Chapter 1. Overview of the system of accounts

1.1 Introduction

1.1.1 Main approaches used for the Danish national accounts

The Danish national accounts are built up around an integrated set of supply and use tables and accounts for the institutional sectors. The initial GDP estimates are to a large extent calculated independently from the output, expenditure and income points of view and balanced for the final, annual calculations in a detailed product balance system covering around 2 750 products, some 2 300 of which are goods and 450 or so services. The result is a balanced set of supply and use tables and the integrated production and generation of income accounts that go with them for industries and institutional sectors. The sector-industry tables are thus an integral part of the final annual national accounts. With the balanced supply and use tables as a starting point, symmetrical, industry x industry-type input-output tables are constructed annually on the basis of the "industry technology assumption".

As from reference year 1995, the Danish national accounts have included financial (transaction) accounts and balance sheets for financial assets plus the associated accounts for other changes in the volume of assets and revaluation accounts. All that remains is to add non-financial balance sheets to give a full set of ESA 95 accounts. Like various other countries, Denmark has already started work on this latest expansion, which will result in an estimate of national wealth and of the wealth of the individual sectors. So far, official estimates are available of fixed assets (fixed capital stock) in line with the ESA 95 for the whole of the period 1966-2000.

The Danish national accounts consist of both annual and quarterly accounts. The official balance of payments estimate tallies in full with the national accounts rest-of-the-world account. The difference between the two sets of figures is due solely to geographical coverage.

1.1.2 Geographical coverage

The Danish national accounts cover the economic territory of the Kingdom of Denmark with the exception of the Faeroes and Greenland. The geographical coverage in the nationally published accounts thus tallies with the delimitation of Denmark's economic territory as regards application of the GNP Directive, as laid down in Commission Decision 91/450/EEC, Euratom. No correction has to be made for geographical coverage when switching from the national estimate of GNI to the accounts as submitted to the EU in accordance with the GNP Directive.

1.1.3 Connection with the ESA 95, NACE Rev. 1, CPA, COICOP and COFOG

As from the 1997 publication, the Danish national accounts have been compiled in accordance with the guidelines in the European System of Accounts (ESA 95). Before that date, they were based on the UN manual "System of National Accounts 1968" (1968 SNA). Changes are still being made to bring the figures reported under the GNP Directive into line with the definitions in the previous edition of the European system of national accounts, the ESA 79. The time series of national accounts figures according to the ESA 95 are extrapolated back to 1966. For all years with final national accounts from 1966 inclusive there are input-output tables in current prices and fixed 1995 prices and corresponding series of Laspeyres chain indices for volume changes at the most detailed level of publication. For years from 1988 inclusive, there are supply and use tables based on the ESA 95 and covering around 2 750 product balances in both current and fixed 1995 prices.

The only case where definitions depart from the ESA 95 is the recording of payments on the harmonised VAT basis which accrue to the EU in connection with the third own resource. According to the ESA 95 paragraph 4.14, this resource should count as taxes on products paid by residents to the EU (D.211). When implementing the ESA 95, Denmark found this rule unrealistic from the economic point of view - a view which was subsequently and independently expressed by the European Court of Auditors in a special report on VAT and GNP receipts. Instead, these payments are counted as a current transfer from Denmark to the EU institutions under international cooperation. The whole of the revenue from VAT is counted as income for the resident general government sector. With this one exception, the Danish national accounts comply in full with the ESA 95 definitions.

As regards the classifications of industries, both the primary statistics and the national accounts are based on the NACE Rev. 1. The Danish branch classification *Dansk Branchekode*, DB 93, second edition, is a national, more detailed version of the NACE Rev. 1. This Danish version of the NACE Rev.1 will be referred to in this description of sources and methods as "DK-NACE".

As regards commodity classifications, both product statistics covering manufacturing and external trade statistics use the EU's CN (Combined Nomenclature). The national accounts' product classification (around 2 750 products) likewise complies with the CN classification for practical reasons, but at a higher level of aggregation. The national accounts' product balances can, however, be converted to the EU's CPA product classification at the 4-digit level without any problems. This is a much more detailed level than is required by the ESA 95 Regulation, which merely stipulates supply and use tables at the 2-digit CPA level corresponding to 60 product groups. The Danish national accounts are consequently fully harmonised with the CPA on the products side.

As regards the classification of household final consumption, the Danish national accounts are based on the international classification of individual consumption by purpose, COICOP, and there are no exceptions of any kind. The most detailed consumption grouping comprises 72 groups. The breakdown is substantially more detailed than is required by the ESA 95 Regulation.

All units and transactions in the general government sector are classified according to the COFOG, again at a much more detailed level than is required by the ESA 95 Regulation. Product transactions involving general government are cross-classified by transaction type (ESA 95), by industry for the producer unit concerned (NACE Rev. 1), by sector for the institutional unit concerned (ESA 95) and by function for the relevant transaction (COFOG).

1.1.4 Organisation of national accounts work in Danmarks Statistik

Danmarks Statistik's organisation chart as at 1 November 2001 is attached in Annex 1 and the organisation chart for national accounts in Annex 2. Danmarks Statistik is divided into four directorates, three for statistics on particular fields and a horizontal one for user services. Under the Act on Danmarks Statistik *[Lov om Danmarks Statistik]*, the institution is independent of government as regards all technical aspects of statistics. It is headed by a Board of Governors whose members are appointed by the Minister for Economic Affairs. Since the Act was passed in 1966, the members of the Board have been experienced representatives of the business world, the world of research and local government. No ministries are represented. Under the legislation, the National Statistician, who is appointed as a permanent official, is responsible for the technical and administrative management of the institution and is also Chairman of the Board. He reports directly to the Minister for Economic Affairs on all administrative and economic issues, and refers to the Ministry matters relating to EU legislation on statistics. It is Danish parliamentary practice for all draft EU legislation which is to be negotiated in the Council to be put before the *Folketing*'s Europe Committee, which gives the Minister a negotiating brief. This ensures that Parliament retains control over the extremely important share of statistical output which arises from EU legislation and which therefore actually comes within the scope of the Board.

From the organisational point of view, responsibility for national accounts falls to the Directorate for Economic Statistics. The work is divided among three divisions known as "National Accounts", " National Wealth" and "Public Finances and Prices". The National Accounts division is responsible for the estimates of national accounts, including the capital account, and for balancing them, again including the capital account. The official balance of payments calculation and symmetrical input-output tables, along with regional and environmental accounts, are also produced by this division. Note that balance of payments statistics are worked out in the National Accounts unit in Danmarks Statistik, although the primary statistics work on settlements statistics, and thus the most important resource input, is done by *Danmarks Nationalbank*. Thus a single unit in a single institution is responsible for compiling the balance of payments and the rest-of-the-world account for the national accounts, which means that the two sets of statistics are fully coordinated even in the most provisional quarterly estimates.

The National Wealth division is responsible for all administrative uses of the national accounts in the EU apart from the Stability and Growth Pact (the GNP Directive, the harmonised basis of VAT, plans for the definitive VAT system). The division is also responsible for managing arrangements Denmark makes to comply with the GNP Directive. The division oversees the returns on the GNP questionnaire and calculates any corrections to the nationally published figures which may be needed for compliance with the guidelines approved by the GNP Committee. In particular, the division oversees the switch from ESA 95 to ESA 79 definitions. It is responsible for the development and production of the accounts from the financial account to the final balance sheet, *inter alia* calculations of the financial sector accounts, the stock of fixed capital goods and national wealth. The National Wealth division also compiles all the national accounts estimates from production account to final balance sheet for financial sectors S.121 to S.125. Finally, it carries out various research and development activities connected with national accounts, such as productivity calculations and analyses.

The Public Finances and Prices division calculates the general government sector for national accounts purposes, including the sector's financial transactions and balance sheet accounts. For

Sector S.13, general government, the division does not therefore produce primary statistics but supplies a full set of national accounts figures in accordance with the ESA 95. Since the figures which the Public Finances and Prices division supplies to the National Accounts division and the National Wealth division are included in the balancing of the overall national accounts, any changes as compared with the figures initially supplied are extrapolated back in the statistical systems in Public Finances and Prices, so that the detailed figures published for general government and the national accounts standard tables are an exact match. The Public Finances and Prices division is responsible for statistical returns under the protocol on excessive deficits, but administrative responsibility for these returns lies with the *Departement* [= Secretariat] of the Ministry of Economic Affairs. In addition to certain areas of national accounts, the Division covers accounting statistics for industries which have traditionally been dominated by publicly controlled corporations, price statistics (consumer price indices, wholesale price indices, purchasing power parities, real estate sales statistics), financial primary statistics and statistics on bankruptcies and forced sales.

The national accounts figures for agriculture and horticulture are calculated in the Agriculture division of the Business Statistics Directorate. These are input directly - with a few changes - into the national accounts. The Agricultural Statistics division comes under the Business Statistics Directorate.

Danmarks Statistik is the Danish administrative authority for the GNP Directive and the fourth own resource. The head of the National Wealth division is Denmark's representative on the Management Committee (GNP Committee) set up under Article 6 of the GNP Directive. As the administrative authority in this field, Danmarks Statistik has an obligation to brief the government on matters of principle or fiscal issues which are of importance for Denmark. As regards fiscal aspects, Danmarks Statistik, as an administrative authority, is on a par with a *Departement*. Similarly, administration of the institution is audited by *Rigsrevisionen* [the National Audit Office of Denmark].

1.2 Revisions policy and timetable for final and provisional accounts

1.2.1 Revisions policy

Since the Danish national accounts are constructed around a detailed product balance system, revising the levels of the individual variables in a long time series of national accounts is inevitably a very heavy task. It involves a further adjustment of the product balances, and substantial changes here can often affect a very large number of cells in the supply and use matrices.

Since the main purpose of national accounts is to produce a basis for an overall assessment of structural and short-term developments in the economy, great importance has to be attached to continuity in time series, and any errors in levels which have emerged will therefore normally not be corrected until there are major revisions, which take place at intervals of 10 to 15 years. In addition, it has generally been our experience that there are fewer errors in levels than might otherwise have been the case because ultimately the figures have to be fitted into a consistent system which tackles problems of levels at the primary statistics stage. The resources available do not allow major revisions, in which all sources and methods underlying the national accounts and all levels of the individual variables are reassessed, to be undertaken at more frequent intervals than stated above. Annex 10 documents our experience over the years with corrections of levels and growth rates in the main national accounts aggregates during major revisions. In general, figures for the level of GDP/GNI have been shown to be veryrobust throughout the history of national accounts, i.e. since the Second World War.

That is not to say that new statistical sources cannot be incorporated on an ongoing basis, as and when they come into being. The point is, however, that if new and improved statistical sources reveal that the previous figures have been at the wrong level, but a switch to a more accurate level would give a misleading picture of year-on-year growth, the level correction is not incorporated into the current calculations. Instead, the break is noted with a view to including the correction in the next major revision, whilst the new and better statistical source can be used immediately in the calculation of *growth rates* for the relevant variables. In other words, in such cases the new statistical source is used to project the previous levels for the variables in question. But to some extent more minor adjustments in level are made all the time.

Since the statistical or methodological reasons for errors in levels in the individual national accounts series may be assumed to have roughly the same effect period after period, it is possible to obtain reasonably correct growth rates despite the errors. Against this background, we can choose to consider the growth rates in the *final* national accounts figures as genuine and then to assess the quality of the *provisional* versions of the annual and quarterly figures in the light of their ability to hit the target which is the growth rate in the final national accounts.

These final national accounts, along with their symmetrical input-output tables, are available for a given year just under three years after the end of that year. The first national accounts for a given calendar year are at present published around 23 March of the following year. The annual figures in this first publication appear as a simple sum of the year's four quarters based on the quarterly national accounts as available at that point. Development work began in 2000 to speed up publication of the quarterly national accounts. As from 2002 inclusive, the publication date is expected to be brought forward to around 1 March, as an offshoot of the EMU statistics action plan. In the following 2 ¾

years or so to the final national accounts, successive versions of provisional annual accounts are produced, incorporating the primary statistics on an annual basis as and when they become available.

There is no balancing in the form of adjusted supply and use tables until the final national accounts. For the quarterly and provisional accounts, there is only a partial product balance-based adjustment of resources and uses. More specifically, the technical coefficients from the SUTs of the latest final year are used, in combination with the product statistics for manufacturing and external trade statistics, to validate the initial supply and use calculations and produce a first automatic balance which is then adjusted manually. Thus the first two stages of the RAS procedure known from input-output analysis are carried out in connection with the provisional national accounts. The first stage is to divide all use categories by product in accordance with the structure of the latest final national accounts. The second stage is to work out the difference between resources and uses of each product and to divide the difference first of all *pro rata* with the initially estimated uses, with resources remaining unchanged. By summing over products, adjusted national accounts are obtained after this second stage, i.e. resources and uses balance. However, the differences between these figures and the initial estimates will be substantial with this automatic adjustment. The marginal totals after the horizontal distribution are now considered as a set of alternative initial estimates arrived at on the basis of the "product figures", i.e. from the supply of the individual products. After that, a weighted average of the original initial estimates and the alternative initial estimates is worked out to give a set of modified initial estimates which result in non-balanced national accounts. The balancing is then carried out manually, not at product level but at industry/use category level. During this phase of the adjustment, the product dimension is thus eliminated. The fact that the adjustments in the course of the balancing process are not broken down by product means that there is no fully adjusted product balance system underlying the quarterly and provisional accounts.

The purpose of the procedure described above is - bearing in mind the short time available, of course, for the production of provisional and quarterly accounts - to make full use of the product information in the SUTs and in the current production statistics and external trade statistics. The comparison of supplies and uses made here must be considered as one of the key factors reducing uncertainty in the calculation.

1.2.2 Production cycle for provisional and final national accounts

The production cycle for final, provisional and quarterly national accounts can be see in Table 1. "*Nyt*" means "*Nyt fra Danmarks Statistik*", which is a rapid publication aimed primarily at informing the press that statistics are now being published. "*Statistiske Efterretninger*" reports the national accounts figures in greater detail. The most detailed figures appear in annual publications and in the databanks. During 2001, as a result of the action plan for EMU statistics, which aims to speed up the publication of short-term economic statistics, the quarterly national accounts are being produced more quickly. With publication planned for the end of November 2001, the production time for the quarterly accounts will be shortened from just under three months to just under two months.

Table 1 Planned publication deadlines for 2001 national accounts

Quarterly/annual figures[1]	Coverage of calculation	Publication[2]		
		Nyt and/or databanks	*Statistiske Efterretn.*	Annual publication
Quarterly figures 3rd qu. 2000	4th qu. 1999 3rd qu. 2000	End December 2000	Beginning January 2001	
Annual figures 1999, non-financial NA (December version)	Final figures 1997 Provisional figures for 1998-1999	Beginning January 2001	Mid-January 2001	March 2001
Symmetrical input-output table	Final figures for 1997 Projected figures for 1998-1999	Beginning January 2001		April 2001
Financial transaction accounts	Final figures for 1995-1997 Provisional figures for 1998-1999	End January 2001[3]	Beginning June 2001	
Financial balance sheets (closing)	Final figures for 1995-1997 Provisional figures for 1998-1999	End January 2001[3]	Beginning June 2001	
Fixed capital stock by kind and industry (opening)	Final figures for 1992 Provisional figures for 1993-2000	Beginning February 2001	Beginning June 2001	
Quarterly figures 4th qu. 2000	1st qu. 2000- 4th qu. 2000	End March 2001	Beginning April 2001	
Annual figures 2000 (June version)	Provisional figures for 2000	Beginning July 2001	Mid-July 2001	
Quarterly figures 1st qu. 2001	2nd qu. 2000- 1st qu. 2001	End June 2001	Beginning July 2001	
Quarterly figures 2nd qu. 2001	3rd qu. 2000- 2nd qu. 2001	End September 2001	Beginning October 2001	
Quarterly figures 3rd qu. 2001	4th qu. 2000- 3rd qu. 2001	End November 2001	End November 2001	
Fixed capital stock by kind and industry (opening)	Final figures for 1997 Provisional figures for 1998-2001	Mid-December 2001	Beginning January 2002	
Annual figures 2000, non-financial NA (December version)	Final figures 1998 Provisional figures for 1999-2000	Beginning January 2002	Mid-January 2002	March 2002

[1] Annual figures are different from quarterly figures in that they give information at a more detailed level and include a breakdown of the economy into institutional sectors.

[2] In addition, certain figures will be included in the "*Konjunkturstatistik*" publication.

[3] Data supplied to Eurostat plus data access.

The table shows that the first figures for the year 2000, obtained as the sum of the quarterly accounts, were available in March 2001. With the planned acceleration of the quarterly national accounts, the first figures for the year 2001 will be available at the end of February 2002. In the April annual estimate (April version), the annual figures are still estimated as the sum of the quarterly figures, but they are now expanded to include a breakdown of the economy into institutional sectors. The first genuine annual figures (June version) are different from the annual figures which are the sum of four quarters in that they include primary statistics which appear later and are available only on an annual basis. These are mainly statistics on general government, for which the first annual statistical estimates are available in May of year t+1. The published annual figures and quarterly figures are consistent with one another throughout. The quarterly figures are calibrated to annual figures using a method which minimises the deviations from the quarterly figures as originally calculated, with the proviso that the given annual totals are retained. With each new quarterly estimate, the figures for the previous three quarters are revised. After that, the quarterly sequence remains fixed, subject to the effect of the calibration to new annual levels. It is the annual estimate, the "June version" figures for GNI in year t, which forms the basis for the GNI report in the September of year t+1. The national accounts figures become final just under three years after the reference year for publication in the December of year t+3.

1.3 Outline of the production approach

1.3.0 Introduction

For 1995, the calculation of output-based GDP may be summarised as in the table below:

Table 2 GDP, production approach, 1995

	Value, DKK million	% of GDP
Output at basic prices	1 663 164	165
- Intermediate consumption	791 822	78
+ Taxes on products	157 254	16
- Subsidies on products	18 840	2
GDP	1 009 756	100

1.3.1 Reference framework - business register

A high-quality business register is crucial for a reliable and exhaustive calculation of GDP using the production approach. If it is not possible to calculate the population of producer units in the economy, or if the register information on the units' activity, size, etc. is not reliable, a considerable measure of uncertainty is introduced into the national accounts themselves. Full coverage of the population and correct information on the registered units are essential, both to enable representative samples to be selected for statistical surveys and to enable the figures to be grossed up correctly to cover the total population. A properly functioning business register is therefore one of the cornerstones of the national accounts.

Denmark has a long-standing tradition of central business registers. The first such administrative register was set up under legislation in 1975, but Danmarks Statistik's own central business register dates back to 1967, the year in which VAT was introduced in Denmark. Danmarks Statistik was quick to take advantage of the enormous statistical possibilities opened up by the compulsory

registration of virtually all business units in the VAT system. The content and technical aspects of the register were thoroughly revised in years 1989-1995 and the quality was improved. In 1997-1999, the EDP technology was substantially upgraded, and this has made it possible for Danmarks Statistik's business register to replace all decentralised registers in other *departementer* and other administrations as from 1999. Since that year, all public authorities have been using the CVR (*Centrale Virksomhedsregister*, the Central Business Register), which is the administrative counterpart to Danmarks Statistik's *statistiske erhvervsregister* [statistical business register].

It is vitally important for the coverage of the Danish business register, which compares extremely favourably with coverage in other countries, that there should be a very low threshold for mandatory registration in the Danish VAT system (turnover limit of DKK 20 000), that virtually all non-financial market activity other than passenger transport is subject to VAT, and that all employers and the self-employed who have no employees have to be registered in connection with the payment of pay-as-you-earn and the labour market contribution. Taken together, these registration rules mean that any commercial/industrial activity of any significance (other than work in the black economy) is recorded in the business register.

1.3.2 Most important sources

1.3.2.1 Five main types of accounting statistics

The most important statistical sources underlying output-based GDP are, of course, various accounting statistics which can be used to estimate the output value, intermediate consumption and value added of the various industries. The five types are:

a) detailed accounting statistics based on questionnaires and tax accounts
b) less detailed accounting statistics based on standardised tax accounts
c) accounting statistics for industries where public corporations predominate
d) industry-specific accounting statistics and individual accounts for large entities
e) accounting statistics for general government.

