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Danish national accounts - sources and methods

List of content

1. Overview of the system of accounts 7
1.0 Introduction 7
1.0.1 Main approaches 7
1.0.2 Organisation of national accounts work in Statistics Denmark 7
1.0.3 Supervisory and control systems in place 8
1.1 The revisions policy and the timetable for revising and finalising the estimates; major revisions since the last version of the GNI Inventory 11
1.2 Outline of the production approach 13
1.3 Outline of the income approach 15
1.4 Outline of the expenditure approach 17
1.5 The balancing or integration procedure, and main approaches to validation 18
1.6 Overview of the allowances for exhaustiveness 19
1.7 The transition from GDP to GNI 20
1.8 Main classifications used 21
1.9 Main data sources used 21
2. The revisions policy and the timetable for revising and finalizing the estimates; major revisions since the last version of the GNI Inventory 22
2.0 The revisions policy and the timetable for revising and finalizing the estimates 22
2.0.1 Current revisions 22
2.0.2 Benchmark revisions 23
2.1 Major revisions due to the transition from ESA 1995 to ESA 2010 24
2.2 Major revisions since the last version of the GNI Inventory other than due to conceptual changes in ESA 2010 30
2.2.1 Country specific reservations 30
2.2.2 Transversal reservations 32
2.2.3 Major revisions other than revisions due to reservations 34
2.3 Planned actions for improvements 37
2.4 Transition between GNI Inventory and GNI Questionnaire figures 38
3. The production approach 40
3.0 GDP according to the production approach 40
3.1 The reference framework 41
3.1.1 The business register 41
3.1.2 Breakdown of the economy into sectors, sub-sectors and industries 43
3.1.3 Sectors with complete accounts and full coverage (group 1) 44
3.1.4 Sectors with complete accounts and partial coverage (group 2) 47
3.1.5 Sectors with a combination of physical and economic accounts (group 3) 67
3.2 The border line cases 68
3.3 Valuation 68
3.4 Transition from private accounting and administrative concepts to ESA2010 national accounting concepts and borderline cases 70
3.5 The role of direct and indirect estimation methods and of benchmarks and extrapolations 79
3.6 The main approaches taken with respect to exhaustiveness 83
3.7 Agriculture, forestry and fishing (NACE rev. 2 Section A) 86
3.8 Mining and quarrying (B) 88
3.9 Manufacturing (C) 90

3.10 Electricity, gas, steam and air conditioning supply (D) 94
3.11 Water supply; sewerage, waste management and remediation activity (E) 96
3.12 Construction (F) 97
3.13 Wholesale and retail trade; repair of motor vehicles and motorcycles (G) 102
3.14 Transportation and storage (H) 103
3.15 Accommodation and food services activities (I) 105
3.16 Information and communication (J) 106
3.17 Financial and insurance activities (K) 107
3.18 Real estate activities (L) 117
3.19 Professional, scientific and technical activities (M) 124
3.20 Administrative and support service activities (N) 125
3.21 Public administration and defense; compulsory social security (O) 127
3.22 Education (P) 128
3.23 Human health and social work activities (Q) 129
3.24 Arts, entertainment and recreation (R) 130
3.25 Other service activities (S) 132
3.26 Activities of households as employers; etc. (T) 133
3.27 Activities of extraterritorial organisations and bodies (U) 134
3.28 Taxes on products, including VAT 134
3.29 Subsidies on products 138

4. The Income Approach 139

4.0 GDP according to the income approach 139
4.1 The reference framework 140
4.2 Borderline cases 144
4.3 Valuation 144
4.4 Transition from private accounting and administrative concepts to ESA2010 concepts 144
4.5 The roles of direct and indirect estimation methods and of benchmarks and extrapolations 145
4.6 The main approaches taken with respect to exhaustiveness 145
4.7 Compensation of employees 146
4.7.1 Wages and salaries and employers' social contributions 147
4.8 Taxes on production and imports 148
4.9 Subsidies 148
4.10 Gross operating surplus and 4.11 Mixed income 149
4.11 Consumption of fixed capital 150

5. The expenditure approach 154

5.0 GDP according to the expenditure approach 154
5.1 The reference framework 154
5.2 The borderline cases 156
5.2.1 The borderline cases for HFCE 156
5.2.2 The borderline cases for GFCF 157
5.3 Valuation 157
5.4 Transition from private accounting and administrative concepts to ESA2010 national accounting concepts 157
5.5 The role of direct and indirect estimation methods and of benchmarks and extrapolations 159

5.6 The main approaches taken with respect to exhaustiveness 162
5.7 Household final consumption expenditure (HFCE) 162
5.7.1 Overview 162
5.7.1 Main data sources and their conversion to national accounts results 163
5.7.2 Detailed calculations by COICOP items 170
5.8 NPISH final consumption expenditure 170
5.9 Government final consumption expenditure 172
5.10 Acquisitions less disposals of produced fixed assets 173
5.10.1 Overview 173
5.10.2 Main data sources and their conversion to national accounts result 174
5.10.3 Detailed estimation methods used by an code 176
5.11 Additions to the value of non-produced non-financial assets 186
5.12 Changes in inventories 187
5.12.1 Accounting figures underlying the calculation of inventories broken down by industry 189
5.12.2 Breakdown of inventories by product 189
5.12.3 Calculation of national accounts changes in inventories 191
5.12.4 Calculation of changes in inventories using information on products 193
5.12.5 Special changes in inventories - other 2064 inventories 193
5.12.6 Relation between changes in inventories calculated based on inventory totals broken down by industry and information on individual products 194
5.13 Acquisitions less disposals valuables 195
5.14 Exports of goods 195
5.15 Exports of services 196
5.16 Imports of goods 197
5.17 Imports of services 197
6. The balancing or integration procedure and validating the estimates 198
6.0 GDP balancing procedure 198
6.0.1 Target total module 198
6.0.2 Supply and use tables as a framework for balancing 201
6.0.3 Size of balancing adjustments 210
6.1 Other approaches used to validate GDP 213
7. Overview of the allowance for exhaustiveness 214
7.0 Introduction 214
7.0.1 Geographical coverage 214
7.0.2 General approaches to exhaustiveness 214
7.1 Allowance for exhaustiveness in the production approach 214
7.1.1 Identification of types of non-exhaustiveness (for which adjustments are needed) 214
7.1.2 Adjustments made for the different types of non-exhaustiveness 217
7.1.3 Exhaustiveness methods 218
7.2 Allowance for exhaustiveness in the expenditure approach 225
7.2.1 Identification of types of non-exhaustiveness (for which adjustments are needed) 226
7.2.2 Adjustments made for the different types of non-exhaustiveness 226
7.2.3 Exhaustiveness methods 226
7.3 Allowance for exhaustiveness in the income approach 227
7.3.1 Identification of types of non-exhaustiveness (for which adjustments are needed) 228
7.3.2 Adjustments made for the different types of non-exhaustiveness 228
7.3.3 Exhaustiveness methods 228
8. The transition from GDP to GNI 229

8.0 Introduction 229
8.1 Compensation of employees 229
8.2 Taxes on production and imports paid to the Institutions of the EU 231
8.3 Subsidies granted by the institutions of the EU 231
8.4 Cross-border property income 231
8.4.1 Interest 231
8.4.2 Distributed income of corporations 232
8.4.3 Reinvested earnings (RIE) of foreign direct investment (FDI) 232
8.4.4 Other investment income 232
9. Main classifications used 234
9.0 Classifications used for the production approach 234
9.1 Classifications used for the income approach 238
9.2 Classifications used for the expenditure approach 238
9.3 Classifications used in the transition from GDP to GNI 243
10. Main data sources used 244
10.0 Statistical surveys and other data sources used for the production approach 244
10.0.1 Documentation of Statistics for Accounts Statistics for Non-Agricultural Private Sector 244
10.0.2 Documentation of Statistics for General Government Finances 244
10.0.3 Documentation of Statistics for the Public Sector Finances 244
10.1 Statistical surveys and other data sources used for the income approach 244
10.1.1 Documentation of Statistics for the Annual and Quarterly Working Time Accounts 245
10.2 Statistical surveys and other data sources used for the expenditure approach 245
10.2.1 Documentation of Statistics for the Household-budget-survey 245
10.2.2 Documentation of Statistics for International-trade-in-goods 246
10.2.3 Documentation of Statistics International-trade-in-service 246
10.3 Statistical surveys and other data sources used for the transition from GDP to GNI 246
10.3.1 Documentation of Statistics for the Balance of Payments 246
Annex 1 Statistics Denmark's organisation chart 247
Annex 2 National Account - Organisational chart 248
Annex 3 Account Statistics 2017 249
Annex 4 Information from tax account return 2017 252
Annex 5 Detailed SLS-E questionnaire, valid until 1988 253

1. Overview of the system of accounts

1.0 Introduction

1.0.1 Main approaches

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

The Danish national accounts consist of both annual and quarterly accounts. The official balance of payments estimate is consistent with the national accounts rest-of-the-world account. As from 2014 the Danish national accounts are compiled in accordance with the guidelines in the European System of Accounts (ESA 2010). Consistent time series are available back to 1966.

The final Danish national accounts are built around a set of supply and use tables. Initial unbalanced GDP estimates are to a large extent calculated independently from the output and expenditure sides and balanced in a detailed product balance system covering around 2 350 products. With the balanced supply and use tables as a starting point, symmetrical industry x industry input-output tables are constructed annually on the basis of the "industry technology assumption". Annual institutional sector accounts are compiled using information on institutional sector and industry from the accounting statistics and the balanced supply-use tables as a starting point.

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

Finally, labour productivity and total-factor productivity figures and regional accounts are produced for annual figures. Also supplementary accounts related to the environment are compiled.

As regards the classifications of industries, both the primary statistics and the national accounts are based on the NACE Rev. 2. The Danish industry classification *Dansk Branchekode,* DB 07, is a national, more detailed version of the NACE Rev. 2.

As regards commodity classifications, both product statistics covering manufacturing and external trade statistics use the EU's CN (Combined Nomenclature). The national accounts' product classification (around 2 350 products) likewise complies with the CN classification, but at a higher level of aggregation. The national accounts' product balances can be converted to the EU's CPA product classification at the 4-digit level

As regards the classification of household final consumption, the Danish national accounts are based on the international classification of individual consumption by purpose, COICOP, and there are no exceptions of any kind. The most detailed consumption grouping comprises 72 groups.

All units and transactions in the general government sector are classified according to the COFOG. Product transactions involving general government are cross-classified by transaction type (ESA 2010), by industry for the producer unit concerned (DB 07), by sector for the institutional unit concerned (ESA 2010) and by function for the relevant transaction (COFOG).

1.0.2 Organisation of national accounts work in Statistics Denmark

Statistic Denmark's organisation chart as at November 2021 is attached in Annex 1 and the organisation chart for the national accounts as of November 2021 in Annex 2. Statistics Denmark is divided into five directorates, three for statistics on particular fields, one for user services and one for communication and sales. Under the Act on Danmarks Statistik *[Lov om Danmarks Statistik]*, the institution is independent of government as regards all technical aspects of statistics. It is headed by a Board of Governors whose members are appointed by the Minister of Interior and Housing. Since the Act was passed in 1966, the members of the Board have been experienced representatives of the business world, the world of research and local government. No ministries are represented. Under the legislation, the National Statistician, who is appointed as a permanent official (for a maximum period of 9 years), is responsible for the technical and administrative management of the institution and is also Chairman

of the Board. He/she reports directly to the Minister of Interior and Housing all administrative and economic issues. It is Danish parliamentary practice for all draft EU legislation which is to be negotiated in the Council to be put before the *Folketing*'s Europe Committee, which gives the Minister a negotiating brief. This ensures that Parliament retains control over the extremely important share of statistical output which arises from EU legislation and which therefore actually comes within the scope of the Board.

From the organisational point of view within Statistics Denmark, responsibility for national accounts falls to the Directorate for Economic Statistics. The work is divided among two divisions known as "National Accounts" and "Public Finances". In addition the balance of payments is compiled in the division “External Economy” and it is ensured that the rest of the world account is consistent with the balance of payments. As annex 2 shows, the National Accounts division employs 40 persons. In the division for Public Finances about 20 persons are working on national accounts.

The National Accounts division is responsible for the estimates of the “functional” national accounts, that is the goods and services account including supply and use tables and input-output tables in current and constant prices. The division is also responsible for non-financial institutional sector accounts for households, non-financial corporations, the rest-of-the-world account and the reconciliation of the non-financial sector accounts. In addition it is responsible for capital stock estimates, labour productivity, environmental accounts and quarterly accounts. It is also responsible for administrative uses of the national accounts, i.e. fourth own resource (GNI), third own resource (VAT).

The Public Finance division calculates the general government sector including financial accounts. In addition, the division is responsible for non-financial sector accounts for financial corporations and NPISH (Non-Profit Institutions Serving Households), regional accounts and annual financial accounts for all sectors. Regarding administrative use of the national accounts, the division is responsible for the excessive deficit procedure (EDP). The division also covers accounting statistics for industries dominated by publicly controlled corporations and it collects and publishes primary statistics for local government (municipalities and counties) and some credit market statistics.

1.0.3 Supervisory and control systems in place

The use and control of primary statistics – from preliminary to final accounts

Danish quarterly national accounts are published up to eight times a year, the general rule being that the first “flash” version of a new quarter is replaced by a revised version of the same quarter as well as the two previous quarters. Quarterly accounts are calculated by a much smaller system that uses indicators to extrapolate the majority of its series from a certain point of time. Some series are however determined by data received from other divisions of Statistics Denmark for instance data on foreign trade and balance of payments from the division of External Economy, government accounts and financial accounts from the division of Government Finances. The first version of the figures for a calendar year is the sum of the quarterly figures for four consecutive quarters. When new estimates of annual figures are compiled, the quarterly figures are revised accordingly.

The final accounts are published almost 2½ years after the end of the respective year. The final 2017 figures were published in September 2020. The system for compilation of final accounts is a much bigger system that as far as possible utilises all available statistical sources at a very high level of detail. At the same time new provisional figures for the two following years are published. The figures for the year following the “final” year are generally calculated with a lower level of detail like in the quarterly system, but where it is feasible to use calculation systems and methods from the system for final accounts (except the supply-use framework), the results from these calculations are preferred to results from the quarterly calculations. For the most recent preliminary year, the data sources used in the final accounts are in general not yet available, so here it is necessary to fall back to the methods used for the quarterly accounts.

It follows from the brief description that statistical sources are as far as possible taken into account in the national accounts calculations as soon as the data is available.

Several important statistical sources are used in preliminary accounts before they are used in the final system. This is an opportunity to first test the reliability of such sources. If what seems to be obvious errors are detected the problems are as far as possible solved in cooperation with the office responsible for the source data in question. However, the tight production schedule for preliminary figures does not leave time for thorough investigations into the content of data files received a few days before they must be used for the actual calculations. The early

use of data sources can, however, at least give us a hint on problems we need to give some special attention before the final calculations.

A few examples can illustrate how data is received from other divisions of Statistics Denmark:

External trade: Preliminary data are received for the quarterly accounts. The data is updated as more information is collected. The final version of the annual figures may be agreed upon close to the point of time where it is needed for the calculations, often after discussions with the national accounts division on the precise interpretation of specific transactions.

Industrial accounts statistics (SBS) is the most important source for economic information on private units. It is prepared in Statistic Denmark's division for Business Dynamics. In this case the national accounts division receive a single final version in the form of data-files containing the individual data – including the estimated values - for all units in the survey. The Results are received in time to be used in preliminary annual figures one year before they are needed for the final annual accounts. If some year-to-year developments in the data seem suspicious investigations into the matter may already start here well before the data is needed for the final accounts. Before the files from the industrial accounts statistics are processed to be used as input into the systems of the final accounts they are run through a number of checks and comparisons with information from other sources.

Data for General government is received from the division for Government Finances as a file containing the full system of coded records from that division's "DIOR" database. It is coded by COFOG groups, ESA 2010 codes and industry codes. In the national accounts division data are converted into the form that is needed, when data is entered into the SUT-framework. DIOR-data are extracted for use in preliminary as well as final accounts. Before the data is declared final, a number of corrections to the original data are usually agreed upon. A short time before the data is needed as input in the final SUTs, the final version is "frozen". Hereafter further corrections are only accepted in exceptional cases when both divisions agree on the necessity of changes.

The central position of the balanced SUT as a control system

Danish national accounts are characterised by the central position of the supply and use tables in the estimation of the main aggregates of the national accounts. A description of the balancing system can be found in chapter 6: "The balancing or integration procedure and validating the estimates". As the title indicates the purpose of the compilation of SUTs is not alone to provide a reliable base for I-O tables, but also to provide a confrontation between estimates from different sources at a very detailed level.

Already when data are combined into files for targets for total output, input, GFCF etc. a considerable number of suspicious values are encountered. When the first version of the – unbalanced – SUT file is put together it is furthermore necessary to compare the initial estimates of supply for certain product groups with estimated use. A closer study usually reveals errors in primary statistics – often of types that would have been difficult to find if accounts statistics had been the only source. A few examples of such errors are:

- A unit has outsourced all domestic production of goods, but its headquarters is still classified as manufacturing and the remaining domestic sales of products is classified as own produced products.
- One or more affiliated units abroad are included in the activity shown as domestic production of an enterprise.
- Units that have changed ownership, taken part in reconstructions or fusions with other units have sometimes been found to have been included in accounts statistics more than once under different identifications.
- Turnover in some big enterprises have in some cases been recorded as taking place simultaneously with production, whether delivered to customers or not, while it is recorded as purchased at a later time or at the time when it has left the country (crossed the border) on the uses side.
- Bankruptcies and restructuring of enterprises can lead to strange omissions in the various statistical sources. We have for instance experienced that important goods were missing from imports according to foreign trade statistics, but were needed for input or GFCF according to other statistical sources.
- Imports or exports may have been included both in trade in goods and trade in services. This type of problems has turned up for instance in airlines, airports and oil-companies.

In the recent years many of the problems detected have emerged in connection with globalisation, for instance outsourcing abroad, more or less complete recording of foreign trade in industrial services (between affiliates or between non-affiliated units) and management services between affiliates.

In practice the work on preparation and balancing the SUT-files raises a number of questions that need to be answered by the people responsible for the relevant statistical sources. Often the explanation is found in cooperation. It may, however, be too late to correct the published figures as primary statistics is often declared final before the errors are detected, but the feedback from national accounts will usually lead to correction of similar errors in the following years. It is our clear impression that inquiries into these balancing problems are of considerable importance for the quality of the SUT and hence the national accounts.

The establishment of a "large case unit" in 2015 is expected to have a positive impact on the national accounts in the future. The "large case unit" will take care of the complex business models for large multinational corporations (*profiling*) and make the confrontation of primary statistics as part of data validation (in the primary statistics) before entering the national accounts. This work is in line with the work described in chapter 2 leading to a revision of the balance of payments in October 2016 and the national accounts in November 2016.

Service Level Agreements and the like
The publication schedule for national accounts determines the deadlines for the various versions of quarterly, provisional and final annual accounts. The publication schedule is based on policies decided within Statistics Denmark as well as the deadlines for reporting to Eurostat. Each year a formal "Office contract" is set up between the division and the management that stipulates targets for timeliness, correctness and reliability of the published national accounts figures.

The final accounts are incorporated in the "Juni version" of the annual national accounts. As the final accounts will provide a new benchmark for the provisional annual accounts for the following two years, a production plan is prepared to ensure, that the various components are ready when they are needed for the calculations and that the final accounts are available when they are needed for production of preliminary and quarterly accounts.

It is obvious that planning of the production process for quarterly, provisional and final annual data would be very difficult without knowledge on when to expect the versions of the primary statistics that are needed for the various versions of the national accounts. It is also important to be able to foresee the introduction of new statistical sources, the phasing out of existing sources or just the changes in file formats, software or other techniques that influence the statistical product.

There is a tradition for coordination meetings with "External Economy" and "Government Finances". Participants are typically the Heads of divisions and the people belonging to the sections directly involved in the work on these issues. The output of these meetings is agreement on a time schedule and deadlines for data deliveries to the national accounts. It is also common practice that people from national accounts are invited to participate in meetings preceding the establishment of new primary statistics that can provide information for national accounts purposes.

Recently six coordination groups have been established in order to further formalise the cooperation within macro-economic statistics. The task of these coordination groups is in the first place to make and follow up on service-level agreements but also to have follow-up discussions on specific data problems and development projects. For the time being service level agreements exist for the following data sources:

- Foreign trade in goods
- General government (non-market)
- Financial sector including FISIM

In addition, a formal agreement on the cooperation between Statistics Denmark and the Central Bank exists. The cooperation with the Central Bank relates to quarterly financial accounts and property income and financial transactions of the balance of payments.

Quality-reports, internal audits and the like:
An analysis of revisions is carried out and published. The analysis of revisions is based on the assumption that the final accounts represent "the truth" about that year. When looking at differences between preliminary and final figures for Denmark it should be kept in mind that the level of detail, the available data and not least the available time and resources used on final accounts are of a fully different magnitude than those used for preliminary figures. Furthermore the methods for compilation of final accounts are qualitatively different from those used for provisional figures.

Detection of errors in final accounts is not entirely unknown. When such errors can be corrected without significantly disturbing growth rates, they corrected figures are introduced in the SUT that is being balanced[1]. A comprehensive system of notes is used to document the adjustments made during the work on the final accounts as well as those adjustments that will need to await the next general revision.

Regular meetings are held with representatives of the suppliers of primary statistics in connection with the publishing of the first version of each new quarter. These meetings tend to concentrate on the relations between the most recent developments in preliminary statistical sources and the corresponding figures in the national accounts.

Another type of meetings is known within Statistics Denmark as "Konjunkturforum". The name covers a number of small groups, each of which covers a specific statistical product and consisting of members from those division that have a common interest in the statistics in question. Meetings are held regularly before the releases of new figures. It also covers regular joint meetings for all members of these groups. In these meetings the latest published version of the national accounts is a fixed item on the agenda, but the meetings will usually discuss any important new developments of common interest.

Large Case Unit
The large cases unit was established in 2015 and has been engaged in ensuring consistency between data reported to various statistics primarily the ITGS, the ITSS, the PRODCOM and the Accounts Statistics. The work has facilitated the work of National Accounts both by finding and eliminating inconsistencies for the largest units before data are confronted in S-U Tables and by creating a more formal framework for the cooperation between different statistical areas and thereby heightening the understanding of the different statistics. By confronting data at an earlier stage outright errors and inconsistencies are found earlier. Another important part of the work is ensuring consistency that is important for National Accounts but not necessarily visible in the published primary statistics.

1.1 The revisions policy and the timetable for revising and finalising the estimates; major revisions since the last version of the GNI Inventory

Revision policy for current revisions
Final national accounts data are calculated 2½ years after the reference year (year t+3). Several versions of preliminary accounts are calculated before that. The first version is available as the sum of quarters two months after the end of the reference year, and the last preliminary version is published at the end of year t+2 (see table 1.1).

Table 1.1 illustrates the revision policy (apart from benchmark revisions) for the Danish national accounts followed by Statistics Denmark at present. The revision policy is announced to the users so that they always know how many periods will be revised.

[1] In other cases it might be decided to keep the time-series at the present level until the entire series can be corrected in the next major revision.

Table 1.1 Revision policy of the Danish NA, from 2021

Year	Month of publishing	Year T, Q1	Year T, Q2	Year T, Q3	Year T, Q4	Year T
T	End May	P				
	End June	R				
	End August	R	P			
	End September	R	R			
	End November	R	R	P		
	End December	R	R	R		
T+1	End February	R	R	R	P	P (SQ)
	End March	R	R	R	R	R (SQ)
	End June	R	R	R	R	R (AP1)
	End September	R[1]	R[1]	R[1]	R[1]	R[1]
T+2	End June	R	R	R	R	R (AP2)
	End September	R[1]	R[1]	R[1]	R[1]	R[1]
T+3	End June	F	F	F	F	F

Note:

P First published SQ: Sum of quarters

R: Revised AP1: First preliminary annual calculation

F: Final AP2: Second preliminary annual calculation

[1] This compilation entails revisions of the Financial accounts, Sector accounts, Public sector finances and the Gross National Income (GNI). GDP and other main components (imports, exports, production etc.) are not affected.

Revision policy for benchmark revisions

It is important to understand that in the Danish national accounts compilation system, which has been the basis since the first publication of a supply-use table in 1973, every year is compiled in "level". The concept of "benchmark revisions" in the case of the Danish national accounts is therefore related to the introduction of new international guidelines, new classifications, new sources that need to be introduced in level instead of as growth rates or eventually the correction of larger errors. These revisions are usually pooled together as described in chapter 2.

The most recent major revision was published in November 2016, mainly due to the implementation of a revision of the balance of payments back to 2005.. The background for the revision of the balance of payments goes back to the revision in 2014, in particular the implementation of the new treatment (ESA2010) of globalisation in the balance of payments and national accounts. Cross check of reported data by the largest multinational companies to the foreign trade statistics and the prodcom statistics revealed that it was necessary to revise the data due to errors and underreporting.

Impact of the transition from ESA 1995 to ESA 2010

In September 2014 a major revision was published. It introduced ESA2010, addressed GNI-reservations and also implemented other well defined revisions. The major revision was carried back to 1966 at the level of input-output tables.

As appears from table 2.21, the transition items, that have an effect on GNI, are Research and development market (1a); Research and development, non-market (1b); Impact of capitalized R&D on cross border RIE (XT1), Valuation of output for own final use (2); Non-life insurance (3); Weapon systems (4); Sector classification (6) and VAT based EU resource (8). The by far largest effects come from Research and development that accounts for 2,6 of the total impact of 2,8 percent on GDP.

The transition items that do not have an impact on GNI are Decommissioning costs (5); Small tools (7); Index-linked debt instruments (9), Central bank – allocation of output (10); and land improvements (11).

Table 1.2 shows the transition table from the GNI questionnaire 2021. It presents the total effect of the transition items on GDP for the years 2010-2013.

