3. The production approach

3.0 GDP according to the production approach

For 2012, the calculation of output-based GDP can be summarised in table 3.1 below:

Table 3.1 GDP, Production approach, 2012

	Value	Pct. of GDP
	DKK mill.	pct.
Output at basic price	3 362 422	178.6
- Intermediate consumption	1 738 713	92.6
+ taxes on products	272 919	14.5
- Subsidies on products	14 003	0.7
GDP	1 882 625	100.0

The aggregate estimate of value added is based on an estimate at the level of the national accounts' most detailed industry grouping. The estimates for the 117 individual industries are set out in Sections 3.7 - 3.25, which explain the calculations for each of the NACE subsections. The calculations of value added up to the initial output-based estimate of GDP are for most industries at a much more detailed level, namely the DK-NACE extremely detailed grouping of 726 industries. The national accounts are balanced at the 117-industry level in the supply and use tables. Balanced values for value added divided by industry appear in the final national accounts for 117 industries in prices for the year in question and as time series of Laspeyeres chain indices based on estimates in the previous year's prices.

Table 3.2 is a cross table showing value added at basic prices in 2012 by industry (NACE A21) and institutional sectors.

Table 3.2 Output, intermediate consumption and gross value added by industry and institutional sector, 2012

NACE section		Sector	Output	Intermediate consumption	Gross value added	PCT of GVA
			DKK mill.			pct.
A	Agriculture, forestry and fishing	S.11	27 680	19 301	8 379	0.52
		S.13	749	411	338	0.02
		S.14	60 483	37 843	22 640	1.39
B	Mining and quarrying	S.11	65 699	9 109	56 590	3.49
		S.14	85	29	56	0.00
C	Manufacturing	S.11	652 516	442 658	209 857	12.92
		S.14	10 437	4 985	5 452	0.34
D	Electricity, gas, steam and air conditioning supply	S.11	93 408	54 787	38 621	2.38
		S.14	138	69	69	0.00
F	Construction	S.11	155 822	92 270	63 552	3.91
		S.13	9 015	6 233	2 782	0.17
		S.14	40 775	32 580	8 195	0.50
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	S.11	349 193	160 151	189 042	11.64
		S.14	23 215	14 543	8 671	0.53
H	Transportation and storage	S.11	333 475	263 914	69 561	4.28
		S.13	5 415	3 102	2 313	0.14
		S.14	14 835	4 820	10 016	0.62
I	Accommodation and food services activities	S.11	40 781	22 861	17 920	1.10
		S.14	15 004	9 186	5 818	0.36
J	Information and communication	S.11	147 765	78 545	69 219	4.26
		S.13	3 716	1 598	2 119	0.13
		S.14	4 397	2 542	1 855	0.11
K	Financial and insurance activities	S.12	167 115	64 696	102 419	6.31
L	Real estate activities	S.11	107 356	42 260	65 096	4.01
		S.13	1 891	886	1 005	0.06
		S.14	133 945	35 158	98 786	6.08

Table 3.2 Output, intermediate consumption and gross value added by industry and institutional sector, 2012 cont.

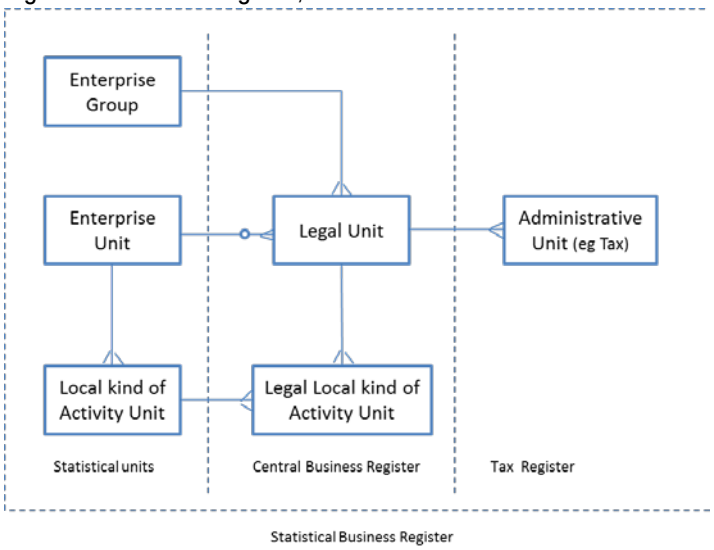
NACE section		Sector	Output	Intermediate consumption	Gross value added	PCT of GVA
			DKK mill.			pct.
M	Professional, scientific and technical activities	S.11	144 009	71 312	72 698	4.48
		S.12	395	123	272	0.02
		S.13	5 089	1 184	3 905	0.24
		S.14	12 160	6 030	6 130	0.38
N	Administrative and support service activities	S.11	79 178	44 831	34 347	2.12
		S.13	13 291	7 912	5 378	0.33
		S.14	9 286	3 723	5 563	0.34
O	Public administration ad defence; compulsory social security	S.11	5 112	1 476	3 636	0.22
		S.13	139 498	50 835	88 663	5.46
		S.14	3	1	2	0.00
P	Education	S.11	2 114	1 147	968	0.06
		S.13	124 617	32 352	92 266	5.68
		S.14	1 384	322	1 062	0.07
		S.15	15 655	4 331	11 324	0.70
Q	Human health and social work activities	S.11	18 050	5 002	13 048	0.80
		S.13	219 730	65 453	154 277	9.50
		S.14	12 545	1 922	10 622	0.65
		S.15	6 164	3 157	3 006	0.19
R	Arts, entertainment and recreation	S.11	19 088	8 309	10 780	0.66
		S.13	14 541	5 554	8 988	0.55
		S.14	3 386	895	2 491	0.15
		S.15	4 836	2 086	2 750	0.17
S	Other service activities	S.11	14 754	4 809	9 946	0.61
		S.13	7 379	2 499	4 879	0.30
		S.14	7 387	2 408	4 979	0.31
		S.15	13 237	6 505	6 732	0.41
T	Activities of households as employers; etc.	S.14	4 624	0	4 624	0.28
	Total		3 362 422	1 738 713	1 623 709	100.00

3.1 The reference framework

3.1.1 The business register

In Denmark only one Central business register exists. It is run by *Statistics Denmark*, *Skat* (Customs and Tax) and *Erhvervsstyrelsen* (Danish Business Authority). 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 3.1.

Figure 3.1 Business register, overview



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.

All businesses receive a number related to the legal unit in the central business register (CVR-number) when they first register for business. In most cases, there is a one-to-one relationship between the Legal unit and the Enterprise. In some cases, if an enterprise covers more than one legal unit, Statistics Denmark decides in each case in which branch the enterprise is placed.

A legal unit can have one or more production units. The same goes for the enterprise, which can have one or more local KAUs. Normally there is a one-to-one relationship between the production unit and the local KAU. However, in some cases, if an enterprise covers more than one legal unit, Statistics Denmark can decide that one local KAU covers more than one production unit.

The Administrative-unit is the level at which VAT is settled. All legal units have at least one administrative unit and always one with the same identity-number. It is possible for a legal unit to have more than one Administrative-unit, and therefore several administrative-numbers.

All businesses have to register for VAT if their turnover exceeds 50.000 DKK during a 12 month period, which is a small amount. Registration for VAT automatically implies registration in the central business register, which therefore has a very high degree of coverage. If businesses have employees, they are obliged to register in the central business register. Also very small Danish units without reports to the tax system often want to be registered in the publicly (www) available central business register.

All administrative and statistical units are registered with the following information:

1. Identity number
2. History
3. Main and secondary branch
4. Owner and ownership-form
5. Name and address
6. Telephone number
7. Sector-code which shows which institutional sector the unit belongs to.
8. Legal form
9. Information on employment and turnover
10. Information on most recent update (when, who and what)

The central business register is automatically updated when new businesses start or old businesses close down. The above-mentioned three agencies are responsible for updating different parts of the central business register. For creation and death of legal units:

- Government: *Statistics Denmark*
- Private and public owned corporations: *Erhvervsstyrelsen*
- Sole proprietorships: *Skat*

Most of the updating takes place on the internet via the website virk.dk and digital reporting. This implies that the businesses themselves do most of the updates using a digital signatur. Statistics Denmark can always correct the branch and “lock” the updates made by businesses and other authorities. Statistics Denmark can make all types of updates of production units. For Statistics Denmark, it is a quality, that information in the Central Business Register (CBR) and the Statistical Business Register (SBR) is as identical as possible at a given point in time.

In the part of the register used for statistical purposes (SBR), local KAUs are followed over time. In addition to automatic takeovers of local KAUs from the CBR (takeovers of Local KAUs based on the creation of new legal local KAUs by the creation of new production units on the same address and with the same branch) an important source is monthly reporting of wages and salaries (at the micro level, identifiable by the person) to the tax authorities, that are passed on to Statistics Denmark immediately. This way it is possible to register takeovers and separations of local KAUs for work places with more than three employees with a very high degree of quality. When a correction is made to a /local KAU, the correction is followed through to the enterprise. Often there is a one-to-one relation between the enterprise and the local KAU. All cases are considered separately.

Updates and corrections of units are made in the SBR/CBR. For statistical purposes in Statistics Denmark so called “frozen” versions of the SBR are made that lock the unit to a geographical location, activity, size etc. for the period in question. All published statistics are based on a frozen version of the SBR.

3.1.2 Breakdown of the economy into sectors, sub-sectors and industries

The statistical unit for the estimate of output and value added in the ESA 2010 is the local KAU (local kind-of-activity unit, which in Danish is synonymous with the producer unit, the workplace[4]). In the ESA 2010, these units are grouped into industries. When discussing the estimate of GDP from the production side, it is therefore logical to proceed industry by industry. However, the primary statistics available - and thus the statistical methods relevant to use - will almost always be based on a grouping of the somewhat broader institutional units (firms) by main activity (a grouping into "sub-sectors", or "firm branches"). For example, the management of housing and business premises as part of the activity of pension funds will be subject to the requirements for the submission of accounts and statistical reporting which apply to pension fund activity, which means that all units, right down to the smallest, have to report. The letting of housing and non-residential property which is not hived off into a property company but is an integral part of the pension fund's investment activity is thus not included in the primary statistics for firms whose main activity is the letting of property. Throughout the process of estimating value added on the basis of primary statistics, we have to look out for and take account of the relationships between institutional producer units (firms) and local kind-of-activity units (producer units).

If we look at the statistical coverage of the economy in primary statistics in the form of accounting statistics, we see that there is a broad division into four sectors/subsectors:

1. Sectors with complete accounts and (virtually) full coverage of the population via administrative or statistical returns

S.13 General government
S.121 The central bank
S.122+S.123 Deposit taking corporations except the central bank+Money market funds (MMFs)
S.124 Non-MMF investment funds
S.128 Insurance corporations
S.129 Pension funds
S.15 Non-Profit Institutions Serving Households (NPISH), partly

2. Sectors with complete accounts and partial coverage of the population via administrative or statistical returns

S.11 Non-financial corporations (other than agriculture and dwellings)
S.125 Other financial intermediaries, except insurance corporations and pension funds
S.126 Financial auxiliaries
S.127 Captive financial institutions and money lenders
S.14 Households (other than agriculture and dwellings)
S.15 Non-Profit Institutions Serving Households (NPISH), partly.

3. Sectors with a combination of physical and economic accounts

S.11 Agriculture and dwellings where the form of ownership is non-financial corporations
S.14 Agriculture and dwellings where the form of ownership is households (sole proprietorships)

4. Sectors with no accounting statistics
Empty

[4] “Workplace” and “Local kind of activity unit” are used synonymously throughout this inventory. The same applies to the word “producer unit” except in a few cases where referred to as “institutional producer unit”.

This breakdown is fundamental. In group 1, there is, of course, no noticeable problem with sampling or grossing up, since virtually all producer units are covered by the ongoing estimates. The challenge here is basically to convert the primary statistics' accounts to the concepts of national accounts. In group 2, which covers the vast majority of activity in the economy, much of the work of producing exhaustive and reliable estimates consists in ensuring that the samples used are representative and that the figures are grossed up to the total population. The new (established in 2014) accounting statistics for S.15 NPISH is placed here, and it increases the share of the economy covered by account statistics compared to before the major revision in 2014. This is also the reason why group 4, sectors with no accounting statistics now is empty (compared to the previous GNI inventory, sources and methods 2003).

For agriculture and dwellings (group 3) the basis for the national accounts estimates are physical quantities or areas. For agriculture the basis is Economic Agricultural Accounts, EAA, (a bridge table is presented in chapter 3.7). For dwellings the basis is the stratification model as recommended in Commission Regulation 1722/2005 and described in detail in chapter 3.18.

Table 3.3 shows a breakdown of gross value added (GVA) 2012 by the four groups.

Table 3.3 Gross value added based on various accounting statistics, 2012

Breakdown of gross value added according to the four sectors/subsectors in chapter 3.1.2

		pct.
1	Sectors with complete accounts and (virtually) full coverage of the population via administrative or statistical returns	27.4
2	Sectors with complete accounts and partial coverage of the population via administrative or statistical returns	63.2
3	Sectors with a combination of physical and economic accounts	9.4
4	Sectors with no accounting statistics	0.0
	Total	100.0

Below, the four sectors and sub-sectors are discussed individually.

3.1.3 Sectors with complete accounts and full coverage (group 1)

In 2012, these sectors together accounted for 27% of total gross value added in the economy.

Below are descriptions of general government (3.1.3.1), financial corporations (part of) (3.1.3.2) Non-profit-institutions serving household (partly) (3.1.3.3).

General Government (S.13)

Delimitation of the sector

In Denmark, S.13 covers only those institutional units that are government non-market producer units and which are subject to government control. All government-controlled market producer institutional units are considered to constitute independent institutional units. If they are not legal corporations, they are treated in the national accounts as quasi-corporations with autonomy of decision-making and are included in the corporate sector (S.11). For example, all local government utilities (water supply, drain service etc.) are included in the non-financial corporations sector S.11 even though their accounts in some cases are integrated in the local government accounts. In the Danish national accounts, therefore, the institutional sector S.13 is identical with the population of government non-market producer units, and all output is calculated from the cost side. This coincidence is very useful from the point of view of both the actual calculations and the analytical uses of national accounts.

However, some institutional units in S.13, who are classified as non-market producers, may have some market output as secondary activity, which is part of government sales. Denmark has a derogation in the transmission program until 2017 regarding the distinction of the receipts from government sales between those related to market output and non-market output.

Those economic units which are considered to be government non-market producers but contain local kind-of-activity units that produce market output are classified in the business register, to distinguish them from full market producers and private non-market producers, i.e. NPISHs. This classification is crucial to ensure that there are no units left out or double-counted. The business register also has ownership codes, to identify all government-owned corporations and quasi-corporations. Those units which are coded as government non-market producer units and those which are coded as government-owned market producer units are combined in the statistical system into *the public sector*, i.e. S.13, general government, and S.11001, public corporations.

Subsectors

The general government sector S.13 is divided into three subsectors:

S.1311: Central government
S.1313: Local government
S.1314: Social security funds.

Central government (S.1311) comprises central government institutions financed and controlled by central government and the Danish National Church ("*Folkekirken*"). Under the Danish constitution, the latter has special status compared with other religious communities and unlike them receives direct funding from central government. Local government consists of *kommuner* (district, i.e. "municipal", authorities) and *Regioner* (counties). Social security funds cover *a-kasse*r (unemployment insurance funds) and *Lønmodtagernes Garantifond* (employees' wage guarantee fund).

As part of the major revision published in September 2014, more emphasis was put on government control when deciding the sector classification of non-market producers mainly financed by general government. The result is, that some institutions (mainly private schools and some welfare institutions), funded but not controlled by general government were moved from S.13 to sector S.15 Non-profit institutions.

Statistical sources

For central government, the main statistical source is central government accounts. For local government, the main source is local government accounts for all 98 municipalities and 5 counties. For the “self-owning” institutions, under both central and local government (extra budgetary units, for example universities), 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.

Links with the business register

As mentioned, the units included in the statistical system 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 statistical processing system for general government and not in the business register.

From primary public accounts data to national accounts statistics

The accounting plan in central government accounts is not the same as that used for local government accounts. All municipalities follow one common accounting plan and all counties follow one common accounting plan which they are obliged to use. 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 ESA 2010. 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 ESA 2010 code. All entries are classified by type of transaction, by purpose and by industry.

Output of government non-market producer units

According to ESA 2010 output (P.1) of government non-market producer units is the sum of:

Intermediate consumption (P.2)
Compensation of employees (D.1)
Consumption of fixed capital (K.1)
Other taxes on production (D.29) less other subsidies on production (D.39).

Government final consumption expenditure is calculated as follows:

Output (P.1)
minus
Revenue from sales (from both non-market output - "user payments" - and sales of market products produced as a secondary activity)
Minus
Output of capital goods for own use
Plus
social transfers in kind of market goods and services.

Output of capital goods for own use is research and development and own-produced software. Social transfers in kind of market goods and services cover general government purchases on the market of health services (health insurance services) and aids and appliances made available to households. These last products are not included as intermediate consumption by general government but are entered directly as final uses in a special category for government final consumption expenditure on market products.

Table 3.4 shows the relationship between general government output and government final consumption expenditure in 2012.

Table 3.4 Relationship between S.13 output and S.13 final consumption expenditure

	DKK mill.
+ Compensation of employees	314 639
+ Consumption of fixed capital	55 926
+ Intermediate consumption	178 020
+ Other taxes on production and	2 990
- Other subsidies on production	6 643
= Output	544 932
+ Social transfers in kind	29 972
- Revenue from sales	55 010
- Capital goods for own use	18 260
= Consumption expenditure	501 635

Breakdown of output by industry and product

In the *DIOR* database for government accounts, all producer units are recorded in terms of DK-NACE industry and COFOG code by purpose. The total output value of the general government sector is divided into the national accounts' 117 industries on the basis of the industry codes in *DIOR* which are the same as the industry codes for the units in the *CVR*.

In the DIOR database intermediate consumption, compensation of employees and other taxes on production less subsidies on production has been calculated from the accounts data mentioned above. Compensation of employees compiled using these sources is used to replace the figures from the working time accounts (WTA) as described in chapter 4.2 and 4.8. However consumption of fixed capital is not compiled using the administrative sources described here. A description of the compilation of consumption of fixed capital can be found in chapter 4.12.

The breakdown of output by product is based on the detailed *DIOR* industry codes that correspond to the detailed DK-NACE classification. In 2012, general government output was divided in the national accounts product balance system over 109 products, 42 for output from various activities counted as public consumption expenditure, 44 for the corresponding public receipts from sales with uses other than public consumption expenditure and three products for own-produced capital goods (one for software and two for research and development).

In the national accounts product classification, the individual products have seven characters, a letter followed by six digits. Products for government final consumption expenditure have Q as the first character. Products for

public receipts from sales have S as the first character and, finally, own-produced capital goods has K as the first letter.

Intermediate consumption

DIOR contains all government accounts entries with national accounts classifications. Intermediate consumption divided into the national accounts' 117-industry grouping is obtained by simple aggregation.

Breakdown of intermediate consumption by product

The industry-level input structures for the individual general government industries were originally established for the year 1984, when the accounting plans in both central and local government accounts were considerably more detailed than in later years. The input structure established at that time was then modified as part of the annual balancing of supply use tables, which adjusted the use of each specific product to the available supply, while total intermediate consumption of each industry was held fixed according to the DIOR-database. Since 2001 cost structure surveys for general government have been conducted and implemented as part of the annual balancing of the supply use tables.

Other taxes on production less other subsidies on production

Since the value of government non-market output is calculated from the cost side, other taxes less subsidies on production are relevant to the estimate of value added at basic prices and hence GNI. Other taxes on production in general government are calculated from government accounts, which have the necessary detail on the structure of taxes and subsidies.

Financial corporations (S.12) except S.125, S.126, S.127

Subsectors S.121 Central Bank, S.122+S.123 Deposit taking corporations except the central bank + Money market funds (MMFs) and S.124 Non-MMF investment funds are covered by complete accounts. These subsectors are subject to extremely close public supervision by the Danish supervisory authority (Finanstilsynet) and their annual report is the preferred source. The annual report is based on mandatory submission of standardised accounts. For mortgage credit institutions published accounts are used, as they have more detailed information.

Subsector S.128 Insurance corporations and S.129 Pension funds are also covered by complete accounts from the annual reports from the Danish supervisory authority (Finanstilsynet). In addition the annual report from ATP (Arbejdsmarkedets Tillægs Pension) is used.

The calculations are described in chapter 3.17 Financial and insurance activities (K).

Non-profit institutions serving households, NPISH (S.15), partly

The new criteria in ESA2010 for the delimitation of the public sector resulted in the move of (mainly) some private schools from General government (S.13) to non-profit institutions serving households, NPISH (S.15). This part of the NPISH sector is therefore covered by administrative data.

The administrative data are records received directly from the Ministry of Education. The records are detailed and classifying according to ESA 2010 is straightforward.

The data source for high school level education and business schools, are primarily administrative records, but supplemented by annual reports from schools for children with disabilities. The annual reports are then grossed up using data on wages.

The other source for NPISH is a new account statistics which is described under group 2.

3.1.4 Sectors with complete accounts and partial coverage (group 2)

Group 2 accounts for by far the largest share of market output in the economy. The main sources are:

a) Account Statistics for Non-Agricultural Private Sector, which is by far the most important, covering for 2012 all non-financial producer units other than general government and industries where public corporations traditionally predominate and (section 3.2.4.1).

b) Statistics based on accounts data from the Danish tax authorities (SKAT), which cover the remainder of the economy, mainly certain personal service industries. This is accounts data of less detail, but of high quality, because they are used for individual tax assessment (section 3.2.4.1).

It should be borne in mind that statistics based on accounts data from the Danish tax authorities is used for the grossing up of the accounts Statistics for Non-Agricultural Private Sector as well as for compiling the industries mentioned under b).

c) Account statistics for industries predominated by public corporations (section 3.2.4.2)

d) Accounts for S.125, S.126 and S. 127 (section 3.2.4.3)

e) Account Statistics for Non-Profit institutions serving households (NPISH), S.15 (section 3.2.4.4)

Below the four sources and their use in the national accounts are described - with an emphasis on the Accounts Statistics for Non-Agricultural Private Sector, which is by far the most important.

Account Statistics for Non-Agricultural Private sector

Annex 3 shows the questionnaire used for the accounts Statistics for Non-Agricultural Private Sector. Similarly, Annex 4 shows the Tax form report for 2012 from which the standardised accounting data are retrieved. Annex 5 then shows the much more detailed SLS-E (SLS-E=Statens Ligningssystem for Erhvervsdrivende, the government tax assessment system for businesses) accounting form which was used in years 1988-1990, and whose more detailed plan is used to divide up the present more highly aggregated items into cost components in those industries where statistics based on accounts data from the Danish tax authorities is still the only available source of accounts statistics[5].

The connection between the accounting plan in the questionnaire for accounts Statistics for Non-Agricultural Private Sector and the plan in the intermediate system is shown in table 3.7.

The questionnaire for the accounts Statistics for Non-Agricultural Private Sector is designed to ensure that the accounts statistics can live up to the requirements of the Structural Business Statistics Regulation (SBS). By normal standards in this field, the degree of detail must be said to be very high. In the statistics based on accounts data from the Danish tax authorities there is much less detail, even when the basis is the more detailed layout which applied previously, where the structure of costs is still used for the detailed breakdowns. For the calculation of value added, the fewer details in the statistics based on accounts data from the Danish tax authorities have no noticeable significance, but the lack of information on capital formation in this source is a handicap when it comes to the expenditure-based estimate of capital formation.

Coverage and method used for grossing up accounts statistics for Non-Agricultural Private Sector

Chapter 10 shows the Quality Declaration for Accounts Statistics for Non-Agricultural Private Sector 2012. The declaration contains a detailed description of the collection, validation, compilation and accuracy of the data in this statistics.

Coverage and method used for grossing up statistics based on accounts data from the Danish tax authorities

[5] To the extent that accounts data from the Danish tax authorities is still the only source for the distribution of cost by components the ratios from the 1988-1990 surveys are still used to break down some cost categories. However the importance of this calculation is diminishing. Service industries whose main activity is not VAT –exempt are covered by the much more detailed accounts statistics. As mentioned in the description of this source, accounts data from the Danish tax authorities is utilised in the compilation of the accounts statistics, but the detailed distributions by cost components is here based on those enterprises and establishments for which detailed accounts information is available.

The main basis for these statistics is the standardised accounting information which corporations and the self-employed have to report to the tax authorities as a part of their tax form reports.

The reporting unit is the firm, i.e. the legal unit, as determined by form of ownership, i.e. corporations with share capital, private companies, cooperative associations, partnerships or sole proprietorships.

The obligation to submit returns took effect with the 1986 income year. Since then, various restrictions have been introduced, some reducing the amount of detail required and some cutting back the number of firms obliged to report.

The most important exemptions from the reporting obligation are:

- firms with net turnover below DKK 500 000 in the current or previous income year;
- companies quoted on the stock exchange;
- partnerships;
- financial intermediation [commercial and savings banks]

For industries not covered by accounts Statistics for Non-Agricultural Private Sector, Statistic Denmark's National Accounts Division receives (from the Primary Statistics Division) complete accounting figures at the level of individual firms and then stratifies and grosses up the figures for national accounts purposes in its own calculation systems.

For this grossing up, the General enterprise statistics[6] is used, where VAT turnover are aggregated/split into legal units, i.e. firms, the units in the statistics based on accounts data from the Danish tax authorities. VAT legislation allows firms/company groups to remit VAT at a unit level which is either lower or higher than firm level. The two arrangements are called "partial registration" and "joint settlement". By far the most common option is for firms to register a special unit for their export sales, since they thus gain a liquidity advantage. In the General enterprise statistics (as in ordinary VAT statistics), these partial registrations are netted out and, in addition, units which settle VAT jointly are split into the individual firms.

The accounting figures are stratified in the national accounts grossing-up by detailed DK-NACE industry, the institutional sector of the firm (S.11 or S.14) and two size groups measured in terms of VAT turnover. Within each DK-NACE industry, firms are split into four groups: a) large corporations, b) small corporations, c) large firms which are sole proprietorships and d) small firms which are sole proprietorships. "Large" and "small" are defined by reference to the median sales of corporations/sole proprietorships respectively in the Generel enterprise statistics. For each individual firm in the statistics based on accounts data from the Danish tax authorities, the appropriate VAT turnover are obtained by matching with the Generel enterprise statistics register at firm number level. In this context, partnerships are classified as corporations, in accordance with the national accounts sectoral delimitation.

The figures for each stratum are grossed up by calculating the ratio:

$$A = \frac{VAT\ turnover\ in\ the\ population\ \ in\ the\ stratum}{VAT\ turnover\ in\ \ firms\ in\ the\ accounting\ \ figures\ in\ the\ stratum}$$

This "A ratio" is then used as the grossing factor for the aggregated firm accounts within the stratum, to gross the figures to the total population. One advantage of this grossing procedure is that the "net turnover" in the accounts, which correspond to turnover in the national accounts sense, are grossed up using VAT turnover as the raising variable. Experience has shown that net turnover and VAT turnover correlate very closely.

[6] The Generel enterprise statistics integrate information from three other business statistics, which are compiled for different unit types. The three statistics comprise the Accounts statistics, which are compiled at the enterprise level, VAT statistics, which are compiled at the administrative level used by the Danish Central Customs and Tax Administration, and Establishment-related employment statistics, which are compiled at the local kind-of-activity level. The different unit types imply, that results from the three statistics are not strictly comparable. This is counterbalanced by the General enterprise statistics as the information is processed to the same unit level, the enterprise.

Periodisation, Account statistics for non-agricultural sector

The accounts statistics for a given year t cover firms whose accounting year closes between 1 May of year t and 30 April of year t+1. The national accounts make no attempt to further periodizing the statistics.

National accounts processing of the grossed up Accounts Statistics for Non-Agricultural Private Sector

The description of the national accounts processing of the account statistics is presented in a number of steps:

I. Consistency check and transition from firm branches to national accounts industries
II. Correcting the workplace and firm file
III. Collection of firm and workplace information
IV. Recoding of workplace industries which conflict with firm branches
V. Breakdown of firm entries by workplace
VI. National accounts processing when trading activity is included
VII. Grossing up for enterprises below threshold
VIII. Recoding to the intermediate system format
IX. Comparison of account statistics and industrial commodity statistics
X. Division between the accounts statistics, the statistics based on account data from the Danish tax authorities and other calculation systems

Each step is described below:

I Consistency check and transition from firm branches to national accounts industries

Account Statistics for Non-Agricultural Private Sector received from primary statistics

In 2012 the account statistics cover DK-NACE industries 051000-099000, 101110-332000, 383100-383200, 411000-439990, 451110-479900, 493200, 493220-522120, 522220, 522400-592000, 611000-639900, 681000, 683110-683210, 691000-701010, 702100-829900, 951100-952900. Within these areas, the account statistics for non-agricultural private sector covers firms, where the labour input is at least half the full year's work for one person.

The population is based on a business register extract, covering all units which were active during 2012.

The account statistics for non-agricultural private sector is received from the Business Structure Division in three parts:

- a firms file, which includes accounting information for firms with a firm branch within the industries covered;
- a workplace file, which consists of accounting information for workplaces (producer units) with kind-of-activity unit codes within the industries covered;
- a file, with summary information on workplaces with kind-of-activity industries which are not covered by the account statistics but which belong to firms with a firm branch within the scope of accounts statistics, referred to below as the "remainder file". This contains only information on the CVR number/workplace code, kind-of-activity industry, firm branch and FTEs for the workplaces in question.

The three parts are set out in Figure 3.2.

Within the accounts statistics information exist for each enterprise as well as for those of its workplaces that belongs to industries within the scope of this statistics. Where detailed workplace data can be subtracted from detailed enterprise data, the residuals will represent the sum of its workplaces belonging to industries outside the scope of the industrial accounts statistics. These residuals can be empty (in practice insignificant) or they can represent one or more KAUs, as shown in the “remainder”-file. In practice the number of such “remainders” is rather small due to the widened scope of the accounts statistics and the calculation is of less importance.

Figure 3.2 Overview of the coverage of workplaces in files from the account statistics for non-agricultural sector

Workplace Firm	Workplaces within the scope of the accounts statistics	Workplaces outside the scope of the accounts statistics
Firms within the scope of the accounts statistics	1. Go into the firm file. Go into the workplace file	2. Go into the firm file. Go into the "remainder" file
Firms outside the scope of the accounts statistics	3. Go into the workplace file (FBRUDE units)	4.

Logically, it is the firms and workplaces in areas 1 and 2 which together make up the accounts statistics supplied to the intermediate system in terms of both firms and workplaces. Area 3 includes workplaces which belong to firms outside the scope of the Account statistics for non-agricultural sector. In the case of these workplaces the information which can be compiled in the accounts statistics system is considered more reliable than the information that can be found in statistics based on accounts data from the Danish tax authorities. To avoid inconsistencies with the breakdown of the firms in question in the tax accounts statistics system, the accounting information calculated here is removed from the firm-level information of the statistics based on accounts data from the Danish tax authorities before the remainder is broken down by kind-of-activity branches outside the scope of the industrial accounts statistics. The units in question are called, technically, FBRUDE, which is explained later. However the number of such units is usually small since the scope of the industrial accounts statistics has been widened to include most of the market production in service industries. In principle, area 4 should be blank. If there is anything here, it is because the branch allocation of some of the accounts statistics workplaces has been corrected.

The firm file contains the most information, with only the county and municipality codes omitted. Of course balance sheet items and items for property income transactions are missing from the workplace file, but information on wages and salaries etc. and indirect production costs is also missing from this file. Table 3.5 below shows which items occur in each of the files when they are received from the Business Structure Primary Statistics Division. The right-hand side of the table shows the MLS [intermediate system] code in those cases where the items translate directly to this coding.