Ad a) Detailed accounting statistics based on questionnaires and tax accounts

The first point relates to the detailed accounting statistics which have traditionally covered some but by no means all industries. Below, they are referred to as "questionnaire-based accounting statistics". They are sufficiently detailed to comply with the requirements of the Structural Regulation (97/58/EC, Euratom). They are being radically reorganised so that as from reference year 2000 they will, broadly speaking, cover all non-financial producer units other than general government and industries where public corporations traditionally predominate, which are covered by other accounting statistics. The exception is certain personal service industries. For 1995, which is used as an illustration in this description of sources and methods, these statistics cover manufacturing (NACE D), construction (NACE F) and retail trade (NACE G).

From the national accounts point of view, questionnaire-based accounting statistics must be considered as an extremely robust source in that they:

- include all units with over 50 employees in the sample
- use tax accounts for units not in the sample
- have relatively low sampling uncertainty

- have a detailed accounting plan which makes the switch to national accounts concepts easier
- contain figures for both firms and kind-of-activity units.

A description of this statistical source can be found in Section 11.1. The questionnaire is in Annex 3.

Ad b) Less detailed accounting statistics based on standardised tax accounts

These are accounting statistics based on standardised accounts (SLS-E statistics: SLS-E = *Statens Ligningssystem for Erhvervsdrivende*, the government tax assessment system for businesses), which all firms, with certain exceptions, have to send in to the tax authorities together with their tax returns. These statistics are referred to in the present documentation as "tax accounting statistics". It is important to understand that these are not actual tax returns, the accounting plan for which is normally not particularly suitable for national accounts purposes. They are standardised accounts which clearly relate to items on the actual tax returns. The accounting plan for these standardised accounts is much more detailed than in the tax returns themselves and therefore suitable for national accounts estimates.

Since 1991, the accounting plan in the standardised tax accounts has been much less detailed than in Danmarks Statistik's questionnaire-based accounting statistics as described under point a) above. The accounting plan for years 1988-1990 was much more detailed than is now the case. The plans for before and after 1991 are reproduced in Annexes 5 and 6. For the national accounts processing of this accounting information, the costs structure in the more detailed plan for 1990 is used to subdivide the more aggregated cost items from 1991 onwards. Similarly, the questionnaire-based accounting statistics discussed under a) above use the standardised tax accounts for those units not covered by the sample. The method in this case is exactly the same, using the detailed accounting information from the questionnaires from firms in the same branch and size group to divide up the accounting items on the SLS-E forms.

The accounting statistics based on standardised tax accounts cover firms (legal units). The firm-based information is not broken down into the kind-of-activity units which make up a firm: this kind of breakdown is made in connection with the national accounts processing of the figures. For the transition from firm level to kind-of-activity unit level, all available information on the connection between firms and kind-of-activity units is used, along with statistical methods known from input-output analysis. Section 3.3.10.2 gives further details of the method used.

A description of the accounting statistics based on standard tax accounts can be found in Section 11.1. In Section 3.1.2.3, there is a detailed report on the national accounts processing of the basic accounting statistics figures.

It is important to stress that the national accounts use of SLS-E statistics is based not on the published results of these accounting statistics but on the accounts of the individual firms. The primary statistics division supplies error-checked accounting figures to the national accounts division, which processes the figures itself, and the final result of this processing is not the same as the result in the primary statistics. For the national accounts calculations, the 90 000 or so accounts covered by the SLS-E system are completely reprocessed and grouped by sector in the "tax accounting statistics system". This procedure was introduced partly to improve the grossing up, to make it better than in the primary statistics, and partly because a sectoral grouping of firms was needed in line with the ESA 95.

As regards the grossing up to the total population, a rather cumbersome procedure is used in the primary statistics, whereby the firms in the figures for each individual industry, in a breakdown into four forms of ownership, are grossed up using the ratio of 98% of VAT sales in the stratum in question to accounting turnover (the accounting item "net sales", or "net turnover"), as covered by the SLS-E figures. In the national accounts processing of the SLS-E figures, a better (and more common) grossing procedure is used, with stratified grossing using VAT sales as the grossing variable. The difference between the two methods is that, whilst the former assumes a fixed ratio between national accounts sales (output excluding changes in inventories and output for own final use) and VAT sales, the latter is not based on this assumption but uses VAT sales alone as the basis for grossing up, i.e. to form raising factors for each individual stratum. Section 3.1.2.3.5. describes in detail how the figures are grossed up.

As regards the sector grouping, the legal form of ownership "ordinary partnership" ["*interessentskab*", I/S] in the primary statistics is combined with sole proprietorships for the stratification. Ordinary partnerships are a type for which complete accounts are available, and where the owners' withdrawals can in every case be identified. In the national accounts, these ordinary partnerships have to be included in the corporate sector, whilst sole proprietorships have to be classified in the households sector. For this reason alone, the national accounts had to incorporate the SLS-E statistics at unit level instead of starting from the published primary statistics.

Despite the much-reduced accounting plan used as from 1991 and the fact that certain firms are exempt from the obligation to submit the SLS-E form whilst some which, by law, should send in SLS-E accounts apparently get away with not doing so (one reason being the decentralised tax assessment), the SLS-E statistics must be considered as a relatively robust statistical source for demonstrating the value added of the industries, primarily because

- the degree of coverage is high and the statistics are representative of all forms of ownership and size groups;
- the information is used in tax assessments and is therefore checked very thoroughly;
- the accounting information relates directly and clearly to the enterprises' tax returns (tax accounts).

Experience has also shown that, as regards estimates of the industries' value added, the questionnaire-based general accounting statistics and national accounts estimates based on the SLS-E-based accounting statistics produce virtually the same result.

Ad c) Accounting statistics for industries where public corporations predominate

The statistics for industries dominated by publicly owned and controlled corporations are not an integral part of the questionnaire-based accounting statistics described under a) above for reasons which are largely historical. Since 1999, the questionnaires for the two sets of accounting statistics have been closely aligned, since it has to be possible for both of them to form the basis for Danmarks Statistik's business statistics returns to the EU under the Structural Regulation. But it has still been found useful to have various specific questions in the accounting statistics for industries where public corporations predominate. For these industries, accounting statistics are produced at firm level by the Public Finances and Prices division. The accounting concepts in these statistics comply with the ESA 95 and not with the usual business accounting concepts. As with general government estimates, which are also computed by Public Finances and Prices, the only extra processing needed for national accounts purposes is a conversion to kind-of-activity units (with construction and trade shown separately).

Right from the early days, the above industries were treated differently, the idea being to show the extent of all publicly controlled capital formation in the economy, i.e. the total in the general government sector and in public corporations. Information on this capital formation, which is not sensitive to short-term economic changes, is, of course, required for economic analyses. Previously, therefore, special investment surveys were carried out for these industries. As from 1992 inclusive, these have been replaced by actual accounting statistics for industries where public corporations predominate. The statistical unit is the firm, but the questionnaire collects the information needed to enable construction and trading activity to be shown separately, so that these activities can be shown under their respective NACE industries. This is important, since mixing up the supply industries with construction, for example, would make any attempt to establish the input structure of the supply industries so complex and uncertain that the work of balancing supply and use matrices would be very much more difficult.

The term used in this publication, "accounting statistics for industries where public corporations predominate", refers to the ownership structure before the numerous cases of privatisation which over the past few years have reduced government equity in a whole range of corporations. For example, following the privatisation of TeleDanmark, the telecommunications industry is no longer dominated by publicly controlled corporations. However, those industries which have traditionally been dominated by public ownership will for the time being continue to be covered by accounting statistics under point c) instead of being transferred straight away to those areas of industry which are covered by the accounting statistics described under a) above.

This statistical source is described in Section 11.1.

Ad d) Industry-specific accounting statistics and accounts for large entities

For a number of (market) industries, there exist, for historic, institutional or other reasons, accounting statistics whose accounting plan, sources and methods are different from those of the general accounting statistics described under a) and b). These are in the main agriculture etc, the oil and gas industries, financial activities and sea water transport.

For agriculture, horticulture, etc, Danmarks Statistik itself produces extremely comprehensive agricultural statistics. Although these do not cover the collection of accounts from agricultural and horticultural holdings, *Statens Jordbrugs- og Fiskeriøkonomiske Institut* produces annual accounting statistics for agriculture etc, and these are used by Danmarks Statistik's Agricultural Division to estimate the value added of agriculture and other national accounts components. The input for national accounts calculations is thus a ready-made national accounts estimate for agriculture etc. based on Danmarks Statistik's calculations of agricultural output, sales, capital formation etc. in combination with accounting statistics from *Statens Jordbrugs- og Fiskeriøkonomiske Institut.*

The national accounts estimate for agriculture etc. is described in Sections 3.7.

The oil and gas industries are very strictly regulated by government. A concession has to be obtained from the central government before there can be any exploration for or extraction of oil and gas in the Danish part of the North Sea. *Energistyrelsen*, the Danish Energy Agency, which comes under the Ministry of the Environment and Energy, monitors all operators and collects extremely comprehensive accounting figures.

The industry includes *Dansk Undergrunds Consortium* (DUC) and other licence holders in this field, plus the activity of the DOPAS company which does not consist of oil or gas exploration. In 1995,

DUC was by far the most important operator, the only one which had production plant. The whole of the industry is covered by these companies. Danmarks Statistik collects extremely detailed accounting information from DUC and any other companies which may start to extract oil and gas, and also uses the accounting information collected by *Energistyrelsen* [the Energy Agency] for those companies which have concessions for parts of the North Sea and which are carrying out oil and gas exploration but do not yet have any production.

Section 3.9 describes the accounting figures for the extraction of oil and natural gas.

Similarly, units in the financial sectors, with the exception of S.124, Financial auxiliaries, are also subject to rigorous public control and regulation. Special legislation, the "accounting orders", details the accounts which these sectors have to submit. This legislation is much more demanding and restrictive than are the provisions of the Annual Accounts Act, which governs the submission of accounts for non-financial corporations. From these accounts, the supervisory authority for financial institutions, *Finanstilsynet*, which is an institution under the Ministry of Economic Affairs, produces accounting statistics which are a particularly good starting point for national accounts, since the coverage is almost 100% and the accounting plan is sufficiently detailed.

Accounting statistics for the financial sectors are described in Section 3.16.

Finally, there are special accounting statistics for transport by sea. Although the accounting plan is very much less detailed than the questionnaire used in the general, questionnaire-based accounting statistics, the focus is on income from both Denmark and the rest of the world and on expenditure in foreign ports. Transport by sea is an important export industry in Denmark, and its export earnings have been the subject of great interest. For the same reason, information on exports and imports of services relating to transport by sea has had to be collected for the balance of payments, and it has been collected via accounting statistics. As from reference year 1999, the accounting plan for statistics on sea water transport will be at least as detailed as the plan for the other industries, to meet the Structural Regulation requirements.

Section 11.1 describes the accounting statistics for sea transport.

Ad e) Accounting statistics for general government

As already mentioned, the Public Finances and Prices division produces the full sequence of national accounts for Sector S.13, general government, including a breakdown of activity by industry based on the DK-NACE.

In the Danish national accounts, there are no market producer units (local kind-of-activity units) in Sector S.13, general government. In all cases where a market local kind-of-activity unit can be identified which is owned/controlled by an institutional unit in general government, it is shown as a quasi-corporation separate from the institutional unit in general government which controls it, and this market unit is transferred to the corporate sector. In cases where a local KAU which is a market producer and which is owned/controlled by public authorities can be identified in Denmark, it will normally also be possible to identify the unit's distributive transactions and financial transactions in the government accounts, where relevant. This, together with the practical advantages of a "pure" sectoral delimitation, was the main reason why Denmark's national accounts always set up quasi-corporations corresponding to government market producer units, whose output value is calculated from their income from sales.

The above convention relating to quasi-corporations in no way rules out, of course, the possibility that there may be market output in producer units belonging to S.13 general government. Many government institutions whose main activity is to supply non-market services and whose *total* output value (non-market plus market) is compiled using the costs approach have some market output, i.e. output for sale where the income from sales covers at least 50% of production costs. The market activity is in these cases such an integral part of the institution's overall activity that it is impossible to pick out the related costs with any degree of certainty, as is necessary if a local kind-of-activity unit (producer unit) producing for the market is to be shown separately. One example of this kind of market activity in non-market producer units in Denmark is the comprehensive services provided by Danmarks Statistik, which enable customers to order special runs of the statistics published or to receive printouts from the business register or other statistical registers against payment of the estimated total unit costs. Another example is sales of cards, posters, etc. by museums, which are classified as non-market producers.

On the other hand, by no means all public sales income comes from sales of goods and services produced for the market. A large share of government sales income comes from education, health and social services, where in most cases the user payments cover much less than 50% of production costs. Examples would be amounts paid by parents to schools or to kindergartens which are nominally private , by residents to care homes which are nominally public or private, or by patients to public hospitals. Such income from sales of non-market products is considered to be user payments which help to cover costs in non-market producer units whose output value is calculated from the costs side, since the *total* sales income from both market and non-market products covers under 50% of the producer unit's costs.

The breakdown of government sales income into a market share and a non-market has no effect on the national accounts, of course, other than providing information on whether income from sales can be considered to have covered more or less than 50% of the costs of producing the product in question as supplied by a producer unit which, in terms of its total activity, is classified as non-market and whose output value is calculated as the sum of its costs. Neither household nor general government final consumption depends on the breakdown of sales income into market and non-market shares, since the transactions recorded are identical in the supply and use tables.

The sources for general government statistics are central government accounts, local government accounts for all the 275 municipalities and 14 counties, accounts for social security funds and accounts for institutions which come under Sector S.13 but whose accounts are not incorporated into the above.

There are two factors which are crucial for the degree of coverage of the general government estimate and the reliability and consistency of the total estimate of GDP/GNI: firstly, that an exhaustive list can be compiled of all (other) government non-market producer units, and secondly that one can be certain that these units do not appear, either in whole or in part, in the value added figures for the market share of the economy. In other words, it is crucial to ensure that the same production activity is included once and once only. This is quite a challenge, since each individual industry in the NACE Rev. 1 can include both market and (other) non-market activity.

The only way in which one can be sure that the estimates for market and for government (other) non-market producers are consistent is to use a systematic coding of all enterprises (firms) and local kind-of-activity units in the business register. In the Danish business register, all units which are classified as government (other) non-market producers are tagged and included in the population of statistics for S.13 general government and nowhere else. In particular, where VAT sales (in terms of legal units)

or, alternatively, employment are used for the grossing up of market activity, the sales in question are VAT sales excluding turnover in government non-market producer units.

Section 11.1 includes documentation on general government statistics.

The table below shows the breakdown of the calculation of the gross value added (GVA) of industries in 1995 divided by the main types of accounting statistics.

Table 3 Gross value added based on various accounting statistics

Accounting statistics	Gross value added based on the source	% of the gross value added of the economy
Questionnaire-based accounting statistics	234 874	27
Tax accounting statistics	208 323	24
Accounting statistics for industries where public corporations predominate	69 582	8
Industry-specific accounting statistics	157 204	18
General government	201 359	23
Total	871 342	100

The table has been compiled on the basis of the national accounts' 130 industries, showing the main source for the calculations for each industry, together with the final adjusted figure for value added. Since the calculations for the initial estimates prior to adjustment are in fact carried out at a much more detailed level, and the calculations for some of the national accounts' 130 industries are based on different sources for the individual underlying DK-NACE industries, the breakdown by source is not totally accurate. It is nevertheless a particularly good approximation of how the intermediate system's value added figures are distributed over the accounting statistics.

The table classifies the primary statistics underlying the calculations for dwellings, the letting of non-residential property and non-profit institutions serving households as specific industry statistics. This is one reason why the specific industry statistics in the table account for a comparatively large share of the economy's total value added.

1.3.2.2 Valuation in accounting statistics, product statistics and the national accounts

According to the ESA 95, output has to be valued at basic prices. This has been the value used in the Danish national accounts since the 1940s, so in this respect nothing has changed for Denmark, which has always thought that the "producer prices" concept in the ESA 79 was inappropriate in the national accounts from the point of view of both producing and analysing statistics.

Danish accounting and product statistics have always asked for turnover in basic prices, partly for national accounts purposes but also simply because Denmark has always considered that this was the price concept which firms could relate to best, since it corresponded to the income which goes into the firm's own till rather than to government coffers. The concept of "net sales" in the Danish legislation on the submission of annual accounts (the Annual Accounts Act) corresponds to the basic price concept, meaning the sales value after deduction of discounts and VAT and other excise duties (and, conversely, the addition of subsidies on products).

In Denmark's case, therefore, there is generally no need for any procedure to switch from observed prices such as producer prices to the ESA 95 concept of basic prices. The sales observed in the sources are generally already at basic prices. In certain cases, government grants are included. These are treated as product subsidies in the national accounts but are not included in the sales of the enterprises concerned, and so have to be added to sales in the accounts to give sales at basic prices. This happens, for example, with injections of capital to make up deficits in public corporations, which in the national accounts are counted as subsidies on products.

1.3.2.3 Periodisation

a) Detailed accounting statistics based on statistical questionnaires

For reference year t, the questionnaire-based part of these statistics covers enterprises whose accounting period closes between 1 May in year t and 30 April in year t+1. When this source is used in the national accounts, the accounting statistics are not periodised, since it may be assumed that the average difference between the accounting period in accounting statistics and the calendar year is insignificant, considering that the statistics include newly established firms which have not been operating for the whole year.

One reason why it is difficult in practice to periodise totally accurately is that, for the estimate of the final national accounts for year t, accounting statistics would need to be available for both year t and the following year t+1. Accurate periodisation can therefore delay compilation of the final national accounts.

b) Less detailed accounting statistics based on standardised tax accounts

Since SLS-E statistics are linked to the tax returns used for income tax payments by individuals and corporations, the periodisation in these accounting statistics complies with the rules in the tax legislation. Income year t thus covers those firms which close their accounts in the period 1 April of year t to 31 March in year t+1. SLS-E statistics for year t will thus include annual accounts which close in a month falling within that time scale.

The average shift away from the calendar year is therefore greater for tax accounting statistics than for the questionnaire-based statistics. On the other hand, calendar year accounts are most often used by small and medium-sized firms, which predominate in those industries where tax accounting statistics are used, and this exerts a pull in the opposite direction. New firms which choose to send in the SLS-E form also counteract the shift in the period delimited as compared with the calendar year. Restructuring within the business world, with its consequent discontinuities, and the fact that the SLS-E figures do not include every firm every year, make it difficult to reperiodise on the basis of successive accounts for identical units. It was therefore decided to use the SLS-E figures without periodisation adjustment, as the best practical approximation to the calendar year. A further practical consideration is the production time for final national accounts, which was discussed in the previous section on questionnaire-based accounting statistics.

c) Accounting statistics for industries where public corporations predominate

The period used for the annual accounts included in the accounting statistics for these industries is in principle delimited in the same way as for the questionnaire-based accounting statistics under a). The vast majority - in terms of both numbers and sales - of those units which are included in these statistics have calendar year accounts.

d) Industry-specific accounting statistics and accounts for large entities

The output value of agricultural statistics is calculated directly on a calendar year basis. The profit and loss accounts underlying the accounting statistics from *Statens Jordbrugs- og Fiskeriøkonomiske Institut* are to a certain extent based on holdings which have a different accounting year, but since it is the accounting ratios and not the absolute cost items from those accounting statistics which are used in Danmarks Statistik's agricultural statistics, for practical purposes production costs are still periodised correctly according to the calendar year.

e) Accounting statistics for general government

The statistical system for general government has the calendar year as the accounting period. The underlying accounts for central and local government and social security funds are all calendar year accounts.

1.3.3 Reasons for the choice of source

In only one area is there any question of a choice of accounting statistics, i.e. between the primary questionnaire-based accounting statistics and accounting statistics based on standardised tax accounts (SLS-E statistics). For 1995, there are three main industry groups which are covered by both sets:

manufacturing, NACE D
construction, NACE F
retail trade, NACE G.

The preferred source in these cases is the (mainly) questionnaire-based accounting statistics, firstly because they operate with a much more detailed accounting plan than the tax accounting statistics and secondly because they include both legal units (firms) and workplaces (local kind-of-activity units) whereas the SLS-E statistics are solely firm-based. As already stated, however, experience shows that estimates of the industries' gross value added based on one source tally very largely with estimates based on the other source, as would be expected.

