1. Overview of the system of accounts

1.1 Introduction

1.1.1 Main approaches and geographical coverage

In accordance with the Commission Regulation (EC) No 109/2005, the Danish national accounts cover the economic territory of the Kingdom of Denmark except for the Faeroe Islands and Greenland.

The Danish national accounts consist of both annual and quarterly accounts. The official balance of payments estimate is consistent with the national accounts rest-of-the-world account. 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). Consistent time series are available back to 1966.

The Danish national accounts are built around an integrated set of supply and use tables and institutional sector accounts. Initial unbalanced GDP estimates are to a large extent calculated independently from the output and expenditure sides and balanced in a detailed product balance system covering around 2 350 products, some 1 960 of which are goods and 410 services. The result is a balanced set of supply and use tables and integrated production and generation of income accounts 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 input-output tables are constructed annually on the basis of the "industry technology assumption".

Since 2001, annual financial accounts are also produced and net-lending from the financial transaction account and the non-financial accounts are reconciled in a balancing process. In addition capital stock estimates (produced assets) are compiled using gross fixed capital formation series at industry level, which secures consistency between investment and capital stock series. This system also produces consumption of fixed capital series. Finally, labour productivity is produced for annual figures.

The only case where ESA 95 is not followed is on the recording of payments on the harmonised VAT basis which accrue to the EU in connection with the third own resource. According to ESA 95 paragraph 4.14, this resource should be recorded as taxes on products paid by residents to the EU (D.211). When implementing the ESA 95, Denmark found this rule unrealistic from an economic point of view. Instead, these payments are recorded as a current transfer from Denmark to the EU. Total VAT revenue is recorded as income for the resident general government sector.

As regards the classifications of industries, both the primary statistics and the national accounts are based on the NACE Rev. 1. The Danish industry classification *Dansk Branchekode*, DB 03, is a national, more detailed version of the NACE Rev. 1.

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 2 350 products) likewise complies with the CN classification, but at a higher level of aggregation. The national accounts' product balances can be converted to the EU's CPA product classification at the 4-digit level

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).

1.1.2 Organisation of national accounts work in Statistics Denmark

Statistic Denmark's organisation chart as at 22 March 2006 is attached in Annex 1 and the organisation chart for the national accounts in Annex 2. Statistics Denmark is divided into four directorates, three for statistics on particular fields and 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. 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 two divisions known as "National Accounts" and "Public Finance". In addition the balance of payments is compiled in a separate division and it is ensured that the rest of the world account is consistent with the balance of payments. As annex 2 shows, the National Accounts division employs 25 persons (annual full time equivalents). In the division for Public Finance about the same number of persons are working on national accounts.

The National Accounts division is responsible for the estimates of the “functional” national accounts, that is the goods and services account including supply and use tables and input-output tables in current and constant prices. The division is also responsible for non-financial institutional sector accounts for households, the non-financial sector and the rest-of-the-world account. In

addition it is responsible for capital stock estimates, labour productivity, environmental accounts and quarterly accounts.

The Public Finance division calculates the general government sector including financial accounts.. In addition, the division is responsible for non-financial sector accounts for the financial sector and financial accounts for all sectors. The division also covers accounting statistics for industries dominated by publicly controlled corporations. It is also responsible for administrative uses of the national accounts, i.e. fourth own resource (GNI), third own resource (VAT) and the excessive deficit procedure (EDP). Besides the national accounts work, the division is responsible for collecting accounts from local government and some credit market statistics.

1.2 The revisions policy and the timetable for revising and finalising the estimates

1.2.1 Current revisions

Final national accounts data are calculated three years after the reference year (year t+3). Several versions of preliminary accounts are calculated before that. The first version is available as the sum of quarters two months after the end of the reference year, and the last preliminary version is published at the end of year t+2 (see table 1.1).

Table 1.1: Revision policy of the Danish NA, from 2001

Year	Month of publishing	Year T, Q1	Year T, Q2	Year T, Q3	Year T, Q4		Year T
T	End May	P					
	Begin. July	R					
	End August	-	P				
	Begin October	R	R				
	End November	-	-	P			
T+1	Begin. January	R	R	R			
	End February	-	-	-	P		P(SQ)
	Begin. April	R	R	R	R		R(SQ)
	Begin. July	R	R	R	R		R(SQ)
	Begin. October	-	-	-	-		-
	End December						R(AP1)
T+2	Begin. January	R	R	R	R		-
	Begin. April	-	-	-	-		-
	Begin. October	-	-	-	-		-
	End December						R(AP2)
T+3	Begin. January	R	R	R	R		-
	Begin. April	-	-	-	-		-
	Begin. October	-	-	-	-		-
	End December						F
T+4	Begin January	F	F	F	F		

P: First published SQ: Sum of quarters
R: Revised AP1: First preliminary annual calculation
F: Final AP2: Second preliminary annual calculation
-: Figures are published unchanged compared to the earlier published figures.

