outlays are incurred adds considerably to the analytical power of the system. One approach to this question is the use of functional classifications of expenditure and outlays. A description of these classifications is given in section B. These functional classifications are central to the SNA and also provide a useful starting point for some types of satellite accounts.
- #### 2. Key sector accounts
- 29.3 Instead of using the product and industry classifications (CPC and ISIC) in their standard order and at the same level of their hierarchies, it can be very instructive to select a group of products or industries of particular importance to the economy, designated here as a key sector. The choice might be very specific, for example concentrating on a single agricultural crop or mineral output, or may be more general such as all the goods and services primarily serving tourism. In either case, a set of supply and use tables may be compiled concentrating on the key sector and aggregating other products and industries. In some cases, where the activity is undertaken by relatively few, relatively large enterprises, it may be possible to go further and compile a complete sequence of accounts for the key sector also. These approaches are described in section C.
- #### 3. Satellite accounts
- 29.4 A further and more extensive form of flexibility is that of a satellite account. As its name indicates, it is linked to, but distinct from, the central system. Many satellite accounts are possible but, though each is consistent with the central system, they may not always be consistent with each other.
- 29.5 Broadly speaking, there are two types of satellite accounts. One type involves some rearrangement of central classifications and the possible introduction of complementary elements. Such satellite accounts mostly cover accounts specific to given fields such as education, tourism and environmental protection expenditures and may be seen as an extension of the key sector accounts just referred to. They may involve some differences from the central system, such as an alternative treatment of ancillary activities, but they do not change the underlying concepts of the SNA in a fundamental way. The main reason for developing such a satellite account is that to encompass all the detail for all sectors of interest as part of the standard system would simply overburden it and possibly distract attention from the main features of the accounts as a whole. Many elements shown in a satellite account are invisible in the central accounts. Either they are explicitly estimated in the making of the central accounts, but they are merged for presentation in more aggregated figures, or they are only implicit components of transactions which are estimated globally.
- 29.6 The second type of satellite analysis is mainly based on concepts that are alternatives to those of the SNA. The sorts of variations in the basic concepts that may be considered are discussed in section D. These include a different production boundary, an enlarged concept of consumption or capital formation, an extension of the scope of assets, and so on. Often a number of alternative concepts may be used at the same time. This second type of analysis may involve, like the first, changes in classifications, but in the second type the main emphasis is on the alternative concepts. Using those alternative concepts may give rise to partial complementary aggregates, the purpose of which is to supplement the central system.
- 29.7 Section E suggests some sorts of tables that might be useful in the context of a satellite account. Again, flexibility in the presentation of tables is recommended but the subjects of the tables given in section E have proved to be useful in a number of cases.
- 29.8 The emphasis on the flexibility of the SNA extends to allowing complete flexibility about how many and what sort of satellite or other extended accounts may be developed. Satellite accounts, especially of the second sort, allow experimentation with new concepts and methodologies, with a much wider degree of freedom than is possible within the central system. When a number of countries develop similar satellites, exchanging experience can lead to beneficial refinements and the establishment of

international guidelines in a particular topic and ultimately the possibility of changes in the central system itself. Some

examples of this sort of research are reported in section F of this chapter.

B. Functional classifications

29.9 The SNA uses special classifications to analyse consumption, or more generally outlays, by different sectors according to the purpose for which the expenditure is undertaken. Such classifications are referred to as functional classifications. The classifications concerned are:

- a. Classification Of Individual CONsumption by Purpose (COICOP);
- b. Classification Of the Functions Of Government (COFOG);
- c. Classification Of the Purposes of Non-profit Institutions serving households (COPNI);
- d. Classification of Outlays of Producers by Purpose (COPP).

29.10 Full details of all the classifications can be found in the UN publication *Classification of expenditure according to purpose* (2000).

29.11 The main purpose of these classifications is to provide statistics which experience has shown to be of general interest for a wide variety of analytical uses. For example, classification of COICOP shows items such as household expenditure on food, health and education services all of which are important indicators of national welfare; COFOG shows government expenditure on health, education, defence and so on and is also used to distinguish between collective services and individual consumption goods and services provided by government; COPP may provide information on the “out-sourcing” of business services, that is, on the extent to which producers buy-in catering, cleaning, transport, auditing and other services that were previously carried out as ancillary activities within the enterprise.

29.12 Functional classifications also provide the means to recast key aggregates of the SNA for particular kinds of analyses, some of which are described in later sections of the chapter. For example:

- a. It can be argued that, for several analytical purposes, the SNA definition of gross capital formation is too narrow. In studies of the causes of labour productivity, researchers would often like to have a measure of “human capital” which is normally derived from information on past expenditures on education. The four functional classifications each identify expenditures on education and thus it is possible to derive education expenditure incurred by households, government, non-profit institutions and producers;

b. In studies of household expenditure and saving, some researchers have considered expenditures on consumer durables as capital rather than current expenses. COICOP facilitates this by identifying expenditures on durable goods;

c. In studies of the impact of economic growth on the environment, researchers often wish to identify environmental protection expenditure. COFOG and COPP both include this as one of their first level categories.

1. COICOP

29.13 There are 14 main categories in COICOP. The first 12 sum to total individual consumption expenditure of households. The last two identify those parts of consumption expenditure by NPISHs and general government that are treated as social transfers in kind. Together all 14 items represent actual final consumption by households. The 14 categories are as follows:

1. Food and non-alcoholic beverages,
2. Alcoholic beverages, tobacco and narcotics,
3. Clothing and footwear,
4. Housing, water, electricity, gas and other fuels,
5. Furnishings, household equipment and routine household maintenance,
6. Health,
7. Transport,
8. Communication,
9. Recreation and culture,
10. Education,
11. Restaurants and hotels,
12. Miscellaneous goods and services,
13. Individual consumption expenditure of NPISHs,
14. Individual consumption expenditure of general government.

29.14 Household budget surveys frequently use a classification scheme based on COICOP to collect household expenditure information. This then has to be reallocated to products for use in a supply and use table as discussed in chapters 14 and 28.

2. COFOG

29.15 There are ten main categories of COFOG as follows:

1. General public services,
2. Defence,
3. Public order and safety,
4. Economic affairs,
5. Environmental protection,
6. Housing and community amenities,
7. Health,
8. Recreation, culture and religion,
9. Education,
10. Social protection.

29.16 As noted in chapter 22, COFOG is used in the analysis and presentation of government finance presentation of statistics.

3. COPNI

29.17 There are seven main categories in COPNI as follows:

1. Housing,

2. Health,
3. Recreation and culture,
4. Education,
5. Social protection,
6. Religion,
7. Political parties, labour and professional organisations.

29.18 This classification is a somewhat reduced version of the classification for all non-profit institutions given in chapter 23.

4. COPP

29.19 There are six main categories in COPP as follows:

1. Outlays on infrastructure,
2. Outlays on research and development,
3. Outlays on environmental protection,
4. Outlays on marketing,
5. Outlays on human resource development,
6. Outlays on current production programmes, administration and management.

29.20 In principle, COPP applies to all producers, whether market or non-market, although not all categories are of equal interest for both kinds of producers. It is probable that, in practice, classification of outlays of producers by purpose will mainly be of interest for classifying transactions of market producers.

C. Satellite accounts for key sector and other special sector accounts

29.21 The sequence of accounts is normally compiled for the whole economy or for all institutional units belonging to the same institutional sector or sub-sector. Within the supply and use tables, production units may be grouped to show the elements of the production account and generation of income account, even if the production units are not complete institutional units. Although the rows and columns of the supply and use tables often follow CPC and ISIC, at similar levels of their respective hierarchies, it is quite possible to select a number of industries that are of special interest in a given country. It is common practice to refer to such groupings of industries as “sectors” even though they do not constitute institutional sectors as the term is used in the SNA.

29.22 It can be very useful for economic analysis to identify particular activities that play a key role in the economy’s external transactions. These key activities may include the petroleum sector, mining activities or crops (coffee, for example), when they account for an important part of exports, foreign exchange assets and, very often, government resources.

29.23 The SNA does not try to provide specific and precise criteria for the definition of what identifies a key sector or activity. It is a matter of judgement in a given country, based on economic analysis and economic and social policy requirements. For instance, even a small industry at an infant stage might deserve to be treated as a key activity.

- 29.24 The first step in drawing up key sector accounts is to identify the key activities and their corresponding products. This may involve grouping together items shown in different parts of ISIC or CPC. For example, accounting for oil and natural gas may cover extraction of crude petroleum and natural gas (ISIC division 06), manufacture of refined petroleum products (ISIC class 1920), transport via pipelines (ISIC class 4930), wholesale of solid, liquid and gaseous fuels and related products (ISIC class 4661) and retail sale of automobile fuel (ISIC class 4730). The extension of the key sector(s) depends on local circumstances; for example, it may be useful for the energy sector to cover petro-chemical processing.
- 29.25 The key products and key industries accounts may be analysed in the context of a supply and use table. Key industries are shown in detail in columns and other industries may be aggregated. In the rows, key products are similarly shown in detail and other products aggregated. Below the supply and use table, extra rows may show labour inputs, gross fixed capital formation and stocks of fixed assets. In the use part of the table, columns for gross fixed capital formation and changes in inventories respectively may be broken down between one or more key sectors or industries and other sectors or industries. In a country where the key activity is carried out by very heterogeneous types of producers, such as small farmers and large plantations owned and operated by corporations, it may be useful to show the two groups of producers separately, as they have wholly different cost structures and behave differently.
- 29.26 Thereafter, a set of accounts, following the sequence of accounts as far as possible, may be compiled for the key sector. In the case of energy and mining activities, the key sector generally consists of a limited number of large corporations where access to the commercial accounts of the corporations is usually possible. All transactions of the corporations are covered, even when they carry out secondary activities. It is useful to know the nature of the secondary products, but not necessarily their destination.
- 29.27 When the key sector relates to an agricultural industry or product, such as coffee in certain countries, the situation is more complex. Many producers may be unincorporated enterprises that do not qualify as quasi-corporations. Ideally, the key sector accounts would include a complete set of accounts for the households that carry out these productive activities. Because this may be difficult to do in practice, it may be necessary to show only the accounts and transactions which are most closely linked with the key activity such as the production and generation of income accounts from the one side and main transactions of the capital and financial accounts from the other.
- 29.28 In many cases, government plays an important role in connection with key activities, either via taxes and property income receipts, regulatory activity or subsidies. Accordingly, the detailed study of transactions between the key sector and general government is very important. The classification of transactions may be extended to identify those flows connected with the key activity, including the relevant taxes on products. These flows may be received by various government agencies, such as ministries for special purposes, universities, funds or special accounts. Similarly, it is very useful for economic analysis to indicate what uses are made by government of these resources, especially in the case when they are routed via a government agency. This calls for a specific analysis by purpose of this part of government expenditure.
- 29.29 The distinction between public, foreign controlled or national private corporations is fundamental when dealing with a key sector.
- 29.30 One more step may consist in showing in additional tables the “from whom to whom?” relationship between the key sector and each other sector and the rest of the world.

D. Satellite accounts; options for conceptual variations

- 29.31 This section looks at some of the options that might be adopted in developing a satellite account of the second type, where some of the basic concepts of the central system are intentionally varied. It is deliberately illustrative rather than exhaustive.
- 1. Production and products**
- 29.32 Within the production boundary of the central framework of the SNA, producer units are establishments, classified according to their principal economic activity. Such units are classified according to ISIC.
- 29.33 When establishments, and consequently industries, are not homogeneous at a given level of the ISIC, they undertake both a principal activity and one or more secondary activities. The output of these secondary activities is identified according to its nature, following a product classification, but the inputs of secondary activities are not separated from those of the principal activities. Ancillary activities, on the other hand, are not analysed and classified according to their own nature and the related products do not appear as autonomous products.
- 29.34 When examining certain kinds of activity and products, it may be useful not only to separate secondary from principal activity, but also to identify and recognise the ancillary activities in order to obtain a full picture of the inputs corresponding to the activity being examined.
- 29.35 Consider the example of transportation. The output of transportation activities in the central framework covers only transport services rendered to third parties, whether as a principal or secondary product. Own-account transportation is treated as an ancillary activity; its inputs are unidentified components of the costs of the producing units it serves. To obtain a broader picture of transportation

activity, own-account transportation of producing units may be identified and measured.

- 29.36 In some instances, it may be useful to consider enlarging the production boundary. For instance, to make an overall estimate of the transportation function in an economy, it might be useful to cover transport services rendered by households using their own cars and to try to value the time people spend using transport facilities. Generally speaking, the scope of non-market activities may be extended considerably.
- 29.37 The process of identifying principal, secondary and ancillary activities works well when the activity in question is identified in one of the standard classifications and so appears in the central framework. However, in some important cases, such as tourism and environmental protection activities, the process of identification is complex because not all the relevant activities and products appear in the central framework classifications. In this case, the use of the word “industry” is not in strict accordance with the normal usage just as “sector” is used in a special sense in the context of key sector accounts.

2. Income

Primary incomes

- 29.38 When the production boundary is extended, as suggested above, the magnitude of primary incomes is increased, income being imputed for the additional activities which are inserted within the boundary of production.
- 29.39 In conditions of high inflation, nominal interest may be judged not to be an appropriate measure of the return to lent funds. Nominal interest includes an implicit or explicit component as compensation for the change inflation causes in the real value of monetary assets and liabilities. This component may be analysed as a holding gain for the borrower and a holding loss for the lender, rather than as an element of property income.

Transfers and disposable income

- 29.40 Several kinds of transfers in addition to those in the central framework may be delineated, if meaningful. Some examples follow.
- 29.41 Implicit transfers may be made explicit. Implicit transfers change the situation between units without any flow being treated as an imputed transfer in the central framework. For instance, tax benefits refer to the advantages or disadvantages economic units incur as a consequence of tax legislation by reference to an average situation. Another example is the case of non-market services provided free of charge by government units to market producers. In the central framework these services are treated as collective consumption of government. If a further analysis were to treat them as an addition to intermediate consumption of market producers, a counterpart should be introduced, preferably in subsidies on production. This approach may be undertaken systematically to measure all types of transfers between government and particular sectors, such as agriculture. The implicit benefits resulting from tax

concessions, equity participation, soft loans, differential exchange rates, differential domestic prices, etc., may then be added to subsidies, other current transfers, or capital transfers embodied in the central framework data.

- 29.42 Externalities are impacts on third parties that are not accounted for in the value of monetary transactions between two economic units or that result from actions of these units in the absence of any monetary transaction. As such, externalities may give rise to a wide range of implicit transfers. For example, pollution and nuisance created by producers may have negative effects on final consumers. These negative effects might (with difficulty) be estimated and recorded as negative transfers from producers to households. In order to balance these negative transfers, one possibility might be to introduce a concept of production of externalities which would result in an output of negative or positive services and the corresponding final consumption.
- 29.43 Flows in the other changes in volume of assets account and the revaluation account of the central framework are candidates for enlarged concepts of transfers and disposable income. Uncompensated seizures, for example, could be recorded as a transfer (albeit unwillingly on the part of the former owner). In countries where holding gains or losses on financial assets/liabilities are significant, real holding gains and losses on financial assets and liabilities could be added to disposable income in order to derive a broader measure of income.

3. Uses of goods and services

- 29.44 The coverage of uses of goods and services, either for intermediate or final consumption or capital formation, obviously changes as a result of enlarging the concept of production. For example, if services rendered to each other by members of the same household were included in production, they would have to be also included in final consumption.
- 29.45 The borderline between intermediate consumption, final consumption and capital formation may also be modified in various ways. Two often mentioned cases refer to human capital and consumer durables. If at least part of final consumption on education and health were treated as fixed capital formation, the corresponding central framework transactions would be reclassified from consumption to fixed capital formation resulting in human capital assets. As an immediate consequence, the concept of consumption of fixed capital would be extended.
- 29.46 An alternative to the inclusion of expenditures on consumer durables such as cars and furniture in household final consumption would be to treat them as fixed capital formation. Only that part of the resulting fixed asset estimated as the capital services provided by the durable would then enter final consumption. Strictly speaking, this procedure implies enlarging the concept of production to include household services. (This is one subject discussed further in section E.)
- 29.47 As a consequence of the changes just considered, the concept of saving would be extended.

4. Assets and liabilities

29.48 The scope of non-financial assets could be modified as a consequence of extending the concept of production or modifying the borderline between consumption and capital formation, as indicated in the previous paragraphs.

29.49 The scope of financial assets and liabilities could also be broadened by including contingent assets and liabilities in the classification of financial instruments. Further, alternative rules about the valuation of financial assets may be used, for example using fair value estimates instead of market value.

5. Purposes

29.50 Section B describes the functional classifications. In the standard version, headings at a given level are mutually exclusive. For example, teaching in hospitals must be classified as either education or health expenditure but not both. Consequently, for an education or health account, it might be desirable to reclassify a number of transactions. In order to preserve as great a degree of consistency with the central system as possible, any reclassifications should be treated as removing an item from one heading and placing it in another rather than allowing double counting. Double counting would mean that transactions classified by purpose were no longer additive since some of them would

appear under two or more headings. However, even without double counting, it should be noted that different satellite accounts, each with a different focus, may not be consistent with respect to other headings. For example, if an education satellite account treats some teaching done in hospitals as education rather than health, the measure of health in that satellite will differ from that in any other satellite where such a displacement has not been made.

6. Aggregates

29.51 A number of the complementary or alternative analyses mentioned above may modify the main aggregates as shown in the central framework either directly or indirectly. Examples of direct modifications are the increase in output and value added when final consumption of household services for own use is included within the boundary of production, or the increase in fixed capital formation if human capital is considered an economic asset. Other aggregates are indirectly modified; saving in the latter case, disposable income in the former.

29.52 In some types of analysis the objective is to focus on one specific field of concern, such as education or tourism. Changes in some concepts and aggregates of the central framework may be introduced, but this is not the primary intention, nor is it intended to give a different picture of the overall economic process.

E. Possible tables for a satellite account

29.53 The previous section described what variations in the basic concepts, accounting rules and classifications of the SNA could be applied in a satellite account. This section suggests some sorts of tables that it might be useful to compile for a satellite account.