In reference years from 1995 to 2000, the general questionnaire-based accounting statistics are gradually being extended to cover - in combination with accounting statistics for industries where public corporations predominate - all non-financial industries where market producers predominate, apart from certain personal services. At the same time, the national accounts systems for calculating the industries' value added will gradually replace the basic figures (after error searches) from the SLS-E statistics with basic figures from the general questionnaire-based accounting statistics. In the latter, the SLS-E accounts are used wherever available to cover firms not included in the sample. If manufacturing, construction and retail trade are taken together, firms covered by the SLS-E account for around 22% of turnover in the general questionnaire-based accounting statistics. The SLS-E share of firms is, of course, higher, since all firms with 50 or more employees have questionnaires sent to

them and the sampling fraction becomes smaller as turnover becomes smaller. For the service industries, which were added to the statistics in years 1995-2000, the degree of coverage for questionnaire firms will, of course, be less, and the SLS-E share correspondingly greater, since it is characteristic of these industries that a larger share of total turnover comes from small and medium-sized firms.

Moving on to another topic, namely the basis for grossing up, there is generally a choice between at least three possible grossing variables, namely VAT sales, employment and total wages and salaries.

In the general, (mainly) questionnaire-based accounting statistics, the figures are grossed up on the basis of employment. In the national accounts' own calculation systems based on SLS-E accounts (tax accounting statistics), VAT sales are used as the grossing variable for all industries in which all or most activities are liable for VAT. For VAT-exempt industries and those where activity liable to VAT accounts for only a minor share of output, employment is used instead as the basis for grossing up the figures.

The reason for this choice is that in general there must be expected to be a closer correlation between firms' VAT sales and their output value/value added than between their employment and output value/value added. For the new general accounting statistics (questionnaire-based), VAT sales were not chosen as the basis for grossing up, primarily because it was desirable to be able to calculate firms not covered in the sample using the same calculation method where the grossing variable is concerned as is used for the transition from firms to workplaces. At workplace level, there is generally no information available on turnover, whereas there is in all cases information on employment and total wages and salaries. Of these two, employment is preferred as the grossing variable, since it is assumed to have the stronger link with output value/value added.

It must be emphasised, however, that grossing up on the basis of employment is a recognised statistical method in widespread use in various other EU countries. The fact that the accounting statistics underlying the Danish national accounts will to a significant extent in future be grossed up on the basis of employment cannot therefore be considered a weak point compared with standard practice in this field.

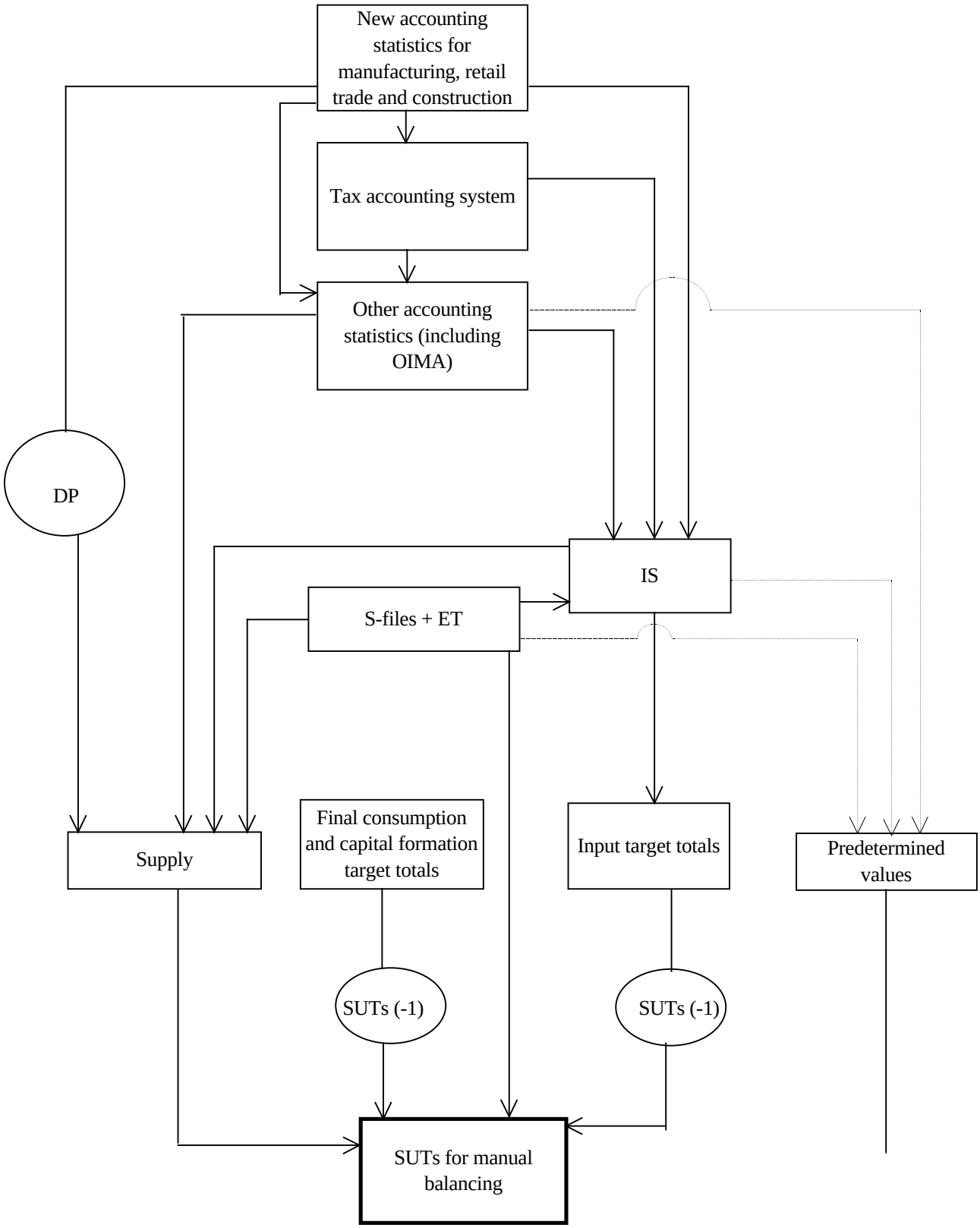
1.3.4 Accounting statistics database - the intermediate system

1.3.4.1 Central database for business accounts

A slightly simplified description of the overall design of the Danish national accounting system based on the ESA 95, which came into use in October 1997, would read as follows: all accounting information on producer units is collected together in a single database with a common accounting plan and with systematic double coding by institutional sector for the institutional unit to which the producer unit belongs and by industry of the producer unit. The industry code is the most detailed six-digit code in Danmarks Statistik's NACE Rev. 1 classification of activities (DK-NACE). This accounting statistics database is referred to as the "intermediate system", since it represents a step between the basic accounting statistics and other primary sources and national accounts estimates conforming to the ESA 95 system of accounts. The intermediate system is the common starting block for the compilation of supply and use tables and industry tables (in Denmark, traditionally known as "the functional national accounts") and the compilation of the production and generation of income accounts for the institutional sectors ("the institutional national accounts"). In the Danish calculation system, these two parts of national accounts form a combined, integrated accounting system which also includes symmetrical industry x industry input-output tables.

Figure 1 shows how the intermediate system fits into the estimate of GDP/GNI. It is a flow chart for the calculation of flows of goods and services in the national accounts, illustrating how information from the intermediate system leads on to the calculation of initial estimates (known as "target totals") for the value added of the industries, i.e. for GDP as calculated using the production approach, which, together with the initial estimates for the final components of demand, and thus GDP from the expenditure side, go into the compilation of the unbalanced functional national accounts. The balancing processgives a balanced set of supply and use tables. For the sake of clarity, the figure does not show the role of the intermediate system [IS, abbreviated to MLS in Danish] in the compilation of the initial estimate for GDP using the income approach. This is described in Section 1.4.5. "SUTs" ["TA" in Danish] are the supply and use tables and "SUTs for manual balancing" are the unadjusted supply and use tables. ET [UH in Danish] stands for external trade statistics divided by product. DP [Danish VF] is the calculation process used for the distribution by product of the output of those industries for which product statistics are available, primarily manufacturing. [OIMA = government non-market activity].

Figure 1 Flow chart for the functional national accounts



1.3.4.2 Systematic double coding of producer units

In all cases where the national accounts accounting systems are based on accounts for individual firms and/or individual kind-of-activity units, they are correlated with the business register, from which the following are taken:

- form of ownership and function code for the legal unit (firm)
- branch code for the firm's main activity
- branch code for the kind-of-activity unit.

Where the national accounts are based on published accounting statistics rather than accounts for individual units, these are in most cases already cross-classified by sector and industry. The sectoral breakdown is usually obvious - for financial institutions, for example, which by definition are included in a subsector of the financial corporations sector. In a few cases, it is based on a distribution key which is then applied to the published statistics. Agriculture is a case in point. The vast majority comes into the households sector, whilst the modest share which has to be attributed to the non-financial corporations sector is estimated from the distribution of agricultural VAT sales by form of ownership, taken from VAT statistics.

1.3.4.3 Common accounting plan and estimate by kind-of-activity unit

In practice, the switch from primary statistics (accounting statistics for the various industries) to the intermediate system is not completed in one go but in two stages, and the intermediate system therefore exists in two versions, one after the first step (intermediate system 1) and the completed version after the second step (intermediate system 2). For the transition from primary accounting statistics to intermediate system 1, there are two important data processing stages:

- the transition to a common accounting plan compiled in line with the concepts of business statistics
- the double coding of all accounting information by industry for the producer units in question (main industry in the case of firms) and institutional sector for firms (with the producer units which belong to them).

The common accounting plan still complies with the concepts of business accounts and not national accounts as in the ESA 95. Thus opening and closing stocks, for example, are compiled according to the principles which apply in business accounts, i.e. typically at historical cost and not, as required by the ESA, at market price (replacement cost) at the time of recording. Similarly, the operating cost items under the category "other external expenditure" include other taxes on production which should not be included in the ESA 95 concept of intermediate consumption, and net insurance premiums (insurance premiums actually paid minus the insurance corporations' payment for insurance services). Conversely, financial intermediation services which are paid for directly* are not included under "other external expenditure" but come under financing costs along with interest expenditure.

With the switch from intermediate system 1 to intermediate system 2, there is also a change from business accounting concepts to national accounts concepts in the database. The principles are the same for all industries, namely that the entries needed to adjust the accounting items in the business accounts are input into the intermediate system under special headings in the accounting plan, so that

* The Danish text almost invariably has the word "betalte" ("paid for") instead of "målte" ("measured"), the word used in the Danish ESA, and the English translation reflects this difference.

the national accounts concepts are obtained by adding/subtracting these correction entries to/from the accounting items compiled in accordance with business accounting principles. There is also a change from firms - or producer units - to producer units/units of homogeneous production. For those industries where accounting statistics are available only in terms of "firm branches", there is therefore a transition to industries defined as an aggregation of local kind-of-activity units (producer units). In certain important cases, there is a further step, a transfer of certain forms of economic activity such as trade, construction and vehicle repairs to homogeneous branches, combining all activity of the kind in question in the economy and not including any other form of activity as secondary output. The accounting plan in the intermediate system is shown in the table below.

Table 4 Accounting plan in intermediate system 2

Text		ANVID	Accounting statistics for manufacturing, construction and retail trade
Resources :			
	Output of originals	1003	----
	Output of the hidden economy	1005	----
	Fringe benefits, output	1007	----
0.1	FISIM, imputed financial services	1008	////
1.3	Manuf. of plant and machinery for own final use	1012	AUER
1.9	*Other net sales of own products*	*1013*	*OMS-HOMS (part of)*
2.	Output for own final consumption	1014	----
	Own-produced software	1015	----
3.1	Sales of goods for resale	1016	HOMS
3.2	Income from licences and royalties	1017	OMS-HOMS (part of)
3.9	*Other and unspecified net sales*	*1018*	----
4.1	Other, secondary operating income	1019	ADR
	Other (services) sales (excl. 1017)	1059	OMS-HOMS (part of)
4.2	Extraordinary income	1060	EOI
4.3	Miscellaneous capital income	1061	----
Uses (inputs) :			
	Intermediate consumption, government non-market activity	2010 2013	---- KENE
5.1	Purchases (consumption) of fuel and power		
5.2	Purchases of processing-to-order work and subcontracts	2014	KLOE
5.9	*Other consumption (purchases) of raw materials*	*2015*	*KRH – (URHB – PRHB) –HKOB*
6.	Consumption of goods for resale	7019	HKOB – (HLUL – HLPR)
7.	Expenditure on rentals, excluding heating	7020	UDHL
8.1	Expenditure on the rental and leasing of machinery	7021	OEEU (part of)
8.2	Expenditure on the rental and leasing of motor vehicles	7022	OEEU (part of)
8.3	Expenditure on the rental and leasing of computer equipment	7023	OEEU (part of)
8.9	*Expenditure on other rental and leasing*	*7024*	*OEEU (part of)*
9.	Expenditure on consumables	7025	UASI
10.	Ordinary losses, irrecoverable debts	7026	OTDE
11.1	Repair and maintenance of buildings	7027	OEEU (part of)
11.2	Repair and maintenance of structures	7028	OEEU (part of)
11.3	Repair and maintenance of transport equipment	7029	OEEU (part of)
11.4	Repair and maintenance of machinery	7030	OEEU (part of)
	Repair and maintenance of buildings and structures	7031	----
	Repair and maintenance of machinery and transport equipment	7032	----
11.9	*Repair and maintenance n.e.c.*	*7035*	----
12.1	Contributions to professional organisations allocated to inputs	7040	OEEU (part of)
12.2	Expenditure on licences and royalties	7041	OEEU (part of)
12.3	Other external expenditure included in inputs	7042	OEEU (part of)
12.9	*Other external expenditure*	*7043*	---
	Government fees as purchases of services	7044	OEEU (part of)
13	Financial intermediation services paid for directly	7050	RUDG (part of)
	Insurance premiums (negative) correction	7055	----
	Correction for gross taxes on leasing	7057	RSUF
	Fringe benefits, IPC correction	7059	----
14.1	Other operating expenditure	7060	SEUD
14.2	Extraordinary expenditure	7061	EOU
14.2	Miscellaneous capital expenditure	7062	----
Indirect taxes:			
17.1	Property taxes	3112	OEEU (part of)
17.2.	Motor vehicle taxes	3113	OEEU (part of)
17.3.	Other taxes on production not linked to products	3114	OEEU (part of)
17.4	Subsidies not linked to products	3115	---

Table 4 Accounting plan in intermediate system 2, continued...

Text		ANVID	Accounting statistics for manufacturing, construction and retail trade
Inventories:			
20.1	Raw materials, opening stocks	5060	PRHB
20.2	Raw materials, closing stocks	6060	URHB
21.1	Goods for resale, wholesale, opening stocks	5061	////
21.2	Goods for resale, wholesale, closing stocks	6061	////
22.1	Goods for resale, retail, opening stocks	5062	HLPR
22.2	Goods for resale, retail, closing stocks	6062	HLUL
23.1	Other goods, opening stocks	5063	////
23.2	Other goods, closing stocks	6063	////
24.1	Finished goods, opening stocks	5065	PVUF + PFFH + PIAF
24.2	Finished goods, closing stocks	6065	UVUF + UFFH + UIAF
25.1	Goods for resale, opening stocks	5066	HLPR
25.2	Goods for resale, closing stocks	6066	HLUL
Changes in inventories (price-adjusted):			
20.3	Stocks of raw materials	2060	DEFL
21.3	Goods for resale, wholesale	2061	DEFL
22.3	Goods for resale, retail	2062	DEFL
23.3	Other goods	2063	DEFL
24.3	Stocks of finished goods	2065	DEFL
25.3	Goods for resale (manufacturing)	2066	DEFL
26.1	Total price adjustment, stocks of raw materials	2098	From MLS 1 to MLS 2
26.2	Total price adjustment, goods for resale	2099	From MLS 1 to MLS 2
Distributive transactions (and tax figures):			
	Compensation of employees, government non-market activity	4010 4013	//// ----
	Fringe benefits as wages/salaries	4015	LGAG
30.1	Wages and employer contributions		
31.2	Pensions expenditure	4016	PUDG
31.9	*Other staffing costs*	4017	AUDG
33.1	Income from holdings	4030	INKI
33.2	Interest etc. on current assets	4031	RIOM
33.9	*Other income in the form of interest or dividends*	4032	RIFA + UDFA
34.	Interest expenditure	4040	RUDG
35.1	Corporation tax (for corporations only, of course)	4041	SSAR
35.1	Corporation tax SLS-E	4042	----
36.	Profit/loss for tax purposes	4043	AARE
37.	Distributed income (dividends)	4044	UDBY
38.	Tax adjustments	4045	----
39.1	Net insurance premiums	4046	OEEU (part of)
39.2	Contributions to fighting funds	4047	OEEU (part of)
Writing off and writing down:			
	Consumption of fixed capital, government non-market activity	5000	////
40.	Writing off and writing down of non-financial fixed assets	5100	ANMI
41.	Writing down of non-financial current assets	5200	NOAK
42.	Writing down of financial assets	5300	NFAO

Table 4 Accounting plan in intermediate system 2, continued...

Text		ANVID	Accounting statistics for manufacturing, construction and retail trade
Capital formation, RESOURCES, purchases of:			
	Own-produced software (= output: 1015)	6101	----
	Purchased software	6102	TIAA (part of)
	Exploratory drilling	6104	----
50.	Intangible assets	6110	TIAA (part of)
51.1	Real estate, existing buildings (including land value)	6121	KEB
51.2	Real estate, unbuilt land	6122	KUBG
51.3	Real estate, expenditure on construction, new buildings (excluding land value)	6123	OPNY
51.4	Real estate, rebuilding, improvement of buildings and installations	6124	OFBB
51.5	Real estate, new layout and rebuilding of roads, harbours, etc.	6125	VHPK
51.6	Breeding stock	6127	////
51.9	*Other real estate*	*6126*	////
52.1	Operating resources, plant and machinery	6131	----
53.1	Operating resources, transport equipment, vehicles	6132	----
53.2	*Operating resources, other transport equipment*	*6133*	----
54.1	*Other operating resources*	*6134*	*DTAM + TAAD*
55.	Net acquisitions of valuables	2055	----
Capital formation, USES, sales of:			
	Disposals of software	6202	AIAA (part of)
60.	Intangible assets	6210	AIAA (part of)
61.1	Real estate, existing buildings (including land value)	6221	SABY
61.2	Real estate, unbuilt land	6222	SUBG
61.3	Real estate, roads, harbours, squares, etc.	6223	SVHP
61.4	Breeding stock	6227	////
61.9	*Other real estate*	*6226*	----
62.1	Operating resources, plant and machinery	6231	----
63.1	Operating resources, transport equipment, vehicles	6232	----
63.2	*Operating resources, other transport equipment*	*6233*	----
64.1	*Other operating resources*	*6234*	*STAM + SADI*
Balancing items (including inventories) ASSETS:			
70.	Intangible fixed assets	8110	IAAT
71.1	Land and buildings	8120	GRBY
71.2	Technical plant and machinery	8121	ATAM
71.3	Other structures, working plant and equipment	8122	AADI
71.9	*Other tangible fixed assets (e.g. advance payments)*	*8129*	*FMAA*
72.	Financial fixed assets	8130	ABAE + ABOA + FAAT + TILG
73.1	Opening stocks	8141	POAT
73.2	Closing stocks	8142	UOAT
Balancing items, LIABILITIES:			
81.	Own funds	8210	EGUL
82.	Provisions	8220	HENS
83.	Long-term debt	8230	AGL + LGL
84.	Short-term liabilities	8240	AKG + KGL
73.9	*Other current assets*	*8149*	*ANTI + LIBE + OBAE + OBAV + OMAT + TGT + TSVT + UFKV + VKT*

Key:

//// indicates that the item is not relevant for manufacturing, construction and retail trade - or, for "other groups", that it is fully covered in the other items included in the main group.

---- indicates that no breakdown is possible in the statistics for manufacturing.

Sources:

- AUER, OMS, HOMS etc. are the variable names in the questionnaire-based accounting statistics, which for the year 1995 cover manufacturing, construction and retail trade.
- OEEU = other external expenditure divided by ANVID [identity code for use] on the basis of the survey of costs.
- DEFL = Deflation division.