The revisions of the quarterly figures in January T+2, T+3 and T+4 are made in order to make the quarterly figures consistent with the annual figures.

The revision policy is announced to users and the reliability of preliminary national accounts figures are measured and published along with the publication of the national accounts.

1.2.2 Benchmark revisions

The results of the latest benchmark revision was published in 2005 – the socalled “datarevision”. This benchmark revision was minor in the sense that no new classifications and definitions were

introduced and that ESA95 is still followed. The larger exceptions, affecting the compilation of GDP, are:

- The distribution of FISIM to users
- Foreign trade of services are now recorded gross for im- and export. Before they were recorded as net-import or net-export.
- New COFOG classifications

As the national accounts has gradually introduced new accounting statistics, the existing compilation systems were - for the larger part - unchanged. New systems were developed for the compilation of dwellings, bank services, public non-market services and the gross-recording of foreign trade in services. In other areas the revisions follow a revaluation of the compilations fx in areas of growing importance in the economy.

1.3 Outline of the production approach

1.3.1 GDP according to the production approach

For 2003, the calculation of output-based GDP can be summarised as in the table below:

Table 1.2: GDP, production approach, 2003

	Value, DKK million	**% of GDP**
Output at basic prices	2 353 944	168
- Intermediate consumption	1 152 877	82
+ Taxes on products	218 279	16
- Subsidies on products	18 656	1
GDP	1 400 690	100

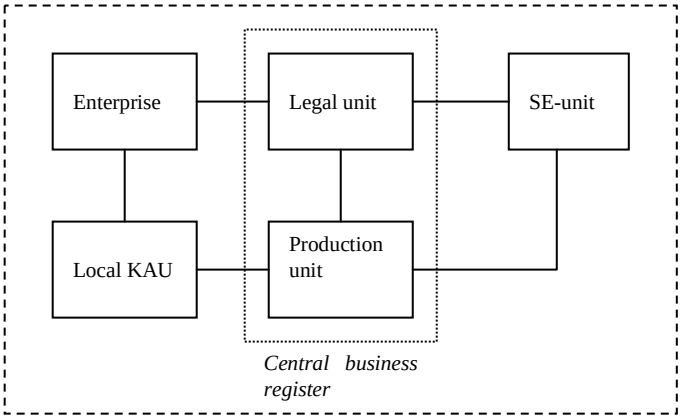
The aggregate estimate of value added is based on an estimate at the level of the national accounts' most detailed industry grouping. The national accounts are balanced at the 130-industry level in the supply and use tables. Balanced values for value added divided by industry appear in the final national accounts for 130 industries in prices for the year in question, in fixed 2000 prices and as time series of Laspeyeres chain indices based on estimates in the previous year's prices.

1.3.2 The business register

In Denmark only one Central business register exists. It is run by *Statistics Denmark, Skat* (Customs and Tax) and *Erhvervs- og selskabsstyrelsen* (Danish Commerce and Companies Agency).

The business register used in Statistics Denmark for statistical purposes is a copy of the Central business Register plus additional information, as shown in figure 1.1.

Figure 1.1: Business register, overveiw



For statistical purposes, Enterprise and Local KAU is used. The administrative units are the Legal unit and the Production unit. For VAT-purposes, the SE-unit is used.

1.3.3 Main data sources

General government
For central government, the main statistical source is central government accounts. For local government, the main source is local government accounts for all 275 municipalities and 14 counties. For the "self-owning" institutions, under both central and local government, annual accounts, assumed to cover the whole population, are collected. For the social security funds, the statistical source is their annual accounts, which are collected for all units concerned.

The units included in the statistical system for public finance as producer units in S.13 and those units which are classified in the business register as government non-market units are exactly the same. The grouping of government units by purpose, COFOG, is only added in the public finance statistical system and not in the business register.

The accounting plan in central government accounts is not the same as that used for local government accounts. All municipalities and counties are obliged to use the local government plan. When compiling national accounts, the accounts for central government, local government, "self-owning" institutions and social security funds are coded with national accounts classifications based on ESA95. Then they are stored in one compilation system, the *DIOR database* [*Databasen for integrerede offentlige regnskaber, i.e.* database for integrated public accounts]. All individual entries at the most detailed level of the primary accounting systems are given an ESA95 code. All entries are classified by type of transaction, by purpose and by industry.

Financial institutions
The sectoral delimitation of the subsectors complies strictly with the ESA 95 rules. Subsectors S.121 The central bank and S.122 Other monetary financial institutions have complete accounts.