1. Scoping a functionally orientated account

29.54 The starting point is to decide which products are of interest and which are the industries involved in their production. The resources devoted to the production of the items include not only current costs but also fixed capital used in production. Once the items are produced, the question arises of how they are used. This leads to requiring information on the following topics:

- a. A detailed analysis of the supply and use of the products in question;
- b. Information on the fixed capital used in the production process.

29.55 For many items, the units using the products are responsible for bearing the expense of acquiring the product but satellite accounts may frequently be compiled for areas, such as health or education, where there may be an important distinction between who pays for the product and who consumes it.

29.56 In addition, for many products of special interest, there may be particular taxes or subsidies associated with their production or use. Taking these two factors together, therefore, in addition to the items above, the following is required:

- c. An analysis of any transfers associated with either production or use.

29.57 It is also useful in many cases to associate non-monetary figures with the monetary ones. This means assembling the following information:

- d. Information on employment and the availability of assets.

29.58 Once these four sets of data are assembled, it should be possible to develop a satellite account that covers the analysis of uses of, or benefits from, the expenditure on the items, production including the labour and capital employed, transfers and other ways of financing the uses. All of this can be expressed in value terms and, when relevant, in physical quantities.

2. Determining the products of interest

29.59 For any field of interest, the starting point is to identify the products specific to this field. It is customary, in the context

of a satellite account, to identify these as characteristic products and connected products. Characteristic products are those that are typical of the field; for instance, for health, characteristic products are health services, public administration services, education and R&D services in health.

- 29.60 The second category, connected goods and services, includes products whose uses are interesting because they are clearly covered by the concept of expenditure in a given field, without being typical, either by nature or because they are classified in broader categories of products. In health, for example, transportation of patients may be considered connected services; also pharmaceutical products and other medical goods, such as spectacles, are very often treated as connected goods and services.
- 29.61 Together characteristic products and connected products are referred to as specific products.

3. Measuring production

- 29.62 For characteristic products, the satellite account should show the way these goods and services are produced, what kinds of producers are involved, what kinds of labour and fixed capital they use and the efficiency of the production process and, hence, of the allocation of resources.
- 29.63 For connected goods and services, there is no particular interest in their conditions of production because they are not typical of the field of interest. If the conditions of production are important, then the items should be considered characteristic products and not connected products. For example, pharmaceutical products might be considered characteristic in the account for health of a country in the first stages of developing a domestic industry. The precise borderline between characteristic and connected products depends on the economic organization in a given country and the purpose of a satellite account.

4. Components of uses/national expenditure

- 29.64 The components of uses or national expenditure are the following:
1. Consumption of specific goods and services,
 2. Capital formation in specific goods and services,
 3. Fixed capital formation of characteristic activities in non-specific products,
 4. Specific current transfers,
 5. Specific capital transfers.

Each of these items is discussed below.

Consumption

- 29.65 Item 1 is consumption of specific goods and services. It covers actual final consumption (as defined in the central framework) and intermediate consumption. Market

products, products for own final use and non-market products are distinguished and, for the latter, individual and collective consumption may be shown separately. Intermediate consumption generally has a broader coverage than in the central framework, as the output of the relevant ancillary activities is identified with intra-establishment deliveries being recorded. As a consequence, it covers (actual) intermediate consumption as defined in the central framework and internal intermediate consumption. In some cases, such as transport services, the last component may be important in size. Sometimes, it could be considered that this internal intermediate consumption should be treated as final consumption and added to actual final consumption, as in the use of ancillary education and health services, thus broadening the scope of household actual final consumption. Alternatively, the scope of consumption may be narrowed, if the use of certain services is treated as fixed capital formation in a satellite account instead of intermediate or final consumption as in the central framework.

Capital formation

- 29.66 Item 2 is capital formation in specific goods and services. Since, item 2 includes changes in inventories, if appropriate, it may cover work-in-progress in specific services. In an account for culture, for example, there may also be acquisition less disposals of valuables.
- 29.67 Item 3, fixed capital formation of characteristic activities in non-specific products and their acquisitions less disposals of non-produced non-financial assets is a bit more complex:
- a. It does not cover the total fixed capital formation of these activities because that part consisting of specific products is already included in item 2.
 - b. Only the fixed capital formation of activities whose output consists of characteristic goods and services is covered in item 3. (If the exclusion of capital formation of activities whose output consists of connected goods and services proves important, the products and activities in question may have to be redefined to be characteristic.)
 - c. An analysis based on establishments may give a broader coverage than normal because they may cover some secondary activities.
 - d. Item 3 includes acquisitions less disposals of non-produced non-financial assets.

Transfers

- 29.68 Items 4 and 5, specific current transfers and specific capital transfers, are the most important components of national expenditure in cases such as social protection or development aid. In these fields, items 1 and 2 refer only to the administrative costs, both current and capital, of the agencies managing social protection or international aid. The core of the expenditure consists of transfers.
- 29.69 In some situations, there may be subsidies designed to reduce the prices paid by final consumers for certain goods

or services, such as food, transport services, or housing services. They are commonly called consumption subsidies. In the central framework, when these goods and services are considered market products, they are included in final consumption at purchasers' prices. In a satellite account there are two options: either consumption (item 1) is valued differently from the central framework in order to include the value of consumption subsidies or consumption is valued as it is in the central framework and specific current transfers (item 4) must include consumption subsidies. Subsidies included in item 4 may also be directed toward reducing the prices of intermediate consumption. Item 4 may also include other subsidies on production.

29.70 In each field a classification of specific transfers has to be established. As it is used for analysing both uses and financing, this classification covers all specific transfers, independently of whether they are counterparts of items 1 to 3 or not.

Total uses and national expenditure

29.71 The total uses of resident units are the sum of the five components above. From this, current uses financed by the rest of the world are deducted to reach national expenditure. National expenditure is thus equal to total uses of resident units financed by resident units. It is desirable if possible to distinguish between current and capital uses financed by the rest of the world.

29.72 National expenditure, as defined above, does not include transactions in financial instruments. However, for certain types of analysis, such as development aid, loans which are given or received at preferential conditions must be accounted for. Benefits or costs resulting from rates of interest lower than the market ones involve implicit transfers as described in chapter 22.

29.73 Uses/national expenditure may be shown by type of products and transfers or by type of purpose (programmes). The main emphasis may be put on one or the other of these two alternatives, or they might be used jointly, depending on the field covered or the aim of the analysis pursued. The approach by programme is particularly relevant in the case of environmental protection or social protection.

5. Users/beneficiaries

29.74 For users or beneficiaries, the terminology used may differ from one satellite account to another. "Users" is more relevant to tourism or housing for example, "beneficiaries" to social protection or development aid. In both cases, the terms refer to who is using the goods and services or benefitting from the transfers involved.

29.75 At the most aggregated level, the classification of users/beneficiaries is simply a rearrangement of the central framework classification of institutional sectors and types of producers, in which the production and consumption aspects are separated. It may be as follows:

- a. Market producers;
- b. Producers for own final use;

- c. Non-market producers;
- d. Government as a collective consumer;
- e. Households as consumers;
- f. Rest of the world.

29.76 Households as consumers are the most important type of users/beneficiaries in many satellite accounts. In order to be useful for social analysis and policy, a further breakdown of households is necessary. For this purpose, one of the sorts of sub-sectoring of households discussed in chapter 24 could be considered

6. Financing

29.77 Because users do not always bear the expenses themselves, it may be desirable to try to analyse the units that ultimately bear the expenses. This is more feasible when the field of interest covers complete institutional units than when it concerns establishments (or units of homogeneous production) covering only part of the output of the whole enterprise.

29.78 One way to approach the question of financing is to first establish what types of financing are used and then identify which sorts of units provide each type of financing. The question of "ultimate" bearer of the cost also needs addressing. Some household consumption is provided by government as social transfers in kind, which in turn is largely financed by taxes received by government from households and enterprises. In one sense, therefore, it could be argued that social transfers in kind are ultimately financed by households and enterprises. Some conventions have to be established about how far back down the financing chain to go to determine the "ultimate", or perhaps more correctly the indirect, source of financing.

29.79 Another problem that arises is that, except in cases of transactions in kind, there is no necessary link between one source of funding and one type of expenditure. However, it is convenient to pair various types of financing and expenditure to see how far they correspond, as follows:

- a. Intermediate consumption of market producers compared with revenue from sales;
- b. Intermediate and final consumption of government compared with taxes;
- c. Intermediate and final consumption of NPISHs compared with contributions received;
- d. Final consumption expenditure by households compared with compensation of employees and transfers such as pensions;

29.80 Capital formation may be funded in a number of ways; from revenue from sales, from the disposal of assets (including financial assets), from the receipt of a transfer in kind or from borrowing. In the case of capital formation by government, this may be funded by the issue of securities or by capital transfers or loans from the rest of the world;

- 29.81 The source of financing of transfers depends in large part on the field being studied. If social benefits are included, they should be treated as mainly financed by social contributions from other households. Governments will be the provider of transfers in some cases (including subsidies) and the recipient in others (including taxes).
- 29.82 In a number of cases, it may be particularly relevant to identify financing from the rest of the world.

7. Production and products

- 29.83 As with key sector accounts, it will almost always be useful to develop a set of supply and use tables for the

F. Examples of satellite accounts

- 29.85 As explained in the introduction, there are two types of satellite accounts, serving two different functions. The first type, sometimes called an internal satellite, takes the full set of accounting rules and conventions of the SNA but focuses on a particular aspect of interest by moving away from the standard classifications and hierarchies. Examples are tourism, coffee production and environmental protection expenditure. The second type, called an external satellite, may add non-economic data or vary some of the accounting conventions or both. It is a particularly suitable way to explore new areas in a research context. An example may be the role of volunteer labour in the economy. Some sets of satellite accounts may include features of both internal and external satellites.
- 29.86 The boundary between satellite accounts and a straightforward elaboration of the SNA or even with other systems is not clear cut. The links to balance of payments and the international accounts as presented in *BPM6*, government finance statistics as in *GFSM2001*, or the *Monetary and Financial Statistics Manual (MFSM)* could all be seen as a form of satellite account. The treatment of NPIs in chapter 23 and the informal sector in chapter 25 are clearly satellite accounts. Even the pension table in chapter 17 could be seen as a form of satellite account, even though its compilation is part of the central guidelines of the SNA.
- 29.87 In this section, some further satellite accounts are described. The descriptions are brief, being intended to give a flavour of the accounts only; references are given for further information. Four areas in total are described. For two of these, the tourism satellite account and the environmental satellite account, the international manuals are now in their second version. The health satellite account is still in a preliminary version but under active revision. The fourth area covers unpaid household production activities. This has been an area of interest for very many years but the difficulties in determining how to measure unpaid activities has so far been a stumbling block in reaching international agreement on how to proceed. Nevertheless, some of the most recent work in this is reviewed for those interested.

characteristic and connected products of interest and the producers of the characteristic products. This may be extended to cover the generation of income account also and non-monetary data concerning employment and indicators of output.

8. Physical data

- 29.84 Data measured in physical units should not be considered a secondary part of a satellite account. They are essential components, both for the information they provide directly and in order to analyse the monetary data adequately.

- 29.88 Other satellite accounts have been developed or are under development. Some such as a satellite investigating productivity across a number of countries, called the KLEMS project, have been conducted to date as a research exercise. Others, such as accounts for water and forests, have been developed as elaborations of the main environmental satellite account (*Integrated Environmental and Economic Accounting*, known as *SEEA*) to the point where international guidelines on these are now accepted. Further satellite accounts for agricultural products would be useful for a number of developing countries. Here and elsewhere, as there is agreement on how to compile a new form of satellite account, new international guidelines can be developed. International guidelines on satellite accounts themselves may be subject to revision and may eventually move towards an accepted international standard as is planned for the *SEEA*.

1. Tourism satellite accounts

- 29.89 The tourism satellite account (*TSA*) is a long established satellite account with more than 70 countries having compiled one at some stage. A manual of international guidelines, known as the *Tourism Satellite Accounts: Recommended Methodological Framework* was first published in 2000 and was updated in 2008. The coverage of second homes and the activity of meetings and conferences are extensions to the *TSA* made in the 2008 update.
- 29.90 The goal of the tourism satellite account is to provide the following information:
- Macroeconomic aggregates that describe the size and the economic contribution of tourism such as tourism direct gross value added (TDGVA) and tourism direct gross domestic product (TDGDP), consistent with similar aggregates for the total economy and other productive economic activities and functional areas of interest;
 - Detailed data on tourism consumption, a more extended concept associated with the activity of visitors as

Table 29.1: Table 6 from the Manual on Tourism Satellite Accounts

Total domestic supply and internal tourism consumption (at purchasers' prices) (*)

Products	TOURISM INDUSTRIES														Other industries		Output of domestic producers (at basic prices)		imports*		Taxes less subsidies on products nationally produced and imported		Trade and transport margins		Domestic supply (at purchasers' prices)	Internal tourism consumption	Tourism ratios (%)
	1 - Accommodation for visitors		1 - a. accommodation services for visitors except in 1-b		1 - b. accommodation services associated with all types of vacation home ownership		...		12. Country specific tourism industries		TOTAL		output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	(6.4) = (5.15) + (5.13) + (5.14)	(4.3)	(6.5) = (4.3) x 100 (6.4)		
	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)					
A. Consumption products (*)																											
A.1 Tourism characteristic products (d)																											
1 – Accommodation services for visitors																											
1.a – Accommodation services for visitors other than 1.b																											
1.b – Accommodation services associated with all types of vacation home ownership																											
2 – Food and beverage serving services																											
3 – Railway passenger transport services																											
4 – Road passenger transport services																											
5 – Water passenger transport services																											
6 – Air passenger transport services																											
7 – Transport equipment rental services																											
8 – Travel agencies and other reservation services																											
9 – Cultural services																											
10 – Sports and recreational services																											
11 – Country-specific tourism characteristic goods		X		X		X		X		X		X		X		X		X		X							
12 – Country-specific tourism characteristic services																											
A.2 Other consumption products (a) (d)																											
B. Non consumption products (d)																											
B.1 Valuables		X		X		X		X		X		X		X		X		X		X							
B.2 Other non consumption products (**) (b) (d)																											
I. TOTAL OUTPUT (at basic prices)																											
II. TOTAL INTERMEDIATE CONSUMPTION (at purchasers price) (c)																											
(I - II) TOTAL GROSS VALUE ADDED (at basic prices)																											
Compensation of employees																											
Other taxes less subsidies on production																											
Gross mixed income																											
Gross operating surplus																											

X does not apply

... Means that all tourism industries of the proposed list have to be considered one by one in the enumeration

* Imports excludes direct purchase of residents abroad

(*) The value of **A. Consumption products**, is net of the gross service charges paid to travel agencies, tour operators and other reservation services.

(**) Includes all other goods and services that circulate in the economy of reference.

(a) If relevant and feasible, countries should separately identify both components ("tourism connected products" and "non-tourism related consumption products"). In both cases, goods and services should be separately identified, if possible (see para. 4.15.).

(b) Goods and services should be separately identified, if possible (see para. 4.16.).

(c) Breakdown should be provided, if possible (see para. 4.17.).

(d) For goods, the tourism share is to be established on the retail trade margin only (see Annex 4)

consumers, and the description on how this demand is met by domestic supply and imports, integrated within tables derived from supply and use tables that can be compiled both at current values and in volume terms;

- c. Detailed production accounts of the tourism industries, including data on employment linkages with other productive economic activities and gross fixed capital formation;
- d. A link between economic data and non-monetary information on tourism such as number of trips (or visits), duration of stay, purpose of trip, modes of transport, etc. which are required to specify the characteristics of the economic variables.

Defining visitors and tourists

- 29.91 At the centre of the TSA is the idea of a visitor. A visitor is defined as someone who is outside their usual environment but not employed by an entity resident in the place he is visiting. The usual environment is not identical with country of residence. It refers to the area within which a person is normally to be found. It includes the area around the home and also the place of work. Thus border workers, although they cross a country boundary, are not visitors. Visitors are therefore a subset of travellers.
- 29.92 Visitors may be divided into two categories: those that are overnight visitors called tourists and those that are same day visitors called excursionists. Further, it is important to divide tourists according to their country of residence into domestic and external tourists. A resident visiting a country abroad is undertaking outbound tourism; a non-resident visiting the domestic economy is undertaking inbound tourism. The total amount of tourism undertaken by residents, known as national tourism, is the sum of domestic tourism (tourism within the domestic economy undertaken by residents) plus outbound tourism. Internal tourism is the sum of domestic tourism plus inbound tourism.

	Within the country	Outside the country	Total
Residents	Domestic tourism	Outbound tourism	National tourism
Non-residents	Inbound tourism		
Total	Internal tourism		

- 29.93 Tourism is not restricted to activities normally thought of as typical of recreation but include all activities undertaken by the tourist. Travelling for business or for education or training is included. The purpose of the tourist's visit is categorised according to whether it is personal or business and professional. The personal heading is further divided into eight categories: holidays, leisure and recreation, visiting friends and relatives, education and training, health and medical care, religion or pilgrimages, shopping, transit and other.

Definition and scope of tourism expenditure

- 29.94 Tourism expenditure is defined as the amount paid for the acquisition of consumption goods and services as well as valuables for own use or to give away after or during tourism trips. It includes expenditures by visitors themselves as well as expenses that are paid for or reimbursed by others.

Definition and scope of tourism consumption

- 29.95 The concept of tourism consumption goes beyond that of tourism expenditure in that it also includes services associated with occasional accommodation on own account, tourism social transfers in kind and other imputed consumption. While information on tourism expenditure can be obtained by surveys of tourists, the adjustments to tourism consumption have to be estimated from other sources.
- 29.96 Tourism consumption can be characterised according to where the tourism takes place and whether the tourist is a resident or non-resident in a manner similar to that already described for tourism.

Characteristic products

- 29.97 The consumption products considered by the TSA are divided into tourism characteristic products and other consumption products. Tourism characteristic products are further subdivided into internationally comparable tourism characteristic products and country specific tourism characteristic products. The TSA manual includes a list of the first. Other consumption products are divided between tourism connected products and non-tourism related products. Non-consumption products include all products that do not constitute consumption goods and services. These include valuables, tourism gross fixed capital formation and collective consumption. A list of 12 classifications of products and activities characteristic of tourism are given in the TSA manual.