The items in italics are residual or aggregate items, to which accounting items from business accounts are transferred if the information for a breakdown in line with the detailed accounting plan is not available. If, for example, a particular set of business accounts gives information on total expenditure on repair and maintenance only, with no breakdown into buildings, structures, machinery or transport equipment, the accounting item is transferred to the italicised aggregate item in the intermediate system *Repair and maintenance n.e.c*. The far right-hand column shows the connection between the accounting plan in the questionnaire for the questionnaire-based accounting statistics and the intermediate system. In these statistics, there is an accounting item referred to as "other external expenditure". This is divided up with the help of the results from the "costs survey", which is a costs structure survey relating to the composition of this item, last carried out for the year 1992.

A corresponding connection between the intermediate system accounting plan and the accounting plan in the primary accounting statistics is defined for all other accounting statistics. In particular, there is a corresponding key for the transition from the SLS-E tax accounting form to the accounting plan in the intermediate system. Since the SLS-E accounting plan as from 1990 is at a relatively high level of aggregation, the item "other fixed costs in cash" is here split on the basis of the more detailed accounting plan in force until 1990.

1.3.4.4 Method of ensuring consistency

Firms (institutional units) are converted to kind-of-activity units as follows: firstly, for those accounting statistics which include figures in terms of kind-of-activity units, a list is made of the KAUs which belong to firms *not included* in the industries covered by the statistics in question. The accounting items in these kind-of-activity units are then subtracted from the accounts for those firms in another group of industries to which they belong, to ensure that the production activity in these KAUs is included once and once only, i.e. it is neither excluded nor double-counted. This consistency is vital in a statistical system for producer units where the statistical unit is not the institutional unit (firm), but a unit which is more uniform from the point of view of production technology, the "producer unit" (local kind-of-activity unit) required by paragraph 2.108 of the ESA 95. The national accounts processing of accounting statistics ignores the geographical aspect: all local kind-of-activity units in a given industry belonging to one and the same firm are aggregated to a single KAU. With the switch to these KAUs, there is a systematic guarantee of compliance with the restrictions on totals which necessarily apply to firms and KAUs, i.e. the turnover in a given firm, for example, is identical with the total turnover in the individual KAUs which belong to the firm, and ditto for production costs. The subsequent compilation of regional accounts uses the information on the geographical location of the producer units included in the relevant accounting statistics, VAT statistics and establishment-related employment statistics (ERE)*. But the compilation of regional accounts is not discussed in greater detail below, since it is not relevant to GNI.

An example may be given to illustrate the above. Let us assume that a wholesale firm has manufacturing activity. The local kind-of-activity unit in which the production activity takes place is covered by the questionnaire-based accounting statistics for manufacturing, the statistical unit for which is the local kind-of-activity unit. However, accounting statistics for wholesale trade have the firm as the statistical unit, so the output and production costs linked to the manufacturing activity are also included in the accounting items for the wholesale firm.

If there is no "clearing" of the two sets of accounting statistics, the activity in the industrial department of the wholesale firm will be included twice over. "Clearing" is carried out as follows:

* EBS in Danish. Please see Section 1.4.2.

item by item, the values in the manufacturing unit's accounts are subtracted from the firm's accounts for wholesale trade.

If the manufacturing activity in question is the only secondary activity in the wholesale firm, the firm's account is then also an account for a unit of homogeneous production, namely a KAU in wholesale trade.

The above example assumes that information is available on all accounting items for the KAU which constitutes the secondary activity in a firm. In practice, this is by no means always the case, and for this reason in many cases either production costs or both turnover and production costs have to be estimated from information on total wages and salaries divided by firm and KAU, for example. The relatively extensive calculation for the transition from accounts in terms of firms to accounts for kind-of-activity units is described in Section 3.3.2.2.

1.3.4.5 Uniform principles for the transition from business accounting concepts to national accounts concepts

There are various items which are dealt with very differently in the business accounts from the way in which they are treated in national accounts. In most cases, there are good reasons for the difference, depending on the purposes which the two accounting systems are intended to serve. Business accounts are intended first and foremost to give an accurate picture of an enterprise's operating profit, i.e. the maximum amount which the owners could draw on for consumption in a given situation, without affecting the value of the enterprise's assets and liabilities (and thus its equity), and without breaking into that equity, whereas the national accounts estimate of GDP aims to measure the total volume of goods and services produced on the economic territory and available for final uses either on that territory or in other countries.

Take, for example, the treatment of provisions for bad debt. Whereas in business accounts it is natural to consider such provisions as part of the ordinary operations of the enterprise, since they are deducted from the amount the owners could withdraw from the enterprise without breaking into its equity, and consequently to count them as being on a par with other production costs, this is not the case in the national accounts. After all, those goods and services for the supply of which there is an unpaid debt which may never be collected have not disappeared from the economy. They have been added to the products circulating in the economy in the same way as all those products for which payment has been made as agreed, and they are counted as such by the purchasers.

Similarly, insurance premiums and claims are viewed differently by the owner of a business and by macroeconomists. From the point of view of the individual owner, insurance premiums are current or ordinary expenditure which has to be deducted from the maximum amount which it is possible to draw from the business, and they therefore have to be treated in the same way as all the other current operating/production costs. Any damage which may occur is, on the other hand, extraordinary, and therefore any expenditure or loss incurred as a result of this damage has to be counted as extraordinary expenditure and the associated claims as extraordinary income. But from the macroeconomic point of view, damage covered by insurance and claims under that insurance are not something which affects the volume of goods and services available for final uses as a result of the production process. Only that share of the insurance premium which constitutes payment for the insurance corporation's administration services can lay claim to part of the output of goods and services during the period in question and should thus be counted as intermediate consumption.

In at least one important point there is no satisfactory explanation for the difference between the principles of business accounts and national accounts, and that is the estimate of inventories and

changes in inventories. In this case, applying the national accounts principles to business accounts would clearly result in a more accurate picture of the enterprises' actual earnings compared with the amounts which the owners could possibly "take home" as a surplus than the normal treatment in business accounts, where inventories are typically compiled at historic cost. There seems to be no rational economic reason for business accounting practice here: rather, it reflects the practical difficulties of making what is, from the owners' point of view, the most meaningful estimate in economic terms.

The points where the accounting items in the Danish business accounts have to be corrected for definitional differences between those accounts and the ESA 95 are the following:

1) "small purchases" (consumables)
2) the running of canteens
3) the fighting funds of trade organisations
4) losses on irrecoverable debts
5) price adjustment for changes in inventories, output and intermediate consumption
6) net insurance premiums and supplementary premiums
7) financial intermediation services paid for directly
8) other taxes (subsidies) on production
9) purchased software
10) own-produced software
11) financial leasing
12) fees to public authorities
13) licences and royalties
14) entertainment, literary and artistic originals.

Section 3.3 gives further details of the individual adjustments for the changeover from business accounting to national accounts concepts.

1.3.5 Independence of other methods of estimating GDP

Since the estimate of GDP from the output side was the first in Denmark to be complete, it is natural to discuss how independent the estimates from the income and expenditure sides are in the relevant sections of this paper.

One general point can be made here, namely that there are certain areas of national accounts where, by definition, the estimates based on the three different approaches have to use exactly the same sources and methods, viz. all those values which do not have a counterpart in observed market transactions but are imputed on the basis of certain conventions laid down in the ESA 95. These are, primarily, (other) non-market output, which in Denmark's case accounts for around 25% of GDP, and output of goods and services for own use. The latter include in practice the imputed rental value of owner-occupied dwellings, which is a major item, accounting for around 6% of Denmark's GDP.

The issue of the independence of the GDP calculations by the three different approaches therefore applies in Denmark's case by definition to just under 70% of GDP.

1.3.6 Direct versus indirect methods of estimation

A direct estimate of value added in a given industry is understood to mean that, on the basis of exhaustive accounting statistics for the industry in question, output value and intermediate

consumption, and thus value added, can be obtained via the statistical processing of the underlying business accounts.

The national accounts use indirect estimates of the value added of industries if accounting statistics are not available. The critical factor is usually the estimate of intermediate consumption, since a reasonably reliable estimate of sales in the various industries is usually available from the VAT system, for example. An indirect estimate of the value added of a given industry may, for example, consist in calculating the industry's output value as x % of its sales (using firms as the statistical unit), where x is based on hypotheses or historical information about the ratio of sales values in the kind-of-activity units in the industry to firm-based VAT sales. Note that VAT sales include, *inter alia*, sales of used capital goods which should not be included in the estimate of output value.

In the previous Danish national accounts system, which was replaced by the present one in 1997, these indirect calculations were used fairly widely, since up to the reference year 1987 there were no accounting statistics in Denmark which covered all the industries in the economy. Coverage of market services was particularly poor.

In the Danish national accounts published after 1997, the situation is very much better. With a single exception, the value added of all industries is calculated from a direct estimate of output value and intermediate consumption in business accounts.

There is an indirect estimate of value added only for NR [national accounts] industry 702040, the letting of non-residential buildings etc, where output value is calculated from the expenditure side as the sum of the rental expenditure of all other industries and where intermediate consumption is calculated using the input percentage (intermediate consumption/output value) for the letting of dwellings (i.e. actual letting) in industry 702009, dwellings, for want of satisfactory accounting information on the letting of non-residential buildings. Since the two activities are closely related, the uncertainty arising from the calculation of value added is assumed to be minor.

The share of gross value added estimated by direct as opposed to indirect methods can be seen in the following table.

Table 5 Share of gross value added, direct versus indirect methods of estimation

Method of estimation	Gross value added, DKK mill.	%
Direct estimation	853 239	98
Indirect estimation	18 103	2
Total	871 342	100

1.3.7 Direct estimates of levels as opposed to extrapolations

"Direct estimates of levels" is understood to mean estimates of the value added of industries where the level of both output value and intermediate consumption is calculated each year as a level on the basis of accounting statistics or via an indirect calculation, cf. Section 1.3.6. "Extrapolations" are taken to be estimates where output value and intermediate consumption are calculated directly as levels for a benchmark year, whilst estimates for the current years are obtained by extrapolating output and intermediate consumption from the benchmark year using appropriate indicators. A more uncertain method of extrapolation consists in assuming a constant ratio (input percentage) of intermediate consumption to output value in either current or (better) fixed prices and projecting output value, intermediate consumption and implicit value added using a single indicator.

In the final Danish national accounts, virtually all value added is based on current-year estimates produced directly as levels. In the final calculations, extrapolationsare used in only three areas:

1) housing (dwellings)
2) a minor share of value added in NPISHs
3) the allowance for underreporting etc. and for hidden activity ["work in the black economy"].

Housing is an extremely important industry for the whole of the economy. In this area, very detailed benchmark calculations are carried out every fourth year in connection with the large-scale rental surveys - cf. description of the benchmark calculations in Section 3.17. The figures are projected only within the four-year intervals. The practice in other countries is similar, though in many cases there will be ten years between the calculations of levels, depending on the periodicity of population and housing censuses.

As regards the second point, i.e. non-profit institutions serving households, by far the largest share of value added, namely total wages and salaries, is calculated as a level every year, whilst extrapolations are used only for the minor components, i.e. capital consumption and other taxes less subsidies on production.

Moving on to the third point, Denmark, like other countries, has neither the statistical sources nor resources to produce a new estimate of the hidden economy every year. In most cases, it has been decided to use a benchmark which is then projected. In Denmark's case, the benchmark for the estimate of underreporting is based on observations in years 1992-1994, whilst the level for work in the hidden economy is based on observations connected with the 1992 harmonised labour force surveys. The method then consists of extrapolating output value and value added linked to the black economy by assuming for each "product" in that economy that the changes run in parallel with domestic output in the corresponding "legitimate" product balance. For example, the major item "work in the black economy connected with building repairs" is assumed to move in parallel with "legitimate" building repairs, i.e. building repairs complying with current legislation on taxes and contributions to social security schemes. The same assumption is made in the case of underreporting in the restaurant industry, which is assumed to move in parallel with legitimate turnover in the industry. This method of projection is equivalent to using constant correction percentages at the most detailed level in the calculations. The levels for the hidden economy are determined at 5- to 10-year intervals, but adjustments for fringe benefits are estimated directly in terms of levels each year, since in most cases the underlying sources are available on an annual basis. The levels for the hidden economy were thus last revised in the final national accounts for 1997 and 1998 in the light of new interview surveys of the extent of hidden activity.

Value added in the non-market activity of non-profit institutions serving households (NPISHs) is calculated using extrapolations for the (minor) part which consists of other taxes on production and consumption of fixed capital. These value added components are calculated as constant percentages of the compensation of employees. This latter, which accounts for the major share of value added, is calculated directly in terms of levels each year on the basis of a particularly reliable statistical source, namely the estimate of total wages and salaries divided by legal units and workplaces.

In conclusion, GDP as calculated using the production approach in the Danish national accounts for the final years is extrapolated from a benchmark only to a very limited extent. The situation is, of course, very different with the provisional years and quarterly national accounts, which to a large extent are based on projections from the latest final year.

Table 6 Share of gross value added estimated in terms of levels as opposed to being projected

Method of estimation	Gross value added, DKK mill.	%
Annual estimates, levels	784 982	90.1
Projected from benchmark	86 360	9.9
Total	871 342	100

1.3.8 Most important initiatives to provide exhaustive coverage

The main initiative aimed at ensuring that coverage is exhaustive consists primarily of the extremely important work being carried out to ensure that the business register is updated to include new producer units. This work is made easier by the fact that the threshold values in the VAT and tax systems are extremely low, so that all regular economic activity, apart from that which counts as a hobby and is insignificant, currently has to be registered in a public administrative register which is the feedstock for the business register. It is difficult to overstate the importance of this rapid register updating for the quality and degree of coverage of the national accounts . It is estimated that all regular economic activity, apart from that which is in the form of a hobby and is insignificant, is captured via use of the business register. As regards employees in private households, who, by their very nature, are very seldom included in the business register, by far the largest share of this activity is in the hidden economy, and all such activity is estimated via a special calculation not based on the business register.

Fringe benefits and irregular economic activity such as underreporting and hidden activity are covered by corrections which are explicit wherever possible. These are based on the principles of Commission Decision 94/168/EC, Euratom, the "exhaustiveness decision", in compliance with which the Danish national accounts do not include production activity which in itself is illegal.

1.3.9 From the intermediate system to the target total module

1.3.9.1 Functional target total module

1.3.9.1.1 Functional target totals

The plan of accounts in the intermediate system, to which all accounting information on producer units is transferred after the national accounts calculation, can be seen in Table 4, which has already been discussed.

The statistical units are normally kind-of-activity units, but in a few cases they are units of homogeneous production, i.e. artificial units which do not have any secondary output but where the whole of the output value consists of the product which is characteristic of the industry. The accounting items for institutional units are recorded at firm level only (sectors) and not at industry level.

The accounting items in the intermediate system which correspond to the transactions in the reduced ESA 95 accounting plan for producer units are traditionally known in Denmark as the "functional part" of national accounts, i.e. that part which is concerned with production and imports plus uses of goods and services. By combining all accounting items in those transaction categories which correspond to classifications of transactions etc. in the ESA 95 - in other words, the ESA 95 coding of the accounting items in the intermediate system - we obtain initial estimates for the output value, intermediate consumption and thus value added of the industries. This data set is the final result prior to the balancing of the estimate of GDP by the production approach. It is known as the "target total module", target totals being the values for output, intermediate consumption, other taxes less subsidies on production and the compensation of employees divided by industry which we aim to "hit", with the proviso that supplies and uses of products have to balance both overall and at individual product level and that the balanced result has to take account of the corresponding initial expenditure-based estimates for the individual categories of final uses and income-based estimates for the individual income categories.

Table 7 below shows the transition from the intermediate system to the functional target total module.

Table 7 National accounts target totals - functional system...

ANVID	National accounts concept/ANVID	Definition/comment		
1010	Domestic turnover			Output of originals
	= 1003+1005+1007+{1008}	+		Hidden economy output
	+ 1012+*1013*+1014+1015	+		Fringe benefits, output
	+ 1016-7019+1017+1018	+	{0.1	FISIM (financial industries only)}
	+ 1019 (part of) +1059 +2099	+	1.3	Manufacture of plant and machinery for own use
		+	1.9	Other net sales, own products
		+	2.	Output for own consumption
		+		Own output of software
		+		Sales of goods for resale
		-		Consumption of goods for resale
		+	3.2	Licence income
		+	4.1	Other secondary operating income (part of) [1]
		+	26.2	Total price correction, goods for resale
	Output value [2]		**1010**	
	= **1010 + 2065**	+	24.3	Increases in inventories, finished goods
1020 *	Imports of goods and services			
1021 *	Customs			
1022 *	Temporary import duty		(Oct. 1971 - March 1973)	
1023 *	Agricultural import duties		EAGGF	
2010	Intermediate consumption		**2011+2012+2020+2021+2022+2023+2024**	
2011	Input, ex. R+M and IPC	+	5.1	Purchases (consumption) of fuel and power
	+ 2013+2014+2015			
	+ 7025 (part of)	+	5.2	Purchases of processing to order
	- 2098	+	5.9	Other consumption of raw materials
		+	9.	Expenditure on consumables (part of) [3]
		-	26.1	Total price correction, stocks of raw materials
2012	Indirect production costs =		12.1	Contributions to professional organisations included in inputs
	+ 7040 + 7041 + 7042 + 7044			
	+ 7050 + 7055 + 7059	+		Expenditure on licences and royalties
		+	12.3	Other external expenditure included in inputs
		+		Public fees as purchases of services
		+	13.	Financial intermediation services paid for directly
		+		Insurance premiums, (negative) correction
		+		Fringe benefits, IPC correction
2020	Rentals excluding heating		7.	Expenditure on rentals, excl. heating
	= 7020			
2021	Renting and leasing of machinery and transport equipment etc.		8.1	Renting and leasing of machinery
		+	8.2	Renting and leasing of transport equip.
	= 7021 + 7022 + 7023	+	8.3	Renting and leasing of computer equip.
	+ 7024 + 7057	+	8.9	Other expenditure on renting and leasing
		+		Adjustment for gross leasing taxes
2023	R+M of buildings and structures		11.1	Rep. and maintenance of buildings
	= 7027 + 7028 + 7031	+	11.2	Rep. and maintenance of structures
		+		Rep. and maintenance of buildings and structures
2024	R+M of transport equip. and machinery		11.3	Rep. and main. of transport equip.
		+	11.4	Rep. and maintenance of machinery
	= 7029 + 7030 + 7032 + 7035	+		Rep. and maintenance of machinery of transport equipment
		+	11.9	R+M n.e.c.

Table 7 National accounts target totals - functional system, cont. ...

ANVID	National accounts concept/ANVID	Definition/comment
2025	FISIM	Relevant only if it is agreed that FISIM is to be broken down by branch
2030 *	Private consumption	
2031 *	Consumption, PNPIs	
2041 *	Public individual consumption, market output	
2042 *	Public individual consumption, non-market output	
2043 *	Public collective consumption	
2050	Capital formation, machinery and equipment = 6131 - 6231 + 7025 (part of)	52.1 Purchases of machinery and equipment - 62.1 Sales of machinery and equipment + 9. Expenditure on consumables (part of) [3)]
2052	Capital formation, transport equip. = 6132 + 6133 - 6232 – 6233	52.2 Purchases of transport equip., excl. cars + 52.3 Purchases of cars - 62.2 Sale of transport equip, excl. cars - 62.3 Sale of cars
2053	**Capital formation, buildings and structures:** - Capital formation, housing (BRCH=01000)	
	- Other buildings (BRCH = 02000) = 6123 + 6124 - 6221 + 6126 – 6226	51.3 Construction expenditure, new buildings + 51.4 Rebuilding, building improvements, etc. - 61.1 Sales of buildings + *51.9 Purchases of other real estate* - *61.9 Sales of other real estate*
	- Structures (BRCH = 03000) = 125	51.5 Construction of new roads, harbours, etc.
2054	Capital formation, breeding stock = 6127 – 6227	51.6 Purchases of breeding stock - 61.4 Sales of breeding stock (relevant for agriculture only)
2055	Net purchases of valuables	55. Net purchases of valuables
2056	Purchases and software developed in-house = 6101 + 6102 – 6202	Own-produced software + Purchased software - Disposals of software
2057	Entertainment, cultural and artistic originals = 6110 (part) - 6210 (part)	Original works produced for own account and acquired - Disposals of intangible assets, n.e.c. and unspecified
2058	Exploratory drilling = 6104	Exploratory drilling
2060	Increases in inventories, raw materials = 2060	20.3 Inventories of raw materials
2061	Increases in inventories, wholesaling = 2061 + 2066	**2066** + 21.3 Goods for resale, wholesale
2062	Increases in inventories, retailing = 2062	22.3 Goods for resale, retail
2063	Increases in inventories, other goods = 2063	23.3 Other goods
2064 *	Increases in inventories, special goods = 2064	
2065	Increases in inventories, finished goods = 2065	24.4 Finished goods (manufacturing only)
2066	Increases in inventories, goods for resale = 2066	25.3 Goods for resale, manufacturing (transferred to wholesale trade)

Table 7 National accounts target totals - functional system, cont. ...