In subsectors S.123 Other financial intermediaries and S.124 Financial auxiliaries, certain units are not covered by the financial accounts statistics collected by the supervisory authority, Finanstilsynet, or by Statistics Denmark. For S.123, those accounts which are available for the sector are grossed up to cover all units in that sector on the basis of employment. Enterprises in S.124 are covered by company accounts also grossed up on the basis of employment to cover the total population.

Insurance corporations and pension funds are covered in full by *Finanstilsynet's* accounting estimates.

Publicly controlled non-financial corporations
In 2003, the following industries in the national accounts' 130 grouping were included in whole or in part in the special treatment of industries where units controlled by government:

401000	Production and distribution of electricity
402000	Manufacture and distribution of gas
403000	Steam and hot water supply
410000	Collection and distribution of water
601000	Transport via railways
602100	Other scheduled passenger land transport
602409	Freight transport by road and via pipelines
620000	Air transport
631130	Cargo handling, harbours, etc.: travel agencies
640000	Post and telecommunications
900010	Sewage removal and disposal
900020	Refuse collection and sanitation
900030	Refuse dumps and refuse disposal plants
920001	Recreational, cultural, sporting activities (market).

For the above industries, the source for the national accounts estimate is "statistics for public enterprises", extended to cover all units in the industries in question. As general government statistics are compiled in line with national accounts principles, the extended statistics for public enterprises are processed according to national accounts definitions and presented according to the accounting plan for non-financial corporations in the ESA 95. One of the reasons is the desire to be able to produce a national accounts estimate of the "public sector", which is a combination of general government (S.13) and public corporations (S.11001). The public sector is all producer units in the economy under public control.

Grossed up industrial accounts statistics (non-financial corporations)
Non-financial corporations other than the government-controlled and the household sector (sole proprietorships and households as owner-occupiers) together account for by far the largest share of market output in the economy. As a general rule, value added is calculated from the two sets of accounts statistics, namely:

a) the industrial accounts statistics, which is by far the most important, covering for 2003 all non-financial producer units other than general government and industries where public corporations traditionally predominate and

b) "SLS-E accounts statistics", which cover the remainder of the economy, mainly certain personal service industries. This is accounts statistics based on standardised accounts (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.

It should be borne in mind that information from the SLS-E statistics is used for the grossing up of the industrial accounts statistics as well as for compiling the industries mentioned under b) which are not covered by industrial accounts statistics.

Agriculture, horticulture and the raising of fur animals
The statistical source for agriculture, horticulture and the raising of fur animals is Danmarks Statistik's agricultural statistics which, as already stated, are a national accounts estimate. The statistics comply with the guidelines in Eurostat's agricultural statistics manual. The calculations of intermediate consumption are based on 1) quantities of products used multiplied by the average selling price, 2) accounting information collected by the economic advisers for agriculture and 3) annual accounting statistics for agriculture and horticulture compiled by *Statens Jordbrugs- og Fiskeriøkonomiske Institut*.

Dwellings
The output value of dwellings is estimated every fourth year as a benchmark calculation of the price times volume type, based on the total stratified housing stock and comprehensive rental figures covering almost two-thirds of all dwellings in Denmark which are let. Both sources must be considered to be of high quality.

In years between the benchmark calculations, the latest benchmark is projected using price and volume indicators. The price indicator is rental information from the sample survey of rentals which is carried out every six months to provide information on changes in rentals in the consumer price index. The volume indicator is information from building statistics based on *Bygnings- og Boligregistret (BBR)* [the Register of buildings and dwellings] which gives the number of square metres constructed combined with an estimate of the number of dwellings demolished.

The benchmark calculation is particularly detailed and uses the stratification method which the GNP Committee approved as the preferred method. The stratification of the housing stock is much more detailed than the minimum requirements set out in the Commission Decision (95/309/EC, Euratom). Whilst this Decision requires a minimum of 30 strata, the Danish calculation of levels for 1999 uses roughly a thousand strata.

Non-profit institutions serving households
By far the largest expenditure component in the case of private non-market output is the wage or salary bill. In Denmark, the ERE* statistics calculate the total wage or salary bill in all producer

* *Erhvervsbeskæftigelsesstatistik*, translated into English in Danmarks Statistik publications as "Establishment-related employment statistics" (ERE). Please see Chapter 4.

units in the economy, including in private non-profit institutions serving households. This is the main source for the calculation.

For want of accounting statistics in this field, the other components in the estimate of output from the costs side, i.e. intermediate consumption, consumption of fixed capital and other taxes and subsidies on production, are calculated on the basis of the accounts for the largest trade union (HK).