Table 1.2 Transitions from ESA95 to ESA2010

		2010	2011	2012	2013
R&D created by a market producer	(1a)	37 399	34 236	36 121	37 399
R&D created by a non-market producer	(1b)	14 186	14 750	15 260	14 186
Impact of capitalized R&D on cross Border RIE	(XT1)	0	0	0	0
Valuation of output for own final use	(2)	0	0	0	0
Non-life insurance	(3)	-4 624	-3 477	-1 214	-4 624
Weapon systems	(4)	1 611	1 109	1 291	1 611
Decommissioning costs	(5)	0	0	0	0
Sector classification	(6)	23	29	48	23
Small tools	(7)	0	0	0	0
VAT-based EU resource	(8)	1 609	2 083	2 105	1 609
Index-linked debt instruments	(9)	0	0	0	0
Central bank – allocation of output	(10)	0	0	0	0
Land improvements	(11)				
Total		50 204	48 729	53 610	50 204

1.2 Outline of the production approach

For 2017, the calculation of output-based GDP can be summarised in table 1.3 below:

Table 1.3 GDP Production approach, 2017

	Value	Pct. of GDP
	DKK mill.	pct.
Output at basic price	3 821 330	174.3
- Intermediate consumption	1 914 455	87.3
+ taxes on products	304 351	13.9
- Subsidies on products	18 265	0.8
GDP	2 192 961	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 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 736 industries.

GDP according to the production and expenditures approaches are balanced at the 117-industry level in the supply and use tables. Balanced values for value added divided by industry appears 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.

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[2]). 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 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"). 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
2. Sectors with complete accounts and partial coverage of the population via administrative or statistical returns
3. Sectors with a combination of physical and economic accounts
4. Sectors with no accounting statistics

[2] "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".

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. This group contains for example general government.

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. This group contains for example sectors/industries covered by account statistics for non-agricultural private sector and account statistics for industries predominated by public corporations.

In group 3 the basis for the national accounts estimates are physical quantities or areas. This group contains agriculture and dwellings.

Group 4 is empty because all industries/sectors are covered by account statistics. Prior to the major revision published in September 2014 this group contained non-profit institutions serving households (NPISH), but new account statistics has moved this sector to group 3.

Table 1.4 shows a breakdown of gross value added (GVA) 2017 by the four groups.

Table 1.4 Gross value added based on various accounting statistics, 2017

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	26.3
2	Sectors with complete accounts and partial coverage of the population via administrative or statistical returns	64.5
3	Sectors with a combination of physical and economic accounts	9.2
4	Sectors with no accounting statistics	0.0
	Total	**100.0**

After initial processing of the various accounting statistics, data are transferred to a common accounting plan in the so called *Intermediate System*. The Intermediate System comes in two versions.

The *Intermediate System I* is simply a file that contains the data from the four main compilation 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 more detail in chapter 3.

The *Intermediate System II* is the result of a number of corrections to the first version of the system that transfers the data from business accounts to ESA2010 principles. These corrections are made to production and to intermediate consumption.

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. After the transformation of accounting statistics to the

intermediate system there are 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.

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

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 *intermediate consumption in 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

The main initiative aimed at ensuring that coverage is exhaustive consists primarily of the very important work carried out to ensure that the business register is updated to include new 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 currently has to be registered in a public administrative register which feeds into the business register. It is estimated, that all regular economic activity is captured via the use of the business register. Hidden activity and wages and salaries in kind are captured via special calculations that are not based on the business register.

1.3 Outline of the income approach

For 2017, the calculation of income based GDP can be summarized as in table 1.5:

Table 1.5 GDP, income approach, 2017

	Value	% of GDP
	DKK mill.	pct.
Compensation of employees	1 118 479	51.0
+ Gross operating surplus and mixed income	767 552	35.0
+ Taxes on production and imports	352 143	16.1
- Subsidies	45 213	2.1
= GDP	**2 192 961**	**100.0**

All components of GDP from the income side (GDP(I)) are compiled at the 117 national accounts industry level. Compensation of employees and taxes and subsidies on production are compiled directly using independent sources. Compensation of employees is based on the Working time accounts (WTA), and taxes and subsidies are based on government accounts. Gross operating surplus and mixed income is compiled as a residual using value added after the balancing of GDP(P) and GDP(E).

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

1. The annual working time accounts (WTA) (compensation of employees)
2. The system for compiling fixed capital in the national accounts (consumption of fixed capital, CFC)
3. Administrative data (accounting information) for compiling general government (other taxes on production and imports and other subsidies on production)
4. Value added at industry level as a result of balancing GDP(P) and GDP(E)
5. Gross operating surplus and mixed income are compiled as residuals.

All components and sources are collected – directly or indirectly - through regular enterprise surveys or administrative registers. Taxes and subsidies are available from general government accounts, compilation of CFC is based on annual estimates of capital stocks for various types of capital, compensation of employees is to a large extent based on administrative tax information and gross operating surplus and mixed income is compiled as a residual using value added after balancing GDP(P) and GDP(E).
The most important independent source used for GDP(I) is the annual working time accounts (WTA) which is used for the compilation of compensation of employees in the national accounts. Compensation of employees includes all payments in cash and in kind that employers pay their employees for the work done. Compensation of employees consists of wages and salaries on the one side and employers social contributions on the other side.

For compensation of employees adjustments are made to WTA in order to arrive at the national accounts estimate. Table 1.6 shows at the aggregate level the relation between compensation of employees in the WTA and the national accounts.

Table 1.6 Compensation of employees in the WTA and the national accounts, 2017

	DKK mill.
Working Time Accounts	**1 100 172**
Alternative or additional sources	18 405
of this, national accounts population	-20
of this, employers' imputed pension contributions	3 495
of this, employers' actual non-pension contributions	2 080
of this, supplement for black wages	3 170
of this, supplements for wages and salaries in kind	11 679
Final harmonisation	-98
Final national accounts estimate	**1 118 479**

In general, the estimate of the consumption of fixed capital (CFC) is not relevant to GDP or GNI. There is, however, one very important exception to the rule, namely non-market activity, where by convention output is calculated from the costs point of view and where CFC is one of the cost components. Non-market activity occurs in general government (S.13) and non-profit institutions serving households, NPISH (S.15).

General government and NPISH capital stock consists of buildings, structures such as roads, bridges etc., machinery, transport equipment and intangible fixed assets. Prior to the introduction of ESA2010, Winfrey curves and straight line depreciation was applied. With the introduction of ESA2010 in September 2014 the geometric depreciation method was incorporated into the calculations from the year 2008 and onwards, except for dwellings

and non-residential buildings, where geometric depreciation was incorporated from 1995 and onwards. For the new types of capital, Research and Development and Military Weapon Systems, geometric depreciation was applied for the whole time series.

1.4 Outline of the expenditure approach

For 2017, the calculation of expenditure-based GDP can be summarised as in table 1.7 below:

Table 1.7 GDP, expenditure approach, 2017

	Value	Pct. of GDP
	DKK mill.	pct.
Total final consumption expenditure	1 551 992	70,8
Household final consumption expenditure	985 797	45,0
NPISH final consumption expenditure	30 848	1,4
General government final consump. expenditure	535 347	24,4
Gross capital formation	483 615	22,1
Gross fixed capital formation	465 471	21,2
Changes in inventories	14 757	0,7
Acquisitions less disposals of valuables	3 387	0,2
Exports of goods and services	1 207 825	55,1
Imports of goods and services	1 050 472	47,9
GDP	**2 192 960**	**100,0**

The table shows that household final consumption expenditure in Denmark made up a little less than half of GDP in 2017, general government final consumption expenditure a good quarter, gross capital formation one-fifth and net exports the final 7%. Exports of goods and services accounted for 55% and imports 48%.

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

Regarding the estimate of the black economy, data are based on survey data obtained from supplementary questions asked once a year in connection with the LFS. Also illegal activities are included.

Since the Danish national accounts are adjusted in a detailed product balance system, there is a systematic confrontation in connection with the balancing. One of the strongest cross-checks for the compilation of national accounts consists in comparing information from purchasers on their acquisitions less disposals of the individual products or groups of products with information on the sellers' side on supplies to the domestic market.

Other than for those areas of the economy (general government, owner-occupied dwellings, NPISH), where the output- and expenditure-based calculations cannot by definition be independent, GDP from the production side and GDP from the expenditure side are largely independent of one another prior to balancing. These independent estimates are described briefly below.

The main idea behind the calculation of household consumption expenditure is a breakdown into groups by purpose/products, each group being calculated on the basis of the most reliable of the available sources, but in a way which seeks to make optimum use of all available information. The basic breakdown of household consumption expenditure is into retail and non-retail consumption expenditure. The former is the share of final consumption expenditure of goods which involves retail trade. In this context, retail trade excludes motor vehicles etc. and energy goods, which are not covered by the DOI. The two most important sources are:

- The retail index (Danish abbreviation DOI), which contains information on level of sales to private individuals, and
- The household budget survey (Danish abbreviation FU)

For gross fixed capital formation, all components are as far as possible estimated using the expenditure approach. Since the accounts for non-agricultural private sector in 1999 was extended to cover most industries with market producer units, it has been possible to estimate the capital formation in tangible fixed assets in most industries with a distribution by buildings, structures and a residual consisting of machinery, transport- and other

equipment. The estimates from the uses side are confronted with the available information on the domestic supply of investment goods by product in an “investment matrix” framework similar to the framework used in supply and use matrices. The estimates for the construction of new buildings are based on either the accounting statistics which provides a very detailed coverage of the actual observations, or a calculation based on the exhaustive register of buildings (the BBR), and prices per square meter for the different types of buildings. The estimate of private market Research and Development (R&D) is mainly based on R&D statistics (in line with the so-called Frascati manual) and foreign trade statistics. Non-market R&D is based on government accounts.

For changes in inventories, account statistics are used. For a correct estimate of GDP, it is necessary to split changes in inventories (reported at market prices on the respective dates) between the start and end of the period in question into product transactions in national accounts terms and revaluations (plus, in some cases, other volume changes). In the national accounts, changes in inventories (product transactions) are posted to the capital account whereas revaluations go to the revaluation account. It is also ensured that the estimate of changes in inventories at industry level is consistent with the estimate based on special information on the individual products.

For imports and exports of goods and services, the sources are the foreign trade statistics and the balance of payments statistics. Im- and export figures are consistent with the balance of payments.

1.5 The balancing or integration procedure, and main approaches to validation

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

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

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

The Danish SUT are compiled in connection with the final annual accounts, which are released with a delay of almost three years (November t+1). The structural information entailed in the SUT for the latest final year is used in the compilation of preliminary annual and quarterly national accounts but no balanced preliminary or quarterly SUT are produced.

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

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

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

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

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

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

Table 1.8 shows an extract from the process table for 2012. Process tables show how initial primary statistics are corrected, adjusted and balanced in order to compile GDP. Annex 7 shows the full process table. Table 1.8 shows that the balancing accounts for -0,5 percent on GDP(P) and +0,9% on GDP(E).

Table 1.8 Compilation of GDP, extract from the process table, 2017

	Total sources	Data validation	National accounts adjustments	GDP before balancing	Balancing adjustments	Balanced GDP
	DKK mill.					
GDP(P)	2 125 833	18 001	48 726	2 192 560	400	2 192 960
GDP(E)	2 108 838	2 820	76 637	2 188 295	4 665	2 192 960
	pct. of GDP					
GDP(P)	96.9	0.8	2.2	100.0	0.0	100.0
GDP(E)	96.2	0.1	3.5	99.8	0.2	100.0

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

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

1.6 Overview of the allowances for exhaustiveness

GDP from the production side is generally considered the most reliable. Therefore, the exhaustiveness adjustments have mainly been described from the production side in the tabular approach to exhaustiveness (TAE) and the process tables. However, some exhaustiveness adjustments are calculated from the demand side, for example Illegal activities relating to narcotics and areas in the black economy where the household budget survey (HBS) is considered more reliable; the so-called discrepancy method.

Explicit allowances for exhaustiveness
Allowances for exhaustiveness are made for the following N-types (TAE taxonomy):

N1 Producer should have registered
N2 Illegal producer
N3 Producer not obliged to register
N5 Registered entrepreneur not included in statistics
N7 Not all required data are asked

N1 covers output in the “black economy” which includes both work that is hidden to the authorities in order to avoid taxes and under-reporting and associated VAT-fraud. There is no allowance for intermediate consumption associated with output in the “black economy” as this is assumed to be already accounted for.

N2 covers illegal activity relating to smuggling, drugs and prostitution. There is no allowance for intermediate consumption associated with illegal activity as this is assumed to be already accounted for.

N3 adjustments cover values for farmers’ output for own consumption etc. They are available from agricultural statistics and are assumed to cover farm-gate sales as well, most of which presumably come under the “black” economy (N1). The values are based on agricultural selling prices for the products concerned, i.e. they are at basic prices, as required by ESA2010. Table 7.11 shows the adjustments by industry. Total adjustments to value added amount to 78 mio. DKK.

N5 covers adjustments for value threshold in source statistics. There are adjustments to both output and intermediate consumption.

N7 covers adjustment for production for own final use by market producers and wages and salaries in kind ("fringe benefits"). There are only adjustments to output.

There are no adjustments for N4 Registered legal person is not included in statistics (they are included in N5).

Adjustments for N6 Mis-reporting by the producer are included in N1.

Table 1.9 gives an overview of explicit exhaustiveness adjustments according to the TAE, which is the result of carrying out the TAE exercise.

Table 1.9 Summary of TAE (table 3A), 2017

	N1	N2	N3	N4	N5	N6	N7	**Total**	Percent of GDP
	DKK mill.								pct.
S11	0	0	0	0	460	0	23 272	**23 731**	1.08
S12	0	0	0	0	0	0	0	**0**	0.00
S13	0	0	0	0	0	0	0	**0**	0.00
S14	8 453	2 543	72	0	1 218	0	488	**12 775**	0.58
S15	0	0	0	0	0	0	0	**0**	0.00
NACE A	10	0	35	0	0	0	48	**92**	0.00
NACE B	0	0	0	0	1	0	64	**64**	0.00
NACE C	79	0	37	0	118	0	3 904	**4 138**	0.19
NACE D	0	0	0	0	0	0	58	**58**	0.00
NACE E	0	0	0	0	0	0	37	**38**	0.00
NACE F	2 554	0	0	0	160	0	1 652	**4 367**	0.20
NACE G	862	1 501	0	0	461	0	3 804	**6 627**	0.30
NACE H	153	0	0	0	50	0	634	**837**	0.04
NACE I	1 800	0	0	0	58	0	6 458	**8 316**	0.38
NACE J	238	0	0	0	177	0	2 408	**2 823**	0.13
NACE K	0	0	0	0	0	0	0	**0**	0.00
NACE L	0	0	0	0	19	0	919	**938**	0.04
NACE M	20	0	0	0	463	0	2 902	**3 385**	0.15
NACE N	11	0	0	0	156	0	666	**833**	0.04
NACE O	0	0	0	0	0	0	10	**10**	0.00
NACE P	30	0	0	0	0	0	13	**43**	0.00
NACE Q	42	0	0	0	0	0	67	**109**	0.00
NACE R	270	0	0	0	0	0	45	**315**	0.01
NACE S	1 638	1 042	0	0	16	0	73	**2 770**	0.13
NACE T	745	0	0	0	0	0	0	**745**	0.03

The adjustments as presented in the table are mainly made at the detailed level using the supply use tables (SUT), which contain information at product level for explicit adjustments for the "black" economy (N1), illegal activity (N2), production of output for own final use (N3) and fringe benefits and production of capital goods for own final use (N7). This makes it possible to extract the detailed information at industry level and it also ensures that the allowances are balanced in the different approaches to GDP.

1.7 The transition from GDP to GNI

The transition from GDP to GNI is conducted by applying information from the Danish balance of payments statistics (BOP). This information is applied directly, that is without any correction to the BOP figures being performed. The BOP is used directly in The Rest of the World account in the national account.

For BOP the competency is divided between Statistics Denmark and the Central Bank, *Danmarks Nationalbank*. The former conducts the compilation of the current account and the capital account and the latter the financial account and the international investment position. Danmarks Nationalbank also conducts the compilation of property income except for a minor item. Property income is the most important item in the GDP-GNI transition. The BOP compilation is compatible with IMF's Balance of Payments Manual, sixth version (BPM6). BOP is published by Statistics Denmark.

1.8 Main classifications used

The national accounts' grouping by industry – used for *compiling GDP from the production side* (GDP(P)) - is based on the six digit classification DB07 (Dansk Branchekode 2007) which again is a more detailed version of NACE rev. 2 at the four digit level.

There are five levels of grouping for publication of the final national accounts, covering 117, 69, 36a2, 19a2 and 10 industries respectively. The compilation of GDP(P) is done at the level of 117 industries. The national accounts level of 117 industries is based on the DB07 standard grouping of 127 industries. There are two reasons why the national accounts cannot use the 127 standard grouping as their most detailed level of publication. Firstly, it does not match the functional breakdown of construction activity in the national accounts, and secondly, within some of the 127 groups, the national accounts need to separate market activity and output for own use from (other) non-market activity.

The 117 grouping of industries is also used for compensation of employees, which is the most important independent component of *GDP from the income side* (GDP(I)).
For the expenditure approach (GDP(E)), the classification of household final consumption expenditure (72 groups) based on COICOP is the most important. In addition the classification of government final consumption expenditure (10 groups) according to COFOG and a classification by 13 types of assets are used.

1.9 Main data sources used

The most important sources used for the production approach are:

- Accounts Statistics for Non-Agricultural Private Sector
- General Government Finance statistics
- Account statistics for industries predominated by public corporations

The most important source used for the income approach is:

- Documentation of statistics for the Annual and Quarterly Working Time Accounts

The most important sources used for the expenditure approach are:

- Household-budget-survey
- International-trade-in-goods
- International-trade-in-service

The source used for the transition from GDP to GNI is:

- Balance of Payments

All the source statistics are described on Statistics Denmarks' website in "Documentation of statistics". Links are provided in chapter 10.

2. The revisions policy and the timetable for revising and finalizing the estimates; major revisions since the last version of the GNI Inventory

2.0 The revisions policy and the timetable for revising and finalizing the estimates

2.0.1 Current revisions

Final national accounts data are calculated 2.5 years after the reference year (year t+3). Several versions of preliminary accounts are calculated before that. The first annual version is available as the sum of quarters two months after the end of the reference year, and the last preliminary version is published in June of year t+2.

Table 2.1 illustrates the revision policy (apart from benchmark revisions) for the Danish national accounts followed by Statistics Denmark from June 2021. The revision policy is announced to the users so that they always know how many periods will be revised.

Table 2.1 Revision policy of the Danish NA, from 2021

Year	Month of publishing	Year T, Q1	Year T, Q2	Year T, Q3	Year T, Q4	Year T
T	End May	P				
	End June	R				
	End August	R	P			
	End September	R	R			
	End November	R	R	P		
	End December	R	R	R		
T+1	End February	R	R	R	P	P (SQ)
	End March	R	R	R	R	R (SQ)
	End June	R	R	R	R	R (AP1)
	End September	R[1]	R[1]	R[1]	R[1]	R[1]
T+2	End June	R	R	R	R	R (AP2)
	End September	R[1]	R[1]	R[1]	R[1]	R[1]
T+3	End June	F	F	F	F	F

Note:

P First published — SQ: Sum of quarters
R: Revised — AP1: First preliminary annual calculation
F: Final — AP2: Second preliminary annual calculation

[1] This compilation entails revisions of the Financial accounts, Sector accounts, Public sector finances and the Gross National Income (GNI). GDP and other main components (imports, exports, production etc.) are not affected.

The data available for preliminary accounts are subject to revisions and less detailed than data available for final national accounts. The most important sources for quarterly accounts (which form the basis for the first preliminary estimate as the sum of four quarters) are short term statistics in general and most notably:

- VAT statistics
- Foreign trade statistics
- Industrial production index
- Retail trade index
- Government finance statistics (based on quarterly accounting information from local and central government)
- Balance of payments
- Price indices
- Labour market statistics

The most important sources for annual national accounts are:

- Accounting statistics
- Product statistics (ProdCom, agricultural statistics)
- Foreign trade statistics

- Government finance statistics
- Monetary finance statistics
- Household budget survey
- Balance of payments
- Price statistics
- Labour market statistics

Moving from the first preliminary annual estimate (sum of four quarters) end of February t+1, annual sources are gradually implemented as they become available. As an important example, accounting statistics is implemented for the first time in the calculation in June t+2 while the ProdCom statistics is implemented in the supply use tables published for the first time in June t+3. Government Finance statistics on an annual basis is implemented for the first time in June t+1.

The reliability of preliminary national accounts figures are measured and published along with the publication of the national accounts. The difference between the real growth rate in the preliminary accounts and the final accounts is used for two measures: average deviation and bias. The average deviation shows the size of the revisions whereas the bias shows whether the revisions are systematic. A negative bias shows that the growth rate is generally underestimated in the first estimate while a positive bias shows a systematic overestimation in the first estimate.

One major explanation for the difference in growth rates is the methodology. In the preliminary accounts the calculation methods are more crude and at a more aggregate level because a short production time is important. Another explanation for differences in growth rates between preliminary and final accounts are due to revisions of primary data and the availability of more detailed data sources in the final accounts. In addition some estimates are based on assumptions or indicators in the preliminary accounts.

Table 2.2 shows main results of the revision analysis of annual growth rates for the period 2008-2017. Revisions are shown for the publication 3-4 months after the end of the year as well as for the publication 12 months after the end of the year.

In order to understand the information in table 2.1 an example for illustration can be of use: Assume that the final estimate of growth in GDP is 3.0 percent in two following years, t and t+1. Assume also that the preliminary estimates of growth in year t is 3.5 percent and 2.3 percent in year t+1. Revisions are 0.5 and -0.7 percentage points respectively in the two years. The average deviation (ignoring the sign) is 0.6 percentage points. The bias (respecting the sign) is –0.1 percentage points.

Table 2.2 Revisions of annual real growth rates 2008-2017

	First publication	Publication 12 months after the end of the year
	pct.-points	
Average deviation	0.71	0.56
Bias	0.52	0.46
The 23 years revisions distributed according to the numerical value of the revision:	number of years	
0.0 – 0.5 pct. Point	3	6
above 0.5 – 1.0 pct. point	5	21
above 1.0	2	2

2.0.2 Benchmark revisions

The following describes the major steps in the development of the Danish national accounts from the beginning in the 1930'ies up till today. It is important to understand that in the Danish national accounts compilation system, which has been the basis since the first publication of a supply-use table in 1973, every year is compiled in "level". The concept of "benchmark revisions" in the case of the Danish national accounts is therefore related to the introduction of new international guidelines, new classifications, new sources that need to be introduced in level instead of as growth rates or eventually the correction of larger errors. These revisions are usually pooled together as described below..

The history of national accounts in Denmark began in the 1930'ies. The first publication took place in 1945 covering the years 1930-1944. The publication included input-output tables, and the use of input-output tables has been and still is the foundation of the compilation of GDP. Further development of the national accounts took

place in the following years, and in 1947 a coverage and level of detailed was reached which was kept until the mid 1970'ies. In 1962 the results of a comprehensive revision of the years 1947- was published.

In 1968 work on the development of a new national accounts system was initiated. This included the introduction to new classifications and SNA68. A detailed supply-use system formed the core of the system. In 1973 a first result in the form of a supply-use table for 1966 was published. The regular publication started in 1978. In the coming years further developments took place beginning with preliminary accounts then institutional sector accounts and finally quarterly accounts. By the beginning of the 1990'ies a complete set of national accounts (apart from financial accounts) was available and published annually.

In 1993 a major revision of the national accounts was started. The major revision is a combination of the introduction to ESA95, revision of sources and methods, new classifications and change to 1990 as a reference year for constant price estimates. The results from the major revision were published in 1997. In 2001 the national accounts were extended by financial accounts and estimates of fixed capital (capital stock estimates).

In 2005 Statistics Denmark published the results of a benchmark revision called the "datarevision". This benchmark revision was minor in the sense that no new classifications and definitions were introduced and that ESA95 is still followed. The larger exceptions, affecting the compilation of GDP, are:

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

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

In September 2011 new industries based on the Nace rev. 2 classification was introduced. It was a "clean" transformation to new industries in the sense that no other revisions were implemented and all main aggregates were left unchanged. Five levels of aggregation were defined: 10a3, 19a2, 36a2 and 117. The 69 grouping is close to Eurostat's most detailed level for compiling national accounts by industries.

In September 2014 a major revision was published. It introduced ESA2010, addressed GNI-reservations and also implemented other well defined revisions. The major revision was carried back to 1966 at the level of input-output tables. The revision is described in detail in the following sections.

Parallel with the implementation of ESA2010, the new guidelines for compiling balance of payments (BPM6) were implemented in the balance of payments statistics and published in October 2014 (Rest of the World account is consistent with the balance of payments). As part of the implementation of BPM6 some additional questions were included in the questionnaire on international trade in services as from 2013. The new variables have made it possible to validate the information by comparing more directly vis-à-vis other statistical domains. Against that background, the foreign activities of selected larger Danish enterprises have been mapped and it revealed a need to revise the balance of payments. Due to the results of this investigation as well as due to some recent changes in existing data, the balance of payments was revised in October 2016. The statistics was revised back to 2005 and the figures was published in October 2016. See section 1.2.4.

2.1 Major revisions due to the transition from ESA 1995 to ESA 2010

Table 2.3 gives an overview of the impact of changes from ESA95 to ESA2010 as defined in the manual on the changes between ESA95 and ESA2010. The table shows for each transition item the effect on GDP(P), GDP(E), GDP(I) and the transition to GNI. The table was published as part of the publication of the results of the implementation of ESA2010 in September 2014. One important result of the major revision published in September 2014 was, that we could distinguish and quantify the effects of the implementation of ESA2010 and the revision of data and sources (some of which were revisions related to reservations) for the year 2008. In the following, the presentations therefore relate to the year 2008.

