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## Chapter 18: Elaborating the accounts

### A. Introduction

- 18.1 The chapters up until this one explain first the accounting concepts of the SNA and then the form of the sequence of accounts. This chapter, and those that follow, are about 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 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 of time series, and the need to revise them, are discussed in section B.
- 18.3 Chapter 15 describes the theory of the price indices that can be used to deflate some aspects of national accounts in current values to estimates in volume terms. Section C describes briefly exactly which parts of the accounts it is useful to express in this way.
- 18.4 Taking a longer horizon, annual series are adequate but to assess what is happening in the short term, national accounts on a quarterly basis fill a key role in between short-term indicators and the fully elaborated annual accounts. Discussing quarterly accounts requires a manual in itself but an indication of some of the key issues is given in section D.
- 18.5 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.
- 18.6 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**

- 18.7 The tables in this manual are designed to be expository and therefore feature data only for a single time period. In practice, of course, 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 presentation 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.
- 18.8 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.
- 18.9 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, 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.

### **2. Revisions**

- 18.10 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.
- 18.11 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, having time series which are consistent over time and explanations to enable analysts to appreciate the trade-offs the statistical office has to take are essential.

### **3. Discrepancies**

- 18.12 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.
- 18.13 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.
- 18.14 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 form of the questionnaire, the 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 these may not be able to ensure these exactly meet the statistician's needs.

- 18.15 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.
- 18.16 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 and more information on such balancing techniques can be found in manuals on input-output tables such as those prepared by the UN and Eurostat.
- 18.17 In countries with very limited statistical resources, it may not be possible to compile all three measures of GDP. Indeed, it happens that sometimes only the output 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. Any errors in the output 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, (if they occur) will distort the value of household consumption. If, then, the figure for gross operating surplus is derived by subtracting compensation of employees and taxes 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 such gross assumptions about missing items, especially one as critical to an assessment of living conditions as household consumption.

### **C. Accounts in volume terms**

- 18.18 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. However, in order to do this 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.
- 18.19 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 transactions in financial assets and liabilities 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. Accounting under high inflation is discussed briefly in chapter 29.
- 18.20 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. 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.

18.21 It is useful to consider the expenditure components of GDP and the output 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**

18.22 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.

18.23 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. 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 output components of GDP**

18.24 Central to the output 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 purchaser's prices whereas output is measured at either basic prices or producers' prices .

18.25 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. For productivity measures it is useful to think of both volume and price measures associated with each of labour and capital inputs and thus with value added. A description of the different concepts of factor 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 stocks.

### **3. Supply and use tables in volume terms**

18.26 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 the different sets of price indices used in the deflation exercise are consistent.

18.27 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**

18.28 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”.

- 18.29 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 accounts**

- 18.30 One response to the demand for timely data is to compile accounts on a quarterly basis. 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 quarterly as opposed to annual 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*. What follows here is simply an indication of some of the key considerations that apply to quarterly as opposed to annual accounting.

### **1. Conceptual issues**

#### Time of recording

- 18.31 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

- 18.32 The qualifying criteria 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.

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

#### Seasonality

- 18.34 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. Many holidays fall at the same time each year leading to a different number of working days in each quarter. 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.

### **2. Data quality**

- 18.35 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 benchmarking 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. Many computer programs available to statistical offices automatically adjust to ensure that no such step results.

- 18.36 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 of 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

- 18.37 One 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 be. (In the case of shares, for example, 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

- 18.38 Just as the goods and services account in annual accounts can be expressed in volume terms, so can the quarterly accounts. Although it is recommended that price indices used for deflating annual series be chained, for quarterly accounts, it is recommended that the quarterly price indices to be used 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

- 18.39 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 and the balance sheet for financial assets and liabilities. The quarterly goods and services account should also be compiled in volume terms.

## E. Regional accounts

- 18.40 Regional accounts are of special importance when there are important disparities between the economic and social development of the various regions of a country.
- 18.41 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.
- 18.42 Three types of institutional units have to be considered in the context of regional accounts.
1. There are regional units, the centre of interest 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.

2. There are multi-regional units, the centre of interest 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.
  3. A small number of units are national units, which means that their centre of interest is not located geographically even in the sense of multi-regional location. This is 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.
- 18.43 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. Even when transactions such as output are physically evident, it is still necessary to record intra-corporate flows between establishments located in different regions. 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 transactions in financial instruments. Thus the only balancing items of multi-regional units that can be defined unambiguously 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.
- 18.44 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 sector, not allocated as such between the regions or constituting an extra region. This national sector would have establishments located in the regions.
- 18.45 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, like 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.
- 18.46 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 GDP 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 system and resources that might be devoted to this work.

## **F. Presentational issues**

- 18.47 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, transactions in financial instruments, 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 presentation of the main macro-aggregates with supporting detail.
- 18.48 It is fundamental to an understanding of the SNA to grasp the three different ways of compiling GDP, from the output, expenditure and income sides. However, the definitions in section B concentrate on the different



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. Output measures of GDP

18.49 For the output 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, respectively, denoted as A\*10 and A\*38, is described in more detail in ISIC, Rev 4, par 199 to 212. Table 18.1 shows the high-level (A\*10) aggregation of industries.

**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	<i>Of which: manufacturing</i>
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

18.50 It is quite common in some countries to show very summary data for a range of industries showing 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.

18.51 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

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

ISIC, Rev. 4		Description
Sections	Divisions	Groups
A	01	Monetary
		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			<b>Mining and quarrying</b>
C			<b>Manufacturing</b>
			Formal
			Informal
D and E			Electricity, gas, steam and air conditioning supply; and Water supply; sewerage, waste management and remediation activities
F			<b>Construction</b>
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, 512, 493, 521, 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
			<b>Other services</b>
	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
			<b>Total Monetary</b>
			<b>Non-Monetary</b>
A			<b>Agriculture, forestry and fishing</b>
	01		Crop and animal production, hunting and related service activities
		014	Food crops
			Animal production
	02		Forestry and logging
	03		Fishing and aquaculture
F			<b>Construction</b>
	68		<b>Imputed rental of owner-occupied dwellings</b>
			<b>Other non-monetary activities</b>
			<b>Total Non-Monetary</b>
			<b>Total value added at basic prices</b>
			<b>Taxes less subsidies on products and imports</b>
			<b>Gross domestic product</b>

## 2. Expenditure measures of GDP

18.52 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

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

18.54 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

18.55 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. One solution 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 both disguises the non-additivity and 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. 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.

**Table 18.3: GDP by expenditure**

GDP: expenditure approach	
<b>Final consumption expenditure</b>	
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>
<b>Gross capital formation</b>	
Gross fixed capital formation, total	
	<i>Possibly include summary detail according to the classification of capital formation</i>
	Changes in inventories
	Acquisitions less disposals of valuables
<b>External balance of goods and services</b>	

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

## 5. Quarterly accounts

18.56 As noted in the discussion on quarterly accounts above, quarterly estimates should be presented on both a seasonally adjusted and on an unadjusted basis. Often they will be presented in current prices and as volume series also. An added complication is that for each of the four presentations, the sum of the four quarters should be equal to the annual data as presented in the annual accounts.

## 6. Presenting other parts of the accounts

18.57 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.