Table 3.5 Account statistics for non-agricultural private sector at firm level and workplace level

Label	Variable	# in firm record	# in work-place record	MLS-code	MLS-text
CVR number (also in "remainder")	CVRNR	1	1		
Workplace number(also in "remainder")	ARBNR		2		
Workplace code	AKODE		3		
DB07 branch (also in "remainder")	BRANCHE_DB07	2	4		
10-branch code	BRA010_DB07	3	5		
19-branch code	BRA019_DB07	4	6		
36-branch code	BRA036_DB07	5	7		
127-branch code	BRA127_DB07	6	8		
	NACE_DB07	7	9		
	NACE2_DB07	8	10		
	NACE3_DB07	9	11		
	RESHOV1_DB07	10	12		
	RESDEL1_DB07	11	13		
Main branch (also in "remainder")	HBRA_DB07	12	14		
Firm's main branch	FIRMA_DB07		15		
Ownership code	VIRKFORM	13	16		
Credit information	KREDOPL	14	17		
County code	REGION2007	15	19		
Municipality code 2007	KOMKOD2007	16	20		
Province	LANDSDEL2007	17	21		
Post district	POSTNR	18	22		
Road code	VEJKODE	19	23		
House number from	HUSNR_FRA	20	24		
House number to	HUSNR_TIL	21	25		
Combination code	KOMB	22	18		

Table 3.5 Account statistics for non-agricultural private sector at firm level and workplace level, cont.

Label	Variable	# in firm record	# in work-place record	MLS-code	MLS-text
Most recent connection	SENESTE_TILKNYT		26		
Fictive workplace	FIKTIVT_ARBST		27		
Record entry code	JKOD	23			
FTEs	VAERK		28		
FTEs	AARSV	24			
Number of employees	BESK	25			
Data source	KILDE	26			
Sales	OMS	27	29		
Own-account work	AUER	28	30	1012	Manuf. of plant and machinery for own use
Other operating income	ADR	29	31	1019	Other, secondary operating income
Changes in inventories (including holding gains)	DLG	30	32		
Purchases (goods for resale)	KW	31	33	7019	Goods for resale, purchases
Purchases of raw materials, ancillaries and packaging	KRHE	32	34	2015	Other and unspecified purchases (consumption) of raw materials
Purchases of energy (excluding running of vehicles!)	KENE	33	35	2013	Purchases (consumption) of fuel and power
Purchases of processing to order	KLOE	34	36	2014	Purchases of processing to order and subcontracting
Rental expenditure	UDHL	35		7020	Expend. on rentals excluding heating
Acquisitions of equipment etc. expensed	UASI	36		7025	Acquisitions of equipment etc. expensed
Temporary employment agencies	UDVB	37		7042	Temporary employment agencies
Operational leasing	ULOL	38		7024	Operational leasing
Losses on ordinary bad debts	OTDE	39		7026	Losses on ordinary bad debts
Other external expenditure (incl. running of vehicles)	EKUD	40		7042	Other external expenditure
Wages and salaries	LGAG	41		4015	Wages/salaries & employer contribs.
Expenditure on pensions	PUDG	42		4016	Expenditure on pensions
Other expenditure on social security	AUDG	43		4017	Other staffing expenditure
Writing off and writing down of tangible and intangible assets	ANMI	44		5100	Writing off and writing down of non-financial fixed assets
Writing down of current assets	NOAK	55		5200	Writing down of non-fin. current assets
Secondary expenditure	SEUD	46		7060	Other operating expenditure
Profit/loss before financial and extraordinary items	RFEP	47			
Income from lasting interests	INKI	48		4030	Income from lasting interests
Other return on financial fixed assets	UDFA	49		4032	Other interest and dividend income
Interest etc. received from financial fixed assets	RIFA	50		4032	Other interest and dividend income
Interest etc. received from current assets	RIOM	51		4031	Interest etc. rec. from current assets
Writing down of financial fixed and current assets	NFAO	52		5300	Writing down of financial assets
Interest paid etc.	RUDG	53		4040	Interest paid
Extraordinary income	EOI	54		1060	Extraordinary income
Extraordinary expenditure	EOU	55		7061	Extraordinary expenditure
Annual pre-tax profit/loss	ARFS	56			
Corporation tax on annual profit/loss	SSAR	57		4041	Corporation tax
Annual profit/loss	AARE	58		4043	Profit/loss for tax purposes
Consolidation, i.e. trans. to/from equity	KEGN	59			
Dividends	UDBY	60		4044	Distributed income
Intangible fixed assets, total	IAAT	61		8110	
Land and buildings	GRBY	62		8120	Land and buildings
Technical plant and machinery	ATAM	63		8121	Technical plant and machinery
Other plant, machinery and equipment	AADI	64		8122	Other plant, machinery and equipment
Advance payments and tangible fixed assets etc.	FMAA	65		8129	Other tangible fixed assets (e.g. advances)

Table 3.5 Account statistics for non-agricultural private sector at firm level and workplace level, cont.

Label	Variable	# in firm record	# in work-place record	MLS-code	MLS-text
Tangible fixed assets, total	MAAT	66			
Amounts outstanding	TILG	67		8130	Financial fixed assets
Holdings of shares and equity	ABAE	68		8130	Financial fixed assets
Holdings of bonds and other securities	ABOA	69		8130	Financial fixed assets
Financial fixed assets, total	FAAT	70		8130	Financial fixed assets
Fixed assets, total	AAT	71			
Raw materials, ancillaries, fuel and packaging (opening stocks)	PRHB	72	37	5060	Opening stocks of raw materials
Raw materials, ancillaries, fuel and packaging (closing stocks)	URHB	73	38	6060	Closing stocks of raw materials
Work in progress (opening stocks)	PVUF	74	39	5065	Opening stocks of finished goods
Work in progress (closing stocks)	UVUF	75	40	6065	Closing stocks of finished goods
Manufacture of finished goods (opening stocks)	ELPR	76	41	5065	Opening stocks of finished goods
Manufacture of finished goods (closing stocks)	ELUL	77	42	6065	Closing stocks of finished goods
Goods for resale (opening stocks)	HLPR	78	43	5061 / 5062	Opening stocks of goods for resale
Goods for resale (closing stocks)	HLUL	79	44	6061 / 6062	Closing stocks of goods for resale
Advance payments, purchased goods (opening stocks)	PFKV	80	45		
Advance payments, purchased goods (closing stocks)	UFKV	81	46	8149	Other current assets
Total inventories of goods (opening stocks)	PVBT	82	47	8141	Opening stocks
Total inventories of goods (closing stocks)	UVBT	83	48	8142	Closing stocks
Amounts outstanding from sales of goods and services	TSVT	84		8149	Other current assets
Work in progress on account of others	UIAF	85		8149	Other current assets
Other claims	ANTI	86		8149	Other current assets
Total claims	TGT	87		8149	Other current assets
Holdings of shares and equity	OBAE	88		8149	Other current assets
Holdings of bonds and other securities	OBAV	89		8149	Other current assets
Liquidity holdings	LIBE	90		8149	Other current assets
Securities and particip. interests, total	VKT	91		8149	Other current assets
Total current assets	OMAT	92		8149	Other current assets
Total assets	AT	93			
Equity, closing stocks	EGUL	94		8210	Equity
Provisions	HENS	95		8220	Provisions
Long-term debts to suppliers	LGL	96		8230	Long-term debts
Other long-term debts	ALG	97		8230	Long-term debts
Short-term liabilities to suppliers	KGL	98		8240	Short-term liabilities
Other short-term liabilities	AKG	99		8240	Short-term liabilities
Total liabilities	PAST	100			
Intangible fixed assets (additions)	TIAA	101		6102 / 6110	Software bought in/purchases of intang. assets, other and unspecified
Purchases of existing buildings (including land value)	KEB	102	49	6121	Purchases of existing buildings (including land value)
Construction expenditure, new building (excluding land)	OPNY	103	50	6123	Construction of new buildings (excluding land value)
Purchases of unbuilt land	KUBG	104	51	6122	Purchases of unbuilt land
Rebuilding and improvements to buildings and installations	OFBB	105	52	6124	Rebuilding and improvements to buildings
Roads, ports, open spaces, etc.	VHPK	106	53	6125	New layout and rebuilding of roads, ports, etc.
Total real estate (additions)	FET	107	54		

Table 3.5 Account statistics for non-agricultural private sector at firm level and workplace level, cont.

Label	Variable	# in firm record	# in work-place record	MLS-code	MLS-text
Technical plant and machinery (operating equipment)	DTAM	108	55	6134	Purchases of plant and machinery, other and unspecified
Other plant, machinery and equipment (additions)	TAAD	109	56	6134	Purchases of plant and machinery, other and unspecified
Total plant and machinery (additions)	TDRT	110	57		
Plant and equipment under construction	TFMA	111	58		
Total additions	ATIT	112	59		
Intangible fixed assets (disposals)	AIAA	113		6202 / 6210	Disposals of software/intangible assets, other and unspecified
Sales of buildings (including land value)	SABY	114	60	6221	Sales of existing buildings (including land value)
Sales of unbuilt land	SUBG	115	61	6222	Sales of unbuilt land
Sales of roads, ports, open spaces, etc.	SVHP	116	62	6223	Sales of roads, ports, open spaces, etc. (including land value)
Total real estate (disposals)	FEGT	117	63		
Sales of technical plant and machinery	STAM	118	64	6234	Sales of plant and machinery, other and unspecified
Sales of other plant, machinery and equipment	SADI	119	65	6234	Sales of plant and machinery, other and unspecified
Total plant and machinery (disposals)	ADRT	120	66		
Total disposals	AFAT	121	67		
Sales of own products	EOMS	122	68	1018	Other and unspecified net sales
Sales (goods for resale)	HOMS	123	69	1016	Sales of goods for resale
Input for main sales	XVA		70		
Gross profit	ZBF		71		

For the processing of the account statistics, it was decided to retain all information on the individual firms and workplaces up to the stage at which the processed statistics are put into a form such that they can be input into the intermediate system. The format and coding from the accounts statistics are also retained until this stage, to ensure that no information which might later be utilised for other purposes is lost. This means, for example, that the geographical coding in the processed accounts statistics could be used to compile regional accounts.

II Correcting the workplace and firm file

The logical first stage in the processing is to make corrections to the records for firms and workplaces which are received from the Primary Statistics Division.

All the figures in records from firm, workplace or remainder files can be corrected at this stage, and in practice most of the system for processing the accounts statistics will usually be run through a few times, as problems are identified and corrected[7].

III Collection of firm and workplace information

For both firms and workplaces, a few items are calculated which were not originally in the files: approximate production value and acquisitions of buildings (the latter for use with the breakdown of various figures from the firm information into workplaces). In addition, the firm file information on the firm branch is moved to variable FIRMA_DB07, so that this variable overall indicates the firm branch. These items are kept in the files throughout the further processing.

[7] The most common reason for corrections is that further studies of annual reports, products statistics and/or foreign trade of big enterprises reveal a need for reclassification of some workplaces.

Table 3.6 Items calculated to supplement the accounts statistics files

Label	Variable	# in the firm record	# in work-place record	MLS-code	MLS-text
Approximate production value	PROD	New	New		
Acquisitions of buildings, total	ABYGN	New	New		

The workplace file is divided into one part which has a firm in the firm file (i.e. where the firm to which the workplace belongs has a firm branch within the scope of the industrial accounts statistics) and a part which has a Firm BRanch outside (UDE) the firm file (FBRUDE part). For example, a manufacturing producer unit (workplace) belonging to a firm whose main activity is fire- and ambulance services occurs in the FBRUDE part. This is because fire- and ambulance service is not covered by the account statistics for non-agricultural private sector.

The firm file is matched with the file that contains workplaces which has the firm branch covered by accounts statistics. The remainder of the firm file, which ought to consist of workplaces outside the scope of the industrial accounts statistics, is calculated as a residual, as the firm data minus the sum of workplace data for the same firm. Records with suspect residuals are printed out. Prior to the comparison, various workplaces (mainly independent cooperatives) have to be combined into a joint CVRNR, which is used in the firm file for these units. A file with these workplaces is received every year from the Business Structure Division (primary statistics), but the original CVRNR is also kept in the record.

The firm file remainders which are not found in the workplace file are matched with the "remainder" file from the primary statistics division. Those firm remainders which are not found here are printed out so that we can decide whether the firm information needs to be corrected. Once we have considered all cases where workplaces have a corresponding combined CVRNR in the firm file, the remainder are mainly random differences with sales = 0. Conversely, we look for remainder workplaces which do not have a corresponding firm remainder. These are usually units with no FTEs - or very few. Warnings are also printed out if the firm file remainder has a number of FTEs which is different from the same firm's FTEs according to the "remainder" file, or if the firm's remainder sales are negative or the figure is otherwise suspect.

A test is made to detect cases where the firm's sales are lower in the firm statistics than in the workplace statistics. In such cases, it has mostly been the workplace figures which are the most credible. Cases of conflicting economic data may also come to light, along with cases where workplaces which has changed owners during the period come up several times under different CVR numbers.

It is important when compiling the final national accounts to establish the correct relationships between firms and the workplaces which belong to them, partly because many of the firm statistics items have to be divided up over workplaces and partly because - as was shown clearly during the work on the files - a number of errors are revealed during the process, often relating to some of the country's larger company groups.

Once input data have been corrected for obvious major errors, economic magnitudes can be allocated to the "remainder" file's workplaces. Where a firm has more than one "remainder" workplace, the figures calculated as residuals are divided up by unit on the basis of the FTEs in the "remainder" file. These workplaces are the accounts statistics' contribution to the intermediate system's industries outside the scope of the industrial accounts statistics (disregarding any subsequent corrections to the branch allocation of workplaces).

IV Recoding of workplace industries which conflict with firm branches

A check is made to reveal contradictory industry coding for units belonging to the same firm in firm- and workplace files. Even though in such cases it would have been less complicated to use the workplace file's branch coding, the firm file's branch coding can usually be assumed to be the more accurate and the one that most closely tallies with the industrial commodity statistics. The following checking and correction procedure is therefore carried out.

The branch coding in the firm file is checked for a match with the file with workplaces which have a firm branch covered by the accounts statistics. On the basis of the workplace file, figures are worked out for kind-of-activity

units, and for each firm (CVRNR) information is compiled on the composition of output value by DK-NACE industry (here, the variable previously worked out for approximate production value is used). The workplace information is combined with the firm file information. If a firm consists of a single kind-of-activity unit, the firm branch is transferred as the workplace branch for all the firm's workplaces. This is the most common situation. In other cases with conflicting branch coding, the workplace branch is corrected for the workplaces in the largest (or next largest) kind-of-activity unit if this is sufficient to produce consistency. In more complicated cases, automatic corrections of the industry allocations cannot be justified. Checklists are printed out, showing the firm with the breakdown by workplace before and after recoding. Where automatic recoding is considered improbable, the input data are instead corrected manually.

V Breakdown of firm entries by workplace

Some of the items for which there is information in the firm file only are considered in the national accounts to be workplace-related. These items are distributed over the firm's workplaces. Before that distribution, steps are taken to reconcile various items which occur in both the firm and the workplace files and which are to be used during the later calculation process. At this stage in the calculation it is assumed that the input data are corrected so that firm items can be calculated as the sum of the items for the workplaces which belong to them.

The following items (table 3.7) are added to the workplace file:

Table 3.7 Accounting items divided over workplaces belonging to a given firm

Label	Variable	# in firm record	Divided up/grossed up in workplace record, preferably *pro rata* with:
Record entry code	JKOD	23	Transferred
Number of employees	BESK	23	VAERK
Rental expenditure	UDHL	35	PROD
Acquisitions of equipment etc. expensed.	UASI	36	PROD
Temporary employment agencies	UDVB	37	PROD
Operational leasing	ULOL	38	PROD
Ordinary losses, bad debts	OTDE	39	OMS
Other external expenditure (including the running of vehicles)	EKUD	40	PROD
Wages and salaries	LGAG	41	VAERK
Expenditure on pensions	PUDG	42	VAERK
Other expenditure on social security	AUDG	43	VAERK
Acquisitions of intangible assets	TIAA	101	TDRT
Disposals of intangible assets	AIAA	113	ADRT

The calculation is in two stages. The first is for those workplaces which belong to firms within the scope of the industrial accounts statistics. Here, the work consists in dividing up the entries relating to the individual firm among the firm's workplaces. Wherever possible the figures are distributed proportionally with the above-mentioned variables. If any of these variables is empty or zero and is therefore not suitable for breakdown, the program will use default solutions such as a distribution based on sales or FTEs. Checks are also made to ensure that no impossible figures arise, such as negative consumption of raw materials or goods for resale.

In the second step, the missing items are then added to those workplaces which belong to firms outside the scope of the accounts statistics (FBRUDE units), wherever possible on the basis of the ratios in the supplemented workplace records belonging to the same DK-NACE industries. The workplaces are allocated a share of the item which is used as the basis for the comparison, corresponding to the average from the records completed earlier for non-FBRUDE workplaces. Default solutions are used here, too, if the preferred basis for comparison is not available. If calculation based on the DK-NACE industry is impossible because the branch contains only FBRUDE workplaces, a comparison with the workplace's NR117 branch is used for the calculation instead.

VI National accounts processing when trading activity is included

During the above stages, records are completed for all the accounts statistics workplaces. This edition of the workplace statistics cannot be transferred directly to the intermediate system, since trading activity is still scattered around in DK-NACE industries other than trade[8].

Each workplace outside the trade industries is now broken down into trade and other activity on the basis of the entries for trade sales and purchases and for opening and closing stocks of goods for resale. These are transferred in full to the trade part. A share of intermediate consumption is also transferred, along with shares to the BESK-, OTDE-, LGAG-, AUDG-, PFKV- and UFKV- as well as PRHB- and URHB- variables. Here, it is only the last two, opening and closing stocks of raw materials, which have any importance for the figures used during later stages.

The file with trade included, broken down into DK-NACE industries, is retained. For use in the statistics based on accounts data from the Danish tax authorities and the intermediate system, a file is set up in which the trade included is as a rule recoded to branch 460008, but trade in branch 107120, bakers' shops, is allocated to branch 472400, sales of bread.

A new workplace file is set up, consisting of workplaces from which the trade element has been removed + the trade element separated out with a breakdown by workplace.

As a general rule no information is available on secondary activities in workplaces classified in trade industries. If for instance manufacturing should take place inside such workplaces we might detect it when industrial accounts statistics is compared with commodity statistics. Our experience is, however, that manufacturing is treated as taking place in separate local KAUs whenever it has a significant size.

VII Grossing up for enterprises below threshold.

Since the statistics-year 1999 the Danish business register contains a marking of small firms – either firms which counts as hobby or inactive firms - which makes it possible to separate regular economic active firms in accordance with the recommendations of the EU. The recommendations are that the statistics should cover only firms, whose labour input is at least half the full year's work for one person. The effect of the criteria was that in 1999 about 220.000 firms out of roughly 500.000 firms were marked “small, inactive”. The turnover of these firms was in 1999 about 6 billion DKK. corresponding to 0,3 percent of total turnover at 2.100 billion DKr.

The firms marked as small or inactive have not been covered by the accounts statistics since 1999. To take into account the turnover in active, but small and insignificant firms that can be estimated to around 0,1 percent of GDP a grossing up procedure has been established. Because this small amount of turnover is related to a huge number of firms it was decided to carry out the grossing-up at a more aggregated level instead of making detailed estimations of each firm. All variables in the Intermediate system have been grossed-up using turnover-based grossing-up factors. Based on the general enterprise statistics that contains turnover figures for all enterprises and includes information on whether each enterprise is covered by the accounts statistic a grossing-up factor is calculated for each combination of DK-NACE-industry/ESA2010-institutional-sector.

VIII Recoding to the intermediate system format

The intermediate system contains some information which refers to firm branches (institutional units grouped by industry on the basis of main activity), whilst the rest refers to kind-of-activity unit industries[9]. Each individual intermediate system [MLS] code refers to either firm branch or kind-of-activity industry information. Until now the files have contained records for each individual unit. With the conversion into files in the format used by the intermediate system, codes for individual units are removed, and the figures are aggregated to DK-NACE industries/ESA 2010 sectors. The sector codes are based on the ownership code, VIRKFORM, with the following translation (table 3.8):

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[8] In the Danish national accounts some industries are defined to include all production of products characteristic for the industry and to exclude the production of other products. Wholesale and retail trade are defined in this way.

[9] For use in the compilation of institutional sector accounts, an alternative file is compiled with the accounts statistics' contribution to the intermediate system. Here, some extra MLS codes are added for property income transactions and items relating to kind-of-activity units appear with both firm and kind-of-activity branch.

Table 3.8 Connection between ownership codes and ESA 2010 institutional sectors

Virkform	Sector	
010	S14	Sole proprietorship
020	S14	Estate of a deceased person
030	S11	Ordinary partnership
040	S11	Limited partnerships
050	S11	Jointly owned shipping firms
060	S11	Limited company
070	S11	Limited partnerships
080	S11	APS
090	S11	Foundation or "self-owning" institution (also S.15)
100	S11	Commercial foundation or "self-owning" institution
110	S11	Association (may also be S.15)
130	S11	Cooperative society (may also be S.12)
140	S11	Limited cooperative society (may also be S.12)
150	S11	Limited association or company (may also be S.15)
160	S11	European Economic Unit
170	S11	Branch of foreign limited company or units with similar legal ownership
180	S11	Branch of foreign APS or unit with similar legal ownership
190	S11	Branch of foreign limited enterprise
200	S11	Branch of foreign enterprise n.e.s.
210	S11	Other foreign enterprise
220	S11	Fixed business address of European Economic Unit
230	S13	Central government
240	S13	Counties [Amtskommuner]
250	S13	Municipalities [Primærkommuner)
260	S13	National Church parish councils
270	S99	Enterprise being set up
280	S13	Other owner n.e.s.
990	S99	Legal ownership not known

Those items that in the intermediate system will refer to the firm level are extracted from the accounts statistics firm file. The accounts statistics codes are transferred to the intermediate system, using the key shown in table 3.9, and a file is printed out with firm data in the intermediate system format.

Table 3.9 Transfer of items to the intermediate system [MLS] at firm level

Label	Variable	% transferred	MLS-code	MLS-text
		pct.		
Writing off and writing down of tangible and intangible assets	ANMI	100.0	5100	Writing off and writing down of non-financial fixed assets
Writing down of current assets	NOAK	100.0	5200	Writing down of non-financial current ass.
Secondary expenditure	SEUD	100.0	7060	Other operating expenditure
Income from lasting interests	INKI	100.0	4030	Income from lasting interests
Other return on financial fixed assets	UDFA	100.0	4032	Other interest and dividend income
Interest etc. received from fin. fixed assets	RIFA	100.0	4032	Other interest and dividend income
Interest etc. received from current assets	RIOM	100.0	4031	Interest etc. received from current assets
Writing down of financial fixed and current assets	NFAO	100.0	5300	Writing down of financial assets
Interest paid etc.	RUDG	100.0	4040	Interest paid
Extraordinary income	EOI	100.0	1060	Extraordinary income
Extraordinary expenditure	EOU	100.0	7061	Extraordinary expenditure
Corporation tax on profit/loss for the year	SSAR	100.0	4041	Corporation tax
Profit/loss for the year	AARE	100.0	4043	Profit/loss for tax purposes
Dividends	UDBY	100.0	4044	Distributed income
Intangible fixed assets, total	IAAT	100.0	8110	Intangible fixed assets
Land and buildings	GRBY	100.0	8120	Land and buildings
Technical plant and machinery	ATAM	100.0	8121	Technical plant and machinery
Other plant, machinery and equipment	AADI	100.0	8122	Other plant, machinery and equipment
Advance payments and tangible fixed assets etc.	FMAA	100.0	8129	Other tangible fixed assets
Amounts outstanding	TILG	100.0	8130	Financial fixed assets
Holdings of shares and equity	ABAE	100.0	8130	Financial fixed assets
Holdings of bonds and other securities	ABOA	100.0	8130	Financial fixed assets
Total financial fixed assets	FAAT	100.0	8130	Financial fixed assets
Amounts outstanding from sales of goods and services	TSVT	100.0	8149	Other current assets
Work in progress on account of others	UIAF	100.0	8149	Other current assets
Other claims	ANTI	100.0	8149	Other current assets
Total claims	TGT	100.0	8149	Other current assets
Holdings of shares and equity	OBAE	100.0	8149	Other current assets
Holdings of bonds and other securities	OBAV	100.0	8149	Other current assets
Liquidity holdings	LIBE	100.0	8149	Other current assets
Securities and participatory interests, total	VKT	100.0	8149	Other current assets
Current assets, total	OMAT	100.0	8149	Other current assets
Equity, closing stocks	EGUL	100.0	8210	Equity
Provisions	HENS	100.0	8220	Provisions
Long-term debts to suppliers	LGL	100.0	8230	Long-term debts
Other long-term debts	ALG	100.0	8230	Long-term debts
Short-term liabilities to suppliers	KGL	100.0	8240	Short-term liabilities
Other short-term liabilities	AKG	100.0	8240	Short-term liabilities

Similarly, those items which are to be input at kind-of-activity industry level are transferred from the accounts statistics workplace section. Most of the intermediate system items can be worked out simply on the basis of the accounts statistics codes in accordance with the following key (table 3.10):

Table 3.10 Transfer of items to the intermediate system [MLS] at workplace level

Label	Variable	% transferred	MLS-code	MLS-text
		pct.		
Sales of own products	EOMS	100.0	1018	Other and unspecified net sales
Own-account work	AUER	100.0	1012	Manu. of operating equipment for own use
Other operating income	ADR	100.0	1019	Other, secondary operating income
Purchases of raw materials, ancillary materials and packaging	KRHE	100.0	2015	Other and unspecified purchases (consumption) of raw materials
Purchases of energy (excl. running of vehicles)	KENE	100.0	2013	Purchases (consumption) of fuel and power
Purchases of processing to order	KLOE	100.0	2014	Purchases of processing to order and subcontracting

Table 3.10 Transfer of items to the intermediate system [MLS] at workplace level, cont.

Label	Variable	% transferred	MLS-code	MLS-text
		pct.		
Rent expenditure	UDHL	100.0	7020	Expenditure on rent, excl. heating
Exp. on the acquisition of consumables etc.	UASI	100.0	7025	Exp. on consumables
Temporary employment agencies	UDVB	100.0	7042	Temporary employment agencies
Operational leasing	ULOL	100.0	7024	Operational leasing
Ordinary bad debts	OTDE	100.0	7026	Ordinary bad debts
Other external expenditure (incl. the running of vehicles)	EKUD		Distrib.	as in costs survey etc.
Wages and salaries	LGAG	100.0	4015	Wages/salaries and employer contributions
Expenditure on pensions	PUDG	100.0	4016	Expenditure on pensions
Other expenditure on social security	AUDG	100.0	4017	Other staffing expenditure
(1)Raw materials, ancillaries, fuel and packaging (opening stocks)	PRHB	100.0	5060	Raw materials, opening stocks
(2)Raw materials, ancillaries, fuel and packaging (opening stocks)	PRHB	100.0	2015	Other and unspecified purchases (consumption) of raw materials
(1)Raw materials, ancillaries, fuel and packaging (closing stocks)	URHB	100.0	6060	Raw materials, closing stocks
(2)Raw materials, ancillaries, fuel and packaging (closing stocks)	URHB	-100.0	2015	Other and unspecified purchases (consumption) of raw materials
Work-in-progress (opening stocks)	PVUF	100.0	5065	Finished goods, opening stocks
Work-in-progress (closing stocks)	UVUF	100.0	6065	Finished goods, closing stocks
Manufacture of finished goods (opening stocks)	ELPR	100.0	5065	Finished goods, opening stocks
Manufacture of finished goods (closing stocks)	ELUL	100.0	6065	Finished goods, closing stocks
(1) Opening stocks (goods for resale)	HLPR	100.0	5061/ 5062	Opening stocks of work-in-progress for resale
(2) Opening stocks (goods for resale)	HLPR	100.0	7019	Goods for resale, purchases
(1) Closing stocks (goods for resale)	HLUL	100.0	6060/ 6061	Closing stocks of work-in-progress for resale
(2) Closing stocks (goods for resale)	HLUL	-100.0	7019	Goods for resale, purchases
Advance payments, purchased goods (closing stocks)	UFKV	100.0	8149	Other current assets
Total inventories of goods (opening stocks)	PVBT	100.0	8141	Opening stocks
Total inventories of goods (closing stocks)	UVBT	100.0	8142	Closing stocks
Intangible fixed assets (additions)	TIAA	100.0	6110	Software bought in/purchases of intangible assets, other and unspecified
Purchases of existing buildings (inc. land value)	KEB	100.0	6121	Purchases of existing buildings (including land value)
Constr. expenditure, new building (excl. land)	OPNY	100.0	6123	Constr. of new buildings (excl. land value)
Purchases of unbuilt land	KUBG	100.0	6122	Purchases of unbuilt land
Rebuilding and improvements to buildings and installations	OFBB	100.0	6124	Rebuilding and improvements to buildings
Roads, ports, open spaces, etc.	VHPK	100.0	6125	New layout and rebuilding of roads, ports, etc.
Tech. plant and machin. (operating equipment)	DTAM	100.0	6134	Purch. of plant & machin., other & unspec.
Other plant, machinery and equipment (additions)	TAAD	100.0	6134	Purch. of plant & machin., other & unspec.
Intangible fixed assets (disposals)	AIAA	100.0	6210	Disposal of software/ intangible assets, other and unspecified
Sales of buildings (incl. land value)	SABY	100.0	6221	Sales of existing buildings (incl. land value)
Sales of unbuilt land	SUBG	100.0	6222	Sales of unbuilt land
Sales of roads, ports, open spaces, etc.	SVHP	100.0	6223	Sales of roads, ports, open spaces, etc. (including land value)
Sales of technical plant and machinery	STAM	100.0	6234	Sales of plant and machin., other and unspecified.
Sales of other plant, machinery and equipment	SADI	100.0	6234	Sales of plant and mach., other & unspec.
Sales of own products	EOMS	100.0	1018	Other and unspecified net sales
Sales (goods for resale)	HOMS	100.0	1016	Sales of goods for resale
Purchases of raw materials, ancillaries and packaging	KRHE	100.0	2015	Other and unspecified purchases (consumption) of raw materials
Purchases (goods for resale)	KVV	100.0	7019	Goods for resale, purchases

The accounts statistics item for "other external expenditure", EKUD, is split into a number of MLS codes. Within most manufacturing industries, the division can be based on distributions compiled from surveys of the use of services. Some of these distributions date back to a survey form 1992, but adjustments have been introduced over the years. Since the accounts statistics has split expenditure on rent, acquisition of equipment treated as current expenditure, expenditure on temporary employment agencies, operational leasing and ordinary bad debts, into independent items, which they were not previously, the distribution keys from the services enquiry have been revised so that the shares for these items are no longer included. At the same time, account has been taken of the fact that a share of the EKUD item is motor vehicle fuel. The revised distribution keys are compiled only for national accounts industries, and so for each DK-NACE industry the key for the national accounts industry in which it is included is used (see table 3.11).