However, for GNI own resource purposes the transition items are quantified all years from 2010.

Table 2.3 Total effect of implementing ESA2010, 2008

	Total effect GDP	Research and development		Valuation of own account production	Non-life insurance	Military weap. system	Decommissioning costs	Sector delimitation (pub. sector)	Small tools	VAT-based third EU own ressource	Index-linked debt instruments	Centralbank – allocation of output	Land improvements	Construction activity abroad	FISIM (resid. and non-resid.)
		Market	Non-market												
		1a	1b	2	3	4	5	6	7	8	9	10	11	24	25
	current prices, DKK mill.														
Production approach (P)															
P.1 Output of goods and services	**38 408**	25 301	13 052	54	-5 103	103	-	70	-	-	-	-	-	4 931	-
P.2 Intermediate consumption	**-10 504**	-7 845	-	-	- 519	-2 140	-	-	-	-	-	-	-	-	-
B.1g Gross value added	**48 912**	33 146	13 052	54	-4 584	2 243	-	70	-	-	-	-	-	4 931	-
D.21 Taxes on products	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D.31 Subsidies on products	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expenditure approach (A)															
P.3 S14 Househ. final consumpt. exp.	**-3 411**	-	-	-	-3 411	-	-	-	-	-	-	-	-	-	-
P.3 S15 NPISH final consumpt. exp.	**8 563**	-	-69	-	-	-	-	8 632	-	-	-	-	-	-	-
P.3 S13 Gen. gov. final consumpt. exp.	**-9 484**	-	-1 025	-	-	103	-	-8 562	-	-	-	-	-	-	-
P.51 g Gross fixed capital formation	**49 487**	33 146	14 147	54	-	2 140	-	-	-	-	-	-	-	-	-
P.52 Changes in inventories	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P.53 Acqui. less dispos. of valuabl.	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P.61 Exports of goods	**-2 184**	-	-	-	-	-	-	-	-	-	-	-	-	-2 184	-
P.62 Exports of services	**19 614**	-	-	-	-1 028	-	-	-	-	-	-	-	-	20 642	-
P.71 Imports of goods	**-382**	-	-	-	-	-	-	-	-	-	-	-	-	-382	-
P.72 Imports of services	**14 054**	-	-	-	145	-	-	-	-	-	-	-	-	13 909	-
Income approach (I)															
D.1 Compensation of employees	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B2.g /B.3 Gross operating surplus and mixed income..	**48 912**	33 146	13 052	54	-4 584	2 243	-	70	-	-	-	-	-	4 931	-
D.2 Taxes on prod. and imports	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D.3 Subsidies	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GDP (P=A=I)	**48 912**	**33 146**	**13 052**	**54**	**-4 584**	**2 243**	**-**	**70**	**-**	**-**	**-**	**-**	**-**	4 931	-
D.1 Comp. of empl. rec. from RoW	**-1 054**	-	-	-	-	-	-	-	-	-	-	-	-	-1 054	-
D.1 Comp. of empl. paid to RoW	**50**	-	-	-	-	-	-	-	-	-	-	-	-	50	-
D.2 Taxes on prod. and imp. t. EU	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D.3 Subsidies rec. from the EU	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D.4 Property inc. rec. from RoW.	**-6 197**	-	-	-	-	-	-	-	-	-	-	-	-	-6 197	-
D.4 Property income paid to RoW.	**-2 370**	-	-	-	-	-	-	-	-	-	-	-	-	-2 370	-
GNI	**43 982**	**33 146**	**13 053**	**54**	**-4 584**	**2 243**	**-**	**70**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	pct.														
Effect of ESA2010 on GDP	**2.8**	1.9	0.7	0.0	-0.3	0.1	-	0.0	-	-	-	-	-	0.3	-
Effect of ESA2010 on GNI	**2.5**	1.9	0.7	0.0	-0.3	0.1	-	0.0	-	-	-	-	-	-	-

As appears from table 2.3, the transition items, that have an effect on GNI, are Research and development market (1a); Research and development, non-market (1b); Valuation of output for own final use (2); Non-life insurance (3); Weapon systems (4); Sector classification (6). The change related to the VAT based EU resource (8) had no effect on the nationally published figures, because we already followed the ESA2010 recording. For EU fourth own resource purposes, we aligned with ESA95. The by far largest effects come from Research and development that accounts for 2,6 of the total impact of 2,8 percent on GDP.

The transition items that do not have an impact on GNI are Decommissioning costs (5); Small tools (7); Index-linked debt instruments (9), Central bank – allocation of output (10); and land improvements (11).

Table 2.4 shows the transition table from the GNI questionnaire 2015. It presents the total effect of the transition items on GDP for the years 2010-2014.

Table 2.4 Transition from ESA95 to ESA2010, GNI Questionnaire, 2015

		2010	2011	2012	2013	2014
				DKK mill.		
R&D created by a market producer	(1a)	37 399	34 236	36 121	37 154	38 936
R&D created by a non-market producer	(1b)	14 186	14 750	15 290	15 292	16 026
Valuation of output for own final use	(2)	86	88	42	43	43
Non-life insurance	(3)	-4 624	-3 477	-1 556	-1 292	-1 124
Weapon systems	(4)	1 611	1 109	1 291	1 337	1 200
Decommissioning costs	(5)					
Sector classification	(6)	23	29	48	56	53
Small tools	(7)					
VAT-based EU resource	(8)	1 609	2 083	2 105	2 170	2 239
Index-linked debt instruments	(9)					
Central bank – allocation of output	(10)					
Land improvements	(11)					
Total		**50 290**	**48 817**	**53 341**	**54 759**	**57 372**

Note: For 2012 and onwards it should be noted, that data are not consistent with other chapters of this documentation. Data in this table are from the GNI questionnaire September 2015, where 2012 onwards were preliminary figures. The reference year in the GNI inventory is final 2012 as published in November 2015.

In the following, all transition items are described in more detail for the years 2010-2012.

(1a) R&D created by a market producer

Capitalisation of R&D created by a market producer is the transition to ESA2010 with the largest effect on GDP.

The new treatment of *own account R&D produced by a market producer* implies, that output increases by the costs for the R&D activity including a mark-up for net-operating surplus. The increase in output is recorded as gross fixed capital formation.

Expenditure on *purchased R&D by a market producer* is moved from intermediate consumption to gross fixed capital formation. This implies that *all* purchased R&D is recorded directly as gross fixed capital formation and that purchased R&D is excluded from the value of own account R&D. However purchased R&D in the industry named *Research and development* (that produces R&D for sale) is not recorded directly as GFCF because it is considered to be included in the value of the sale of the final R&D results.

The effect on GDP and GNI is shown in table 2.5. For a more detailed description please see chapter 5.

Table 2.5 R&D by a market producer

		2010	2011	2012
		DKK mill.		
Production	P.1	28 440	24 219	25 169
Intermediate consumption	P.2	-8 959	-10 017	-10 952
Gross value added	B.1g	37 399	34 236	36 121
Gross fixed capital formation	P.51g	37 399	34 236	36 121

Note: For 2012 it should be noted, that data are not consistent with other chapters of this documentation. Data in this table are from the GNI questionnaire September 2015, where 2012 onwards were preliminary figures. The reference year in the GNI inventory is final 2012 as published in November 2015.

(1b) R&D created by a non-market producer

Capitalisation of R&D created by a non-market producer also has a big effect on GDP.

Own account R&D produced by a non-market producer is valued as the sum of costs – like the way output is normally valued for a non-market producer. The difference is that output is now recorded as GFCF and not government consumption expenditure or NPISH consumption expenditure as was the case under ESA95.

Purchased R&D by a non-market producer is included as intermediate consumption in own account R&D.

Consumption of fixed capital generated by R&D capital stock is now included in non-market output and therefore increases government and NPISH consumption expenditure.

The effect is shown in table 2.6.

Table 2.6 R&D by a non-market producer

		2010	2011	2012
		DKK mill.		
Production	P.1	14 185	14 750	15 258
Intermediate consumption	P.2	0	0	0
Gross value added	B.1g	14 185	14 750	15 258
NPISH consumption	P.3	-80	-47	-39
Government consump.	P.3	-2 015	-1 864	-2 172
Gross fixed capital formation (NPISH)	P.51g	148	126	120
Gross fixed capital formation (gov.)	P.51g	16 133	16 535	17 381

Note: For 2012 it should be noted, that data are not consistent with other chapters of this documentation. Data in this table are from the GNI questionnaire September 2015, where 2012 onwards were preliminary figures. The reference year in the GNI inventory is final 2012 as published in November 2015.

To determine what is R&D in General Government, the following COFOG groups are used: 1.4 Basic research, 1.5 R&D general public services, 2.4 R&D defense, 3.5 R&D public order and safety, 4.8 R&D economic affairs, 5.5 R&D environmental protection, 6.5 R&D housing and community amenities, 7.5 R&D health, 8.5 R&D recreation, culture and religion, 9.5 Education n.e.c. and 10.8 R&D social protection. For a more detailed description please see chapter 5.

(2) Valuation of output for own final use for a market producer

The effect of including a mark-up to account for net-operating surplus on output for own final use for a market producer is very small.

The mark-up on output for own final use is calculated using the assumption that the ratio between capital and output for the production of output for own final use is the same as in the sectors S.11 and S.12 combined. This ratio is used to estimate the capital needed for the production of output for own final use. It is furthermore assumed that the real return to capital is 2.5 percent and the mark-up is thus calculated as 0.025 times the capital stock.

It should be noted that for the most part production of output for own final use in the Danish national accounts is already valued at market prices and therefor no markup is needed (e.g. this is the case for owner-occupied dwellings).

The result is shown in table 2.7. A more detailed description can be found in chapter 7.

Table 2.7 Mark-up on own account output for a market producer

		2010	2011	2012
Production approach				
Output of goods and services	P1	86	88	42
Intermediate consumption	P2	0	0	0
Gross value added	B.1G	86	88	42
Expenditure approach				
Gross fixed capital formation	P51g	86	88	42
Income approach				
Gross oper. surplus and mixed inc.	B.2G+B.3G	86	88	42
Gross domestic product (ESA2010)	B.1*G	86	88	42

Gross national income (ESA2010)	B.5*G	86	88	42

Note: For 2012 it should be noted, that data are not consistent with other chapters of this documentation. Data in this table are from the GNI questionnaire September 2015, where 2012 onwards were preliminary figures. The reference year in the GNI inventory is final 2012 as published in November 2015.

(3) Non-life insurance

Non-life insurance output is calculated using the sum-of-costs approach, which is one of the possible methods according to ESA2010. As table 2.8 below shows output consists of different cost elements, where intermediate consumption and wages is by far the most important contributor. In addition to the cost elements a mark-up for net-operating surplus is added. It has been chosen to use 1,5% of own funds. This mark-up is consistent with calculations for life-insurance.

Table 2.8 Calculation of output for large non-life insurance companies, 2008

		DKK mill.
	Intermediate consumption excl. FISIM	4 286
+	Wages and salaries	5 855
+	Depreciation	234
+	Taxes (lønsumsafgift)	644
+	Return on own capital (1,5%)	768
=	**Output of large non-life insurance compannies**	**11 787**

Note: For 2012 it should be noted, that data are not consistent with other chapters of this documentation. Data in this table are from the GNI questionnaire September 2015, where 2012 onwards were preliminary figures. The reference year in the GNI inventory is final 2012 as published in November 2015.

This new output calculation affects the different elements of GNI. Table 2.9 below show which elements that are affected.

Table 2.9 Effect of calculating non-life insurance using the sum of costs approach

		2010	2011	2012
		DKK mill.		
Production approach				
Output of goods and services	P1	-5 536	-2 997	847
Intermediate consumption	P2	-912	480	2 403
Gross value added	B1G	-4 624	-3 477	-1 556
Expenditure approach				
Total final consumption expenditure	P3	-5 092	-3 912	-3 380
Household final consumption exp.	P3	-5 081	-3 919	-1 695
NPISH final consumption exp.	P3	0	0	0
General gov. final consumption exp.	P3	-11	6	42
Exports of goods and services	P6	-937	-863	-350
Imports of goods and services	P7	-1 404	-1 298	-447
Income approach				
Gross oper. surplus and mixed inc.	B2G+B3G	-4 624	-3 477	-1 556
Gross domestic product (ESA2010)	B1*G	-4 624	-3 477	-1 556
Gross national income (ESA2010)	B5*G	-4 624	-3 477	-1 556

Note: For 2012 it should be noted, that data are not consistent with other chapters of this documentation. Data in this table are from the GNI questionnaire September 2015, where 2012 onwards were preliminary figures. The reference year in the GNI inventory is final 2012 as published in November 2015.

(4) Weapon systems

The classification of expenditure on military weapon systems has changed due to the introduction of ESA2010. Before the revision acquisition of weapon systems was, unlike other acquisitions, classified as intermediate consumption. The information needed for the classification of weapon systems as GFCF has always been available in the central government accounts but not used due to the convention in ESA95. After the implementation of ESA2010 the information in the central government accounts on acquisition of weapon systems is used to obtain investment (GFCF) figures for weapon systems. Consumption of fixed capital on these figures is calculated using the PIM and is part of general government consumption expenditure.

The available information on weapon systems is the same as for all other areas in the central government accounts and after the revision it is also classified in the same system and as part of the same process – the only change

being that these expenditures are now GFCF and not intermediate consumption. The information in table 2.10 shows the impact of this change in the figures for government finance statistics:

Table 2.10 Weapon systems

		2010	2011	2012
		DKK mill.		
Production	P.1	-320	28	-96
Intermediate consumption	P.2	-1 931	-1 080	-1 387
Consumption of fixed capital	P.51c	1 611	1 109	1 291
Gross domestic product	B.1g	1 611	1 109	1 291
Final consumption expenditure	P.3 S13	-320	29	-96
Gross fixed capital formation	P.51g	1 931	1 080	1 387

Note: For 2012 it should be noted, that data are not consistent with other chapters of this documentation. Data in this table are from the GNI questionnaire September 2015, where 2012 onwards were preliminary figures. The reference year in the GNI inventory is final 2012 as published in November 2015.

(5) Decommissioning costs

Decommissioning costs for large capital assets has no effect. There has been no observation of large capital assets with decommissioning costs in Denmark.

(6) Government, public and private sector classification

Two changes in ESA2010 affect the delimitation of general government: The stronger emphasis on control and the new market non-market criteria.

As a result of the stronger emphasis on control, private schools are moved from General Government (S.13) to NPISH (S.15) which also moves General Government final consumption expenditure to NPISH final consumption expenditure. There is no effect on GDP because these units are simply moved from one sector to another and the calculation method has not changed.

As a result of the new market non-market criteria, the public infrastructure company (A/S Øresund) has moved from non-financial corporations (S.11) to general government (S.13). This implies that the calculation method is now based on the sum of costs including consumption of fixed capital, which has a minor effect on GDP. Time series of gross fixed capital formation were available and included in the PIM calculations of capital stocks and consumption of fixed capital.

Table 2.11 Sector delimitation

		2010	2011	2012
		DKK mill.		
Production	P.1	23	29	48
Intermediate consumption	P.2	0	0	0
Gross value added	B.1g	23	29	49
NPISH consumption	P.3	8 787	8 825	8 919
Government consump.	P.3	-8 764	-8 797	-8 871

Note: For 2012 it should be noted, that data are not consistent with other chapters of this documentation. Data in this table are from the GNI questionnaire September 2015, where 2012 onwards were preliminary figures. The reference year in the GNI inventory is final 2012 as published in November 2015.

(7) Small tools

Before the revision a share of acquisitions of durable equipment expensed in business accounts was considered to consist of purchases of small tools not exceeding 500 ECU measured in prices of 1995. Originally a calculation was established to estimate the correct share, taking into account the sizes of purchases of durable equipment treated as current expenses and the development in prices and rates of exchange.

When, in ESA 2010, the 500 ECU limit was abolished it was decided to treat a limited number of product codes from the detailed Supply and Use tables as "Small tools" that are fully treated as intermediate consumption while small purchases of other durables are now treated as GFCF. As the effect of this change did not provide any clue to whether intermediate consumption/GFCF should be higher or lower than hitherto, it was decided to keep the practice that 12% of acquisitions of durables included in current expenses are treated as intermediate consumption.

The account statistics for non-agricultural private sector follow business accounting rules as defined in the law based on the EU Directive on annual financial statements. Overall, the decision regarding the treatment of small tools is based on a materiality consideration in the individual enterprise. There is no fixed threshold in the law. If a specific period is used, it would be one year. Smaller enterprises are more likely to use tax accounting rules.

(8) VAT-based third EU own resource
The VAT-based third EU own resource is treated as a transfer accordoing to ESA2010. According to ESA95 it was treated as taxes paid to the rest of the world. The values are exclusive of Denmark's contribution to the UK-rebate. The impact is shown in table 2.4.

(9) Index-linked debt instruments
There are almost no index linked debt instruments in Denmark, so no effect.

(10) Central bank – allocation of output
Denmark followed the guidelines in ESA2010 before the revision, so no effect.

(11) Land improvements
Denmark recorded expenditure on land improvements as GFCF already before the introduction of ESA2010, so no effect. GFCF of Land improvements were also included in the PIM calculation of capital stocks and consumption of fixed capital.

2.2 Major revisions since the last version of the GNI Inventory other than due to conceptual changes in ESA 2010

Since the publication of the last GNI-inventory guide in 2015, Statistics Denmark has published a "Datarevision" in 2016, which includes a revision of time series back to 1966, mostly because of revised figures for balance of payments. See section 1.2.4.

2.2.1 Country specific reservations

2008-1011 Verification cycle

Denmark had one country specific reservation regarding dwellings:

(1) Following the discontinuation of the survey on rents for community housing, the estimation of dwelling services needs to be based on a new annual source and the issue of the continuity of the series needs to be investigated.

The reservation was addressed as part of the major revision in 2014 and lifted in December 2015.

Output for dwellings is calculated using the stratification method where the buildings register is stratified according to location, size, age, quality and type of dwelling making for a total of 7.040 strata. A new source for rents based on a register for applications for housing-related benefits from the Ministry of Social Affairs – the so-called Register of housing-related social benefits (in Danish "Boligstøtteregistret") - was introduced. Roughly 500.000 rents are available on an annual basis. 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, and the stratified buildings register is combined with observations on rents from the ministry of social affairs and so the data on rents from the Register of housing-related social benefits 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. If there are less than five observed rents in the strata, a regression model is used at a more aggregate level.

The reservation was initially addressed in the 2014 questionnaire with the effects on GNI as shown in table 2.12:

Table 2.12 Effects on GDP and GNI as a result of work done on reservation (1) dwellings

		2002	2003	2004	2005	2006	2007	2008	2009
		DKK mill.							
Output	P.1	-4 431	-2 297	-2 387	-5 377	-7 275	-10 790	-10 735	-9 913
Interm. Consump.	P.2	-693	-1 509	-1 086	-825	-361	215	1 062	679
GVA	B.1g	-3 738	-788	-1 301	-4 552	-6 914	-11 005	-11 797	-10 592
S.14 Household consumption	P.3	-3 738	-788	-1 301	-4 552	-6 914	-11 005	-11 797	-10 592
GOS and mixed inc.	B.2g+B3g	-3 738	-788	-1 301	-4 552	-6 914	-11 005	-11 797	-10 592
GDP		-3 738	-788	-1 301	-4 552	-6 914	-11 005	-11 797	-10 592
GNI		-3 738	-788	-1 301	-4 552	-6 914	-11 005	-11 797	-10 592
		pct.							
Effect on published GDP		-0.27	-0.06	-0.09	-0.29	-0.42	-0.65	-0.67	-0.64

During the direct verification process, which took place in June 2015, the calculation was followed step by step at the most detailed level. During this process, it was identified, that the buildings register on square meters used in the new calculation for 2007 and 2008 were not fully updated. The implication of this was that the number of square meters used for the new calculation was underestimated. A new calculation has been done for these two years using updated registers on square meters. The effect on GDP and GNI, which was incorporated in the 2015 GNI-questionnaire, is shown in table 2.13 below.

Table 2.13 Effects on GDP and GNI as a result of work done on reservation (1) dwellings

		2002	2003	2004	2005	2006	2007	2008	2009	2010
						DKK mill.				
Output	P.1						3 477	3 708		
Interm. Consump.	P.2						231	244		
GVA	B.1g						3 246	3 465		
S.14 Household consumption	P.3						3 246	3 465		
GOS and mixed inc.	B.2g+B.3g						3 246	3 465		
GDP							3 246	3 465		
GNI							3 246	3 465		
						pct.				
Effect on GNI ESA95, 2014 questionnaire							0.19	0.20		

2016-2019 verification cycle

Denmark had one country specific reservation (no I.); "Implementation of the issues from the Government Finance Statistics (GFS)".

The GNI-reservations concern the delineation of the government sector, specifically for the entities Metroselskabet and DSB (railway operator), which are classified in S.11.

Previously, the depreciation used in the market/non-market test came from the business accounts received through the annual surveys. Eurostat disagreed with this method and requested that the consumption of fixed capital was used in the market/non-market test instead for entities with a high amount of fixed assets (e.g. railways).

The consumption of fixed capital for Metroselskabet and DSB has been calculated and this result used in place of the business account depreciations in the market/non-market test.

Table 2.14 The new calculation for Metroselskabet

	2016	**2017**	**2018**	**2019**
		DKK mill.		
(1) Income	1 475	1 519	1 872	1 945
(2) Old production costs (business account depreciations)	2 229	1 739	1 686	2 139
(3) New production costs (consumption of fixed capital)	2 130	2 295	2 388	2 863
New market test (Income/new production costs)	**0.69**	**0.66**	**0.78**	**0.68**

Table 2.15 The new calculation for DSB

	2016	2017	2018	2019
		DKK mill.		
(1) Income	10 443	10 900	10 407	10 100
(2) Income without S.13 subsidy	6 265	6 791	6 466	6 075
(3) Old production costs (business account depreciations)	13 063	10 901	9 879	10 041
(4) New production costs (consumption of fixed capital)	9 190	9 892	8 908	9 047
New market test (Income without S.13 subsidy/new production costs)	**0.68**	**0.69**	**0.73**	**0.67**

The result of the new calculation was that both Metroselskabet and DSB remain above the market threshold and so remain classified in S.11.

This country specific reservation was lifted in June 2021.

2.2.2 Transversal reservations

2008-2011 verification cycle

I The treatment of cross border property income
This transversal reservation is composed of four parts:

1) Reinvested earnings on FDI,
2) Interest and dividends received by mutual funds,
3) Withdrawals of income from quasi corporations
4) Recording of taxes on property income.

After thorough investigations and analysis it was concluded that no further work was needed for 1), 3) and 4). However, work needed to be done on *2) interest and dividends received by mutual funds* in order to get this reservation lifted.

As part of the major revision, the treatment consistent with ESA95 has been implemented. This means that retained earnings in mutual investment funds will be considered as distributed to the owners (households).

For investments funds issued in Denmark (in S.123 and S.124) the value of retained earnings (D.4432) is calculated as the sum of interest and dividends received less interest and dividends paid[3]:

D.4432 = D.41 (R) + D.42 (R) – D.41 (U) – D.4431 (U)

Where (R) is resource and (U) is use. The values of interest and dividends are known from the data we receive from the financial supervisory authority.

To allocate the retained earnings, the ownership share for the different sectors has been used. In the period 1995 to 2013 the share for the Rest of the World (S.2) has been between 2 and 4 percent.

The calculation for investment funds issued by the Rest of the World owned by Danish residents is slightly different. We don't have the values for received and paid property value directly. We only have the values of the stock owned. In order to estimate the value for retained earnings, we assume the foreign investment funds have the same structure in receiving and paying out property income. This means that if an investment fund issued worth 100 DKK in Denmark has retained earnings of 10 DKK, then an investment fund issued abroad worth 100 DKK also have retained earnings of 10 DKK.

From 2013 and onwards, the Danish Central Bank will collect data on reinvested earnings in mutual investment funds paid to and received from the rest of the world. Table 2.16 shows that the effect on GNI is minor, ranging between -213 mill. DKK and +158 mill. DKK.

[3] This method has been consulted with Eurostat

Table 2.16 Effects on GDP and GNI as a result of work done on property income related to interest and dividends received by mutual funds.

		2002	2003	2004	2005	2006	2007	2008	2009
		DKK mill.							
D.4 Property income received	D.4	5	8	84	118	278	219	89	412
D.4 Property income paid	D.4	175	192	192	331	447	260	56	254
GNI		**-170**	**-184**	**-108**	**-213**	**-169**	**-41**	**33**	**158**

Transversal reservation I was lifted in December 2015

II The calculation and allocation of financial intermediation services indirectly measured (FISIM)

This reservation was lifted 27/02 2014 with no revisions.

III The treatment of entities with little or no physical presence

This reservation was lifted 17/09 2013 with no revisions.

IV The treatment of car scrap schemes

Car scrap schemes have so far been treated as a subsidy on products. As part of our major revision and in line with the agreement in the GNI committee, car scrap schemes are now treated as transfers.

The effect on GDP and GNI is very small and is shown in table 2.17.

Table 2.17 Effects on GDP and GNI as a result of work done on transversal reservation IV car scrap schemes

		2002	2003	2004	2005	2006	2007	2008	2009
		DKK mill.							
Output	P.1								
Interm. Consump.	P.2	117	152	161	176	163	148	178	133
GVA	B.1g	117	152	161	176	163	148	178	133
Subs. Products	D.31	-120	-155	-165	-180	-165	-150	-181	-135
S.14 Household consumption	P.3	3	3	4	4	2	2	4	2
GOS and mixed inc.	B.2g+B3g	-117	-152	-161	-176	-163	-148	-178	-133
Subsidies	D.3	-120	-155	-165	-180	-165	-150	-181	-135
GDP		3	3	4	4	2	2	4	2
GNI		3	3	4	4	2	2	4	2

Transversal reservation IV was lifted in June 2015

V The treatment of cooperative dwellings

This reservation was lifted 17/09 2013 with no revisions.