ANVID	National accounts concept/ANVID	Definition/comment
2080 *	Exports of goods and services	**2081 + 2082**
2081 *	Danish-produced exports	
2082 *	Re-exports	
30xx *	VAT	
34xx *	Taxes linked to goods	(xx = last 2 digits in ANVID 20xx, but not 2040)
35xx *	Subsidies linked to goods	(xx = last 2 digits in ANVID 20xx, but not 2040)
36xx *	Taxes linked to goods, net	34xx - 35xx
The ANVID below are not included at national accounts number level:		
3110 *	Taxes not linked to goods	
3210 *	Subsidies not linked to goods	
3310 *	Taxes not linked to goods, net	3110 – 3210
4010 *	Wages/salaries and employer contributions, etc. = 4013 + 4015 + 4016 + 4017	Fringe benefits as wages/salaries 30. Wages/salaries and employer contributions + 31. Expenditure on pensions + 32. Expenditure on social security
4110 *	Employees	
4210 *	Self-employed, etc.	Self-employed and assisting spouses
4310 *	Total employment	4110 + 4210
5000 *	Fixed capital consumption	

Notes :

* Indicates that data are not derived from the intermediate system.

1) Represents the running of canteens, which for purely practical reasons is calculated as a percentage of wages (4010), which is then deducted from 1019.
2) For branches other than manufacturing, output value =1010
3) This item is split into input and capital formation shares, as documented in note HREV/94041: *Udskillelse af forbrug i produktionen fra regnskabsposten småanskaffelser [Separating intermediate consumption from the "consumables" accounting item]*.

1.3.9.1.2 Output

As Table 7 shows, output is calculated in the target total module [Danish abbreviation MTM] for each of the most detailed six-digit industries in Danmarks Statistik's classification of activities (which is based on the NACE Rev. 1) by summing the following items from the intermediate system or the MTM itself, where the figures in parentheses show the supply/use codes (ANVID) given in Tables 4 and 7:

Output (1015) = domestic turnover (1010) + increases in inventories of finished goods (2065)

Domestic turnover (1010) = output of originals (1003) + hidden economy output (1005) + fringe benefits, output (1007) + FISIM (1008) + manufacture of plant and machinery for own use (1012) + other net sales of own products (1013) + output for own consumption (1014) + own output of software (1015) + sales of goods for resale (1016) – consumption of goods for resale (7019) + income from licences and royalties (1017) + other and unspecified net sales (1018) + (part of) other, secondary operating income (1019) + other (services) sales (1059) + total price correction, goods for resale (2099) .

"Domestic turnover" means *total* turnover from resident producer units, including exports. The term "domestic" denotes that sales from foreign branches of the institutional units (firms) underlying the calculation are not included. These foreign branches, i.e. departments in the rest of the world which do not have the status of independent legal units (companies/corporations), are considered in the national accounts to be producer units based in the rest of the world whose output and value added are recorded in the rest of the world. They are considered as notional institutional units (notional resident

units), resident in other countries, i.e. as quasi-corporations, which in principle have autonomy of decision-making and complete accounts down to the closing balance.

The item "increases in inventories, finished goods" (2065) also includes products currently being processed.

For each of the 130 industries in the national accounts classification of industries, output value is ascertained as the sum of the detailed six-digit industries in DB93 which are included in the individual national accounts industries.

Output value is distributed over the individual product balances (some 2 750 of them) as follows:

A. Industries covered by product statistics
These are agriculture, hunting and forestry (NACE A), fishing (NACE B), part of mining and quarrying (NACE C), namely CA, the mining and quarrying of energy-producing materials, manufacturing (D), electricity, gas and water supply (E), the motor vehicle branches (NACE 50) within NACE G, wholesale and retail trade and repairs, individual branches within business activities (NACE K), namely 721009 "data processing activity other than supply of software etc." and 722000 "software consultancy and supply" plus the COFOG breakdown of the output value of government non-market activity.

For agriculture and hunting, the national accounts estimate of output value is available directly in a breakdown into 18 products. Forestry is also covered by the Agriculture division's estimate of value added in agriculture etc., but since coverage in the form of profit and loss accounts is considerably less comprehensive than for agriculture proper, and since forestry is covered by the general accounting statistics based on standardised tax accounts, it was decided to let tax accounts be the key source for value added in the industry. In addition, NACE 02.02, forestry-related services, is covered not by the Agriculture division's estimate but by the general accounting statistics based on tax accounts.

The agricultural statistics estimates of the output value of forestry divided into various kinds of wood are used is used solely to divide by product the output value which is calculated from the tax accounting statistics system.

For fishing, there is a very detailed calculation of the landings of Danish fishermen in Danish and foreign ports, divided by kind of fish. The output value calculated from general accounting statistics based on standardised tax accounts is divided by product on the basis of statistics on catches landed. The output value calculated from accounting statistics is generally much higher than the value of catches landed, which is obtained by multiplying quantities landed by the average prices according to the fish market price lists. One possible explanation of this is the failure to record some of the quantities landed, as one way of getting round fish quotas.

For the extraction of energy-producing materials, output value is calculated directly for two products, crude oil and natural gas. There are no coal mines or uranium mining in Denmark.

For manufacturing, there are enormously detailed product statistics ("industrial commodity statistics", Danish abbreviation VS) covering around 10 000 goods. Compiled on a quarterly basis, they cover all kind-of-activity units within manufacturing which have 10 or more employees, i.e. the great majority of manufacturing enterprises. For each industry at the most detailed branch level (332 branches in manufacturing), output value is initially divided by product in proportion to the

distribution of goods in the same branches in the industrial commodity statistics. In certain cases, special distribution keys characteristic of small enterprises in the industries in question are used.

The product classification in the industrial commodity statistics is the Combined Nomenclature (CN), which is also used in external trade statistics. It is vitally important to have the same classification of goods for domestic industrial output statistics and for external trade statistics if the national accounts are to be constructed around supply and use tables, because this what makes it possible to compare supplies and uses consistently at a reasonably detailed level. Historically, the Danish national accounts have been particularly fortunate in this respect in that since the 1950s the same classification of goods has been used in industrial output statistics and in external trade statistics.

For supplies of electricity, gas, district heating and water, the accounts (or accounting statistics for the supply enterprises) break down sales covering more than one product, but this applies solely to power stations with combined electricity and district heating production. In other cases, there is a one-to-one link between industries and products.

For NACE 50, trade in motor vehicles etc., repair and maintenance of motor vehicles and service stations, there is a breakdown by product which, *inter alia*, is the key factor enabling the value of motor repairs, which occur in various of these NACE industries, to be calculated correctly.

Finally, for the IT branches, NACE 72 (six detailed six-digit branches) there are annual product statistics which are used for the distribution of the branches' sales.

The manufacturing industry NACE 320000, "Manufacture of radio, television and communication equipment and apparatus" may be used as an example of how output value and its distribution by product are calculated for an industry covered by product statistics. In the national accounts intermediate system and in the target total module, there are calculations for the industry at the detailed DK-NACE industry level. The national accounts industry "Manufacture of radio, television and communication equipment and apparatus" covers seven of the detailed DK-NACE industries. For each of these industries, the intermediate system calculates a) turnover and output for own use and b) changes in inventories of finished goods and products currently under processing. These two sets of figures together constitute output.

Table 8 Estimate of output in 320000, manufacture of radio, television and communication equipment and apparatus, DKK million

DK-NACE	Text	Sales, etc.	Changes in inventories, finished goods	Output
321010	Manufacture of printed circuits etc.	1 067	6	1 073
321090	Manufacture of semi-conductor devices, etc.	676	48	724
322010	Manufacture of apparatus for radio-telephony etc.	1 201	12	1 213
322020	Manufacture of telephone sets etc.	1 548	16	1 564
323010	Manufacture of radio and television receivers etc.	2 278	54	2 332
323020	Manufacture of loudspeakers etc.	1 013	7	1 020
323030	Manufacture of aerials etc.	970	4	
320000		**8 752**	**147**	**8 899**

Table 9 Distribution by product of output from the manufacture of radio, television and communication equipment and apparatus

National accounts product number	**Text**	**Output (DKK million)**
F711000	Fringe benefits, free car	8.8
K320000	Own plant and machinery, telecommunications equipment etc.	39.2
K722000	Own-produced software	17.7
L320000	Processing to order, telecommunications equip. etc.	204.7
M320000	Repair and maintenance of telecommunications equipment etc.	347.3
T150037	Output of services, manufacturing	286.9
V392301	Cases, articles for the packaging of goods of plastic	1.4
V392403	Household and toilet articles of plastic	0.8
V392601	Office, school supplies of plastic	0.1
V392605	Mountings, decorative objects of plastic	0.1
V490105	Books, including booklets	1.0
V491101	Printed matter, advertisements, sensitised paper	0.2
V720401	Waste and scrap of iron and steel	0.5
V730807	Iron and steel structures n.e.c.	3.3
V732601	Goods of iron and steel n.e.c.	5.1
V740400	Waste and scrap of copper	0.0
V741200	Pipe fittings of copper	60.8
V760200	Waste and scrap of aluminium	0.3
V830201	Mountings, fittings and the like	7.1
V831000	Sign-plates, name-plates and the like	0.7
V842205	Machines for the washing, closing etc. of bottles	1.0
V842803	Elevators and conveyers	76.8
V843815	Parts for machinery for the handling of food and drink	2.0
V847303	Parts for automatic data processing machinery	0.1
V848003	Moulds for rubber and plastic	0.3
V848503	Parts for machinery with no electric parts	3.5

Table 9 Distribution of output from ..... continued

V850401	Ballasts for discharge lamps or tubes	9.3
V850403	Liquid dielectric transformers	0.0
V850407	Parts for static converters	3.6
V850705	Accumulators, but not lead-acid accumulators	2.4
V851501	Soldering irons and guns, plasma arc machinery, etc.	4.1
V851619	Parts for electrical household appliances	1.7
V851701	Telephone sets	539.9
V851705	Telephonic or telegraphic switching apparatus	51.2
V851707	Apparatus for carrier-current line systems	67.0
V851709	Electrical apparatus for telegraphy	36.2
V851711	Parts for line telephony, line telegraphy	487.0
V851803	Loudspeakers	1 172.0
V851807	Electric sound amplifiers	30.0
V851809	Parts for microphones, loudspeakers, etc.	102.0
V851903	Record-players	4.0
V851907	CD players and the like	11.2
V852000	Tape recorders, telephone answering machines, etc.	37.2
V852200	Pick-ups, parts for items 85.19-85.21	79.1
V852413	Other recorded media	5.0
V852501	Transmission apparatus and transmission-reception apparatus	923.2
V852503	Television cameras	5.1
V852600	Radar apparatus, radio remote control apparatus, etc.	0.3
V852705	Receivers with external sources of power	474.7
V852707	Receivers n.e.c.	60.9
V852801	TV receivers, including with video and the like	744.2
V852900	Aerials, parts for items 85.25-85.28	1 126.4
V853003	Parts for traffic control equipment	0.1
V853101	Signalling apparatus n.e.c.	34.0
V853201	Electrical capacitors	97.0
V853301	Fixed resistors	21.3
V853303	Variable resistors	16.1
V853400	Printed circuits	782.8
V853600	Apparatus for switching or protecting electrical circuits etc. under 1000 v	0.7
V853701	Apparatus for electrical control, maximum 1000 v	30.0
V853800	Parts for items 8535-8537, n.e.c.	9.7
V854001	Tubes, including for video recorders	0.0
V854101	Semiconductor devices, but not photosensitive	0.0
V854103	Photosensitive semiconductor devices	352.7
V854105	Parts for semiconductor devices	12.0
V854201	Electronic integrated circuits	47.9
V854301	Electronic apparatus having individual functions	0.1
V854403	Co-axial cables etc.	5.8
V854407	Insulated electric conductors	1.0
V854703	Insulating fittings, electrical equipment of plastic	0.0
V854800	Electrical parts for machinery and apparatus n.e.c.	3.0
V900103	Spectacle lenses, contact lenses, etc.	150.2
V900201	Objective lenses for projectors, cameras etc.	0.3
V900203	Articles which are optically worked	7.2
V901301	Telescopic sights, lasers but not laser diodes	0.4
V901405	Parts for navigational instruments/appliances	0.0
V901805	Cannulae, catheters, needles and the like	70.2
V902401	Machines etc. for testing metals, paperboard etc.	14.4
V902903	Speed indicators, tachometers, etc.	0.1
V902905	Parts for 902901, 902903	0.3

Table 9 Distribution of output from ..... continued

V903001	Apparatus for measuring ionising radiation	0.2
V903009	Apparatus for measuring electrical quantities	33.1
V903011	Parts for the measurement of electrical quantities	4.3
V903103	Parts for measurement/control etc. n.e.c.	2.9
V903105	Parts and accessories for 903103	0.1
V903300	Parts for machinery/apparatus/instruments n.e.c.	6.7
V940513	Parts for electrical light fittings of plastic	0.3
Total		**8 752.5**

It can be seen that the output of the industry is divided over 87 products, some of which are small. Even though the greater part of this output consists of products which are characteristic of NACE group 32, in practice there is still a not insignificant amount of secondary output of products which are characteristic of other industry groups.

Ignoring products not covered by the commodity statistics division into individual goods, total turnover was DKK 8 400 million, of which DKK 7 752 million or 92% are sales actually observed, divided over products in the industrial commodity statistics. This illustrates the high percentage of coverage of industrial product statistics in Denmark and the consequent low level of uncertainty surrounding the distribution by product of manufactured goods in the national accounts supply and use tables.

B. Industry partly covered by product statistics

For construction, there are no genuine product statistics although there is a good deal of information available from various sources (type of new building per square metre of construction, capital expenditure on new building divided by type of building).

The national accounts need a breakdown by product of the output value of the construction industry. In the absence of genuine product statistics, for national accounts purposes we have put together all the available information for a breakdown of this value by product. The methods are described in detail in Section 5.10. The resulting estimate of deliveries of construction output does not tally with the estimate of the output value of construction obtained from accounting statistics following corrections for subcontracting. One reason may be the difference in the breakdown of capital formation into machinery and construction and the uncertainty in the estimate of subcontracting.

It is important to note that, in contrast to output value, the value added of construction is robust in these respects. The national accounts method therefore starts with the value added calculated from accounting statistics, for which the figures are considered to be extremely reliable. The output value obtained as the sum of the calculated resources of products from construction activity (new building divided by kind, repair and maintenance divided into ordinary repairs and maintenance and major repairs plus civil engineering) is then substituted for the accounting statistics output value, and, finally, intermediate consumption in construction is calculated as a residual on the basis of value added according to accounting statistics and output value estimated as the sum of products.

In this way, we obtain a consistent estimate of the value added of capital formation in construction and the repair and maintenance of buildings in the absence of product statistics coordinated with accounting statistics.

C. Industries not covered by product statistics

For the remaining industries, output is divided by product on the basis of the main activity of the industry. For NACE division 50 (trade in motor vehicles, repair and maintenance of motor vehicles and service stations) there is a breakdown of profit margins from the sale of goods for resale into wholesale and retail. This breakdown is needed because trade margins are divided into wholesale and retail in the supply and use tables.

In general, the national accounts product classification for services is constructed so that for each industry a product is defined at the most detailed level with the same designation and code as the industry. The total output value of industries not covered by product statistics is assumed to come from the product whose name is the same as the name of the industry. Note that the one-to-one link is not made at the most detailed in the national accounts classification of industries (130 industries), but generally at the most detailed level of the DK-NACE classification of industries (813 of them). In such cases, output is collected from some of the most detailed industries in product terms, and then the level of aggregation in the product balance system is somewhere between the 813 level and the national accounts 130 level. Note, however, that the calculations based on the accounting statistics are without exception at the most detailed level, i.e. corresponding to the 813 grouping.

The national accounts industry 851209 "Medical, dental, veterinary activities, etc." covers, for example, 12 detailed industries in the health sector other than hospitals. Output value, intermediate consumption and value added are calculated separately in the system for each of the 12 detailed industries. The market output of these 12 industries produced legitimately (as opposed to in the black economy), excluding fringe benefits and own-produced software, is then aggregated into four products which are shown in the supply and use tables. The four products are obtained by aggregating at the level of the first four digits in the NACE, i.e. 8512, 8513, 8514 and 8520. The following table shows the distribution of output in the national accounts branch. All activity in industry codes other than 851202 is market. The artificial code 851202 has been introduced so that the calculations can distinguish between market and non-market producers. There is no market activity in DK-NACE industries 851410, Home nursing activities and general health care, 851420, Midwives and midwives' centres or 851460, Employees' health services. In Denmark, all activity in these three areas counts as non-market output of general government.

Table 10 12 DK-NACE industries included in the national accounts industry "Medical, dental, veterinary activities, etc."

DK-NACE industry	Text	Output DKK million
851202	Government non-market activity in 851209	4 142
851210	General practitioners	4 182
851220	General medical specialists and out-patients' clinics	1 400
851310	Dentists	4 583
851320	Dental clinical technicians	
851430	Physiotherapists' clinics and practitioners in the field of physiotherapy	460
851440	Psychological guidance	169
851450	Pathological laboratories	83
851470	Chiropractors	268
851480	Chiropodists	84
851490	Sanitoriums and activities performed in the field of herbal and flower medicine, etc.	1 132
852000	Veterinary activities	1 312
851209	Medical, dental, veterinary activities, etc.	17 953

The output of the national accounts branch is divided into 14 product balances as shown in Table 11.

Table 11 Distribution of output, medical, dental, veterinary activities, etc. by product

Product number	Text	Output DKK million
F711000	Fringe benefits, free car	36
H851400	Hidden economy output, health sector	34
K722000	Own-produced software	1
Q851200	Medical practitioners, government non-market	728
Q851300	Dentists, government non-market	1 263
Q851400	Other health sector, government non-market	2 121
S851200	Medical practitioners, public sales income	3
S851300	Dentists, public sales income	6
S851400	Other health sector, public sales income	4
S980990	Internal deliveries between public institutions	9
T851200	Medical practitioners	5 557
T851300	Dentists	4 099
T851400	Other health sector (market)	2 786
T852000	Veterinary surgeons	1 306
Total		17 953

The breakdown into the seven main products takes into account the size and use of the products and uniformity of prices for the fixed price calculations. In the vast majority of cases, medical practitioners are considered as general government consumption expenditure. Dentists are in many cases both government and private consumption expenditure. Other market health care is predominately private consumption expenditure whereas veterinary surgeons are different from the first three products in that they are in most cases considered to be intermediate consumption, primarily in agriculture.

1.3.9.1.3 Calculation of intermediate consumption

Table 7 showed the functional target total module (MTM) and the connection between this and the accounting plan in the intermediate system, which is the common accounting plan to which all accounting statistics are converted for the national accounts processing of primary statistics. The target totals are produced from version 2 of the intermediate system, i.e. after the switch to industries defined on the basis of producer units. The calculation of the ESA 95 product transaction intermediate consumption (P. 2) is based on the functional target total module using the formula:

Intermediate consumption (2010) = 2011 + 2012 + 2020 + 2021 + 2022 + 2023 + 2024 (A)

where

2011 = Intermediate consumption excluding expenditure on repairs and maintenance and indirect production costs

2012 = Indirect production costs

2020 = Rentals excluding heating

2021 = Rental and leasing of machinery and transport equipment etc.