Private households with employed persons
Statistics Denmark has carried out two benchmark surveys linked to the labour force surveys for 1992 and 2004, in which the households were asked a series of questions on their untaxed activities. Interviewees were asked about the number of hours worked and their income. On the basis of these figures, benchmark values were fixed for output by grossing up to the total population.

From 1992 and onward values were projected in the current years using changes in the net price index (consumer price index excluding taxes on products and subsidies) for cleaning. And off course, the new benchmark value in 2004 gave an opportunity to make a minor revision of the figures in the years between the two benchmarks.

1.3.4 Transition from private accounting and administrative concepts to ESA95 concepts

Intermediate system 1
After processing, all the accounting statistics underlying the national accounts calculations of value added are transferred to a common accounting plan, namely the plan used in the "intermediate system" shown in Table 3.16 The first version of the intermediate system is simply a file that contains the data from the four main systems after they are transformed to the common codes. In this file firms (institutional units) are broken down wherever necessary into producer units, so that the statistical unit for the calculation of value added, as required in the ESA 95, is the producer unit or a hypothetical unit of homogeneous production.

It should also be noted that estimates for units under threshold value have already been included as part of the calculations in the accounts statistics system.

In spite of the level of detail, various accounting items still do not correspond to national accounts concepts in the first version of the intermediate system because information from accounts alone is insufficient to perform the full transition.

Intermediate system 2
A second – and final – version of the intermediate system is the result of a number of corrections to the first version of the system. These corrections include:

On the supply side:
1) Production in the hidden economy.
2) Fringe benefits produced from own production.
3) Revenue from licenses and royalties.
4) Software produced on own-account.
5) Entertainment, literary and artistic originals
6) Price correction of changes in inventories of finished goods, work in progress and goods for resale.

On the uses side:

7) Fringe benefits purchased
8) Financial intermediation services paid for directly.
9) FISIM
10) Correction for net insurance premiums
11) Public fees
12) Expenditure on licences and royalties
13) Software produced on own-account
14) Purchased software
15) Price correction of changes in inventories of raw materials.
16) Small tools etc.

1.3.5 The main approaches taken with respect to exhaustiveness

The main initiative aimed at ensuring that coverage is exhaustive consists primarily of the very important work being carried out to ensure that the business register is updated to include new producer units.

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" and are described in detail in chapter 7.

In addition, Statistics Denmark includes for the purpose of the “fourth on resource” the value added resulting from illegal activity which according to ESA95 is part of the production boundary. The calculation and correction are described in chapter 7 and 8.

1.4 Outline of the income approach

1.4.1 GDP according to the income approach

For 2003, the calculation of income based GDP can be summarised as in table 1.3 below:

Table 1.3 GDP, income approach, 2003.

	Value, DKK million	% of GDP
Compensation of employees	763 262	54
+ Gross operating surplus and mixed income	436 509	31
+ Taxes on production and imports	243 680	17
- Subsidies	42 761	3
=GDP	1 400 690	100

All components of GDP compiled from the income side (GDP(I)) are compiled at the 130 industry level.

1.4.2 Main data sources

The main sources used for compiling GDP from the income side are:

- The annual working time accounts (WTA) (compensation of employees)
- The system for compiling fixed capital in the national accounts (consumption of fixed capital)
- Administrative data used for compiling general government (other taxes on production and imports and other subsidies on production)
- Gross operating surplus and mixed income are compiled as residuals.

The WTA is compiled in Statistics Denmark's division for labour market statistics. The WTA is used almost directly in the national accounts and only with a few adjustments made in the national accounts. The background for the WTA is a considerable expansion in the number of statistics covering the labour market and the fact that the figures from different statistics are not immediately comparable. The WTA is a statistical system integrating already existing labour market statistics.

1.4.3 Transition from private accounting and administrative concepts to ESA95 national accounts concepts

The main statistical source for the estimate of compensation of employees is the WTA. Table 1.4 shows the result of the transition from primary statistics, the WTA, to the national accounts calculation for compensation of employees.

Table 1.4: Compensation of employees in the WTA and the national accounts, mill. DKK

		2003
	Working Time Accounts	741 613
	Initial adjustments	-822
	Alternative sources replaces WTA	5 295
	General government non-market replaces WTA	6 958
	Non-declared ("black") wages	1 941
	Difference between fringe benefits	
	Difference between pension contributions	7 530
	Basis for the national accounts	764 158
	Other adjustments for consistency	-670
	Final national accounts estimate	763 262

Gross operating surplus and mixed income are based on the estimate of value added from the production side.

1.4.4 The main approaches taken with respect to exhaustiveness

The most important explicit allowances for exhaustiveness related to GDP according to the expenditure approach are fringe benefits and the black economy. For a detailed description please see chapter 1.7 and chapter 7.