VI The inclusion of illegal activities in national accounts

Denmark has - until the major revision in September 2014 - included illegal activities in GDP and GNI for own resource purposes only. As part of our major revision illegal activities have been included in our published national accounts. In relation to that we have updated and improved our estimates, but the basic methodology remains as described in our GNI inventory.

The effect on the revisions between data submitted in the 2013 GNI questionnaire and the 2014 GNI questionnaire is shown in table 2.18. The biggest change relates to new calculations of import of prostitution, drugs and smuggling (which wasn't included before) and the total effect on GDP is minor.

The total effect of illegal activities on Danish GDP and GNI is described in chapter 7.

Table 2.18 Effects on GDP and GNI as a result of work done on transversal reservation VI Illegal activities

		2002	2003	2004	2005	2006	2007	2008	2009
		DKK mill.							
Output	P.1	-519	-435	-414	-548	-442	-356	-225	-183
Interm. Consump.	P.2	0	0	0	0	0	0	0	0
GVA	B.1g	-519	-435	-414	-548	-442	-356	-225	-183

S.14 Household consumption	P.3	1 028	1 119	1 283	999	1 324	1 776	1 725	2 328
Import	P.7	1 548	1 554	1 698	1 548	1 766	2 132	1 950	2 511
GOS and mixed inc.	B.2g+B.3g	-519	-435	-414	-548	-442	-356	-225	-183
GDP		-519	-435	-414	-548	-442	-356	-225	-183
GNI		-519	-435	-414	-548	-442	-356	-225	-183

Transversal reservation VI was lifted in December 2015.

VII The recording of the vehicle registration tax
This reservation was lifted 27/02/ 2014 with no revisions.

VIII intermediate consumption of dwelling services
During the cross country comparisons of this reservation it was identified, that Denmark has no intermediate consumption of insurance services in the dwellings industry – these expenses were recorded as household final consumption expenditure. It was agreed, that a reallocation from household final consumption expenditure to intermediate consumption should be made. The effect on GDP and GNI is shown in table 2.19 below.

Table 2.19 Effects on GDP and GNI as a result of work done on transversal reservation VIII intermediate consumption of dwellings

		2002	2003	2004	2005	2006	2007	2008	2009	2010
		DKK mill.								
Output	P.1									
Interm. Consump.	P.2	438	458	481	530	613	668	685	685	714
GVA	B.1g	-438	-458	-481	-530	-613	-668	-685	-685	-714
S.14 Household consumption	P.3	-438	-458	-481	-530	-613	-668	-685	-685	-714
GOS and mixed inc.	B.2g+B.3g	-438	-458	-481	-530	-613	-668	-685	-685	-714
GDP		-438	-458	-481	-530	-613	-668	-685	-685	-714
GNI		-438	-458	-481	-530	-613	-668	-685	-685	-714
		pct.								
Effect on GNI ESA95, 2014 questionnaire		-0.03	-0.03	-0.03	-0.03	-0.04	-0.04	-0.04	-0.04	-0.04

Transversal reservation VIII was lifted in December 2015

2016-2019 verification cycle

As part of the 2016-19 verification cycle, Eurostat has identified a number of transversal issues on which further work is needed in all Member States in order to ensure comparability, reliability and exhaustiveness of the GNI estimates. These issues are:

I. Globalisation

II. Margins on trading financial assets

III. Missing Trader VAT fraud

IV. Reinvested earnings on foreign direct investment

V. Recording of daily allowances

Reservation number I, II, V has a deadline in September 2022 and work is ongoing at Statistics Denmark on these reservations.

For reservation number III. and IV., reports have been send to Eurostat, and Eurostat is currently analysing the reports.

2.2.3 Major revisions other than revisions due to reservations

In addition to changes related to the implementation of ESA 2010 and changes related to reservations, some other major revisions to data and methods were introduced as well. The most significant changes are described in the following.

New account statistics for NPISH (non-profit institutions serving households)
A new account statistics for NPISH (non-profit institutions serving households) has been established in order to provide sufficient information for compiling a full set of accounts for this sector.

Value added in the NPISH sector (S.15) is doubled in the revised accounts - from 9,7 to 20,3 bill. DKK in 2008, a total of 10,6 bill. DKK. Of this, 2,3 bill. DKK comes from a new account statistics and 8,3 bill. DKK comes from general government (private schools). The effect on GDP of the account statistics is +0,1 percent in 2008 and is reasonable stable over time.

Imputed pension contributions for civil servants
Before the revision, imputed pension contributions for civil servants were – by convention – compiled using information on paid pensions to retired civil servants. As part of the major revision, a new compilation method based on information on employed civil servants has been introduced. The new compilation method decreases general government consumption expenditure by 8,7 bill. DKK or 1,9 percent and GDP decreases by 0,5 percent in 2008. The effect of the new compilation of imputed pension contributions varies over time. From 1966 to 1993 it increases GDP and from 1994-2013 it decreases GDP.

Value added in agriculture
A number of adjustments to the calculation of value added in agriculture have been made. One is related to intermediate consumption of financial intermediation services, which were double counted. Another correction is related to the production of Christmas trees which wasn't reclassified from *Forestry* to *Agriculture* when nace rev. 2 was introduced. The total effect of the revision is an increase in value added in agriculture of 1,2 bill. DKK in 2008. Due to balancing, the effect on GDP is insignificant.

Production of energy
Before the revision, the production of energy (electricity and heating) was defined by activity at the detailed level of industries. As part of the revision, the production of energy is allocated to the unit actually producing the energy. This means that the electricity industry also produces heating, for example. The change of principle has no effect on GDP. In addition output of electricity is revised due to the incorporation of new taxes and subsidies (PSO) and revision in the foreign trade statistics. Export of natural gas is also revised due to changes in the foreign trade statistics. The incorporation of new taxes and subsidies reduce GDP by 0,8 bill. DKK in 2008. The revisions to the foreign trade statistics related to electricity and gas reduce GDP by 0,1 bill. DKK in 2008. In total, the revisions in the energy industries reduce GDP by 1,2 bill. DKK or 0,1 percent in 2008.

Commercial television
Output and consumption expenditure of commercial television, fx. Cable television was not included before the revision. The inclusion of commercial television increases GDP by 2,3 bill. DKK or 0,1 percent in 2008.

Household expenditure on hotels
The use of output in hotels has been revised and a larger part is now allocated to household consumption expenditure. The new distribution is based on information from VisitDenmark (the Danish tourist agency). The revision increases household consumption expenditure and GDP by 3,3 bill. DKK or an upward adjustment of GDP by 0,2 percent in 2008.

2.2.4 Data revision 2016

In November 2016 the socalled "Data Revision 2016" was published and time series were revised back in time mainly due to the implementation of a revision of the balance of payments back to 2005.

In addition, there were other revisions not affecting GNI: Implementation of revised *working time accounts,* affecting number of employees and hours worked, and revision of realgrowth in general government final consumption expenditure due to revised volume indicators for hospital services.

The background for the revision of the balance of payments goes back to the revision in 2014, in particular the implementation of the new treatment (ESA2010) of globalisation in the balance of payments and national accounts. Cross check of reported data by the largest multinational companies to the foreign trade statistics and the prodcom statistics revealed that it was necessary to revise the data due to errors and underreporting. A project was set up and the results published in the Balance of Payments in October 2016 and the National accounts in November 2016.

For the years 2010, 2011 and 2012 GDP and GNI were revised upwards by 0,7; 0,7 and 0,7 per cent respectively. For the years 2013-2015 the revisions to GDP are also due to current revisions.

The following will describe how the revision has affected GDP and GNI, supply of goods and services and value added by industry for the year 2012. The effects are similar for the previous year.

Effect on GDP and GNI and supply of goods and services
Table 2.20 shows that *GDP* was revised upwards by 12,4 bill. DKK in 2012. This is mainly due to an upward revision of net-exports of 11,9 bill. DKK. In addition, the revision implied an upward adjustment of household final consumption expenditure of 0,2 pct., and a reduction in GFCF of 0,3 pct. NPISH and Government final consumption expenditure are not changed in current prices.

The effect on GNI corresponds to the effect on GDP. Compensation of employees, property income and taxes to/subsidies from the rest of the world have not been revised.

The project on mapping the activity of large multinational enterprises resulted in a higher level of reported exports of goods not crossing the Danish border. That is *goods exported* after processing abroad and merchanting. Also *foreign trade in services* has been affected, in particular processing services and trade in IPPs (Intellectual Property Products). Finally, imports of electronic services are now included, e.g. streaming of music and film, gambling services and the purchase of "apps".

The upward adjustment of *household final consumption expenditure* is due to the abovementioned new estimates for imports of electronic services.

The revision of the balance of payments has also affected *gross fixed capital formation (GFCF)*. The downward revision is due to a bigger supply of transport equipment, smaller supply of IPP investments and balancing adjustments.

Table 2.20: Total supply and use before and after the revision. 2012

	Before **1**	After (1+3) **2**	Changes **3**	Changes in pct. (3/1)*100 **4**
	DKK mill.			pct.
Gross Dom. Product (GDP)	**1 882 625**	**1 895 002**	**12 377**	**0.66**
Imports	906 417	921 170	14 753	1.63
Total supply	2 789 042	2 816 172	27 130	0.97
Household cons. expenditure	877 971	879 669	1 697	0.19
NPISH cons. Expenditure	30 731	30 731	0	0.00
Government cons. expenditure	501 635	501 635	0	0.00
GFCF	360 276	359 327	-948	-0.26
Changes in inventories	9 851	9 561	-290	-2.94
Exports	1 008 578	1 035 249	26 671	2.64
Total use	2 789 042	2 816 172	27 130	0.97

Revisions to value added by industry
Table 2.21 shows changes to value added by industry before and after the revision. The largest change is in G_I Trade and transport, covering whole sale trade. The relatively small change in C Manufacturing covers a number of bigger changes at the more detailed level. Other industries outside Manufacturing are not changed except for a small change in Other business services.

Table 2.21: Value added by industry before and after the revision. 2012

		Before	After	Changes	Changes in pct.
		DKK mill.			pct.
	Gross Domestic Product (GDP)	**1 882 625**	**1 895 002**	**12 377**	**0.66**
	Taxes on products, netto	258 915	258 915	0	0
	Total Gross Value added	**1 623 710**	**1 636 086**	**12 377**	**0.76**
A	Agriculture, forestry and fishing	31 357	31 357	0	0
B	Mining and quarrying	56 646	56 646	0	0
C	Manufacturing	215 309	216 676	1 367	0.63
D_E	Utility services	38 690	38 690	0	0
F	Construction	74 530	74 530	0	0
G_I	Trade and transport etc.	303 342	314 410	11 068	3.65
J	Information and communication	73 193	73 193	0	0
K	Financial and insurance	102 419	102 419	0	0
LA	Real estate activities and renting of non-residential buildings	40 108	40 108	0	0
LB	Dwellings	124 779	124 779	0	0
M_N	Other business service	128 294	128 236	-58	-0.05
O_Q	Public administration, education and health	378 874	378 874	0	0
R_S	Arts, entertainment and other services	56 169	56 169	0	0

The revision (Datarevision 2016) did not impact country specific reservation on dwellings.

2.3 Planned actions for improvements

Benchmark revision in 2024

The next benchmark revision is planned for 2024 in line with the harmonized European revision policy (HERP). At present, Statistics Denmark is planning the scope for this benchmark revision, the exact content is not decided, but previous lifted reservations are expected to be included in this benchmark revisions, and become part of Statistics Denmark's domestic publications.

Statistics Denmark has no plans for revisions of final figures before the benchmark revision in 2024.

Project on improving the national account (FODANA)

Statistics Denmark is currently working on a larger project to improve sources, processes, methods and the IT infrastructure in National Accounts. The aim of the project being:

- Reduce large, late and bias revisions of National Accounts aggregates between the preliminary and final figures.
- Achieve greater efficiency in the production of National Accounts
- Increase transparency in calculations and improve our communication about revisions between the preliminary and final figures.

The project is placed in the National Accounts department but will involve several other departments in Statistics Denmark. The project initiatives are analyzed and prioritized in cooperation with the various stakeholders and some of the first initiatives that will be implemented are:

- Improving our communications in areas highlighted by some of our major users, e.g. the calculation of GDP in constant prices and households' online-purchases abroad.
- Aligning the methods for distributing product codes to goods not crossing the Danish border as they lack this information in the balance of payments statistics.
- Introducing supply-use tables in the compilation of preliminary annual figures based on an aggregated version of the annual supply-use tables.
- Improving the framework for compiling consistent quarterly data in Statistics Denmark's Large Case Unit thereby facilitating the compilation of the quarterly national accounts.

The project is currently planned to last at least two years.

2.4 Transition between GNI Inventory and GNI Questionnaire figures

The only difference between the Process Tables and the GNI Questionnaire for the year 2017 is Action Point A4 concerning adjustment of output of dwelling services. In the Quality Report from November 2019 the treatment of Action Point A4 is described in more detail. This Action Point is part of the 2016-2019 verification cycle.

The 2021 vintage of the GNI Questionnaire contain a bridge table (table 3.2, page 3) between published GNI figures and the Danish GNI Questionnaire figures for GNI. For GNI, the table reveals a difference between published GNI and the GNI for own resources at 7.256 million DKK.

The published figures (domestic and in the Eurostat database) for GNI and all other national accounts variables are identical with the figures in the Process Tables and the GNI Inventory. However, not all figures in the Process Tables or GNI-Inventory are published. This means that the only difference between on the on hand the domestic published figures, the Process Tables and the GNI Inventory and on the other hand the GNI for own resources (GNI Questionnaire) is Action Point A4.

A more detailed bridge tables between Process Tables and the GNI Questionnaire is given in table 2.22 and table 2.23 below. Table 2.22 shows the adjustment based on production approach, expenditure approach and income approach. Table 2.23 shows the adjustment by industries.

Table 2.22 Bridge table between Process Tables and GNI for own resources (GNI Questionnaire), 2017

			Published figures / Process table	AP A4 Adjustment	GNI for own resources
			DKK mill.		
	GDP, Production approach				
+	Output of goods and services (at basic prices)	P.1	3 821 330	7 430	3 828 760
-	Intermediate consumption (at purchasers' prices)	P.2	1 914 455	174	1 914 629
+	Taxes on products	D.21	304 351		304 351
-	Subsidies on products	D.31	18 265		18 265
=	**GDP(P)**	**B1*G**	**2 192 960**	**7 256**	**2 200 216**
	GDP, Expenditure approach				
+	Household final consumption expenditure	P.3	985 797	7 256	993 053
+	NPISH final consumption expenditure	P.3	30 848		30 848
+	General government final consumption expenditure	P.3	535 347		535 347
+	Gross fixed capital formation	P.51	465 471		465 471
+	Changes in inventories	P.52	14 757		14 757
+	Acquisitions less disposals of valuables	P.53	3 387		3 387
+	Exports of goods and services	P.6	1 207 825		1 207 825
-	Imports of goods and services	P.7	1 050 472		1 050 472
=	**GDP(E)**	**B1*G**	**2 192 960**	**7 256**	**2 200 216**
	GDP, Income approach				
+	Compensation of employees	D.1	1 118 479		1 118 479
+	Gross operating surplus and mixed income	B.2g+B.3g	767 552	7 256	774 808
+	Taxes on production and imports	D.2	352 143		352 143
-	Subsidies	D.3	45 213		45 213
=	**GDP(I)**	**B1*G**	**2 192 960**	**7 256**	**2 200 216**
	Transition to GNI				
	GDP	**B1*G**	**2 192 960**	**7 256**	**2 200 216**
+	Compensation of employees received from the rest of the world	D.1	8 664		8 664
-	Compensation of employees paid to the rest of the world	D.1	20 686		20 686
-	Taxes on production and imports paid to the institutions of the EU	D.2	3 170		3 170
+	Subsidies received from the institutions of the EU	D.3	6 466		6 466
+	Property income received from the rest of the world	D.4	174 451		174 451
-	Property income paid to the rest of the world	D.4	117 722		117 722
=	**GNI**	**B.5*G**	**2 240 963**	**7 256**	**2 248 220**

The impact of action point A4 does only affect output, intermediate consumption and value added for *Real estate activities* (NACE L). No other industries are impacted by action point A4.

Table 2.23 Bridge table between Process table and GNI for own resources (GNI Questionnaire), 2017

			Published figures / Process table	AP A4 Adjustment	GNI for own resources
			DKK mill.		
NACE L	Output of goods and services	P.1	285 938	7 430	293 368
Of which: Owner occupied dwellings (NACE L68A)	Output of goods and services	P.1	122 295	6 678	128 973
All other industries (NACE A,..,NACE K, NACE M,..., NACE T)	Output of goods and services	P.1	3 535 392		3 535 392
Total	**Output of goods and services**	**P.1**	**3 821 330**	**7 430**	**3 828 760**
NACE L	Intermediate consumption	P.2	87 913	174	88 086
Of which: Owner occupied dwellings (NACE L68A)	Intermediate consumption	P.2	31 032	58	31 090
All other industries (NACE A,..,NACE K, NACE M,..., NACE T)	Intermediate consumption	P.2	1 826 542		1 826 542
Total	**Intermediate consumption**	**P.2**	**1 914 455**	**174**	**1 914 629**
NACE L	Gross value added	B.1g	198 025	7 256	205 281
Of which: Owner occupied dwellings (NACE L68A)	Gross value added	B.1g	91 263	6 620	97 883
All other industries (NACE A,..,NACE K, NACE M,..., NACE T)	Gross value added	B.1g	1 708 849		1 708 849
Total	**Gross value added**	**B.1g**	**1 906 874**	**7 256**	**1 914 131**

As part of the forthcoming Danish benchmark revision in 2024, it is the plan to implement the Action Point A4 in the domestic published figures, which also will be transmitted to Eurostat for publication in the Eurostat database. This would eliminate the discrepancy between the Process Tables and GNI for own resources (GNI Questionnaire) regarding Action Point A4.

3. The production approach

3.0 GDP according to the production approach

For 2017, the calculation of output-based GDP can be summarised in table 3.1 below:

Table 3.1 GDP, Production approach, 2017

	Value	Pct. of GDP
	DKK mill.	pct.
Output at basic price	3 821 330	174.3
- Intermediate consumption	1 914 455	87.3
+ taxes on products	304 351	13.9
- Subsidies on products	18 265	0.8
GDP	**2 192 961**	**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 2017 by industry (NACE A21) and institutional sectors.

Table 3.2 Output, Intermediate consumption and Gross value added by industries and sectors, 2017

NACE section		Sector	Output	Intermediate consumption	Gross value added	PCT of GVA
			DKK mill.			pct.
A	Agriculture, forestry and fishing	S.11	28 636	18 840	9 796	0.51
		S.13	916	443	473	0.02
		S.14	57 585	39 240	18 345	0.96
B	Mining and quarrying	S.11	30 570	9 161	21 409	1.12
		S.14	50	35	15	0.00
C	Manufacturing	S.11	739 160	457 464	281 696	14.77
		S.14	8 686	5 092	3 594	0.19
D	Electricity, gas, steam and air conditioning supply	S.11	51 828	25 185	26 644	1.40
E	Water, sewerage and waste	S.11	38 757	23 829	14 928	0.78
		S.14	95	76	20	0.00
F	Construction	S.11	251 750	158 247	93 503	4.90
		S.13	8 440	5 343	3 097	0.16
		S.14	22 700	12 715	9 985	0.52
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	S.11	422 807	189 004	233 802	12.26
		S.14	23 428	10 316	13 112	0.69
H	Transportation and storage	S.11	367 904	273 945	93 960	4.93
		S.13	5 985	3 130	2 855	0.15
		S.14	12 422	6 099	6 323	0.33
I	Accommodation and food services activities	S.11	56 913	32 280	24 633	1.29
		S.14	14 200	7 876	6 323	0.33
J	Information and communication	S.11	169 417	86 376	83 040	4.35
		S.13	3 975	2 026	1 950	0.10
		S.14	5 033	2 237	2 796	0.15
K	Financial and insurance activities	S.12	182 084	71 689	110 395	5.79
L	Real estate activities	S.11	130 116	45 982	84 134	4.41
		S.13	2 584	786	1 798	0.09
		S.14	153 239	41 145	112 093	5.88
L68A	of which: imputed rents of owner-occupied dwellings	S.14	122 295	31 032	91 263	4.79

Table 3.2 Output, intermediate consumption and gross value added by industry and institutional sector, 2017 cont.

NACE section		Sector	Output	Intermediate consumption	Gross value added	PCT of GVA
			DKK mill.			pct.
M	Professional, scientific and technical activities	S.11	199 575	91 648	107 926	5.66
		S.12	227	142	85	0.00
		S.13	4 555	989	3 566	0.19
		S.14	12 803	5 511	7 291	0.38
N	Administrative and support service activities	S.11	104 280	54 907	49 373	2.59
		S.13	12 671	5 558	7 112	0.37
		S.14	9 715	4 767	4 948	0.26
O	Public administration ad defence; compulsory social security	S.11	4 729	1 134	3 595	0.19
		S.13	142 979	54 985	87 994	4.61
P	Education	S.11	2 894	1 182	1 713	0.09
		S.13	134 594	33 224	101 370	5.32
		S.14	2 046	759	1 287	0.07
		S.15	18 226	5 206	13 020	0.68
Q	Human health and social work activities	S.11	20 588	5 353	15 235	0.80
		S.13	242 055	75 979	166 076	8.71
		S.14	12 865	2 535	10 330	0.54
		S.15	7 527	3 950	3 577	0.19
R	Arts, entertainment and recreation	S.11	26 759	12 569	14 189	0.74
		S.13	15 009	6 217	8 792	0.46
		S.14	3 557	669	2 887	0.15
		S.15	4 797	1 991	2 806	0.15
S	Other service activities	S.11	16 157	5 395	10 762	0.56
		S.13	7 786	2 643	5 143	0.27
		S.14	7 592	2 601	4 991	0.26
		S.15	13 059	5 979	7 080	0.37
T	Activities of households as employers; etc.	S.14	5 006	0	5 006	0.26
	Total		**3 821 330**	**1 914 455**	**1 906 874**	**100.00**

Table 3.2B: Selected variables, 2017

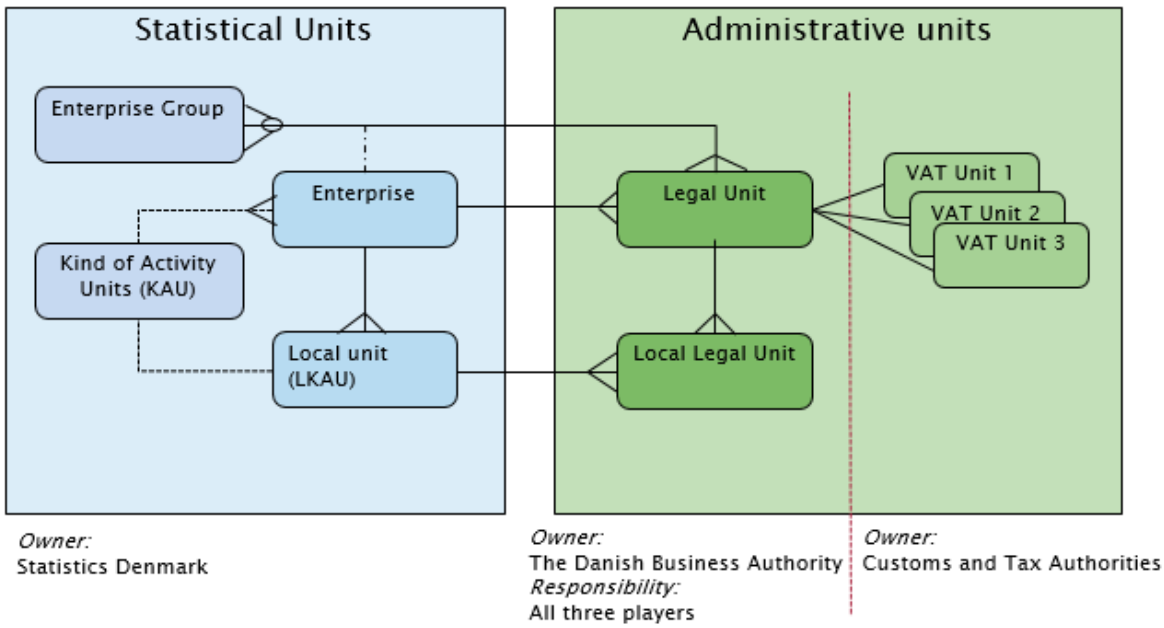
			DKK mill.
+	Output of goods and services (at basic prices)	P.1	3 821 330
-	Intermediate consumption (at purchasers' prices)	P.2	1 914 455
=	Gross value added (at basic prices)	B.1g	1 906 874
+	Taxes on products	D.21	304 351
-	Subsidies on products	D.31	18 265
=	**Gross domestic product (ESA2010)**	**B.1*G**	**2 192 960**

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, KAU and Local KAU is used. The administrative units are the Legal unit and the Production unit. For VAT-purposes, the SE-unit is used.
The largest and most complex enterprises in Denmark are treated in the Large Cases Unit (LCU). These enterprises are profiled by the LCU and on this basis economic units are created including more than one legal unit.

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 (SE-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 available central business register (https://datacvr.virk.dk/data/).

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

1. Identity number
2. History
3. Main and secondary branch (up to three)
4. Owner and ownership-form
5. Name and address

6. Sector-code which shows which institutional sector the unit belongs to.
7. Legal form
8. Information on employment and turnover
9. 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 for enterprises with up to three employees and the owner) 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 or enterprise units in the business register) 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. <u>Sectors with complete accounts and (virtually) full coverage of the population via administrative or statistical returns</u>

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

[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".

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

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.

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) 2017 by the four groups.

Table 3.3 Gross value added based on various accounting statistics, 2017

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	26.3
2	Sectors with complete accounts and partial coverage of the population via administrative or statistical returns	64.5
3	Sectors with a combination of physical and economic accounts	9.2
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 2017, these sectors together accounted for 26% 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.