Tourism industries

- 29.98 A tourism industry represents the grouping of those establishments whose main activity corresponds to a characteristic product. Tourism industries cover accommodation for visitors, the food and beverage serving industry, railway, road, water and air passenger transport, transport equipment rental, travel agencies and other reservation service industries, the cultural industry, the sports and recreational industry, the retail trade of country specific tourism characteristic goods and country specific tourism characteristic industries.
- 29.99 Based on this information a full set of TSA accounts consisting of 10 tables can be compiled. The first three consist of tourism expenditure. Table 4 shows a breakdown between domestic and inbound tourism and the adjustments that need to be made to move from tourism expenditure to tourism consumption. Table 5 shows the supply of the tourism industry. Table 6 is the heart of the TSA and shows the main aggregates derived; the aggregates are listed below. Table 7 covers employment. Tables 8 and 9 cover

fixed capital and collective consumption. Table 10 covers non-monetary information.

Main aggregates

29.100 The following aggregates are taken to be a set of relevant indicators of the size of tourism in an economy. They include:

- a. Internal tourism expenditure;
- b. Internal tourism consumption;
- c. Gross value added of the tourism industry (GVATI);
- d. Tourism direct gross value added (TDGVA);
- e. Tourism direct gross domestic product (TDGDP).

29.101 The derivation of these items is shown in table 6 of the TSA manual which is included as table 28.X.

2. Environmental accounting

29.102 Environmental accounts aim to reflect within a framework based on the SNA the impacts of using (and sometimes using up) natural resources and the generation of residuals that pollute the air and water. They also identify specific activities undertaken to prevent or combat the environmental impacts of human activity.

29.103 An interim version of a satellite for *Integrated Environmental and Economic Accounts* (referred to as the SEEA) was published in 1993. An updated version was released in 2003. Work is in hand to revise this further with a view to publication in 2012. The goals of the SEEA are to assist in:

- a. encouraging the adoption of standard classifications in environmental statistics, which extends the value and relevance of existing environmental information;
- b. bringing a new dimension to environmental statistics by applying the economic accounting traditions linking stocks and flows;
- c. providing a link with the economic information contained within the traditional economic accounts, leading to improvements in the reliability and coherence of both sets of information;
- d. identifying use and ownership and hence responsibility for environmental impacts;
- e. encouraging the development of comprehensive and consistent data sets over time;
- f. facilitating international comparisons.

29.104 As with the SNA, the SEEA accounts provide a score-keeping function from which key indicators can be derived and a management function in that they can be used in the

analysis of policy options. The accounts provide a sound basis for the calculation of measures which may already be included in sets of sustainable development indicators, but they may also be used to develop new indicators, such as environmentally-adjusted macro-aggregates which would not otherwise be available.

The different parts of the SEEA

29.105 The SEEA should be seen as a satellite account to the SNA with features of both internal and external satellites. The full system consists of three main sections, two of which can be implemented more or less independently and a third which is designed to integrate the first two with each other and with the SNA. The three sections consist of:

- a. An extended form of supply and use tables capable of incorporating physical data alone or in addition to monetary data;
- b. Elaborations of parts of the central framework of the SNA with some extensions; and
- c. Consideration of extending the SNA to allow the effects of depletion and degradation to impact the macro-aggregates such as GDP.

Physical and hybrid supply and use tables

29.106 Four different types of flows are distinguished in the SEEA.

- a. **Products** are goods and services produced within the economic sphere and used within it, including flows of goods and services between the national economy and the rest of the world.
- b. **Natural resources** cover mineral and energy resources, soil, water and biological resources.
- c. **Ecosystem inputs** cover air and the gases necessary for combustion and the water to sustain life.
- d. **Residuals** are the unintended and undesired outputs from the economy which have zero price and may be recycled or discharged into the environment. "Residuals" is the single word used to cover solid waste, effluents (discharges to water) and emissions (discharges to air).

29.107 The first set of environmental accounts consists of a link to environmental statistics formed by structuring physical environmental data in a supply and use or input-output framework. Physical flow accounts consist of merging accounts for products, natural resources, ecosystem inputs and residuals, each account being expressed in terms of supply to the economy and use by the economy. Purely physical accounts can show the relative importance of different economic activities in terms of their effect on the environment.

29.108 However, the power of this approach comes from being able to draw parallels between the physical and monetary

flows to compare and contrast this environmental importance with the corresponding importance of the activities in economic terms. The hybrid supply and use or input-output tables superimpose monetary values for products on their physical equivalents and add the balancing item of value added. Hybrid input-output tables have been successfully used to explore environmental themes such as greenhouse effects or solid waste. Examples can be found in the SEEA manual.

- 29.109 An example of a hybrid SEEA input-output table is given in table 29.x.

Identifying environmental aspects of the central framework

- 29.110 The second strand of the accounting system is to identify precisely those monetary transactions in the SNA that are directly related to the environment. In terms of flows, this concerns environmental taxes, property income and property rights, and environmental protection, natural resource use and management expenditure.

Environmental taxes, property income and property rights

- 29.111 An environmental tax is one whose tax base is a physical unit (or proxy of it) that has a proven specific negative impact on the environment. Four types of taxes can be considered to be environmental; energy taxes, transport taxes, pollution taxes and resource taxes. As elsewhere in the SNA, care has to be taken to distinguish between taxes and fees for a service. Landfill charges, for example, may fall in the latter category even though levied by government.
- 29.112 Resource rent on natural assets is shown in the SNA as property income when paid to another unit. As shown in chapter 20, however, it is possible to identify the element of operating surplus corresponding to the resource rent on a natural asset used by the owner also.
- 29.113 Another aspect of importance for the use of natural resources is the question of permits to use these over an extended period, as discussed in chapter 17. Permits may relate to extraction of natural resources or the use of them as a sink.

A set of accounts for environmental protection expenditure

- 29.114 A set of environmental protection accounts can be compiled using fairly standard satellite account techniques according to the following steps:
- Relevant ancillary activities should be treated as secondary products;
 - A set of characteristic products should be identified;
 - Transfers specific to environmental protection need to be identified:

- National expenditure on environmental protection can be calculated;
- The sectors financing the expenditure can be identified.

- 29.115 All these steps are described in detail in the SEEA manual. There is discussion there also on a set of characteristic products identified as the “environment industry” for comparable international use. An example of an environmental protection expenditure account is shown in table 29.x

Asset accounts

- 29.116 For stocks and changes in stocks, the asset accounts described in chapter 11 are used for natural resources, in both value terms and physical units. In the SEEA, asset accounts may be compiled in physical terms for natural resources that have no monetary value and thus do not appear within the SNA asset boundary. For resources such as air and water that may not have a monetary value, nor even a stock value, accounts of changes in physical units may still be useful.

Integrating environmental adjustments in the flow accounts

- 29.117 The third and last main section of the SEEA is the external part of the satellite account. It relaxes the constraint which has been respected in the accounts described so far not to make any fundamental change to the SNA. The idea is simple, to convert hybrid tables to fully monetised tables by placing monetary values on those flows below and to the right of a hybrid table which have so far been expressed in physical terms only. However, although the idea is simple, implementing it is not. This part of the SEEA is more experimental and consensus on proposals made so far has not been reached.

Depletion

- 29.118 Valuing inputs into the economic system is the first and easier step. Since these inputs are incorporated into products which are sold in the market place, in principle it is possible to use direct means to assign a value for them based on market principles. Even within the SNA, such valuations are sometimes made though the results are placed in the other changes in assets account rather than in the flow accounts. Thus another way of looking at the process of incorporating the use of environmental inputs into the system is to relocate some of the other changes in assets items into the accounts portraying transactions. In particular, if an environmental resource is not being used sustainably, an alternative measure of income allowing for the consumption of natural capital as well as consumption of fixed capital may be considered to take account of the depletion of natural resources.

Defensive expenditure

- 29.119 Some actions are already taken to limit residuals generation or to mitigate the impact of those which are emitted. These expenditures are sometimes referred to as defensive

Table 29.2: Example of a hybrid supply and use table from the SEEA

Table 2.9 A simple hybrid supply and use table (SEEAland data set)

Monetary data (*in italics*) in billions of currency units; physical data (non-italic) in millions of tonnes

		Economy					Total economy	Residuals		9. Material balance	Total use	
		1. Products		2. Industries	3. Consumption	4. Capital		5. ROW (products)	10. National destination			11. ROW destination
		Physical	Monetary	Products used by industry	Products used for consumption	Products used for capital		Products used by ROW (exports)				
Economy	1. Products											
	Physical			442	39	119	101				0	701
	Monetary			664	506	146	403	1 719				
	2. Industries	Products supplied by industry						Residuals generated by industry	Residuals generated by industry in ROW		0	831
		551	1 356					1 356	275	5		
	3. Consumption						Residuals generated by consumption	Residuals generated by consumption in ROW		17	65	
								47	1			
	4. Capital						Residuals generated by capital					
								73		72	145	
	5. ROW (products)	Products supplied by ROW (Imports)					Residuals generated by non-residents			Net material accumulation by ROW economy		
		150	363					6		- 52	104	
	Value added			692								
	Total economy		1 719	1 356								
Natural resources	6. National environment			Natural resources supplied to industry	Natural resources supplied to consumption		Natural resources extracted by ROW			Net accumulation of natural resources in the national environment		
				256	1		1			- 258	0	
	7. ROW origin			Natural resources supplied to industry	Natural resources supplied to consumption					Net accumulation of natural resources in the ROW		
				5	1					- 6	0	
Ecosystem inputs	8. National environment			Ecosystem inputs to industry	Ecosystem inputs to consumption		Ecosystem inputs to ROW economy			Net accumulation of ecosystem inputs in the national environment		
				118	23		2			- 143	0	
	9. ROW origin			Ecosystem inputs to industry	Ecosystem inputs to consumption					Net accumulation of ecosystem inputs in the ROW		
				3	1					- 4	0	
Residuals	10. National origin			Residuals re-absorbed by production		Waste to landfill sites			Cross boundary residual out-flows	Net accumulation of residuals in the national environment		
				7		26			4	373	409	
	11. ROW origin							Cross boundary residual in-flows		Net accumulation of residuals in the ROW		
								8		1	9	
Total supply		701		831	65	145	104		409	9	0	2 264

Table 29.3: Example of a combined supply and use table for environmental protection goods and services

Table 5.6 Combined supply and use table for environmental protection goods and services

Million currency units

	Government services	Specialist services	Ancillary services	Cleaner/connected products	Non-environmental protection goods and services	Total	Government producers of environment services	Specialist producers of environment services	Ancillary production of environment services	Producers of cleaner/connected products	Other producers	Total intermediate consumption	Government consumption	Household consumption	Capital formation	Exports	Total
Government services												0	1 800	1 320			3 120
Specialist services							1 500				3 400	4 900		1 650	100		6 650
Ancillary services											4 000	4 000					4 000
Cleaner/connected products							400				200	600		600			1 200
Non-environmental protection goods and services							2 000	1 100	1 000	300	*	*					*
Total							2 000	3 000	1 000	300	*	*	1 800	3 570			*
Government producers	3 000				0	3 000											
Specialist producers		6 500		0	0	6 500											
Ancillary production			4 000			4 000											
Producers of cleaner/connected products				1 000	0	1 000											
Other producers	0	0	0	0	*	*											
Total output																	
Compensation of employees							600	2 000	2 000	500	*	*					
Consumption of fixed capital							400	1 000	1 000	200	*	*					
Taxes on production less subsidies on production							0	0	0		*	*					
Net operating surplus							0	500	0		*	*					
Output at basic prices	3 000	6 500	4 000	1 000	*	*	3 000	6 500	4 000	1 000	*	*					
Imports				50	*	*											
Taxes and margins	120	150		150	*	*											
Output at purchasers' prices	3 120	6 650	4 000	1 200	*	*											
Gross fixed capital formation							1 100	1 000	2 500	1 500	*	*					
Capital stock							7 000	15 000	12 000	10 000	*	*					
Labour input							4 000	10 000	8 500	5 000	*	*					

Source: SEEAland data set.

expenditures. One possible way to adjust the macro-economic aggregates is to treat this expenditure as capital formation with offsetting depreciation.

Accounting for environmental degradation

- 29.120 This is the most difficult part of environmental accounting and one where there is still a wide divergence of views. There are two problems raised by the question of how to incorporate the effects of degradation in the SNA. The first is how to place a value on degradation; the second how to locate this valuation in the accounts.
- 29.121 The variety of approaches advocated can be illustrated briefly in terms of the focus of attention.
- 29.122 One approach is to focus on maintenance costing. (This is the approach taken in the 1993 version of the SEEA.) The object of the exercise is to answer the question: *What would the value of net domestic product have been if hypothetical environmental standards were met using current costs and current technologies?*
- 29.123 The problem with this approach is that if the question is posed in respect of significant changes in environmental standards, the resultant price rises involved are likely to bring about a change in behaviour that would affect the level of demand for those products. In turn this would show up either as a change in the level of output of those products or a change in the technology of production to reduce dependence on the newly expensive products. Nevertheless, for marginal changes in standards, this technique may be used to give an upper bound on the impact on NDP from moving to more rigorous environmental standards. The aggregates from such an exercise are referred to as “environmentally adjusted”.
- 29.124 A second type of cost-based estimates, known as “greened economy modelling” attempts to resolve the problems raised by maintenance cost approaches for the non-marginal cases of changes in environment standards. They attempt to answer the question: *What level of GDP could be achieved if steps were taken to internalise maintenance costs?*
- 29.125 A particular application of greened economy models aims not just to determine a set of values for output, demand and so on which satisfy the national accounting balances but to determine levels of output which lead to levels of income which are sustainable over a given time period. It attempts to answer the question: *What level of income and environmental functions can be sustained indefinitely?*
- 29.126 Damage based measures derive from the impact of actual residual generation. The biggest impact is on human health. They attempt to answer the question: *What is the impact on the level of NDP of environmental impacts on natural and man-made capital and on human health?*
- 29.127 “Damage-adjusted income” is thus a first step on the way to converting GDP type-measures to welfare indices but many other aspects of welfare are deliberately ignored.

3. Health satellite accounts

- 29.128 The health care industry is of significant size and importance in many countries in terms of the number of people employed and level of turnover and is always a matter of significant policy concern. In 2000, the OECD published the *System of Health Accounts (SHA)* which built on experience over the previous 15 years of information being collected on health care data. One of the main purposes of the manual was to provide a framework for analysing health care systems from an economic point of view, consistent with national accounting rules. As part of this, the conceptual links between the System of Health Accounts and health satellite accounts were examined. The manual is currently in the process of being updated as a joint effort by the OECD, Eurostat, and WHO, with a revised version expected about the end of 2010.
- 29.129 In order to see how a health satellite account can be developed it is useful to begin by looking at the *SHA*. There are four categories of information provided: a functional classification of health care, an analysis of health care provider units, information on expenditure on health care and information about the funding of health care. Each of these is described briefly in turn.

Functional classification of health care

- 29.130 The activities of health care cover the application of medical, paramedical and nursing knowledge and technology, either by institutions or individuals, in pursuit of the following goals:
- a. Promoting health and preventing disease;
 - b. Curing illness and reducing premature mortality;
 - c. Caring for persons affected by chronic illness who require nursing care;
 - d. Caring for persons with health-related impairment, disability and handicaps who require nursing care;
 - e. Assisting patients to die with dignity;
 - f. Providing and administering public health;
 - g. Providing and administering health programmes, health insurance and other funding arrangements.
- 29.131 Following from this there are three main functional classifications of health care;
- a. Personal health care services and goods;
 - b. Collective health care services;
 - c. Health care related functions.
- 29.132 Each of these headings is broken down into a number of finer categories. Personal health care distinguishes services of curative care, services of rehabilitative care, services of long-term nursing care, ancillary services to health care and

medical goods dispensed to outpatients. Collective health care services are divided between preventive and public health services on the one hand and health administration and health insurance on the other. Health-related functions include capital formation of health care provider institutions, education and training of health personnel, research and development in health, food, hygiene and drinking water control, environmental health, administration and provision of social services in kind to assist living with disease and impairment, and administration and provision of health-related cash benefits.

Health care provider units

- 29.133 The providers of health care are divided into the following categories:
- a. Hospitals;
 - b. Nursing and residential care facilities;
 - c. Providers of ambulatory health care;
 - d. Retailers and other providers of medical goods;
 - e. Provision and administration of public health programmes;
 - f. Health administration and insurance;
 - g. Other industries (rest of the economy);
 - h. Rest of the world.

29.134 Each of these providers can be allocated to one or more of the institutional sectors of the SNA.

Expenditure on health care

- 29.135 Total expenditure on health measures the final use by resident units of health care goods and services plus gross capital formation in health care provider industries (institutions where health care is the predominant activity).
- 29.136 Expenditure on health can be divided into the following categories;
- a. Personal health care services;
 - b. Medical goods dispensed to outpatients;
 - c. Total personal expenditure on health;
 - d. Prevention and public health services;
 - e. Health administration and health insurance;
 - f. Total current expenditure on health (the sum of the above);
 - g. Gross capital formation in health care industries;

h. Total expenditure on health.

29.137 The production boundary of health care services is very close to that of the SNA but with two exceptions. Occupational health care is included within the SHA whereas it is treated as ancillary services in the SNA. The cash transfers to private households (the care-givers at home) are treated as output of domestic services paid for by the transfers.

Funding of health care

29.138 The funding of health care is divided between that provided by general government, that from the private sector and that from the rest of the world. Within general government a distinction is made between the levels of government and social security funds. Within the private sector a distinction is made between private social insurance, other private insurance, private households, NPISHs and corporations excluding health insurance.

Converting the SHA to health satellite accounts

- 29.139 The following steps are required in order to translate the economic framework of the SHA into a health satellite account:
- a. A comprehensive listing of goods and services considered specific to the production of health care services needs to be determined;
 - b. The boundary line of production to define total expenditure on health needs to be determined;
 - c. The activities for which capital formation will be recorded needs to be determined;
 - d. Specific transactions need to be identified;
 - e. The detailed analysis of transfers as an integral part of health accounting needs to be provided;
 - f. Ultimate users and ultimate mirrors of health expenses need to be identified.