1.5 Outline of the expenditure approach

1.5.1 GDP according to the expenditure approach

For 2003, the calculation of expenditure-based GDP can be summarised as in table 1.5 below:

Table 1.5 GDP, expenditure approach, 2003

	Value, DKK million	% of GDP
Total final consumption expenditure	1 038 178	74
Household final consumption expenditure	656 340	47
NPISH final consumption expenditure	10 602	1
General government final consump. expenditure	371 236	27
Gross capital formation	274 962	20
Gross fixed capital formation	269 835	19
Changes in inventories	3 210	-
Acquisitions less disposals of valuables	1 917	-
Exports of goods and services	635 114	45
Imports of goods and services	547 565	39
GDP	1 400 689	

The table shows that household final consumption expenditure in Denmark made up a little less than half of GDP in 2003, general government final consumption expenditure a good quarter, gross capital formation one-fifth and net exports the final 6%. Exports of goods and services accounted for 45% and imports 39%.

1.5.2 Main data sources

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

Household final consumption expenditure:
Retail trade statistics, DOI (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 (quantities of goods on which excise duties are levied)
Supply side estimates
Motor vehicle statistics (households' acquisitions of new cars)
Balance of payments statistics (tourist revenue and expenditure)

Final consumption expenditure in NPISHs:
ERE [establishment-related employment statistics] estimates of total wages and salaries

Gross fixed capital formation:
Agricultural statistics
Public finance statistics
Accounts statistics for industries predominated by public corporations
Register of buildings and dwellings (BBR)
Index of construction costs
Product statistics for the IT industries
ICT expenditure
External trade statistics
Industrial accounts statistics
Specific industry statistics
Media statistics
Register of motor vehicles
Register of vessels
Register of aircrafts

Acquisitions less disposals of valuables:
Industrial commodity statistics
External trade statistics
Household budget survey (FU)

Changes in inventories:
Industrial accounts statistics
SLS-E 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
Accounts statistics for sea water transport.

By far the largest share of expenditure-based GDP is calculated using a direct estimate. The most important exceptions are household consumption of hotel and restaurant services, dwelling services, consumption in NPISH, which are all calculated indirectly from the supply side.

For some consumption groups of household final consumption expenditure, more than one source is available. In these cases, an assessment of which source is the most reliable for estimating the variable (consumption group) has been made. The assessment mainly relates to whether the consumer survey (FU) should be replaced by another source.

The main rule in the Danish national accounts has been that wherever possible the FU has been replaced by other information to *determine levels*, but it is widely used to determine the structure of expenditure – for the breakdown of food consumption into individual foodstuffs, for example. For retailable consumption, i.e. that share of private final consumption which passes 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. The FU figures are used to divide the aggregate groups from retail sales statistics into the detailed consumption groups. For energy products and acquisitions of motor vehicles, there is special information available based on physical data.

Acquisitions less disposables can in principle be estimated in two ways, either directly using information on the expenditure (uses) side (purchaser's side) or indirectly on the basis of supplies of products to the domestic market, using estimated shares of supplies to the final demand components to calculate final uses from the resources side. During the recent years widening of the scope of the industrial accounts statistics have led to estimates of GFCF in machinery, equipment and major building repairs that have gradually changed from supply side estimates to estimates that are mainly based on information from the uses side. The estimates for construction of new buildings are based either on accounting statistics with very detailed coverage of actual observations or a calculation based on the exhaustive register of buildings (the BBR) and prices pr square meter for the different types of buildings. However, even after the introduction of a direct expenditure based estimate of capital formation in machinery and equipment, it is likely that it will be adjusted to some degree to take account of supply side estimate

Since the Danish national accounts are adjusted in a detailed product balance system, there is a systematic confrontation in connection with the balancing. One of the strongest 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.

1.5.3 Transition from private accounting and administrative concepts to ESA95 concepts

In household and business accounts, purchases of goods and services are recorded in terms of purchasers' prices including non-refundable VAT. Refundable VAT is not included in the acquisition prices, on which information is available, which is consistent with the ESA 95 net VAT system.

Various acquisitions which the national accounts treat as gross fixed capital formation are included in business accounts as current operating expenditure in the form of intermediate consumption or wages and salaries which are not capitalised. Examples would be consumables as well as purchased and own-produced software. The corrections on the expenditure side are a mirror image of the corrections to the output value (e.g. own-produced software) and intermediate consumption (consumables and purchased software) in the output-based estimate as described in chapter 1.3 and chapter 3.