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).

When deciding the sector classification of non-market producers mainly financed by government, emphasis is also put on control. Therefore some institutions (mainly private schools and some welfare institutions) that are funded but not controlled by general government are classified in 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 explained earlier, 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 added in the statistical processing system for general government and not part of 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. Social transfers in kind are not included in intermediate consumption by general government but are entered directly as final use 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 2017.

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

	DKK mill.
+ Compensation of employees	332 611
+ Consumption of fixed capital	58 763
+ Intermediate consumption	191 387
+ Other taxes on production and	2 710
- Other subsidies on production	3 921
= Output	**581 550**
+ Social transfers in kind	30 808
- Revenue from sales	56 356
- Capital goods for own use	20 655
= Consumption expenditure	**535 347**

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 business register (*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 2017, 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. During the period 2001-2015 cost structure surveys have been undertaken for general government which have since been used as "benchmark" input structures.

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 part of the NPISH sector (S.15) made up of mainly private schools is covered by administrative data from government accounts. As explained before, these are the units funded but not controlled by general government.

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 account statistics which is described under group 2.

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

With 64.5 percent of total gross value added, group 2 accounts for by far the largest share of market output in the economy. The main sources are:

a) The structural Business Statistics (SBS) contains account statistics for the non-Agricultural Private Sector, and is by far the most important source.

b) Statistics based on tax accounts 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 tax accounts from the Danish tax authorities is used for the grossing up of the SBS as well as for compiling the industries mentioned under b).

c) Account statistics for industries dominated 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 Structural Business Statistics (SBS) which, as already mentioned, is by far the most important.

Structural Business Statistics (SBS)

Annex 3 shows the questionnaire used for the SBS. Similarly, Annex 4 shows the relevant (business) Tax return variables for 2017 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 SBS and the plan in the intermediate system is shown in table 3.5.

The questionnaire for the SBS is designed to ensure that it 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 tax accounts 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 the SBS

Chapter 10 shows a link to the Documentation of statistics for the SBS (Accounts Statistics for non-Agricultural Sector) for 2017. 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 tax accounts from the Danish tax authorities

The main basis for this 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.

[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 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 SBS, 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 the 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 tax accounts 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.

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, which is explained in more detail in the following.

Questionnaire-based turnover figures for 2012, broken down by month, are shown in Table 3.4a below. As shown, a significant majority of the companies (measured by turnover) use the calendar year as their accounting reporting year. Making a rough estimate on the basis of the 2012 distribution of turnover indicates a slight bias compared with the calendar year (minus just below one half month). The 2012-figures “contain” a little turnover from some months in 2011 and a smaller part of turnover from some months in 2013. However, the figures include a number of firms which were not operating throughout the year and which therefore tend to shift the average accounting year forward. The opposite case, namely firms which ceased trading, are not included in the sample, for obvious

[6] The Generel enterprise statistics integrate information from three other business statistics, which are compiled for different unit types. The three statistics comprise the SBS, which is compiled at the enterprise level, VAT statistics, which is compiled at the administrative level used by the Danish Central Customs and Tax Administration, and Establishment-related employment statistics, which is 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.

reasons. Overall, the accounts statistics' questionnaire-based figures should be considered a good approximation to a calendar-year-based estimate.

Table 3.4a Closing month for accounts in the accounts statistics questionnaire-based survey, 2012

Month when accounts close	Turnover
	DKK mill.
May, 2012	19 697
June, 2012	75 221
July, 2012	22 635
August, 2012	22 503
September, 2012	171 314
October, 2012	23 866
November, 2012	5 264
December, 2012	1 709 068
January, 2013	11 758
February, 2013	15 585
March, 2013	17 638
April, 2013	32 085

It should also be noted that a more accurate periodization would require accounts for both year t and year t+1 to be available when statistics for year t is produced, which would delay the calculation of the final national accounts.

National accounts processing of the grossed up SBS

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 the SBS and industrial commodity statistics
X. Division between the SBS, the statistics based on tax accounts 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 for *SBS received from primary statistics*

In 2017 the SBS covers DK-NACE industries 051000-099000, 101110-332000, 383100-383200, 411000-439990, 451110-479900, 493200, 493920-522120, 522220, 522400-592000, 611000-639900, 681000, 683110-683210, 691000-701010, 702100-829900, 951100-952900. Within these areas, the SBS 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 sample, covering all units which were active during 2017.

The SBS data are received from the Business Structure Division are divided 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 SBS, 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.
The SBS contains information for each enterprise as well as for those of its workplaces that belong 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 SBS. 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 SBS and the calculation is of less importance.

Figure 3.2 Overview of the coverage of workplaces in files from the SBS

Workplace Firm	Workplaces within the scope of the SBS	Workplaces outside the scope of the SBS
Firms within the scope of the SBS	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 SBS	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 SBS. In the case of these workplaces the information which can be compiled in the SBS 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, the accounting information calculated in the SBS is removed from the firm-level information of the statistics based on tax account from the Danish tax authorities before the remainder is broken down by kind-of-activity branches outside the scope of the SBS. 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 SBS 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 Structural Business Statistics 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	119	4		
10-branch code	BRA010_DB07		5		
19-branch code	BRA019_DB07		6		
36-branch code	BRA036_DB07		7		
127-branch code	BRA127_DB07		8		
	NACE_DB07		9		
	NACE2_DB07		10		
	NACE3_DB07		11		
	RESHOV1_DB07		12		
	RESDEL1_DB07		13		
Main branch (also in "remainder")	HBRA_DB07		14		
Firm's main branch	FIRMA_DB07		15		
Ownership code	VIRKFORM	120	16		
Credit information	KREDOPL		17		
County code	REGION2007		19		
Municipality code 2007	KOMKOD2007		20		
Province	LANDSDEL2007		21		
Post district	POSTNR		22		
Road code	VEJKODE		23		
House number from	HUSNR_FRA		24		
House number to	HUSNR_TIL		25		
Letter from	BOGSTAV_FRA		26		
Letter to	BOGSTAV_TIL		27		
Most recent connection	SENESTE_TILKNYT		28		
Fictive workplace	FIKTIVT_ARBST		29		
FTEs	VAERK		30		
Code for data source	KODE	2			
Sales	OMS	3	31		
Own-account work	AUER	4	32	1012	Manuf. of plant and machinery for own use
Other operating income	ADR	5	33	1019	Other, secondary operating income
Cost of sales	FV	6	34		
Purchases of processing to order	KLOE	7	35	2014	Purchases of processing to order and subcontracting
Rental expenditure	UDHL	8		7020	Expend. on rentals excluding heating
Acquisitions of equipment etc. expensed	UASI	9		7025	Acquisitions of equipment etc. expensed
Temporary employment agencies	UDVB	10		7042	Temporary employment agencies
Operational leasing	ULOL	11		7024	Operational leasing
Losses on ordinary bad debts	OTDE	12		7026	Losses on ordinary bad debts
Other external expenditure (**incl. running of vehicles**)	EKUD	13		**7042**	Other external expenditure
Wages and salaries	LGAG	14		4015	Wages/salaries & employer contribs.
Expenditure on pensions	PUDG	15		4016	Expenditure on pensions
Other expenditure on social security	AUDG	16		4017	Other staffing expenditure
Writing off and writing down of tangible and intangible assets	AMI	17		5100	Writing off and writing down of non-financial fixed assets
	NMI	18		5100	Writing off and writing down of non-financial fixed assets
Writing down of current assets	NOAK	19		5200	Writing down of non-fin. current assets
Secondary expenditure	SEUD	20		7060	Other operating expenditure
Profit/loss before financial and extraordinary items	RFEP	21			
Dividends and other income received from fixed financial assets	IKUF	22		4030	Income from lasting interests
Other financial income received from fixed and current assets	RFAO	23		4031	Interest etc. rec. from current assets
Writing down of financial fixed and current assets	NFAO	24		5300	Writing down of financial assets
Interest paid etc.	RUDG	25		4040	Interest paid

Annual pre-tax profit/loss	ARFS	26			
Corporation tax on annual profit/loss	SSAR	27		4041	Corporation tax
Annual profit/loss	AARE	28		4043	Profit/loss for tax purposes
Consolidation, i.e. trans. to/from equity	KEGN	29			
Dividends	UDBY	30		4044	Distributed income
Intangible fixed assets, total	IAAT	31		8110	
Land and buildings	GRBY	32		8120	Land and buildings
Technical plant and machinery	ATAM	33		8121	Technical plant and machinery
Other plant, machinery and equipment	AADI	34		8122	Other plant, machinery and equipment
Advance payments and tangible fixed assets etc.	FMAA	35		8129	Other tangible fixed assets (e.g. advances)
Tangible fixed assets, total	MAAT	36			
Amounts outstanding	TILG	37		8130	Financial fixed assets
Holdings of shares and equity	ABAE	38		8130	Financial fixed assets
Holdings of bonds and other securities	ABOA	39		8130	Financial fixed assets
Financial fixed assets, total	FAAT	40		8130	Financial fixed assets
Fixed assets, total	AAT	41			
Raw materials, ancillaries, fuel and packaging (opening stocks)	PRHB	42	36	5060	Opening stocks of raw materials
Work in progress (opening stocks)	PVUF	43	38	5065	Opening stocks of finished goods
Manufacture of finished goods (opening stocks)	ELPR	44	42	5065	Opening stocks of finished goods
Goods for resale (opening stocks)	HLPR	45	44	5061 / 5062	Opening stocks of goods for resale
Advance payments, purchased goods (opening stocks)	PFKV	46	46		
Total inventories of goods (opening stocks)	PVBT	47	48	8141	Opening stocks
Raw materials, ancillaries, fuel and packaging (closing stocks)	URHB	48	37	6060	Closing stocks of raw materials
Work in progress (closing stocks)	UVUF	49	39	6065	Closing stocks of finished goods
Manufacture of finished goods (closing stocks)	ELUL	50	43	6065	Closing stocks of finished goods
Goods for resale (closing stocks)	HLUL	51	45	6061 / 6062	Closing stocks of goods for resale
Advance payments, purchased goods (closing stocks)	UFKV	52	47	8149	Other current assets
Total inventories of goods (closing stocks)	UVBT	53	49	8142	Closing stocks
Amounts outstanding from sales of goods and services	TSVT	54		8149	Other current assets
Work in progress on account of others	UIAF	55		8149	Other current assets
Other claims	ANTI	56		8149	Other current assets
Total claims	TGT	57		8149	Other current assets
Holdings of shares and equity	OBAE	58		8149	Other current assets
Holdings of bonds and other securities	OBAV	59		8149	Other current assets
Liquidity holdings	LIBE	60		8149	Other current assets
Securities and particip. interests, total	VKT	61		8149	Other current assets
Total current assets	OMAT	62		8149	Other current assets
Total assets	AT	63			
Equity, closing stocks	EGUL	64		8210	Equity
Provisions	HENS	65		8220	Provisions
Long-term debts to suppliers	LGL	66		8230	Long-term debts
Other long-term debts	ALG	67		8230	Long-term debts
Short-term liabilities to suppliers	KGL	68		8240	Short-term liabilities
Other short-term liabilities	AKG	69		8240	Short-term liabilities
Total liabilities	PAST	70			
Completed development projects	TIFU	71		6102/6110	Software bought in/purchases of intang. assets, other and unspecified
Acquired concessions, patents, licenses, trademarks and other similar rights	TIPL	72		6103	Acquired patents, licences trademarks etc.
Purchase of software	TISO	73		6104	Purchase of software
Purchase of goodwill	TIGO	74		6105	Purchase of goodwill
Intangible assets in progress	TIAU	75		6106	Intangible assets in progress
Intangible assets, total	TIAA	76		6110	Software bought in/purchases of intangible assets, other and unspecified
Purchases of existing buildings (including land value)	KEB	77	50	6121	Purchases of existing buildings (including land value)

Construction expenditure, new building (excluding land)	OPNY	78	51	6123	Construction of new buildings (excluding land value)
Purchases of unbuilt land	KUBG	79	52	6122	Purchases of unbuilt land
Rebuilding and improvements to buildings and installations	OFBB	80	53	6124	Rebuilding and improvements to buildings
Roads, ports, open spaces, etc.	VHPK	81	54	6125	New layout and rebuilding of roads, ports, etc.
Total real estate (additions)	FET	82	55		
Technical plant and machinery (operating equipment)	DTAM	83	56	6134	Purchases of plant and machinery, other and unspecified
Other plant, machinery and equipment (additions)	TAAD	84	57	6134	Purchases of plant and machinery, other and unspecified
Total plant and machinery (additions)	TDRT	85	58	6130	Total plant and machinery (additions)
Plant and equipment under construction	TFMA	86	59	6140	Advance payments on assets
Total additions	ATIT	87	60	6100	Total additions
Disposal in completed development projects (cost value)	BAIFU	88		6202	Disposals of finished development projects
Disposal of concessions, patents, licences, trademarks and other similar rights (cost value)	BAIPL	89		6203	Disposals of patents, licenses, brands etc.
Disposal of software (cost value)	BAISO	90		6204	Disposals of software
Disposals in goodwill (cost value)	BAIGO	91		6205	Disposals of goodwill
Intangible assets, total	BAIAA	92		6210	Total disposals of immaterial assets
Disposals of existing buildings (incl. land value) at cost value	BSABY	93	61	6221	Sales of existing buildings (including land value)
Disposals of undeveloped land (cost value)	BSUBG	94	62	6222	Sales of unbuilt land
Disposals of roads, harbours, squares, etc. (cost value)	BSVHP	95	63	6225	Disposals of roads, harbours, squares, etc (cost value)
Land and buildings, total	BFEGT	96	64	6220	Total disposals of land and buildings at cost value
Disposals production machinery and equipment (cost value)	BSTAM	97	65	6231	Disposals of technical plant and machinery at cost value
Disposals of other fixtures and fittings, tools and equipment at cost value	BSADI	98	66	6232	Disposals of other plant and machinery and equipment at cost value
Machinery, plant and equipment, total	BADRT	99	67	6230	Total disposals of equipment at cost value
Reversal of amortisation on disposals of completed development projects	TAIFU	100		6302	Reversal of amortisation on disposals of completed development projects
Reversal of amortisation on disposals of concessions, patents, licences, trademarks and other similar rights	TAIPL	101		6303	Reversal of amortisation on disposals of concessions, patents, licenses, trademarks and other similar rights
Reversal of amortisation on disposals of software	TAISO	102		6304	Reversal of amortisation on disposals of software
Reversal of amortisation on disposals of goodwill	TAIGO	103		6305	Reversal of amortisation on disposals of goodwill
Reversal of amortisation on disposals of intangible assets, total	TAIAA	104		6310	Total reversal of amortisation on disposals of intangible assets
Reversal of amortisation on disposals of buildings	TSABY	105	68	6321	Reversal of amortisation on disposals of buildings
Reversal of amortisation on disposals of undeveloped land	TSUBG	106	69	6322	Reversal of amortisation on disposals of undeveloped land
Reversal of amortisation on disposals of roads, harbours, squares and similar	TSVHP	107	70	6325	Reversal of amortisation on disposals of roads, harbours, squares and similar
Reversal of amortisation on disposals of land and buildings, total	TFEGT	108	71	6320	Total reversal of amortisation on disposals of land and buildings
Reversal of amortisation on disposals of production machinery and equipment	TSTAM	109	72	6331	Reversal of amortisation on disposals of production machinery and equipment
Reversal of amortisation on disposals of fixtures and fittings, tools and equipment	TSADI	110	73	6332	Reversal of amortisation on disposals of other fixtures and fittings, tools and equipment
Reversal of amortisation on disposals of machinery, plant and equipment, total	TADRT	111	74	6330	Total reversal of amortisation on disposals of machinery, plant and equipment
Disposals, total	AFBT	112	75	6400	Disposals, total
Sales of own products	EOMS	113	86	1018	Other and unspecified net sales
Sales (goods for resale)	HOMS	114	85	1016	Sales of goods for resale
Cost of sales (goods for resale)	FVV	115	91		
Cost of sales (raw materials, consumables and packaging materials)	FRHE	116	92		
FTEs	AARSV	117			
Number of employees	BESK	118			

Sector code	FUNKKODE	121		
Code for triviality limit	BAGATEL	122		
Firm's main branch	BRA127_DB07	123		
Municipality code	KOMKOD2007	124		
Combination code	KOMB	125		
Data source	TYPE_	126		
Finished goods and goods for resale (opening stock)	EHLPR	127	41	
Finished goods and goods for resale (closing stock)	EHLUL	128	42	
Sales of buildings (including land value)	SABY	129		
Sales of unbuilt land	SUBG	130		
Sales of roads, ports, open spaces, etc.	SVHP	131		
Total real estate (disposals)	FEGT	132		
Sales of technical plant and machinery	STAM	133		
Sales of other plant, machinery and equipment	SADI	134		
Total plant and machinery (disposals)	ADRT	135		
Intangible fixed assets (disposals)	AIAA	136		6202 / 6210 Disposals of software/intangible assets, other and unspecified
Disposal in completed development projects	AIFU	137		
Disposal of concessions, patents, licences, trademarks and other similar rights	AIGO	138		
Disposal of software	AIPL	139		
Disposals in goodwill	AISO	140		
Input for main sales	XVA	141	76	
Gross profit	ZBF	142	77	

Table 3.5 Structural Business Statistics 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		
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 Structural Business Statistics at firm level and workplace level, cont.

Label	Variable	# in firm record	# in work-place record	MLS-code	MLS-text
Intangible fixed assets (additions)	TIAA	101		6102 / 6110	Software bought in/purchases of intang. assets, other and unspecified

Table 3.5 Structural Business Statistics at firm level and workplace level, cont.

Label	Variable	# in firm record	# in work-place record	MLS-code	MLS-text
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		

All information on the individual firms and workplaces up to the stage at which the processed SBS is put into a form such that it can be input into the intermediate system (MLS) is retained. The format and coding from the SBS is 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 can be used to compile regional accounts.

II Correcting the workplace and firm file

The logical first stage in the processing is to make corrections when necessary 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.

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 SBS) 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 would occur in the FBRUDE part if fire- and ambulance service was not covered by the SBS.

The firm file is matched with the file that contains workplaces which has the firm branch covered by SBS. The remainder of the firm file, which ought to consist of workplaces outside the scope of the SBS, 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 have 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 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. If a firm has more than one "remainder" workplace, the figures calculated as residuals are divided 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 SBS (disregarding any subsequent corrections to the branch allocation of workplaces).

[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.

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 variables in the firm file are considered to be workplace-related in the national accounts. These variables 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 SBS. Here, the work consists in dividing 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 SBS (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 assigned a share of the variable 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 workplaces in the SBS. 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].

Activity in 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, sale 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 the SBS 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.

Table 3.7a shows trade activity (turnover) transferred to the trade industries (wholesale trade) for the year 2012.

Table 3.7a Secondary activity (turnover) transferred to trade industry (wholesale)

Label	Nace code	
		DKK mill.
Mining and quarrying	B	332
Manufacturing	C	95 659
Total (transferred to G Wholesale and retail trade etc.		95 991

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 count 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.

[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.

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):

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 SBS firm file. The SBS 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.

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

Label	Variable	% transferred	MLS-code	MLS-text
		pct.		
Writing off of tangible and intangible assets	AMI	100.0	5100	Writing off and writing down of non-financial fixed assets
Writing down of tangible and intangible assets	NMI	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 and other return on financial fixed assets	IKUF	100.0	4030	Income from lasting interests
Interest etc. received from fin. Fixed and current assets	RFAO	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 variables 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	FRHE	100.0	2015	Other and unspecified purchases (consumption) of raw materials
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 assets				
Disposals in completed development projects at cost value	BAIFU	100.0	6202	Disposals of finished development projects
Disposals of concessions, patents, licenses, trademarks and other similar rights at cost value	BAIPL	100.0	6203	Disposals of patents, licenses, brands etc.
Disposals software at cost value	BAISO	100.0	6204	Disposals of software
Disposals of goodwill at cost value	BAIGO	100.0	6205	Disposals of goodwill
Total disposals of intangible assets at cost value	BAIAA	100.0	6210	Total disposals of immaterial assets
Land and buildings				
Disposals of existing buildings (incl. land value) at cost value	BSABY	100.0	6221	Disposals of existing buildings (incl. land value) at cost value
Disposals of undeveloped land at cost value	BSUBG	100.0	6222	Disposals of undeveloped land at cost value
Disposals of roads, harbours, squares, etc. at cost value	BSVHP	100.0	6225	Disposals of roads, harbours, squares, etc (cost value)
Total disposals of land and buildings at cost value	BFEGT	100.0	6220	Total disposals of land and buildings at cost value
Machinery, plant and equipment				
Disposals of production machinery and equipment at cost value	BSTAM	100.0	6231	Disposals of technical plant and machinery at cost value
Disposals of other fixtures and fittings, tools and equipment at cost value	BSADI	100.0	6232	Disposals of other plant and machinery and equipment at cost value
Total disposals of machinery, plant and equipment at cost value	BADRT	100.0	6230	Total disposals of equipment at cost value
Reversal of amortisation on disposals of intangible assets				
Reversal of amortisation on disposals of completed development projects	TAIFU	100.0	6302	Reversal of amortisation on disposals of completed development projects

Reversal of amortisation on disposals of concessions, patents, licenses, trademarks and other similar rights	TAIPL	100.0	6303	Reversal of amortisation on disposals of concessions, patents, licenses, trademarks and other similar rights
Reversal of amortisation on disposals of software	TAISO	100.0	6304	Reversal of amortisation on disposals of software
Reversal of amortisation on disposals of goodwill	TAIGO	100.0	6305	Reversal of amortisation on disposals of goodwill
Total reversal of amortisation on disposals of intangible assets	TAIAA	100.0	6310	Total reversal of amortisation on disposals of intangible assets
Reversal of amortisation on disposals of land and buildings				
Reversal of amortisation on disposals of buildings	TSABY	100.0	6321	Reversal of amortisation on disposals of buildings
Reversal of amortisation on disposals of undeveloped land	TSUBG	100.0	6322	Reversal of amortisation on disposals of undeveloped land
Reversal of amortisation on disposals of roads, harbours, squares and similar	TSVHP	100.0	6325	Reversal of amortisation on disposals of roads, harbours, squares and similar
Total reversal of amortisation on disposals of land and buildings	TFEGT	100.0	6320	Total reversal of amortisation on disposals of land and buildings
Reversal of amortisation on disposals of machinery, plant and equipment				
Reversal of amortisation on disposals of production machinery and equipment	TSTAM	100.0	6331	Reversal of amortisation on disposals of production machinery and equipment
Reversal of amortisation on disposals of other fixtures and fittings, tools and equipment	TSADI	100.0	6332	Reversal of amortisation on disposals of other fixtures and fittings, tools and equipment
Total reversal of amortisation on disposals of machinery, plant and equipment	TADRT	100.0	6330	Total reversal of amortisation on disposals of machinery, plant and equipment
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)	FVV	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. Currently the SBS splits expenditure on rent, acquisition of equipment treated as current expenditure, expenditure on temporary employment agencies, operational leasing and ordinary bad debts, into independent items so distribution keys are not used for these variables. Also the fact that a share of the EKUD item is motor vehicle fuel is currently taken into account. The 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 SBS covers 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 SBS. It is usually assumed that the industry allocation in the SBS 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.

The accounts statistics data (SBS) 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 SBS, 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 SBS. In this way most of the units can be compared with the corresponding units in the SBS. 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 SBS' 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 SBS 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 SBS, the statistics based on tax accounts from the Danish tax authorities and other calculation systems

Ideally, the different accounting systems, i.e. the SBS, the statistics based on accounts data from the Danish tax authorities, the systems based on 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

The FBRUDE workplaces are transferred to the intermediate system together with the other workplace information in SBS. The firms in the statistics based on accounts data from the Danish tax authorities should be

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.

divided up in a way which respects the accounting figures for the 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 into (the corrected) firm branches instead of kind-of-activity branches.

When the FBRUDE units are then separated 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 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 SBS. For the national accounts estimate, it is vital that firm units are 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 those firms which appear to belong to the calculations based on industry-specific accounts statistics, government non-market output (OIMA) in S.13 or the SBS, 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 SBS or the accounts statistics for industries where public corporations predominate, these removals are straight-forward.

When it comes to government owned units, these also have 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 is a list of central and local government VAT units compiled by the Government Finances Division. Enterprises with no market activity are removed. 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 usually proves 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 tax accounts 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 (SBS) 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 SBS, 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 SBS. 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

Calculation of industries dominated 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. The general rule is that industries including these “public non-financial corporations” are followed closely over time because they are particularly interesting when it comes to GFCF in large infrastructure projects and for EDP purposes.

Industries dominated by public corporations include three main types of enterprises:

- Quasi-corporations (enterprises integrated in local or central government accounts)
- Corporations partly or fully owned by government
- Privately owned corporations

The importance of government owned corporations varies between industries and over time due to privatisations.

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. A list with government owned corporations, not included in central and local government accounts, is compiled every year by the division for Government Finance statistics and passed over to the division responsible for SBS. Accounts for the units on the list are then collected and processed as part of the compilation of the SBS, but with a clear marking of the government owned part. The sum of SBS data and information from local and central government accounts for quasi corporations then makes up the total coverage of the industry in question.

In 2017, 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 national accounts estimate the source is the statistics based on the above mentioned combination of SBS and extracts from local and central government accounts.

The population of units comes from the business register supplemented by the list with government owned corporations from government finance statistics. It is ensured that accounting information is collected for all units on the list. As already mentioned the accounting figures used are:

a) Central and local government accounts;
b) SBS data;
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 and processes (including grossing up) accounting information as part of the SBS.

Re. c): Official annual accounts are used in some cases which is standard procedure in the SBS.

Re. d): For the electricity sector, the vast majority of electricity corporations report data to the branch organisation *Dansk Energi*. These data are used in a combination with the SBS, 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 trade - is removed from the units in which it is carried out and transferred to the relevant national accounts industries.