29.140 One of the difficulties with establishing a list of characteristic products is that the CPC does not deal with categories of health care services in the detail that is required for health accounts. Therefore a more detailed classification is required. Further, since health care is often a public responsibility information drawn from administrative data is often inadequate to provide the degree of detail that is required for a satellite account.

- 29.141 Despite these difficulties it is proposed that four additional accounts would extend the SHA into a satellite account for health:
- a. Production account and health care value added by health care industry;
 - b. Intermediate inputs to the production of health care industries by type of input;

Table 29.4: Example of a supply and use table from the System of Health Accounts

Table 8.2. SHA supply and use table (part 1)

	Total supply, purchasers' prices	Taxes on products minus subsidies on products*	Providers of health care services and goods					Other producers	Total economy	Imports of health care goods and services
			Total	Principal producers	Secondary producers	Occupational health care	Private households (home care)			
Resources										
<i>Goods and services</i> supply:			Output							
Health care goods and services by function										
HC.1 Services of curative care										
HC.2 Services of rehabilitative care										
HC.3 Services of long-term nursing care										
HC.4 Ancillary services to health care										
HC.5 Medical goods dispensed to out-patients										
Total supply of personal health care										
HC.6 Prevention and public health services										
HC.7 Health administration and health insurance										
Total supply of health care services and goods										
Other products										
<i>Total</i>										

(*): Including trade and transport margins which are of negligible magnitude for health care services and goods for final use.

Table 29.4 (cont): Example of a supply and use table from the System of Health Accounts

Table 8.3. SHA input-output table (part 2)

	Total uses in purchasers' prices	Taxes on products minus subsidies on products*	Providers of health care services and goods					Other producers	Total economy	Exports of health care goods and services	Final consumption expenditure			Gross capital formation
			Total producers	Principal producers	Secondary producers	Occupational health care	Private households (home care)				Households	NPISHs	Government	
Resources			<u>Intermediate consumption</u>											
<i>Goods and services</i>			<u>Intermediate consumption</u>											
uses:			<u>Intermediate consumption</u>											
Health care goods and services by function			<u>Intermediate consumption</u>											
HC.1 Services of curative care			<u>Intermediate consumption</u>											
HC.2 Services of rehabilitative care			<u>Intermediate consumption</u>											
HC.3 Services of long-term nursing care			<u>Intermediate consumption</u>											
HC.4 Ancillary services to health care			<u>Intermediate consumption</u>											
HC.5 Medical goods dispensed to out-patients			<u>Intermediate consumption</u>											
Total personal health care			<u>Intermediate consumption</u>											
HC.6 Prevention and public health services			<u>Intermediate consumption</u>											
HC.7 Health administration and health insurance			<u>Intermediate consumption</u>											
Total health care services and goods			<u>Intermediate consumption</u>											
Other products			<u>Intermediate consumption</u>											
<i>Total</i>			<u>Intermediate consumption</u>											
<i>Total gross value added/GDP</i>			<u>Intermediate consumption</u>											
Compensation of employees			<u>Intermediate consumption</u>											
Taxes on products			<u>Intermediate consumption</u>											
Other taxes on production			<u>Intermediate consumption</u>											
Subsidies on products			<u>Intermediate consumption</u>											
Other subsidies on production			<u>Intermediate consumption</u>											
Operating surplus, net			<u>Intermediate consumption</u>											
Mixed income, net			<u>Intermediate consumption</u>											
Consumption of fixed capital			<u>Intermediate consumption</u>											
Operating surplus, gross			<u>Intermediate consumption</u>											
Mixed income, gross			<u>Intermediate consumption</u>											
<i>Total</i>			<u>Intermediate consumption</u>											
Labour inputs			<u>Intermediate consumption</u>											

- c. Health care industry's gross capital stock;
- d. An input-output table of health care industries.

29.142 Table 29.x shows indicative supply and use tables that might be drawn up for health care.

4. Unpaid household activity

29.143 This section is not concerned with a normal satellite account. It is difficult to determine products that are characteristic solely of unpaid household activity nor are there agreed standard tables to be produced. However, it is an area of considerable analytical and policy interest and an area where there is considerable research work being undertaken currently. The purpose of this section therefore is simply to report on the approaches being considered and give some indication of where further information on ongoing research may be found.

29.144 It is convenient to separate the consideration into three areas;

- a. unpaid household services;
- b. a consideration of the treatment of consumer durables;
- c. the question of volunteer labour in general.

Unpaid household services

29.145 The question of valuing household services produced for own consumption is interesting in its own right. In addition it is often argued that the growth of GDP in industrialised countries since the end of the Second World War is due in part to the increasing participation in the labour force of the women previously undertaking only household activities. It is often argued that, had household activities been valued, the women's change of occupation would not have led to such large increases in GDP. For long-term analysis therefore, there may be quite considerable interest in placing a value on unpaid household activities.

29.146 There is no ambiguity in the central framework of the SNA; unpaid household services are excluded from the production boundary. However, in a satellite account it is perfectly possible to extend the production boundary so that such services may be included. Even with an extended production boundary, however, it is unlikely that services that cannot be performed by a third party such as eating, sleeping and exercising would be treated as part of the production boundary. Some work has been done to estimate the value of leisure when some of these activities are valued but this is not considered in this section.

29.147 There is fairly widespread agreement that the way in which to start measuring household services for own consumption is by means of measuring the amount of time spent on them. There is increasing interest in conducting time use surveys that make such information available. Time use surveys, however, are not unambiguous. There is the question of multitasking. For example, it is possible for somebody to prepare a meal, keep an eye on a small child

and help an older child with their homework all at the same time. Should the total amount of time be divided by three or should each activity count the whole amount of time spent?

29.148 There is a question about the borderline with leisure. Some people would regard gardening as a chore; others may see it as a leisure activity. While looking after children on a full-time basis clearly counts as a household service, does the amount of time grandparents spend with their grandchildren necessarily count as household services or is this a leisure activity?

29.149 There is a question about how to value household activity. One possibility is to have a complete production account and, for example, to consider the food purchased by a household as an input into the preparation of meals. In this way households would consume very few goods directly; many of them would be treated as intermediate consumption to some kind of service output. The alternative, which is usually the approach adopted, is to leave the inputs as household consumption expenditure and simply make separate estimates of the time that has not been previously valued.

29.150 The basic question in valuing the time spent on household services is whether to use the opportunity cost of the person performing the task or a comparator cost. Both of these present difficulties. The opportunity cost seems appealing because application of economic theory suggests that somebody capable of earning more money than the comparator would indeed earn the extra money and pay somebody else to undertake the household tasks. But this is clearly not what happens in practice. Comparator costs may be difficult to come by and may be unrealistic. A professional plumber, for example, may be able to fix a leaking tap in a matter of minutes whereas an amateur may spend an hour over it. If the plumber's wage is applied to the time spent by the amateur, clearly the amount of production estimated will be unrealistically high.

29.151 Various attempts to resolve the question of valuing output can be found in the literature. Examples include *Household Production and Consumption: Proposal for a Methodology of Household Satellite Accounts*, *Household Production and Consumption in Finland, 2001* and *Beyond the Market: Designing Non-market Accounts for the United States*.

Consumer durables

29.152 It is frequently argued that consumer durables should be treated as a form of fixed capital formation by households and not simply as final consumption expenditure. It is true that there is a grey area concerning some household equipment. In some circumstances the cost of a house may include all kitchen equipment such as cookers, refrigerators and washing machines; in other cases these appliances are treated as consumption expenditure.

29.153 The main reason for excluding consumer durables from the asset boundary is linked to the exclusion of household services. If washing clothes for the household were to be an activity within the production boundary when undertaken by machine, it is not clear why it would be excluded when undertaken by hand.

- 29.154 Nevertheless there is certainly interest in monitoring the acquisition of consumer durables. The acquisition is often cyclical in nature, although sometimes variation in expenditure may simply follow the introduction of a new product.
- 29.155 There are two approaches that could be taken in a satellite account. The first is to adopt an alternative treatment for consumer durables at the same time as valuing unpaid household production. The other is to leave unpaid household production excluded from the production boundary but consider replacing consumer durables by an estimate of the services they provide. Treating consumer durables as assets is also of interest in the context of measuring household saving and wealth. Examples of this type of analysis can be found in *Durable Goods and their Effect on Household Saving Ratios in the Euro Area*.

Volunteer labour

- 29.156 The provision of unpaid services to households is excluded from the production boundary. This exclusion applies whether the household being provided with the services is the one to which the volunteer belongs or another.
- 29.157 If a volunteer is providing services to a non-market producer or to a market NPI, the activity in which they participate is included within the production boundary. However, the value of the services provided appears at cost. This may be strictly zero or it may be nominal, including wages and salaries in kind. For example, religious orders offering health and education services may not pay the individuals providing the services a wage but may provide them with food and accommodation. In principle, these costs should be treated as wages and salaries in kind.
- 29.158 It is possible for there to be some volunteer labour within government, for example teaching assistants. It is also possible to envisage volunteer labour working for market non-profit institutions, for example in a museum or art gallery. There may be some unpaid people working in corporations, for example as part of a work experience scheme, but volunteer labour in market NPIs is quite common. Even if the owner of a quasi-corporation or an enterprise does not take his salary, it could be argued that in principle this should be treated as first the receipt of compensation of employees and then an injection of capital of the same amount into the enterprise. It is unlikely to be recorded as such but this case is clearly different in kind from the normal understanding of voluntary labour.
- 29.159 The question of valuing volunteer labour is the same as that of valuing the time spent on unpaid household activities and the same alternatives are available. If voluntary labour were valued, the following accounting entries would be necessary:
- a. compensation of employees of the unit employing the volunteer labour;
 - b. income for the household to which the volunteer belongs;
 - c. a transfer of the same amount by the volunteer to the employing unit;
 - d. final consumption expenditure of the employing unit;
 - e. almost always social transfers in kind.
- 29.160 (This is in fact the way it is recommended that collective construction projects are measured.) Even in the case of market NPIs, as explained in chapter 23, it is possible that in a satellite context the market NPI could be regarded as undertaking non-market activity also and this would include the activity of volunteers.

Annex 3: Changes from the 1993 System of National Accounts

A. Introduction

- A3.1 The System of National Accounts 2008 (2008 SNA) retains the basic theoretical framework of its predecessor, the System of National Accounts 1993 (1993 SNA). However, in line with the mandate of the United Nations Statistical Commission, the 2008 SNA introduces treatments for new aspects of economies that have come into prominence, elaborates on aspects that have increasingly become the focus of analytical attention and clarifies guidance on a wide range of issues. The changes in the 2008 SNA bring the accounts into line with the new economic environment, advances in methodological research and needs of users.
- A3.2 The changes in the 2008 SNA are grouped together in six sections. The descriptions given only highlight the main differences between the 1993 and 2008 SNA while refraining from exhaustive descriptions. The discussion of the changes also includes cross-references to the corresponding paragraphs in the chapters.

B. Further specifications of statistical units and revisions in institutional sectoring

- 1. Producer unit undertaking ancillary activities to be recognized as a separate establishment in certain cases**
- 2. Artificial subsidiaries not regarded as institutional unit unless resident in an economy different from that of its parent**

Reference: chapter 5, paragraphs 5.38 to 5.39

Reference: chapter 4, paragraphs 4.62 to 4.64

- A3.3 The 2008 SNA recommends that if the activity of a unit undertaking purely ancillary activities is statistically observable, in that separate accounts for the production it undertakes are readily available, or if it is located in a geographically different location from the establishments it serves; it should be recognised as a separate establishment. When such an ancillary establishment is recognised, it is classified according to its own principal activity and seen as producing primary output.
- A3.4 The value of output of an ancillary establishment should be derived on a sum of costs basis, including the costs of the capital used by the unit. 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. The output will be deemed to be market output when the parent enterprise is a market producer or producing for own final use and non-market otherwise in which case the cost of the capital should not be included in estimating the value of the output.
- A3.5 In the 1993 SNA, a producer unit undertaking purely ancillary activities was always regarded as an integral part of the establishment it served.
- A3.6 Ancillary corporations of the 1993 SNA are named as artificial subsidiaries in the 2008 SNA. Artificial subsidiaries are subsidiary corporations wholly owned by the parent corporation and created to provide services to the parent corporation, or other corporations in the same group, in order 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. An artificial subsidiary is not treated as an institutional unit unless it is resident in an economy different from that of its parent.
- 3. Branch of a non-resident unit recognised as an institutional unit**
- Reference: chapter 4, paragraph 4.47*
- A3.7 The 1993 SNA simply stated that an unincorporated enterprise owned by a non-resident institutional unit should be treated as a notional resident unit in the country where it is located. Such a unit is identified as a branch in the 2008 SNA and treated as an institutional unit. The 2008 SNA specifies indicative criteria to help recognise the branch of a non-resident unit as an institutional unit; namely, the unit engages in significant production of goods and services for a long period of time in that territory and is subject to the

income tax laws, if any, of the economy in which it is located even if it may have a tax-exempt status.

4. Residence of multi-territory enterprises clarified

Reference: chapter 4, paragraph 4.13

A3.8 The 2008 SNA provides guidelines for determining the residence of the multi-territory enterprises that operate a seamless operation over more than one economic territory. Such enterprises are typically involved in cross border activities and include shipping lines, airlines, hydroelectric schemes on border rivers, pipelines, bridges, tunnels and undersea cables. In case it is not possible to identify a parent or separate branches, it is recommended to prorate the total operations of a multi-territory enterprise by the individual economic territories in which it operates.

A3.9 The 1993 SNA did not give explicit guidance for determining the residence of the multi-territory enterprises.

5. Special purpose entities recognised

Reference: chapter 4, paragraph 4.55 to 4.58; chapter 22, paragraphs 22.56 to 22.59

A3.10 The 2008 SNA provides guidance on the treatment of units with no employees and no non-financial assets known variously as special purpose entities (SPEs) or special purpose vehicles. Though there is no common definition of an SPE but some of its characteristics are that it has little physical presence, is always related to another corporation, often as a subsidiary, and it is often resident in a territory other than the territory of residence of its parent.

A3.11 Such a unit is treated as an institutional unit and allocated to sector and industry according to its principal activity unless it falls into the three categories, namely, (a) captive financial institutions, (b) artificial subsidiaries of corporations, and (c) special purpose units of government.

A3.12 The 1993 SNA did not give explicit guidance for treatment of such units.

6. Holding company allocated to the financial corporations sector

Reference: chapter 4, paragraphs 4.54

A3.13 As described in section K class 6420 of the ISIC Rev. 4, a holding company holds the assets of subsidiary corporations but does not undertake any management activities. Such a unit therefore, produces only a financial service. Accordingly, the 2008 SNA recommends that holding companies should always be allocated to the financial corporations sector and treated as captive financial institutions even if all of their subsidiary corporations are non-financial corporations.

A3.14 In the 1993 SNA the holding companies were recommended to be assigned to the institutional sector in which the main activity of the group of subsidiaries is

concentrated. Consequently, they were to be classified as financial corporations only when the preponderant activity of the group of corporations they control was financial.

7. Head office to be allocated to the institutional sector preponderant to activity of its subsidiaries

Reference: chapter 4, paragraphs 4.53

A3.15 The activities of a head office, as defined in section M class 7010 of the ISIC Rev. 4, includes the overseeing and managing of other units of enterprise; undertaking the strategic or organizational planning and decision making role of the enterprise; exercising operational control and manage the day-to-day operations of their related units. Such a unit therefore, produces non-financial or financial services depending upon the nature of production of its subsidiaries. The 2008 SNA therefore, recommends that the head office should be allocated to the non-financial corporations sector unless all or most of its subsidiaries are financial corporations, in which case it is treated by convention as a financial auxiliary in the financial corporations sector.

A3.16 The 1993 SNA did not give explicit guidance for treatment of head offices.

8. Sub-sector for non-profit institutions introduced

Reference: chapter 4, paragraphs 4.35, 4.94, 4.103 and 4.128

A3.17 The 2008 SNA assigns non-profit institutions (NPIs) to different institutional sectors, regardless of motivation, status of employees or the activity they are engaged in. Recognizing the increasing interest in considering the full set of NPIs as evidence of "civil society", the 2008 SNA recommends that NPIs within the corporate and government sectors be identified in distinct sub-sectors so that supplementary tables summarising all NPI activities can be separately derived in a straightforward manner as and when required.

9. Definition of financial services enlarged

Reference: chapter 4, paragraph 4.98 and chapter VI, paragraph 6.158

A3.18 The 2008 SNA has enlarged the definition of financial services to give due weight to the increase in financial services other than the financial intermediation, specifically financial risk management and liquidity transformation. Financial services include monitoring services, convenience services, liquidity provision, risk assumption, underwriting and trading services. Mention is made that margins on foreign exchange dealing and dealing in securities are to be included in explicit fees for financial services.

10. Sub-sectoring of the financial corporation sector revised to reflect new developments

in financial services, markets and instruments

Reference: chapter 4, paragraphs 4.98. to 4.116.

A3.19 The 2008 SNA has introduced a slightly more detailed classification of the financial corporations sector to allow more flexibility with other monetary and financial statistics system such as that of the International Monetary Fund and the European Central Bank. The financial corporations sector has been divided into nine sub-sectors (as opposed to five in the 1993 SNA) according to the activity of the unit in the market and the liquidity of its liabilities. The sub-sectors are (i) Central Bank, (ii) Deposit-taking corporations except the central bank, (iii) Money market funds (MMFs), (iv) Non-MMF investment funds, (v) Other financial intermediaries except insurance corporations and

pension funds (ICPFs), (vi) Financial auxiliaries, (vii) Captive financial institutions and money lenders, (viii) Insurance corporations (ICs) and (ix) Pension funds (PFs).