For each type of inventory, changes in inventories in the business accounts are calculated as the value of closing stocks minus the value of opening stocks, estimated according to the enterprises' own accounting principles, which means that opening and closing stocks are calculated at different price levels. In the national accounts, changes in inventories should be estimated at the average prices for the year. Ideally, changes in inventories should be monitored throughout the year and all changes split into revaluations (holding gains) and national accounts changes in inventories. Normally, a reasonable approximation of the correct change can be produced by converting the value of both opening and closing stocks to the average prices for the year using the ratio of the year's average price to the price on the date of the inventory estimate. In the Danish national accounts, opening and closing stocks are converted to average prices for the year for all combinations of product number/target total module code/DK-NACE industry/sector following the breakdown of inventory totals by product. The national accounts change in inventories is calculated as closing stocks minus opening stocks for each of these combinations.

For import and export of services, the statistical challenge arising from the use of settlements statistics for the estimate of *aggregate* exports/imports of services lies in ensuring that the definition of what constitutes an export or an import of services remains consistent with the external trade statistics and national accounts estimates of exports of goods f.o.b. and imports of goods c.i.f. Therefore, a correction is made to exports and imports of services as estimated in the settlements statistics to bring the latter into line with the estimate of exports of goods f.o.b. and imports of goods c.i.f.

1.5.4 The main approaches taken with respect to exhaustiveness

As regards the legitimate (as opposed to the black) economy excluding fringe benefits, the most important steps taken are corrections and supplements to the sources underlying the calculations of household consumption expenditure. Retail sales statistics do not cover all industries 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.

The calculations of fringe benefits and the black economy are discussed in chapter 1.7 and chapter 7.

1.6 The balancing or integration procedure and main approaches to validation

Before the balancing of GDP can take place in the supply and use tables (SUT), so-called target totals for supply and use are compiled. This is done by collecting the information from intermediate system 2 and other systems in the target total module. When the target totals for supply and use are compiled, they are subsequently distributed by 2 350 products.

The current system of SUTs for Denmark was established in the mid-seventies. Since then the calculation of annual SUTs has been a totally integrated part of the compilation of annual National Accounts in both current and constant prices.

The integration of SUT in the compilation of National Accounts implies that a number of NA aggregates are derived directly from the SUT. This in particular relates to all the NA aggregates in the "Goods and services account" and the "production account". The integrated procedure is in contrast to a procedure where SUT are compiled after the production of the NA figures implying a number of restrictions on the totals of the SUT.

The Danish SUT are compiled in connection with the final annual accounts, which are released with a delay of almost three years. The structural information entailed in the SUT for the latest final year is used in the compilation of preliminary annual and quarterly national accounts but no balanced preliminary or quarterly SUT are produced.

The process of constructing the SUT for a given year can be summarised into the following steps:

The first step is to gather all the available data on the actual year on target totals and other values that can be entered directly into the system as predetermined.

The next step is to create a complete initial version of the SUT. This version is compiled using automatic processes, but at this stage a number of unsolved problems will remain: For some products supply will not equal uses. For most categories of use the totals will usually differ from their targets. Total trade and transport margins and total VAT may also differ from their respective targets. This step is referred to as "Automatic balancing".

Then follows a step, where the initial version of the product-balances is adjusted manually. The unsolved problems are examined closely. In many cases such problems will reveal errors in the calculations that produce data-input to the product-balances or in the primary statistics itself. Solutions to such problems may be found in co-operation with the relevant sections of the statistical bureau and may involve changes in supply, predetermined uses or target-totals. A number of products are redistributed between uses to bring the distance between totals and targets within an acceptable range for each category of use. Corrections to the initial balances are entered into the system to create a new - but not yet final - version. This step is referred to as "Manual balancing"

In the last step the differences between totals and targets are removed except where such differences are considered acceptable. In this step trade and transport margins and VAT are finally adjusted to their targets. This step is referred to as "Final balancing".

As described, the balancing of GDP from the production side, GDP(P), and GDP from the expenditure side, GDP(E), takes place in an integrated supply-use framework.

Table 1.6 shows an extract from the process table for 2003. Process tables show how initial primary statistics are corrected, adjusted and balanced in order to compile GDP. Appendix 9 shows the full process table. Table 6.1 shows that the balancing accounts for +0,1 percent on GDP(P) and -1,6% on GDP(E). On the other hand, data validation accounts for -3,4% on GDP(P) and 0,0 % on GDP(E).

Table 1.6: Compilation of GDP, extract from the process table. 2003.

	Basis for NA figures	Conceptual and other adjustments	Data validation	GDP before balancing	Balancing adjustments	Balanced GDP
Mill. DKK						
GDP(P)	1.405.153	41.250	-47.388	1.399.015	1.680	1.400.694
GDP(E)	1.392.014	31.125	-130	1.423.009	-22.319	1.400.690
% of GDP						
GDP(P)	100,3	3,0	-3,4	99,9	0,1	100,0
GDP(E)	99,4	2,2	0,0	101,6	-1,6	100,0

Note: The difference between balanced GDP(P) and GDP(E) is purely due to rounding errors in the process table.