Table 3.11 Percentage shares of the EKUD item. Examples from manufacturing industries

National accounts industry:	MLS-code	100010	100020	100030	100040	100050
		pct.				
Exp. on insurance	4046	2.10	2.23	3.55	2.30	1.79
Software bought in	6102	2.71	0.53	1.25	2.48	1.16
Purchases of existing buildings	6121	7.18	2.29	0.34	1.60	2.98
Renting and operational leasing	7024	0.53	0.75	1.93	3.32	7.86
Repair and maintenance of buildings	7027	3.10	3.20	2.64	2.04	1.70
Repair and maintenance of structures	7028	0.49	0.65	0.64	0.45	0.42
Repair and maintenance of transport equipment	7029	1.31	1.40	5.19	1.16	0.77
Repair and maintenance of machinery and equipment	7030	11.48	15.12	14.85	10.43	9.79
Contributions to trade organisations, input	7040	2.74	1.66	1.81	1.09	1.04
Expenditure on licences and royalties	7041	1.22	0.96	4.10	1.97	2.32
Other external expenditure which is input	7042	65.75	69.95	63.40	72.39	68.58
External expenditure n.e.c.	7043	1.39	1.26	0.31	0.76	1.58
Total		100.00	100.00	100.00	100.00	100.00

The accounts statistics cover a much wider range of industries than the manufacturing industries that have been covered by surveys of the use of services. For industries not included in the services surveys, distribution keys for the EKUD item have had to be based on the old tax-based accounts statistics (SLS-E). These distribution-keys are available with a breakdown into both DK-NACE and national accounts industries (see table 3.12).

Table 3.12 Percentages of the EKUD ["other external expenditure"] item. Examples from industries not included in the services enquiry:

DK-NACE industry	MLS-code	561010	561020	562100	562900	563000
		pct.				
Expenditure on insurance	4046	1.51	1.62	1.34	1.91	1.43
Renting and leasing, n.e.c. and unspecified	7024	6.07	5.97	9.69	5.74	5.18
Repair and maintenance of buildings	7027	2.43	1.89	3.23	0.80	1.88
Repair and maintenance, n.e.c. and unspecified	7035	5.07	5.15	6.75	2.48	4.19
Other external expenditure which is input	7042	84.91	85.36	78.99	89.07	87.32
Total		100.00	100.00	100.00	100.00	100.00

IX Comparison of accounts statistics and industrial commodity statistics

"Commodity statistics", i.e. product statistics for the extraction of raw materials (except crude oil and natural gas) and manufacturing, are not used directly to determine the enterprises' main economic magnitudes in the national accounts, but are used primarily for the breakdown of sales by product. For this use, too, the commodity statistics' information on the enterprises' output has to be assigned to the same industries as in the accounts statistics. It is usually assumed that the industry allocation in the accounts statistics is most likely to be correct, since it is decided at a later stage on the basis of knowledge of the composition of output in the

accounting year in question, whereas the industry allocation in the commodity statistics shows the composition of output for a previous accounting year.

When the industrial accounts statistics was introduced in 1995 the firm accounts statistics were industry-allocated on the basis of an examination of the commodity statistics for that year. It is assumed that the accounts statistics still is the best source for industry allocation of firms. Since the workplace statistics is corrected to be consistent with the firm statistics, it must be assumed that it is still most logical, failing better information, to go by the accounts statistics if these conflict with commodity statistics.

The accounts statistics data on workplace sales of own products are first aggregated into kind-of-activity units. Since the kind-of-activity unit is not identified in the accounts statistics, a unit can be identified only as the sum of the firm's workplaces within a given DK-NACE industry. Thus the delimitation of workplaces can be affected for example by which version of the business register is used, and this can lead to difficulties for the comparison if the two statistics are not based on exactly the same register versions.

Attempts are made to combine the information in commodity statistics into kind-of-activity units which can be matched with those units which are compiled from accounts statistics. In this way most of the units can be compared with the corresponding units in the accounts statistics. There are obviously normally few and small problems in firms with only one kind-of-activity unit. In general, the majority of the matching problems seem to affect large units. In cases where the commodity statistics' kind-of-activity units appear to cover the same enterprise as in the accounts statistics to a reasonable extent, the accounts statistics' kind-of-activity industry is transferred automatically to the commodity statistics unit. Doubtful cases are examined more closely and in some cases the industry allocation in the accounts statistics may be corrected in the input data used for the final run[10].

An incomplete match can mean that a number of estimated corrections will have to be made to the breakdown of the industries' sales by product, which is otherwise based on the commodity statistics. When corrections are made it is usually seen too, that total sales in each of the national accounts' product balances should not be smaller than the sales which appear in the commodity statistics.

X. Division between the accounts statistics, the statistics based on accounts data from the Danish tax authorities and other calculation systems

Ideally, the different accounting systems, i.e. the accounts statistics system, the statistics based on accounts data from the Danish tax authorities the systems for calculating on the basis of industry-specific accounts statistics and the calculation system for government non-market activity (OIMA) in S.13 should have clear dividing lines at firm level. Within each system, it should be possible to divide up the relevant firms into workplaces/kind-of-activity units which can be allocated to functional industries. In particularly simple cases, the firm branch and the kind-of-activity industry may be assumed to match so well that kind-of-activity units from one system do not have to be placed in industries belonging to another system. However, the situation may sometimes be more complicated, and there is a risk of double-counting or omitting units. When the final national accounts are compiled, therefore, a great effort is made to ensure that the allocation of firms and producer units (workplaces) by industry remains consistent.

1. FBRUDE

Until 1999 data for most service industries had to be based on the SLS-E statistics and workplaces covered by the accounting statistics would often belong to firms within the scope of the statistics based on accounts data from the Danish tax authorities. In general, the accounts statistics must be assumed to be the more robust source. Their accounting plan is more specific and grossed up to the total population at a more detailed level. Therefore figures based on the industrial accounts statistics is usually preferred to figures based on other sources. However, the way in which firms are divided into kind-of-activity units must conform to the principle that the accounting items for a given firm's workplaces sum to the firm's accounting items (when these are estimated correctly in line with the chosen breakdown of the firm into kind-of-activity units).

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10 It has also happened that the industry allocation was corrected in both accounting and commodity statistics, if information on the character of the enterprise's output was obtained from other sources.

After the accounts statistics in 1999 was extended to cover most of the market producing service industries the borderline between industries based on this source and industries based on the statistics based on accounts data from the Danish tax authorities has become much clearer. Most of the complicated cases had been caused by firms with workplaces in manufacturing, wholesale trade or various business services that are now all within the scope of the accounts statistics.

The FBRUDE workplaces are transferred to the intermediate system together with the other workplace information in the industrial accounts statistics. The firms in the statistics based on accounts data from the Danish tax authorities should be divided up in a way which respects the accounting figures for these workplaces that have already been calculated. This happens by deducting the FBRUDE figures from the firm totals before the firm remainder is distributed over the other kind-of-activity units.

In practice an FBRUDE data set is worked out in the intermediate system format. This is the contribution of the same workplaces to the intermediate system, but it differs in being divided up into (the corrected) firm branches instead of kind-of-activity branches.

When the FBRUDE units are then separated out from the statistics based on accounts data from the Danish tax authorities' "firms", the items are recoded to the (reduced) accounting plan used here. The FBRUDE figures are compared with the corresponding accounting figures in the statistics based on accounts data from the Danish tax authorities for firms. If the separating out leaves the remainder with an invalid negative sign, the remainder is printed out in a warning list and the remainder item is entered as nil in the file which is then used for the breakdown into kind-of-activity units in the statistics based on accounts data from the Danish tax authorities . No further action is taken with insignificant and probably random differences of this kind. With larger differences there an explanation is looked for and in some cases, this may lead to corrections to the data input into the calculation systems.

2. The General Enterprise Statistics. Removal of dual coverage.

The General enterprise statistics which is the starting point for the statistics based on accounts data from the Danish tax authorities includes firms liable for VAT which at the same time may occur in public enterprises, government non-market activities or the industrial accounts statistics. For the national accounts estimate, it is vital that firm units be included once and once only, since otherwise there may be incomplete coverage or double counting. Therefore a system has been built into the national accounts calculation systems to separate out that part of the firms which would appear to belong to the calculations based on industry-specific accounts statistics, government non-market output (OIMA) in S.13 or the industrial accounts statistics, before the remainder is divided up in the statistics based on accounts data from the Danish tax authorities.

Due to the fact that the General enterprise statistics includes information on whether the source of information for each enterprise is the accounts statistic for non-agricultural sector, or the accounts statistics for industries where public corporations predominate, these removals are straight-forward.

When it comes to public units these also has to be “cleaned out” from the General enterprise statistics. Those which are liable for VAT are picked out and divided up according to whether they have market or purely non-market activity, the basis for the split being a list of central and local government VAT units compiled by the Public Finances and Prices Division. Enterprises with no market activity are taken out. Checklists are printed out with the VAT sales and purchases of those units which have been removed/retained, as the case may be. Finally, a check is made on which large units with ownership codes 230: central government, 240: counties and 250: municipalities were still occurring in the file. The majority proved to be units we treat as being covered by non-market activity, and which were therefore also removed from the data.

3. Transition from firm branches to national accounts industries in the statistics based on accounts data from the Danish tax authorities

A "control key" controls the choice of “system” used for compilation of each individual industries. This key maintains the borderline between the accounts statistics and the statistics based on accounts data from the Danish tax authorities. It has been adjusted every time accounts statistics has been extended to cover service industries that previously were based on statistics based on accounts data from the Danish tax authorities.

To avoid delimitation problems, as described in the previous section, units which are calculated in full in the accounts statistics and, wherever possible, units included in OIMA or calculated on the basis of industry-specific accounts statistics or accounts statistics for industries where public corporations predominate are removed from the General enterprise statistics before it is used as the basis for grossing up in the statistics based on accounts data from the Danish tax authorities.

The FBRUDE data are separated out, as previously described, in such a way that the accounting figures which come from them are removed from the firm branch figures before the remainder is divided into kind-of-activity industries outside the scope of the industrial accounts statistics. This also means that total wages and salaries and employment relating to producer units within the scope of the questionnaire-based statistics are subtracted from the firm branch figures for distribution by kind-of-activity industry outside the scope of these statistics. As already mentioned, FBRUDE data are not allowed to remove more than the item's original value from any accounting item which should be positive. Otherwise, a good many cases of invalid negative items would occur.

The remaining part of firm branches are broken down into other kind-of-activity industries - for example, a wholesaling firm with combined wholesaling activity and engineering consultancy activity is divided up - in two stages. First of all, initial values are calculated for what has to be transferred to each kind-of-activity industry which receives something from the firm branch, on the basis of the breakdowns of the corresponding firm branches into accounting items. For example, the accounting items in a producer unit classified as engineering consultancy activity and which is to be transferred from the wholesale trade *firm* branch to the engineering consultancy kind-of-activity industry is initially estimated on the basis of the accounts observed in the engineering consultancy *firm* branch. The norms for these breakdowns of firms on the basis of the producer units which make up the firms are normally, and as the default, defined as the accounting item per krone (DKK) of wages/salaries. Information on total wages and salaries is available with a cross-distribution by firm branches and kind-of-activity industries and is therefore a generally useable and economically extremely meaningful basis for the split. These initial distributions are summed, and for each item the distribution is adjusted so that the contributions to the different kind-of-activity branches total the amount which is to be distributed. Account is thus taken of the ratios in both the industries which have values added to them and the firm branch which gives up value.

Account statistics for industries predominated by public corporations

Delimitation of the (sub)sector

Sector S.11001, "Public non-financial corporations", along with national private and foreign-controlled enterprises carrying out activities in the same branches as the public corporations, has a special status. Industries dominated by public corporations are normally covered by special ‘Accounts statistics for industries predominated by public corporations’ produced by Statistics Denmark’s Public Finances Division. The explanation is that it is particularly useful to cover public corporations, if only because they account for a large share of capital formation and the stock of fixed capital goods. The statistics in question are called "statistics for public enterprises", but in fact the statistics cover all producer units in the industries concerned. These are industries which have traditionally included a certain share - in many cases a dominant share - of public corporations and quasi-corporations.

The starting point is a sector delimitation of S.11001, where the units in that sector are grouped by industry in accordance with the main activity of the corporations in question. The resulting industries in which public corporations predominate are then covered in their entirety, regardless of ownership, and that coverage will not be reduced by any subsequent privatisations.

In 2012, the following industries in the national accounts' 117 grouping were included in whole or in part in the special treatment of industries where units belonging to S.11001 predominate:

350010 Production and distribution of electricity
350020 Manufacture and distribution of gas
350030 Steam and hot water supply
360000 Water collection, purification etc.
370000 Sewerage
383900 Waste and materials

490010 Passenger rail transport etc.
490020 Transport by suburban trains etc.
520000 Support activities for transp. (market)
600000 Radio, television, broadcasting
920000 Gambling and betting

Statistical sources

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. It is produced by the Public Finances Division in connection with general government statistics. One of the reasons is the desire to be able to produce (and publish) 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 contains all producer units in the economy under public control.

The population of units comes from the business register, and all public units have complete coverage in the statistics. All large national private and foreign-controlled units also have complete coverage but small non-public units are covered via grossing up. The accounting figures used are:

a) Central and local government accounts;
b) Questionnaires with accounting information;
c) Official annual accounts;
d) Accounting figures from branch organisations.

Re. a): If public quasi-corporations are included in central and local government accounts, these accounts are used as the source.

Re. b): For public corporations and quasi-corporations not included in central and local government accounts, Statistics Denmark collects accounting information on a questionnaire. The same questionnaire is used for national private and foreign-controlled units in the industries in question.

Re. c): Official annual accounts are used in a few cases.

Re. d): For the electricity sector, the vast majority of electricity corporations report accounting information to the branch organisation *Dansk Energi*. These figures are used as the basis for the statistics instead of the usual questionnaire, since the figures provide information on purchases and sales from one electricity corporation to another, information which is crucial if we are to be able to calculate the value of electricity sold outside the electricity sector.

The statistical unit in these statistics is the economic unit, which in practice is defined as the legal unit, the firm. As part of the processing of the data, secondary activity - principally construction and civil engineering and trading - is removed from the units in which it is carried out and transferred to the relevant national accounts industries.

For a good many industries, the "statistics for public enterprises" are exhaustive, i.e. they are based on accounts for all units in the industries in question according to the business register. In other industries with a large number of small units, total activity in the industry is covered via grossing up on the basis of the industry's VAT sales. Table 3.13 lists the detailed DK-NACE industries where the statistics are used as the source for the national accounts estimate, showing whether the estimate is based on all producers' accounts or whether the figures are grossed up, together with the percentage of any grossing up.

Table 3.13 Coverage in the accounts statistics for industries predominated by public corporations

DK-NACE Industry	Text	National accounts industry	Grossed up
			pct.
351100	Production of electricity	350010	4.0
351200	Transmission of electricity	350010	0.0
351300	Distribution of electricity	350010	2.0
351400	Trade in electricity	350010	5.0
352100	Manufacture of gas	350020	24.0
352200	Distribution of gas	350020	0.0
353200	Trade of gas via pipelines	350020	0.0
353000	Steam and hot water supply	350030	30.0
360000	Water collection, purification etc.	360000	30.0
370000	Sewerage	370000	6.0
381100	Collection of waste, not dangerous	383900	5.0
381200	Collection of waste, dangerous	383900	8.0
382110	Treatment of waste, not dangerous	383900	11.0
382120	Treatment of waste, energy	383900	1.0
382200	Treatment of waste, dangerous	383900	8.0
390000	Cleaning of soil, water and other pollution	383900	48.0
491000	Rail transport, passengers	490010	0.0
492000	Rail transport, cargo	490010	3.0
493110	Bus transport	490020	17.0
493120	S-trains, metro etc.	490020	0.0
493910	Bus transport, long distance	490020	21.0
522130	Toll bar stations for roads, bridges and tunnels	520000	0.0
552210	Harbours (traffic and fishing harbours)	520000	3.0
522300	Services related to air transport	520000	1.0
601000	Radio activities	600000	26.0
602000	Television activities	600000	2..0
920000	Gambling and betting	920000	27.0

In industries with no total count, those enterprises which have the largest VAT sales are extracted until appropriate coverage of the branch's total VAT sales is obtained in the sample. This form of sampling is considered to be the most efficient, especially when it is possible to gross the sample up to the total population using VAT sales instead of employment, for example. The sample is grossed up to total VAT sales in the industry.

3.1.4.3 Accounts for Other financial intermediaries, except insurance corporations and pension funds (S.125), Financial auxiliaries (S.126) and Captive financial institutions and money lenders (S.127)

These subsectors are calculated using accounts that are grossed up using total balances. For a description please refer to chapter 3.17 Financial and insurance activities (K).

3.1.4.4 Account statistics for Non-profit institutions serving households (NPISH) (S.15)

As part of the ESA 2010 based national accounts, published for the first time in September 2014, the NPISH sector is shown separately. In the previous national accounts S.15 NPISH was shown together with S.14 households. In order to have data of a sufficient quality to publish full sector accounts an account statitistics was established for S.15. At the same time, the delimitation between S.13 General Government and S.15 NPISH was changed. As more emphasis is put on control, some units in education (mainly private schools) and some welfare organisations were reclassified from S.13 to S.15. The result is, that the NPISH sector increased by as compared to before the major revision – value added was doubled (2008). The largest part was due to the reclassification of units from S.13. The following gives a short description of the new account statistics.

The account statistics cover a variety of units: Employee Unions, Religious institutions, political parties, welfare organisations, sports clubs and other. It is based on a sample of accounts from units in 25 detailed industries

(DB07) which is grossed up based on wages and salaries. For a more detailed description please refer to chapter 5.8 NPISH final consumption expenditure.

3.1.5 Sectors with a combination of physical and economic accounts (group 3)

Agriculture and horticulture

Delimitation and consistency vis-à-vis other industries

Agriculture, horticulture and the raising of fur animals covers national accounts industry 010000 Agriculture and horticulture. In agriculture, to which the raising of fur animals belongs, there is only market activity. Horticulture consists of market and non-market activity, the non-market being landscape gardeners in the general government sector. For this share of output and value added, reference should be made to table 3.2.

The following description refers to the market activity in agriculture. In the national accounts, this is defined by activity, i.e. "agriculture", for example, is the single activity of producing agricultural products. In practice, secondary activity in agriculture is predominantly the letting of dwellings (including holiday homes) and non-residential premises. These activities are instead accounted for in the outputs of the relevant industries, which are also defined by activity. The statistical producer units for agriculture, horticulture and the raising of fur animals are thus units of homogeneous production as defined in the ESA 2010, paragraph 2.154. If a given agricultural enterprise produces both agricultural and horticultural products, the enterprise is divided into an agricultural share and a horticulture share and output and value added are calculated separately for these two shares. The two shares are each units of homogeneous production whose output value is calculated as the sum of the value of the products in question.

A detailed description of Nace rev. 2 A, Agriculture, forestry and fishing can be found in chapter 3.7

Dwellings

Delimitation and consistency vis-à-vis other industries

Industries 680023 Renting of residential buildings and 680024 Owner-occupied dwellings (National accounts 117 groups) are activity-defined. The statistical units are units of homogeneous production which have no activity other than the letting of dwellings/own-account production of dwelling services.

The letting of dwellings is an important secondary activity for institutional units whose main activity is in other industries, especially banks, insurance corporations and pension funds. In the national accounts, this activity is in every case separated out into quasi-corporations in the non-financial corporations sector. In the calculations for the financial corporations, the return on their housing investments is recorded as property income (dividends).

Conversely, the letting of non-residential premises is an important secondary activity for many producer units which are primarily concerned with the letting of dwellings. A considerable proportion of housing in towns includes retail premises, and similarly there may be offices, workshops etc. in property which is primarily residential. The activity of letting non-residential premises is separated out from the output of dwelling services and transferred to industry.

In practice, the output value in the "dwellings" industries 680023 and 680024 is estimated from a price times volume calculation, where the stratified stock of dwellings is multiplied by appropriate average rentals, whilst the output value of industry 680030 Renting, non-residential buildings, is estimated from the expenditure side. For a detailed description please refer to chapter 3.18 Real estate activities (L)

3.2 The border line cases

The borderline cases are treated in the same process as the transition from private accounting and administrative concepts to ESA2010 national accounting concepts. The borderline cases are therefore described in section 3.4.

3.3 Valuation

According to ESA 2010, output has to be valued at basic price, and this concept is also used in the Danish national accounts.

Danish accounting and product statistics asks for turnover at basic prices, partly for national accounts purposes but also because Statistics Denmark has always considered that this was the price concept which firms could relate to best, since it corresponds 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, since it covers the sales value after deduction of discounts and VAT and other excise duties (and, conversely, additions for 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 ESA2010 concept of basic prices. The sales observed in the sources are sales at basic prices.

The intermediate consumption observed in the sources is generally recorded and valued at purchasers' price when the goods or service enter the production. There is generally no need for any procedure that switches from observed prices in the business accounts to the ESA 2010 concepts for valuing of intermediate consumption.

Price correction of changes in inventories

Price corrections of changes to inventories are done on the supply side for finished goods, work in progress and goods for resale and on the use side to changes in inventories of raw material. The price correction of changes in inventories is described below, a further description of inventories can be found in section 5.11.

The price correction for changes in inventories is made separately for the following five inventory categories:

1. Finished goods and work-in-progress
2. Inventories of raw materials
3. Wholesale inventories
4. Retail inventories
5. Special inventories.

The starting point is the accounting statistics information on final stocks in the last year (= opening stocks in the present year) and final stocks in the present year. These inventory estimates use the firms'/producer units' own valuation, which in the majority of cases is based on historic cost. Changes in inventories in business accounts which are calculated as closing minus opening stocks will therefore, with inflation (or deflation), generally include an element of revaluation. When prices are rising, output (sales plus changes in inventories of finished goods) will be overvalued and the intermediate consumption of goods will be undervalued. Together these will lead to an overvaluation of value added if the changes in inventories as they appear in business accounts are not price-corrected. For trading industries, where output value is defined as gross margin (sales of goods for resale minus consumption of goods for resale), output and value added will be overvalued if prices rise and inventories of goods for resale are not price-corrected.

The national accounts use the best possible approximation of the theoretically correct estimate of the national accounts changes in inventories and the price correction that goes with them according to the PIM. Owing to a lack of information on daily movements in inventories, the PIM can only be used in exceptional cases, in Denmark as in other countries. The Perpetual Inventory Method consists in compiling initial stocks and then monitoring all movements into and out of them.

Where information is available on physical quantities of goods in stock at the beginning and the end of the accounting period, the best possible approximation is obtained by multiplying the physical change in the inventory for the individual goods over the period in question by the mean prices for the year and then summing over all goods in the inventory in question. In Denmark, this information on physical quantities is available for agricultural and energy goods.

In all other cases, the only available information is the value of the enterprises' stocks at the end of the period in their annual accounts (quarterly accounts) and in the accounting statistics. Opening stocks are the same as the closing stocks of the previous accounting period. To calculate the national accounts changes in inventories, we make an assumption about the prices at which stocks are estimated at the end of the period and on this basis

inflate the opening stocks to the year's average price level, likewise deflating closing stocks to the year's average price level. The national accounts change in inventories in current prices can then be calculated as the difference between opening stocks and closing stocks calculated at average prices for the year in question.

The price correction to the business accounts' changes in inventories, output and intermediate consumption is worked out as the difference between the change in inventories in business accounts and the change as estimated according to national accounts principles. In the Danish national accounts, closing stocks are assumed to be compiled at the latest noted end-of-year acquisition prices, which are assumed to be the mid-December prices. This method of estimating stocks is compatible with the Annual Accounts Act and is known to be used by many producer units because it is simple and practicable. Given this assumption, the figures are inflated from the price level in December t-1 to the mean price level for year t and deflated from the price level in the December of year t to the mean level in year t. The calculation is made at product level, with opening and closing stocks divided by product on the basis of a distribution key specific to each industry. For inventories of finished products, including work-in-progress, the distribution key is the distribution by product of sales in the latest final year (t-1). For inventories of goods for resale, a key is used which provides the link between wholesale and retail trade industries and the products in which they trade. Finally, the distribution key for stocks of raw materials is determined by the breakdown of intermediate consumption by product according to the balanced supply and use tables for the latest final year.

The following formulae show the calculation process for the change in inventories of individual products. The change for a given industry is then worked out by summing over products:

$$C = B - A$$

$$D = \frac{B}{p(t(12))}\,p(t) - \frac{A}{p(t-1(12))}\,p(t)$$

$$E = D - C$$

where A = value of opening stocks in line with business accounting principles
B = value of closing stocks in line with business accounting principles
C = value of change in inventories in line with business accounting principles
D = value of change in inventories in line with national accounts principles
E = price correction to change in inventories and output/intermediate consumption
p(t-1(12)) = price index for December year t-1
p(t) = mean price index for year t
p(t (12)) = price index for December year t.

The national accounts change in inventories, i.e. the product transaction P.52, is then obtained as P.52 = C + E. E is item K.11 in the revaluation account for asset category AN.12, inventories, apart from the price change between mid-December in year t and the end of December in the same year. When inflation is low and there is little fluctuation in the relative prices, this last figure can be ignored for practical purposes, so E can be considered as the revaluation or holding gain on the inventory during the year.

It is important to be aware of the risk of omissions and double counting when two methods of calculating inventories are used at the same time, one based on physical quantities of certain goods and another based on business accounts. For example, the calculated inventories of energy goods are posted in the accounts for producers of energy products (stocks of finished goods), distributors of energy products (stocks of goods for resale in wholesaling enterprises) and, finally, as stocks of raw materials.

The Danish national accounts calculation system for inventories includes a key which allocates those agricultural and energy products which are covered by the physical calculation to certain industries, from which they are subtracted in the calculation based on the value of inventories according to accounting statistics. This ensures consistency, i.e. all inventories and movements in inventories in the economy are included once and once only.

Finally, it may be noted in parentheses that the theoretical and practical problems which arise in the non-financial national accounts in connection with estimating changes in inventories and revaluing inventories have

their counterpart in the financial national accounts, where the problem is how to split the change between opening and closing stocks of financial assets into a financial transactions share and a revaluation share, plus "other volume changes", i.e. bankruptcies etc.

3.4 Transition from private accounting and administrative concepts to ESA2010 national accounting concepts and borderline cases

After processing, all the accounting statistics underlying the national accounts calculation of value added, are transferred to a common accounting plan in the *Intermediate System* as shown in Table 3.17 at the end of this section. 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 ESA2010, is the producer unit or a constructed unit of homogeneous production. Despite the detailed level of information in the intermediate system, various accounting items still do not correspond to national accounts concepts because information from accounts alone is insufficient to perform the full transition. These corrections include corrections for borderline cases on the supply and use side. The adjustments made for the transition to ESA2010 national accounting concepts and borderline cases are described in the following.

Transition to common accounting plan – The intermediate system, version 1

The industry classification used in the intermediate system follows the most detailed six-digit code in the Danish version of the NACE Rev. 2 classification of activities (DK-NACE) for market production covered by the accounts statistics system and the tax-accounting system. A number of less detailed industries are used to include the results from other sources. The intermediate system contains the sector classification, thus a cross-classification by industry and sector is possible.

The item “other external expenditure”, EKUD, from the account statistics for the non-agricultural private sector has already at this stage been split between various items of which some should be included in intermediate consumption while others e.g. losses on bad debts or other taxes on production should be excluded (see also chapter 3.1.4.1).

It should also be noted that estimates for units under threshold value have already been included as part of the national accounts processing of the non-agricultural private sector

The various accounting items in the intermediate system, version 1, do not correspond to national accounts concepts because information from accounts alone is insufficient to perform the full transition. Further adjustments are needed, which are introduced in the transition to the intermediate system version 2.

The intermediate system version 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 that transfers the data from business accounts to ESA 2010 principles. These corrections are made to production and to intermediate consumption.

For production:

The following corrections are made to the production estimate:

1. Own-account gross fixed capital formation
2. Production, storage and processing of agriculture products for own-account by households
3. Dwelling services produced by owner-occupiers
4. Household services produced by employing paid domestic staff
5. Products used for payments in kind
6. Products added to the inventories of finished goods and work-in-progress
7. Revenue from licenses and royalties

Volunteer activities that result in goods and products bartered are considered insignificant in the Danish economy and there is no corrections made to the production for this in the national accounts. The account statistics for non-agricultural private sector is on local KAU cf. 3.1. After the transformation of accounting

statistics to the intermediate system are there no specific corrections made for products supplied by one local KAU to another within the same institutional unit to be used as intermediate input or for final use.

Price corrections to changes in inventories are made on the production for finished goods, work in progress and goods for resale. On the expenditure side price corrections are made to changes in inventories of raw material. The price corrections are described in section 3.3 and chapter 5.11.

For intermediate consumption (inclusion)

The following corrections are made to intermediate consumption for the transition to ESA2010 and the inclusion of borderline cases:

1. Inexpensive tools used for common operations and small devices
2. Non-life insurance service charges
3. FISIM purchased by resident producers
4. Financial intermediation services paid for directly
5. Expenditure on licenses and royalties

The following borderline cases are assumed to be a part of intermediate consumption in the business accounts, and further corrections for theses borderline cases are therefore not needed:

1. Costs of using rented fixed assets
2. Subscriptions, contributions or dues paid to non-profit business associations
3. Goods and services received from another local KAU of the same institutional unit that comply with the definition of IC
4. Goods and services used as inputs to ancillary activities
5. Expenditure by employees, reimbursed by the employer, in items necessary for the employers' production
6. R&D acquired to be used solely in the creation of further products of R&D

For intermediate consumption (exclusion)

The following corrections are made to intermediate consumption for the transition to ESA2010 and the exclusion of borderline cases:

1. Research and development
2. Expenditure by employers to be treated as wages and salaries in kind
3. Payments for government licences and fees that are to be treated as other taxes on production

The Following borderline cases are assumed to be excluded from the intermediate consumption the business accounts, and further corrections for these borderline cases are therefore not needed:

1. Items to be treated as GFCF (except R&D)
2. Expenditure to be treated as the purchase of non-produced assets
3. Use by market or own-account producers units of collective services provided by government units
4. Goods and services produced and consumed within the same accounting period and within the same local KAU
5. Payments for licenses for using natural resources (e.g. land) that is to be treated as rents, i.e. a payment of property income
6. Decommissioning for large capital assets

For taxes and subsidies on products

A detailed description of taxes and subsidies on products, including the transition to ESA2010 national accounting concepts and possible borderline cases, can be found in section 3.28 and 3.29.

Adjustments made to production

Ad 1) Own-account gross fixed capital formation

i. Mineral exploration

Mineral exploration is added to the industries output and treated as GFCF as described in chapter 3.8.

ii. Construction or extensions to dwellings by households

Construction and extensions to dwellings by households is output in NACE section F Construction, cf. section 3.12.

iii. Entertainment, literary and artistic originals

In the business accounts of authors, artists etc, the value of the originals they create will usually not be counted as output of capital goods. To bring the accounts for theses producers in line with the ESA 2010 rules, own output of originals is estimated separately and added to the business accounts output. Similarly, the amount calculated has to be added to GFCF on the expenditure side.

iv. Software produced on own account

In Danish business accounts, own-produced software is not normally capitalised but is considered as current operating expenditure (wages and salaries and the consumption of goods and services). If it is capitalized, "industrial accounts statistics" will usually show it as part of "intangible assets" where it cannot be distinguished from other kinds of intangible assets (some of which are not part of fixed capital). An allowance therefore has to be added to the business accounts' value of the output of capital goods for own use, to include the value of software (and large databases) produced on own account and for own use.

In the national accounts, own-produced software is calculated in a subsystem which, inter alia, includes a breakdown by industry. The calculation is based on total wages and salaries for highly-qualified IT staff, divided by industry. The values for own-produced software are input into the intermediate system and are thus included in the Target Total Module (MTM). The calculation is performed for the industries used in the Danish supply and use tables. In the intermediate system the correction is blown up to the detailed industries used here. The estimated value of software produced at own-account is also coded as GFCF on the expenditure side.

v. Research and development produced on own account

Own produced research and development is added to the production and GFCF, cf. section 5.10.