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)

Since the ESA 2010 based national accounts were published for the first time in September 2014, the NPISH sector has been shown separately. Until then S.15 NPISH was published together with S.14 households. In order to have data of a sufficient quality to publish full sector accounts, an account statistics was established for S.15 to supplement administrative data.

The account statistics for NPISH 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. The industry has only market activity.

The industry 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 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 *680030 Renting, Non-residential buildings*.

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 previous 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 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 (SBS). 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.

The valuation of non-market output (S.13 and S.15) is described in section 3.1.3.

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.
Table 3.13 is an expansion of the process tables column “other conceptual adjustments” from business accounting to national accounts (ESA2010). It shows “other conceptual adjustments” to intermediate consumption in more detail.

Table 3.13 Conceptual adjustments, intermediate consumption, 2017. From private accounting and administrative concepts to ESA2010

DK-NACE Industry	Total	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A Agriculture etc.	3 348	-1	3 339	41	-27	-38	31	3	0
B Mining and quarrying	-10	-31	14	1	-4	-18	6	22	0
C Manufacturing	-10 095	-2 566	625	3 567	-12 135	-566	432	548	0
D Electricity, gas etc.	10	-341	384	5	-6	-48	16	0	0
E Water supply etc.	-159	-185	33	2	-8	-16	5	10	0
F Construction	-473	-738	356	3	-4	-243	24	130	0
G Trade etc.	-1 358	-2 285	667	1 151	-703	-845	533	123	0
H Transportation etc.	-29 088	-630	1 403	6	-19	-210	738	209	-30 583
I Accom. and food services	2 777	-532	65	376	0	-53	97	-7	2 831
J Information and commun.	1 361	-864	208	2 661	-307	-352	33	-18	0
K Financial and insurance	21 604	-2	22 149	150	0	-714	22	0	0
L Real estate activities	11 682	-214	15 091	22	-2	-87	29	10	-3 168
M Professional, scientific etc.	--1 271	-780	161	427	-398	-503	58	-235	0
N Adm. And supportive act.	-7 722	-460	151	602	-62	-161	30	9	-7 830
O Public administration etc.	1 650	0	1 779	257	0	-399	13	1	0
P Education	157	0	115	500	0	-462	3	1	0
Q Human health etc.	-530	0	128	29	0	-685	8	-11	0
R Arts, entertainment etc.	1 334	-5	58	1 341	-1	-66	4	4	0
S Other service activities	-41	-9	134	76	-108	-149	5	11	0
T Households as employers	0	0	0	0	0	0	0	0	0
Total	**-6 823**	**-9 642**	**46 858**	**11 217**	**-13 786**	**-5 617**	**2 088**	**809**	**-38 751**

Notes:
(1): Inexpensive tools from IC to GFCF

(2): Financial intermediation services paid for directly
(3): Expenditures on licenses and royalties
(4): R&D
(5): Expenditure by employers to be treated as wages and salaries in kind
(6): Payments for government licenses and fees that are to be treated as other taxes on production
(7): Price corrections on stocks of raw materials
(8): Other

The split between major repairs (capital repair) and current repair is based on reporting by enterprises to the Structural Business Statistics. Major repair is treated as Gross Fixed Capital Formation, whereas current repair is treated as intermediate consumption.

Table 3.13B: Conceptual adjustments, Output, 2017. Based on Process Tables.

National account industry	Total (1) = (2) + (3) + (4) + (5) + (6)	Original works and film and TV rights (2)	Own-account software (market) (3)	R&D (market) (4)	Corrections in trade margins (5)	Other (6)
	DKK mill.					
A Agriculture, forestry and fishing	525	0	0	66	0	459
B Mining and quarrying	117	0	8	109	0	0
C Manufacturing	25 647	0	2 502	23 145	0	0
D Electricity, gas, steam and air conditioning supply	814	0	673	141	0	0
E Water supply; sewerage, waste manage. and remediation activity	102	0	71	31	0	0
F Construction	197	0	171	27	0	0
G Wholesale and retail trade; repair of vehicles and motorcycles	11 461	0	1 978	1 487	7 996	0
H Transportation and storage	-29 653	0	919	11	0	-30 583
I Accommodation and food services activities	87	0	70	18	0	0
J Information and communication	11 829	4 049	6 717	1 063	0	0
K Financial and insurance activities	5 984	0	4 720	1 265	0	0

L	Real estate activities	-2 992	0	172	4	0	-3 168
M	Professional, scientific and technical activities	4 146	0	2 263	1 882	0	0
N	Administrative and support service activities	-7 098	0	504	198	0	-7 800

Table APB1.3: Conceptual adjustments, Output, 2017. Based on Process Tables. cont.

O	Public administration and defence; compuls. social security	10	0	10	0	0	0
P	Education	38	0	38	0	0	0
Q	Human health and social work activities	174	0	12	163	0	0
R	Arts, entertainment and recreation	3 719	3 443	132	145	0	0
S	Other service activities	397	0	134	263	0	0
T	Activities of households as employers; etc.	0	0	0	0	0	0
	Total	**25 504**	**7 491**	**21 093**	**30 016**	**7 996**	**-41 093**

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 SBS 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 SBS 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 statistical unit used from the SBS is the local KAU cf. 3.1. After transformation to the intermediate system, there are 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 to the production of 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.

<u>Adjustments made to production</u>
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 originals created 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-account production of software is normally not capitalised but is considered as current operating expenditure (wages and salaries and the consumption of goods and services). If it is capitalized, SBS data 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-account production of software is calculated in a subsystem which, 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-account production of 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 values of software produced at own-account are 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 owner-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
Output is adjusted to include output to 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 Target Total Module (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. 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 the share of the "acquisition of equipment, expensed" item which had to be counted as intermediate consumption in the national accounts was reduced and the capital formation share was 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". The 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 payment for the services of the insurance corporation called 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 (MTM) 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 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 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 Target Total Modulse (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 Target Total Module (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. In this case output is calculated from the expenditure side as the sum of the rental expenditure of all other industries and 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. See also section 3.18.

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. Until 2008 the method then was 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. Since 2008 supplementary questions regarding number of “hidden” hours worked was added to the LFS broken down by different sectors in order to improve the estimates in the national accounts. The argument was that the hidden economy was likely to develop differently from the legal economy during the financial crises. See also section 7.

3.6.1 Detailed figures for selected variables by industries and sectors

Figures for output, intermediate consumption and gross value added by NACE 64x1 industries and institutional sectors is displayed in table 3.16B below.

Table 3.16B: Output, Intermediate consumption and Gross value added by industries and sectors, 2017.

NACE 64x1		Sector	Output	Intermediate consumption	Gross value added	PCT of GVA
			DKK mill.			pct.
A01	Agriculture and horticulture	S.11	22 304	14 749	7 555	0.40
A01	Agriculture and horticulture	S.14	54 860	38 202	16 659	0.87
A02	Forestry and logging	S.11	2 301	2 022	279	0.01
A02	Forestry and logging	S.13	916	443	473	0.02
A02	Forestry and logging	S.14	1 569	442	1 127	0.06
A03	Fishing and aquaculture	S.11	4 031	2 069	1 962	0.10
A03	Fishing and aquaculture	S.14	1 155	596	559	0.03
B	Mining and quarrying	S.11	30 570	9 161	21 409	1.12
B	Mining and quarrying	S.14	50	35	15	0.00
C10T12	Mfr. of food, beverages and tobacco	S.11	148 861	120 454	28 407	1.49
C10T12	Mfr. of food, beverages and tobacco	S.14	1 826	997	829	0.04
C13T15	Mfr. of textile and leather	S.11	9 415	6 429	2 986	0.16
C13T15	Mfr. of textile and leather	S.14	313	198	115	0.01
C16	Manufacture of wood etc.	S.11	11 458	7 187	4 271	0.22
C16	Manufacture of wood etc.	S.14	270	166	104	0.01
C17	Manufacture of paper etc.	S.11	9 093	6 072	3 020	0.16
C17	Manufacture of paper etc.	S.14	30	21	9	0.00
C18	Printing etc.	S.11	7 872	4 812	3 060	0.16
C18	Printing etc.	S.14	338	199	139	0.01
C19	Oil refinery etc.	S.11	28 663	25 998	2 665	0.14
C20	Mfr. of chemicals and chemical products	S.11	44 249	24 360	19 889	1.04
C20	Mfr. of chemicals and chemical products	S.14	52	34	18	0.00
C21	Pharmaceuticals	S.11	106 269	32 885	73 383	3.85
C21	Pharmaceuticals	S.14	13	7	7	0.00
C22	Manufacture of rubber etc.	S.11	21 408	12 469	8 939	0.47
C22	Manufacture of rubber etc.	S.14	203	130	73	0.00
C23	Mfr. of other non-metallic mineral products	S.11	23 914	13 864	10 050	0.53
C23	Mfr. of other non-metallic mineral products	S.14	281	153	128	0.01
C24	Manufacture of basic metals	S.11	10 440	7 415	3 026	0.16
C24	Manufacture of basic metals	S.14	47	28	19	0.00
C25	Manufact. of fabricated metal	S.11	47 782	29 165	18 618	0.98
C25	Manufact. of fabricated metal	S.14	1 546	820	726	0.04
C26	Manufact. of computers, etc.	S.11	37 094	18 023	19 071	1.00
C26	Manufact. of computers, etc.	S.14	102	57	46	0.00
C27	Manufacture of electrical equipment	S.11	19 043	11 759	7 285	0.38
C27	Manufacture of electrical equipment	S.14	64	41	23	0.00
C28	Mfr. of machinery and equipment n.e.c.	S.11	145 685	97 626	48 059	2.52
C28	Mfr. of machinery and equipment n.e.c.	S.14	555	311	244	0.01
C29	Manuf. of motor vehicles etc.	S.11	7 507	4 595	2 912	0.15
C29	Manuf. of motor vehicles etc.	S.14	59	37	22	0.00
C30	Mf. of ships, transport equip.	S.11	4 990	3 313	1 677	0.09
C30	Mf. of ships, transport equip.	S.14	46	31	15	0.00
C31_32	Mfr. of furniture; other manufacturing	S.11	40 314	21 610	18 704	0.98
C31_32	Mfr. of furniture; other manufacturing	S.14	839	509	330	0.02
C33	Repair, install of machinery etc	S.11	15 103	9 429	5 674	0.30
C33	Repair, install of machinery etc	S.14	2 102	1 355	747	0.04
D	Electricity, gas and steam	S.11	51 828	25 185	26 644	1.40
E36	Water collection, treatment and supply	S.11	5 482	2 106	3 375	0.18
E37T39	Sewerage and waste	S.11	33 275	21 723	11 552	0.61
E37T39	Sewerage and waste	S.14	95	76	20	0.00
F	Construction	S.11	251 750	158 247	93 503	4.90
F	Construction	S.13	8 440	5 343	3 097	0.16
F	Construction	S.14	22 700	12 715	9 985	0.52
G45	Sale and repair of motor vehicles	S.11	40 222	19 010	21 212	1.11
G45	Sale and repair of motor vehicles	S.14	5 254	2 450	2 805	0.15
G46	Wholesale trade, exc. of motor vehicles	S.11	289 552	130 458	159 094	8.34
G46	Wholesale trade, exc. of motor vehicles	S.14	5 698	3 656	2 042	0.11
G47	Retail trade, exc. of motor vehicles	S.11	93 033	39 537	53 496	2.81
G47	Retail trade, exc. of motor vehicles	S.14	12 476	4 210	8 265	0.43

H49	Land transport	S.11	73 088	44 682	28 405	1.49
H49	Land transport	S.14	11 410	5 382	6 028	0.32
H50	Water transport	S.11	209 785	178 916	30 869	1.62
H50	Water transport	S.13	410	196	214	0.01
H50	Water transport	S.14	48	36	12	0.00
H51	Air transport	S.11	21 160	15 420	5 741	0.30
H51	Air transport	S.14	9	7	3	0.00
H52	Support activities for transport	S.11	49 736	26 288	23 448	1.23
H52	Support activities for transport	S.13	5 574	2 933	2 641	0.14
H52	Support activities for transport	S.14	272	114	158	0.01
H53	Postal and courier activities	S.11	14 135	8 638	5 497	0.29
H53	Postal and courier activities	S.14	682	560	122	0.01
I	Hotels and restaurants	S.11	56 913	32 280	24 633	1.29
I	Hotels and restaurants	S.14	14 200	7 876	6 323	0.33
J58	Publishing activities	S.11	24 926	10 521	14 405	0.76
J58	Publishing activities	S.14	270	166	104	0.01
J59_60	Tv and radio, motion picture ect.	S.11	21 393	11 738	9 655	0.51
J59_60	Tv and radio, motion picture ect.	S.13	3 975	2 026	1 950	0.10
J59_60	Tv and radio, motion picture ect.	S.14	1 141	541	600	0.03
J61	Telecommunications	S.11	40 761	21 844	18 918	0.99
J61	Telecommunications	S.14	51	33	18	0.00
J62_63	IT and information service	S.11	82 337	42 274	40 062	2.10
J62_63	IT and information service	S.14	3 571	1 497	2 074	0.11
K64	Financial service activities	S.12	129 643	47 693	81 950	4.30
K65	Insurance and pension funding	S.12	31 377	14 930	16 447	0.86
K66	Other financial activities	S.12	21 064	9 066	11 998	0.63
L	Real estate activities	S.11	130 116	45 982	84 134	4.41
L	Real estate activities	S.13	2 584	786	1 798	0.09
L	Real estate activities	S.14	30 944	10 113	20 831	1.09
L68A	Of which: Imputed rents	S.14	122 295	31 032	91 263	4.79
M69_70	Legal and accounting activities	S.11	62 924	22 082	40 842	2.14
M69_70	Legal and accounting activities	S.12	227	142	85	0.00
M69_70	Legal and accounting activities	S.14	5 805	1 857	3 948	0.21
M71	Architecture and engineering activities	S.11	65 651	34 235	31 416	1.65
M71	Architecture and engineering activities	S.13	1 221	335	886	0.05
M71	Architecture and engineering activities	S.14	1 989	957	1 032	0.05
M72	Scientific research and development	S.11	34 373	14 003	20 370	1.07
M72	Scientific research and development	S.13	3 333	654	2 680	0.14
M72	Scientific research and development	S.14	81	54	27	0.00
M73	Advertising and market research	S.11	17 299	10 991	6 308	0.33
M73	Advertising and market research	S.14	1 162	657	505	0.03
M74_75	Other professional, veterinary activities	S.11	19 327	10 336	8 991	0.47
M74_75	Other professional, veterinary activities	S.14	3 766	1 986	1 780	0.09
N77	Rental and leasing activities	S.11	26 114	15 212	10 902	0.57
N77	Rental and leasing activities	S.14	1 276	823	452	0.02
N78	Employment activities	S.11	15 798	3 944	11 854	0.62
N78	Employment activities	S.13	10 567	4 269	6 298	0.33
N78	Employment activities	S.14	479	166	313	0.02
N79	Travel agent activities	S.11	16 975	14 199	2 776	0.15
N79	Travel agent activities	S.13	475	224	251	0.01
N79	Travel agent activities	S.14	222	173	49	0.00
N80T82	Security and investigation ect.	S.11	45 394	21 552	23 842	1.25
N80T82	Security and investigation ect.	S.13	1 628	1 065	563	0.03
N80T82	Security and investigation ect.	S.14	7 739	3 605	4 134	0.22
O	Public administration and defence	S.11	4 729	1 134	3 595	0.19
O	Public administration and defence	S.13	142 979	54 985	87 994	4.61
P	Education	S.11	2 894	1 182	1 713	0.09
P	Education	S.13	134 594	33 224	101 370	5.32
P	Education	S.14	2 046	759	1 287	0.07
P	Education	S.15	18 226	5 206	13 020	0.68
Q86	Human health activities	S.11	20 588	5 353	15 235	0.80
Q86	Human health activities	S.13	111 012	41 324	69 688	3.65
Q86	Human health activities	S.14	12 865	2 535	10 330	0.54

Q87_88	Social work activities	S.13	131 043	34 655	96 388	5.05
Q87_88	Social work activities	S.15	7 527	3 950	3 577	0.19
R90T92	Creative, arts and entertainment activities	S.11	18 129	8 450	9 679	0.51
R90T92	Creative, arts and entertainment activities	S.13	10 595	3 676	6 919	0.36
R90T92	Creative, arts and entertainment activities	S.14	3 055	401	2 654	0.14
R90T92	Creative, arts and entertainment activities	S.15	1 877	808	1 069	0.06
R93	Sports activities	S.11	8 630	4 119	4 510	0.24
R93	Sports activities	S.13	4 414	2 541	1 873	0.10
R93	Sports activities	S.14	502	268	234	0.01
R93	Sports activities	S.15	2 920	1 183	1 737	0.09
S94	Activities of membership organisations	S.11	6 143	1 468	4 674	0.25
S94	Activities of membership organisations	S.13	7 714	2 629	5 085	0.27
S94	Activities of membership organisations	S.15	13 059	5 979	7 080	0.37
S95	Repair of personal goods	S.11	3 550	1 844	1 706	0.09
S95	Repair of personal goods	S.14	1 495	805	690	0.04
S96	Other personal service activities	S.11	6 464	2 082	4 382	0.23
S96	Other personal service activities	S.13	72	15	58	0.00
S96	Other personal service activities	S.14	6 097	1 796	4 301	0.23
T	Households as employers	S.14	5 006	0	5 006	0.26
	Total		**3 821 330**	**1 914 455**	**1 906 874**	**100.00**

Table 3.15 Estimation method used for output by NACE section, 2017.

	National account industry	Survey censuses	Adm. records	Combined data	Benchm. extrapol.	Commodity Flow Model	CFC (PIM)	Dwellings Stratific. Method	FISIM	Insurance	Other E&M	Other	**Total**
		DKK mill.											
A	Agriculture, forestry and fishing	86 576	863	0	0	0	53	0	0	0	0	0	**87 493**
B	Mining and quarrying	0	0	34 369	0	0	0	0	0	0	0	0	**34 369**
C	Manufacturing	0	0	743 323	0	0	0	0	0	0	0	0	**743 323**
D	Electricity, gas, steam and air conditioning supply	43 199	6 661	0	0	0	0	0	0	0	0	0	**49 860**
E	Water supply; sewerage, waste manage. and remediation activity	27 384	6 183	5 145	0	0	0	0	0	0	0	0	**38 712**
F	Construction	25 839	87 741	-18 175	0	13 583	615	0	0	0	158 735	0	**268 339**
G	Wholesale and retail trade; repair of vehicles and motorcycles	0	0	415 941	11 140	0	0	0	0	0	0	0	**427 080**
H	Transportation and storage	41 101	4 735	367 759	0	0	1 574	0	0	0	70	0	**415 238**
I	Accommodation and food services activities	0	0	62 627	0	0	0	0	0	0	0	0	**62 627**
J	Information and communication	7 091	3 767	161 546	0	0	209	0	0	0	0	0	**172 612**
K	Financial and insurance activities	73 846	46 242	0	0	0	0	0	34 270	21 741	0	0	**176 099**
L	Real estate activities	0	917	27 548	0	0	1 666	201 276	0	0	65 462	0	**296 869**
M	Professional, scientific and technical activities	0	2 583	219 488	0	0	1 953	0	0	0	8	0	**224 032**
N	Administrative and support service activities	0	12 503	126 004	0	0	126	0	0	0	41	0	**138 674**
O	Public administration and defence; compuls. social security	2 629	121 093	0	0	0	19 633	0	0	0	2 227	0	**145 581**
P	Education	4 856	114 831	15 211	0	0	19 808	0	0	0	386	0	**155 092**
Q	Human health and social work activities	29 040	231 196	7 862	0	0	10 621	0	0	0	426	0	**279 145**
R	Arts, entertainment and recreation	21 569	12 426	8 395	0	0	2 630	0	0	0	1 193	0	**46 214**
S	Other service activities	10 551	7 456	16 582	0	0	956	0	0	0	5 798	0	**41 342**

T	Activities of households as employers; etc.	0	0	0	0	0	0	0	0	0	4 261	0	**4 261**
	Total	**373 680**	**659 197**	**2 193 624**	**11 140**	**13 583**	**59 844**	**201 276**	**34 270**	**21 741**	**238 605**	**0**	**3 806 961**

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, 2017

	National account industry	N1	N2	N3	N4	N5	N6	N7
		DKK mill.						
A	Agriculture, forestry and fishing	10	0	35	0	0	0	48
B	Mining and quarrying	0	0	0	0	0	0	64
C	Manufacturing	79	0	37	0	118	0	3 904
D	Electricity, gas, steam and air conditioning supply	0	0	0	0	0	0	58
E	Water supply; sewerage, waste management and remediation activity	0	0	0	0	0	0	37
F	Construction	2 554	0	0	0	160	0	1 652
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	862	1 501	0	0	461	0	3 804
H	Transportation and storage	153	0	0	0	50	0	634
I	Accommodation and food services activities	1 800	0	0	0	58	0	6 458
J	Information and communication	238	0	0	0	177	0	2 408
K	Financial and insurance activities	0	0	0	0	0	0	0
L	Real estate activities	0	0	0	0	19	0	919
M	Professional, scientific and technical activities	20	0	0	0	463	0	2 902
N	Administrative and support service activities	11	0	0	0	156	0	666
O	Public administration ad defence; compulsory social security	0	0	0	0	0	0	10
P	Education	30	0	0	0	0	0	13
Q	Human health and social work activities	42	0	0	0	0	0	67
R	Arts, entertainment and recreation	270	0	0	0	0	0	45
S	Other service activities	1 638	1 042	0	0	16	0	73
T	Activities of households as employers; etc.	745	0	0	0	0	0	0
	Total	**8 453**	**2 543**	**72**	**0**	**1 678**	**0**	**23 760**

3.6.1 Detailed figures for selected variables by industries and sectors

Figures for output, intermediate consumption and gross value added by NACE 64x1 industries and institutional sectors are displayed in table 3.16B below.

Table 3.16B: Output, Intermediate consumption and Gross value added by industries and sectors, 2017.