A3.20 Due to the substantial variations among countries in defining money, the 2008 SNA does not include a definition of money. However, it provides a classification of financial corporations and instruments compatible with national money definitions. The sub-sector “Deposit-taking corporations except the central bank” and “Money market funds” have been established to include all financial corporations except the central bank whose principal activity is financial intermediation and which have liabilities in the form of deposits or other financial instruments that are close substitutes for deposits and which are included in measures of broad money.

C. Further specifications of the scope of transactions including the production boundary

1. Research and development is not an ancillary activity

Reference: chapter 6, paragraph 6.207

A3.21 The 2008 SNA does not treat the research and development activity as an ancillary activity. Research and development is creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and use of this stock of knowledge to devise new applications. This does not extend to including human capital as assets within the SNA. It is recommended that a separate establishment should be distinguished for it when possible.

A3.22 The 2008 SNA recommends that the output of research and development should be valued at market price if purchased (out-sourced) or at the sum of total production costs plus an appropriate mark-up if undertaken on own account. Research and development undertaken by specialized commercial research laboratories or institutes is valued by receipts from sales, contracts, commissions, fees, etc. in the usual way.

A3.23 The 1993 SNA recognised that research and development is undertaken with the objective of improving efficiency or productivity, or deriving other future benefits. However, although these characteristics have the nature investment activities, research and development was treated as part of intermediate consumption. IT was recommended, though, that it should not be treated as an ancillary activity but that a separate establishment should be identified as secondary activity.

2. Method for calculating financial intermediation services indirectly measured (FISIM) refined

Reference: chapter 6, paragraphs 6.163 to 6.165.

A3.24 The method for calculating financial intermediation services indirectly measured, widely known as FISIM, has been refined in the light of experience in implementing the 1993 SNA recommendations. By convention the 2008 SNA recommends that FISIM applies only to loans and deposits and only when those loans and deposits are provided by, or deposited with, financial institutions. The 2008 SNA calculates the output of FISIM on loans (y_L) and deposits (y_D) only, using a reference rate (rr). Assuming that these loans and deposits attract interest rates of r_L and r_D respectively, the output of FISIM should be calculated according to the formula $(r_L - rr) y_L + (rr - r_D) y_D$.

A3.25 The 2008 SNA recommended method for calculation of FISIM implies several changes to the 1993 SNA formula for FISIM calculation. For financial intermediaries, all loans and deposits are included, not just those made from intermediated funds. The reference rate should contain no service element and reflect the risk and maturity structure of deposits and loans. The rate prevailing for inter-bank borrowing and lending may be a suitable choice as a reference rate. However, different reference rates may be needed for each currency in which loans and deposits are denominated, especially when a non-resident financial institution is involved. For banks within the same economy, there is often little if any service provided in association with banks lending to and borrowing from other banks.

A3.26 The 2008 SNA recommends that the consumption of FISIM should be allocated between users (who could be lenders as well as borrowers) treating the allocated amounts

either as intermediate consumption by enterprises or as final consumption or exports.

A3.27 The 1993 SNA calculated FISIM as the difference between property income receivable and interest payable. The property income receivable excludes that part which is receivable from investment of own funds. The 1993 SNA recognized that in practice, it may be difficult to find any method of allocating FISIM among different users and, therefore, accepted that some countries may prefer to continue to use the convention whereby the whole of the services are allocated to intermediate consumption of a notional industry. This possibility has been removed in the 2008 SNA.

3. Output of central bank clarified

Reference: chapter 6, paragraphs 6.151 to 6.156; chapter 7, paragraphs 7.121 to 7.125

A3.28 The services produced by the central bank are identified in three broad groups, namely financial intermediation, monetary policy services and supervisory services overseeing financial corporations. The 2008 SNA recommends that separate establishments should be identified for units of the central bank undertaking production of these groups of services when the difference is significant for the accounts as a whole. This may be useful for estimation of the market and non-market output of the central bank. Financial intermediation services represent market production, monetary policy services represent non-market production and borderline cases, such as supervisory services may be treated as market or non-market services depending on whether explicit fees are charged that are sufficient to cover the costs of providing such services.

A3.29 The 2008 SNA provides guidance that the non-market activities are to be regarded as acquisition of collective services by general government with a matching transfer from the central bank to the government, so there is no net cost to the government for these services. Market output is provided on an individual basis to all sectors of the economy against payment for the services.

A3.30 In cases when the interest rate set by the central bank is so high or so low as to imply the inclusion of an implicit subsidy or tax, the 2008 SNA recommends that these should be explicitly recorded as such if they are significant. These taxes or subsidies should be shown as receivable by and payable by government but with a matching transfer from the government to the central bank in the case of a tax and a transfer from the central bank to government in the case of a subsidy.

A3.31 The 1993 SNA recommended that the services of central banks be measured on the basis of receipts from fees, commissions, and financial intermediation services indirectly measured. Application of this method sometimes resulted in unusually large positive or negative estimates of output. For this reason, in 1995 the Inter-Secretariat Working Group on National Accounts (ISWGNA) revised the recommendation for measuring the output of central banks. If the traditional approach leads consistently to inappropriate results, countries were allowed, as a second

best option, to measure output at cost as in the case for other non-market output. However, the ISWGNA did not provide further guidance on the implications of the cost based valuation on the recording of other transactions in which central banks are involved, such as interest payments and receipts. Neither did it indicate which unit or units are using the output of central banks thus valued.

4. Recording of the output of non-life insurance services improved

Reference: chapter 6, paragraphs 6.184 to 6.190 and 6.199; chapter 17, paragraphs 17.13 to 17.41

A3.32 It is recognised that in cases of catastrophic losses the output of the insurance activity estimated using the basic algorithm of the 1993 SNA anchored on the balance of premiums and claims (on an accrual basis), could be extremely volatile (even negative). The 2008 SNA, therefore recommends that the output of the non-life insurance activity should be calculated using adjusted claims and adjusted premiums supplements. With the application of this method however, the net premiums receivable and adjusted claims due may no longer be necessarily equal for each period.

A3.33 The 2008 SNA recommends three approaches for estimating non-life insurance output, namely the “expectation approach”, the “accounting approach” and the “cost approach”. The expectation approach consists in replicating the *ex-ante* model used by insurer corporations to set their premiums, on the basis of their expectations. In accepting risk and setting premiums, insurers consider both their expectation of loss (claims) and of income (premium supplements). This expected margin (premiums plus expected premium supplements minus expected claims) provides a much better measure of the insurance service than the current formula applied *ex-post*. Ideally, the micro data from the accounts of the insurance corporations would be required to use expectation approach for estimating output of the insurance corporation but this is seldom available to the statistical organizations. In the absence of this data, the 2008 SNA recommends the application of statistical technique to simulate this approach by using macro statistics, and using smoothed past data to forecast the expected claims and expected premium supplements.

A3.34 Alternatively, an accounting approach may be used whereby output is calculated as: actual premiums earned plus premium supplements less adjusted claims incurred; where adjusted claims are determined by using claims due plus the changes in equalisation provisions and, if necessary, changes to own funds.

A3.35 If the necessary accounting data are not available and the historical statistical data are not sufficient to allow use of expectation approach to estimate the output, the output of non-life insurance may be estimated as the sum of costs (including intermediate costs, labour and capital costs) plus an allowance for “normal profit”.

A3.36 For exceptionally large claims, such as those following a catastrophe, some part of the claims may be recorded as capital transfers rather than, as normal, current transfers. Identifying when such treatment is appropriate and how to

overcome the resulting asymmetries in the accounts is the subject of the ongoing research.

A3.37 The 2008 SNA renames “claims due” as “claims incurred”.

5. Re-insurance similarly treated as direct insurance

Reference: chapter 6, paragraph 6.200; chapter 17, paragraphs 17.55 to 17.62

A3.38 The 2008 SNA recommends that re-insurance should be treated in the same way as direct insurance. The transactions between the direct insurer and the reinsurer are recorded as an entirely separate set of transactions and no consolidation takes place between the transactions of the direct insurer as issuer of policies to its clients on the one hand and the holder of a policy with the reinsurer on the other. The premiums are shown as being first payable to the direct insurer and then a lesser premium is payable to the reinsurer. This non-consolidation is referred to as gross recording on the part of the direct insurer.

A3.39 The services produced by the re-insurance corporation are treated as the intermediate consumption by the direct insurer.

A3.40 In 1993 SNA the re-insurance transactions were consolidated whereby the division between direct insurance and reinsurance was not shown except in case of reinsurance with the rest of the world.

6. Valuation of output for own final use by households and corporations to include a return to capital

Reference: chapter 6, paragraphs 6.125

A3.41 The 2008 SNA recommends that for estimating the value of the output of goods and services produced for own final use by households and corporations it is appropriate to include a return to capital as part of the sum of costs when this approach is used for estimating output in the absence of comparable market prices. However, no return to capital should be included when production for own final use is undertaken by non-market producers.

A3.42 The 1993 SNA was not explicit in including the return to capital in estimating the output of goods and services produced for own final use by households and corporations.

D. Extension and further specification of the concepts of assets, capital formation and consumption of fixed capital

1. Change of economic ownership introduced

Reference: chapter 3, paragraphs 3.21, 3.26, 3.166; chapter 10, paragraphs 10.5

A3.43 The principle of change of ownership is central to the determination of the timing of recording of transactions in financial and non-financial assets (including transactions in goods). The term “economic ownership” better reflects the underlying reality economic accounts are attempting to measure. Economic ownership takes account of where the risks and rewards of ownership lie. A change in ownership from an economic point of view means that all risk, rewards, and rights and responsibilities of ownership in practice are transferred.

A3.44 The 2008 SNA gives guidance to distinguish between legal ownership and economic ownership and recommends that assets be recorded on the balance sheets of the economic rather than the legal owner. For a non-financial asset, the user and not the legal owner may assume economic ownership if the legal owner agrees that the user is entitled to the benefits deriving from using the asset in production in return for assuming the risks involved. Similarly when products change hands, it is the unit that assumes the risks in the case of destruction, theft, etc. that is the economic owner. Ownership is also associated with assuming risk in the case of financial assets. When the time of recording

depends on change of ownership, it is in general the change of economic ownership that is intended.

A3.45 The 1993 SNA did not explicitly define ownership. Often it seems to imply legal ownership, but in some instances it relied on the concept of change of economic ownership when legal ownership remained unchanged.

2. Asset boundary extended to include research and development

Reference: chapter 10, paragraph 10.103 to 10.105

A3.46 In 2008 SNA the activity of research and development is not treated as an ancillary activity. The output of research and development is capitalized as “intellectual property products” except in cases where it is clear that the activity does not entail any economic benefit to its producer (and hence owner) in which case it is treated as intermediate consumption. With the inclusion of research and development in the asset boundary, patented entities, of the 1993 SNA asset category is no longer separately identified and is subsumed into research and development assets.

A3.47 Treatment of research and development giving rise to produced assets has removed the 1993 SNA inconsistency of treating the patented entities as non-produced asset giving rise to property income.

A3.48 The 2008 SNA recommends that own account research and development undertaken by market producers should, in principle, be valued on the basis of the estimated basic prices that would be paid if the research were sub-contracted commercially, but is likely to have to be valued on the basis of the total production costs in practice. Research and development undertaken by specialized commercial research laboratories or institutes is valued by receipts from sales, contracts, commissions, fees, etc. in the usual way. Research and development undertaken by government units, universities, non-profit research institutes, etc. is non-market production and should be valued on the basis of the total costs incurred excluding a return to capital used.

A3.49 In the 1993 SNA the output of the research and development was treated as intermediate consumption.

3. Revised classification of assets introduced

Reference: chapter 3, paragraphs 3.5, 3.30 to 3.31, 3.37 to 3.39; chapter 10, paragraphs 10.8

A3.50 The definition of asset has been refined in the 2008 SNA, covering the issues such as risk, demonstrable value and constructive obligations. It is defined as a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of transferring value from one accounting period to another.

A3.51 With regard to the classification of assets, the 2008 SNA, like its predecessor, distinguishes at the first level of the classification between non-financial assets and financial assets/liabilities. Within non-financial assets, it distinguishes between produced and non-produced assets. Classification of produced and non-produced assets is no longer distinguished between tangible and intangible assets. Non-produced assets in the 2008 SNA are split in three categories, namely natural resources, contracts lease and licenses, and purchase and sale of goodwill and marketing assets.

A3.52 The non-financial assets are classified in the 2008 SNA as follows:

Non-financial assets

Produced assets

Fixed assets

- Dwellings
- Other buildings and structures
 - Non-residential buildings
 - Other structures
 - Land improvements
- Machinery and equipment
 - Transport equipment
 - ICT equipment
 - Other machinery and equipment
- Weapon systems
- Cultivated biological resources
 - Animal resources yielding repeat products.
 - Tree, crop and plant resources yielding repeat products
- Costs of ownership transfer on non-produced assets

- Intellectual property products
 - Research and development
 - Mineral exploration and evaluation
 - Computer software and databases
 - Computer software
 - Databases
 - Entertainment, literary or artistic originals
 - Other intellectual property products

Inventories

- Materials and supplies
- Work in progress
 - Work-in-progress on cultivated biological resources
 - Other work-in-progress
- Finished goods
- Military inventories
- Goods for resale

Valuables

- Precious metals and stones
- Antiques and other art objects
- Other valuables

Non-produced assets

Natural resources

- Land
- Mineral and energy resources
- Non-cultivated biological resources
- Water resources
- Other natural resources
 - Radio spectra
 - Other

Contracts, leases and licences

- Marketable operating leases
- Permissions to use natural resources
- Permissions to undertake specific activities
- Entitlement to future goods and services on an exclusive basis

Goodwill and marketing assets

A3.53 In the 2008 SNA assets classification there are several changes within the produced assets category, namely:

- a. Within buildings and structures, a category has been added for land improvements. This replaces the 1993 SNA term “major improvements to non-produced non-financial assets”. The costs of ownership transfer on all land are to be included with land improvements.
- b. The information, computer and telecommunications (ICT) equipment has been included as a new category under machinery and equipment,
- c. Weapon systems are recognized as produced assets and classified separately,
- d. The term “intangible fixed assets” has been renamed as “intellectual property products”. The word “products” is included to make clear that it does not include third party rights which are non-produced assets in the SNA,
- e. Research and development products are included within intellectual property products. As a result patented entities no longer appear as non-produced assets and are subsumed in research and development,

- f. The item “mineral exploration” has been renamed “mineral exploration and evaluation” to emphasis that the coverage conforms to the international accounting standards,
- g. Computer software has been modified to include databases; software and databases are two sub-components,
- h. The term “other intellectual property products” replaces “other intangible fixed assets”, and
- i. The only change to inventories is to show military inventories separately.
- j. Changes within the non-produced assets category are as follows:
- k. The “tangible non-produced assets” of the 1993 SNA are renamed as “natural resources”,
- l. Other natural resources such as radio spectra have been added, and
- m. The “intangible non-produced assets” has been split into two sub-categories, namely, “contracts, leases and licences” and “goodwill and marketing assets”,
- n. Contracts, leases and licences has been split into four sub-categories; marketable operating leases, permissions to use natural resources, permissions to undertake specific activities, and entitlement to future goods and services on an exclusive basis.

4. Extension of the assets boundary and government gross capital formation to include expenditure on weapon systems.

Reference: chapter 10, paragraphs 10.87 and 10.144

- A3.54 The military weapon systems comprising vehicles and other equipment such as warships, submarines, military aircraft, tanks, missile carriers and launchers, etc. are seen to be used continuously in the production of defence services, even if their peacetime use is simply to provide deterrence. The 2008 SNA, therefore, recommends that military weapon systems should be classified as fixed assets and that the classification of military weapon systems as fixed assets should be based on the same criteria as for other fixed assets—that is, produced assets that are themselves used repeatedly, or continuously, in processes of production for more than one year.
- A3.55 Single-use items, such as ammunition, missiles, rockets, bombs, etc., delivered by weapons or weapons systems are treated as military inventories. However, some single-use items, such as certain types of ballistic missiles with a highly destructive capability, may provide an on-going service of deterrence against aggressors and therefore meet the general criteria for classification as fixed assets.

A3.56 Unlike in the 1993 SNA, strategic inventories are no longer separated from other inventories of the same type of products.

A3.57 The 1993 SNA treated as gross fixed capital formation all expenditures by the military on fixed assets of a kind that could be used for civilian purposes of production. On the other hand, military weapons, and vehicles and equipment whose sole purpose was to launch or deliver such weapons, were not treated as gross fixed capital formation but as intermediate consumption.

5. The asset category “computer software” modified to include databases

Reference: chapter 10, paragraphs 10.110 to 10.114

A3.58 The asset category “computer software” of 1993 SNA has been modified to include databases in the 2008 SNA as “computer software and databases” with a further split between “computer software” and “databases”.

A3.59 The 2008 SNA gives explicit guidance for valuation of the computer software and databases purchased from the market or developed in-house. The computer software and databases purchased on the market should be valued at purchasers’ prices, while the one developed in-house should be valued at its estimated basic price or at its costs of production if it is not possible to estimate the basic price.

A3.60 The 2008 SNA recommends treating all databases holding data with a useful life of more than one year as fixed assets. Both databases created on own account and those for sale should be included if they meet this criterion.

A3.61 In the 1993 SNA only “large” databases were recognised as asset.

6. Originals and copies recognised as distinct products

Reference: chapter 10, paragraphs 10.100 to 10.101

A3.62 The 2008 SNA provides guidance on the treatment of originals and copies of intellectual property products as distinct products. It recommends that if a copy is sold outright which is expected to be used in production for more than a year then it should be treated as a fixed asset. A copy made available under a licence to use should also be treated as a fixed asset if it will be used in production for a period in excess of one year and the licensee assumes all the risks and rewards of ownership.

A3.63 If the acquisition of a copy with a licence to use is purchased with regular payments over a multi-year contract and the licensee is judged to have acquired economic ownership of the copy, then it should be regarded as the acquisition of an asset. If regular payments are made for a licence to use without a long-term contract, then the payments should be treated as payments for a service of using the copy.

A3.64 If there is a large initial payment followed by a series of smaller payments in succeeding years, the initial payment should be recorded as gross fixed capital formation and the succeeding payments should be treated as payments for a service.