Ad 2) Production, storage and processing of agriculture products for own-account by households

As described in section 3.7, there is an addition to the production value for production for own use by households within the agricultural industry. Production of agricultural products for own-account by households outside the agricultural industry and the industry for production of meat is considered insignificant in the Danish economy.

Ad 3) Dwelling services produced by owner-occupiers

Dwelling services produced by own-occupiers is calculated as output in the national account industry 680024 Owner-occupied dwellings that is a part of NACE section L real estate activities, cf. section 3.18.

Ad 4) Household services produced by employing paid domestic staff

Household service produced by employing paid domestic staff is output in national account industry 970000 Households as employers, cf. section 3.26.

Ad 5) Products used for payments in kind

A description of the calculation of the value of fringe benefits can be found in chapter 7. The correction on the supply side is done to take into account that fringe benefits that are produced inside the unit itself will not be recorded in the value of output according to the business accounts. An estimated value of the missing production will have to be added to the production value in these cases. It should be emphasized that this correction is irrelevant in the cases where fringe benefits consist of goods or services purchased from other units.

Ad 6) Products added to the inventories of finished goods and work-in-progress
The production value is corrected for output to the inventories of finished goods and work-in-progress, cf. section 3.4 and 5.11.

Ad 7) Revenue from licences and royalties
According to ESA 2010, payments for licences and royalties on patents etc. are payments for the provision of services which have to be included in the estimate of output and intermediate consumption. In business accounts, they will in many cases be counted differently, as acquisitions of intangible assets, for example, even though all that has been acquired is permission to use an intangible asset for a given period and not the asset itself. In the national accounts, therefore, allowances are added in for licence and royalty payments as regards both intangible non-produced assets (patents etc.) and intangible produced assets (entertainment, literary and artistic originals, etc.). Licence payments for software are already covered elsewhere. These values are recorded in intermediate system 2 and included in output and intermediate consumption when the MTM is compiled.

Experience shows that accounting practises vary from firm to firm. Many enterprises show revenue from royalties as part of their output value. In these cases estimated values of the revenues already included are subtracted from the total revenue from royalties when the correction is made.

Adjustments made to intermediate consumption (inclusion)
Ad 1) Inexpensive tools used for common operations and small devices
Acquisitions of equipment etc. that in business accounts is treated as current expenses or written off in the same accounting year will to a large extent consist of durable equipment that should be included in GFCF unless they are inexpensive tools used for common operations or small devices.

The tax legislation includes an equivalent rule on consumables which may be posted as operating expenditure, i.e. written off immediately. It has been assumed for national accounts purposes that the accounting statistics information on expenditure on small tools and the like has usually been reported according to the tax rules in business accounts. (It must, however, be admitted that business accounts show numerous examples of expenses that are delimited in ways that do not at all follow the tax rules). Since tax rules are different from the ESA rules, the accounting item has to be split into that part which, according to the ESA rules, is small tools, and has to be counted as intermediate consumption, and the remaining share which goes to capital formation. In the Danish national accounts, a method has been developed for making this split on the basis of the tax rules and assumptions about the division of purchases by amount.

The limits for tax purposes on amounts spent on consumables which can be written off immediately were adjusted upwards several times. This meant that that share of the "acquisition of equipment, expensed" item which had to be counted as intermediate consumption in the national accounts had to be reduced and the capital formation share had to be increased.

Ad 2) Non-life insurance service charges
There is, with good reason, a difference between the accounting principles in business accounts and in national accounts for non-life insurance service charges. In national accounts terminology, the insurance premium actually paid on a policy is called the "gross insurance premium". That share of the gross premium which goes to cover risks, i.e. the payment of claims and allocations to provisions, which are the policyholders' property, is referred to as the "net insurance premium". The difference consists of the actual payment for the services of the insurance corporation, a share known as the "services element in the gross premium". In addition to the premium actually paid, there is, however, a further component of the total premium, namely the returns which the insurance corporations earn from insurance technical reserves, which, as already stated, are money belonging to policyholders. These returns are known as "supplementary premiums". In the national accounts, the amount is counted as a flow of property income (D.44) to the insurance policyholders, who use the amount in question to buy insurance services in addition to those paid for via the actual insurance premium. The economic argument is that this is the way insurance corporations operate. One essential aspect of insurance

business is that the corporations should have clients' funds at their disposal in the insurance technical reserves. The supplementary premiums are therefore included in the insurance corporations' output value.

The calculations for insurance corporations and pension funds are discussed in detail in Section 3.17. Here, therefore, we discuss only those corrections which are needed to work out intermediate consumption in those enterprises which are part of the population of policyholders.

In business accounts, the gross insurance premium is included in the accounting item "other external expenditure" (other overheads). To enable this to be used as the basis for an estimate of intermediate consumption, the net insurance premium has to be deducted and the supplementary premiums added.

In the national accounts insurance calculation system, gross premiums, claims paid out, net insurance premiums and supplementary premiums are estimated for each main type of insurance. After these have been aggregated by type of insurance, they are available in a breakdown over the national accounts 117 industries, plus households as consumers and the rest of the world. The net insurance premiums calculated plus the additions for supplementary premiums are input into intermediate system 2, and thus the treatment of insurance transactions is brought into line with the ESA 2010 rules with the compilation of intermediate consumption.

Ad 3) FISIM purchased by resident producers

Intermediate consumption of FISIM is an imputation that does not exist in business accounts. The method used for distribution of input of FISIM by industry is explained in section 3.17.

Ad 4) Financial intermediation services paid for directly

In business accounts, fees, including commitment fees etc. paid to financial institutions, are normally counted under financing expenditure, along with interest expenditure etc. In the main, financing expenditure covers distributive transactions and should not be included in the estimate of intermediate consumption, which is a product transaction (P.2). In the national accounts, the financial expenditure item therefore has to be screened for purchases of services consisting of bank fees etc. and those purchases transferred to an accounting item which goes into the estimate of intermediate consumption.

In the national accounts calculation system for financial institutions, an estimate is made of financial intermediation services which are paid for directly, in a breakdown by certain types corresponding to the financial institutions involved. In this calculation system, the total is divided up among users on the basis of the available information, including the size of borrowing and lending from/to industry groups and households as consumers plus the rest of the world.

The values calculated for payments for bank services etc. are input into intermediate system 2, thus ensuring that they are included in the estimate of intermediate consumption when the target total module is calculated.

Ad 5) Expenditure on licenses and royalties

According to ESA 2010, payments for licences and royalties on patents etc. are payments for the provision of services which have to be included the estimate of output and intermediate consumption. In business accounts, they will in many cases be counted differently, as acquisitions of intangible assets, for example, even though all that has been acquired is permission to use an intangible asset for a given period and not the asset itself. In the national accounts, therefore, allowances are added in for licence and royalty payments as regards both intangible non-produced assets (patents etc.) and intangible produced assets (entertainment, literary and artistic originals, etc.). Licence payments for software are covered above. These values are recorded in intermediate system 2 and included in output and intermediate consumption when the MTM is compiled.

Adjustments made to intermediate consumption (exclusion)

Ad 1) Research and development

Research and development that is purchased for investment (and not used to create further products of R&D) should be treated as gross fixed capital formation and not as intermediate consumption. Intermediate consumption in the “intermediate system” is corrected for this, see chapter 5.10 for a further description of R&D.

Ad 2) Expenditure by employers to be treated as wages and salaries in kind

The description of the calculation of the value of fringe benefits can be found in chapter 7. Where the value of fringe benefits consists of outlays for telecommunications services, subscriptions for newspapers and the like that are purchased in the market, business accounts will include this expenditure in the purchases of goods and services. This expenditure are removed from the value of inputs and added to compensation of employees.

Ad 3) Payments for government licences and fees that are to be treated as other taxes on production

According to the ESA2010, paragraph 4.23 e), government fees and payments connected with checks carried out by government are to be considered as purchases of services unless the amount charged is out of all proportion to the costs of the check. In business accounts, they will normally be considered as direct taxes rather than purchases of services, and will thus not be included in intermediate consumption unless a correction is made. Information on government fees, taxes paid for checks etc. is obtained from tax statistics. In a special calculation system, the figures are then broken down by industry, with the result being input into the intermediate system and included in intermediate consumption for the estimate of the MTM.

Table 3.14 Accounting plan in the intermediate system

	Text		Industrial accounts statistics
	Resources		
0.1	Output of originals	1003	----
	Output of the hidden economy	1005	----
	Fringe benefits, output	1007	----
	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	----
5.1	Purchases (consumption) of fuel and power	2013	KENE
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	ULOL (part of)
8.2	Expenditure on the rental and leasing of motor vehicles	7022	ULOL (part of)
8.3	Expenditure on the rental and leasing of computer equipment	7023	ULOL (part of)
8.9	*Expenditure on other rental and leasing*	*7024*	*ULOL (part of)*
9.	Acquisitions of equipment etc., expensed	7025	UASI
10.	Ordinary losses, irrecoverable debts	7026	OTDE
11.1	Repair and maintenance of buildings	7027	EKUD (part of)
11.2	Repair and maintenance of structures	7028	EKUD (part of)
11.3	Repair and maintenance of transport equipment	7029	EKUD (part of)
11.4	Repair and maintenance of machinery	7030	EKUD (part of)
	Repair and maintenance of buildings and structures	7031	EKUD (part of)
	Repair and maintenance of machinery and transport equipment	7032	EKUD (part of)
11.9	*Repair and maintenance unspecified or n.e.c.*	*7035*	----
12.1	Contributions to professional organisations allocated to inputs	7040	EKUD (part of)
12.2	Expenditure on licences and royalties	7041	EKUD (part of)
12.3	Other external expenditure included in inputs	7042	EKUD (part of)

Table 3.14 Accounting plan in the intermediate system, cont.

	Text	Industrial accounts statistics

12.9	*Other external expenditure*	*7043*	---
	Government fees as purchases of services	7044	EKUD (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	EKUD (part of)
17.2	Motor vehicle taxes	3113	EKUD (part of)
17.3	Other taxes on production not linked to products	3114	EKUD (part of)
17.4	Subsidies not linked to products	3115	---
	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 + ELPR
24.2	Finished goods, closing stocks	6065	UVUF + ELUL
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	////
	Fringe benefits as wages/salaries	4013	----
30.1	Wages and employer contributions	4015	LGAG
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	EKUD (part of)
39.2	Contributions to fighting funds	4047	EKUD (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 3.14 Accounting plan in the intermediate system, cont.

	Text	Industrial accounts statistics

	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	PVBT
73.2	Closing stocks	8142	UVBT
	Balancing items, LIABILITIES		
81.	Own funds	8210	EGUL
82.	Provisions	8220	HENS
83.	Long-term debt	8230	ALG + LGL
84.	Short-term liabilities	8240	AKG + KGL
73.9	*Other current assets*	*8149*	*ANTI + LIBE + OBAE + OBAV + OMAT + TGT + TSVT + UFKV + VKT + UIAF*

Key:

//// indicates that the item is not relevant or that it is fully covered in the other items included in the main group.

---- indicates that no breakdown is possible.

Sources:

- AUER, OMS, HOMS etc. are the variable names in the industrial accounts statistics, which for the year 2003 covers DK-NACE industries 140000-370000, 450000-550000, 602223-640000, 701109 and 710000-740000.
- EKUD = other external expenditure divided by ANVID [identity code for use] on the basis of the survey of costs.
- DEFL = Deflation division.

3.5 The role of direct and indirect estimation methods and of benchmarks and extrapolations

The role of direct and indirect estimation methods

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

The main industry for which an indirect estimate of value added is used is for the national account industry 680030, Renting, non-residential buildings. Here the output is calculated from the expenditure side as the sum of the rental expenditure of all other industries and the intermediate consumption is calculated using the input percentage (intermediate consumption/output value) for the letting of dwellings (i.e. actual letting) in dwellings, for want of satisfactory accounting information on the letting of non-residential buildings. Since the two activities are closely related, the uncertainty regarding the calculation of value added is assumed to be minor.

The roles of benchmarks and extrapolations

Projections are taken to be estimates where output and intermediate consumption are calculated directly as levels for a benchmark year, whilst estimates for the current years are obtained by projecting output and intermediate consumption from the benchmark year using appropriate indicators. A more uncertain method of projection consists in assuming a constant ratio (input percentage) of intermediate consumption to output in either current or (better) constant prices and projecting output, intermediate consumption and implicitly 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, projections are mainly used in the allowance for underreporting and for hidden activity (“black” activity). 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 year for the estimate of the hidden economy is 2004. The method then is to project output 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.

Table 3.15 Estimation method used for output by NACE section

	National account industry	Survey censuses	Adm. records	Combined data	Benchm. extrapol.	Commodity Flow Model	CFC (PIM)	Dwellings Stratific. Method	FISIM	Other E&M	Other	Total
		DKK mill.										
A	Agriculture, forestry and fishing	87 621	705	0	0	0	44	0	0	0	0	88 371
B	Mining and quarrying	0	0	62 417	0	0	0	0	0	0	0	62 417
C	Manufacturing	0	0	667 475	0	0	0	0	0	0	0	667 475
D	Electricity, gas, steam and air conditioning supply	49 223	7 282	0	0	0	0	0	0	0	0	56 505
E	Water supply; sewerage, waste manage. and remediation activity	24 595	5 871	5 420	0	0	0	0	0	0	0	35 886
F	Construction	5 268	62 150	0	0	14 137	167	0	0	118 675	0	200 397
G	Wholesale and retail trade; repair of vehicles and motorcycles	0	0	363 495	9 378	0	0	0	0	0	0	372 873
H	Transportation and storage	35 197	4 633	339 414	0	0	1 101	0	0	95	0	380 440
I	Accommodation and food services activities	0	0	48 712	0	0	0	0	0	0	0	48 712
J	Information and communication	5 970	3 453	143 708	0	0	263	0	0	0	0	153 394
K	Financial and insurance activities	58 366	56 955	0	0	0	0	0	46 502	0	0	161 822
L	Real estate activities	0	1 080	16 403	0	0	809	173 048	0	56 539	0	247 879
M	Professional, scientific and technical activities	0	1 563	162 527	0	0	2 218	0	0	14	0	166 322
N	Administrative and support service activities	0	13 106	98 665	0	0	128	0	0	56	0	111 955
O	Public administration and defence; compuls. social security	1 593	114 707	0	0	0	20 840	0	0	2 813	0	139 954
P	Education	3 363	92 930	15 360	0	0	17 800	0	0	787	0	130 240
Q	Human health and social work activities	26 222	207 779	7 660	0	0	9 691	0	0	718	0	252 071
R	Arts, entertainment and recreation	12 438	10 885	7 659	0	0	2 958	0	0	1 099	0	35 040
S	Other service activities	9 611	6 950	16 623	0	0	700	0	0	5 317	0	39 202
T	Activities of households as employers; etc.	0	0	0	0	0	0	0	0	3 521	0	3 521
	Total	319 469	590 049	1 955 539	9 378	14 137	56 719	173 048	46 502	189 634	0	3 354 474

3.6 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. 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 feeds into 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 ("black" and illegal activity) are covered by corrections which are explicit wherever possible. A more detailed description to the methods used to ensure exhaustiveness can be found in chapter 7. Table 3.16 shows the different types of non-exhaustiveness that are made for each NACE section.

Table 3.16 Exhaustiveness adjustments (value added) by NACE section, 2012

	National account industry	N1	N2	N3	N4	N5	N6	N7
		DKK mill.						
A	Agriculture, forestry and fishing	13	0	33	0	0	0	31
B	Mining and quarrying	0	0	0	0	0	0	32
C	Manufacturing	104	0	45	0	136	0	3 913
D	Electricity, gas, steam and air conditioning supply	0	0	0	0	0	0	160
E	Water supply; sewerage, waste management and remediation activity	0	0	0	0	1	0	28
F	Construction	2 989	0	0	0	166	0	1 037
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	977	1 930	0	0	569	0	2 377
H	Transportation and storage	174	0	0	0	74	0	562
I	Accommodation and food services activities	1 454	0	0	0	65	0	5 571
J	Information and communication	314	0	0	0	181	0	1 736
K	Financial and insurance activities	0	0	0	0	0	0	0
L	Real estate activities	0	0	0	0	52	0	161
M	Professional, scientific and technical activities	27	0	0	0	393	0	3 711
N	Administrative and support service activities	15	0	0	0	214	0	269
O	Public administration ad defence; compulsory social security	0	0	0	0	0	0	14
P	Education	39	0	0	0	0	0	12
Q	Human health and social work activities	56	0	0	0	0	0	63
R	Arts, entertainment and recreation	355	0	0	0	0	0	39
S	Other service activities	1 901	928	0	0	18	0	55
T	Activities of households as employers; etc.	1 103	0	0	0	0	0	0
	Total	9 522	2 859	78	0	1 868	0	19 773

3.7 Agriculture, forestry and fishing (NACE rev. 2 Section A)

NACE Section A is partly defined by function namely the agriculture and forestry part and partly by group of producer units namely the fishing part. It comprises three of the national accounts' 117 industries, these in turn covers 41 industries at the most detailed DK-NACE level. In 2012, this NACE Section accounted for 1.9% of total value added of the Danish economy - cf. Table 3.17.

Table 3.17 NACE Section A's contribution to gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
010000	Agriculture and horticulture	79 896	52 427	27 468
020000	Forestry	4 710	2 761	1 948
030000	Fishing	4 307	2 367	1 940
	Total NACE B	88 912	57 555	31 357
		pct.		
	Percentage of the economy	2.6	3.3	1.9

Statistical sources

The primary statistical sources underlying the estimate of value added can be seen in the table 3.18.

Table 3.18 Statistical sources underlying the calculation of value added for NACE A

	National account industry	Source
010000	Agriculture and horticulture	Specific industry statistics: agricultural statistics and tax account statistics
020000	Forestry	Specific industry statistics and tax account statistics
030000	Fishing	Tax account statistics

The statistical source for agriculture, horticulture and the raising of fur animals (national accounts industry 010000) is Statistics Denmark's agricultural statistics. This statistics follows the guidelines for compiling accounts for agriculture and forestry laid down in regulation 138/2004 and 212/2008. This implies that the compilations are made at the level of local KAUs, which means that products for own use and internal sales

within agriculture are included. The national accounts uses the so-called "national farm" method, which implies that only sales from the agricultural sector, lumped together, and purchases which go to the agricultural sector are included in the estimate. Internal sales and purchases between agricultural enterprises are not included. Therefore corrections are made for internal use in the national accounts. This has no effect on value added. A bridge table illustrating the transition from Economic Accounts for Agriculture to national accounts can be seen in table 3.19

According to paragraph 3.54 of ESA 2010, the output of crop products should be estimated not at harvest time but continuously over the entire period of growth. In Denmark, the vast majority of crops are harvested in the year in which the crop grows. The exception is winter cereals (winter wheat and barley), which are sown the year before the harvest. However, plant growth up to the year end is so minimal that for practical purposes it can be ignored. In the annual accounts, there is therefore no need to correct stocks as estimated after the harvest.

The estimates in the agricultural statistics regarding machine pools, are excluded when the statistics is used in the national accounts as in the national accounts agricultural services including machine pools are calculated on the basis of the tax account statistics. There is no need for excluding secondary activities when using the tax account statistics, as this statistics is used at the kind-of-activity level. No secondary output of agricultural goods in other industries is identified. Furthermore no illegal activity is identified in the agricultural industry whereas the calculation methods implicitly covers fraudulent activities such as VAT fraud and the likes.

Table 3.19 Bridgetable from Economic Agricultural Accounts (EAA) to National Accounts (NA), 2012

	DKK mill.
EAA Gross production value	87 091
Less sales within the agricultural industry	9 985
Less value of agricultural services acc. to EAA	2 793
Less secondary activity in EAA	907
Plus value of agricultural services acc. to NA	6 296
Plus other corrections and additions	193
NA Production value	79 896
EAA intermediate consumption	59 306
Less sales within the agricultural industry	9 985
Less IC associated with agricultural services acc. to EAA	1 535
Plus IC associated with agricultural services acc. to NA	3 707
Plus other corrections and additions	933
NA intermediate consumption	52 427

Other corrections and additions consists of a lot of minor corrections e.g. the value of eggs sold at the farm itself ("door sales") and the production value of dog kennels. On the input side the corrections consists of e.g. differences in the value of FISIM and energy consumption according to the EAA and the NA.

For forestry (020000) the statistical sources for calculating output are the forest census and a sample-based national forest inventory undertaken by Statistics Denmark and the Danish Forest and Nature Agency. For intermediate consumption, the input structure from the previously available SLS-E statistics is used. No secondary output of forest goods in other industries is identified.

No correction is made for output of agricultural and forestry goods in other branches than agriculture and forestry.

The primary statistical source underlying the estimate of value added for fishing (030000) can be seen in Table 3.17.

Method of calculation

In agriculture and horticulture output is normally calculated using a price times volume method. For the largest crop product, namely cereals, the harvest yield of the individual kinds of cereal is calculated first of all, and this is then multiplied by the average selling prices collected from all the larger cereal merchants. For animal products, sales value is calculated in a similar way by multiplying the quantities sold by the average selling

prices obtained by the producers. The value of changes in inventories and livestock numbers, as well as output for own use and "door-sales", is added. Farm tourism is implicitly recorded under dwellings, as output for dwellings are calculated as the number of square metres times a rent per square metre (see chapter 3.18). As all square metres are included, farm tourism is also included.

Expenditure on intermediate consumption in agriculture and horticulture is total expenditure on the raw and auxiliary materials used in production, including purchases from dealers and the like, expenditure on the repair and maintenance of the production apparatus and various expenditures on services from other industries. If information is available on the quantities and prices of the raw and auxiliary materials used, the expenditure is calculated on the basis of total purchases and average prices paid for the individual raw and auxiliary materials, whilst for the other expenditure items, information from the available accounting estimates and various special estimates is used. Input to non-farming activities are thus excluded from the calculations.

In forestry, output is also calculated using a price times quantity method. The value of production of timber is the value of annual rise in volume of standing timber, i.e. in addition to the felling, we also account for the net natural growth in the volume of standing timber. In forestry, intermediate consumption is calculated using the input structure from the previously available SLS-E statistics.

In fishing value added is calculated by the standard method for industries covered by the tax account statistics.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

Since agriculture, horticulture and the rearing of fur animals are activity-defined on the basis of the products produced and the estimate of output value using a price times volume method, the product breakdown is self-evident. Output in agriculture and horticulture, is divided into 53 product balances in the national accounts supply and use tables.

For forestry, the breakdown by product follows the calculation of the annual rise in volume of standing timber and is therefore based on the breakdown in the sample-based forest inventory.

The output value calculated for fishing is broken down by type of fish on the basis of the Fisheries Ministry's catch statistics, which cover landings in both Danish and foreign ports. The output value according to the national accounts calculations is much higher than the value of the quantities of fish landed. The difference can be explained partly by internal deliveries of fish in the fishing industry (in fact, a trading activity) and partly, perhaps, by avoidance of the fish quotas by means of unofficial landings. Estimated internal deliveries are posted as inputs for the fishing industry itself when the supply and use tables are compiled.

Breakdown of intermediate consumption by product

In the agricultural statistics, the vast majority of intermediate consumption is allocated directly by product, in most cases on the basis of information on quantities of the products used (e.g. fodder cereals) multiplied by average prices or information on sales to agricultural holdings (feeding stuffs, fertilisers and pesticides).
There are no regular costs structure statistics for fishing other than energy statistics. The input structure in fishing is based on the structure costs of which can be found in the previously available SLS-E accounting statistics – for example rentals and repair and maintenance. The breakdown into individual products is to a certain extent based on estimates and on common sense considerations. For the current year, an initial estimate is worked out for the input structure on the basis of the technical coefficients in the supply and use tables from previous years.

3.8 Mining and quarrying (B)

Introduction

NACE Section B is defined by grouping of producer units and covers three of the national accounts' 117 industries. These in turn cover 15 industries at the most detailed DK-NACE level. In 2012, this section accounted for 3.5% of value added of the Danish economy – cf. Table 3.20

Table 3.20 NACE Section B's contribution to gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
060000	Extraction of oil and gas	57 721	4 648	53 073
080090	Extraction of gravel and stone	2 917	1 913	1 004
090000	Mining support service	5 146	2 578	2 568
	Total NACE B	65 784	9 139	56 646
		pct.		
	Percentage of the economy	1.9	0.5	3.5

Statistical sources

Industry 060000, extraction of oil and gas, covers all activity relating to the production of crude petroleum and natural gas, which is concentrated in the Danish sector of the North Sea. The output of petroleum and gas is estimated ex-North Sea, i.e. the value of pipeline transport is included in the output value. Pipeline transport is operated by a single publicly owned and controlled corporation, DONG Oil Pipe A/S, which is part of national accounts industry 490030, Road and pipeline transport. No further distribution or processing is included in the output value. The output value of DONG Oil Pipe A/S is posted as intermediate consumption in the "extraction of oil and gas" industry.
The industry covers Dansk Undergrunds Consortium (DUC) and other licence holders and Statistics Denmark collects very detailed accounting information from them. In addition, the industry covers technical service activity related to the extraction of crude petroleum. This activity is covered by industrial accounts statistics.

Industry 090090, the extraction of gravel and stone and industry 090000, mining support service, are covered by industrial accounts statistics.

Table 3.21 Statistical sources underlying the calculation of value added for NACE B

	National account industry	Source
060000	Extraction of oil and gas	Accounts statistics for non-agricultural private sector
080090	Extraction of gravel and stone	Accounts statistics for non-agricultural private sector
090000	Mining support service	Accounts statistics for non-agricultural private sector

Method of calculation

The output value of 060000, i.e. the value of the volume of oil and gas produced, is taken directly from the accounts divided into these two products. Exploratory drilling for own account is also taken from the accounts.

Exploratory drilling by the units in the industry on their own account is included in the industry's output value. Exploratory drilling etc. which is purchased comes either from domestic suppliers in the construction industry or is imported. All exploratory drilling is capitalised, i.e. is treated as gross fixed capital formation in the national accounts.

The output value of 080090 and 090000 is taken directly from the accounts statistics, which is grossed up to cover all producer units in the industry. Intermediate consumption is calculated by the standard method for the transition from the accounting statistics accounting plan to the target total module via the intermediate system.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

The output of the extraction of oil and gas is broken down directly into three products: crude petroleum, unprocessed natural gas and exploratory drilling. The extraction of gravel and stone industry is covered by product statistics for manufacturing. The output calculated is divided by product on the basis of the breakdown in the industrial commodity statistics. The output of mining support service is broken down by two products

that are defined on the basis of the most detailed industries in the DK_NACE. In addition, the industries produces fringe benefits and own account software.

Breakdown of intermediate consumption by product

In the extraction of oil and gas, operating expenditure is divided in the accounts into input of pipeline transport services (DORAS + oil pipeline tax), repair and maintenance and other operating expenditure. These first two together cover by far the greater share of intermediate consumption. In the national accounts supply and use tables, the remainder is broken down by product, using rough figures in some cases.

3.9 Manufacturing (C)

Introduction

NACE section C is defined by group of producer units and covers 35 of the national accounts' 117 industries – cf. Table 3.25. In the detailed DK-NACE, manufacturing consists of 237 industries, each of which is calculated separately when the primary statistics are processed.

In 2012, this section accounted for 13.3% of value added of the Danish economy – cf. Table 3.22.

Table 3.22 NACE section C's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mil.		
	National account industry			
100010	Production of meat	40 796	34 930	5 867
100020	Processing of fish	11 522	9 548	1 974
100030	Manufacture of dairy products	33 362	28 399	4 963
100040	Manufacture of bakery products	11 931	7 640	4 292
100050	Other manufacture of food	32 778	27 046	5 732
110000	Manufacture of beverages	9 844	6 704	3 140
120000	Manufacture of tobacco products	1 314	772	542
130000	Manufacture of textiles	5 432	3 818	1 613
140000	Manufacture of wearing apparel	2 311	1 750	562
150000	Manufacture of footwear etc.	751	697	54
160000	Manufacture of wood etc.	11 499	7 505	3 994
170000	Manufacture of paper etc.	8 978	6 153	2 824
180000	Printing etc.	9 641	6 308	3 333
190000	Oil refinery etc.	44 049	43 254	795
200010	Manufacture of basic chemicals	15 270	8 111	7 159
200020	Manufacture of paints, soap etc.	18 144	11 158	6 986
210000	Pharmaceuticals	75 657	28 983	46 674
220000	Manufacture of rubber etc.	21 051	13 868	7 183
230010	Manufacture of glass etc.	2 462	1 573	889
230020	Manufacture of concrete etc.	16 658	10 359	6 299
240000	Manufacture of basic metals	8 673	6 493	2 179
250000	Manufacture of fabricated metal	43 251	27 958	15 293
260010	Manufacture of computers, etc.	10 142	6 456	3 685
260020	Manufacture of other electronics	20 773	8 834	11 938
270010	Manufacture of motors, etc.	9 330	5 794	3 536
270020	Manufacture of wires, cables	3 144	1 992	1 152
270030	Manufacture of household appl. etc.	5 882	3 885	1 997
280010	Manufacture of engines etc.	92 300	68 535	23 765
280020	Manufacture of other machinery	43 945	28 459	15 486
290000	Manufacture of motor vehicles etc.	7 060	4 627	2 432
300000	Manufacture of ships, transport equip.	3 989	2 602	1 387
310000	Manufacture of furniture	13 415	8 459	4 956
320010	Manufacture of med. Instruments	5 678	2 876	2 802
320020	Manufacture of toys, etc.	6 665	3 064	3 602
330000	Repair, inst. of machinery etc.	15 255	9 031	6 224
	Total NACE C	662 952	447 643	215 309
		pct.		
	Percentage of the economy	19.4	25.0	13.3

NACE Section C covers a much greater share of the national accounts' 117 industries than its share of value added of the economy because the input percentage, i.e. the ratio of the intermediate consumption to output, is greater in manufacturing than in most other industries. This is due largely to specialisation, i.e. in many cases manufacturing enterprises buy semi-finished products from other manufacturing enterprises and concentrate on those parts of the total process where they have comparative advantages. Manufacturing thus accounts for a greater share of output (gross), of intermediate consumption and thus of the product flows in the economy than is the case if value added is the criterion.

For an optimum description of product flows in the economy in the supply and use tables and in the symmetrical input-output tables, manufacturing should be allocated a share of the number of industries covered by the calculation system which is greater than its share of value added.

Statistical sources

By far the most important primary statistics source underlying the estimate of value added is the Account Statistics (for Non-Agricultural Private Sector), the use of which in the national accounts was described in Section 3.1.4.1. Below, therefore, we discuss only statistical sources and the corresponding calculations which are not connected with the accounts statistics. Table 3.23 gives an overview of manufacturing industries where the accounts statistics are supplemented by other information for the national accounts' estimate of value added.

Table 3.23 Statistical sources underlying the calculation of value added for NACE C

	National Account Industry	Source
100010	Production of meat (part: home slaughtering)	Agricultural statistics
100010	Production of meat (part: back payments)	Agricultural statistics
100030	Manufacture of dairy products (part: back payments)	Agricultural statistics
	Other NACE industries	Accounts statistics for non-agricultural private sector

Method of calculation

The method of calculation for by far the largest share of manufacturing is the standard method for use of the accounts statistics for non-agricultural private sector described in section 3.1.4. Below is therefore only discussed the methods used for the sources listed in table 3.23.

In 100010 Production of meat, a correction is made for home slaughtering. Where value added is concerned, this correction is extremely modest, since the value added consists only of the cost of the actual slaughtering. A further description of exhaustiveness can be found in chapter 7.