GDP from the income side, GDP(I), is not described in the process table, because it is not an integrated part of the balancing in the supply-use framework. It is therefore not relevant to show GDP(I) before balancing and balanced GDP(I) in this context.

1.7 Overview of the allowances for exhaustiveness

Explicit allowances
Table 1.7 shows explicit allowances for exhaustiveness in the Danish national accounts. The explicit allowances account for 33.9 bill. DKK or 2.4 percent in 2003.

Table 1.7 Explicit allowances in the national accounts, 2003

Explicit allowances	Value, DKK mill.	% of GDP
Farmers' output for own consumption etc.	196	0.01
Own-account production of software and large databases	11 876	0.85
Output of entertainment etc. originals	1 507	0.11
Fringe benefits for employees	9 645	0.69
Hidden activity, underreporting and the corresponding VAT fraud	10 650	0.76
Total	33 874	2.42
GDP	1 400 689	100

Values for *farmers' output for own consumption etc.* are available from agricultural statistics and are assumed to cover farm-gate sales as well, most of which presumably come under the black economy.

Values for *own account software and artistic originals* are calculated as part of output in relevant industries.

For 2003, allowances are imputed for *payments in kind to employees (fringe benefits)* covering the following seven products:

1) free cars
2) free telephone
3) canteen subsidies
4) free housing
5) free travel
6) free newspaper
7) free pc

In 2003, the total amount was DKK 9 645 million. Of these seven goods, free cars and subsidies to canteens are by far the most important, accounting for DKK 3 793 million and 4 245 million respectively.

In the Danish national accounts, there are two types of allowance for *the black economy*. First of all, there are estimates for the *work that is hidden* to the public authorities in order to avoid taxes. In these cases, both the seller and the buyer of a product will typically know that the production is not reported to the tax authorities, and the price will be below market price. Secondly, there are allowances for the *under-reporting and the associated VAT fraud* that companies take advantage of. In these cases, buyers do not necessarily know that the production is not declared.

The values for the black economy in 2003 are based on a benchmark study in 2004, which was partly financed by the EU[1]. For the benchmark study, the value of the *hidden work* is estimated using telephone interviews while the estimates for the value of *under-reporting and associated VAT fraud* are found using the discrepancy method and other indicators. The results from the 2004 benchmark study and the benchmark study before that from 1992 are then interpolated using various methods.

Statistics Denmark includes *illegal activity* in GDP and GNI for own resource purposes only. It is not included in our national publications. An inclusion in the national publication will be considered in connection with the next major revision. According to ESA95, illegal activity is included in the production boundary. Illegal activity differs from the black economy in that the activity is illegal in itself. The black economy is illegal in the sense that the evasion of taxes etc. makes it illegal, but the activity is not illegal as such.

For practical purposes, illegal activity includes smuggling, prostitution and drugs. Table 1.8 shows total value added related to illegal activity.

Table 1.8: Illegal activity, value added. Mill DKK.

			2002	2003	2004	2005
Value added:						
	Smuggling		335	281	241	255
+	Prostitution		1.169	1.161	1.155	1.224
+	narcotics		1.477	1.228	900	953
=	Illegal aktivitet, total		2.981	2.670	2.296	2.432

Implicit allowances

No explicit allowances for underreporting are made in agriculture etc, mining and quarrying, dwellings, letting of non-residential premises, industries where public corporations predominate or general government. In mining and quarrying, financial activity and general government, the black economy is assumed not to exist, since these activities are carried out either by public authorities or by very large entities which are closely monitored by public authorities.

For agriculture etc. and dwellings, output is estimated, as described in Chapter 3, using a price times quantity calculation. This captures the value of underreporting and work in the black economy implicitly, since the method ensures that all output in these areas is covered. But it is not possible to estimate concealed activity explicitly. The same goes for letting of non-residential premises, where the output value is estimated from the expenditure side.

[1] The study is described in detail in the report "Underground production in Denmark" by Statistics Denmark from 2004.

1.8 The transition from GDP to GNI

Table 1.9 shows the transition from GDP to GNI published nationally and GNI for own resource purposes.

Table 1.9 Transition from GDP to GNI, 2003

		DKK mill.
	GDP	1 400 690
+	Compensation of employees from the ROW	6 158
-	Compensation of employees to the ROW	6 772
+	Property income from the ROW	65 576
-	Property income to the ROW	80 198
-	Taxes on production and imports to the ROW	2 341
+	Subsidies from the ROW	9 007
=	Nationally published GNI (ESA 95)	1 392 120
+	Illegal activity	2 670
-	EU's third own resource (definitional difference)	2 828
-	FISIM	14 274
=	GNI for fourth own resource purposes	1 377 688

The main source for *compensation of employees* is Danmarks Nationalbank's settlements statistics with some corrections, fx. for Danish building workers working abroad and for gross recording, ie. recording before the deduction of taxes.