2022 = Repair and maintenance of buildings

2023 = Repair and maintenance of structures

2024 = Repair and maintenance of transport equipment and machinery, non-specified repair and maintenance.

Indirect production costs are defined as those which cannot be observed for local kind-of-activity units (producer units), but are observed at firm level only. These overheads are distributed over the firms' kind-of-activity units on the basis of information on sales and/or employment.

The connection between the above-mentioned items in the MTM and the items in the intermediate system can be seen in Table 7. For example, "intermediate consumption excluding expenditure on repairs and maintenance and indirect production costs" (2011) is defined as:

2011 = Consumption of fuel and power (2013) + purchases of processing to order (2014) + other consumption of raw materials (2015) + expenditure on consumables (part) (7025) – total price correction, inventories of raw materials (2098).

For the calculation, there is a price adjustment for inventories of raw materials, the counterpart of which is a correction to the consumption of raw materials etc. which comes from the accounting statistics processing of business accounts.

One example may be given to illustrate the method of estimating intermediate consumption for the individual national accounts industries. Let us look again at national accounts industry 851209 "Medical, dental, veterinary activities etc.", for which the underlying calculations are carried out at a much more detailed level, namely separately for each of the 12 "sub-industries". For these 12 sub-industries, that part of the MTM which is relevant to the calculation of output value and intermediate consumption is as shown in the following table. Field 2022 does not occur, since for want of a

detailed breakdown the value of repairs and maintenance to buildings is allocated to aggregate item 2024, which includes non-specified expenditure on repair and maintenance.

Table 12 Calculation of initial estimates for intermediate consumption, medical, dental, veterinary activities, etc.

DK-NACE industries	1010	2010	2011	2012	2020	2021	2023	2024	2065	2010
	DKK million									
851202	4 142	524	0	7	0	0	0	0	0	531
851210	4 182	0	173	460	169	11	6	13	0	833
851220	1 400	0	84	144	53	4	2	4	0	291
851310	4 583	0	773	397	148	10	9	31	0	1368
851320	138	0	22	16	6	0	0	1	0	45
851430	460	0	30	48	30	1	1	2	0	113
851440	169	0	9	19	9	0	0	1	0	38
851450	83	0	16	13	6	0	0	1	0	36
851470	268	0	11	32	15	1	0	2	0	62
851480	84	0	24	8	5	0	0	0	0	38
851490	1 132	0	251	125	58	3	1	8	0	446
852000	1 312	0	561	120	15	3	4	5	0	707
851209	17 953	524	1 955	1 390	512	34	24	68	0	4 508

The initial estimate prior to the balancing for intermediate consumption in national accounts industry 851209 “Medical, dental, veterinary activities, etc.” is obtained using the formula (A) and aggregating over the 12 “sub-industries”. This initial estimate was DKK 4 508 million for 1995. As is apparent from the description of the industry in Section 3.20, the initial estimate was virtually the same as the final balanced value for intermediate consumption in 1995. When supplies and uses were balanced in the final national accounts for that year, there was found to be no basis for counting the calculation of the intermediate consumption of this industry as one of those components where the initial estimate has to be adjusted for the balancing.

The above table shows that the input percentage, i.e. the ratio of intermediate consumption (code 2010) to output (codes 1010 + 2065), varies quite considerably from one sub-industry to another, namely from 12.8% in non-market activity in 851202 to 53.9% for veterinary activities in 852000. This shows the importance of the extremely detailed calculation system used to ensure the accuracy of the final national accounts calculations. Aggregation errors are minimised by calculating all figures right up to the initial estimates prior to the balancing of supply and use for output (P.1), intermediate consumption (P.2) and thus value added (B.1g) at the most detailed level of industry grouping in the primary statistics rather than at the level of the national accounts grouping of industries. Attempts are made to minimise the uncertainty in the national accounts arising from grossing up to the total population by carrying out the calculations at the most detailed level and not aggregating to the national accounts grouping of industries until after that stage.

1.3.9.1.4 Changes in inventories divided by type of inventory and product

As Tables 4 and 7 show, the intermediate system and the target total module make a distinction between the following types of inventory and changes in inventories:

Raw materials (2060)
Wholesale goods for resale (2061)
Retail goods for resale (2062)
Other (special) goods (2063)
Special goods (2064)
Finished goods (2065)
Goods for resale, manufacturing (2066)
(Transferred to wholesale trade with code 2061).

The figures in parentheses are the supply/use codes for the types of inventory in the supply and use tables and hence the goods and services account. There is no distinction between finished goods and work in progress.

To enable output, intermediate consumption and changes in inventories to be calculated correctly in the national accounts in accordance with the ESA 95 definitions, a price correction has to be made to the corresponding items in the business accounts, since businesses tend to register the value of their (final) stocks at historic cost or at the last recorded acquisition price of the individual goods. When the prices of the enterprises' products are rising, and the change in the inventories of finished goods in the business accounts is calculated as the difference between the stocks at the end and at the start of the accounting period, the result will include a holding gain which does not reflect any physical change in the inventories or in the output of goods during the accounting period. Even if, for example, the physical inventories have remained the same throughout the whole of the accounting period, and therefore by definition there has not been any change in the inventories of finished goods as a result of production during the period, there will still be an increase in the inventories in the business accounts as a result of price rises during the period. If the output value in the period is calculated on the basis of uncorrected business accounts as output = sales + changes in inventories of finished goods, output and value added will be overvalued. Conversely, if prices fall the enterprises' output will be undervalued.

During periods of inflation, holding gains likewise have an effect on inventories of raw materials, with intermediate consumption being undervalued and value-added overvalued. On both the output and the input sides, the use of business accounting principles overvalues value-added in times of general inflation. When there is general deflation, the opposite occurs. When inflation or deflation rates are high, errors in measuring value added and hence GDP can be substantial if there is no price correction. Even if price levels are generally more or less stable, major fluctuations in relative prices can lead to substantial holding gains or losses on inventories in the economy.

In the national accounts processing of primary statistics, a price correction is made to the business accounts figures for changes in inventories and the consumption of raw materials etc, to get as close as possible to the theoretically correct estimate of changes in inventories according to the ESA 95. The theoretically correct estimate involves monitoring movements into and out of inventories continually, throughout the accounting period, and recording each transaction at the actual transaction price at the time of the movement. Changes in inventories during the accounting period are then simply the sum of the transactions into and out of inventories during the period in question. The theoretically correct national accounts method of estimation is known as the perpetual inventory

method (PIM) to indicate that inventories on a given date may be considered as the sum of additions and withdrawals, in principle going way back into the past.

In practice, there is hardly ever sufficient information to enable the PIM to be used for the national accounts estimates of changes in inventories. Instead, as a general rule an approximation of the theoretically correct method is worked out on the basis of information on the value of the enterprises' inventories at the beginning and the end of the accounting period as calculated in accordance with the enterprises' own accounting principles.

On the assumption that the enterprises' final inventories are valued at the last recorded acquisition prices - on average, at least - and that these prices refer to the December of the same year, a price correction is made to the enterprises' accounts as follows. First of all, the inventories are broken down into individual products on the basis of certain assumptions. The opening stocks, i.e. the previous year's closing stocks of the given product, are converted first of all from the price level in the December of year t-1 to the mean annual price level for year t. Similarly, the closing stocks for year t are converted from the price level in the December of year t to the average for the year. The change in the inventories during the accounting period is then calculated by deducting the price-converted opening stocks from the closing stocks. The price correction to the business accounts calculation of the change in inventories, and its counterpart correction to output or intermediate consumption, is finally obtained as the difference between the changes in inventories as calculated for national accounts purposes and the changes according to the business accounts.

In addition to a conversion of the change in inventories to the average prices for the year, there is a conversion to the prices in a base year, currently 1995, for use in the estimates of real growth rates.

It is apparent that the above formula gives a good approximation of the theoretically correct measure, provided that price changes are evenly distributed throughout the year or inventories are more or less stable.

If there are estimates of the physical quantities of individual goods in stock, a closer approximation to the PIM estimate of changes in inventories can be made than in the usual case where the only information available is the value of the inventories. In Denmark, one case in point would be agricultural products and energy goods, where major price movements occur most noticeably, along with major changes in stocks, and where the approximation formula works less well. Since it is possible in the national accounts to process problematic goods such as petroleum products separately, and all inventories are compiled on the basis of accounting statistics, the calculation of changes in inventories in the Danish national accounts must be considered to be based on firm foundations overall. Calculating changes in inventories as residuals would lead to a considerable amount of uncertainty about GDP and GNI. In Denmark's case, changes in inventories are never worked out as residuals in the final calculations. Even in the provisional, quarterly national accounts, there is an accounting statistics basis for the calculation, though this does not, of course, cover all inventories as in the final calculations.

1.3.9.2 Institutional target total module

1.3.9.2.1 Transactions in products

As previously stated, all accounting items from the national accounts-processed accounting statistics for industries are recorded in the intermediate system in a double coding by industry for the producer unit and by sector for the institutional unit to which the producer unit belongs. As a result, the initial estimates already referred to for output, intermediate consumption, value added, the compensation of

employees and hence gross operating surplus are available in a breakdown by both industry and institutional sector.

With a view to keeping this systematic double coding of transactions in products plus the distributive transactions compensation of employees and other taxes less subsidies on production all the way through to the published national accounts, the changes made to the initial estimates for the balancing of the functional national accounts in the supply and use matrices also have to be recorded with the dual industry/sector coding. This is the only way in which we can be sure that the industry and sector tables will be consistent and that the cross-classification of the production account by industry and sector, as required for Table 21 of the ESA 95 transmission programme, can be worked out *directly* as one stage in the production of national accounts as opposed to indirectly as a subsequent breakdown with no clear-cut link back to the primary statistics.

The industry dimension comes directly from the balanced supply and use matrices, in that when supplies and uses are balanced there are never undistributed aggregate items, and there is therefore never a balancing correction to intermediate consumption in general, i.e. with no indication of the industry concerned. All balancing corrections are necessarily made to the individual *cells* in the supply and use tables. As regards the sectoral dimension before and after the balancing process, the consistency adjustments are made in the sector accounts to those changes (compared with the initial estimates) which result from the balancing, as follows. For each of the 130 national accounts industries, the difference between the value of the initial estimate and the adjusted value is broken down *pro rata* with the breakdown by sector of the variable in question in the initial estimate. If, for example, intermediate consumption for one of the 130 industries in the initial estimate is divided 80% to the non-financial corporations sector S11 and 20% to the households sector S14, the balancing adjustment for this industry is divided over the two sectors using the same percentages.

The adjusted values are then recorded in the "total module", which is a databank for all information in the non-financial national accounts, for the time being up to and including the capital account.

1.3.9.2.2 Distributive transactions

This section is directly relevant to GNI only as regards the distributive transactions compensation of employees and taxes less subsidies on production and imports. Where property income transactions are concerned, it is GNI-relevant only if the rest of the world is involved. This section is included primarily for the sake of a full description of how the complete Danish national accounts system is constructed.

The distributive transactions from the accounting statistics are included in the target total module after processing for national accounts purposes. Distributive transactions in general and property income (interest, dividends, etc.) in particular are balanced in a balancing system for institutional sector accounts. Data from the intermediate system and the target total module are input into this balancing process, but in contrast to the functional target totals, which are taken solely from the target total module, data for the compilation of the institutional target totals are taken from a number of other sources. In particular, tax statistics are crucial for the compilation of the target total for the property income of the households sector.

It is only to be expected that there should not be the same direct, unambiguous connection between the intermediate system and the target total module on the one hand and the institutional target totals for distributive transactions on the other that we find with the functional target totals (output, value added, etc.). Whereas the intermediate system, which is based on business accounts, in principle includes all relevant information for the calculation of target totals for the value added of the

industries (output-base GDP), distributive transactions involve the calculation of initial estimates for households as consumers and for the sectors general government and NPISHs as redistributive rather than producer units.

1.3.9.2.3 Financial transactions

This section is not directly GNI-relevant, but has been included for the sake of a full description of the way in which the Danish national accounts are compiled. It is indirectly relevant, largely because the financial account for the rest of the world, S.2, constitutes a check on transactions with the rest of the world.

To an even higher degree than is the case for the distributive transactions the information on financial transactions from business accounts which is contained in the intermediate system and the target total module is not a sole source for these units. Instead, it is used as input into a compilation system for the institutional sector accounts which, in addition, is based on a long list of sources other than business accounts.The financial accounts are balanced as from calculation year 2000 inclusive for reference years from 1995 inclusive. Since the system of financial accounts was not fully developed until 2000, it had no effect on the compilation of GNI for 1995, other than on the rest of the world account.

One particular point is that the business accounts contain information on stocks of financial assets and liabilities but not on financial transactions in the period in question, which therefore have to be calculated from balance sheet items combined with other sources. For the financial transactions target totals, the information on the financial balance sheet items in the intermediate system and the target total module will in most cases be replaced by financial statistics, which are considered to be a more reliable source in this field, one reason being that the primary financial statistics have close to 100% coverage (of observations) in many cases, and there is therefore very little of the grossing up which may lead to uncertainty.

Whilst there is a lot of empirical evidencesupporting the view that the input percentage in constant prices, i.e. the ratio of intermediate consumption in constant prices to output in constant prices, is relatively constant in the short term, there are many examples of volatility when it comes to variables that are not directly connected with the actual production process. There is nothing surprising about this. Whereas the ratio of output to input in a production process is determined largely by technological factors which do not change drastically in the short term, the situation is very different when it comes to financial variables and the related flows of property income. Here, changes in the ownership structure of the institutional units and decisions about financing can lead to large changes in distributive transactions, financial transactions and balance sheet items from one day to the next.

1.3.9.3 Stocks and flows

The intermediate system records all accounting items from the profit and loss account and the balance in the underlying accounting statistics. When there are institutional units which are market producers, the system in principle includes the accounting information needed to enable current accounts as well as accumulation accounts and balance sheets to be calculated in the national accounts.

In practice, however, limited use is made of the information on gross fixed capital formation accumulation items, since in the tax accounting-based statistics there is no information on capital formation for the year in question. In practice, it has emerged that a calculation of capital formation based on balance sheet items alone is too uncertain, primarily owing to revaluations of the balance sheet items. Danmarks Statistik's questionnaire-based accounting statistics, which for 1995 cover

manufacturing, construction and retail trade, include special additional questions on acquisitions and disposals of fixed assets, from which the year's capital formation can be calculated directly. When these detailed, questionnaire-based accounting statistics for reference year 2000 are extended to cover almost all industries, it will be possible to compile exhaustive figures for capital formation directly from the point of view of the purchaser. Until then, the initial estimate of the gross fixed capital formation for some components will be drawn up using indirect methods.

A direct expenditure-based calculation of gross fixed capital formation is not, however, necessarily preferable to a solidly founded indirect calculation. There is good reason to believe that a business accounts-based estimate will undervalue gross fixed capital formation. The most important source of undervaluation is start-up investment in newly started or restructured businesses, which is not observed but is covered by grossing up. In the nature of things, such businesses invest more (on average) in relation to sales than the average for enterprises in the same stratum. Stratified grossing up, which does not explicitly correct for this, and which is in any case difficult, will therefore probably result in undervaluation. Although indirect methods of calculating gross fixed capital formation have, of course, a greater degree of non-systematic uncertainty, the risk of bias is lower.

1.4 Outline of the income approach

1.4.0 Introduction

For 1995, the calculation of income-based GDP may be summarised as in the table below:

Table 13 GDP, income approach, 1995

	Value, DKK million	% of GDP
Compensation of employees	534 094	53
+ Gross operating surplus and mixed income	338 010	33
+ Taxes on production and imports	173 270	17
- Subsidies	35 618	4
GDP	1 009 756	100

1.4.1 Reference framework – the business register, the central population register and the salary information register (COR)

Since the compensation of employees as a component of income-based GDP equals total wages and salaries in domestic (resident) producer units, it is in principle the population of domestic producer units as listed in the business register which is the directly relevant reference framework for both the compensation of employees and gross operating surplus and mixed income when GDP is calculated using the income approach. Danmarks Statistik's business register was discussed in Section 1.3.1.

The other two components, taxes and subsidies on production and imports, have an additional reference framework, namely general government and the EU institutions as recipients/payers. Central government authorities and the EU are, of course, covered by the statistics, and this section will therefore not dwell on the statistical units for the administration of taxes and subsidies on production and imports.

In theory, individuals need not come into the picture when GDP is calculated using the income approach, but in practice the main advantage of having an estimate based on the income which individuals have received alongside the output- and expenditure-based estimates lies in the very fact that that estimate is based on individuals rather than enterprises. It is thus a robust and independent check on the estimates which use the other two approaches. The major difference between income- and output-based estimates is that for the latter the compensation of employees is worked out as expenditure for businesses and is based on business accounts, whereas using the income approach it is worked out from the point of view of the income recipients, namely as the wages or salaries which employees have received according to tax statistics and other sources. Since personal information has been used as a starting point, it is appropriate to look at the reference framework constituted by those persons who, during a given period, have earned the income created during the same period in the resident producer units, i.e. on the economic territory.

Individuals may be either resident or non-resident. The problems arising with non-residents are dealt with in the discussion on the rest-of-the-world account in Section 1.8. For residents in Denmark, the reference framework is *Det Centrale Personregister* [the Central Population Register], compiled under legislation dating from 1967. All persons with a residence permit in Denmark are entered in

this register and have a personal identification number ("person number") used by the public authorities for all administrative purposes. Asylum-seekers who have not received a residence permit are not allowed to be economically active and are not relevant in this connection. It is theoretically possible for persons living illegally in the country without a personal identification number to be earning substantial incomes from trade or industry, but in practice the widespread use of the identification number system means that we can rule out the possibility that anyone could earn income for any length of time from anything other than hidden economy or criminal activities without being registered in the CPR. If it does happen, the incomes thus acquired are considered to have been covered by the allowances for the hidden economy – cf. Section 1.7 – or to be criminal activity which for the time being is not supposed to be included in the estimates of GNI.

The wages and salaries etc. which employers in Denmark pay to their employees must, according to tax legislation, be reported annually on an "information form". There are no exceptions to this rule, and there is no lower limit for the amounts involved. Income below the threshold for general income tax has to be reported on the information forms and a special, proportional "state participation tax" is collected on all earned income as from the first krone of earnings. In 1995, it was 6%. *Told&Skat* [the Central Customs and Tax Administration] records the information forms centrally in the salary information register (COR) on the basis of personal identification numbers. Along with the CPR, this register is the reference framework for the estimate of the compensation of employees in Denmark apart, of course, for the allowances for the hidden economy.

In an integrated system of accounts by sector and industry, the estimate of gross operating surplus is by definition the same whether the output or the income approach is used, and Chapter 1.4 therefore discusses primarily the GDP component "compensation of employees". The calculation of gross operating surplus and mixed income was discussed in the description in Section 1.3 of the calculation of GDP by the production approach.

1.4.2 Most important sources

By far the most important statistical source for the estimate of the compensation of employees is *Erhvervsbeskæftigelsesstatistikken* [EBS in Danish, ERE in English], i.e. establishment-related employment statistics based on various administrative and statistical registers. Chapter 11 describes this key source. The ERE statistics give detailed information on the number of workplaces (establishments), the number of jobs and total annual wages and salaries divided by geographical area and industry. The statistical unit is the *workplace*, i.e. the local kind-of-activity unit. The most important basis for the statistics is the information form which all employers have to submit every year to *Told&Skat* for each wage- or salary-earner employed. The information form for 1995 is reproduced in Annex 7. These forms cover all employees without any lower limit whatsoever for amounts or length of employment, and both Danish and foreign residents. This makes them a virtually ideal source for the calculation of income in the form of wages or salaries other than that which comes from the hidden economy, which is, of course, withheld from the tax authorities.

However, the ERE statistics do not cover all components of the compensation of employees as defined in the ESA. Firstly, imputed employer contributions to social security schemes are not included, and therefore have to be added in. Secondly, not all types of income in kind have to be reported on the information forms. Consequently, the information on the forms is in this case replaced by the national accounts value of fringe benefits etc. Thirdly, employer premiums for industrial accident insurance are not included in the income in the form of wages and salaries which is reported to the tax authorities but has to be calculated and added in from other sources. Finally, for obvious reasons, the information forms do not include wages and salaries from hidden activity, which therefore have to be calculated separately and added in.