Many slaughterhouses in Denmark are organised on a cooperative basis, members of the cooperative being the farmers who supply to the slaughterhouses. When agriculture supplies animals to cooperative slaughterhouses, the farmers receive a payment on account based on the official prices for pigs, cattle, etc. When the slaughterhouses' accounting results are worked out, a substantial share of the surplus is distributed to the suppliers as back payment over and above the original settlement price paid on account. It is these price adjustments to the suppliers' settlement prices which are known as "back payments". In agricultural statistics, the amounts in question are considered as part of the basic price and are therefore included in the output value of slaughter animals from the agricultural industry. In the slaughterhouses' accounts and in the industrial accounts statistics, however, they are not counted as payment for goods, i.e. as intermediate consumption, but as profit, i.e. property income to the members of the cooperative. The national accounts' correction for back payments corrects for the inconsistent accounting in the two sets of primary statistics. The national accounts comply with the agricultural statistics accounting and consider back payments as part of agricultural selling prices. The value added which they represent is therefore included in the national accounts under agriculture and not under meat production. Without the correction, agricultural back payments would be counted twice in total value added. The correction consists of reclassifying back payments in the accounts for the slaughterhouses from profit to intermediate consumption.

The correction for back payments in 100030, the manufacture of dairy products, is made in exactly the same way. There are a large number of cooperatives in the dairy industry, too, operating with back payments to suppliers, in this case the milk producers. The correction for back payments in the manufacture of dairy products was DKK 1.688 million in 2012.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

For manufacturing, there are particularly comprehensive and detailed product statistics, namely the manufacturers' sales of goods statistics (VS). These cover all producer units within manufacturing which have at least 10 employees. However, certain new units above this threshold will in many cases not be included in the statistics during the first year of their existence. On the other hand, they are always included in accounting statistics, either directly in the sample or indirectly through the grossing up on the basis of employment. Their output value is covered in full, but the breakdown by product is not known in every case and therefore has to be estimated on the basis of the product distribution for other producer units in the same industry.

The product classification in the industrial commodity statistics is the Combined Nomenclature, which has some 10 000 headings. These are aggregated with the help of the national accounts' product file, which is a continuously updated key between the CN commodity codes and national accounts products (around 2 350 goods and services). From the national accounts products, there is a clear-cut link to the 4-digit level CPA.
For the vast majority of turnover in a given manufacturing industry, the breakdown by product is observed directly in the VS. For the remaining share up to total sales according to national accounts, two different methods are used for the product breakdown. In those cases where the enterprises not included in the VS must be assumed to produce the same kinds of goods as enterprises which are covered, the figures are simply grossed up on the basis of the VS product structure. In certain other cases, where the enterprises not covered are primarily small ones with less than 10 employees, a special product breakdown is used instead, which is more representative of small enterprises in the industry in question. These breakdowns are made at the most detailed level in the industry classification, i.e. corresponding to 237 manufacturing industries.

What turnover include

Code 0100 in the functional target total module, MTM, shows total turnover in each of the national accounts 117 industries. In manufacturing industries, total turnover consists of:

Net turnover according to account statistics for non-agricultural private sector
+ output of plant and machinery for own use
+ own account output of software
+ own account output of research and development
+ fringe benefits, output

Net turnover according to account statistics for non-agricultural private sector will be exclusive of sales of goods for resale, which are picked out and transferred to wholesale.

In the intermediate system, the different parts of sales are coded as follows:

MLS-code	MLS-code text
1007	Fringe benefits, output
1012	Manufacture of plant and machinery for own use
1015	"Own-produced" software
1017	Income from licenses and royalties (part of net sales)
1018	Other net sales, excluding 1017 and 1059 (part of net sales)
1059	Other (services) sales, excluding 1017 (part of net sales).

"Own-produced" research and development is added to the system after the intermediate system.

Product definitions

When the national accounts product balances are compiled, total sales are divided over detailed products, which in the case of goods are defined on the basis of HS (Harmonised System) groups and for services are based on the CPA (Central Production Classification by Activity).

Products are allocated codes consisting of an initial letter followed by 6 digits. The initial letter characterises the product as follows:

E Output for own consumption
F Fringe benefits
H "Hidden" output - black and illegal activity
K Plant and machinery (capital goods), plant for own use
L Processing to order
M Repairs and installation work on manufacturing
N Sales income in NPISH
Q Government non-market services for consumption
R NPISH non-market services for consumption
S Public sales income
T Services, market
U Non-HS goods
V HS goods

Breakdown of output by product:
Those parts of output which are coded in the intermediate system as 1007, 1012 or 1015 are allocated directly to F and K products. Licensing income and other (services) sales, which in the intermediates system are coded 1017 or 1059, are then calculated in special subsystems. These shares are allocated to two specific T products.

Remaining net sales (MLS code 1018) are divided up by product with the help of the industrial commodity statistics and a DK-NACE industry-specific key for minor manufacturing activity. An example of the breakdown and the basis for it can be seen in the following tables, 3.24 and 3.25 for National accounts industry 260010 Manufacturing of computers etc. For much the largest share of sales in this manufacturing industry, the products breakdown is directly observed, and for this reason there is very little uncertainty about the products composition. This is characteristic of virtually all national accounts industries within manufacturing.

Table 3.24 Extract from intermediate system for National accounts industry 260010, 2012

		Basic price
		DKK mill.
MLS code text	MLS code	
Fringe benefits, output	1007	21 793
Manufacturing of plant and machinery for own use	1012	15 429
Own account software	1015	60 415
Own account research and development	-	630 042
Income for licences and royalties	1017	66 637
Other and unspecified net sales	1018	8 351 732
"Other sales" excluding licenses and royalties	1059	736 373
Total turnover	1010	9 882 421
Inventories of finished goods	2065	259 236
Output value		10 141 657

Table 3.25 Breakdown of turnover in National accounts industry 260010, 2012

		Turnover of own products in the MLS (Other and unspecified net sales 1018)	Industrial commodity statistics, excluding goods for resale (VS)	Difference MLS and VS	Correction due to MLS<VS	Product breakdown with VS	Production breakdown with industry specific key
		DKK mill.					
National accounts industry	DK-NACE industry						
260010	261100	1 522 097	1 375 590	146 507	-48 284	1 375 590	98 223
260010	261200	1 071 729	870 214	201 515	-48 284	870 214	153 231
260010	262000	853 842	950 410	-96 568	96 568	950 410	0
260010	263000	2 381 210	2 156 193	225 017	0	2 156 193	225 017
260010	264000	3 209 200	2 938 747	270 453	0	2 938 747	270 453
Total		9 038 078	8 291 154	746 924	0	8 291 154	746 924

Breakdown of intermediate consumption by product

For that part of intermediate consumption of manufacturing which consists of goods, including energy and packing, there are particularly comprehensive and detailed costs structure statistics. Energy consumption is obtained from a special annual survey.

Information on the consumption of goods other than energy is obtained from annual cost structure surveys since 2000. The survey covers intermediate consumption of raw materials, semi-manufactured products, intermediary products, packing costs and purchase of services. These surveys of the structure of the consumption during the production process cover manufacturing only and, as a general rule, all manufacturing kind-of-activity units belonging to firms with 50 employees or more. Enterprises with more than 20 but under 50 fulltime-employees can be added to the population in industry groups with only a few firms with at least 50 employees. The cut-off sample covers app. 73 percent of total net turnover of all manufacturing Enterprises. The statistics is not enumerated to cover all manufacturing enterprises.
The commodity classification in the costs structure surveys is based on the CN classification and has six digits. The first four digits in the commodity coding system are identical in the external trade and the commodity statistics and in the raw materials statistics. Most important is, however, that the classification used in the raw material statistics corresponds to the product classification used in the supply and use matrices in the national accounts.

Annual surveys have been available since 2000. As the survey was renewed into its present form in 2000, the data from this year had a higher than normal uncertainty, and it was decided that data from this survey should not be allowed more or less automatically to replace the input structures based on the balanced supply and use matrices from the previous year. Instead a technique was developed where data form the raw material survey were added to the file used by the people who were working on the manual balancing of the system. The person who was balancing a specific product would always work on spreadsheet data, in which intermediate consumption by industry would be shown together with the input values that had actually been reported in the raw materials survey. It was the responsibility of the “balancer” as far as possible to incorporate the information from the survey in the balanced supply and use matrices. As a result the survey data could be incorporated where they seemed plausible without the loss of information based on experience from earlier years. From 2001 the quality of the survey data has improved, but the system used for entering the information into the initial version of the supply and use matrix -file has essentially been the same as in 2000, as it has proved to be an efficient way to incorporate the annual surveys without the need of an extra, labour intensive, first round of balancing every year. Hence the input structure in the national accounts and the input-output tables for 2012 is based on the cost structure survey for 2012 and information from the structure in the balanced supply and use matrices from 2011 inflated to 2012-prices.

For the costs structure surveys, it is vital to ensure that respondents comply with accounting stringency and discipline. If the questionnaire does not relate to well-defined items in the enterprises’ own accounts and in the accounting statistics questionnaire, there is a serious risk of low-quality replies owing to failure to observe the fundamental constraints on totals. This in turn is crucial for the supply and use tables and the symmetrical input-output tables in the Danish national accounts, and one of the factors contributing to their solid statistical foundation.

3.10 Electricity, gas, steam and air conditioning supply (D)

Introduction

NACE section D is defined by function and covers three of the national accounts’ 117 industries. These in turn covers 8 industries at the most detailed DK-NACE level. This section accounted for 1.5 % of value added of the Danish economy in 2012 – cf. Table 3.26.

Table 3.26 NACE D's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
350010	Prod., distrib. of electricity	28 310	14 272	14 038
350020	Manuf. And distribution of gas	15 556	13 202	2 354
350030	Steam and hot water supply	13 715	5 040	8 675
	Total NACE D	57 582	32 514	25 068
		pct.		
	Percentage of the economy	1.7	1.8	1.5

Statistical source

The statistical source underlying the estimate of value added in all three industries is accounting statistics for industries where publicly controlled corporations predominate, which for these industries are based partly on questionnaires and partly on local government accounts. The accounts from public units which are included in local government accounts are collected from these local government accounts statistics. The calculations for electricity and district heating works are based on accounting information collected and published by *Dansk Energi* and *Danske Fjernvarmeværkers Forening*.

Table 3.27 Statistical sources underlying the calculation of value added for NACE D

	National account industry	Source
350010	Prod., distrib. of electricity	Account statistics for industries predominated by public corporations
350020	Manuf. And distribution of gas	Account statistics for industries predominated by public corporations
350030	Steam and hot water supply	Account statistics for industries predominated by public corporations

Method of calculation

The output value in the national accounts is the output for supply outside the industry, i.e. it excludes internal deliveries. The figures are therefore recorded net, i.e. internal supplies of energy from one unit to another in the industry are netted out. In the case of electricity and district heating, there are very large deliveries between production companies and distribution companies. The national accounts' output values for electricity and district heating are therefore much below the sales values which occur in other statistics. The main argument for net treatment of supply activity is that the supply and use tables are much more useful as a basis for the compilation of provisional national accounts when output and intermediate consumption are not inflated by large internal deliveries, which may fluctuate markedly.

For *the production and distribution of electricity*, accounting statistics from *Dansk Energi* and municipal accounts cover all electricity utilities apart from some production units. These units are calculated from accounting statements from the corporations. The accounting statistics and municipal accounts do not cover the output of electricity other than from actual power stations, such as that produced by private windmills and small decentralised heat and power plants. This output (other than electricity for the producer's own use during production) is included on the basis of information on quantities of electricity produced and an average kilowatt-hour price. Some of the electricity produced by private windmills, for example, is used for the owners' own consumption and some is sold to power stations which are obliged to take the power and distribute it via the general grid. The production of electricity using renewable energy sources such as wind is subsidised. For the estimate of output value, this product subsidy is added to the sales income reported. In 2012, the subsidy was DKK 4.200 million.

For the *manufacture and distribution of gas*, accounting statistics are based on accounts from all units in the industry, which is dominated by the distribution of natural gas. The industry includes the cleaning and processing of the natural gas which comes to the mainland from the North Sea gas fields. In the product balance system, there are three types of natural gas: natural gas I is the raw gas from the North Sea which is an input for the supply of gas. Natural gas II is that share of output which goes to "general" natural gas customers, i.e. all

uses other than as an input in electricity power stations or district heating stations or as an export. Natural gas III is that share of output which goes to these last-named uses.

In *the supply of district heating*, the accounting statistics cover all units' accounts either via questionnaires or via local government accounts. No grossing up is therefore needed. In addition to the accounting information, annual information from *Danske Fjernvarmeværkers Forening* on total purchases of heat in district heating plants (internal deliveries) is used, along with information from energy statistics on the total expenditure on fuel for all production of district heating in the country. Thus the netting out discussed above is possible in this industry, and the link with the physical energy balances is retained.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

All output of electricity is included in a single product balance. Economic theory, however, considers the various supplies of electricity to be very different products, and this is reflected in large differences in electricity prices per kilowatt-hour at basic price level, i.e. pre-tax, from one use to another. Large manufacturing users, for example, pay a much lower price than private consumers. The fact that there is only one product balance for electricity does not cause any problems for national accounts at current prices or for supply and use tables, since energy statistics can be used to estimate each individual use of electricity separately. For the estimate of volume changes, however, it is important to deal correctly with changes in the composition of the uses of electricity. For the national accounts constant price calculations, the product balance for electricity, like that of all other energy products, is deflated from the uses side, taking into account the different economic values of the individual deliveries of electricity and individual deliveries of other energy products. The output of gasworks is, as already mentioned, divided into three products, namely gasworks gas, natural gas II and natural gas III. The output from district heating works and the collection and distribution of water are shown in separate product balances.

In addition to the primary products referred to above, NACE D produces fringe benefits for employees, own-produced software and own-produced research and development.

Breakdown of intermediate consumption by product

By far the largest input in the supply industries is, of course, energy, and this part of intermediate consumption is established directly. Another large input is repair and maintenance, information on which is available from accounts statistics. There are no costs structure surveys which provide information on the distribution by product of the remaining, minor share of intermediate consumption consisting, for example, of services which come under business services. In the supply and use tables, this residual input is divided over product balances in the light of the known cost structure in related manufacturing industries, together with common sense considerations.

3.11 Water supply; sewerage, waste management and remediation activity (E)

Introduction

NACE section E is defines by function and covers three of the national accounts' 117 industries. These in turn covers 9 industries at the most detailed DK-NACE level. This section accounted for 0.8 % of value added of the Danish economy in 2012 – cf. Table 3.28.

Table 3.28 NACE E's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
360000	Water collect. Purification etc.	4 611	1 997	2 614
370000	Sewerage	9 306	4 175	5 131
383900	Waste and materials	22 048	16 171	5 877
	Total NACE E	35 964	22 342	13 622
		pct.		
	Percentage of the economy	1.1	1.2	0.8

Statistical source

The statistical source underlying the estimate of value added in all three industries is accounting statistics for industries where publicly controlled units predominate, which for these industries are based partly on questionnaires and partly on local government accounts. The accounts from public units which are included in local government accounts are collected from these local government accounts statistics.

Table 3.29 Statistical sources underlying the calculation of value added for NACE E

	National account industry	Source
360000	Water collect. Purification etc.	Account statistics for industries predominated by public corporations
370000	Sewerage	Account statistics for industries predominated by public corporations
383900	Waste and materials	Account statistics for industries predominated by public corporations

Method of calculation

For all three industries the accounting figures collected for accounting statistics for industries predominated by public corporation do not cover all units and are therefore grossed up to the total population of producer units. In 2012 the raising factor was 1.46 for water collection, purification ect, 1.07 for sewerage and 1.04 for waste and materials.

The figures are grossed up on the basis of VAT sales. The great majority of accounting figures in the accounting statistics come from local government accounts.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

The output of NACE E is divided into eight products. The basis for the production distribution is the breakdown of the sales of the three national accounts industries into the detailed DK-NACE industries. In addition are there also fringe benefits, own-produced software and own-produced research and development.

Breakdown of intermediate consumption by product

There are no regular costs structure statistics for NACE E other than energy statistics and the summary costs structure in the accounts statistics for industries predominated by public corporations (for example rentals and repair and maintenance). The breakdown into individual products is to a certain extent based on estimates and on common sense considerations. For the current year, an initial estimate is worked out for the input structure on the basis of the technical coefficients in the supply and use tables from previous years.

3.12 Construction (F)

Introduction

NACE section F is defined by function and covers four of the national accounts' 117 industries. This section accounted for 4.6 % of value added of the Danish economy in 2012 – cf. Table 3.30.

Table 3.30 NACE F's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
410009	Construction of new buildings	49 832	29 861	19 970
420000	Civil engineering	58 486	41 993	16 493
430003	Professional repair and maint.	70 900	32 833	38 067
430004	Own-account repair and maint.	26 395	26 395	0
	Total NACE F	205 612	131 082	74 530
		pct.		
	Percentage of the economy	6.0	7.3	4.6

The industry covers construction and civil engineering activity in the Danish economy. Foreign construction activity of Danish construction firms is included in output if it fulfils the criteria §2.09 in ESA2010, and accordingly is construction and civil engineering activity by foreign construction firms in Denmark measured as import. Figures for import and export of construction activity are gathered from the Balance of Payments.

NACE F covers 20 industries at the most detailed DK-NACE level. There is, however, no connection between the industries in the DK-NACE and the national accounts´ four construction industries. Whilst the breakdown into the 20 industries in the area of construction and civil engineering in the DK-NACE is based on *specialisation or trade*, e.g. bricklaying or carpentry, the national accounts breakdown is *functional*, i.e. based on the final product.

As for all other industries in the economy, the national accounts calculations of value added in construction are based on accounting data for the individual, detailed DK-NACE industries and subsequent aggregation. In the case of construction, however, this aggregation is not to the four sub-industries for construction activity in the national accounts' 117 grouping, but to the single division 41430, construction. Output, intermediate consumption and thus value added for all construction and civil engineering activity in the economy are then distributed over the four function-defined sub-branches: construction of new buildings, repair and maintenance of buildings, civil engineering and construction materials.

The national accounts for construction and civil engineering are the exception in running counter to Statistics Denmark's industry grouping, primarily because of the supply and use tables and hence the balancing of the product balance system. There is, of course, a much closer, technology-driven connection between the output of various types of construction and civil engineering and certain kinds of construction materials than there is between the output value of the various specialisations and the input of construction materials. Building and civil engineering contractors, who are the largest single specialisation, may, for example, carry out new building work, repair and maintenance and civil engineering work, and the shares of these three activities may vary considerably over time. It is clear that, for example, the input of cement per krone of output is very different in the three activities mentioned. By using a functional breakdown of construction and civil engineering activity into sub-branches instead of a breakdown by trade or specialisation, the national accounts make effective use of information on the technical connection between construction activity and construction materials in the balancing of supplies and uses of goods and services.

Industry 43004 is an "artificial" industry, created for reasons of calculation, through which construction materials for own account construction activity are channelled. For example, instead of being allocated directly to the two uses - intermediate consumption in the "dwellings" industry, or capital formation in construction of dwellings - purchases by owner-occupiers and tenants of construction materials for ordinary repairs and maintenance (excluding the part that is considered household final consumption[11]) or capital repairs (capital formation) count in the product balance system as inputs to an artificial industry, "construction materials", the output of which is by definition equal to the value of the industry's intermediate consumption at purchasers' prices[12]. This output is then distributed over the two categories of use referred to above.

Statistical source

As already mentioned the industry is defined by function and covers all construction and civil engineering activity in the economy. Materials used for own-account construction activity in producer units classified in industries other than construction are transferred to the construction industry with the possible exception of some small repairs, for which the expenses cannot be distinguished from expenses on other intermediate consumption. Hence if some own-account production of ordinary repairs to buildings and structures in other industries are not transferred to branch 41430 construction, it is due to the lack of information on the value. Obviously, the lack of any imputation for that share of the value of ordinary repair and maintenance activity which is in excess of the expenditure on materials does not affect GNI, since the same value, if there had been one, would simply have been allocated to output value and intermediate consumption for the economy as a whole. It would simply have been a question of a different distribution of value added by industry. As always

[11] Repair and maintenance of the type that in rented dwellings would typically be carried out by the tenants is treated as household final consumption in COICOP 4300, vb. ESA95 3.95.c,(1).

[12] There is no non-deductible VAT on inputs in the artificial industry. Non-deductible VAT is shown in the uses side of the supply and use matrices where output from the artificial industry is distributed by user. Hence, as in all other industries, the production value does not include VAT.

when branches are defined by function, the components transferred are output, intermediate consumption, compensation of employees, capital formation and employment.

A practical consequence of the introduction of a virtual industry for building materials used for own account construction is, that the inputs in this industry merge a large number of products used for input into a few output-products that can be distributed by industry based on information on the use of repair and maintenance. Alternatively each of these building materials would have had to be distributed by industry, an exercise that would have to be based merely on assumptions as statistical evidence is unavailable at this level of detail. For instance, agricultural consumption of paint and wood preservative for the maintenance of buildings on own account is treated in the national accounts as an input into a minor, secondary auxiliary activity in agriculture, which in practice cannot be separated out with any degree of statistical certainty. The paint is included as an input in the artificial materials branch 430004, and agriculture receives an input of building repairs that includes the expenditure on the paint. Own-account ordinary repairs and maintenance are of minor importance for all industries other than dwellings, where the values concerned are substantial and the same model is used as has just been described using agriculture as an example.
Substantial secondary construction output for capital formation occurs in a number of industries, particularly in the public utilities industries, transport and communications. There is in these cases an output of construction of buildings and civil engineering on own account, which is capitalised in the companies' accounts. The value of the materials used and expenditure on wages and salaries are reported in the annual reports of these companies. Imputations are made to cover the value of gross operation surplus to ensure that the value of GFCF corresponds to the basic value of similar construction purchased in the market. These imputations are shown separately in the supply and use matrices.

The statistical source for the estimate of value added in genuine construction and civil engineering enterprises is the accounts statistics for non-agricultural private sector. These statistics are grossed up from the outset to the total population when incorporated into the national accounts. As already mentioned, the figures are calculated separately for each of the 20 construction industries in the detailed DK-NACE.

Table 3.31 Statistical sources underlying the calculation of value added for NACE F

	National accounts industry	Sources
410009	Construction of new buildings	Account statistics for non-agricultural private sector + estimate for own account GFCF transferred to 410001
420000	Civil engineering	Account statistics for non-agricultural private sector + estimates for hidden economy and own account GFCF
430003	Repair and maintenance of buildings	Account statistics for non-agricultural private sector + estimate for own account GFCF transferred to 430003
430004	Construction materials	By definition no value added

For the national accounts estimate of construction, the secondary construction activity which takes place in other industries must, as described above, be estimated and transferred to the construction branch. Information on such activity is found in the accounts statistics, more particularly in statistics for industries where publicly controlled corporations predominate - the public utilities industries (electricity etc.), railways, harbours, airports etc. - and where there is substantial output of civil engineering work on own account.

Construction - more particularly, building repair work - is one of the areas in the economy where there is most "black" economic activity. In the Danish national accounts, there is a substantial allowance added in for building repairs in the black economy. The sources and methods are described in chapter 7. The whole of this black-economy activity is treated in the Danish national accounts as "work in the black economy" of the type "VAT evasion with the collusion of the buyer". The allowance for work in the black economy does not give rise to any allowance for "VAT fraud in connection with underreporting", as in the catering industry, for example. The rationale is that, in the case of construction, the buyers and sellers negotiate a price for each individual project and that it appears to have become the practice for purchasers to be offered work in either the legitimate (white) or the black economy, i.e. work either with or without an invoice. In every case, the allowance for work in the black economy is determined on the basis of the prices which the purchasers pay, so that the effect on GNI is the same whether the above assumption applies or not.

Method of calculation

Even though the value added of construction is basically calculated from accounting statistics in exactly the same way as for other industries, there is a crucial difference as regards output and intermediate consumption. In other industries, output, intermediate consumption and value added are calculated from the same source, namely the processed accounting statistics. In construction, value added is first calculated from the processed accounting statistics, output is subsequently calculated from other sources and finally intermediate consumption is calculated as a residual.

The other sources for the estimate of output are firstly those underlying the estimate of capital formation in construction – cf. the description in Chapter 5.

Supply of repair and maintenance of buildings

In principle the sources for that share of output which is professional non-black repairs to buildings for the account of others have been based on the quarterly employment censuses for the construction industry and estimated output values pr. employed person. In the employment censuses, employed workers and master craftsmen are divided up by activity on the census date, a distinction being made between new building, repair and maintenance and civil engineering. From these statistics, a list is compiled of firms engaged mainly in repair and maintenance work. When such a list has been available, their VAT sales have been extracted from VAT statistics. Next, turnover per person in employment in these firms is calculated and multiplied by total employment in construction. While this system worked well in times with low activity in the construction of new buildings, it has its limitations in periods, where it is almost impossible to find enough enterprises that specialise in repair and maintenance. In the recent years the initially estimated value pr. employee has mainly been based on extrapolation from the preceding year by means of a price index for repair of buildings.

Ordinary repair and maintenance of buildings

The total value for ordinary repair and maintenance of buildings is estimated from the use side. Cost regarding ordinary repair and maintenance is gathered for 3 different types of buildings; owner-occupied dwellings, rented residential buildings and non-residential buildings. The value of ordinary repair and maintenance for owner-occupied dwellings is gathered from the household budget survey (HBS). The value of ordinary repair and maintenance for rented residential buildings is based information from financial statements from the companies with rent the residential buildings. The value ordinary repair and maintenance for non-residential buildings is derived by combing cost surveys with values for intermediate consumption from structural business statistics.

Division between ordinary repairs and maintenance and capital repairs

Capital repair is estimated as the difference between total repair on buildings and ordinary repair and maintenance of buildings. In the balancing procedure for the supply- and use table, the split between ordinary repair and maintenance and capital repair could be slightly adjusted in order to reduce differences towards targets.

In this way, we obtain a figure for the total output of construction. Together with the estimated capital formation in buildings and structures, a figure is thus obtained for the actual output of construction and civil engineering. In addition, there is the artificial construction materials branch, which is included in output and intermediate consumption with the same value. An initial estimate prior to balancing for this is fixed on the basis of changes in the output of repairs and maintenance for the account of others – cf. above. The construction materials branch is included in the balancing process, and the values initially fixed will generally be amended as part of the balancing of supplies and uses in the product balance system.

The argument behind the calculation method described above is that, in the absence of exhaustive product statistics for construction, we have to estimate the output of the individual types of building, civil engineering and repair work from other sources. To ensure that value added is firmly anchored in accounting statistics, intermediate consumption has to be calculated as a residual.

The calculation also includes an allowance for self-built or partially self-built housing, i.e. the fairly common case in which the customer himself is responsible for some of the painting of a new house, for example. On the output side, the allowance is incorporated into the imputed value of the output of the black economy. The calculation provides for a self-built/partially self-built allowance to be added to intermediate consumption, over and above the figures in business accounts.

Value added and intermediate consumption for the construction industry is shown in table 3.32 below. As mentioned earlier, value added is first calculated from the processed accounting statistics, output is subsequently calculated from other sources and finally intermediate consumption is calculated as a residual.

Table 3.32 Determining value added and intermediate consumption

			DKK mill.
		Market output from MLS	204 914
1.	+	Correction of finish products	79
2.	-	Intermediate consumption from MLS	135 360
3.	=	Value added from MLS	69 634
		Own account production not in MLS:	
		[1] Government owned companies (market)	
4.		Own-accout production, (wages and materials)	1 918
5.	-	Intermediate comsumption (materials)	510
6.	=	Residual (wages)	1 408
7.	+	Inputed gross operationg surplus	106
8.	=	Total	1 515
		Own account production not in MLS:	
		[2] Do-it-yourself repair and maintenance	
9.		Inputed wages	1 220
		Other supplements	
10.		Initial adjustment	2 000
11.=3.+8.+9.+10.		Value added in construction industry before balancing	74 368
12.		Value added after balancing	74 530
13.		Output	205 612
14. = 13. - 12.		Intermediate consumption	131 082

Note: MLS = Intermediate System

As a general rule “output according to product balances” does not include subcontracting. Subcontracting between units inside the construction industry is usually left out from the measures of output and input. However a few intricacies should be kept in mind here. Subcontracting to units that are not part of the construction industry, for instance architects, engineers, consultants or producers of building materials are treated as inputs in construction as far as these activities are not considered construction activities, in which case they will already have been separated out and transferred to the (activity defined) construction industry. There is one important exception to the general rule: Construction units belonging to sector S13, General Government, have a considerable output of repair and maintenance of structures, mainly roads. In the supply and use tables such repairs are shown as production of a specific product-number for government non-market construction. In the use matrix this product is shown as part of collective consumption. However a considerable part of this production is actually bought from private construction firms that cannot, per definition, produce a non-market product. Hence the purchases of market-construction are shown as inputs in the non-market units that produce non-market repair and maintenance.

Construction and civil engineering is one of those industries where the initial estimate of intermediate consumption has traditionally been amended during the balancing process. One reason is that the industry includes many small enterprises, and thus the grossing up percentage is consequently greater than in manufacturing, for example. For these reasons, the input target total for construction and civil engineering is considered to be one of the initial estimates likely to be amended during the balancing process.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

As previously mentioned, there are at present no (direct) product statistics for construction corresponding to the industrial commodity statistics, for example. However, accounting statistics include information on purchases of subcontracting, extremely important information in this industry, where the subcontracting of parts of projects is particularly common. In the absence of any direct product statistics, indirect statistics have been compiled for national accounts calculations, based mainly on expenditure-side information on kinds of construction and civil engineering work other than repair and maintenance. Resources of repairs and maintenance are calculated using the method described earlier in this chapter.

For construction of buildings, the output side makes a distinction between housing, private non-residential construction, public construction for commercial purposes (to market producers) and government non-market construction (to non-market producers). Civil engineering is broken down into private structures, public commercial structures and public non-commercial structures. Each of these components (apart from repairs and maintenance) is estimated from the expenditure side as described in Section 5.10. The estimation of ordinary repair and maintenance (intermediate consumption) and capital repairs (gross fixed capital formation) is described earlier in this chapter.

In addition to the above genuine products from construction and civil engineering, the industry, in common with the other industries in the economy, produces fringe benefits and capital goods, including software for own use. Construction resources come from both industries 410009 New buildings and 430003 Repair and maintenance of buildings. This latter addition is capital repairs (major repairs) and improvements which in the national accounts are considered to be capital formation.

Breakdown of intermediate consumption by product

There are no regular costs structure surveys for intermediate consumption in construction. The information which has been possible to collect over the years from ad hoc surveys has gradually been incorporated into the input structure as expressed in the supply and use tables. The industry's consumption of energy is available annually from energy statistics.

For subcontracting and services, the input structure is based on information on certain kinds of costs such as subcontracting and rentals, which are found in accounting statistics. Subcontracting is netted out. Intermediate consumption which is counted under the accounting statistics item “other external expenditure” is divided up by product on the basis of the structure of costs in certain manufacturing industries and common sense considerations about the connection between the number of employees and services such as telephones and cleaning. The construction industry incurs considerable costs for the transport of the building materials used for its output. In the national accounts, this input of services will partly be a “transport margin”, i.e. a margin lying between the basic price of the construction materials ex-producer and the purchase price including margins and taxes which the construction enterprise pays overall for the acquisition of the materials. In the Danish national accounts, transport margins are not shown explicitly, since this would overload the supply and use tables with a large number of empty cells. Instead, they are included in wholesale trade margins[13].

In the balanced supply and use tables for 2012, there is approximately DKK 20 328 million wholesale trade margins (including formal transport) and DKK 3 898 million retail trade margins on intermediate consumption in the construction industry, when the materials branch is included. Of this input in the material branch accounts for DKK 9 045 million wholesale and DKK 3 448 million retail trade margins. These figures illustrate the importance of distribution services in the total intermediate consumption of the construction industry. The retail trade margins on inputs, of which most is trade margins on inputs in the materials branch, reflects the considerable production value in retail trade in building materials.