A3.65 If the licence allows the licensee to reproduce the original and subsequently assume responsibility for the distribution, support and maintenance of these copies, then this is described as a licence to reproduce and should be regarded as the sale of part or whole of the original to the unit holding the licence to reproduce.

A3.66 The 1993 SNA did not provide guidance on the treatment of originals and copies as distinct products.

7. The concept of capital services introduced

Reference: chapter 20

A3.67 Capital services for assets used in market production were implicitly included within the 1993 SNA but were not separately identified. Given the importance of identifying them for productivity measurement and other analysis, a new chapter has been added in the 2008 SNA explaining the role and appearance of capital. Details can be presented in a supplementary table for market producers, bringing into the SNA the advances in research in recent decades in the fields of growth and productivity and helping to satisfy the analytical needs of many users.

8. Treatment of cost of ownership transfer elaborated

Reference Chapter 10, paragraphs 10.48 to 10.52, paragraph 10.97 and paragraphs 10.158 to 10.162

A3.68 Like the 1993 SNA, the 2008 SNA continues to treat the costs of ownership transfer as fixed capital formation. Costs of ownership transfer on acquisition of an asset should be written off over the period the asset is expected to be held by the purchaser rather than over the whole life of the asset (as was recommended in the 1993 SNA). Costs of ownership transfer on the disposal of an asset should also be written off over the period the asset is held but recorded when they are actually incurred. Recognising the difficulty in implementation of this recommendation for lack of adequate data, the 2008 SNA recommends that these costs should still be recorded as gross fixed capital formation but written off as consumption of fixed capital in the year of acquisition. Installation and de-installation costs should be included in the costs of ownership transfer when they are separately invoiced and in the purchaser's price of the asset otherwise.

A3.69 The terminal costs (for example dismantling costs) should be written off over the whole life of the asset, regardless of the number of owners during the life of the asset. In practice, it may be difficult to predict terminal costs accurately. However, the full costs are still treated as gross fixed capital formation but recorded when they are actually incurred. Any amount not already covered by consumption of fixed capital during the life of the asset is written off at

the time the costs are incurred as consumption of fixed capital.

A3.70 In 1993 SNA costs of ownership transfer in acquiring an asset were recommended to be written down over the life of the asset. If the asset was sold before the end of its life, the remaining costs of ownership transfer on acquisition not already written off was recommended to be written off in the other changes in volume of assets account. Also, the 1993 SNA was not explicit about the treatment of terminal costs.

9. Mineral exploration and evaluation

Reference: chapter 10, paragraphs 10.106 to 10.108

A3.71 The 2008 SNA maintains the distinction between the act of exploring for mineral resources (treated as a produced asset) and the mineral resources themselves (treated as non-produced assets). The term "mineral exploration" has been renamed as "mineral exploration and evaluation" to match the term used in the International Accounting Standards and has been defined accordingly.

A3.72 The 2008 SNA gives guidance that mineral exploration and evaluation should be valued at market prices if purchased or at the sum of costs plus an appropriate mark-up if undertaken on own account. It recognises that because the market price is seldom available for mineral resources, the default valuation is the present value of future receipts of resource rent.

A3.73 Payments by the extractor to the owner of the mineral resources corresponding to a share of the resource rent should continue to be shown as property income even if they are described as taxes and treated as such in government's own accounts.

A3.74 The 1993 SNA recommended that when the legal owner of a mineral reserves contracts with another unit to undertake extraction, as a matter of practice, the resource may continue to be shown on the balance sheet of the legal owner with payments by the extractor to the owner treated as property income (resource rent).

10. Land improvements

Reference: chapter 10, paragraph 10.79 to 10.81

A3.75 Land improvements continue to be treated as gross fixed capital formation. The 2008 SNA recommends treating land improvements as a category of fixed assets distinct from the non-produced land asset as it existed before improvement. In cases where it is not possible to separate the value of the land before improvement and the value of those improvements, the land should be allocated to the category that represents the greater part of the value. The costs of ownership transfer on all land are to be included in the land improvements.

A3.76 The 1993 SNA recorded improvements to land as gross fixed capital formation, but in the balance sheet such improvements were included with land itself.

11. Goodwill and marketing assets

Reference: chapter 10, paragraph 10.196 to 10.199

- A3.77 The coverage of goodwill and marketing assets is changed. When an enterprise is taken over, the difference between the sum of its assets less the sum of its liabilities was recorded in the 1993 SNA as purchased goodwill. Goodwill was not recognised in any other context. The 2008 SNA recognises that this difference may actually include assets such as mastheads, logos, customer lists and so on which are described collectively as “marketing assets”. Exceptionally, identified marketing assets may be sold individually and separately from the whole corporation in which case their sale should also be recorded under this item.
- A3.78 The 2008 SNA recommends a consistent approach for calculating the value of the ‘purchased goodwill and marketing assets’ as the difference between the value paid for an enterprise as a going concern and the sum of its assets less the sum of its liabilities, each item of which has been separately identified and valued irrespective of whether the entity is a listed or unlisted corporation, a quasi corporation or is unincorporated.
- A3.79 The purchased goodwill and marketing assets continues to be treated as non-produced assets, though at a higher level in the hierarchy than that in 1993 SNA, specifically at the same level as natural resources, and contracts, leases and licences.
- A3.80 The 2008 SNA renames ‘purchased goodwill’ as ‘purchased goodwill and marketing assets’.
- A3.81 In the 1993 SNA, purchased goodwill was calculated differently depending on whether the business was an unincorporated enterprises or a corporation. For an unincorporated enterprise, purchased goodwill was derived as the difference between its separately identified and valued assets and liabilities and the sale price. For corporations it was described as the difference between the share price immediately before the sale and the actual sale price per share, multiplied by the number of shares. It did not make any distinction between listed and unlisted corporations in the calculation of purchased goodwill.

12. Water resources treated as an asset in some cases

Reference: chapter 10, paragraph 10.184

- A3.82 In the 2008 SNA the definition of water resources has been extended to cover rivers, lakes, artificial reservoirs and other surface catchments in addition to aquifers and other groundwater resources. It consists of surface and groundwater resources used for extraction to the extent that their scarcity leads to the enforcement of ownership and/or use rights, market valuation and some measure of economic control.
- A3.83 The 2008 SNA recommends that water bodies should in principle be valued in a manner parallel to the valuation of mineral resources but with an indication that more

pragmatic alternatives may have to be used such as estimates based on access fees.

13. Consumption of fixed capital to be measured at the average prices of the period with respect to a constant-quality price index of the asset concerned

Reference: chapter 10, paragraphs 10.156

- A3.84 The 2008 SNA recommends that the consumption of fixed capital should be measured at the average prices of the period with respect to a constant-quality price index of the asset concerned.
- A3.85 The 1993 SNA did not give guidance about whether the prices to be used for measurement of the consumption of fixed capital should relate to the general price level or whether they should be asset specific.

14. Definition of cultivated biological resources made symmetric to the uncultivated resources.

Reference: chapter 10, paragraph 10.87

- A3.86 The definition of the cultivated biological resources in the 2008 SNA has been clarified making it specific that their natural growth and regeneration is treated as production only in cases where these are under the direct control, responsibility and management of institutional units.
- A3.87 Cultivated assets of the 1993 SNA have been renamed in the 2008 SNA as cultivated biological resources.

15. Intellectual property products introduced

Reference: chapter 10, paragraph 10.98

- A3.88 The accounting treatment of assets previously called “intangible produced assets” and now labelled, more descriptively, “intellectual property products” has been clarified and expanded in the 2008 SNA. These assets are further split into research and development; mineral exploration and evaluation; computer software and databases sub-divided into computer software and databases; entertainment, literary or artistic originals; and other intellectual property products.

16. Treatment of ownership of fixed assets created through public-private partnership clarified

Reference: chapter 22

- A3.89 Public-private partnerships or private finance initiatives are relatively new mechanism for government seeking to engage private enterprises in providing assets and services for public use without the government incurring all of the costs of the public project. The 2008 SNA provides indicative guidance on the characteristics to be examined to

determine whether the private or public partner is the economic (as opposed to legal) owner of the assets in question.

A3.90 The 1993 SNA did not give explicit guidance on the subject and its treatment of operating and financial leases were not sufficient to derive an appropriate accounting treatment for public-private partnerships.

17. Concept of resource lease for natural resources introduced

Reference: chapter 7, paragraph 7.108

A3.91 The 2008 SNA introduces the concept of a resource lease to cover the situation where the natural resource continues to be shown in the balance sheet of the legal owner even though the lessee is the unit using the resource in production and is thus in effect the economic owner. In return, the lessee makes a regular payment recorded as property income and described as rent. By convention, no decline in the value of a natural resource is recorded in the SNA as a transaction similar to consumption of fixed capital. So in the SNA the natural resource is effectively treated as having an infinite life as far as income generation is concerned. A resource lease may apply to any natural resource recognized as an asset in the SNA.

A3.92 The 1993 SNA did not discuss the concept of a resource lease for natural resources.

Changes in the items appearing in the other changes in volume of assets account introduced

Reference: chapter 12

A3.93 With a view to giving more structural listing of possible causes for changes in assets other than transactions, the items appearing in the other changes in volume of assets account has changed in the 2008 SNA. The other changes in the volume of assets show changes in the assets/liabilities in seven categories:

- Economic appearance of assets
- Economic disappearance of non-produced assets
 - Depletion of natural resources
 - Other economic disappearance of non-produced assets
- Catastrophic losses
- Uncompensated seizures
- Other changes in volume n.e.c.
- Changes in classification
 - Changes in sector classification and structure
 - Changes in classification of assets and liabilities
- Nominal holding gains and losses
 - Neutral holding gains and losses
 - Real holding gains and losses

E. Further refinement of the treatment and definition of financial instruments and assets

1. Treatment of securities repurchase agreement clarified

Reference: chapter 11, paragraphs 11.74 to 11.77

A3.94 The 2008 SNA adds explanation of securities repurchase agreement and gold loans and deposits. A securities repurchase agreement (repo) is an arrangement involving the sale of securities or other assets at a specified price with a commitment to repurchase the same or similar assets at a fixed price on a specified future date

A3.95 The 2008 SNA continues to treat a securities repurchase agreement ("repo") as a collateralized loans and recognizes the possibility of on-selling of securities that have been repoed. In the case of on selling of the repoed security, a negative asset should be recorded for the lender to avoid double-counting.

A3.96 The 1993 SNA text suggested that on-selling of securities that have been repoed is either not allowed or not practised.

2. Treatment of employee stock options described

Reference: chapter 11, paragraphs 11.124; chapter 17, paragraphs 17.376 to 17.389

A3.97 Employee stock options are a common tool used by companies to motivate their employees. An employee stock option is an agreement made on a given date (the "grant" date) under which an employee may purchase a given number of shares of the employer's stock at a stated price (the "strike" price) either at a stated time (the "vesting" date) or within a period of time (the "exercise" period) immediately following the vesting date. The 2008 SNA recommends that transactions in employee stock options should be recorded in the financial account as the counterpart to the element of compensation of employees represented by the value of the stock option. Ideally the value of the option should be spread over the period between the grant date and vesting date; if this is not possible they may be recorded at the vesting date.

A3.98 The 1993 SNA did not provide guidance on the treatment of employee stock options.

3. Treatment of non-performing loans elaborated

Reference: chapter 11, paragraphs 11.129; chapter 13, paragraphs 13.65 to 13.67

A3.99 Guidance on the treatment of impaired (non-performing) loans has been elaborated in the 2008 SNA. It provides indicative definition of non-performing loan as a loan on which payments of interest and/or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalised, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons (such as a debtor filing for bankruptcy) to doubt that payments will be made in full.

A3.100 The 2008 SNA recommends that the non-performing loan should continue to be recorded at nominal values in the main accounts and interest should be shown accruing until a loan is repaid or the principal is written off by mutual agreement or subsequent loans that replace the original. Two memorandum items in respect of non-performing loans are recommended to be shown, namely, the nominal value of loans deemed to be non-performing and the market equivalent value of these loans. The closest approximation to market equivalent value is fair or “mark to market” value, which is “the value that approximates the value that would arise from a market transaction between two parties”. In the absence of fair value data, the memorandum item will have to use a second-best approach and show nominal value less expected loan losses. In addition, interest receivable on the non-performing loans should be shown as an “of which” item.

A3.101 The 2008 SNA recommends that these memorandum items should be standard for both the government sector, the financial corporations sector and for the rest of the world.

A3.102 The 1993 SNA did not give guidance on the criteria to be applied to the writing-off of non-performing loans.

4. Treatment of loan guarantees elaborated

Reference: chapter 17, paragraphs 17.198 to 17.214

A3.103 The treatment of several classes of loan guarantees has been clarified in the 2008 SNA. It recognises three classes of loan guarantees and provides guidance for their treatment. The first sort of guarantees are those provided by means of a financial derivative, such as a credit default swap. These derivatives are actively traded on financial market and the derivative presents no new features for the SNA.

A3.104 The second class of guarantees, standardized guarantees, is composed of the sorts of guarantees that are issued in large numbers, usually for fairly small amounts, along identical lines, such as export credit guarantees and student loan guarantees. In this case, although it is not possible to establish the likelihood of any one loan defaulting, it is standard practice to estimate how many out of a batch of similar loans may default. It operates on the same principle as for non-life insurance and should be treated similarly. If the guarantor is part of general government and deliberately

sets the fees below the level of expected defaults, a subsidy should be imputed to the guarantee holders.

A3.105 The third class of guarantees, described as one-off guarantees, consists of those where the loan or the security is so particular that it is not possible for the degree of risk associated with the loan to be estimated with any degree of accuracy. In most cases, the granting of a one-off guarantee is considered a contingency and is not recorded as a financial asset/liability.

A3.106 The 1993 SNA treated guarantees as contingent liabilities and thus had no record of the existence of the guarantee until it was activated. Further, it did not provide explicit guidance for the treatment of flows arising at the activation.

5. Treatment of index-linked debt securities elaborated

Reference: chapter 17, paragraph 17.264 to 17.273

A3.107 The indexation mechanism links the coupon and/or principal payments to indicators agreed by to the parties, and the values of the indicators are not known in advance. As a result, the amount of interest cannot be known at the time of issue. The 2008 SNA recommends two approaches to determine the interest accrued in each accounting period, namely, (a) when the coupons are index-linked, the full amounts paid as coupons, after indexation, are accrued as interest; and when the value of the principal is index-linked the difference between the eventual redemption price and the issue price is treated as interest accruing over the life of the instrument, (b) interest accruals may be determined by fixing the rate accrual at the time of issue, and treating any deviation of the index from the expected path as holding gains/losses that will not normally cancel out over the life of the instrument. The 2008 SNA provides guidance on the situations in which one or the other of these options would be preferably used.

A3.108 In the 1993 SNA the guidance about how transactions relating to index-linked debt securities should be recorded was not precise.

6. Treatment of debt instruments indexed to a foreign currency revised

Reference: chapter 17, paragraph 17.270

A3.109 The 2008 SNA recommends that debt instruments with both principal and coupon payments indexed to a foreign currency should be classified and treated as though they are denominated in that foreign currency.

A3.110 The 1993 SNA recommended that in the case of debt instruments denominated in a foreign currency, changes in the value of the principal in domestic currency terms that arise from exchange rate variations should be treated as holding gains (non-transactions). However, in the case of debt instruments indexed to a foreign currency, such changes are treated as interest (transactions). The 2008 SNA recommendation removes the anomaly by treating

identically instruments that have economically equivalent characteristics.

7. Flexibility on valuation of unlisted equity

Reference: chapter 13, paragraph 13.69 to 13.70

A3.111 Not all equity is listed and quoted on stock-exchanges. This situation often arises for direct investment enterprises, private equity, equity in unlisted and delisted companies, listed but illiquid companies, joint ventures, and unincorporated enterprises. The 2008 SNA provides guidance on alternative options of valuation of such equity. Some of the alternative recommended options are recent transaction price, net asset value, present value/price to earnings ratios, book values reported by enterprises with macro-level adjustments by the statistical compiler, own funds at book value and apportioning global value.

A3.112 The 1993 SNA gave rather restricted guidance on how to value unlisted equity. It recommended that the value of shares in corporations that are not quoted on stock exchanges or otherwise traded regularly should be estimated using the prices of quoted shares that are comparable in earnings and dividend history and prospects, adjusting downward, if necessary, to allow for the inferior marketability or liquidity of unquoted shares.

8. Unallocated gold accounts treated as financial assets and liabilities

Reference: chapter 11, paragraph 11.45

A3.113 The 2008 SNA recommends that the unallocated gold accounts should be treated as financial assets and liabilities and classified with deposits in foreign currency if these deposits denominated in gold are held with non residents.

9. Definition of monetary gold and gold bullion revised

Reference: chapter 11, paragraph 11.45 and 11.46

A3.114 The definition of monetary gold has changed in the 2008 SNA in order to align with BPM6. The change stems from the recognition of allocated and unallocated gold accounts whereby the allocated gold account provide title to the physical gold and the unallocated gold account is a deposit denominated in gold. The latter is treated as foreign currency if held with non-residents. Gold bullion (that is, coins, ingots or bars with a minimum purity of at least 995 parts per thousand) is the only financial asset recognised with no corresponding liability when held as a reserve asset by the monetary authorities. Monetary gold is defined as gold to which the monetary authorities (or others who are subject to the effective control of the monetary authorities) have title and is held as a reserve asset and comprises gold bullion and unallocated gold account with non-residents.

10. Liability in special drawing rights recognised

Reference: chapter 11, paragraph 11.47 to 11.49

A3.115 The 2008 SNA recommends to treat special drawing rights (SDRs) issued by the International Monetary Fund as being a liability of countries receiving the allocations and to record allocation and cancellation of SDRs as transactions. The asset and liability aspects of SDRs should be recorded separately. As a result of the changed treatment of SDRs, it recommends that monetary gold and SDRs be shown as separate sub-items.

A3.116 The 1993 SNA classified SDRs as assets without corresponding liabilities arguing that these assets do not represent claims on the International Monetary Fund members collectively.