For government non-market activity, the ERE-based calculations are replaced by the compensation of employees as calculated from government accounts, as part of the calculation of the output value of general government. This is to ensure that non-market activity remains consistent within the system. The same applies to industries where public corporations traditionally predominate and to agriculture, construction and a few other industries.

For the GDP component "gross operating surplus and mixed income", the statistical sources are the same as for the production approach and the initial estimate for this income component comes from the functional target total module in combination with figures for other taxes and subsidies on production taken from statistics for public finances, computed as follows:

output (1015) – intermediate consumption (2010) – other taxes on production + other subsidies on production – compensation of employees.

The final adjusted value of gross operating surplus and mixed income is obtained when the initial estimates for output and intermediate consumption are replaced by the corresponding figures in the balanced supply and use tables and corresponding initial estimates for other taxes and subsidies on production and the compensation of employees are replaced by the final, balanced values in the national accounts tables by industry.

1.4.3 Reasons for the choice of source

As already mentioned, where government non-market activity is concerned public accounts are the preferred source. For the calculation of the compensation of employees, the source is the ERE and not tax statistics based on income tax returns (self-assessment), simply because, although both are fiscal sources connected with the income tax system, the ERE statistics based on the information forms are very much more detailed than the published tax statistics. Although it is in principle conceivable that households would report income from hidden activity which, in contravention of the law, is not reported by employers, this is considered an unrealistic possibility. The ERE statistics must therefore be considered to be much the best source for the calculation of the compensation of employees from the point of view of employees.

As regards gross operating surplus and mixed income, one alternative source might be the returns which corporations and the self-employed submit for corporation tax and personal income taxation. Since the accounting information on income tax returns is much briefer and much further away from national accounts concepts than the accounts on which the intermediate system and the target total module are based, it is obviously a much less valuable statistical source than the accounting statistics described in Section 1.3.2.1.

1.4.4 Periodisation

There are no periodisation problems with use of the ERE statistics. Income is reported on a calendar year basis, since the income tax system is based on the calendar year. The periodisation of accounting statistics for the functional target total module was described in Section 1.3.2.3.

1.4.5 Transition from tax-based total wages and salaries in establishment-related employment statistics (ERE) to the compensation of employees in the national accounts

Total annual wages and salaries are defined at workplace (local kind-of-activity unit) level as the sum of employees' A-income, from which labour market contributions have to be paid, and any overall contributions to capital pension schemes administered by employers.

A-income comes from heading 13 of the salary information form. This field covers:

- wages and salaries, fees and the like. It includes: holiday bonuses, wages or salaries paid during sickness or maternity leave, grants of any kind on which A-tax is payable, fees paid to members of boards, committees, etc. and payments which are equivalent to pensions to former employees. (A-tax is PAYE (pay-as-you-earn) tax, i.e. a tax which the employer is obliged to withhold).

All the amounts under this heading are gross, i.e. they include the labour market contribution deducted at source. Contributions to social security schemes (ATP, the labour market supplementary pension scheme), long-service gratuities and severance pay plus contributions to pension schemes are not included. With one exception, these are recorded in other fields on the information form. The exception is total contributions to capital pension schemes administered by employers, which are different from other pension contributions in that they are not normally a feature of a contractual relationship and no information is given on the form. It is instead obtained separately from *Told&Skat*'s Central Pensions System, which is based on mandatory returns from financial institutions. As already stated, contributions to employer-administered capital pension schemes are added to the values in field 13 when ERE total wages and salaries are calculated, whereas contributions to other pension schemes and to social security schemes (ATP) are not included in total wages and salaries as reported in the ERE statistics.

The ERE statistics do not include income in field 36 "B-income, from which labour market contributions have to be paid" in their calculation of total wages and salaries. We cannot rule out the possibility that certain income in the form of fees, which should be treated in the national accounts as compensation of employees, is posted under this heading and is therefore not included in the calculation of total wages and salaries in the register statistics. The national accounts implicitly correct for this in all cases which are GNI-relevant by basing the estimate of total wages and salaries directly on exhaustive accounting information (non-market output).

In the national accounts, the compensation of employees is divided up over 130 industries. The source for the vast majority of these industries is the ERE statistics, but for some of them, in particular agriculture etc. and all government non-market activity, accounting information is used instead of the register information. For agriculture etc. and general government, the compensation of employees was already calculated in national accounts terms for the production of primary statistics.

The connection between total wages and salaries in the ERE statistics and the compensation of employees in the national accounts is illustrated in the table below. The item "employer contributions to pension schemes etc." includes both actual and imputed pension contributions. In Denmark, the imputed contributions refer only to civil service pensions.

Table 14 Connection between the ERE and the national accounts

	Wage/salary component	**DKK million**
	Compensation of employees in the national accounts	534 094
	Total wages and salaries in the ERE	490 966
	of which employer-administered capital pensions	*7 209*
-	Tax value of fringe benefits	2 862
+	Long-service gratuities and severance pay	1 905
+	Gifts in kind	12
+	Wages from hidden activity (1 660 + 1 235)	2 895
+	National accounts calculation of fringe benefits	6 788
+	Employer contributions to the ATP	4 906
+	Employer contributions to pension schemes etc.	26 284
+	Industrial accident insurance	1 631
=	Corrected total wages and salaries for ERE	532 525
	Percentage discrepancy	0.29%

The national accounts figures for the compensation of employees are higher than the ERE figures after the latter have been corrected for conceptual differences because the ERE figures for a few - but important - industries are replaced by accounting information. The main such case is general government, which accounts for almost one-third of total wages and salaries in the economy. It appears likely that the higher values in the general government accounts than in the conceptually corrected ERE statistics are due primarily to the treatment of certain fees etc. in the ERE. Presumably, in the case general government entities, these fees are not in all cases included on the information forms under point 13 because legally speaking there is not an employment relationship. Instead, they come under taxable B-income. Broadly speaking, this problem is assumed to apply only to general government, where the remuneration for certain assignments involving only a few hours' work, such as lecturing, consists of non-invoiced fees which are considered to be wages/salaries.

When equivalent services are supplied to market producers, there will in most cases be an invoiced sale of services, and so the same problem does not arise.

For GNI purposes, the crucial point is that the general government accounts should include all compensation of employees. In the national accounts, it is the public accounts values for the compensation of employees, which are higher than the ERE values, which are included in the calculation of output and value added for general government.

The initial income-based GDP estimate for 1995 is as follows, where MTM is the target total module derived from the intermediate system based on business accounts, as illustrated previously in Tables 4 and 7:

Table 15 Initial estimates of income-based GDP

		DKK million
	Initial estimate of gross value added from the MTM	868 298
-	Compensation of employees according to the MTM	527 678
-	Wages in the hidden economy other than for private households with paid employees	1 660
-	Long-service gratuities and severance pay	1 905
-	Other taxes less subsidies on production	
=	Initial estimates for gross operating surplus from the MTM	337 816
+	Compensation of employees calculated from the employees' point of view	534 094
+	Taxes on production and imports	173 270
-	Subsidies	35 618
=	Initial estimates of income-based GDP	1 009 562

The initial estimate of GDP via the income approach is corrected for “Wages in the hidden economy other than for private households with paid employees” and “Long-service gratuities and severance pay” because these amounts are not coded as the compensation of employees in business accounts or in the target total module MTM. In the MTM, wages in the hidden economy are implicitly coded as gross operating surplus, with the wages share of hidden activity calculated afterwards in connection with the calculations of employment based on the ERE statistics. The exception is industry 950000, Private households with paid employees, where there is a national accounts calculation and where the output value in the MTM is, of course, coded as compensation of employees. Long-service gratuities will normally be counted by the businesses concerned as wages/salaries whilst severance pay is assumed to count as extraordinary expenditure. Since by far the largest share of the total amount for long-service gratuities and severance pay as posted in the salary information register must be assumed to relate to severance pay connected with redundancies, it was decided to make a correction to all the amounts which come from tax figures.

1.4.6 Independence of the other methods of calculating GDP

The income-based GDP calculation of the compensation of employees must be considered to be as independent of the other two methods of estimation as it is possible to make it. When compared with the output-based estimate, it is an extremely robust check, since total wages and salaries in the intermediate system and the MTM which are the counterpart to output-based GDP are calculated from processed and grossed-up business accounts, whereas the income-based estimate is calculated from a *total census* of the *individual employees' income in the form of wages and salaries* as reported to the tax authorities. One could hardly wish for a statistically more robust comparison of data on wages and salaries.

The calculation of the other two components of income-based GDP, namely gross operating surplus and mixed income and taxes on production and imports less subsidies, cannot, of course, be independent of the output-based calculation, since the figures rely on the same business accounts/public accounts.

It is only with a more primitive statistical system, where there are no calculations of integrated accounts by industry and sector based on exhaustive primary accounting statistics, that it might conceivably be possible to produce independent output- and income-based estimates of that share of GDP which corresponds to these primary income components. Obviously, if the output-based estimate is constructed to any noticeable extent on a foundation other than business accounts - using indirect methods of estimation and projections from a base year, for example - there might be grounds for claiming that the output- or income-based calculations of GDP may be more or less independent as regards the gross operating surplus and mixed income share. In a more highly-developed statistical system, this independence goes by the board.

With the compensation of employees accounting for some 53% of GDP in 1995, the output and income approaches may be said to be independent only as regards this percentage at most. Since the consistency required of the costs-based estimate of the value of government non-market output, non-market output in NPISHs and non-market output relating to employees in private households by definition rules out any independent estimates in this field, and non-market wages and salaries account for a good third of the total, only around 35% of GDP can genuinely be said to be estimated independently.

The income- and expenditure-based calculations may be considered to be totally independent of one another apart from non-market activity and imputed transactions or transactions calculated by convention (the rental value of owner-occupied housing, fringe benefits, etc.), where by definition they give the same result. Since these components together account for around 27% of GDP, the two calculations (income and expenditure) of the other 73% or so can be said to be truly independent.

1.4.7 Direct versus indirect methods of estimation

All components of the income created by the production process other than gross operating surplus, for which figures are imputed (the surplus on the imputed rental value of owner-occupied housing, consumption of fixed capital relating to non-market output, etc.) are in principle estimated directly.

1.4.8 Direct estimates of levels as opposed to projections

With the exception of allowances for the hidden economy, income-based GDP is in no case projected but is estimated directly as a level on the basis of total coverage of wages and salaries in the primary statistics.

1.4.9 Most important exhaustiveness initiatives

As can be seen from Table 19 in Section 1.7, there are explicit allowances for fringe benefits and the hidden economy.

1.5 Outline of the expenditure approach

1.5.0 Introduction

For 1995, the calculation of expenditure-based GDP may be summarised as in the table below:

Table 16 GDP, expenditure approach, 1995

	Value, DKK million	% of GDP
Total final consumption expenditure	769 850	76
Household final consumption expenditure	501 364	50
NPISH final consumption expenditure	8 187	1
General government final consumption expenditure	260 299	26
Gross capital formation	198 596	20
Gross fixed capital formation	187 858	19
Changes in inventories	9 298	1
Acquisitions less disposals of valuables	1 440	1
Exports of goods and services	357 454	35
Imports of goods and services	316 144	31
GDP	1 009 756	100

The table shows that private final consumption expenditure in Denmark accounted for roughly half of GDP in 1995, general government final consumption expenditure a good quarter, gross capital formation around one-fifth and net exports the final 4%. Exports of goods and services accounted for 35% and imports 31%.

1.5.1 Reference framework – business register, population register

The reference framework for that share of the GDP expenditure-based estimate where the statistical unit is enterprises is the business register, which was discussed in Section 1.3.1. For that share of the calculations where the statistical unit is households, the relevant reference framework is the total population divided by household. This framework is found in the *Forbrugsundersøgelse*, [abbreviated to FU, the survey on income and expenditure = household budget survey], which is an important source for the calculation of private consumption. The Central Population Register (CPR) was discussed in Section 1.4.1 above. Here, therefore, we need only to discuss households as a reference framework.

The CPR lists all persons resident in Denmark. The question is how the population of households resident on the economic territory can be derived from a register whose statistical unit is individuals. The basis is the address information in the CPR. A household in the population statistics is all persons at the same address (in the same dwelling) regardless of family ties. All persons in the CPR belong to a household, those who have no address being allocated by convention to an administrative address. 5.119 million out of a total population of 5.251 million at the beginning of 1995 lived in households complying with the international guidelines for the delimitation of a household as an economic entity, i.e. a group of persons living together and pooling a large share of their income and expenditure. The remaining persons (those living in residential homes, long-term patients in hospitals, prisoners, etc.) lived in various kinds of collective household . When figures from the FU are used, they have to be corrected for persons in collective households, since the population of households included in the survey covers only the economic entities mentioned.

The CPR does not, of course, include persons who have illegally taken up residence in Denmark and were not previously registered whilst legally in the country. Lenient treatment where immigration is concerned means that few people are refused a residence permit and that high social benefits are paid to legal immigrants, so it may be assumed that the population of illegal foreigners without a CPR number is for the time being so vanishingly low that it is not a problem from the point of view of statistics.

1.5.2 Most important sources

The most important sources for the estimate of the components of expenditure-based GDP are as follows:

<u>Household final consumption expenditure</u>:

Retail trade statistics (level of retailable consumption)
The FU [household budget survey] (structure of retailable consumption, services)
VAT statistics
Surveys of housing rentals
Housing surveys (housing stock, stratified)
Energy statistics (electricity, gas, district heating)
Statistics on financial institutions (financial services)
Statistics on public finances (user payments to public institutions)
Tax statistics (amounts corrected for taxes and duties)
Output-based estimate (hotels and restaurants)
Motor vehicle statistics (households' acquisitions of new cars)
Balance of payments statistics (tourist revenue and expenditure)

Final consumption expenditure in NPISHs:

ERE estimates of total wages and salaries
Accounts of the largest trade union in the country

Gross fixed capital formation:

Agricultural statistics
Public finance statistics
Accounting statistics for industries where public corporations predominate
Register of buildings and dwellings* (BBR)
Index of construction costs
Industrial commodity statistics
Product statistics for the IT industries
External trade statistics
Questionnaire-based accounting statistics
Specific industry statistics
Media statistics
Register of motor vehicles
Register of vessels
Register of aircraft

Acquisitions less disposals of valuables:

Industrial commodity statistics
External trade statistics
Household budget survey (FU)

Changes in inventories:

Questionnaire-based accounting statistics
Tax accounting statistics
Accounting statistics for industries where public corporations predominate
Specific industry statistics, including agricultural statistics
Energy statistics
Agricultural statistics

Imports and exports of goods and services:

External trade statistics (Intrastat and Extrastat)
Balance of payments statistics
Settlements statistics from the *Nationalbank*
VAT statistics
Accounting statistics for sea water transport.

* In some translations, referred to as the Register of buildings and housing.

1.5.3 Reasons for the choice of source

In only two areas is there any real competition as regards information on the same variables for the estimate of expenditure-based GDP. One is household final consumption, where for many items there is information available in both the FU and other sources. The other is imports and exports, where information on external trade transactions is available from Danmarks Statistik's external trade statistics and information on payments for imports and exports of goods and services can be found in the settlements statistics of *Danmarks Nationalbank*. Below, we discuss the reasons for Danmarks Statistik's choice of source in these two fields.

Choice between the household budget survey (FU) and information from other sources

It is widely known that information in consumer surveys is surrounded by a good deal of uncertainty as regards items based on households' own accounting, i.e. in general small items of expenditure, as opposed to those items where an interviewer notes expenditure as evidenced by supporting documents, which are typically the larger items. When the survey is processed, everything possible is done to eliminate any bias resulting from differential non-response. However, it must be admitted that there is a good deal of uncertainty surrounding the figures which households themselves have recorded.

Against this background, the main rule in the Danish national accounts has been that wherever possible the FU has been replaced by other information when statistics are needed to *determine levels*, but it is widely used to determine the structure of expenditure – the breakdown of consumption into individual foodstuffs, for example. In various important cases, the FU is the only available source, but in the vast majority of such cases the items concerned are consumption items where an interviewer has recorded substantial expenditure from the household's supporting documents or the expenditure concerned is common to virtually all households. These two circumstances are characteristic of those items in the survey which can be determined with a good deal of certainty. The fact that an interviewer has seen the supporting documents – telephone bills, for example – rules out the risk of items being forgotten, and the fact that this is general, recurrent expenditure for almost all households means that the sampling uncertainty for the items in question is relatively low. In these cases, FU figures are quite justifiably used to determine levels in the national accounts.

For retailable consumption, i.e. that share of private final consumption which occurs through retail trade, the FU figures are replaced by retail sales figures which must be considered a much better statistical source for determining levels of private consumption. But this source is not sufficiently detailed to enable it to be used as the basis for the breakdown of expenditure into the national accounts consumption groups. The survey figures are therefore used to divide the aggregate groups from retail statistics into the detailed consumption groups. For this breakdown, the FU figures for the consumption of alcohol and tobacco etc. are replaced by figures based on tax/duty-adjusted quantities. For these expenditure items, the FU figures are known to be very much underestimated. In this way, aggregate retailable consumption is calibrated to retail sales.

For energy products and acquisitions of motor vehicles, there is special information available based on physical data. In these cases, the FU figures were either replaced previously, when the initial estimates were made of the private consumption of the expenditure components in question, or replaced during the balancing process. The FU figures for the consumption of hotel and restaurant services are also known to be seriously underestimated. For these groups, the initial household consumption estimate is therefore based on supply, i.e. sales in hotels and restaurants, the starting point being that share of the supply which was allocated to household consumption in the most recent

final national accounts. A detailed description of sources and methods underlying the initial estimates for the individual consumption groups can be found in Chapter 5.

Choice between external trade statistics and settlements statistics from the *Nationalbank*

It is only for export and import totals that there is a choice between these two sources. Settlements statistics contain no information on codes for the goods to which the payments refer, and therefore cannot compete with the detailed external trade statistics.

Payments for goods during a given period cannot, of course, be taken as an expression of exports and imports of goods during that same period compiled in line with the rules on periodisation in the ESA 95, i.e. on a transactions basis complying with the change of ownership principle. Trade credits play an important part in external trade, and the transaction date and payment date will only exceptionally coincide. Settlements statistics do, however, include information on both payment and transaction dates, so it is possible to estimate payments for exports and imports on a transactions basis. Until 1992, there was in every case a close correlation between the periodised settlements statistics and external trade statistics after the former had been corrected for services connected with goods, i.e. a correction to cif values for imports and fob values for exports. Since 1992, the correlation has been less good, and in some periods there have been sizeable differences. Since 1992, both external trade statistics and settlements statistics have been radically reorganised – external trade in connection with the change to Intrastat as from 1 January 1993.

Because the two sets of statistics did not tally, in 1999-2000 Danmarks Statistik and the *Nationalbank* did a great deal of work together to sort out the problems. The most important new initiative to emerge is a comparison at *individual respondent level* of returns to Intrastat, the quarterly VAT returns relating to EU trade and returns to the *Nationalbank* settlements statistics. The outcome of all this investigative work was published in the report "*Forbedring af udenrigshandels- og betalingsstatistikken. Afgivet til Økonomiministeren den 30. juni 2000*" ["Improvement of external trade and settlements statistics. Submitted to the Minister for Economic Affairs on 30 June 2000".] One of the conclusions is that there is no reason to doubt the accuracy of Danmarks Statistik's external trade statistics as regards the final estimates of imports and exports used for the definitive national accounts. Consequently, for the national accounts estimate it was decided to continue to base the national accounts figures for imports and exports of goods on external trade statistics.

1.5.4 Estimates of acquisitions less disposals versus the commodity flow method

All components of expenditure-based GDP can in principle be estimated in two ways, directly using information on the expenditure (uses) side (purchaser's side) to calculate acquisitions less disposals and indirectly on the basis of supplies of products to the domestic market, using estimated shares of supplies to the individual final demand components to calculate final uses from the resources side. One of the most robust cross-checks for the compilation of national accounts consists in comparing information from purchasers on their acquisitions less disposals of the individual products or groups of products with information on the sellers' side on supplies to the domestic market. This latter figure will typically be imputed from information on sales from domestic producer units correlated with export and import information.