[13] Transport paid by the purchasers of goods which is not separately invoiced is allocated in the national accounts first of all to inputs in the wholesaling industry. The output value of wholesaling is increased by the same amount, so that the total wholesaling margins are increased by the transport expenditure on goods which is defrayed by the purchasers. In this way, transport is channelled through the wholesaling industry, without affecting that industry's value added. This way of posting transport margins in the Danish national accounts has traditionally been referred to as “formal transport”

3.13 Wholesale and retail trade; repair of motor vehicles and motorcycles (G)

Introduction

NACE section G is defined by function and covers four of the national accounts' 117 industries. As Table 3.33 shows, NACE G accounted for 12.2% of the value added in the Danish economy in 2012.

Table 3.33 NACE G's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
450010	Sale of motor vehicles	21 529	6 932	14 597
450020	Repair etc. of motor veh. etc.	19 053	12 803	6 250
460000	Wholesale	238 762	116 124	122 638
470000	Retail sale	93 064	38 835	54 229
	Total NACE G	372 408	174 694	197 714
		pct.		
	Percentage of the economy	10.9	9.8	12.2

NACE G covers all trading activity in the Danish economic area. Secondary trading activity in producers units classified under other industries is separated and transferred to the relevant trade industry, normally 46000, wholesale. Secondary trading activity occurs particularly in manufacturing and transport. All motor vehicle repair activity is collected together under industry 450020. NACE G covers 129 industries at the most detailed DK-NACE level. As for all other industries in the economy, the national accounts' calculations of value added in trade and repair are based on accounting data for the individual detailed DK-NACE industries and subsequently aggregated.

Statistical source

NACE G is covered by the accounts statistics for non-agricultural private sector as shown in Table 3.34.

Table 3.34 Statistical sources underlying the calculation of value added for NACE G

	National account industry	Source
450010	Sale of motor vehicles	Accounts statistics for non-agricultural private sector
450020	Repair etc. of motor veh. etc.	Accounts statistics for non-agricultural private sector
460000	Wholesale	Accounts statistics for non-agricultural private sector
470000	Retail sale	Accounts statistics for non-agricultural private sector

Method of calculation

Since the whole of NACE G is covered by accounts statistics for non-agricultural private sector, the method of calculation is the standard method for use of these statistics as described in Section 3.1.4.1. In line with ESA 2010, the output of trade services in wholesale and retail trade is calculated as the sum of the trade margins obtained, i.e. the selling price of goods resold minus their acquisition prices. In practice, the consumption of goods for resale is calculated from purchases during the period in question plus changes in inventories of goods for resale between the start and the end of the period, with the national accounts price correction described in Section 3.3.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

NACE 45 (Wholesale and retail trade and repair of motor vehicles and motorcycles) includes both trade in and repairs to motor vehicles etc, in both the national accounts industries and at the most detailed DK-NACE industry level. For example, a very large share of the total motor vehicle repair activity in the economy is carried out not in producer units classified under NACE class 45.2, maintenance and repair of motor vehicles, but in

those classified under DK-NACE 45.1, sale of motor vehicles. The first stage in the breakdown of products is therefore to divide the output of NACE 45 into the three main components:

1) trade margins on vehicle-related products
2) trade margins on consumables sold at service stations
3) motor vehicle repairs.

The output of NACE 46 is divided up into trade margins on the one hand and motor vehicle repairs on the other.

The national accounts supply and use tables operate with two types of margin, namely wholesale and retail. The whole of the trade margin in NACE 46 is by definition a wholesale margin and, similarly, the whole margin in NACE 47 is a retail margin. NACE 45 covers both wholesale and retail trading activity, and in the national accounts the total trade margin in NACE 45 is divided up into wholesale and retail on the basis of information in the product statistics for the motor vehicles branches, "Distribution of sales in the motor vehicles branches," and information on margin percentages at product level.

For the compilation of the supply and use tables, the wholesale and retail totals calculated are divided up over the 2000 or more national accounts goods balances. The breakdown is based on the previous year's adjusted wholesale and retail margins. The margin total obtained using the previous year's percentages is compared in the current year with the margin totals by individual product group for the detailed trading industries which distribute the product groups in question, and the margins are adjusted to the given totals. This comparison of two independently calculated sets of margins for the individual product groups is in itself a valuable check on the margins calculated from product statistics which for the trade industries in most cases are identical with the accounting statistics at the most detailed level of the DK-NACE industry classification.

Breakdown of intermediate consumption by product

There are no regular costs structure statistics for the trade industries other than energy statistics. The input structure in these industries is established in the national accounts on the basis of the summary cost specifications in accounting statistics - rentals and repair and maintenance, for example - in conjunction with ad hoc information from branch organisations and the competition authorities. The breakdown into the individual products is to some extent based on estimates which are in turn based on common sense considerations. It should be stressed, however, that a good deal of the cost structure is determined very reliably from supply information in conjunction with information on manufacturing. Examples would be packaging and advertising agency services. Once the supply to the domestic market of the relevant products has been determined along with their use as inputs in manufacturing their use in the trading industries can be worked out via a residual calculation.

3.14 Transportation and storage (H)

Introduction

NACE section H is defined by function and covers seven of the national accounts' 117 industries. These in turn cover 31 industries at the most detailed DK-NACE level. As Table 3.35 shows, NACE H accounted for 5.0% of the value added in the Danish economy in 2012.

Table 3.35 NACE H's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
490010	Passenger rail transport etc.	8 655	5 167	3 488
490020	Transp. by suburban trains etc.	24 536	13 768	10 768
490030	Road and pipeline transport	42 908	26 392	16 516
500000	Water transport	191 882	176 660	15 222
510000	Air transport	21 795	16 533	5 262
520000	Support activities for transp.	45 425	22 763	22 662
530000	Postal and courier activities	18 526	10 553	7 973
	Total NACE H	353 726	271 836	81 890
		pct.		
	Percentage of the economy	10.4	15.2	5.0

Statistical sources

The three main sources for NACE H are account statistics for non-agricultural private sector, account statistics for industries predominated by public corporations and General government accounts (DIOR). DIOR – The database for integrated public accounts – covers central government, local government and social security fund accounts, plus all other units included in national accounts S.13. The statistical sources can be seen in the table below:

Table 3.36 Statistical sources underlying the calculation of value added for NACE H

	National account industry	Source
490010	Passenger rail transport etc.	Account statistics for industries predominated by public corporations
490020	Transp. by suburban trains etc.	Accounts statistics for non-agricultural private sector, Account statistics for industries predominated by public corporations
490030	Road and pipeline transport	Accounts statistics for non-agricultural private sector
500000	Water transport (market)	Accounts statistics for non-agricultural private sector
500000	Water transport (non-market)	General government accounts (DIOR)
510000	Air transport	Accounts statistics for non-agricultural private sector
520000	Support activities for transp. (market)	Accounts statistics for non-agricultural private sector, Account statistics for industries predominated by public corporations
520000	Support activities for transp. (non-market)	General government accounts (DIOR)
530000	Postal and courier activities	Accounts statistics for non-agricultural private sector

Method of calculation

The market part of NACE H is covered by the industrial accounts statistics and accounts statistics for industries predominated by public corporations. The method of calculation here is the same as the standard method for the calculation of value added based on the account statistics for non-agricultural private sector via the intermediate system and the target total module as described in 3.1.4 above. The non-market part of NACE H is calculated using the standard methods for general, transversal sources in the form of DIOR – the database for integrated public accounts.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

In addition to the products for “fringe benefits”, “own-produced software” and “own-produced research and development” output is divided into 38 products. The basis for the product distribution is the breakdown of the sales of the seven national accounts industries into the detailed DK-NACE industries. The output of government non-market service is broken down by product on the basis of the various uses of the products. For each national accounts industry grouping, a distinction is made at least between the output of non-market producers’ services for consumption and for sales income. The explicit allowances for underreporting associated with them are shown in separate product balances, so that there is always a complete overview of these explicit allowances, in both national accounts calculation systems and directly in the supply and use tables.

Breakdown of intermediate consumption by product

There are no regular cost structure statistics for the transport industries, but a very large share of input is covered by the information found in annual energy statistics on the industries’ consumption of energy. By far the largest input in water transport is the expenditure of Danish vessels in ports in the rest of the world, expenditure on time charters and on energy. The primary statistics give annual information on these major expenditure items.

The breakdown by product of the remaining share of intermediate consumption, on which there is no annual information in primary statistics, is based to some extent on estimates, the starting point being the technical coefficients in the supply and use tables from previous years.

3.15 Accommodation and food services activities (I)

Introduction

NACE Section I is defined by function and covers two of the national accounts' 117 industries. Theses in turn covers 10 industries at the most detailed DK-NACE level. As Table 3.37 shows, NACE I accounted for 1.5% of the value added of the Danish economy in 2012.

Table 3.37 NACE I's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
550000	Hotels, similar accommodation	13 010	7 861	5 149
560000	Restaurants	42 775	24 186	18 589
	Total NACE I	55 785	32 047	23 738
		pct.		
	Percentage of the economy	1.3	1.8	1.5

NACE I covers all hotel and restaurant activity in the Danish economic area with the exception of restaurant activities connected with passenger vessels and aircraft which are not outsourced to another enterprise. This last activity is an inseparable part of transport activity. The running of canteens in other industries is separated out and transferred to 560000 restaurants, as are employers' subsidies to canteens, an important fringe benefit for employees which is considered to have been produced in the restaurant industry and included in that industry's value added. In 2012 the amount was DKK 5 324 million.

Statistical sources

Coverage is provided by industrial accounts statistics, which are the statistical source for all primary activity. Secondary canteen activity is compiled as the sum of employees own payments and employers' subsidy. The source for employees' own payments is the household budget survey. Employers' subsidy is equal to the compiled fringe benefits related to canteens calculated from the labour costs surveys. The statistical sources can be seen in the table below:

Table 3.38 Statistical sources underlying the calculation of value added for NACE I

	National account industry	Source
550000	Hotels, similar accommodation	Accounts statistics for non-agricultural private sector
560000	Restaurants	Accounts statistics for non-agricultural private sector

Method of calculation

Since the whole of this section is covered by the accounts statistics, the method of calculation is the standard method for the calculation of value added from the accounts statistics via the intermediate system and the target total module, as described in Section 3.1.4.1 and 3.4.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

In addition to the fringe benefits, "own-produced software" and own-produced research and development, output is divided into 10 products. The basis for the product distribution is the breakdown of the sales of the two national accounts industries into the detailed DK-NACE industries. The explicit allowances for underreporting and gratuities plus the VAT fraud associated with them are shown in separate product balances, so that there is always a complete overview of these explicit allowances, in both national accounts calculation systems and directly in the supply and use tables.

In connection with the breakdown by product, a minor share of sales in units classified as hotels is transferred to restaurant services to take account of the fact that hotels may run their own restaurants.

Breakdown of intermediate consumption by product

There are no regular costs structure statistics for the hotels and restaurants industries other than energy statistics. The input structure in these industries is established in the national accounts on the basis of the summary cost specifications in accounting statistics - rentals and repair and maintenance, for example - in conjunction with ad hoc information from branch organisations and the competition authorities. The breakdown into the individual products is to some extent based on estimates which are in turn based on common sense considerations concerning inputs of cleaning and laundry services, for example. The input of food and beverages, which is, of course, by far the largest input, is calculated as a residual.

3.16 Information and communication (J)

Introduction

NACE J is defined on the basis of a grouping of producer units and covers seven of the national accounts' 117 industries and these in turn cover 28 industries at the most detailed DK-NACE level. As for all other industries in the economy, the national accounts' calculations of value added of information and communications are based on accounting data for the individual detailed DK-NACE industries and subsequent aggregation. NACE J accounted for 4.5% of the value added in the Danish economy in 2012, as is also shown in Table 3.39.

Table 3.39 NACE J's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
580010	Publishing	16 627	9 773	6 854
580020	Publishing, computer games etc.	4 714	838	3 876
590000	Motion picture, TV and sound	13 665	6 344	7 321
600000	Radio, television broadcasting	9 801	6 613	3 188
610000	Telecommunications	44 679	24 922	19 757
620000	Information technology service	59 085	30 374	28 711
630000	Information service activities	7 307	3 821	3 486
	Total NACE J	155 878	82 685	73 193
		pct.		
	Percentage of the economy	4.6	4.6	4.5

Statistical source

The market part of NACE J is covered by the accounts statistics for non-agricultural private sector and account statistics for industries predominated by public corporations. The source for the non-market output of NACE J is the general government accounts DIOR - the database for integrated public accounts. The statistical sources to NACE J are shown in Table 3.40.

Table 3.40 Statistical sources underlying the calculation of value added for NACE J

	National account industry	Source
580010	Publishing	Accounts statistics for non-agricultural private sector
580020	Publishing, computer games etc.	Accounts statistics for non-agricultural private sector
590000	Motion picture, TV and sound (market)	Accounts statistics for non-agricultural private sector
590000	Motion picture, TV and sound (non-market)	General government accounts (DIOR)
600000	Radio, television broadcasting (market)	Account statistics for industries predominated by public corporations
600000	Radio, television broadcasting (non-market)	General government accounts (DIOR)
610000	Telecommunications	Accounts statistics for non-agricultural private sector
620000	Information technology service	Accounts statistics for non-agricultural private sector
630000	Information service activities	Accounts statistics for non-agricultural private sector

Method of calculation

The method of calculation for the market part is the standard method for the calculation of value added from the accounts statistics via the intermediate system and the target total module, as described in Section 3.1.4.1 and 3.4. The non-market part is calculated using the standard methods for general, transversal sources in the form of DIOR – the database for integrated public accounts.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

In addition to the products for "fringe benefits", "own-produced software" and "own-produced research and development", output is divided into 72 products. 68 of these products represent market activity and 4 government non-market output. The basis for the product distribution is the breakdown of the sales of the seven national accounts industries into the detailed DK-NACE industries. The explicit allowances for underreporting associated with them are shown in separate product balances, so that there is always a complete overview of these explicit allowances, in both national accounts calculation systems and directly in the supply and use tables.

Breakdown of intermediate consumption by product

There are no regular costs structure statistics for the hotels and restaurants industries other than energy statistics. The input structure in these industries is established in the national accounts on the basis of the summary cost specifications in accounting statistics - rentals and repair and maintenance, for example - in conjunction with ad hoc information from branch organisations and the competition authorities. The breakdown into the individual products is to some extent based on estimates which are in turn based on common sense considerations. For the current year, an initial estimate is worked out for the input structure on the basis of the technical coefficients in the supply and use tables from previous years.

3.17 Financial and insurance activities (K)

Introduction

NACE K is defined on the basis of a grouping of producer units and covers four of the national accounts' 117 industries, as shown in Table 3.41, which also shows that this section accounted for 6.3% of the value added of the Danish economy in 2012.

Table 3.41 NACE K's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	value added at basic price
		DKK mill.		
	National account industry			
640010	Monetary intermediation	71 378	21 832	49 547
640020	Mortgage credit institutes etc	49 261	20 920	28 341
650000	Insurance and pension funding	29 818	14 871	14 947
660000	Other financial activities	16 657	7 073	9 584
	Total NACE K	167 115	64 696	102 419
		pct.		
	Percentage of the economy	4.9	3.6	6.3

The division covers 27 industries at the most detailed DK-NACE level. Where NACE 64 and 65 are concerned, the national accounts' calculation system does not exactly match the detailed industries in the DK-NACE, in that the calculations are based on the grouping in the available sources, primarily the annual reports of Finanstilsynet [the Danish Financial Supervisory Authority]. One example where the industry grouping in the calculation systems differs from DK-NACE is pension funds, where the national accounts' sources make a distinction between non-company-specific pension funds and company pension funds, whilst the DK-NACE does not have this distinction.

The calculations of value added for financial intermediation are made in terms of the individual detailed industries and subsequently aggregated to national accounts' industries.

Statistical sources

The great majority of financial institutions in NACE 64 and 65 are subject to extremely close public supervision out of concern for the security of the money belonging to depositors and policyholders. The Danish supervisory authority is Finanstilsynet, which comes under the Ministry of Business and Growth. Finanstilsynet's reports (based on the mandatory submission of standardised accounts) are normally the preferred source. An important exception is Denmark's mortgage credit institutes in DK-NACE 649210. In this case, the information in Finanstilsynet's report is much less detailed than it is for banks and insurance corporations etc. Since there were only 7 mortgage credit corporations in 2012, Danmarks Statistik decided to base the calculations directly on the 7 annual accounts, which include much more detailed information.

There are minor parts of NACE 64 which are not subject to Finanstilsynet control. One such is financial leasing, where the source is statistics for financial corporations. The same source is used for DK-NACE 64.92.30 - other credit companies. Finally, for NACE 64.99, Other financial intermediation n.e.c., the accounts of Arbejdsmarkedets Feriefond, Den Særlige Pensionsopsparing, Lønmodtagernes Dyrtidsfond Arbejdernes Kooperative Finansieringsfond, Grundejernes investeringsfond and supplementary occupational pensions for early pensioners are used.

NACE 66, Activities auxiliary to financial intermediation, is covered by company accounts grossed up on the basis of employment to cover the total population.

The following table gives an overview of the sources used for the national accounts' calculations for NACE K.

Table 3.42 Statistical sources underlying the calculation of value added for NACE J

	National account industry	Source
641000	Monetary intermediation	
641100	Danmarks Nationalbank	Nationalbank annual report and accounts
641900	Other monetary intermediation[1]	Report from Finanstilsynet, as well as ann. reports from Banks concerning foreign branches
649000	Other financial intermediation	
649100	Financial leasing	Statistics for large financial corporations
649210	Mortgage credit institutes	Annual accounts for all corporations
649220	Other credit institutes	Accounts
649230	Financing companies	Statistics for large financial corporations
649230	Other lending activities	Statistics for large financial corporations and acc. grossed up on the basis of total balance
643010	Unit trusts[2]	Report from Finanstilsynet
643030	Investment companies[3]	Accounts grossed up on the basis of total balance
649900	Security dealing activities	Accounts grossed up on the basis of total balance
642030	Financial holding companies	Accounts grossed up on the basis of total balance
649900	Other financial intermediation n.e.c.	Accounts grossed up on the basis of total balance
651100	Life insurance	Report from Finanstilsynet
653010	Pension funding	Report from Finanstilsynet, as well as annual report from ATP
651200	Non-life insurance	Report from Finanstilsynet
660000	Activities auxiliary to financial intermediation	Accounts grossed up on the basis of employment

[1]Literally: banks, savings banks and savings and loan associations.
[2]"Investeringsforeninger" translates "mutual funds" in the ESA 95.
[3]"Investeringsselskaber" translates "investment trusts" in the ESA 95.

Method of calculation

Monetary intermediation

The output of NACE 64 Monetary intermediation is calculated as the sum of financial intermediation services paid for directly (charges and fees, commissions, margins on the trading of securities and foreign exchange) and financial intermediation services paid for indirectly (FISIM) other than in a few cases where output is established from the costs point of view as the sum of production costs. These cases are Danmarks Nationalbank, unit trust, venture companies, financial holding companies, insurance and pension companies.

The method of calculation for NACE 64, as regards output, intermediate consumption and value added, and the breakdown of output into services which are directly/ indirectly paid for, is illustrated using the activity which is by far the most important, namely 641900, Other monetary intermediation:

Table 3.43 Calculation of the output value of NACE 64 monetary intermediation, 2012

		DKK mill.
	Financial intermediation services paid for indirectly (FISIM)	
	FISIM on deposits	2 549
	FISIM on loans	38 665
=	FISIM, monetary intermediation, total	41 214
	Financial intermediation services paid for directly	
	FPI: Fees and charges	29 363
+	FPI: Ordinary income	7 400
=	Services paid for directly, according to accounts	36 764
+	Mark-up for savings banks, and savings and loan associations under 250 million	137
+	ROW monetary intermediation, branches in Denmark	2 348
-	Greenland banks	282
-	Danish monetary intermediation, branches in the ROW	11 423
=	Monetary intermediation services paid for directly, total	27 542
	FISIM, monetary intermediation, total	41 214
+	Monetary intermediation services paid for directly, total	27 542
+	NB: Output from the costs side	544
+	Own-produced software in industry 651000	1 569
+	Other	449
=	Output of the *Nationalbank* and monetary intermediation, total	71 318

Nationalbank annual report

Table 3.44 Intermediate consumption, monetary intermediation

		DKK mill.
	FPI: Other administrative costs	16 610
+	FPI: Other operating expenditure	2 744
+	FPI: Fees etc. paid	6 266
+	Mark-up for savings banks and savings and loan associations under 250 million	53
+	ROW monetary intermediation, branches in Denmark	511
-	Greenland banks	67
-	Danish monetary intermediation, branches in the ROW	3 818
=	Intermediate cons. excl. *Nationalbank* before software	22 339
+	NB: Intermediate consumption, *Nationalbank*	168
-	Correction for software purchased by industry 651000	1 042
-	Other taxes on production	192
+	Other subsidies on production	559
+	FISIM	0
=	Int. cons., *Nationalbank* and monetary intermediation, total	21 832

FPI: Finanstilsynet's report – monetary intermediation

Life insurance and pension funding

For *life insurance and pension funding*, output value is calculated from the costs point of view, with the addition of a profit element for net operating surplus of 1.5% of own funds. This percentage is low because the total return on own funds in life insurance corporations, in addition to net operating surplus, consists of property income and holding gains etc. which are not allocated to insured persons and are not included in bonus equalisation provisions. Bonus equalisation provisions in life and pension insurance are the funds of the policyholders and not part of the corporation's own funds. In contrast to life insurance provisions, they are not broken down by policyholder but are owned by the policyholders jointly. Their function is to avoid major fluctuations in the corporations' "account interest", i.e. the percentage interest which the policyholders receive in a given year on the funds they have saved with the corporation.

The reason for choosing this method of calculation is that the insurance corporations achieve very large holding gains on the funds invested, which are largely allocated to the accounts of insured persons in the form of life

assurance provisions or to the policyholders jointly in the form of bonus equalisation provisions. Given that that share of the increase in provisions which comes from the allocation of holding gains cannot be identified and shown separately in the accounts, use of the formula in the ESA 10 paragraph 3.74 b would produce results which were economically meaningless, at least if the insurance corporations' portfolios included shares. Where shares are concerned, the major part of returns to investors often comes in the form of revaluation gains rather than dividends. Insurance corporations and pension funds take this into account when devising their policy for the allocation of earnings to their customers.

Table 3.45 illustrates the estimate for life insurance corporations. An identical estimate is made for pension funds, ATP, burial funds and other insurance.

Table 3.45 Output of life insurance, pension funding and other insurance

		DKK mill.
	Intermediate consumption, excl. FISIM	3551
+	FISIM	190
+	FLI: Wages and salaries	2 385
+	FLI: Depreciations	110
+	Taxes (lønsumsafgift)	251
+	Return on own capital	940
=	Output of Life insurance corporations, excl. FISIM	7 426
+	Corresponding calculation for general pension funds	1 981
+	Corresponding calculation for company pension funds	187
+	Corresponding calculation for burial funds	5
+	Other insurance	20 206
+	Other	11
=	Output of industry 65	29 818

FLI: Finanstilsynet's report – life insurance corporations

Table 3.46 estimates the intermediate consumption of life insurance corporations. For pension funds, ATP, burial funds and other insurance, the estimates are made in exactly the same way.

Table 3.46 Intermediate consumption of life insurance, pension funding and other insurance

		DKK mill.
	FLI: Administration fees	1 369
-	FLI: Other ordinary income	1 820
+	FLI: Rentals	160
+	FLI: Other staffing expenditure	2 329
+	FLI: Costs associated with investment activity	1 972
+	FLI: Other acquisition and administrative costs	616
+	FLI: Commissions to own sales staff	194
+	FLI: Other ordinary expenditure	664
-	FLI: Wages and salaries[1]	2 384
-	FLI: Contribution to dividends (R44) from wages and salaries and fees	15
-	Purchase of computer software	53
+	Purchase of research and development	465
+	Government fees which are sales of services	54
=	Intermediate consumption in life insurance corporations	3 551
+	Corresponding calculation for general pension funds	1 054
+	Corresponding calculation for company pension funds	21
+	Burial funds	3
+	Other insurance	9 452
+	FISIM in 65	425
=	Intermediate consumption in industry 65	14 871

FLI: Finanstilsynet's report – life insurance corporations

[1]The value for wages and salaries in this table is taken directly from the annual reports, whether the wages and salaries here represent D.11 more or less accurately. In table 47 wages and salaries are adjusted with an estimated measurement for D.39 so that the D.11 is recorded according to the regulations of national accounting.

Wages and salaries are deducted from the estimate of intermediate consumption because they are already included in certain other cost components. The rules for this are laid down unambiguously in *Finanstilsynet's* rules on reporting.

Non-life insurance

ESA2010 recommends calculating the output of non-life insurance as total premiums earned plus implicit premiums supplements less adjusted claims incurred. Two methods of calculating the adjusted claims incurred are provided: The expectation method and the ex post method. The first method uses accounting data, where changes in reserves set aside for unexpected large claims are added to the actual claims. If these reserves are not adequate, funds from the companies own funds can be used. However, an analysis made by Statistics Denmark has shown that adding the equalization reserve does not sufficiently remove the volatility of claims. It has not been possible to identify other suitable values in the annual report from FSA that could be used to calculate the adjusted claims. The second method, the ex post method, is an attempt to remove the volatility by using a moving average. However, neither using a 3 year moving average or a 5 year moving average has given the necessary smoothing of the claims.

ESA2010, chapter 16, suggests calculating non-life insurance output as the sum of costs (including intermediate costs, labour and capital costs) plus an allowance for 'normal' profit, if the neither the expectation method or the ex post method are not sufficient to allow reasonable estimates for output.

Due to the issues raised *other insurance* (non-life), output is calculated from the cost point of view, with the addition of a profit element for net operating surplus of 1.5% of own funds. This percentage is low because the total return on own funds in non-life insurance corporations, in addition to net operating surplus, consists of property income and holding gains etc. which are not allocated to insured persons and are not included in claims provisions. Claims provisions in non-life insurance are the funds of the policyholders and not part of the corporation's own funds. Realised and unrealised holding gains and losses are not included in the measurement of the output of insurance service.

Reinsurance commissions are treated the same way as other insurance and thus calculated from the cost point of view. The reinsurance commissions are treated as negative reinsurance premiums, but do not enter into the calculation of output.

Where the calculation for life insurance and pension funding is a pro rata calculation based on the assumption that the policyholders' funds and the corporation's own funds are invested in the same portfolio of securities, this is not the case with the calculation for other insurance. Here, it is assumed that the insurance technical reserves are invested in (safe) bonds, whereas more risky investments in shares are considered to be financed by the corporations' own funds. There is therefore a different link between financial assets and insurance technical reserves on the one hand and own funds on the other. The reason is that the investment of insurance technical reserves has a much shorter time horizon for non-life than for life insurance.

Expenditures on claims are based on actual paid claims adjusted with the change in reserves.

The calculation of output for large life insurance corporations is illustrated in Table 3.48. Output for other non-life insurance corporations is measured the same way.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

In the supply and use tables, the output of NACE K is divided into 22 products. In addition, there are for each national account industry fringe benefits, own-produced software and own-produced research and development. The product breakdown is based on the breakdown of the financial corporations sector into sub-sectors and of the producer units which belong to them into industries.

Intermediate consumption by product

There are no regular costs structure statistics for the financial industries other than the summary costs structure included in the accounting plan in *Finanstilsynet's* Order on Accounting. The input structure in the financial industries has been based on this. The breakdown into individual products is to a certain extent based on

estimates which in turn are based on common sense considerations. For the current year, an initial estimate is worked out for the input structure on the basis of the technical coefficients in the supply and use tables from previous years.

Breakdown of impact on the allocation of insurance on GDP and GNI

Table 3.47 illustrates the supply and use of insurance and pensions in two matrices. The supply of insurance is broken down to insurance type, as well as supply type, production or import. The use of insurance is broken down to insurance type, as well as type of use, intermediate consumption, type of intermediate consumption and export.

Table 3.47 Supply and use of insurance and pensions

	Life insurance	Non-life insurance	Auto insurance	Pension funds
	DKK mill.			
Total supply				
Production	7 124 042	17 984 280	1 642 800	1 883 128
Import	2 416	1 806 697		
Total supply	7 126 458	19 790 977	1 642 800	1 883 128
Total use				
Intermediate consumption		9 906 946	1 358 025	
Household consumption	7 047 265	8 200 991	1 935 131	1 883 128
NPISH consumption		60 655	6 548	
Public consumption		485 202	75 395	
Export	79 193	1 137 183		
Total use	7 126 458	19 790 977	3 375 099	1 883 128

FISIM

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. Mortgage banks that are part of deposit-taking corporations except the central bank (S.122) are not treated as producers of FISIM.

FISIM is calculated according to ESA 2010. FISIM on the loans granted to the resident institutional sector is equal to interest receivable on loans minus (loan stocks * internal reference rate) and FISIM on the deposits of the resident institutional sector is equal to (deposit stocks * internal reference rate) minus interest payable on deposits FISIM is calculated using three types of currencies: Danish kroner, Euro and other currencies.
The internal reference rate is calculated as the ratio of interest receivable on loans between (and within) S122 and other financial intermediaries, except insurance corporations and pension funds (S125) to stocks of loans between (and within) S122 and S125, and the external reference rate is calculated as the ratio of interest on loans plus interest on deposits between resident FIs and non-resident FIs, to the stock of loans plus the stock of deposits between resident FIs and non-resident FIs.

The exported FISIM is calculated as the sum of FISIM on loans granted to non-residents and FISIM on the deposits of non-residents. FISIM on loans granted to non-residents is equal to interest receivable - (loan stock * external reference rate) and FISIM on the deposits of non-residents is equal to (deposit stocks * external reference rate) - interest payable.

FISIM imported by each institutional sector is calculated as the sum of FISIM imported for loans and FISIM imported for deposits. FISIM imported for loans is equal to interest receivable by non-resident financial intermediaries - (loan stocks * external reference rate) and FISIM imported for deposits is equal to (deposit stocks * external reference rate) - interest payable by non-resident financial intermediaries.

One of the sources for calculation FISIM is the Central Bank, which collects average stocks of loans and deposits and the accrued interest rates from S.122. This data is split on user sector (including the split on households and unincorporated enterprises), currencies and whether the purpose of the loan is dwelling or not. This way FISIM can be allocated to households broken down into intermediate consumption and final consumption. Before 2014

the counterpart sectors are on ESA95 level, which is split into ESA2010 level using interest flows. Non-financial holding companies that is by far the biggest part which is not possible to just split, because it moves from S.11 to S.12 is one of the 117 industries that FISIM is calculated for, so it is moved separately.

To calculate the internal reference rates this data is also used, but since the consumption is only on a sector level, S.122 and S.125, a split between FISIM producers and non-FISIM producers is necessary. The internal interest reference rate is therefore calculated on the basis of financial institutions' outstanding amounts with other financial institutions and outstanding amounts with financial leasing. The split takes place using the industry breakdown of financial institutions' loans and deposits from money and capital market statistics. Financial institutions' outstanding amounts with possible FISIM producers in other credit institutes and other lending activities are not included in the calculations, since it is assumed that these units are primarily not FISIM producers. Financial institutions are clearly the most important FISIM producing institutions, which is the reason behind the assumption that interbank outstanding amounts are satisfactorily covered in the calculation of the internal interest rate.