The main source for the *interest* item is Danmarks Nationalbank's settlements statistics. Under interest payable to the ROW, a correction is made for losses on the issue price of discounted bonds and the index-linked premiums on index-linked bonds.

The source for the *distributed income* item is Danmarks Nationalbank's settlements statistics

Danmarks Nationalbank estimates *reinvested earnings* on the basis of questionnaire surveys, which in principle cover all inward and outward foreign direct investment enterprises. The reinvested earnings on foreign direct investments in the balance of payments and in the national accounts are calculated as the difference between the surplus (profits) for the year and the dividends paid out during that same year according to the settlements statistics. This implies that Method II according to document GNIC/052 is applied.

All *property income allocated to policyholders* who are non-resident is assumed to come from non-life insurance.

Taxes on production and imports to the EU Institutions are recorded directly in central government accounts, in gross terms, before the payment of 25% of customs revenues which the Member States receive as payment for administrative services. These services are counted as exports of services.

Subsidies from the EU Institutions are recorded in central government accounts. The subsidies are related to agricultural schemes.

It is important to note that for Denmark, GNI published nationally is different from GNI used for own ressource purposes. The differences are well defined and shown in table 8.1

The adjustment for illegal activity has not yet been introduced in our national publications as it is only possible in connection with a major revision. Because illegal activity is part of the production boundary in ESA95, Statistics Denmark considers the explicit adjustment to GNI for own ressource purposes as a satisfactory solution in the short run.

The adjustment made for EU's third own ressource is due to the fact that this contribution to the EU is recorded as a transfer to the rest of the world in our national publication. For GNI own ressource purposes, this contribution is recorded as taxes on products paid directly to the EU because it is based on VAT.

The adjustment for FISIM follows directly from the Council decision on EU own resources (2000/597), according to which the allocation of FISIM to user sectors should not have an impact on GNI for own ressource purposes until the Council so decides.

1.9 The exclusion of the effect of the allocation of FISIM on GNI

The FISIM calculation is defined in Council Regulation (EEC) no. 448/98 and implemented by Council Regulation (EC) No 1889/2002. The regulation aims at allocating FISIM to consumers, so that it is possible to distinguish between final use of FISIM and FISIM as intermediate consumption. All EU member states are obliged to implement an allocation of FISIM in the National Accounts. However, this allocation should not have an impact on GNI own resources until the Council so decides.

FISIM is exclusively produced by financial corporations, which engage in financial intermediation of loans and deposits for which the rate of interest is controlled by the financial corporations (and thus the interest margin and the earnings that they want to achieve in this way). A majority of the FISIM production takes place in banks, which continuously account for a dominant share of Danish loans and deposits. In addition to the more conventional dissemination of loans and deposits by banks and saving banks, FISIM is produced by financial corporations intermediating consumer credit and financial leasing.

The FISIM calculations are based on the reference rate method. I.e. the consumption of FISIM by each individual unit (sector or industry) is estimated as the difference between interest receivable on deposits/paid interest on loans and interest compiled using an interest reference rate. The reference rate is regarded as a 'pure' economic rate of interest i.e. exclusive any kind of risk premium or direct payment for the financial service delivered. The consumption of FISIM is estimated as the sum of FISIM on deposits and FISIM on loans:

FISIM= FISIM on deposits: (deposits*interest reference rate) – paid interest on deposits
+ FISIM on loans: (interest receivable on loans) – (loans*interest reference rate)

The *interest reference rate* is based on inter bank rates, which are estimated as the ratio between interest receivable on loans and stocks of loans between the financial corporations producing FISIM. The external reference rate is estimated in a similar way on the basis of inter bank outstanding amounts between resident and non-resident financial intermediaries.

The *breakdown to user sectors* is made directly as part of the calculation of FISIM output. Information from the Money and banking statistics together with information from the financial accounts from the Rest of the World is used. The Money and banking statistics carries information which is used for the breakdown of stocks into user-sectors (S.11 Non-financial corporations, S.12 Financial corporations, S.13 General Government, S.14 Households and S.15 NPISH)

For households and NPISH, a further division into households as final consumers, households as owners of dwellings and households in their function of unincorporated enterprises is made. FISIM allocated to the latter two functions of households are treated as intermediate consumption, whereas FISIM allocated to households as consumers is treated as final consumption expenditure.

The allocation of FISIM to *user industries* is calculated by combining two methods which are described in the regulation. It means that calculations are partly based on the stocks of loans and deposits for each industry and on the output of each industry.