NACE 64x1		Sector	Output	Intermediate consumption	Gross value added	PCT of GVA
			DKK mill.			pct.
A01	Agriculture and horticulture	S.11	22 304	14 749	7 555	0.40
A01	Agriculture and horticulture	S.14	54 860	38 202	16 659	0.87

A02	Forestry and logging	S.11	2 301	2 022	279	0.01
A02	Forestry and logging	S.13	916	443	473	0.02
A02	Forestry and logging	S.14	1 569	442	1 127	0.06
A03	Fishing and aquaculture	S.11	4 031	2 069	1 962	0.10
A03	Fishing and aquaculture	S.14	1 155	596	559	0.03
B	Mining and quarrying	S.11	30 570	9 161	21 409	1.12
B	Mining and quarrying	S.14	50	35	15	0.00
C10T12	Mfr. of food, beverages and tobacco	S.11	148 861	120 454	28 407	1.49
C10T12	Mfr. of food, beverages and tobacco	S.14	1 826	997	829	0.04
C13T15	Mfr. of textile and leather	S.11	9 415	6 429	2 986	0.16
C13T15	Mfr. of textile and leather	S.14	313	198	115	0.01
C16	Manufacture of wood etc.	S.11	11 458	7 187	4 271	0.22
C16	Manufacture of wood etc.	S.14	270	166	104	0.01
C17	Manufacture of paper etc.	S.11	9 093	6 072	3 020	0.16
C17	Manufacture of paper etc.	S.14	30	21	9	0.00
C18	Printing etc.	S.11	7 872	4 812	3 060	0.16
C18	Printing etc.	S.14	338	199	139	0.01
C19	Oil refinery etc.	S.11	28 663	25 998	2 665	0.14
C20	Mfr. of chemicals and chemical products	S.11	44 249	24 360	19 889	1.04
C20	Mfr. of chemicals and chemical products	S.14	52	34	18	0.00
C21	Pharmaceuticals	S.11	106 269	32 885	73 383	3.85
C21	Pharmaceuticals	S.14	13	7	7	0.00
C22	Manufacture of rubber etc.	S.11	21 408	12 469	8 939	0.47
C22	Manufacture of rubber etc.	S.14	203	130	73	0.00
C23	Mfr. of other non-metallic mineral products	S.11	23 914	13 864	10 050	0.53
C23	Mfr. of other non-metallic mineral products	S.14	281	153	128	0.01
C24	Manufacture of basic metals	S.11	10 440	7 415	3 026	0.16
C24	Manufacture of basic metals	S.14	47	28	19	0.00
C25	Manufact. of fabricated metal	S.11	47 782	29 165	18 618	0.98
C25	Manufact. of fabricated metal	S.14	1 546	820	726	0.04
C26	Manufact. of computers, etc.	S.11	37 094	18 023	19 071	1.00
C26	Manufact. of computers, etc.	S.14	102	57	46	0.00
C27	Manufacture of electrical equipment	S.11	19 043	11 759	7 285	0.38
C27	Manufacture of electrical equipment	S.14	64	41	23	0.00
C28	Mfr. of machinery and equipment n.e.c.	S.11	145 685	97 626	48 059	2.52
C28	Mfr. of machinery and equipment n.e.c.	S.14	555	311	244	0.01
C29	Manuf. of motor vehicles etc.	S.11	7 507	4 595	2 912	0.15
C29	Manuf. of motor vehicles etc.	S.14	59	37	22	0.00
C30	Mf. of ships, transport equip.	S.11	4 990	3 313	1 677	0.09
C30	Mf. of ships, transport equip.	S.14	46	31	15	0.00
C31_32	Mfr. of furniture; other manufacturing	S.11	40 314	21 610	18 704	0.98
C31_32	Mfr. of furniture; other manufacturing	S.14	839	509	330	0.02
C33	Repair, install of machinery etc	S.11	15 103	9 429	5 674	0.30
C33	Repair, install of machinery etc	S.14	2 102	1 355	747	0.04
D	Electricity, gas and steam	S.11	51 828	25 185	26 644	1.40
E36	Water collection, treatment and supply	S.11	5 482	2 106	3 375	0.18
E37T39	Sewerage and waste	S.11	33 275	21 723	11 552	0.61
E37T39	Sewerage and waste	S.14	95	76	20	0.00
F	Construction	S.11	251 750	158 247	93 503	4.90
F	Construction	S.13	8 440	5 343	3 097	0.16
F	Construction	S.14	22 700	12 715	9 985	0.52
G45	Sale and repair of motor vehicles	S.11	40 222	19 010	21 212	1.11
G45	Sale and repair of motor vehicles	S.14	5 254	2 450	2 805	0.15
G46	Wholesale trade, exc. of motor vehicles	S.11	289 552	130 458	159 094	8.34
G46	Wholesale trade, exc. of motor vehicles	S.14	5 698	3 656	2 042	0.11
G47	Retail trade, exc. of motor vehicles	S.11	93 033	39 537	53 496	2.81
G47	Retail trade, exc. of motor vehicles	S.14	12 476	4 210	8 265	0.43
H49	Land transport	S.11	73 088	44 682	28 405	1.49
H49	Land transport	S.14	11 410	5 382	6 028	0.32
H50	Water transport	S.11	209 785	178 916	30 869	1.62
H50	Water transport	S.13	410	196	214	0.01
H50	Water transport	S.14	48	36	12	0.00
H51	Air transport	S.11	21 160	15 420	5 741	0.30
H51	Air transport	S.14	9	7	3	0.00

H52	Support activities for transport	S.11	49 736	26 288	23 448	1.23
H52	Support activities for transport	S.13	5 574	2 933	2 641	0.14
H52	Support activities for transport	S.14	272	114	158	0.01
H53	Postal and courier activities	S.11	14 135	8 638	5 497	0.29
H53	Postal and courier activities	S.14	682	560	122	0.01
I	Hotels and restaurants	S.11	56 913	32 280	24 633	1.29
I	Hotels and restaurants	S.14	14 200	7 876	6 323	0.33
J58	Publishing activities	S.11	24 926	10 521	14 405	0.76
J58	Publishing activities	S.14	270	166	104	0.01
J59_60	Tv and radio, motion picture ect.	S.11	21 393	11 738	9 655	0.51
J59_60	Tv and radio, motion picture ect.	S.13	3 975	2 026	1 950	0.10
J59_60	Tv and radio, motion picture ect.	S.14	1 141	541	600	0.03
J61	Telecommunications	S.11	40 761	21 844	18 918	0.99
J61	Telecommunications	S.14	51	33	18	0.00
J62_63	IT and information service	S.11	82 337	42 274	40 062	2.10
J62_63	IT and information service	S.14	3 571	1 497	2 074	0.11
K64	Financial service activities	S.12	129 643	47 693	81 950	4.30
K65	Insurance and pension funding	S.12	31 377	14 930	16 447	0.86
K66	Other financial activities	S.12	21 064	9 066	11 998	0.63
L	Real estate activities	S.11	130 116	45 982	84 134	4.41
L	Real estate activities	S.13	2 584	786	1 798	0.09
L	Real estate activities	S.14	30 944	10 113	20 831	1.09
L68A	Of which: Imputed rents	S.14	122 295	31 032	91 263	4.79
M69_70	Legal and accounting activities	S.11	62 924	22 082	40 842	2.14
M69_70	Legal and accounting activities	S.12	227	142	85	0.00
M69_70	Legal and accounting activities	S.14	5 805	1 857	3 948	0.21
M71	Architecture and engineering activities	S.11	65 651	34 235	31 416	1.65
M71	Architecture and engineering activities	S.13	1 221	335	886	0.05
M71	Architecture and engineering activities	S.14	1 989	957	1 032	0.05
M72	Scientific research and development	S.11	34 373	14 003	20 370	1.07
M72	Scientific research and development	S.13	3 333	654	2 680	0.14
M72	Scientific research and development	S.14	81	54	27	0.00
M73	Advertising and market research	S.11	17 299	10 991	6 308	0.33
M73	Advertising and market research	S.14	1 162	657	505	0.03
M74_75	Other professional, veterinary activities	S.11	19 327	10 336	8 991	0.47
M74_75	Other professional, veterinary activities	S.14	3 766	1 986	1 780	0.09
N77	Rental and leasing activities	S.11	26 114	15 212	10 902	0.57
N77	Rental and leasing activities	S.14	1 276	823	452	0.02
N78	Employment activities	S.11	15 798	3 944	11 854	0.62
N78	Employment activities	S.13	10 567	4 269	6 298	0.33
N78	Employment activities	S.14	479	166	313	0.02
N79	Travel agent activities	S.11	16 975	14 199	2 776	0.15
N79	Travel agent activities	S.13	475	224	251	0.01
N79	Travel agent activities	S.14	222	173	49	0.00
N80T82	Security and investigation ect.	S.11	45 394	21 552	23 842	1.25
N80T82	Security and investigation ect.	S.13	1 628	1 065	563	0.03
N80T82	Security and investigation ect.	S.14	7 739	3 605	4 134	0.22
O	Public administration and defence	S.11	4 729	1 134	3 595	0.19
O	Public administration and defence	S.13	142 979	54 985	87 994	4.61
P	Education	S.11	2 894	1 182	1 713	0.09
P	Education	S.13	134 594	33 224	101 370	5.32
P	Education	S.14	2 046	759	1 287	0.07
P	Education	S.15	18 226	5 206	13 020	0.68
Q86	Human health activities	S.11	20 588	5 353	15 235	0.80
Q86	Human health activities	S.13	111 012	41 324	69 688	3.65
Q86	Human health activities	S.14	12 865	2 535	10 330	0.54
Q87_88	Social work activities	S.13	131 043	34 655	96 388	5.05
Q87_88	Social work activities	S.15	7 527	3 950	3 577	0.19
R90T92	Creative, arts and entertainment activities	S.11	18 129	8 450	9 679	0.51
R90T92	Creative, arts and entertainment activities	S.13	10 595	3 676	6 919	0.36
R90T92	Creative, arts and entertainment activities	S.14	3 055	401	2 654	0.14
R90T92	Creative, arts and entertainment activities	S.15	1 877	808	1 069	0.06
R93	Sports activities	S.11	8 630	4 119	4 510	0.24

R93	Sports activities	S.13	4 414	2 541	1 873	0.10
R93	Sports activities	S.14	502	268	234	0.01
R93	Sports activities	S.15	2 920	1 183	1 737	0.09
S94	Activities of membership organisations	S.11	6 143	1 468	4 674	0.25
S94	Activities of membership organisations	S.13	7 714	2 629	5 085	0.27
S94	Activities of membership organisations	S.15	13 059	5 979	7 080	0.37
S95	Repair of personal goods	S.11	3 550	1 844	1 706	0.09
S95	Repair of personal goods	S.14	1 495	805	690	0.04
S96	Other personal service activities	S.11	6 464	2 082	4 382	0.23
S96	Other personal service activities	S.13	72	15	58	0.00
S96	Other personal service activities	S.14	6 097	1 796	4 301	0.23
T	Households as employers	S.14	5 006	0	5 006	0.26
	Total		**3 821 330**	**1 914 455**	**1 906 874**	**100.00**

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 2017, this NACE Section accounted for 1.5% 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, 2017

		Output	Intermediate consumption	Value added at basic price
	National account industry			
010000	Agriculture and horticulture	77.164	52.951	24.213
020000	Forestry	4.787	2.907	1.879
030000	Fishing	5.185	2.664	2.521
	Total NACE A	**87.137**	**58.523**	**28.614**
	Percentage of the economy	2,2	3,3	1,5

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), 2017

	DKK mill.
EAA Gross production value	83.736
Less sales within the agricultural industry	9.574
Less value of agricultural services acc. to EAA	3.893
Less secondary activity in EAA	1.428
Plus value of agricultural services acc. to NA	7.914
Plus other corrections and additions	3.140
NA Production value	79.896
	0
EAA intermediate consumption	60.052
Less sales within the agricultural industry	9.574
Less IC associated with agricultural services acc. to EAA	2.140
Plus IC associated with agricultural services acc. to NA	4.621
Plus other corrections and additions	-9
NA intermediate consumption	52.951

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 two statistical sources for calculating output are the *Felling of Woods in the Danish Forests* which is a sample-based survey carried out by Statistics Denmark. It calculates physical production of wood, broken down by type and use, in the Danish forests, first and foremost for calculating gross value added for the forestry. The second statistical source for calculating output is *Forest Statistics* which is a forest census carried out by Department of Geosciences and Natural Resource Management, University of Copenhagen. This census contains information about net natural growth in the volume of standing timber. 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.

As explained in section 7.1.3, it is assumed that there is no production of *drugs* in Denmark, only trade in drugs.

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 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 52 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 2017, this section accounted for 1.1% 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, 2017

	Output	Intermediate consumption	Value added at basic price
	DKK mill.		

	National account industry			
060000	Extraction of oil and gas	22 962	4 095	18 867
080090	Extraction of gravel and stone	3 305	2 189	1 116
090000	Mining support service	4 352	2 912	1 440
	Total NACE B	**30 620**	**9 196**	**21 424**
			pct.	
	Percentage of the economy	0.9	0.5	1.1

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 corporation, Danish 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 Danish 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 SBS.

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

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

	National account industry	Source
060000	Extraction of oil and gas	SBS
080090	Extraction of gravel and stone	SBS
090000	Mining support service	SBS

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 from either domestic suppliers or is imported. . In the recent period all exploaratory drilling 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 (SBS), 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 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 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 (Danish Oil Pipe A/S + 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 3.22. In the detailed DK-NACE, manufacturing consists of 237 industries, each of which is calculated separately when the primary statistics are processed.

In 2017, this section accounted for 15.0% 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, 2017

	National account industry	Output	Intermediate consumption	Value added at basic price
			DKK mil.	
100010	Production of meat	40 720	35 461	5 259
100020	Processing of fish	13 740	11 981	1 759
100030	Manufacture of dairy products	38 187	32 195	5 992
100040	Manufacture of bakery products	13 579	8 370	5 209
100050	Other manufacture of food	35 933	28 166	7 768
110000	Manufacture of beverages	7 210	4 562	2 649
120000	Manufacture of tobacco products	1 318	716	602
130000	Manufacture of textiles	6 734	4 584	2 150
140000	Manufacture of wearing apparel	2 690	1 851	839
150000	Manufacture of footwear etc.	304	192	112
160000	Manufacture of wood etc.	11 728	7 353	4 375
170000	Manufacture of paper etc.	9 122	6 093	3 029
180000	Printing etc.	8 210	5 011	3 199
190000	Oil refinery etc.	28 663	25 998	2 665
200010	Manufacture of basic chemicals	17 916	8 155	9 761
200020	Manufacture of paints, soap etc.	26 385	16 239	10 146
210000	Pharmaceuticals	106 282	32 892	73 390
220000	Manufacture of rubber etc.	21 611	12 599	9 012
230010	Manufacture of glass etc.	2 625	1 620	1 005
230020	Manufacture of concrete etc.	21 570	12 397	9 174
240000	Manufacture of basic metals	10 487	7 442	3 045
250000	Manufacture of fabricated metal	49 329	29 985	19 343
260010	Manufacture of computers, etc.	9 397	6 013	3 384
260020	Manufacture of other electronics	27 799	12 067	15 732
270010	Manufacture of motors, etc.	10 631	6 817	3 814
270020	Manufacture of wires, cables	3 392	1 953	1 438
270030	Manufacture of household appl. etc.	5 085	3 029	2 056
280010	Manufacture of engines etc.	95 398	67 125	28 272
280020	Manufacture of other machinery	50 842	30 812	20 030
290000	Manufacture of motor vehicles etc.	7 566	4 631	2 935
300000	Manufacture of ships, transport equip.	5 037	3 344	1 692
310000	Manufacture of furniture	14 854	8 681	6 173
320010	Manufacture of med. Instruments	6 742	3 172	3 570
320020	Manufacture of toys, etc.	19 557	10 266	9 291
330000	Repair, inst. of machinery etc.	17 205	10 783	6 421
	Total NACE C	**747 847**	**462 557**	**285 290**
			pct.	
	Percentage of the economy	19.3	23.5	15.0

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 SBS, 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 SBS. Table 3.23 gives an overview of manufacturing industries where the SBS is 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	SBS

Method of calculation
By far the largest share of manufacturing is calculated using the SBS as described in section 3.1.4. Below is therefore only discussed the methods used for the other sources than SBS listed in table 3.23.

In 100010 Production of meat, a correction is made for home slaughtering. Regarding value added 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 1,194 million in 2017.

The process tables shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries. No illegal economic activities are classified in this section.

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 (SBS), 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 account output of 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 account output of 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 by far 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 holds true of virtually all national accounts industries within manufacturing.

Table 3.24 Extract from intermediate system for National accounts industry 260010, 2017

		Basic price
		DKK mill.
MLS code text	MLS code	
Fringe benefits, output	1007	21 068
Manufacturing of plant and machinery for own use	1012	23 585
Own account software	1015	90 658
Own account research and development	-	499 371
Income for licences and royalties	1017	1 980
Other and unspecified net sales	1018	8 564 982
"Other sales" excluding licenses and royalties	1059	121 541
Total turnover	1010	9 323 185
Inventories of finished goods	2065	48 618
Output value		**9 371 803**

Table 3.25 Breakdown of turnover in National accounts industry 260010, 2017

		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	903 889	599 088	304 801	0	599 088	304 801
260010	261200	780 452	491 832	288 620	0	491 832	288 620
260010	262000	1 070 422	896 756	173 666	0	896 756	173 666
260010	263000	2 924 575	2 218 517	706 058	0	2 218 517	706 058
260010	264000	2 885 646	2 912 901	-27 255	27 255	2 912 901	0
Total		**8 564 984**	**7 119 094**	**1 445 890**	**27 255**	**7 119 094**	**1 473 145**

Breakdown of intermediate consumption by product
For the part of intermediate consumption of manufacturing that 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 2017 is based on the cost structure survey for 2017 and information from the structure in the balanced supply and use matrices from 2016 inflated to 2017-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 cover 8 industries at the most detailed DK-NACE level. This section accounted for 1.4 % of value added of the Danish economy in 2017 – cf. Table 3.26.

Table 3.26 NACE D's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
350010	Prod., distrib. of electricity	27 828	12 243	15 586
350020	Manuf. And distribution of gas	10 708	7 168	3 540
350030	Steam and hot water supply	13 292	5 774	7 517
	Total NACE D	**51 828**	**25 185**	**26 644**
		pct.		
	Percentage of the economy	1.3	1.3	1.4

Statistical source

The statistical source underlying the estimate of value added in all three industries is Central and local government accounts, SBS, Official annual accounts and accounting figures from branch organisations as described in chapter 3.1.

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

	National account industry	Source
350010	Prod., distrib. of electricity	SBS, local government accounts, accounting figures from branch organisations
350020	Manuf. And distribution of gas	SBS, local government accounts, accounting figures from branch organisations
350030	Steam and hot water supply	SBS, local government accounts, accounting figures from branch organisations

Method of calculation

The output value in the national accounts for NACE D is measured net, i.e. it excludes internal deliveries within the industry. This implies 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 and local government accounts cover all electricity utilities. 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 of electricity in the productbalances the value of the product subsidy is added to the sales income reported. In 2017, the subsidy was DKK 7,698 million.

For the *manufacture and distribution of gas*, accounting statistics from the SBS 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 two 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 III is output of gas supplied from 350020 to intermediate consumption, households and export. Information on gas produced in gasworks is obtained from local government accounts.

Supply of district heating, is covered by the SBS and local government accounts. In addition to the accounting information, annual information from *Dansk Fjernvarme* 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 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 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 divided into two products, namely gasworks gas and natural gas III. Output from district heating works is 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 is 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 defined 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 2017 – cf. Table 3.28.

Table 3.28 NACE E's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
360000	Water collect. Purification etc.	5 482	2 106	3 375
370000	Sewerage	10 398	4 643	5 756
383900	Waste and materials	22 972	17 156	5 816
	Total NACE E	**38 852**	**23 905**	**14 948**
		pct.		
	Percentage of the economy	1.0	1.2	0.8

Statistical source
The statistical source underlying the estimate of value added in all three industries is the SBS and local government accounts which is the general basis for estimating industries dominated by public corporations. Please refer to chapter 3.2 for more details.

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

	National account industry	Source
360000	Water collect. Purification etc.	SBS and local government accounts
370000	Sewerage	SBS and local government accounts
383900	Waste and materials	SBS and local government accounts

Method of calculation
For all three industries the accounting figures from the SBS do not cover all units and are therefore grossed up to the total population of producer units, using the standard procedure from SBS. In addition to SBS data, accounting information from local government accounts are used for a significant part of the activity.

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 there are also production of fringe benefits, own-account software and own-account 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 5.6 % of value added of the Danish economy in 2017 – cf. Table 3.30.

Table 3.30 NACE F's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
410009	Construction of new buildings	82 292	48 917	33 375
420000	Civil engineering	87 052	59 752	27 300
430003	Professional repair and maint.	85 059	39 148	45 911
430004	Own-account repair and maint.	28 488	28 488	0
	Total NACE F	**282 891**	**176 305**	**106 586**
		pct.		
	Percentage of the economy	7.4	9.2	5.6

The industry covers construction and civil engineering activity in the Danish economy. Foreign construction activity of Danish construction firms could be 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 23 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 23 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. No subcontracting within the construction industry is measured, all output are measured net of subcontracting.

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 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 SBS. 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 23 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	SBS + estimate for own account GFCF transferred to 410009
420000	Civil engineering	SBS and own account GFCF
430003	Repair and maintenance of buildings	SBS + estimate for own account GFCF transferred to 430003 + estimates for hidden economy.

[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.

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 industries 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.

New sources for compiling output of selected products
The method for compiling output of construction of new dwellings, repair of dwellings and ordinary repair and maintenance of other buildings and other structures has been changed since the 2012 compilation. New statistical sources has become available, a product statistics for construction, which contain information on output by different products, such as dwellings, other buildings and civil engineering, with a further breakdown on construction of new units, capital repair of units, current repair of units. The new survey does not include questions on exports, the survey measure output by products with no split on domestic or foreign use. Further, new information on subcontracting (by type) has become available. This new sources cover significant part of the output in NACE section F, however, the sources and method for estimation of value added in NACE section F has not changed.

The old method for compiling output for selected products ware partly based on square meters for dwellings and other buildings for compiling construction of new dwellings and other buildings and partly based on estimated output values pr. employed person for compiling repair and maintenance. For the latter employment surveys for the construction industry was a significant source.

Method of calculation
Even though the value added of construction is basically calculated from accounting statistics (SBS) 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.

Method for compiling output of construction of new dwellings and repair and maintenance of buildings

Supply of ordinary repair and maintenance of other buildings and other structures
The figures for the ordinary supply of repair and maintenance of other buildings and other structures are based on the product statistics for construction (Turnover in construction (by industry (DB07) and type of work), which contain information on domestic supply of repair and maintenance, with breakdown on type of construction (dwellings, other buildings and civil engineering) and on type of repair (capital repair og ordinary maintenance). Figures for import and export are gathered from the foreign trade statistics.

The product statistics for construction is measured gross, which in this context means that subcontracting within the industry is included. Because output of Construction (Nace F) is measured net in the Danish national account, subcontracting within the industry must be eliminated. The survey on Purchase of commodities in the construction industry explicitly asks about subcontracting within the construction industry, and this information is used as a starting point for compiling figures for domestic supply net of subcontracting. The survey almost have an identical breakdown on type of product and type of repair as on product statistics for construction, however a few additional breakdowns needs to be derived by assumptions.

Dwellings
Output of dwellings, which include construction of new dwellings, capital repair of dwellings and ordinary repair of dwellings, are compiled by using the same sources as for ordinary repair and maintenance of other buildings; the product statistics for construction (Turnover in construction (by industry (DB07) and type of work). The product statistics for construction contain all the relevant breakdowns. Subcontracting, which is included in product statistics for construction, is removed by using information from the Purchase of commodities in the construction industry.

Other buildings and civil engineering (other structures)
Gross fixed capital formation and thus indirectly output regarding other buildings and civil engineering (other structures) are compiled by using Structural Business Statistics, see chapter 5. This applies for both the capital repair and construction of new unit components of these types of investments.

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	272 507
1.	+	Correction of finish products	767
2.	-	Intermediate consumption from MLS	180 204
3.	**=**	**Value added from MLS**	**93 070**
		Own account production not in MLS:	
		[1] Government owned companies (market)	
4.		Own-accout production, (wages and materials)	2 249
5.	-	Intermediate comsumption (materials)	930
6.	=	Residual (wages)	1 320
7.	+	Inputed gross operationg surplus	126
8.	**=**	**Total**	**1 446**
		Own account production not in MLS:	
		[2] Do-it-yourself repair and maintenance	
9.		Inputed wages	1 269
9.b		Reclassification between industries	9 799
		Other supplements	
10.		Initial adjustment	1 000
11.=3.+8.+9.+9.b +10.		Value added in construction industry before balancing	106 585
12.		Value added after balancing	106 585

13.	Output	282 891
14. = 13. - 12.	Intermediate consumption	176 305

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 show 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 new statistics on output by products for construction are used for compiling the breakdown by products. Total construction of other buildings and civil engineering work other than repair and maintenance are based on expenditure side information, and further subdivided by using the statistics on output by products for construction.

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 2017, there is approximately DKK 25,790 million wholesale trade margins (including formal transport) and DKK 4,449 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 10,025 million wholesale and DKK 3,888 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.

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 12.9% of the value added in the Danish economy in 2017.

Table 3.33 NACE G's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
450010	Sale of motor vehicles	24 718	8 648	16 070
450020	Repair etc. of motor veh. etc.	20 758	12 811	7 947
460000	Wholesale	295 250	134 114	161 136
470000	Retail sale	105 508	43 747	61 761
	Total NACE G	**372 408**	**174 694**	**197 714**
		pct.		
	Percentage of the economy	11.5	10.1	12.9

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, see also section 3.1.4, subsection VI . 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	SBS
450020	Repair etc. of motor veh. etc.	SBS
460000	Wholesale	SBS
470000	Retail sale	SBS

Method of calculation

Since the whole of NACE G is covered by SBS, 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

[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"

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 shows the values derived from individual sources and values of conceptual, exhaustiveness and balancing adjustments for output and intermediate consumption for all industries. This includes trade margins on the smuggling of goods and trafficking of drugs.

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 45 is split 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 distributed 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. No further information on trade margins from e.g. ad hoc surveys are available.

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 5.4% of the value added in the Danish economy in 2017.

Table 3.35 NACE H's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
490010	Passenger rail transport etc.	9 103	5 994	3 109
490020	Transp. by suburban trains etc.	26 224	13 969	12 255
490030	Road and pipeline transport	49 171	30 102	19 069
500000	Water transport	210 243	179 149	31 095
510000	Air transport	21 170	15 427	5 743
520000	Support activities for transp.	55 583	29 336	26 247
530000	Postal and courier activities	14 817	9 198	5 619
	Total NACE H	**386 311**	**283 174**	**103 137**
		pct.		
	Percentage of the economy	10.0	14.4	5.4

Statistical sources

The three main sources for NACE H are SBS and government accounts. Government accounts are used for government owned corporations (market activity) and government non-market activity.

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

	National account industry	Source
490010	Passenger rail transport etc.	SBS and local government accounts for government owned quasi corporations (market activity).
490020	Transp. by suburban trains etc.	SBS and local government accounts for government owned quasi corporations (market activity)
490030	Road and pipeline transport	SBS
500000	Water transport (market)	SBS
500000	Water transport (non-market)	General government accounts, non-market (DIOR-database)
510000	Air transport	SBS
520000	Support activities for transp. (market)	SBS and local government accounts for government owned quasi corporations (market activity)
520000	Support activities for transp. (non-market)	General government accounts, non-market (DIOR-database)
530000	Postal and courier activities	SBS

Method of calculation

The market part of NACE H is covered by the SBS and for some industries supplemented by local government accounts for government quasi corporations. The method of calculation here is the same as the standard method for the calculation of value added based on the SBS 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 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-account software" and "own-account 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. These in turn cover 10 industries at the most detailed DK-NACE level. As Table 3.37 shows, NACE I accounted for 1.6% of the value added of the Danish economy in 2017.

Table 3.37 NACE I's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
550000	Hotels, similar accommodation	17 572	10 412	7 159
560000	Restaurants	53 541	29 744	23 797
	Total NACE I	**71 113**	**40 156**	**30 956**
		pct.		
	Percentage of the economy	1.8	2.0	1.6

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 2017 the amount was DKK 6 242 million.

Statistical sources

Coverage is provided by the SBS, which is 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	SBS
560000	Restaurants	SBS

Method of calculation

Since the whole of this section is covered by the SBS, 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 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-account software" and "own-account 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 4.6% of the value added in the Danish economy in 2017, as is also shown in Table 3.39.

Table 3.39 NACE J's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
580010	Publishing	13 734	7 816	5 919
580020	Publishing, computer games etc.	11 461	2 871	8 591
590000	Motion picture, TV and sound	15 280	6 983	8 297
600000	Radio, television broadcasting	11 229	7 322	3 907
610000	Telecommunications	40 813	21 877	18 936
620000	Information technology service	74 327	37 041	37 287
630000	Information service activities	11 580	6 730	4 850
	Total NACE J	**178 425**	**90 639**	**87 786**
		pct.		
	Percentage of the economy	4.6	4.6	4.6

Statistical source
The market part of NACE J is covered by the SBS in combination with government accounts used for government owned quasi corporations (market activity). The source for the non-market output of NACE J is the general government accounts DIOR - the database for integrated public accounts. Information from the Mini One-Stop-Shop is not used directly. For the estimation of output there is an implicit check of the data in the supply use tables where output is confronted with amongst other import and export data where MOSS data forms a part of source data. 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	SBS
580020	Publishing, computer games etc.	SBS
590000	Motion picture, TV and sound (market)	SBS
590000	Motion picture, TV and sound (non-market)	General government accounts (DIOR database)
600000	Radio, television broadcasting (market)	SBS in combination with government accounts for government owned quasi corporations
600000	Radio, television broadcasting (non-market)	General government accounts (DIOR database)
610000	Telecommunications	SBS
620000	Information technology service	SBS
630000	Information service activities	SBS

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.