All the calculations are done on a quarterly level. The results of the calculation of reference rates are shown in the following table:

Table 3.48 Calculation of reference rates, 2012

		Q1	Q2	Q3	Q4
		pct.			
Currency	Reference rate				
Danish kroner, DKK	Internal	0.27	0.27	0.18	0.13
	External	0.15	0.13	0.06	0.03
Euro, EUR	Internal	0.26	0.21	0.16	0.11
	External	0.18	0.13	0.07	0.04
Others, Z07	Internal	0.39	0.31	0.29	0.26
	External	0.30	0.28	0.30	0.24
All	Internal	0.28	0.27	0.18	0.13
	External	0.22	0.19	0.15	0.11

Table 3.49 Calculations for the FISIM producing part of S.122, 2012

Loans/ deposits	Consuming industry/ sector	Q1	Q2	Q3	Q4
		DKK mill.			
Deposits	S.11				
	STOCK_DKK	212 353	212 986	217 375	221 146
		pct.			
*	INT_REF.RATE_DKK	0.27	0.27	0.18	0.13
		DKK mill.			
-	INTERESTFLOW_DKK	312	261	222	204
=	FISIM_DKK	267	309	161	76
	STOCK_EUR	23 910	19 828	20 059	20 516
		pct.			
*	INT_REF.RATE_EUR	0.26	0.21	0.16	0.11
		DKK mill.			
-	INTERESTFLOW_EUR	22	9	5	5
=	= FISIM_EUR	39	34	28	17
	STOCK_Z07	14 987	22 634	36 570	44 307
		pct.			
*	INT_REF.RATE_Z07	0.39	0.31	0.29	0.26
		DKK mill.			
-	INTERESTFLOW_DKK	27	25	22	20
=	= FISIM_Z07	31	46	85	94

Furthermore data collected by Statistics Denmark for the Statistics for large financial corporations is used for calculating FISIM produced by S.125. Both stocks and accrued interest is collected. The stocks from this statistics are not average data, so a simple calculation using two periods and dividing by two is done. An assumption is made, that all loans and deposits from S.125 is in Danish kroner.

For the imported FISIM data from the Central bank is also used. Only data for the balances are available, which is already split on user sectors. The flows are calculated using the interest rates from S.122 as producer of FISIM with the same user sector and in foreign currency. There is also no split on currency on this data, so a reference rate calculated without a split on the currency is used in this case.

The central bank is excluded from the FISIM calculation, and the FISIM producing industries have no consumption of FISIM by definition.

For the allocation of FISIM on industries the money and capital market statistics for loans and deposits from the Central bank is used to split the sector level into 27 industries. Hereafter production values from an industry/sector matrix are used to further split the use of FISIM into 117 industries.

A distribution key for intermediate consumption is used for allocation of FISIM at the most detailed level (843 industries) for general government sectors: S.1311 (general government), S.1313 (local government), and S. 1314 (social security). The distribution key is produced as part of the compilation of general government.

The FISIM corrections in the sector accounts and the balance of payments are always made at both interests and on either production, consumption, export or import, so there is no net effect from the correction of FISIM.
The results of the Danish calculations for 2012 in 1 000 DKK and the impact on GDP and GNI are shown in the following table:

Table 3.50 FISIM effect on GDP and GNI by sector

	Financial leasing	Other S.125	Import	S.122	All FISIM
	DKK 1 000				
Fisim production					
Danish production	2 503 680	2 783 780		41 214 071	46 501 531
Import			2 511 124		2 511 124
All production	2 503 680	2 783 780	2 511 124	41 214 071	49 012 655
Fisim consumption					
Intermediate consumption	2 503 671	939 593	2 481 542	31 619 181	37 543 987
Household consumption		1 844 181	29 580	7 422 586	9 296 347
NPISH consumption				304 628	304 628
Gen. govern. Consumption				207 170	207 170
Export				1 660 507	1 660 507
All consumption	2 503 671	2 783 774	2 511 122	41 214 072	49 012 639
FISIM effect on GDP					8 957 528
FISIM effect on GNI					9 808 145

The allocation of FISIM affects GDP by 8,96 bill. DKK and GNI by 9,81 bill. DKK. The two effects are different because the effect of import and export of FISIM are offset by the effect on interest income and interest expenditure to/from the Rest of the World when calculating GNI. Hence, the effect on GNI is only from domestic final uses.

3.18 Real estate activities (L)

NACE L covers four of the national accounts' 117 industries. The industries 680023, Renting of residential buildings, 680024, Owner-occupied dwellings, and 680030, Renting, non-residential buildings, are defined by function and combine all letting of real estate, i.e. dwellings or non-residential premises, regardless of the legal or producer units in which the activity takes place. This includes all secondary activity regarding dwellings and renting of non-residential buildings. The problem of double counting is handled as part of the general treatment

of the general accounting statistics. In this treatment as a general rule all income and expenditure from secondary activities is discarded. For those secondary activities we need to keep in order to avoid underestimation, we have other systems and sources to establish the particular secondary activities' volume and intermediate consumption.

The remaining industry, 680010, Buying, selling of real estate, is defined on the basis of a grouping of producer units. As shown in Table 3.51, in 2012 NACE L accounted for 10.2 % of value added in the Danish economy.

Table 3.51 NACE L's contribution to the gross value added of the economy

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
680010	Buying, selling of real estate	9 367	7 073	4 668
680023	Renting of residential buildings	66 939	4 699	45 901
680024	Owner-occupied dwellings	108 363	21 038	78 878
680030	Renting, non-residential buildings	58 522	29 485	35 440
	Total NACE M	243 191	78 304	164 887
		pct.		
	Percentage of the economy	7.2	4.5	10.2

The section covers 9 industries at the most detailed DK-NACE level. In the two industries not covering dwellings the calculations are made at that detailed level whereas in the two industries covering dwellings the national accounts calculation system lumps three detailed DK-NACE industries together and combines the calculation with the calculation of the imputed rental value of owner-occupied housing.

Statistical sources

The primary statistics source for the industry 680010, Buying, selling of real estate, is the tax account statistics. In the remaining three industries special sources and methods are used as explained below. Table 3.52 shows the primary statistics used.

Table 3.52 NACE L's contribution to the gross value added of the economy

	National account industry	Source
680010	Buying, selling of real estate	Tax account statistics
680023	Renting of residential buildings	Housing censuses, rent data, the accounts of housing associations, consumer surveys
680024	Owner-occupied dwellings	Housing censuses, rent data, the accounts of housing associations, consumer surveys
680030	Renting, non-residential buildings	Calculated from the expenditure side: the sources underlying the calculations for all other industries

Method of calculation

In the case where the statistical source is the tax account statistics, the standard method for this source is followed for the estimate of output, intermediate consumption and value added. Below, we therefore describe only the two special, but exceptionally important, calculations for dwellings and the letting of non-residential buildings.

The calculations for *dwellings* comply with the method set out in Commission Regulation 1722/2005. From Table 3.51 one can deduce the share of GDP of the two dwellings industries, in 2012 the two industries accounted for 7.7% of the total value added of the Danish economy. It is therefore clear that the reliability of the estimate of value added in this industry is crucial for the overall accuracy of the GNI estimate.

The most important principle in the Commission Regulation is that the countries have to use the stratification method to calculate the imputed rental value of owner-occupied dwellings. Denmark has always used this method. In short, it means that the total housing stock is divided into a number of strata on the basis of various stratification criteria. The criteria which are mandatory under the above Regulation are size and location. First of all, the average actual rental rate (yearly payment per square meter) is calculated for rented dwellings in each

stratum and this average stratum rental rate is then used for owner-occupied dwellings within the same stratum to estimate the imputed rental value of owner-occupied housing.

The Regulation requires countries to operate with a minimum of 30 strata generated by at least three size classes and two types of location. In Denmark's case, the sources enable a much more detailed calculation to be made. In fact the Danish stratification involves 6 400 strata, some of these strata are empty though.

The Danish estimate for 2012 uses the following stratification criteria:

Table 3.53 Stratification criteria for the calculation of levels, 2012

Factors	Factor levels
Location: degree of urbanisation	1. HT- area 1 2. HT- area 2 3. HT- area 3 4. Århus 5. Other towns with at least 100 000 inhabitants 6. Towns with 10 000-99 999 inhabitants 7. Towns with 1 000-9 999 inhabitants 8. Other areas
Type	1. Farmhouses and detached houses 2. Terraced, linked and semi-detached houses 3. Dwellings in blocks of flats 4. Dormitories, etc. 5. Other
Quality	1. Group 1 2. Group 2 3. Not known
Size	1. –49 m^2 2. 50-59 m^2 3. 60-79 m^2 4. 80-99 m^2 5. 100-119 m^2 6. 120-139 m^2 7. 140-159 m^2 8. 160-179 m^2 9. 180-199 m^2 10. 200 m^2 and [over] 11. Not known
Year of construction	1. –1939 2. 1940-1959 3. 1960-1969 4. 1970-1974 5. 1975-1979 6. 1980-1984 7. 1985-1989 8. 1990-1994 9. 1995-1999 10. 2000- 11. Not known

The following should be noted as regards the individual stratification criteria:

Where the ***location factor*** is concerned, special attention should be paid to the HT [Copenhagen Transport Corporation] area. Around one-third of the population of Denmark lives in the region around Copenhagen, which for practical reasons is delimited as the geographical area formerly covered by HT, which serves the actual city, the suburbs and other municipalities with a large number of commuters to and from the capital. This HT area consists of the Copenhagen municipality [*Københavns Kommune*], the Frederiksberg municipality and all municipalities within Copenhagen county [*Københavns Amt*], Frederiksborg county and Roskilde county. For

stratification, the area is divided into three sub-areas, HT-1, HT-2 and HT-3, since it was assumed that there was a significant difference in the average level of rents, HT-1 being the most expensive and HT-3 the least expensive. The breakdown is based on the breakdown used by the country's leading estate agents and newspapers for the marketing of owner-occupied housing. There is no doubt that this breakdown is significant for the prices at which owner-occupied dwellings change hands, and it is assumed that the same applies to the levels of rent in rented housing. HT-1 consists of the following municipalities: Dragør, Furesø, Gentofte, Hørsholm, Lyngby-Tårbæk and Rudersdal. HT-2 consists of: Allerød, Ballerup, Brøndby, Egedal, Fredensborg, Frederiksberg, Gladsaxe, Glostrup, Greve, Helsingør, Herlev, Hillerød, Hvidovre, København, Lejre, Roskilde, Rødovre, Solrød, Tårnby and Vallensbæk. HT-3 comprises: Albertslund, Frederikssund, Gribskov, Halsnæs, Høje-Taastrup, Ishøj and Køge.

The calculation confirms that there is a significant difference in the levels of rents in these three sub-areas in and around Copenhagen.

Århus, the country's second largest city, is a factor level on its own, because rent levels in the city and its suburbs are noticeably different from the level in the other provincial towns in Denmark and are more or less on a par with rents in the Copenhagen area.

As regards the ***quality factor***, quality group 1 comprises dwellings with water, drainage, own toilet, own bath, district heating or central heating from their own system and, for single family houses, with electric stoves or electric panel heating. Quality group 2 comprises dwellings which lack one or more of the above facilities.

As regards the ***year of construction***, the smaller intervals during the period 1960-1979 are due to the fact that there was a great deal of new housing built during that period, which, in view of the relatively high inflation at that time, had very different nominal construction costs. Since there is significant inertia in the establishment of rents, in which the nominal construction costs play a part, it is appropriate to work with smaller intervals of time during that period. For later years we have continued to use the five-year intervals.

In the housing census, there are a small number of dwellings where the rental status, type and quality group are not known. For all dwellings without an estimated rent from the stratified model, the average rental rate was used to compute their annual rents.

We then have the following theoretical number of strata: 8 x 4 x 2 x 10 x 10 = 6 400. However, the actual number of significant strata used is perhaps only a sixth of this figure, roughly speaking a thousand strata. This of course is still vastly in excess of the 30 required by the Decision.

Due to the very limited number of rent observations for detached houses and the rather few strata which were covered by a reasonable number of observations each it was decided that a larger number of observations would be necessary to obtain reliable results. This was the reason behind the decision to establish a factor (by estimation) to be multiplied by the rent for a similar apartment. For 2012 figures we continued to use rents from apartments multiplied by 1.02 for farmhouses and detached houses (see also the 2002 GNP-inventory).

To estimate the output of both rented dwellings and owner-occupied dwellings in the Danish national accounts, a very thorough and detailed calculation of levels is made every year. Thanks to the unique *Bygnings- og Boligregister* (BBR) annual information is available on the total housing stock divided according to numerous criteria. For the price component annual information is available for approximately 500 000 rent observations from the so-called Register of housing-related social benefits (in Danish "Boligstøtteregister"). The rent observations in the register primarily cover rented housing in blocks of flats and of terraced, linked and semi-detached houses, whereas the degree of coverage for detached, single-family houses which are let is much lower as can be seen from Table 3.54. The rents in the Register of housing related social benefits are rents for unfurnished dwellings (though refrigerator and the like are included). The price data must be assumed to be of very good quality because the information is used to grant rent subsidies and thus the data are heavily scrutinized.

Table 3.54 Observed rents by dwelling type, 2012

	Square meters	Rents	Observed rents
	1000 m2	DKK mill.	No.
Dwelling type			
Farmhouses and detached houses	178 373	78 842	25 289
Terraced, linked and semi-detached houses	36 264	26 189	120 593
Blocks of flats	81 982	58 658	344 158
Dormitories	1 276	1 178	6 161
Other	17 098	11 749	1 000

Table 3.55 Total rents by dwelling type, 2012

	Rents
	DKK mill.
Dwelling type	
Farmhouses and detached houses	78 842
Terraced, linked and semi-detached houses	26 189
Blocks of flats	58 658
Dormitories	1 178
Other	11 749

When calculating rentals the stratified buildings register is combined with observations on rents from the ministry of social affairs. Each entry on rent in the register has a code identifying the dwelling it relates to. This code is also available in the buildings register (BBR) and so the data on rents from the "boligstøtteregister" can be matched to the exact dwelling they relate to in the buildings register. For all dwellings that have a match, the observed rent is used. The average rent per square meter within each stratum is then calculated and used for all dwellings within the stratum that do not have an observed rent, given that there are five or more observed rents in the stratum. At the same time a regression is made at a more aggregate level using considerable fewer strata (instead of 6 400 approximately 208 strata are used) in order to estimate rents for these more aggregate strata.
If less than five observations are available within one of the 6 400 strata, rents are calculated as a weighted average of the observed rents and the estimated rent (from the regression) for the stratum, where the weight given to the observed rents is n/5, where n is the number of observed rents in the stratum (0<=n<5) and the weight given to the estimated rents is 1-n/5.

Finally, to ensure that all dwellings are given a rent all remaining dwellings are assigned the average rent per square meter for all dwellings.

This also applies to cooperative dwellings, which are assigned market rents in accordance with the recommendations of the GNI Committee in cooperative dwellings (GNIC/231).

This calculation is supplemented by a calculation of total rents for holiday homes etc., which was carried out in exactly the same way as for all-year-round dwellings, but on the assumption that the rent for a holiday home in a given stratum was half of the rent for an all-year-round dwelling in the same stratum. The basis of only assigning half a year of rents to the "Holiday homes" is legislation (LBK nr 587 of 27/05/2013) stating that nobody is allowed to live in buildings in "Holiday home" areas after October 1 and before March 31 of any year. This was the basis for the decision to use the factor 0,5. Most of the vacation houses are expected to never be let outside of the family owning it, so a higher price for vacation houses from professional agencies is not expected to be a widespread phenomenon. On the other hand the rent paid to the professional intermediary includes two parts, the rent for the owner as well as the service charge for the intermediation services rendered by these professional intermediary agencies. The latter service charges are covered in the production value of the National Accounts Product number T683120 from the DB07 industry 683120, "Letting of holiday homes". Thus taken together the rent for vacation houses is automatically higher than for dwellings used all-year.

Finally, a calculation was made for garages, carports, etc., covering garages which were not part of the actual dwelling and therefore included in the area of the dwelling. This latter (minor) share of garages is already

covered by the calculation of rents for all-year-round dwellings. The calculation is based on a benchmark from 2000 which is brought forward with the growth in the rents of owner occupied dwellings.

The calculation is done for the beginning of each year and we then calculate the average rent for a specific year by using the average of the output calculated at the beginning of the year in question and the output calculated at the beginning of the next year.

After the corrections referred to above, we have total rents for 2012 for all dwellings in the economy, based on the average level of rents for the period and the average stock of dwellings. To obtain the national accounts estimate of total rents, however, there has to be various additional corrections for items included in the observed rents from the rent survey, items which are not to be considered as rents. The following items are excluded from the observed rents:

1. payments for cold water delivery (fixed and variable fees)
2. drainage charges
3. refuse collection
4. insurance (the part not related to the building)

These amounts are instead counted as household consumption expenditure under the relevant consumption expenditure categories. Concerning insurance, only the service element in the gross premiums is included. The sources for these corrections are taken from the relevant product balances of our commodity-flow system covering the same year. This ensures consistency with the supply and other uses, and that e.g. changes in the level of green taxes are correctly taken account of.

There is also a correction for ***vacant dwellings***. In accordance with the principles in the Commission Regulation on dwellings, no output value is assigned to dwellings which are vacant.

The rental value of owner-occupied dwellings abroad and owner-occupied dwellings owned by non-residents are negligible as documented in conjunction with transversal reservation I 2012, and therefore no value is assigned.

The *intermediate consumption* of dwellings is calculated separately for owner-occupied and rented dwellings. The calculation uses four sub-groups:

1. (ordinary) repair and maintenance expenditure
2. other intermediate consumption apart from stamp taxes and financial intermediation services paid for directly
3. stamp taxes
4. financial intermediation services paid for directly
5. FISIM

Expenditure on *ordinary repair and maintenance* in dwellings which are let refers solely to the expenditure defrayed by landlords. The tenants' expenditure on repairs and maintenance is counted as private consumption expenditure in consumption group 4300, and is normally limited to certain internal maintenance work such as painting and floor polishing when there are changes of tenants. The source for the calculation of landlords' repair and maintenance expenditure is accounts from the non-profit (social) housing associations, which represent in total around half a million rented dwellings and can reasonably be considered to be representative of the rental sector as a whole.

For owner-occupied housing, expenditure on minor, routine repairs and maintenance is counted as private consumption in the households under group 4300, by analogy with the treatment of the corresponding expenditure of tenants. Major expenditure items, which in the case of rented dwellings should normally be defrayed by the landlord, are considered to be intermediate consumption when the dwellings are owner-occupied. Major repair and improvement work is not included in the estimate of intermediate consumption but counts as capital formation in housing construction. For owner-occupied dwellings, the source for the estimate of repair and maintenance expenditure is the household budget survey (FU). A further element of the total repair and maintenance expenditure is that paid for by insurance companies. Half of the claims due, received by the housing industry, are assumed to relate to repair and maintenance expenditure.

For *other intermediate consumption apart from stamp taxes and financial intermediation services paid for directly,* the sources are accounts from non-profit housing associations, covering more than 95 pct. of all non-profit housing associations, and accounts from two housing associations. In the nature of things, this item is a minor one in the case of owner-occupied dwellings, where it must include, for example, administrative expenditure relating to owners' associations in owner-occupied flats. These accounts also include building insurance which are part of intermediate consumption whereas all other insurance e.g. home insurance is counted as private consumption. The accounts from non-profit housing associations and private housing associations are used for both vacant and non-vacant dwellings implicitly assuming that intermediate consumption in vacant dwellings are the same as in non-vacant dwellings.

Expenditure on refuse collection etc. will normally be included in the observed rent. For the national accounts calculations for dwellings, the calculated total rental is reduced by the amount of these items, which are transferred to private household consumption of the services in question, instead of being considered as the private consumption of rents. Consequently, the expenditure in question is not included in the estimate of intermediate consumption for dwellings. Counting the figures this way in accordance with the international classification of the consumption of households, COICOP, does not, of course, affect the estimate of GNI, but relates solely to the breakdown of private consumption into consumption groups.

Stamp taxes, which count as intermediate consumption in dwellings, relate to loans for the financing of investments in housing and thus the output of dwelling services. Like other transaction costs connected with the transfer of real estate, stamp taxes on the transfer of property rights (deeds etc.) are treated - in line with ESA 95 paragraph 4.20 b) - as gross fixed capital formation. Stamp taxes on loans for the financing of investments in housing are estimated on the basis of the stamp tax rates laid down in the legislation, statistics for monetary financial institutions and the total revenue from stamp taxes taken from general government statistics.

The *financial intermediation services paid for directly* which are included in intermediate consumption in dwellings are fees etc. connected with mortgages taken out to finance purchases of dwellings. In Denmark, the vast majority of housing loans are "*realkreditlån*" [mortgage loans] granted by a special type of monetary financial institution known as a "*realkreditselskab*" [mortgage corporation]. These monetary financial institutions are funded almost entirely by the issue of bonds and take mortgages on the property for which they issue loans. The institutions demand "contributions" from borrowers, typically a percentage of the remaining debt. These contributions, which are invoiced to the borrowers, are treated as financial intermediation services paid for directly. In addition, there are financial intermediation services on the bank loans customarily taken out to partly finance housing purchases. The amount allocated to intermediate consumption in the "dwellings" industry is calculated on the basis of the total contributions to mortgage credit institutions and the total amount paid for bank services in the light of the outstanding debt on dwellings. *Financial intermediation services paid for indirectly (FISIM)* allocated to the dwellings industry is relatively low for reasons described above. The calculation and allocation of FISIM is described in section 3.17.

The figures for industry *680030, the letting of non-residential buildings*, are calculated as described from the expenditure point of view. The industry's output is estimated as the sum of non-residential rent expenditure in all other industries in the economy. These figures are estimated separately in the intermediate system at the most detailed DK-NACE level and are available separately in the target total module under code 2020, cf. the table of the functional target total module.

This ensures that the output of non-residential rentals and rentals which are posted as inputs in other industries are consistent. It is difficult to ensure this if output is calculated from the supply side, owing to the widespread *secondary* activity connected with the letting of non-residential premises, on which there is no direct information available in the detailed accounting information from the corporations involved.

Intermediate consumption is calculated from the ratio of intermediate consumption to output in the "letting of dwellings" industry. The reasoning is that the aggregate accounting figures underlying the calculations for the letting of dwellings are on the whole more representative of the letting of non-residential premises than the available accounts from corporations whose primary activity is non-residential letting. But since the letting of dwellings and of non-residential buildings are related activities, the input percentage, i.e. the ratio of intermediate consumption to output, may be considered to have been determined with a good degree of certainty.

Since 1999 the industry has been covered by industrial accounting statistics. However, on the output side the industrial accounting statistics gives rather unstable results and a lower turnover compared to the compilation from the expenditure point of view. This is a rather strong indication that a compilation from the expenditure side is preferable. On the input side, a comparison of the input percentage from the letting of dwellings, which is used, has been made with the input percentage from the industrial accounts statistics for the years 1999-2001. It was concluded at the time, that it was not necessary to make any corrections to the input percentage used.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

For the industry 680010, Buying, selling of real estate, output is primarily broken down by product in such a way that products are defined on the basis of the most detailed industries in the DK-NACE so that the total output value in one of these detailed industries is allocated to a product with the same name as the industry.

The output of the "dwellings" industry in 2012 was divided by product as shown in Table 3.56.

Table 3.56 Breakdown of output in the “dwellings” industries by product, 2012

	Dwellings	
		DKK mill.
F680020	Fringe benefits, free housing	458
F711000	Fringe benefits, free car	18
F713310	Fringe benefits, free pc	14
K620101	Own-produced software	34
T680021	Letting of dwellings	66 416
T680022	Imputed rental value of owner-occupied dwellings	103 009
T680023	Garages etc. not an integral part of the dwellings	5 354
	Total dwellings	175 302

The output of the "letting of non-residential buildings" industry covers five products. All non-residential letting is one product and there are also small amounts of output of the fringe benefits "free car" and “free pc” as well as of Royalties, ex. software, own-account software and own-account R&D in the relevant product balance.

Breakdown of intermediate consumption by product

Industries other than dwellings and the letting of non-residential buildings

There are no regular costs structure statistics for 680010, Buying, selling of real estate, other than the summary costs structure included in the previously available SLS-E accounting plan. The input structure is based on this. The breakdown into individual products is to a certain extent based on estimates which in turn are based on common sense considerations. For the current year, an initial estimate of input structure is worked out from the technical coefficients in the supply and use tables from previous years.

Dwellings

The breakdown by product is self-evident in three of the four expenditure categories referred to above. The fourth – other intermediate consumption apart from stamp taxes and financial intermediation services paid for directly – is broken down by product on the basis of information in the accounts of non-profit housing corporations and, if this is not sufficiently detailed, on the basis of common sense considerations concerning, for example, the input of cleaning services in blocks of flats.

Letting of non-residential buildings

The same applies to this industry as to dwellings.

3.19 Professional, scientific and technical activities (M)

Introduction

NACE M is defined on the basis of a grouping of producers units. It covers nine of the national accounts' 117 industries and these in turn cover 30 industries at the most detail DK-NACE level. As shown in Table 3.57, NACE M accounted for 5.1 % of value added in the Danish economy.

Table 3.57 NACE M's contribution to the gross value added of the economy

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
690010	Legal activities	13 213	3 076	10 138
690020	Accounting and bookkeeping	15 314	4 275	11 039
700000	Business consultancy	26 769	10 189	16 579
710000	Architecture and engineering	51 440	26 878	24 562
720001	Research and developm. (market)	16 408	11 255	5 154
720002	Research and developm. (non.market)	3 812	835	2 977
730000	Advertising, market research	18 972	13 210	5 763
740000	Other technical business serv.	13 366	7 768	5 598
750000	Veterinary activities	2 359	1 162	1 197
	Total NACE M	161 653	78 648	83 005
		pct.		
	Percentage of the economy	4.7	4.4	5.1

Statistical source

The primary statistical source for the market production is the accounts statistics for non-agricultural private sector. The statistical source for the non-market production is the General government accounts (DIOR). DIOR – The database for integrated public accounts – covers central government, local government and social security fund accounts, plus all other units included in national accounts S.13. Industry 702010, Activities of financial head offices, in National account industry 700000, Business consultancy, is a part of the financial sector (S.12) and is covered by the account statistics for financial sector – cf. 3.17. The statistical sources can be seen in the table below:

Table 3.58 Statistical sources underlying the calculation of value added for NACE M

	National account industry	Source
690010	Legal activities	Accounts statistics for non-agricultural private sector
690020	Accounting and bookkeeping	Accounts statistics for non-agricultural private sector
700000	Business consultancy (S.11)	Accounts statistics for non-agricultural private sector
700000	Business consultancy (S.12)	Account statistics for financial sector (S.12)
710000	Architecture and engineering (market)	Accounts statistics for non-agricultural private sector
710000	Architecture and engineering (non-market)	General government accounts (DIOR)
720001	Research and developm. (market)	Accounts statistics for non-agricultural private sector
720002	Research and developm. (non-market)	General government accounts (DIOR)
730000	Advertising, market research	Accounts statistics for non-agricultural private sector
740000	Other technical business serv.	Accounts statistics for non-agricultural private sector
750000	Veterinary activities	Accounts statistics for non-agricultural private sector

Method of calculation

The method of calculation for the market part is the standard method for the calculation of value added from the accounts statistics via the intermediate system and the target total module, as described in Section 3.1.4.1 and 3.4. The non-market part is calculated using the standard methods for general, transversal sources in the form of DIOR – the database for integrated public accounts. For a more detailed description of research and development, research and development for use within the same enterprise and the capitalization of research and development see section 5.10

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

Output in NACE M is primarily broken down by product in such a way that products are defined on the basis of the most detailed industries in the DK-NACE. The total output value in one of these detailed industries is allocated to a product with the same name as the industry. A distinction is made between market and non-market production and "black" activity. For the non-market production, a distinction is also made between output of non-market services for government consumption and external sales income. In addition, there are for each national account industry fringe benefits, own-produced software and own-produced research and development.

Breakdown of intermediate consumption by product

There are no regular costs structure statistics for NACE M other than the summary costs structure in the account statistics. But Statistics Denmark has in the period of 2001-2015 undertaken cost structure surveys for general government that are used as benchmarks. There is also irregular costs structure statistics for the market part that are used as benchmarks. The breakdown into individual products is to a certain extent based on this benchmark, estimates and on common sense considerations. For the current year, an initial estimate is worked out for the input structure on the basis of the technical coefficients in the supply and use tables from previous years.

3.20 Administrative and support service activities (N)

Introduction

NACE N is defined on the basis of a grouping of producers units. It covers six of the national accounts' 117 industries and these in turn cover 35 industries at the most detailed DK-NACE level. As shown in Table 3.59, NACE N accounted for 2.8 % of value added in the Danish economy.

Table 3.59 NACE N's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
770000	Rental and leasing activities	21 648	13 360	8 288
780000	Employment activities	21 671	9 363	12 308
790000	Travel agent activities	15 936	13 217	2 719
800000	Security and investigation	3 550	1 310	2 239
810000	Services to building, cleaning	20 513	7 964	12 549
820000	Other business services	18 437	11 252	7 186
	Total NACE N	101 754	56 466	45 288
		pct.		
	Percentage of the economy	3.0	3.2	2.8

Statistical source

The primary statistical source for the market production is the accounts statistics for non-agricultural private sector. The statistical source for the non-market production is the General government accounts (DIOR). DIOR – The database for integrated public accounts – covers central government, local government and social security fund accounts. The statistical sources can be seen in the table below:

Table 3.60 Statistical sources underlying the calculation of value added for NACE N

	National account industry	Source
770000	Rental and leasing activities	Accounts statistics for non-agricultural private sector
780000	Employment activities (market)	Accounts statistics for non-agricultural private sector
780000	Employment activities (non-market)	General government accounts (DIOR)
790000	Travel agent activities	Accounts statistics for non-agricultural private sector
800000	Security and investigation	Accounts statistics for non-agricultural private sector
810000	Services to building, cleaning (market)	Accounts statistics for non-agricultural private sector
810000	Services to building, cleaning (non-market)	General government accounts (DIOR)
820000	Other business services	Accounts statistics for non-agricultural private sector

Method of calculation

The method of calculation for the market part is the standard method for the calculation of value added from the accounts statistics via the intermediate system and the target total module, as described in Section 3.1.4.1 and 3.4. The non-market part is calculated using the standard methods for general, transversal sources in the form of DIOR – the database for integrated public accounts.

Revenue from operational leasing is measured as the value of the rental paid and is treated as an output of services. The expenditure of operational leasing is treated as intermediate consumption or household final consumption.

The output of travel agencies is measured as the value of fees and commissions charged. But the output of tour operaters is measured by the full expenditure by travellers and includes everything in the tour operators price like transportation, food, entertainments etc.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

Output in NACE N is primarily broken down by product in such a way that products are defined on the basis of the most detailed industries in the DK-NACE. The total output value in one of these detailed industries is allocated to a product with the same name as the industry. A distinction is made between market and non-market production and “black” activity. For the non-market production, a distinction is also made between output of non-market services for government consumption and external sales income. In addition, are there for each national account industry fringe benefits, own-produced software and own-produced research and development.

Breakdown of intermediate consumption by product

There are no regular costs structure statistics for NACE N other than the summary costs structure in the account statistics. But Statistics Denmark has in the period of 2001-2015 undertaken cost structure surveys for general government that are used as benchmarks. There is also irregular costs structure statistics for the market part that are used as benchmarks. The breakdown into individual products is to a certain extent based on this benchmark, estimates and on common sense considerations. For the current year, an initial estimate is worked out for the input structure on the basis of the technical coefficients in the supply and use tables from previous years.