11. Distinction made between deposits and loans

Reference: chapter 11, paragraph 11.56

A3.117 The 2008 SNA continues to distinguish between loans and deposits. With a view to avoid ambiguity between loans and deposits when both parties to the transaction are banks, it introduces a category “inter-bank positions”.

12. Fees payable on securities lending and gold loans

Reference: chapter 17, paragraph 17.245

A3.118 The 2008 SNA recommends that all fees payable to the owners of securities used for securities lending and to the owners of gold used for gold loans (whether from allocated or non-allocated gold accounts) should be recorded by convention as interest. The interest may have a FISIM component, separately identified, if the unit providing the loan is classified as a financial institution.

A3.119 The 1993 SNA did not give guidance on the issue of fees payable on securities lending and gold loans.

13. Financial asset classification

Reference: chapter 11

A3.120 To reflect the innovations in the financial market since the promulgation of 1993 SNA, and also maintain its relevance in a time of rapid economic and institutional change the financial asset classification has been changed in the 2008 SNA. Financial assets/liabilities classification in the 2008 SNA as follows:

- Monetary gold and SDRs
 - Monetary gold
 - SDRs
- Currency and deposits
 - Currency
 - Transferable deposits
 - Inter-bank positions
 - Other transferable deposits
 - Other deposits
- Debt securities
 - Short-term
 - Long-term

- Loans
 - Short-term
 - Long-term
- Equity and investment fund shares
 - Equity
 - Listed shares
 - Unlisted shares
 - Other equity
 - Investment fund shares/units
 - Money market fund shares/units
 - Other investment fund shares/units
- Insurance, pension and standardised guarantee schemes
 - Non-life insurance technical provisions
 - Life insurance and annuity entitlements
 - Pension entitlements
 - Claims of pension funds on sponsors
 - Entitlements to non-pension benefits
- Financial derivatives and employee stock options
 - Financial derivatives
 - Options
 - Forwards
 - Employee stock options
- Other accounts receivable/payable
 - Trade credits and advances
 - Other accounts receivable/payable

A3.121 The 2008 SNA renames the “securities other than shares” as “debt securities”, “shares and other equity” as “equity and investment fund shares”. The category of financial derivatives introduced in an update to the 1993 SNA is extended to include employee stock options.

14. Distinction between financial leasing and operating leasing based on economic ownership

Reference: chapter 17, paragraphs 17. 292 to 17.299

A3.122 The 2008 SNA presents an overview setting out the principles of the appropriate treatment of leases and licences. It recognises the distinction between an operating lease and a financial lease according to whether the lessee is regarded as the economic owner of the asset or not.

A3.123 The distinction between operating leasing and the financial leasing in the 1993 SNA was interpreted to be based on the length of the time of lease.

15. Changes in recommendations for recording pension entitlements

Reference: chapter 17, paragraphs 17. 114 to 6.197

A3.124 The 2008 SNA recognises that pension promises are contractual engagements, in that they are expected or likely to be enforceable and therefore, they should be recognized as liabilities towards households, irrespective of whether the necessary assets exist in segregated schemes or not.

A3.125 For pensions provided by government via social security however, countries have some flexibility to deviate from this rule in the set of standard tables. This is because the division between which pensions are provided by social security and which by other employment-related schemes

varies considerably from country to country. However, the full range of information required for a comprehensive analysis of pensions should be provided in a supplementary table that shows the liabilities and associated flows of all private and government pension schemes, whether funded or unfunded and including social security.

A3.126 The 1993 SNA stated that the actual social contributions by employer and employee in a period should be the amount actually paid into a pension fund. For a defined contribution scheme, this is correct and complete since the eventual payment depends only on the amounts set aside in a pension fund. For a defined benefit scheme, however, there is no guarantee that the amounts set aside will exactly match the liability of the employer to the pension entitlements of employee.

A3.127 In consequence, the 2008 SNA recommends a number of changes to the 1993 SNA recommendations in the case of defined benefit schemes, namely (i) the level of the employer’s contribution should be determined by assessing the increase in the net present value of the pension entitlement the employee has earned in the period in question, adding any costs charged by the pension fund for operating the scheme and deducting the amount of any contribution the employee makes; (ii) this amount should be determined actuarially, taking into account only the life expectancy of the employee and not any future earnings or the impact of any future pay increases on the ultimate pension benefit; (iii) an explicit liability of the pension fund to the employee should be shown in the financial account and balance sheet; and (iv) the assets of the fund are then to be regarded as belonging to the fund and not (as stated in the 1993 SNA) as belonging to the employee. Depending on the relationship between the fund and the employer, any excess of the liabilities over the available assets may represent a claim of the pension fund on the employer (and any excess of the assets over the liabilities a claim by the employer on the pension fund). With the recommended recording of the defined benefit schemes, the pension fund will exhibit saving.

A3.128 The 2008 SNA recognizes that there is a cost to administering any pension scheme including the non-autonomous scheme and unfunded scheme. In principle, there should be a value of output of the pension fund. This is to be determined on the basis of the sum of costs, and by convention is deemed to be payable by the employees holding the pension promises.

A3.129 The 2008 SNA recommends that when an obligation to pay pensions passes from one unit to another, this should be recorded as a transaction in pension liabilities even if neither unit has previously recorded such liabilities.

A3.130 The 1993 SNA recognised pension obligations on balance sheet only for funded “private” schemes. Hence, the activities of many pension schemes, such as social security and unfunded employer schemes, did not lead to recognition of financial assets/liabilities.

A3.131 The 1993 SNA treated the activity of non-autonomous pension funds and unfunded pension schemes as ancillary whereby the output was not separately recognised.

F. Further specifications of the scope of transactions concerning government and public sector

1. Private/public/government sectors delineation clarified

Reference: chapter 4, paragraphs 4.25 and 4.77 to 4.80, chapter 22

A3.132 Recognising the fact that the powers, motivation and functions of government are different from those of other sectors of the economy and that it organises its operations through different institutional units, the 2008 SNA gives extra guidance for the distinction between general government and public corporations. To help clarify the conceptual basis for allocating the institutional units to one of the mutually exclusive institutional sectors, it provides a decision tree. It also provides a decision tree to help delineate government and other public units.

2. Treatment of restructuring agencies elaborated

Reference: chapter 22, paragraphs 22.53 to 22.55

A3.133 Some public units are involved in the restructuring of corporations that may or may not be controlled by government. The public restructuring agencies could be established in two contexts namely (a) concerning the reorganisation of the public sector and the indirect management of privatisation, and (b) concerning impaired assets, mainly in a context of banking or other financial crisis. The 2008 SNA provides guidelines for the treatment of restructuring agencies.

A3.134 The 1993 SNA did not provide guidance for the treatment of restructuring agencies.

3. Treatment of government issued permits clarified

Reference: chapter 22, paragraphs 22.95 to 22.97

A3.135 The 2008 SNA recommends that if the licence issued by the government does not involve the use of an underlying government owned asset, then the payment for the licence is a tax. Notwithstanding, if the licence is legally and practically transferable to a third party, then it acquires the characteristics of an asset and it may be classified as an asset in the category of contracts, leases and licences.

A3.136 When the licence is to make use of a government owned asset (including natural resources that qualify as assets and which the government controls on behalf of the community), payments for the licence are treated either as the acquisition of an asset in the category of contracts, leases or licences or as the payment of rent.

4. Exceptional payments from public corporations should be recorded as withdrawals from equity

Reference: chapter 22, paragraphs 22.142

A3.137 The 2008 SNA recommends that exceptional payments from public corporations should be recorded as withdrawals from equity as these are made from accumulated reserves or sales of assets. Only regular distributions from the entrepreneurial income of corporations should be recorded as dividends.

A3.138 The 1993 SNA guidance in this respect was not consistent for the corporations and quasi-corporations in that the exceptional payments from a public corporation were recorded as regular payments of dividends while similar payments from public quasi-corporations were recorded as withdrawals from equity.

5. Exceptional payments from government to public quasi-corporation should be treated as capital transfers

Reference: chapter 22, paragraphs 22.142

A3.139 The 2008 SNA recommends that exceptional payments from government to public quasi-corporations should be treated as capital transfers similarly with the public corporations. However, exceptional payments by government to public corporations and to public quasi-corporations should be recorded as additions to equity when it is made with a clear commercial perspective reflected in a valid expectation of a return in the form of property income.

A3.140 In the 1993 SNA, exceptional payments from government to public corporations were recorded as capital transfers. By contrast, exceptional payments from government to public quasi-corporations were recorded as additions to equity.

6. Accrual recording of taxes

Reference: chapter 22, paragraphs 22.98 to 22.101

A3.141 The 2008 SNA confirms the accrual basis of recording of taxes. However, it allows some practical flexibility in two cases in application of this criterion in order to ensure that uncollectible taxes are not shown as accruing. One of these relates to taxes on income to be recorded when the tax liability is assessed with some measure of certainty. The other refers to taxes arising from activities in the “parallel” economy when the timing of the taxable event is unlikely to be known. In this case also the time of recording should be the time of assessment. It also gives guidance that in assessing the amount of taxes accruing, care must be taken not to include tax unlikely ever to be collected.

7. Tax credits

Reference: chapter 22, paragraphs 22.102 to 22.105

A3.142 Tax credits represent tax relief and so reduce the tax liability of the beneficiary. Some subsidies or social benefits are made available via the tax system in the form of tax credits, and the incidence of linking payment systems with the tax collection system is increasing. The 2008 SNA recommends that the payable credits should be recorded on a gross basis. The presentation should permit the derivation of tax credits on a net basis also.

A3.143 The 1993 SNA did not give guidance on the treatment of tax credits.

8. Principles for treatment of public-private partnership outlined

Reference: chapter 22, paragraphs 22.158 to 22.168

A3.144 Public-private partnerships (PPPs) are long-term contracts between two units, whereby one unit acquires or builds an

asset or set of assets, operates it for period and then hands the asset over to a second unit. Such arrangements are usually between a private enterprise and government but other combinations are possible, with a public corporation as either party or a private NPI as the second party. The 2008 SNA outlines the principles for treatment of the PPPs.

A3.145 The 1993 SNA did not give guidance on the treatment of public-private partnerships

9. Taxes on holding gains continue to be shown as current taxes on income and wealth

Reference: chapter 8, paragraph 8.61

A3.146 The 2008 SNA recommends that taxes on holding gains will continue to be shown as current taxes on income and wealth even though the tax base (the realized holding gains) is not included in the SNA definition of income. It recommends that where possible and relevant, it should be shown as a separate sub-category.

G. Harmonization between concepts and classifications of the SNA and the sixth edition of the Balance of Payments Manual

1. Centre of predominant economic interest as the basic criterion for determining the residence of the unit

Reference: chapter 4, paragraph 4.10

A3.147 With globalization, there are an increasing number of institutional units with connections to two or more economies. The 2008 SNA and the sixth edition of the BPM use the concept of “centre of predominant economic interest” as the basic criterion for determining whether or not an entity is a resident in an economic territory.

A3.148 The 1993 SNA recommended the centre of economic interest as the criterion to determine the residence of institutional units which was not helpful for the treatment of the residence of individuals having several international residences where they may remain for short periods. For these individuals, the concept of centre of economic interest did not allow for allocation to a specific economy.

2. Individuals changing residence

Reference: chapter 26, paragraphs

A3.149 The 2008 SNA confirms that when an individual changes his/her country of residence, there is no change of ownership of the non-financial assets, and financial assets and liabilities owned by that person. All that is required is a reclassification of the appropriate country of residence of the (economic) owner of these items. As such, it is more

appropriate that the changes be recorded in the other changes in the volume of assets account than as capital transfers.

A3.150 The 1993 SNA did not offer specific guidance on treatment of flows of goods and changes in the financial account arising from a change in residence of individuals (i.e. “the migrant effect”).

3. Goods sent abroad for processing are recorded on change of ownership basis

Reference: Chapter 6, paragraphs 6.85 to 6.87 and chapter 14, paragraphs 14.37 to 14.42

A3.151 The 2008 SNA recommends that imports and exports should be recorded on a strict change of ownership basis. That is, flows of goods between the country owning the goods and the country providing the processing services should not be recorded as imports and exports of goods. Instead it should be recorded as the import of processing service by the country owning the goods and export of processing service by the country providing it.

A3.152 By convention, the same treatment is recommended for recording the goods of one establishment sent for processing to another establishment of the same enterprise within the same economy. Only the processing service should be recorded as the output of the establishment providing the processing services.

A3.153 The 1993 SNA treated goods that were sent abroad for processing and then returned to the country from where they were dispatched as undergoing an effective change of ownership. The goods were therefore recorded in exports when they left the first country and again in imports when they returned to the country. The country undertaking the processing was shown as producing goods that are recorded at their full value, even though the processor never had to pay for the value of the goods on entry.

4. Merchenting

Reference: chapter 14, paragraphs 14.73.

A3.154 Merchenting is defined as the purchase of a good by a resident (of the compiling economy) from a non-resident and the subsequent resale of the good to another non-

resident, without the good entering the merchant's economy. The 2008 SNA recommends that goods acquired by global manufactures, wholesalers and retailers and those cases of commodity dealing being settled in the commodity should be recorded as negative exports on acquisition and positive exports on disposal. The difference between the two appears in exports of goods (consistent with the goal of a zero global balance on goods) but appears as the production of a service in the merchant's economy, analogous to trade margins applied to domestically traded goods. In the case where goods are acquired in one period and not disposed of until a subsequent period, they should appear in changes in inventories of the merchant even though these inventories are held abroad.

A3.155 The 1993 SNA did not give guidance on the treatment of merchenting.

Annex 4: Research Agenda

A. Introduction

- A4.1 The 2008 SNA, like its predecessors, represents a stage in the evolution of national accounting. As time passes the economy and society evolve, past conventions are seen as inappropriate, methodological and theoretical developments occur and user needs change, and so the national accounting standards must be updated from time to time or become obsolete.
- A4.2 The pace of the changing demands of the national accounts shows no sign of slowing. For example, two issues that have come to the fore recently, global warming and globalisation, are almost certain to have an impact on the requirements of the national accounts and the recommendations made in the SNA. One result of concerns about global warming is the introduction of tradable emission permits. How to record transactions in them is not fully addressed in the 2008 SNA, and given their rapid uptake and the large values concerned it is clear that this shortcoming needs to be remedied quickly. In the face of the rise of multi-national corporations other views of the accounts, based on alternative definitions of residence and ownership, may need to be presented in supplementary tables.
- A4.3 It is not possible to expect to capture all the issues that will arise even in the near future. The objective of this chapter is to list those that have emerged in the course of the present revision but where it was not possible to make firm recommendations in the time available. This list will be kept on the UNSD website and updated as new items emerge and those recommendations on existing items are agreed.
- A4.4 In assessing the priority to be given to an item, three questions need to be addressed.

- a. How urgent and important is the topic to ensure without the SNA continues to be relevant to the users;
- b. How widespread are the consequences of change and how complicated will implementing them be;
- c. Is the topic completely new or has much of the preparation for considering the item been completed.

The process of selecting items for investigation is one that will involve widespread consultation and involvement of both compilers and users in the review process.

- A4.5 All attempts to update the SNA, including the experience of the 1993 and 2008 revisions, show that it is very difficult to update parts of the system only because of the integrated nature of the accounting rules. The list of issues that follows is grouped broadly by subject area but it should be recognized at the outset that each is likely to have consequences beyond the subject heading.
- A4.6 The topics identified to date have been grouped into four broad headings. These are:
- a. Basic accounting rules;
 - b. The concept of income;
 - c. Issues concerning financial instruments;
 - d. Issues involving non-financial assets.

Each of these is the subject of one of the following sections.

B. Basic accounting rules

1. The relationship of SNA and IASB

- A4.7 The International Accounting Standards Board is an independent, privately-funded accounting standard-setter based in London, UK. The Board members come from nine countries and have a variety of functional backgrounds.

The IASB is committed to developing, in the public interest, a single set of high quality, understandable and enforceable global accounting standards that require transparent and comparable information in general purpose financial statements.

A4.8 The IASB works with national commercial accounting standard-setters to achieve convergence in accounting standards around the world. Nearly 100 countries currently require or permit the use of, or have a policy of convergence with IFRSs (International Financial Reporting Standards). At least to some degree, the development of IFRSs reflects the changing needs and circumstances of the global economy which can be directly relevant to the use and requirements of the SNA. The adoption of IFRSs by corporations can have a major impact on corporate accounting and the data available from corporate accounts.

A4.9 The IASB works in a three stage process to develop a new standard. The first is a draft with an invitation to comment (ITC); the second is an exposure draft (ED) also inviting comment the third is the new standard. At each stage the background to the issue is clearly explained and the reasons are given for the choice recommended. In both the first two stages comments are invited from any interested party. The development of a regular dialogue between the national accounts community and the IASB would be a way to assure the needs of national accountants were represented to the IASB and national accountants were aware of the possible developments in the data sources. Already during the 2008 revision consultation of IASB standards and their counterpart for public accounting standards has been extremely beneficial. It is therefore desirable that a dialogue be established and maintained with the IASB with a view to amending the SNA to follow new accounting standards when appropriate.

2. Consolidation of enterprise groups

A4.10 Many enterprises operating within an economy are linked with other enterprises by complete or partial common ownership and a shared management structure to form an enterprise group. Enterprises also often share common ownership and management with foreign affiliates. It is common for enterprises within an enterprise group to trade with each other, sometimes exclusively, as when they perform an intermediate stage in a vertically integrated production process, and share the outputs and costs of ancillary production. They may also share the outputs and costs of research and development activities. Given their close ties it may be sometimes desirable to consider an enterprise group as a single entity and to consolidate the accounts of its members. (This is already the practice in some other statistics such as AMNE, FATS and BIS consolidated presentations.) Members of an enterprise group are usually engaged in different activities and sometimes in more than one sector, and so consolidation could affect aggregates, such as industry value added, and sectorial balance sheets. It is therefore probable that the most likely way forward would be by way of supplementary tables.

A4.11 Separate consideration needs to be given to the case where some parts of the group are non-resident.