Since the Danish national accounts are adjusted in a detailed product balance system, there is a systematic confrontation in connection with the balancing. In the vast majority of cases, the initial estimates for the final demand components are compiled as direct estimates from the expenditure side.

However, there are as yet no independent expenditure-based estimates of the economy's total investments in machinery and equipment. For this final demand component, the initial estimate is produced as an indirect calculation using the commodity flow method. Consequently, there is no comparison of supply and use information on capital formation in machinery when the balancing takes place. The reasons why the indirect method of estimating capital formation in machinery is probably better than the direct method and would presumably in all circumstances be the preferred compilation method were discussed in Section 5.10.1.

1.5.5 Independence of the other methods of calculating GDP

Other than for those areas of the economy (general government, owner-occupied dwellings etc.), where the output- and expenditure-based calculations cannot by definition be independent, in Denmark's case the two GDP measures are largely independent of one another prior to balancing. The most important exception is the estimate of the household consumption of hotel and restaurant services, which, as already mentioned, is calculated from the supply side. The fact that investments in machinery are calculated by the commodity flow method means that the figures depend only to a very minor extent on output-based GDP, as is emphasised by the fact that around 40% of capital formation in machinery and equipment is made up of imports (direct demand). Imports account for over 50% of goods flows at basic price level.

Again ignoring those areas of the economy where the calculations from the expenditure side and from the income side by definition give the same result, these two estimates must be considered to be completely independent with the exception of the estimate of gross operating surplus and mixed income for hotel and restaurant services.

1.5.6 Direct versus indirect methods of estimation

By far the largest share of expenditure-based GDP is calculated using a direct estimate of purchasers' acquisitions less disposals. The most important exceptions are capital formation in machinery and household consumption of hotel and restaurant services, along with user payments to public institutions, which are calculated indirectly from the supply side.

1.5.7 Direct calculations of levels as opposed to projections

By far the largest share of expenditure-based GDP is calculated directly in terms of levels. The most important exception is the consumption of dwelling services (actual and imputed rentals) where levels are calculated every fourth year, in line with the periodicity of the virtually exhaustive surveys of households rents, and projected using price and quantity indicators in the period between two benchmarks. Another important exception relates to allowances for the hidden economy, which are based on a calculation of levels for years 1992-1994 and subsequently projected using relevant indicators. The above two components accounted for around 9.8% of GDP in 1995.

1.5.8 Most important exhaustiveness initiatives

As regards the "legitimate" economy excluding fringe benefits, the most important steps taken are corrections and supplements to the sources underlying the calculations of private consumption. Retail sales statistics do not cover all branches of retail trade. In the national accounts calculations, these statistics are therefore supplemented by VAT statistics to ensure that the whole of retail trade is covered. Retail trade statistics do not cover the sales of "new" enterprises, either, i.e. those set up after the sample was last renewed (it changes every year). In the national accounts calculations, a correction is made for the resulting undervaluation of retail sales by adding in the imputed sales of new retail enterprises, the imputed figures being based on statistics on new businesses, which include information on their sales.

Allowances for fringe benefits and the black economy are discussed in Section 1.7.

1.6 The balancing process and the main approaches to validation

1.6.1 Supply and use tables

The three initial estimates of GDP are balanced in detailed supply and use tables and the production and generation of income accounts for the industries which go with them. The initial estimates of GDP using the three different approaches for 1995 and the adjusted value can be seen in the table below. The difference between output-based and expenditure-based GDP reflects the difference between supplies and uses of goods and services in the initial estimates used for the balancing. The difference between output-based and income-based GDP reflects the macro-level difference between producers' expenditure on wages and salaries and employees' income in the form of wages and salaries in the initial estimates prior to balancing.

The initial GDP estimates using the three different approaches and the adjusted GDP for 1995 can be seen in the table below.

Table 17 Initial estimates for GDP, three approaches plus balanced value

	DKK million	% of GDP
GDP production (output) approach - GDP(O)	1 009 179	99.9
GDP income approach - GDP(I)	1 009 562	100.0
GDP expenditure approach – GDP(E)	1 013 897	100.4
Adjusted GDP	1 009 756	100.0

For 1995, the initial estimates of GDP using the output and income approaches are similar, the discrepancy being under 0.1%. The initial expenditure-based estimate is somewhat higher than with the other two approaches, but all three measures are still within a range of 0.5% of GDP, i.e. the normal range. The final balanced value is closest to the initial output- and income-based estimates, which is logical given the greater statistical weight attached to two initial estimates than to one. This final adjusted level reflects the best possible compromise between the three initial estimates for 1995 in the light of the detailed information on the kind and possible uses of the individual products in the economy, which is incorporated into the supply and use tables.

The total difference between final uses and the initial estimates as a result of the balancing is -DKK 4.1 billion. This is divided into -DKK 3.8 billion for household final consumption, -DKK 1.3 billion for gross fixed capital formation and - DKK 1.0 billion for changes in inventories. Public consumption expenditure and exports and imports are unchanged from the initial estimates.

The above initial differences between the initial estimates using the three approaches are specific to 1995 and cannot be said to reflect any general pattern. For other years, the differences may have the opposite mathematical signs.

Chapter 6 includes details of the techniques behind the balancing of the final national accounts for 1995.

1.6.2 Validation with the help of labour market accounts

One fairly reliable way of checking coverage, i.e. whether the national accounts have included all production, is to compare the *demand side* employment underlying the estimate of GDP, i.e. the enterprises' own employment figures, with employment measured from the *supply side*, i.e. from demographic sources such as population censuses and labour force surveys.

A check of this type has revealed considerable gaps in the coverage of economic activity and led to marked upward revisions in certain other countries. In the wake of a Commission decision on documentation and checks on the exhaustiveness of the Member States' coverage of economic activity, this check was carried out in Denmark, comparing employment as in the Labour Force Survey (LFS) with employment according to the sources used for the national accounts calculations of output value and value added. The comparison was carried out for 1991 and revealed no gaps in the coverage of productive activity. The Commission accepted this result as satisfactory evidence.

This check is likely to reveal massive gaps in coverage if certain groups of full-time employees are not included in the legitimate economy. This is not the case in Denmark to any noticeable extent at present. The check would not, however, be likely to uncover work in the black economy on a part-time basis or underreporting to the authorities. The steps taken to ensure that the Danish national accounts cover this hidden economic activity are described in Section 1.7.

1.6.3 Financial sectoral accounts

As already mentioned, financial sectoral accounts were not developed for all sectors until completion of the non-financial national accounts for 1995. For the rest of the world (S.2), however, financial sectoral accounts have existed for many years, and this has made it possible to compare the net lending/borrowing of the rest of the world as compiled in the capital account and the financial transactions accounts. This check validates the items in the rest of the world account to the extent that, if there were serious problems with the estimates of exports, imports, income in the form of wages and salaries, property income or current transfers to and from the rest of the world, these would be likely to show up in large differences between net lending/net borrowing as calculated "top down" in the capital account and as calculated "bottom up" in the financial (transactions) account.

Table 18 shows net lending/net borrowing in the rest-of-the-world account as seen from both sides for the year 1995.

Table 18 Net lending/net borrowing vis à vis the rest of the world, estimated from two sides

	DKK million	% of GDP
Net lending/net borrowing, capital account	6 786	0.67
Net lending/net borrowing, financial account prior to final balancing	6 033	0.60
Difference	753	0.07

The difference was extremely small for 1995. The average annual numerical difference for years 1995-1999 was DKK 5.7 billion. In four of the five years, the economy's net lending/net borrowing prior to the final balancing was greater on the capital account. This is only to be expected where there is a large surplus on the balance of goods and services and the consequent expected growth in net trade credits. In many cases, trade credits are not incorporated into the financial accounts until the final round of balancing.

For the compilation of the financial accounts, a final balancing roun is undertaken to ensure that net lending/net borrowing is identical in the capital account and the financial account for all institutional sectors. The pre-balancing differences are published so that the users can see the results of the processing of the financial statistics on their own premisses, so to speak. The differences for the most recent provisional years are taken into account, of course, when both the non-financial and the financial accounts for the institutional sectors are worked out for later versions of the national accounts. Any change in the size of the differences or their mathematical sign will naturally lead to an investigation of whether there are any special problems in the calculations, either top down or bottom up, for the year in question.

1.7 Overview of the allowances for exhaustiveness

1.7.1 Explicit allowances

1.7.1.1 Output side

In the Danish national accounts, explicit allowances are made for the output of self-employed persons (farmers) for their own final use, own output of software and large databases, output of entertainment, literary or artistic originals, the output of fringe benefits, work in the black economy (tax evasion with the purchaser's connivance), underreporting (tax evasion without the purchaser's connivance in any particular case) and VAT fraud connected with underreporting. This last refers to the situation in which sellers demand the price including VAT for transactions not included in their official turnover and then keep for themselves the VAT they have collected fraudulently.

All explicit allowances are calculated on the output side and corresponding amounts are posted on the expenditure and income sides. Apart from the output value of owner-occupied dwellings, which is standard in all national accounts and is therefore not mentioned in this connection, the following allowances were added to value added and final uses in 1995:

Table 19 Explicit allowances in the national accounts, 1995

Explicit allowances	Value, DKK mill.	% of GDP
Farmers' output for own consumption etc.	382	0.04
Own output of software and large databases	6 290	0.62
Output of entertainment etc. originals	1 193	0.12
Fringe benefits for employees	6 788	0.67
Work in the black economy, underreporting and the corresponding VAT fraud	6 048	0.60
Total		2.05
GDP	1 009 756	100

On the basis of the accounting statistics, values have already been calculated for the output of capital goods for own use other than own-produced software and entertainment etc. originals, which is not capitalised in the accounting statistics. Own output of capital goods which the businesses themselves have capitalised does not require any special allowance.

1.7.1.2 Income side

The counterpart on the income side to the output of the self-employed for their own consumption is gross operating surplus and mixed income. The same applies to allowances for own-account software (in the case of market producers) and originals. The allowance for fringe benefits has a counterpart on the income side in the compensation of employees. Allowances for the black economy, both hidden activity and underreporting with the corresponding VAT fraud, have a counterpart in the form of the compensation of employees on the one hand and gross operating surplus and mixed income on the other. Of the total explicit allowance for the black economy in 1995 of DKK 7 317 million, "hidden" wages accounted for DKK 2 895 and "hidden " operating surplus and mixed income for DKK 4 422.

1.7.1.3 Expenditure side

The counterpart on the expenditure side of the allowance for own-account output of software and entertainment, literary or artistic originals is gross fixed capital formation. For all the other allowances, it is household final consumption expenditure or intermediate consumption.

1.7.2 Implicit allowances

1.7.2.1 Implicit coverage via price times volume calculations

Wherever possible, the national accounts include explicit allowances for the black economy, *inter alia* to demonstrate that account has been taken of productive activity not known to the authorities. In a few important industries, it is not possible, owing to the method of calculation, to determine how large a share of the output calculated is accounted for by the black economy. In such cases, it is vital to be able to demonstrate that the method of calculation ensures that all output is included, regardless of whether it is legitimate or hidden. In the Danish national accounts, this applies to two industries, namely agriculture etc. and housing (dwellings). Since the calculations of agricultural output cover all the agricultural area and all livestock, output in this industry is included in the GDP estimate

regardless of the size of any tax evasion. The same applies to the output of dwelling services (actual and imputed rentals). Since the output value of housing is calculated using the "stratification method" with housing stock covering all dwellings in the country, rentals are automatically included in estimated GDP, regardless of whether or not there is any undeclared rental income.

1.7.2.2 Implicit coverage via estimates from the expenditure side

The output value of industry 702040, the letting of non-residential buildings etc, is estimated from the expenditure side on the basis of the industries' rental income. One reason is that an estimate of non-residential letting from the supply side is extremely difficult, since in many cases such letting is a secondary activity for which there are no separate data in business accounts, and the second reason is a concern for consistency in the treatment of business accounts, where rental expenditure is part of "other external expenditure". The method of calculation means that any underreporting of income from non-residential letting has no effect on GDP.

1.7.2.3 Implicit coverage via grossing up procedures

As will be discussed in more detail in Section 3.25.3., which analyses the relationship between theoretical and actual VAT receipts, it is likely that, in view of the methods used for grossing up, the national accounts implicitly capture some of the economy which is "hidden" when the self-employed count actual private consumption as intermediate consumption.

1.8 Transition from GDP to GNI

1.8.0 Introduction

Table 20 Transition from GDP to GNI, 1995

		DKK million
	GDP	1 009 756
+	Compensation of employees from the rest of the world	6 847
-	Compensation of employees to the rest of the world	1 982
+	Property income from the rest of the world	108 456
-	Property income to the rest of the world	134 271
-	Taxes on production and imports to the rest of the world	2 320
+	Subsidies from the rest of the world	10 588
=	Nationally published GNI (ESA 95)	997 074
-	EU's third own resource (definitional discrepancy)	5 323
=	GNI according to ESA 95	991 751

The only instance where the Danish definitions differ from the ESA 95 is in the transition from GDP to GNI. Whereas the EU's "own resources" on the harmonised VAT basis should, according to paragraph 4.25 b) subsection 3 of the ESA 95, be treated as taxes on production and imports to the rest of the world (D.211), in the Danish national accounts they are treated as current transfers (D.74), in line with economic reality. The above table assumes that the change in the treatment of swaps approved in 2000 is incorporated into the definition of GNI in the ESA 95.

1.8.1 Reference framework

The relevant population for the switch from GDP to GNI is all resident units in Denmark, both natural and legal persons. The reference framework for the transition items is in practice the respondents for the *Nationalbank*'s settlements statistics, i.e. commercial banks and all other financial institutions which directly receive payments from or make payments to non-residents. According to the *Nationalbank* Order on foreign currencies, all payments to and from the rest of the world have to be reported. In 1995, a statement was required of the purpose of all payments over DKK 60 000. The reference framework may thus be said to cover the whole of the relevant population.

1.8.2 Most important sources

For transactions with EU institutions, the source is central government accounts, which include the correct periodisation of transactions on an accrual basis. Settlements statistics are the source for all other items except reinvested earnings on foreign direct investments (FDI), which are calculated by *Danmarks Nationalbank* on the basis of the official annual accounts of those firms which have inward or outward FDI, together with additional information collected. The *Nationalbank* keeps a register of all inward and outward direct investments of direct foreign investors.

1.8.3 Reasons for the choice of source

For almost all items in the transition from GDP to GNI, the *Nationalbank*'s settlements statistics are the only available national source. The exception is transactions with EU institutions, where central government accounts, as already mentioned, are used rather than settlements statistics.

1.8.4 Direct versus indirect methods of estimation

All items in the transition from GDP to GNI are calculated directly on the basis of the available sources.

1.8.5 Direct estimates of levels as opposed to projections

All items relating to the transition from GDP to GNI are calculated directly in terms of levels.

1.9 Transition from GDP (ESA95) to GNP (ESA79 definition)

1.9.0 Introduction

Table 21 shows the transition from GDP compiled in line with the ESA 95 definitions to GNP compiled according to the ESA 79 definitions. The table complies with the guidelines in Commission Decisions 97/178 and 98/501, including the numbering of the definitional differences, and the layout of the questionnaire approved by the GNP Committee.

Table 21 Transition from GDP, ESA95 definition, to GNP, ESA 79 definition

		DKK million
	GDP (ESA 95)	1 009 756
+	Compensation of employees from the rest of the world	6 847
-	Compensation of employees to the rest of the world	1 982
+	Property income from the rest of the world	108 456
-	Property income to the rest of the world	134 271
	Commission Decision 97/178:	
-	(1) Residence criteria	0
-	(3) Insurance	1 367
-	(4) Direct investment earnings	-491
-	(5) Interest income	-757
-	(6) Cultivated natural growth of plants	0
-	(7) Computer software and large databases	14 534
-	(8) Military equipment and vehicles, other than weapons	588
-	(9) Work in progress on services	0
-	(10) Mineral exploration expenditures	271
-	(11) Consumption of fixed capital on roads, bridges, etc.	7 447
-	(12) Government licences and fees	-1 980
-	(13) Valuation of output for own final use and output from voluntary activity	337
-	(14) Value threshold for capital goods	-1 766
-	(15) Market/non-market criteria	0
-	(16) Subsidies	0
-	(17) Entertainment, literary and artistic originals	1 193
-	(18) Services associated with the licence to use entertainment, literary and artistic originals	0
-	(19) Garages	2 713
-	(20) Car registration taxes paid by households	10 340
-	(21) Wages and salaries in kind	0
-	(22) Licences for the use of intangible non-produced assets	0
	Commission Decision 98/501 (excessive deficit procedure):	
-	(24) Financial leasing	101
-	(25) Pension funds	
	Eurostat Decision (excessive deficit procedure):	
-	(26) Changes in the due dates for taxes etc.	
	Approved by the GNP Committee:	
-	(27) Minor repairs and maintenance in owner-occupied housing	4 075
	Total effect of definitional differences (ESA 95-ESA 79)	*-37 972*
=	Gross national product compiled according to ESA 79 definitions	950 834

The table shows that the definitional differences between the ESA 95 and ESA 79 which are relevant to the compilation of GNI in 1995 total -DKK 37 972 million or (numerically) 3.76% of GDP compiled according to ESA 95 definitions. GNI as calculated in line with the ESA 95 definitions is 4.30% greater than GNP according to ESA 79. The national compilation of ESA 95 GNI, with the definitional discrepancy relating to the EU's VAT-based own resource, is 4.86% greater than GNP compiled according to the ESA 79.

1.9.1 Reference framework

The reference framework for the transition to ESA 79 definitions covers all the national accounts, i.e. it is a combination of the reference frameworks referred to in Sections 3.1, 4.1, 5.1 and 8.1.

1.9.2 Most important sources

Chapter 9 describes the most important sources. This section will discuss only the sources underlying the two definitional differences which in Denmark's case are the most significant in terms of volume, namely capital formation in software and the consumption of fixed capital on roads, bridges, etc.

For software, a distinction has to be made between software and large databases which have been purchased and own-produced software and large databases. The most important source for purchased software is product statistics for the IT industries , which specify the breakdown of the sales of those industries by product. The estimate is therefore based on a supply-side calculation. For own-produced software, the main source is statistics on wages and salaries, where total wages and salaries are calculated for well-defined groups of IT staff. The mark-up factor used for total wages and salaries in the calculation of output value is based on the accounting ratios in the accounting statistics for the software industry.

The consumption of fixed capital on roads, bridges, etc. is based on a PIM calculation which in turn is based on a long time series for capital formation in roads and bridges etc. The source is the published national accounts for the period from 1930. The series is extrapolated back to 1850 using certain rough indicators. Investments before 1930 play only a minor part in the value calculated. The survival curve used is Winfrey L3. The source is the empirical data underlying Winfrey's investigations of survival curves based on American observations. The calculation assumes a lifetime of 40 years for roads and bridges etc. The source for this is information from *Vejdirektoratet* [Ministry of Transport Roads Directorate].

1.9.3 Reasons for the choice of source

In principle, purchased software can be estimated directly from the expenditure (uses) side. Owing to the major difficulties linked with a direct estimate from the purchasers' point of view, the Danish national accounts, in line with practice in the USA, for example, decided to estimate capital formation in purchased software from the supply side, on the basis of supplies of the relevant products on the domestic market. For one thing, there are no comprehensive accounting statistics for all purchases of software in all industries. Secondly, the fact that enterprises seldom capitalise purchases of software in their own accounts means that information on capital formation in software which can be obtained from accounting statistics is incomplete. All in all, an estimate from the expenditure side would appear at present seriously to underestimate capital formation in purchased software. For this reason, the Danish national accounts decided to calculate these investments using the commodity flow method. If in the future a correct expenditure-based estimate should prove possible - as part of tailor-made IT statistics, for example, where estimates are independent of business accounting practice - the choice between the two sources and the methods of estimation will, of course, be different and the calculation method will be reassessed.

1.9.4 Direct versus indirect methods of estimation

All the definitional changes are calculated using direct methods.

1.9.5 Direct estimates of levels as opposed to projections

All the definitional changes with the exception of garages are calculated directly in terms of levels from the outset. In a few cases, the breakdown of changes in output values by use is, however, based on fixed coefficients from 1992. This is of only minor importance, however, as regards the effect on GNP. The output value imputed for garages is based on a benchmark from 1991 which is projected using changes in the output value of all-year-round owner-occupied dwellings.