3.21 Public administration and defense; compulsory social security (O)

Introduction

NACE O is defined on the basis of a grouping of producers units. It covers three of the national accounts’ 117 industries and these in turn cover 9 industries at the most detailed DK-NACE level. In 2012 two of the three national accounts’ industries consisted of government non-market output. As shown in Table 3.61, NACE O accounted for 5.7 % of value added in the Danish economy.

Table 3.61 NACE O's contribution to the gross value added of the economy, 2012

	Output	Intermediate consumption	Value added at basic price
	DKK mill.		
National account industry			
840010 Public administration	90 300	30 422	59 878
840021 Rescue service etc. (market)	5 115	1 477	3 638
840022 Defence, publ.order (non-market)	49 198	20 413	28 785
Total NACE O	144 613	52 312	92 301
	pct.		
Percentage of the economy	4.2	2.9	5.7

Statistical sources

In all cases other than the market output of 840021 rescue services etc. (market), the source is the accounts in Databasen for Integrerede Offentlige Regnskaber (DIOR) [the database for integrated public accounts]. This database covers central government, local government and social security fund accounts, plus all other units included in national accounts S.13 (extra budgetary units). The source for the calculations of 840021 rescue s ervice etc. (market) is the tax account statistics – cf. Section 3.1.4.1. The sources can be seen in the table below:

Table 3.62 Statistical sources underlying the calculation of value added for NACE O

	National account industry	Source
840010	Public administration	General government accounts (DIOR)
840021	Rescue service etc. (market)	Tax account statistics
840022	Defence, publ.order (non-market)	General government accounts (DIOR)

Method of calculation

The calculations use the standard methods for general, transversal sources in the form of the Database for Integrated public accounts (DIOR) and the tax account statistics.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

The output of government non-market services is divided by product on the basis of the various uses of the products. For each national accounts branch, a distinction is made at least between the output of government non-market services for government consumption, for external sales income other than from canteen sales, sales income relating to canteens and sales income relating to internal supplies between public institutions. In addition, there is own-produced software and own-produced research and development. The market output in 840021 Rescue services is for a single product, namely rescue services.

Breakdown of intermediate consumption by product

There are no regular cost structure statistics for the Public administration. But Statistics Denmark has in the period of 2001-2015 undertaken cost structure surveys for general government that are used as benchmarks. The breakdown into individual products is to a certain extent based on this benchmark, estimates and on common sense considerations. For the current year, an initial estimate is worked out for the input structure on the basis of the technical coefficients in the supply and use tables from previous years.

3.22 Education (P)

Introduction

NACE P is defined on the basis of a grouping of producers units. It covers five of the national accounts' 117 industries. These in turn cover 13 industries at the most detailed DK-NACE level. In Denmark 2012, virtually the whole group consisted of non-market output, the exception being 850041 Adult-, other education (market). In

Denmark production schools, upper secondary schools and universities are part of S.13 (extra budgetary units), and are thus government non-market producers due to the fact that public authorities to a large extent control these institutions.

Table 3.63 NACE P's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
850010	Primary education	57 007	10 514	46 493
850020	Secondary education	34 445	11 605	22 840
850030	Higher education	42 150	11 285	30 865
850041	Adult-, other educ. (market)	3 498	1 469	2 029
850042	Adult-, other educ. (non-market)	6 670	3 279	3 391
	Total NACE P	143 771	38 152	105 619
		pct.		
	Percentage of the economy	4.2	2.1	6.5

Statistical sources

In all cases other than market output in industry 804001 Adult and other education (market), the source is the accounts in *Databasen for Integrerede Offentlige Regnskaber (DIOR)*. This database covers central government, local government and social security fund accounts, plus all other units included in national accounts S.13. For the market output in industry 804001 Adult and other education (market), the source is the tax account statistics – cf. Section 3.1.4.1. For NPISH the statistical source is primarily the Ministry of Education, supplemented by annual reports for schools not covered by the ministry. The sources can be seen in the table below:

Table 3.64 Statistical sources underlying the calculation of the value added for NACE P

	National account industry	Source
850010	Primary education - Government non-market	General government accounts (DIOR)
850010	Primary education - NPISH non-market	Undervisningsministeriet (Ministry of Education)
850020	Secondary education - Government non-market	General government accounts (DIOR)
850020	Secondary education - NPISH non-market	Undervisningsministeriet (Ministry of Education)
850030	Higher education - Government non-market	General government accounts (DIOR)
850030	Higher education - NPISH non-market	Undervisningsministeriet (Ministry of Education)
850041	Adult-, other educ. (market)	Tax account statistics
850042	Adult-, other educ. (non-market) - Government non-market	General government accounts (DIOR)
850042	Adult-, other educ. (non-market) - NPISH non-market	Undervisningsministeriet (Ministry of Education)

Method of calculation

The calculations use the standard methods for general, transversal sources in the form of *Databasen for Integrerede Offentlige Regnskaber (DIOR)* and the tax account statistics. The calculations for NPISH primarily use data from the Ministry of Education which only includes non-market producers. The data is supplemented by sample of annual reports from non-market producers, which are not covered by the Ministry of Education. Considering the annual reports and using the distinction between market- and non-market producers specified in ESA 2010, section 3.23 ensures that only non-market producers are covered. See chapter 5.8 for further description of the method of calculation for NPISH.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

The output of government and NPISH non-market service is broken down by product on the basis of the various uses of the products. For each national accounts industry grouping, a distinction is made at least between the

output of non-market producers' services for consumption and for sales income. For the output of government non-market services, there is an additional distinction between sales income relating to canteens and sales income relating to internal supplies between public institutions. The market output in 840041 covers tree products, namely driving schools etc., other market education and "black" education. In addition, is there for each of the five national accounts' industries and institutional sectors (S11-S15) own-produced software and own-produced research and development.

Breakdown of intermediate consumption by product

There are no regular cost structure statistics for Education. But Statistics Denmark has in the period of 2001-2015 undertaken cost structure surveys for general government that are used as benchmarks. The breakdown into individual products is to a certain extent based on this benchmark, estimates and on common sense considerations. For the current year, an initial estimate is worked out for the input structure on the basis of the technical coefficients in the supply and use tables from previous years.

3.23 Human health and social work activities (Q)

Introduction

NACE Q, which is defined on the basis of a grouping of producers units, consists of four of the national accounts' 117 industries. These in turn cover 30 industries at the most detailed DK-NACE level. As Table 3.65 shows, it accounted for 11.1% of the value added in the Danish economy in 2012.

Table 3.65 NACE Q's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
860010	Hospital activities	89 437	34 621	54 815
860020	Medical and dental practice	37 995	8 050	29 945
870000	Residential care activities	31 189	12 431	18 757
880000	Social work without accomond.	97 868	20 432	77 436
	Total NACE P	256 488	75 534	180 954
		pct.		
	Percentage of the economy	7.5	4.2	11.1

Statistical source

For government, non-market output, the source is the accounts in *Databasen for Integrerede Offentlige Regnskaber (DIOR),* which covers central government, local government and social security fund accounts, plus all other units included in national accounts S.13. For market output, the source is tax account statistics. For NPISH non-market output, the source is a sample of annual reports from day-care centers, asylum centres, funds and scholarships. The sample is grossed up by using data on wages for the entire industry. The sources can be seen in the table below.

Table 3.66 Statistical sources underlying the calculation of the value added for NACE Q

	National account industry	Source
860010	Hospital activities - Market production	Tax account statistics
850010	Hospital activities - Government non-market	General government accounts (DIOR)
860020	Medical and dental practice - Market production	Tax account statistics
860020	Medical and dental practice - Government non-market	General government accounts (DIOR)
870000	Residential care activities	General government accounts (DIOR)
880000	Social work without accomond. - Government non-market	General government accounts (DIOR)
880000	Social work without accomond. - NPISH non-market	Annual reports, data on wages

Method of calculation

The calculations use the standard methods for general transversal sources in the form of Databasen for Integrerede Offentlige Regnskaber (DIOR) and the tax account statistics. By using annual reports and adhering to the distinction between market- and non-market producers specified in ESA 2010, section 3.23 ensures that only non-market producers are covered for NPISH. See chapter 5.8 for further description of the method of calculation for NPISH.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

The output of government and NPISH non-market service is broken down by product on the basis of the various uses of the products. For each national accounts industry grouping, a distinction is made at least between the output of non-market producers' services for consumption and for sales income. For the output of government non-market services, there is an additional distinction between sales income relating to canteens and sales income relating to internal supplies between public institutions. The output of market producers in NACE Q is divided into four products and fringe benefits. In addition, there is for each of the four national accounts' industries and institutional sectors (S11-S15) own-produced software and own-produced research and development.

Breakdown of intermediate consumption by product

There are no regular cost structure statistics for Human health and social work activities. But Statistics Denmark has in the period of 2001-2015 undertaken cost structure surveys for general government that are used as benchmarks. The breakdown into individual products is to a certain extent based on this benchmark, estimates and on common sense considerations. For the current year, an initial estimate is worked out for the input structure on the basis of the technical coefficients in the supply and use tables from previous years.

3.24 Arts, entertainment and recreation (R)

Introduction

NACE R is defined on the basis of a grouping of producer units and consists of seven of the national accounts' 117 industries. These in turn cover 18 industries at the most detailed DK-NACE level. As Table 3.67 shows, it accounted for 1.5 % of value added of the Danish economy in 2012.

Table 3.67 NACE R's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
900000	Theatres, concerts and arts	11 351	2 778	8 574
910001	Libraries, museums (market)	1 019	577	442
910002	Libraries, museums (non-market)	10 681	3 881	6 799
920000	Gambling and betting	5 045	3 135	1 910
930011	Sport activities (market)	4 247	1 938	2 309
930012	Sport activities (non-market)	5 249	2 458	2 791
930020	Amusement and recreation	4 260	2 077	2 184
	Total NACE R	41 852	16 844	25 008
		pct.		
	Percentage of the economy	1.2	0.9	1.5

Statistical sources

For market output, the source is tax account statistics, statistics on culture and statistics on wages, salaries and number of artists. The source for the non-market output of NACE R in sector S.13 is DIOR – the database for integrated public accounts. For non-market output in sector S.15 (NPISH) is the source surveys and administrative records. The statistical sources can be seen in the table below:

Table 3.68 Statistical sources underlying the calculation of the value added for NACE R

	National Account Industry	Source
900000	Theatres, concerts and arts (market)	Statistics on wages and salaries, numbers of artists, statistics on culture, tax account statistics
900000	Theatres, concerts and arts (non-market)	General government accounts (DIOR)
910001	Libraries, museums (market)	Tax account statistics
910002	Libraries, museums (non-market)	General government accounts (DIOR), annual reports (for NPISH)
920000	Gambling and betting	Accounts statistics for industries predominated by public corporations
930011	Sport activities (market)	Tax account statistics
930012	Sport activities (non-market)	General government accounts (DIOR), annual reports for NPISH
930020	Amusement and recreation (market)	Tax account statistics, account statistics for industries predominated by public corporatio.
930020	Amusement and recreation (non-market)	General government accounts (DIOR)

Method of calculation

The calculation for all DK-NACE other than 900120 Activities of individual artists, 90220 Support activities to performing arts and 900300 Artistic operation is the standard methods for general transversal sources in the form of General government accounts (DIOR), Tax account statistics, Accounts statistics for industries predominated by public corporations and statistics for NPISH. For industry 900120 Activities of individual artists, 90220 Support activities to performing arts and 900300 Artistic operations, the calculation is divided in two. First of all, the output of paintings, lithographs and sculptures etc. is calculated using a price x quantity calculation. Next, the much greater value of royalties and artistic originals is calculated from the information on royalties in statistics on culture.

The calculation of the output value of paintings, lithographs and sculptures etc. is based on average earnings per employee in the whole of the national accounts industry 900000 taken together, as found in the ERE statistics. This figure is multiplied by the total number of members of Billedkunstnernes Forening [the Pictorial Artists Association], the association of Danish designers and the association of Danish craftsmen-designers. It is thus assumed that the artists' average sales correspond to the earnings of an employee in the same field.

For the output of royalties (services output) information from statistics on culture which refers to royalty payments for art and culture is used directly (information from KODA, NCB (Nordic Copyright Bureau), COPY DAN and Gramex). In the absence of statistics on the value of original works produced, in each period this is considered to be equal to the royalty income for the period.

Intermediate consumption is calculated using an input percentage derived from tax account statistics. Creative artists constitute a field which, by its very nature, will almost always have scant coverage in the form of accounts. In Denmark's case, many fall below the turnover threshold of DKK 500 000 for the tax account returns. There is not considered to be any intermediate consumption corresponding to royalties and the output of artistic originals in branch 900300. The intermediate consumption connected to those product transactions is assumed to be included as expenditure in publishers, music publishers, recording companies, film and video production companies etc. which have made facilities available to the artists with whom they are working.

For the NPISH part, which consists of museums and sports associations, the output is calculated in accordance with ESA 2010 section 3.49. The distinction between market- and non-market output is made in accordance with ESA 2010 section 3.23.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

The output of NACE R is divided into 51 products, 33 of which represent market activity and 18 governments or NPISHs output. For each national accounts industry grouping, a distinction is made at least between the output of non-market producers' services for consumption and for sales income. For the output of government non-market services, there is an additional distinction between sales income relating to canteens and sales income relating to internal supplies between public institutions. In addition is there fringe benefits, and there is for each national accounts' industry and institutional sector own-produced software and own-produced research and development.

Breakdown of intermediate consumption by product

There are no regular costs structure statistics for NACE R other than the summary costs structure in the account statistics. But Statistics Denmark has in the period of 2001-2015 undertaken cost structure surveys for general government that are used as benchmarks. The breakdown into individual products is to a certain extent based on this benchmark, estimates and on common sense considerations. For the current year, an initial estimate is worked out for the input structure on the basis of the technical coefficients in the supply and use tables from previous years.

3.25 Other service activities (S)

Introduction

NACE S is defined on the basis of a grouping of producer units and consists of three of the national accounts' 117 industries. These in turn cover 21 industries at the most detailed DK-NACE level. As Table 3.69 shows, it accounted for 1.6 % of value added of the Danish economy in 2012.

Table 3.69 NACE S's contribution to the gross value added of the economy, 2012

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
940000	Activities of membership org.	26 225	10 414	15 811
950000	Repair of personal goods	5 020	2 398	2 622
960000	Other personal services	11 512	3 409	8 103
	Total NACE S	42 757	16 221	26 536
		pct.		
	Percentage of the economy	1.3	0.9	1.6

Statistical sources

The source for the non-market output of NACE S in sector S.13 is the general government accounts DIOR - the database for integrated public accounts. For non-market output in sector S.15 (NPISH) the source is surveys and administrative records. The source for the market output in national account industry 940000 Activities of membership organizations is statistics on wage, salaries and employment. The source for national account industry 950000 Repair of personal goods is the account statistics for non-agricultural private sector and for the market output in 960000 Other personal services the source is the tax account statistics. For "black" activity the source is a benchmark and for illegal activity – prostitution – is the source information on prices and number and types of prostituted – cf. Section 7. The statistical source can be seen in the table below:

Table 3.70 Statistical sources underlying the calculation of the value added for NACE S

	National Account Industry	Source
940000	Activities of membership org. (non-market)	General government accounts (DIOR) Surveys and administrative records
940000	Activities of membership org. (market)	Statistics on wage, salaries and employment
950000	Repair of personal goods	Accounts statistics for non-agricultural private sector
960000	Other personal services (non-market)	General government accounts (DIOR)
960000	Other personal services (market)	Tax account statistics

Method of calculation

The calculations for all national account industries other than DK-NACE 941100 Activities of business and employers membership organizations, comply with the standard methods for general transversal sources in the form of DIOR – database for integrated public accounts, tax account statistics and account statistics for the non-agricultural private sector. DK-NACE 941100 Activities of business and employers membership organizations, is calculated from the expenditure side using information on wage and employment and assumptions on intermediate consumption based on accounts.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by products

The output of NACE S is divided into 35 products, 16 of which represent market activity and 19 representing governments or NPISHs output. For each national accounts industry grouping, a distinction is made at least between the output of non-market producers' services for consumption and for sales income. For the output of government non-market services, there is an additional distinction between sales income relating to canteens and sales income relating to internal supplies between public institutions. In addition are there also fringe benefits, and there is for each national accounts' industry and institution sector (S.11-S.15) own-produced software and own-produced research and development.

Breakdown of intermediate consumption by product

There are no regular costs structure statistics for NACE S other than the summary costs structure in the account statistics. But Statistics Denmark has in the period of 2001-2015 undertaken cost structure surveys for general government that are used as benchmarks. The breakdown into individual products is to a certain extent based on this benchmark, estimates and on common sense considerations. For the current year, an initial estimate is worked out for the input structure on the basis of the technical coefficients in the supply and use tables from previous years.

3.26 Activities of households as employers; etc. (T)

Introduction

NACE T, which is defined on the basis of a grouping of producer units, consists of only one of the national accounts' 117 industries. As Table 3.71 shows, it accounted for 0.3% of the value added of the Danish economy in 2012.

Table 3.71 NACE T's contribution to the gross value added of the economy

	Industry	Output	Intermediate consumption	Value added at basic price
		DKK mill.		
970000	Households as employers	4 624	0	4 624
	Total NACE T	4 624	0	4 624
		pct.		
	Percentage of the economy	0.1	0.0	0.3

Statistical sources

The majority of the activity in this industry is linked to tax-free income either in the form of genuine work in the black economy or because the persons involved have income which falls below the income tax limit and who therefore do not report any income to the tax authorities. Regular "legitimate" economic activity in this industry consists mainly of home help for disabled people employed by households, treated as a social transfer in kind purchased by general government and made available to households. These values are taken directly from government accounts. The remaining "legitimate" activity is small and of minor importance and is projected with the same percentages as the black activity.

The level is calculated on the basis of EU-harmonised labour force survey (LFS), which in Denmark is now called *Arbejdskraftundersøgelsen* (AKU), extended to include various questions on activity in the black economy. The questions covered information on both the number of hours worked and the relevant income. One-third of the LFS respondents (some 6 000) took part in the ad hoc survey, which was partly financed by the EU. The survey was grossed up to the total population.

Table 3.72 Statistical sources underlying the calculation of the value added for NACE T

	National account industries	Source
970000	Households as employers	periodically surveys, net price index, government accounts, labour force survey

Method of calculation

A benchmark was established in 2004 with the extended *Arbejdskraftundersøgelsen* (AKU) that included several questions on activity in the black economy. From 2004-2010 was the value projected in the current years using changes in the net price index (consumer price index excluding taxes on products and subsidies) for cleaning. This means assuming that hours of work remain constant. The price index reflects changes in cleaning rates charged by professional firms.

A question on number of hours worked within the black economy in industry 970000 Households as employers has been included in *Arbejdskraftsundersøgelsen* (AKU) since 2010. This is now used in the calculation and the hours worked are now longer assumed to be constant. A new benchmark will be established when resources can be made available to extend the labour force surveys to include special questions on work in the black economy.

The process tables in Annex 7 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries.

Breakdown of output by product

The output value is allocated to two different products. One product covers the black activity and one product covers the regular economic activity.

Intermediate consumption by product

By definition, there is no intermediate consumption in this industry.

3.27 Activities of extraterritorial organisations and bodies (U)

Foreign embassies and other international organisations within the borders of the Kingdom of Denmark are not part of Denmark's economic territory. The output of these organisations is not included in Danish GDP. The wages and salaries which they pay to Danish residents are included in Denmark's GNI via the balance-of-payments items for wages and salaries from the rest of the world. Danish embassies on foreign territory are included in Denmark's economic territory.

3.28 Taxes on products, including VAT

Table 3.73 shows total taxes on products excluding VAT which amounts to 4.8 percent of GDP. Of total taxes excluding VAT of 91 300 mill. DKK, 2 995 mill. DKK go to the EU (duties and import taxes). Table 3.74 shows taxes on products excluding VAT by type of tax. All large taxes are shown by type while minor taxes are lumped together in *other*.

Table 3.73 Total taxes on products excl. VAT, 2012

	To general government	To the EU	Taxes on products excluding VAT, total
	DKK mill.		
Taxes on products	88 305	2 995	91 300
	pct.		
Percentage of GDP			4,8

Table 3.74 Taxes on products excluding VAT. By type of tax, 2012

	DKK mill.
Taxes on products excl. VAT, total	91 300
of which:	
Car registration	13 075
Electricity	11 167
Certain oil products	9 231
Cigarettes and tobacco	8 163
Petrol	7 392
Carbon dioxide (CO2)	5 709
Public Service Obligations (on electricity)	5 121
Stamp duties	4 883
Natural gas	4 033
Custom duties	2 962
Coal	2 583
Chocolate	1 735
Third party liability insurance on cars	1 732
Wine	1 519
Piped water	1 516
Profits from national gambling monopoly	1 413
Saturated fats	1 223
Alcoholic beverages	1 074
Beer	1 037
Car registration	13 075
Other	5 732

For each type of tax on products it is decided whether it is a tax on products or the purchase of a service. The main criterion for the classification is whether the "price" paid is in proportion to the cost related to the service. Examples of borderline cases are passports and drivers licences, which both are classified as purchases of services.

As required by ESA 2010 paragraphs 4.26-4.27, taxes on products including VAT are recorded when the activities etc. occur as the amount which the general government sector or the EU has a *claim on*, i.e. tax liability or tax assessed. Tax assessments are recorded by the tax authorities, *Skat*, with an indication of the period of the transactions to which they relate. Taxes on products excluding VAT are therefore recorded on an accrual basis. Denmark thus bases its figures for taxes on products excluding VAT on tax assessments and does not need to have recourse to corrections for "cash data", i.e. figures for taxes actually paid compiled on the date of payment.

Table 3.75 shows total VAT revenue in 2012 which amounts to 182 billion DKK and 9.6 percent of GDP.

Table 3.75 VAT, 2012

	To general government	To the EU	VAT, total
	DKK mill.		
VAT	181 618	0	181 618
	pct.		
Percentage of GDP			9.6

Compared with some countries, the Danish VAT system is very simple in that there are only two rates, a standard rate of 25 % in 2012 and a 0% rate for certain product groups such as passenger transport and newspapers. In addition, some activities (producer units) do not have to register for VAT, i.e. they do not collect outgoing VAT on their sales and conversely cannot deduct incoming VAT from their purchases. The only significant case of this for market output is financial services and property administration. In practice, all non-financial market activity except a few service activities, of which passenger transport is far the most important, has to register for VAT in Denmark.

One standard way of validating the degree of coverage in the national accounts is to compare the theoretical VAT resources as established in the national accounts with actual VAT revenue. This check works particularly well when there is a simple VAT structure as there is in Denmark, where the uncertainty resulting from the use of differential rates is virtually absent[14]. Theoretical VAT resources are defined as the VAT revenue which would be produced if all actors in the economy paid VAT according to the legislation. The calculation is as follows: The rate for non-deductible VAT which would apply if everybody complied in full with the VAT legislation is linked to each individual use of each of the 2 350 or so products in the (supply and) use tables. Actual VAT revenue is equal to VAT assessed on an accrual basis, as described above. VAT in the Danish national accounts is adjusted to this amount. The total VAT actually in the cells of the supply and use tables with around 2 350 product balances is equal to actual VAT resources.

When theoretical VAT resources are estimated, it is often the case that the statutory rate is used as the theoretical rate. This is not, however, the actual theoretical rate if, for the estimate of VAT liability, VAT is deductible in the case of bad debts. The Sixth VAT Directive allows such deductions, which apply in Denmark. The deduction is as follows: an enterprise which is registered for VAT may, for the estimate of outgoing VAT, deduct the outgoing VAT imputed during previous periods but which has never been paid to the enterprise by its debtors as a result of bankruptcy, for example. The actual theoretical rate is therefore lower than the statutory rate.

The tax authorities do not collect information on the size of the deduction for outgoing VAT connected with bad debts. Based on, *inter alia*, banks' provisions and losses, Statistics Denmark has cautiously estimated those bad debts at just under 2 % of VAT revenue. Due to lack of more precise information, this percentage has remained unchanged year after year for the calculation of theoretical VAT resources. For product groups with the statutory standard rate of 25 %, a rate of 24.54% is used, a cautious estimate about which there is a substantial degree of uncertainty. Actual deductions may well be considerably greater, in which case the theoretical rate in the calculation should be lower. The central government credit risk involves not only VAT revenue but the gross amount of outgoing VAT, which is much greater. Bad debts may arise anywhere in the chain from the original producer to the final purchaser.

To make the following comparison of theoretical and actual VAT comparable with the results in other countries, the comparison has been made using the theoretical rate calculated both as the statutory rate and as the estimated actual theoretical rate following legal deductions for bad debts. In the following table, the first calculation of the percentage discrepancy is marked I and the second as II.

Table 3.76 Comparison of theoretical and actual VAT revenue

Year	Theoretical VAT I revenue, with statutory rate) (1)	Theoretical VAT II revenue, with deduction for bad debtors (2)	Actual VAT revenue (VAT assessments) (3)	Percentage difference between theoretical VAT I and actual VAT ((1)-(3))/(3) x 100	Percentage difference between theoretical VAT II and actual VAT ((2)-(3))/(3) x 100
	DKK 1.000			pct.	
2005	161 727 923	159 599 780	154 653 854	4.57	3.20
2006	176 171 193	173 860 634	166 936 447	5.53	4.15
2007	181 005 416	178 647 492	174 638 672	3.65	2.30
2008	182 091 170	179 821 190	173 871 787	4.73	3.42
2009	173 319 798	171 196 271	167 529 461	3.46	2.19
2010	175 921 745	173 792 947	171 582 673	2.53	1.29
2011	182 734 868	180 548 461	176 447 770	3.56	2.32
2012	186 869 048	184 639 007	181 618 530	2.89	1.66

Note: VAT I: The statutory rate of 25%
VAT II: The statutory rate with deductions for bad debts (24.54%)

[14] Even with 2 350 product balances some product classifications will cover services with both 25% and 0% VAT-rates. The choice of average VAT-rate for such product groups relies on assumptions that may be more or less correct. In specific circumstances certain uses are VAT-exempt. Identification of these circumstances will also to some degree rely on assumptions. A VAT-system with differentiated rates will of course add to this kind of problems. However the estimated VAT must be assumed to be more accurate when it can be based on a high level of detail compared to a calculation based on less detail.

The table shows that the percentage difference between theoretical and actual VAT has remained reasonably low and constant over the period 2005-2012.

The Commission Decision (98/527/EC, Euratom) on the treatment for national accounts purposes of VAT fraud (discrepancies between theoretical VAT receipts and actual VAT receipts) obliges Member States to *compare* theoretical and actual VAT and to *analyse* the difference to ensure that the effect which the treatment of VAT fraud has on GNP is correct. In all cases where an enterprise registered for VAT has collected VAT from the customer but does not remit it to the tax authorities (for example, when sales do not pass through the cash register), with output-based GDP there has to be an allowance for this fraudulently retained VAT to ensure that the estimate includes all value added. The expenditure-based estimate in principle records the purchaser's actual payment and thus in principle automatically includes the VAT withheld (the evasion). The problem here, of course, is to observe such purchases in practice. In the Commission Decision, VAT which is not remitted is referred to as "evasion without complicity". The opposite is "evasion with complicity", e.g. work done in the black economy and not invoiced. In this latter case, of course, there should be no allowance for VAT not remitted, since the price the purchaser has paid does not include any VAT.

The total difference between theoretical VAT when the rates required by law are applied, ignoring deductions for VAT connected with bad debts, and actual VAT revenue was DKK 5 251 million in 2012. The national accounts estimate of deductions for bad debts of just under 2% may account for DKK 2 230 million of this difference. In addition, VAT corresponding to the explicit allowances for work in the black economy, underreporting and illegal activity etc. account for DKK 1 791 million. Of these DKK 1 791 million, DKK 581 million is explicit allowances for VAT fraud connected with underreporting - what the Commission Decision refers to as "evasion without complicity". In such cases, the Danish national accounts add an allowance to value added in the industries in question (including the imputed underreporting) to take account of further underreporting by producers who fraudulently collect VAT and fail to remit it.

After deduction of the above amounts, there was a difference of DKK 439 million in 2012, which is very low.

There are several reasons that the calculation of theoretical VAT is connected with some uncertainty. Some possible reasons are:

1. Larger deductions for bad debts than estimated
2. Inaccuracies in estimation of the black economy and underreporting
3. VAT evasion in industries where hidden activity is covered indirectly by a price x quantity calculation
4. Inaccuracies in the national accounts supply and use tables
5. Inaccuracies in the national accounts interpretation of VAT legislation

In the following, the possible reasons for these uncertainties are described in more general terms:

1) As already stated, we cannot rule out the possibility that the deductions for bad debts can deviate from the estimated just under 2%, in particular in years when the economy is depressed. In general, the response rates for the underlying economic statistical sources and the VAT assessments made by the tax authorities will also be affected in these years. In fact, 2009 and 2010 are likely to be more affected by these phenominae than other years.

2) There is a considerable statistical uncertainty in the estimates of the black economy. It is most likely that the benchmarks that have been based on surveys of black labour conducted as telephone interviews (and the current estimates based on telephone interviews), will be related with a relatively high degree of uncertainty.

3) In a few industries, underreporting and work in the black economy are not covered via explicit allowances but are implicitly included in that the output is estimated as price times quantity. The most important example is agriculture.

4) Inaccuracies in the national accounts supply and use tables may be another reason for the residual difference. This may happen if, for example, the values for the most important private uses on which VAT is payable, namely household final consumption and the construction of dwellings, are too high, so that the theoretical VAT

imputed is too high as well. There is, however, no other indication that the two demand components have been over-estimated.

5) The national accounts supply and use matrices include separate VAT matrices which are thoroughly analysed and balanced every year. When these matrices, which are used as a basis for the calculation of theoretical VAT revenue, are worked out, care is taken to ensure that the calculation reflects VAT legislation right down to the smallest detail. In doubtful cases, Statistics Denmark has consulted the Ministry of Taxation about the interpretation of special rules in the legislation. But the possibility cannot be ruled out, that subtleties in the VAT legislation have created difficulties for the modelling of the calculation of VAT that is the basis for estimation of the theoretical VAT revenue. However, the special rules in the VAT legislation relating to expenditure on the acquisition, running and maintenance of passenger cars, non-deductibility of accommodation cost, reduced deductibility of costs in connection with representation and a number of other exceptions from the general rules are as far as possible implemented at the most detailed level in the national accounts.

3.29 Subsidies on products

Tables 3.77 and 3.78 show total subsidies on products and subsidies on products by scheme. Subsidies on products amount to 14.0 bill. DKK and 0.7 percent of GDP in 2012.

Table 3.77 Subsidies on products, 2012

DKK million	From general government	From the EU	Subsidies on products, total
	DKK mill.		
Subsidies on products	13 856	147	14 003
	pct.		
Percentage of GDP			0.7

Table 3.78 Subsidies on products, 2012, by scheme

Subsidy scheme	DKK mill.
EU-schemes, total	**147**
Export subsidy schemes	12
Subsidy on the production of skimmed milk, etc.	135
Danish schemes, total	**13 856**
Municipal housing for pensioners, etc.	91
Refuse disposal and incineration	249
DSB (*De Danske Statsbaner)* [Danish State Railways]	4 205
Municipal buses and other transport	3 139
Price reductions in public transportation	130
Municipal estates	499
Central government subsidies to regional theatres	186
Subsidies on magazines and newspapers	399
Subsidies on cultural events	405
Collection of tires, cars and batteries	50
Subsidies on production of electricity	87
Subsidies on wind mills and other sustainable energy production	4 200
Other subsidies on products to private enterprises	218
Subsidies on products, total	**14 003**

Subsidies on products are recorded as required by the ESA 2010 paragraph 4.39 on an accrual basis, i.e. when the product transaction which gives rise to the subsidy occurs.