3. Final consumption of corporations

A4.12 In the SNA no final consumption is recorded for corporations because corporations are not considered to be final users of goods and services, except for capital products which, with the exception of valuables, are

acquired for the purpose of production. However, large corporations often undertake sponsorship of cultural and sporting events. To date, the SNA regards the payments involved as a form of advertising but it could be argued that they are a form of individual consumption and could be treated as final consumption expenditure of corporations and social transfers in kind to households. Further, by imposing regulations such as environmental standards, the government may achieve the same effect as if they levied taxes and spent the income on environmental protection, which would be treated as collective consumption. There may thus be instances where it would be more appropriate to record some expenditures by corporations as final consumption.

4. Measuring the output of government services

A4.13 The SNA recommends that the value of non-market production provided without charge, or at prices that are not economically significant, should be estimated as the sum of the costs of production (paragraphs 6.128 to 6.132). The basis for this recommendation is the lack of market prices for non-market production. However, there is continuing research on trying to find alternative ways to measure the output of government.

5. The treatment of social transfers in kind to the rest of the world

A4.14 In the SNA, social transfers in kind only take place between government units, NPISHs and households. Paragraph 8.141 explains that it is assumed that the amount of social transfers in kind payable to the rest of the world are probably negligible and, in any case, are off-set by similar benefits receivable from the rest of the world. In some cases, these assumptions may be inappropriate and an explicit way of recording these could be elaborated. Such an elaboration would have to consider the consequences of having a difference between total consumption expenditure and total actual consumption.

6. Output of central banks: taxes and subsidies on interest rates applied by central banks

A4.15 The treatment and measurement of the output of central banks is described in paragraphs 6.150 to 6.151. Three broad groups of financial services are identified: monetary policy services, financial intermediation and borderline cases.

A4.16 One of the borderline cases arises when the financial intermediation of central banks includes policy measures, such as setting interest rates higher or lower than market interest rates. This generates a number of issues. First, how to measure the output of the central bank, because the use of off-market interest rates by the central bank may cause distortions in measuring its output and value added. The solution, in principle, is to separate the policy measure from the market service and to use market interest rates as the prices for the service. Second, the use of off-market rates implies that there are flows between the central bank and the counter-party in addition to those concerned with financial intermediation. One possibility is to treat them as

current transfers and another is to treat them as taxes/subsidies on production. The AEG supported the latter, but recommended that it should be the subject of further research.

7. The treatment of establishments in the SNA

A4.17 At the present there are two reasons to have the concept of establishment within the SNA. The first of these is to provide a link to basic data when this is collected on an establishment basis. In cases where basic data is collected on an enterprise basis, this reason disappears. The second reason is for use in input-output tables. Historically, the rationale was to have a unit that related as far as possible to only one activity in only one location so that the link to the physical processes of production were as clear as possible.

With the change of emphasis from physical view of input-output to an economic view, and from product-by-product matrices to industry-by-industry ones, it is less clear that it is essential to retain the concept of establishment in the SNA.

8. The inclusion of international organizations in the SNA

A4.18 In the SNA international organizations are treated as units that are resident in the rest of the world (paragraphs 4.173 to 4.175). It would in principle be possible to treat international organization as a standard sub-set of the rest of the world and indeed to compile a full set of accounts for them

C. The concept of income

1. Clarification of income concept in the SNA

A4.19 As discussed in paragraph 8.24, the concept of income in the SNA differs from that which is generally understood in economics. In particular, holding gains and losses are not considered to form part of income in the SNA. It is not only economic theory that promotes the inclusion of holding gains and losses, but also business accounting standards. The SNA excludes holding gains and losses from production and then extends this to an exclusion from most income flows, though not interest which continues to be recorded in nominal terms. A thorough review of the concept of income in the SNA, including the implications for all property income flows would be beneficial. Some particular aspects are covered in some of the following items.

2. GDP at basic prices

A4.20 Gross domestic product (GDP) is equal to the sum of the gross value added of all the institutional units resident in a territory engaged in production (that is, gross value added at basic prices) plus any taxes, minus any subsidies, on products not included in the value of their outputs. GDP is also equal to the sum of final expenditures minus expenditures on imports by institutional units resident in a territory. The “natural” valuation of the production measure of GDP is basic prices, while the “natural” valuation of the expenditure measure of GDP is market prices. In the SNA it is the production measure that is adjusted (by adding taxes less subsidies on products) to achieve consistency. Implicit in this is the idea that taxes less subsidies on products are a form of income and not just a form of redistribution of income.

A4.21 If it were decided to value GDP at basic prices then the sequence of accounts would need to be modified, and there are various possibilities as to how this might be done. This might lead to showing the two primary functions of government, production of non-market services and redistribution of national income, separately.

3. Life insurance

A4.22 At present in the SNA there is an inconsistency between the treatment of property income accruing to pension beneficiaries under a defined benefit scheme and other forms of life insurance. For the pension beneficiaries, no reduction of property income is made according to whether the source of funding is from holding gains or not. For life insurance policies, insurance companies retain part of the holding gains made on reserves belonging to the policyholders but this retention is not treated as part of the fee charged by insurance companies. Thus there may be an understatement of the output of insurance companies. This question needs addressing and also the appropriate treatment when holding losses occur.

4. Reinvested earnings

A4.23 The SNA recommends (paragraphs 7.135 to 7.139) that the retained earnings of a foreign direct investment enterprise should be treated as if they were distributed and remitted to foreign direct investors in proportion to their ownership of the equity of the enterprise and then reinvested by them by means of additions to equity in the financial account. This is in addition to any actual distributions that may be made out of the distributable income of foreign direct investment enterprises. This approach is also adopted for the earnings of investment funds. It has been proposed that this treatment could be extended to other types of unit, particularly public corporations, on several grounds.

A4.24 For practical reasons, the SNA does not recommend that an attempt should be made to align dividend payments with earnings, except in the case of super-dividends, that is, dividends that are disproportionately large (paragraphs 7.130 to 7.131). The proposed change would extend the treatment of super-dividends to all cases and would overcome the difficulty of differentiating between cases when large dividends should be treated as super-dividends and when they should not. This would, however, mean that the saving of corporations was always zero.

5. Accruing interest in the SNA

A4.25 Through the 1990's and into the 2000's a vigorous discussion was conducted among the international statistical community about the appropriate way to record interest securities such as bonds. Two general approaches were identified in the discussion, the so-called debtor and creditor approaches.

A4.26 In order to progress discussion, the ISWGNA established an Electronic Discussion Group (EDG) in 1999 to obtain the views of a broad group of users and compilers on how macroeconomic statistics should record the accrual of interest on bonds and other tradable debt securities. The moderator of the EDG provided a report in October 2002 that concluded that while the participants to the EDG were strongly divided, the majority were in favour of the debtor approach. The ISWGNA subsequently considered the report and supported its conclusion. It then made a recommendation to the UNSC proposing that the SNA should recommend the debtor approach and the UNSC concurred. The recommendation and descriptions of the two approaches can be found in paragraphs 17.252 to 17.254.

A4.27 Discussion of certain update issues, including the treatment of concessional loans, non-performing loans, interest on index-linked debt securities and interest in arrears, showed that the debtor/creditor debate has implications beyond the recording of interest on securities. A full consideration of the definition of income in the SNA should include the implications of adopting the debtor approach on recording interest accruing.

6. Calculation of FISIM

A4.28 The treatment of financial intermediation services indirectly measured (FISIM) is described in paragraphs 6.163 to 6.169. The SNA recommends that FISIM should

be calculated with respect to a reference rate that contains no service element and reflects the risk and maturity structure of deposits and loans. Different reference rates may be needed for domestic and foreign financial institutions. The assumption behind the FISIM approach is that it is the service element, and not the interest flows, that reflect varying degrees of risk, with riskier clients paying a higher service charge. This assumption has been queried and is being investigated.

7. High inflation

A4.29 It has long been recognized that high inflation can distort measures of interest, since a portion is required simply to counteract the real holding losses that occur for financial instruments that are not indexed for inflation. By the 1970s, when inflation was an important problem throughout much of the world, the treatment of interest under high inflation was considered an important issue for national accounts. However, there is the contrary guidance is given by Annex B to chapter XIX of the 1993 SNA and chapter 7 of the OECD Manual on Inflation Accounting. It is therefore recommended that the search for a single universally accepted treatment of interest under high inflation, should remain on the research agenda.

8. The measurement of neutral and real holding gains and losses

A4.30 The SNA recommends the nominal holding gains and losses recorded in the revaluation account should be decomposed into neutral and real holding gains and losses. In paragraph 12.85, the use of a comprehensive price index covering as wide a range of goods, services and assets as possible is recommended. Some national accountants have suggested that different price indices should be used for different classes of asset. The full impact of this suggestion should be investigated.

D. Issues involving financial instruments

1. Recognition of social security entitlements as liabilities

A4.31 As discussed in part 2 of chapter 17, social security entitlements are not recorded in the core accounts but they are shown only in a supplementary table along with the pension entitlements of other pension schemes. The problems faced with including them in the core accounts are described in 17.187. More robust and generally accepted means of establishing the value of these liabilities would be beneficial and could lead to their inclusion in the main accounts.

2. Wider use of fair value for loans

4.32 The SNA recommends that the values of loans to be recorded in the balance sheets of both creditors and debtors

should be at nominal value, that is, at the amounts of principal that the debtors are conceptually obliged to pay the creditors when loans mature. However, it is common for the fair value of loans to differ from the nominal. This can arise for a number of reasons. If the interest rate is fixed then deviations between the fixed rate and current market interest rates will be associated with complementary changes in the market price or fair value of the loan. Another reason is if there is a possibility of the loan becoming non-performing or the debtor defaulting entirely. The treatment of recording the fair value of non-performing loans as memorandum items could be extended to all loans and possibly some other financial instruments such as trade credit and loans.

3. Provisions

A4.33 In business accounting, there are three degrees of “promises”: liabilities, provisions and contingent liabilities. Their definitions are the following.

- a. A liability is a present obligation of the entity arising from past events, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits or service potential.
- b. A provision is a liability of uncertain timing or amount.
- c. A contingent liability is a possible obligation that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the entity.

A4.34 In the SNA, liabilities and provisions relating to financial instruments are only recognized in the core accounts if there is a corresponding financial asset of equal value held by a counter-party. However, it is recommended that certain provisions that do not satisfy this criterion, such as those for non-performing loans, should be recorded as memorandum items. Provisions relating to non-financial assets, such as the expected terminal cost of a fixed asset, are always recognized in the SNA. Contingent liabilities are not recognized at all in the core accounts, but they too may be recorded as memorandum items if desired.

A4.35 The problem is that recognition of a reduction in the value of an asset in clients in the SNA a reduction in the corresponding liability but the asset holder may not wish to

reveal to the unit which the claim insists the fact that they regard some of the claim as uncollectible. Not doing so however overstates the value of the assets.

4. Debt concessionality

A4.36 Further work is required to clarify whether concessional loans involve a subsidy on any service charge associated with interest payments or a transfer representing the difference between the market rate of interest and the agreed rate. If the latter, the next problem is whether the transfer should be paid period by period on an on-going basis as a current transfer or a one-off capital transfer at the time the loan is issued.

5. Equity valuation and its implications

A4.37 At the moment there are a number of alternatives for valuing equity given in the SNA. There is a question about whether more standardized recommendations can be made.

6. Reverse transactions

A4.38 Work on a complex group of transactions known as reverse transactions has been pursued for several years. These transactions take their name from two common characteristics: (i) a commitment to reverse the transaction on a specified future date (or on demand), and (ii) that, although legal ownership is transferred to the purchaser, many of the risks and benefits of ownership remain with the original owner. Reversible transactions include repurchase agreements, securities lending without cash collateral, gold swaps, and gold loans/deposits.

E. Issues involving non-financial assets

1. Tradable emission permits

A4.39 Tradable emission permits are a relatively new phenomenon, but they are gaining rapidly in importance. The full treatment of all types of permits is not explicitly described in the SNA, and in order to remove uncertainty, this shortcoming should be addressed as quickly as possible.

2. Leases to use or exploit natural resources

A4.40 Part 5 of chapter 17 deals with the treatment of licences and permits to use a natural resource. Because the treatment for individual resources was developed independently there are some inconsistent treatments recommended.

A4.41 In the case of a natural resource that has an infinite life and whose use in production does not affect the nature or value of the asset, the owner may allow the resource to be used to an extended period of time in such a way that in effect the user controls the use of the resource during this time with little if any intervention from the legal owner. In the case of

land, the SNA recommends that the agreement between the owner and the user constitutes a sale of the land. In the case of the radio spectrum lease, the SNA says that the permission to use the spectrum does not change the ownership of the spectrum but constitutes a non-produced asset under the heading contracts, leases and licences. In the case of permission to use the atmosphere or a water body as an environmental sink, the SNA recommends that the payment be treated as a tax.

A4.42 In the case of a natural resource that is subject to replenishment and which can be used indefinitely providing the use is restricted and the owner extends or withhold permission to continued use of the asset from one year to the next, payments by the user to the owner are recorded as rent. No adjustment is made to the value of rent recorded as to whether the use is in fact sustainable or not. If it were not sustainable, part of the payment should be seen as being compensation for the non-sustainable use.

A4.43 In the case of a natural resource that is not capable of replenishment on a human time-scale and the use in production eventually exhausts it, the owner may permit

the resource to be used to extinction. In this case the SNA recommends that economic ownership of the natural resource remains with the lessor the lesser pays royalties recorded as rent. Only the lessee and not the lessor undertakes production. This means that the reduction in the value of capital due to production is recorded in the balance sheet of the owner as an other change in volume of assets. The link between the rundown in the value of the assets and its use in production is lost. As in the previous case the fact that part of the rent paid is compensation for the reduction in the value of the asset is not recognized.

3. Broadening the fixed asset boundary to include other intellectual property assets

Innovation

A4.44 The fixed asset boundary of the SNA has been expanded to include the output of research and experimental development (R&D) that meets the general definition of asset (see paragraph 10.104). It is evident that R&D captures part, but not all, of the innovation process. It excludes expenditures by the production and engineering departments of an enterprise on developing new products and processes. These same departments may also be responsible for identifying a potential new product and referring it to the R&D department to develop the science behind it. In addition, an enterprise may incur other expenditures before a new product goes to market. These include market research to determine the demand for a new product and marketing expenditures to promote it.

Marketing assets

A4.45 Marketing assets include brand names, mastheads, trademarks, logos and domain names. Marketing is a key driver of brand value and big corporations invest heavily in building and supporting their brands by advertising, sponsorship and other measures to build a positive image with customers. The SNA treats marketing assets as being non-produced and the expenditures incurred in their creation as intermediate consumption. They only appear in the balance sheet when they are sold. The major reason for not treating marketing assets as fixed assets is due to the difficulty of measuring their value.

Human capital

A4.46 Apart from any staff training required in bringing a new product to market, innovation expenditures are disembodied from the people undertaking the innovation. Therefore they exclude to a large extent the “investment in human capital”. Human input is the major input in most production processes, and the value of that input is to a large extent dependent on the knowledge that humans bring to the production process. It is well recognised that an educated population is vital to economic well-being in most countries. Nevertheless, there are major conceptual and practical problems with recording human capital in the national accounts, such as determining ownership and quantifying its economic value.

4. Cost of ownership transfer of valuables and non-produced assets

A4.47 The SNA draws a distinction between the costs of ownership transfer incurred in acquiring and disposing of non-financial assets on the one hand and financial assets on the other. costs of ownership transfer incurred on transactions in non-financial assets is recorded as gross fixed capital formation, while costs of ownership transfer incurred on transactions in financial assets is recorded as intermediate consumption. The rationale for the different treatments is that non-financial assets are used in production and the income generated from production needs to be sufficient to cover the costs of using those assets, including costs of ownership transfer. Financial assets are not used in production and are held as stores of value, to earn property income or in the expectation of holding gains. It is also common for the ownership of financial assets and liabilities, their counterparts, to change hands rapidly.

A4.48 Valuables are non-financial assets but they are held as stores of value and are not used in production. As such, they have more in common with financial assets than they do with other non-financial assets. Therefore, it is arguable that costs of ownership transfer on valuables should be recorded as intermediate consumption.

A4.49 Costs of ownership transfer on fixed assets are not recorded separately but are added to the price paid by the purchaser and subtracted from the price received by the seller to obtain the acquisition and disposal values, respectively. The costs of ownership transfer on non-produced assets are recorded in a separate category of gross fixed capital formation. An exception is made in the case of land where costs of ownership transfer are treated by convention as land improvements (paragraph 10.97).

5. Distinction between current maintenance and capital repairs

A4.50 The SNA draws a distinction between ordinary maintenance and repairs to fixed assets and major renovations, reconstructions or enlargements (see paragraphs 6.225 to 6.228), but acknowledges that the distinction is not clear-cut. The former are recorded as intermediate consumption and the latter as gross fixed capital formation.

A4.51 Major renovations or enlargements increase the performance or capacity of existing fixed assets or significantly extend the previously expected service life. Ordinary maintenance and repairs are required so that an asset can be utilized over the whole of the service life expected on acquisition. If the owner neglects maintenance and repairs then the expected service life may be drastically reduced and unforeseen obsolescence must be recorded as an other volume change in the value of the asset.

A4.52 If the requirement for treatment as fixed capital were to prevent a reduction in service life, rather than necessarily extend it, the problem of the borderline between ordinary maintenance and major extensions would disappear and the problem that the consequences of the neglect of

maintenance is not reflected in a reduction in net domestic product could be avoided.

6. Treatment of Private-Public Partnerships

A4.53 Public private partnerships (PPPs) are described in chapter 22. Further developments in their treatment in the SNA await the development and adoption of standards under development by the IASB and the International Public Sector Accountants Standards Board (IPSAS). The ISWGNA is monitoring developments.

7. Transfer of ownership of an asset during its life

A4.54 Both the case where a natural resources is leased for an extended period of time and the case of PPPs are ones where the economic ownership of an asset effectively changes hands part way through its life. The terms of the arrangements are such that recompense from the initial user for the change of ownership to the second use is bundled into the arrangements for payments during the lease. The transfer of the ownership has to be recorded as in other change in the classification of assets and is not reflected in the production or distribution of income accounts. This is a deficiency that could be rectified by some extension to the concept of financial leasing.