Detailed description on compilation of GFCF in Software is provided in section 5.10.

The process tables 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-account software" and "own-account 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 5.8% of the value added of the Danish economy in 2017.

Table 3.41 NACE K's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	value added at basic price
		DKK mill.		
	National account industry			
640010	Monetary intermediation	70 241	20 176	50 065
640020	Mortgage credit institutes etc	59 402	27 517	31 884
650000	Insurance and pension funding	31 377	14 930	16 447
660000	Other financial activities	21 064	9 066	11 998
	Total NACE K	**182 084**	**71 689**	**110 395**
		pct.		
	Percentage of the economy	4.7	3.6	5.8

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 below using the activity which is by far the most important, namely 641900, Other monetary intermediation. Further to this, there is a description and numerical illustration of the calculation of output of the Central Bank and its allocation:

Table 3.43 Calculation of the output value of NACE 641000 monetary intermediation, 2017

		DKK mill.
	Financial intermediation services paid for indirectly (FISIM)	
	FISIM on deposits	3 129
	FISIM on loans	26 668
=	**FISIM, monetary intermediation, total**	**29 797**
	Financial intermediation services paid for directly	
	FPI: Fees and charges	26 822
+	FPI: Ordinary income	1 737
=	**Services paid for directly, according to accounts**	**28 559**
+	Mark-up for savings banks, and savings and loan associations under 750 million	967
+	ROW monetary intermediation, branches in Denmark	19 561
-	Greenland banks	306
-	Danish monetary intermediation, branches in the ROW	11 772
=	**Monetary intermediation services paid for directly, total**	37 009
	FISIM, monetary intermediation, total	29 797
+	Monetary intermediation services paid for directly, total	37 009
+	NB: Output from the costs side	727
+	Own-produced software in industry 641000	2 344
+	Other	364
=	**Output of the *Nationalbank* and monetary intermediation, total**	**70 242**

Nationalbank annual report

Table 3.44 Intermediate consumption, monetary intermediation

		DKK mill.
	FPI: Other administrative costs*	14 936
+	FPI: Other operating expenditure	1 170
+	FPI: Fees etc. paid*	6 647
+	Mark-up for savings banks and savings and loan associations under 750 million	323
+	ROW monetary intermediation, branches in Denmark	1 441
-	Greenland banks	81
-	Danish monetary intermediation, branches in the ROW	3 148
=	**Intermediate cons. excl. *Nationalbank* before software**	**21 288**
+	NB: Intermediate consumption, *Nationalbank*	347
-	Correction for software purchased by industry 651000	1 312
-	Other taxes on production	166
+	Other subsidies on production	19
+	FISIM	0
=	**Int. cons., *Nationalbank* and monetary intermediation, total**	**20 176**

FPI: Finanstilsynet's report – monetary intermediation
* ROW Branches in Denmark are already included in the calculation of FPI: Other Administrative costs and FPI: Fees etc. paid

The main data source for output of NACE 64 is the report from Finanstilsynet on banks (aggregate income statement and balance sheet). The aggregate income statement of banks shows information about "Fees and commission income"

The output of the services produced in NACE 64 are included in "FPI: fees and charges" and the calculation of output is consistent with paragraph 3.73 in ESA2010, as the information on fees and charges is directly observable from the income statement.

Table 3.44A

Tabel 1.1 Resultatoplysninger for pengeinstitutter grp. 1-3		
		Beløb 1000 kr.
1.	Renteindtægter	46.407.348
2.	Renteudgifter	13.240.751
	Netto renteindtægter	33.166.600
3.	Udbytte af aktier mv.	542.952
4.	Gebyrer og provisionsindtægter	26.822.227
5.	Afgivne gebyrer og provisionsudgifter	5.170.971
	Netto rente- og gebyrindtægter	55.360.808
6.	Kursreguleringer	12.415.806
7.	Andre driftsindtægter	2.203.637
8.	Udgifter til personale og administration	37.774.571
9.	Af- og nedskrivninger på immaterielle og materielle aktiver	3.052.736
10.	Andre driftsudgifter	242.390
11.	Nedskrivninger på udlån og tilgodehavender mv.	-1.029.982
12.	Resultat af kapitalandele i associerede og tilknyttede virksomheder	10.950.518
13.	Resultat af aktiviteter under afvikling	130
	Resultat før skat	40.891.187
14.	Skat	6.003.621
	Periodens resultat	34.887.567

Fee and commission income from the trading of securities on behalf of customers shall be included in income statement item 4. Charges and commission income (Gebyrer og provisionsindtægter). This follows from the Danish GAAP for credit institutions and Investment Firms etc. and can be found in § 30 in executive order no. 281 of 26. March 2014.

Income statement item 4 shall be further elaborated in the notes to the financial statements. According to § 113 in executive order no. 281 of 26. March 2014 an undertaking that carries out bank activities shall state the amount for income statement item 4. Fee and commission income, analysed by:

1) Securities trading and custody accounts.
2) Payment services (money transmission services).
3) Arrangement fees.
4) Guarantee commission.
5) Other fees and commissions.

Financial assets can be traded by units other than banks. An example can be units classified in industry 649900 (Securities dealing activities), where output is calculated by adding brokerage, fees and provision income. Input data are gathered by the Danish Financial Supervisory Authority. Brokerage, fees and provision income from dealing with securities are specified in the income statement and are part of the total income of these entities.

Central Bank
The output of the central bank is calculated from the cost point of view. The sum of the diverse operating cost, compensation of employees, the purchase of materials and depreciation corresponds to the output of the central bank:

	2017
Central bank	
Diverse operating cost	314
Compensation of employees	356
Purchase of materials	21
Depreciation	17
Output of the central bank	**708**

By subtracting the market output of the central bank (which correspond to sale of coins and medals or other income that does not concern the central bank's primary activities, or which are not recurring annually) from the total output we obtain the non-directly allocated part of the output of the Central bank:

	2017
Output of the central bank	**708**
Market output of the central b	15
Non-directly allocated part of	**692**

The non-directly allocated part of the output of the Central bank is allocated as intermediate consumption to MFIs (S.122 and S.125), with the counterpart transfer from the Central bank (D.759) for the same amount.

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 2010 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	4 414
+	FISIM	250
+	FLI: Wages and salaries	2 492
+	FLI: Depreciations	338
+	Taxes (lønsumsafgift)	386
+	Return on own capital	847
=	**Output of Life insurance corporations, incl.. FISIM**	8 726
+	Corresponding calculation for general pension funds	2 159
+	Corresponding calculation for company pension funds	281
+	Corresponding calculation for burial funds	5
+	Other insurance	20 200
+	Other	5
=	**Output of industry 65**	31 377

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	771
-	FLI: Other ordinary income	2 277
+	FLI: Rentals	124
+	FLI: Other staffing expenditure	2 291
+	FLI: Costs associated with investment activity	3 850
+	FLI: Other acquisition and administrative costs	862
+	FLI: Commissions to own sales staff	207
+	FLI: Other ordinary expenditure	1 039
-	FLI: Wages and salaries[1]	2 504
-	FLI: Contribution to dividends (R44) from wages and salaries and fees	20
-	Purchase of computer software	94
+	Purchase of reinsurance	161
+	Government fees which are sales of services	3
=	**Intermediate consumption in life insurance corporations**	4 414
+	Corresponding calculation for general pension funds	1 231
+	Corresponding calculation for company pension funds	37
+	Burial funds	3
+	Other (non-life) insurance	8 651
+	FISIM in 65	595
=	**Intermediate consumption in industry 65**	14 930

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

Financial auxiliaries (nace 66)
Due to lack of sufficient information for some entities included in the sample in sub-industry 66.20[14] of NACE 66, the position Gross profit from their income statements has been considered as a proxy for calculation of their output.

The problem with collection of information about the output of these entities arises due to the possibility they have according to §32 of the Danish Financial Statements Act applicable to small enterprises not to publish information about their revenue and external costs. Instead they can report only the difference of these two items into a so called 'Gross profit' position in their income statement, which does not include Personnel costs (see an extract from one of the entities' financial statements in Appendix as an example).

Table 3.46B shows the composition of sub-industry 66.20. There are ten entities in the sample reporting only gross profit. This amount is used as a proxy for their output. It aggregates to 1 982 mio. DKK after grossing up with a factor on the basis of FTEs[15]. There is no add-on made for intermediate consumption, so value added is equal to output for companies reporting gross profit. Nine other entities give information about revenue and external costs explicitly. Value added for those entities is the difference of output and intermediate consumption. In total value added for the sub-industry is equal to the sum of value added for entities with gross profit and for those with revenue and external costs.

[14] 66.20 is an aggregate for sub-industries 66.21.00, 66.22.00 and 66.29.00, where the same grossing-up factor is used.

[15] The grossing-up factor for sub-industry 66.20 is equal to 4.27 in 2012. See Answers to seventh set of questions for an example of grossing-up factor calculation.

Table 3.46B. Composition of sub-industry 66.20, mio. DKK, 2017 figures after grossing-up.

	Sub-industry 6620		
	Entities with Gross profit	Entities with Revenue	**Total**
	DKK mill.		
Output	1 982	4 280	**6 262**
IC	-	2 743	**2 743**
Value added	1 982	1 537	**3 518**

Calculating output in this way has a negligible impact on Danish GNI as value added for all entities is always equal to the difference of revenue and external costs.

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	Reinsurance	Pension funds	Total
	DKK mill.				
Total supply					
Production	8 525 049	19 652 868		2 088 283	30 266 200
Import	53 116	407 020	1 443 306		1 903 442
Total supply	8 578 165	20 059 888	1 443 306	2 088 283	32 169 642
Total use					
Intermediate consumption		7 318 033	1 018 005		8 336 038
Household consumption	8 514 711	10 947 069		2 088 283	21 550 063
NPISH consumption		49 877			49 877
Public consumption		478 879			478 879
Export	63 454	1 266 030	425 301		1 754 785
Total use	**8 578 165**	**20 059 888**	**1 443 306**	**2 088 283**	**32 169 642**

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. Since 2017, the calculation of the internal and external reference rate is excluding stocks of group-enterprise loans and deposits, since these loans and deposits are on non-market terms. Stocks of non-performing loans are also included in the FISIM calculation since 2017.

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, 2017

		Q1	Q2	Q3	Q4
		pct.			
Currency	**Reference rate**				
Danish kroner, DKK	Internal	0,05	0,05	0,04	0,01
	External	-0,07	-0,07	-0,08	-0,09
Euro, EUR	Internal	0,14	0,12	-0,03	0,02
	External	0,00	0,00	0,00	-0,02
Others, Z07	Internal	0,22	0,22	0,22	0,34
	External	0,17	0,18	0,20	0,20
All	Internal	0,06	0,06	0,04	0,03
	External	0,02	0,02	0,03	0,01

Table 3.49 Calculations for the FISIM producing part of S.122, 2017

Loans/ deposits	Consuming industry/ sector	Q1	Q2	Q3	Q4

			DKK mill.		
Deposits	**S.11**				
	STOCK_DKK	242 888	236 632	247 794	252 906
			pct.		
*	INT_REF.RATE_DKK	0,05	0,05	0,04	0,01
			DKK mill.		
-	INTERESTFLOW_DKK	-98	-95	-120	-139
=	**FISIM_DKK**	**227**	**220**	**213**	**157**
	STOCK_EUR	29 057	32 500	30 736	28 822
			pct.		
*	INT_REF.RATE_EUR	0,14	0,12	-0,03	0,02
			DKK mill.		
-	INTERESTFLOW_EUR	-21	-27	-25	-26
=	**= FISIM_EUR**	**61**	**67**	**15**	**33**
	STOCK_Z07	24 661	2 0159	21 619	21 619
			pct.		
*	INT_REF.RATE_Z07	0,22	0,22	0,22	0,34
			DKK mill.		
-	INTERESTFLOW_DKK	32	30	39	42
=	**= FISIM_Z07**	22	14	**9**	33

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 2017 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	1 879 789	2 593 088		29 797 345	3 4270 222
Import			359 634		359 634
All production	1 879 789	2 593 088	359 634	29 797 345	34 629 855
Fisim consumption					
Intermediate consumption	1 879 789	999 193	359 634	23 663 441	26 902 057
Household consumption		1 593 894		5 133 435	6 727 329
NPISH consumption				173 835	173 835

Gen. govern. Consumption				102 469	102 469
Export				724 165	724 165
All consumption	1 879 789	2 593088	359 634	29 797 345	34 629 855
FISIM effect on GDP					**6 639 101**
FISIM effect on GNI					**7 003 633**

The allocation of FISIM affects GDP by 6,64 bill. DKK and GNI by 7,01 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 related to dwellings and renting of non-residential buildings. The problem of double counting is handled as part of the general treatment of the 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 2017 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, 2017.

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
680010	Buying, selling of real estate	15 805	8 872	6 933
680023	Renting of residential buildings	79 704	23 283	56 721
680024	Owner-occupied dwellings	122 295	31 032	91 263
680030	Renting, non-residential buildings	68 134	24 726	43 408
	Total NACE M	**285 938**	**87 913**	**198 025**
		pct.		
	Percentage of the economy	7.4	4.5	10.4

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 Statistical sources underlying the calculation of value added for NACE L

	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 2017 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 7 680 strata, some of these strata are empty though.

The Danish estimate for 2017 uses the following stratification criteria:

Table 3.53 Stratification criteria for the calculation of levels, 2017

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. 2000-2004
11. 2005-2009
12. 2010-
13. 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 Capital Region of Denmark excluding Bornholm and all municipalities of the former Roskilde county now part of Region Zealand. 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 12 = 7, 680. 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 2017 figures we continued to use rents from apartments multiplied by 1.1 for farmhouses and detached houses. The factor of 1.1 was most recently re-estimated in 2016.

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, 2017

	Square meters	Rents	Observed rents
	1000 m2	DKK mill.	No.
Dwelling type			
Farmhouses and detached houses	6 404	1 836	28 557
Terraced, linked and semi-detached houses	19 999	8 575	129 877
Blocks of flats	53 418	22 444	366 543
Dormitories	698	352	8 790
Other	99	35	633

Table 3.55 Total rents from the stratification model by dwelling type (before corrections for water etc.), 2017

	Rents
	DKK mill.
Dwelling type	
Farmhouses and detached houses	89 809
Terraced, linked and semi-detached houses	30 125
Blocks of flats	69 114
Dormitories	1 382
Other	12 742
Total	203 172

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 7 680 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 7 680 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 1992 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 2017 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 register of housing-related social benefits ("Boligstøtteregistret"), 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) for year 2012. There is no indication that this has changed significantly by 2017, and therefore no value is assigned.

Table 3.55A Numerical illustration of the calculation of dwellings output. From the stratification model results to national accounts values. 2017

	Rents
	DKK mill.
Result of stratification model	203 172
Corrections for:	
Water	- 713
Sewerage	- 1 099
Refuse collection	-5 596
Insurance	0
Empty dwellings	-680
Subsidy (rented dwellings)	+63
Subtotal	*=195 147*
Garages	+6 031
Wages and salaries in kind and software	+725
Other	96
Total output of dwellings (680023+680024)	**=201 999**

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 2010 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.

The calculation of intermediate consumption in *680030, the letting of non-residential buildings*, consists of three steps:

First the calculation of repair and maintenance in conjunction with letting of non-residential buildings. This is done in a separate system used for the calculation of intermediate consumption of repair and maintenance for all industries. This calculation is described in section 3.12 under *Ordinary repair and maintenance of buildings* in the GNI Inventory.

Next is intermediate consumption of FISIM and financial intermediation services paid for directly. The calculation of this is described in section 3.17 and earlier in this section.

Last there is the calculation of other intermediate consumption (apart from the above mentioned). This remainder is ex ante taken to be equal to the percentage used the year prior to the calculation. During the balancing of the supply-use tables this is subject to change, possibly making the ex post outcome different. In 2017 70 percent of total IC was repair and maintenance, 14 percent was directly paid banking services and FISIM and 16 percent was remaining IC.

Intermediate consumption excluding directly paid banking services and FISIM as a percentage of output is then compared to the input percentage that can be found for the industry in the industrial accounting statistics averaged over a span of years to validate the calculation. The reason for not using the input percentage from the industrial accounting statistics is the volatility of the figures from the industrial accounting statistics. For the same reason we use the average input percentage over a span of years when validating our calculations.

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 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 2017 was divided by product as shown in Table 3.56.

Table 3.56 Breakdown of output in the "dwellings" industries by product, 2017

	Dwellings	
		DKK mill.
F680020	Fringe benefits, free housing	635
F711000	Fringe benefits, free car	22
F713310	Fringe benefits, free pc	22
K620101	Own-produced software	46
T680021	Letting of dwellings	78 979
T680022	Imputed rental value of owner-occupied dwellings	116 263
T680023	Garages etc. not an integral part of the dwellings	6 031
	Total dwellings	**201 999**

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 6.2 % of value added in the Danish economy in 2017.

Table 3.57 NACE M's contribution to the gross value added of the economy. 2017.

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
690010	Legal activities	14 759	3 858	10 901
690020	Accounting and bookkeeping	17 883	5 551	12 331
700000	Business consultancy	36 314	14 673	21 642
710000	Architecture and engineering	68 861	35 328	33 333
720001	Research and developm. (market)	34 454	14 057	20 397
720002	Research and developm. (non.market)	3 333	654	2 680
730000	Advertising, market research	18 461	11 648	6 813
740000	Other technical business serv.	20 306	11 029	9 277
750000	Veterinary activities	2 786	1 293	1 493
	Total NACE M	**217 159**	**98 291**	**118 868**
		pct.		
	Percentage of the economy	5.6	5.0	6.2

Statistical source
The primary statistical source for the market production is the SBS. 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	SBS
690020	Accounting and bookkeeping	SBS
700000	Business consultancy (S.11)	SBS
700000	Business consultancy (S.12)	Account statistics for financial sector (S.12)
710000	Architecture and engineering (market)	SBS
710000	Architecture and engineering (non-market)	General government accounts (DIOR)
720001	Research and developm. (market)	SBS
720002	Research and developm. (non-market)	General government accounts (DIOR)
730000	Advertising, market research	SBS
740000	Other technical business serv.	SBS
750000	Veterinary activities	SBS

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 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 3.2 % of value added in the Danish economy.

Table 3.59 NACE N's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
770000	Rental and leasing activities	27 389	16 035	11 354
780000	Employment activities	26 844	8 380	18 465
790000	Travel agent activities	17 672	14 595	3 076
800000	Security and investigation	4 811	1 765	3 046
810000	Services to building, cleaning	25 395	9 896	15 499
820000	Other business services	24 555	14 561	9 993
	Total NACE N	**126 666**	**65 233**	**61 433**
		pct.		
	Percentage of the economy	3.3	3.3	3.2

Statistical source

The primary statistical source for the market production is the SBS. 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	SBS
780000	Employment activities (market)	SBS
780000	Employment activities (non-market)	General government accounts (DIOR)
790000	Travel agent activities	SBS
800000	Security and investigation	SBS
810000	Services to building, cleaning (market)	SBS
810000	Services to building, cleaning (non-market)	General government accounts (DIOR)
820000	Other business services	SBS

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 2017 two of the three national accounts' industries consisted of government non-market output. As shown in Table 3.61, NACE O accounted for 4.8 % of value added in the Danish economy.

Table 3.61 NACE O's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
	National account industry		DKK mill.	
840010	Public administration	95 356	34 490	60 866
840021	Rescue service etc. (market)	4 729	1 134	3 595
840022	Defence, publ.order (non-market)	47 624	20 495	27 129
	Total NACE O	**147 709**	**56 119**	**91 589**
			pct.	
	Percentage of the economy	3,8	2,8	4,8

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). Section 3.1.3 contain a detailed description of the compilation of non-marked output. The source for the calculations of 840021 rescue service 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 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 2017, 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, 2017

		Output	Intermediate consumption	Value added at basic price
	National account industry		DKK mill.	
850010	Primary education	60 969	11 991	48 978
850020	Secondary education	34 840	10 519	24 321
850030	Higher education	49 134	11 620	37 514
850041	Adult-, other educ. (market)	4 941	1 941	3 000
850042	Adult-, other educ. (non-market)	7 878	4 300	3 577
	Total NACE P	**157 762**	**40 371**	**117 390**
			pct.	
	Percentage of the economy	4.1	2.0	6.2

Statistical sources
In all cases other than market output in industry 850041 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 850041 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 850041 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 10.2% of the value added in the Danish economy in 2017.

Table 3.65 NACE Q's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
	National account industry	DKK mill.		
860010	Hospital activities	101 365	39 408	61 958
860020	Medical and dental practice	43 100	9 805	33 295
870000	Residential care activities	31 800	13 633	18 167
880000	Social work without accomond.	106 770	24 971	81 799
	Total NACE Q	**283 036**	**87 817**	**195 219**
		pct.		
	Percentage of the economy	7.3	4.5	10.2

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 General Government and NPISH. See chapter 5.8 for further description of the method of calculation for NPISH.

The process tables 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 2017.

Table 3.67 NACE R's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
	National account industry			
900000	Theatres, concerts and arts	14 112	4 060	10 052
910001	Libraries, museums (market)	1 429	1 221	209
910002	Libraries, museums (non-market)	10 425	3 957	6 469
920000	Gambling and betting	7 687	4 097	3 591
930011	Sport activities (market)	5 473	2 632	2 841
930012	Sport activities (non-market)	5 482	2 596	2 886
930020	Amusement and recreation	5 511	2 884	2 627
	Total NACE R	**50 121**	**21 446**	**28 675**
	Percentage of the economy	1.3	1.1	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 WTA 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. This is consistent with ESA2010 §3.86. See also section 5.10.3 for more about GFCF for entertainment, literary or artistic originals.

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 ESA2010 section 3.49. The distinction between market and non-market output is made in accordance with ESA2010 section 3.23.

The process tables 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 1.5 of value added of the Danish economy in 2017.

Table 3.69 NACE S's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
		DKK mill.		
	National account industry			
940000	Activities of membership org.	26 916	10 076	16 840
950000	Repair of personal goods	5 045	2 649	2 395
960000	Other personal services	12 634	3 893	8 741
	Total NACE S	**44 594**	**16 618**	**27 976**
		pct.		
	Percentage of the economy	1.2	0.8	1.5

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 (SBS) 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	SBS
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 SBS. 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.

Regarding 950000 Repair of personal goods, the output value is validated against the use side (household final consumption expenditure) in the balancing process.

The process tables 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, there is also fringe benefits, and there is for each national accounts' industry and institutional 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 2017.

Table 3.71 NACE T's contribution to the gross value added of the economy, 2017

		Output	Intermediate consumption	Value added at basic price
	National account industry			
970000	Households as employers	5 006	0	5 006
	Total NACE T	**5 006**	**0**	**5 006**
	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 is called *Arbejdskraftundersøgelsen* (AKU) in Denmark, 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. In the period 2004-2010 the value projected was 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 no longer assumed to be constant. A new benchmark survey for the black economy will be carried out in 2021-2022. The new benchmark will be implemented in connection with the national account revision in 2024.

The process tables 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 4.36 percent of GDP. Of total taxes excluding VAT of 95 708 mill. DKK, 3 170 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, 2017

	To general government	To the EU	**Taxes on products excluding VAT, total**
	DKK mill.		
Taxes on products	92 538	3 170	**95 708**
	pct.		
Percentage of GDP			**4.36**

Table 3.74 Taxes on products excluding VAT. By type of tax, 2017

	DKK mill.
Taxes on products excl. VAT, total	**95 708**
of which:	
Car registration	19 976
Electricity	12 164
Certain oil products	9 804
Cigarettes and tobacco	7 547
Petrol	7 499
Carbon dioxide (CO2)	3 632
Public Service Obligations (on electricity)	5 184
Stamp duties	6 385
Natural gas	3 002
Custom duties	3 136
Coal	1 916
Chocolate	2 184
Third party liability insurance on cars	1 519
Wine	1 724
Piped water	1 571
Profits from national gambling monopoly	1 282
Saturated fats	0
Alcoholic beverages	1 212
Beer	918
Other	5 053

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 including VAT are therefore recorded on an accrual basis. Denmark thus bases its figures for taxes on products including 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. Taxes on products never paid are recorded as a transfer D.995a.

It should also be noted, that VAT collected via the One-Stop-Shop is included in total VAT revenue.

Table 3.75 shows total VAT revenue in 2017 which amounts to 209 billion DKK and 9.51 percent of GDP.

Table 3.75 VAT, 2017

	To general government	To the EU	**VAT, total**
	DKK mill.		
VAT	208 643	0	**208 643**
	pct.		
Percentage of GDP			**9.51**

Compared with some countries, the Danish VAT system is very simple in that there are only two rates, a standard rate of 25 % in 2017 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[16]. 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.

[16] 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.

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)	Theoretical VAT II revenue, with deduction for bad debtors	Actual VAT revenue (VAT assessments)	Percentage difference between theoretical VAT I and actual VAT	Percentage difference between theoretical VAT II and actual VAT
	(1)	(2)	(3)	((1)-(3))/(3) x 100	((2)-(3))/(3) x 100
	DKK 1.000			pct.	
2014	191 390 387	189 048 457	185 994 475	2.82	1.62
2015	196 384 524	193 992 260	191 478 969	2.50	1.30
2016	204 783 800	202 329 708	199 306 425	2.67	1.49
2017	214 092 214	211 547 712	208 643 023	2.55	1.37

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

The table shows that the percentage difference between theoretical and actual VAT has remained reasonably low and constant over the period 2014-2017.

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 GNI 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 5 449 million in 2017. The national accounts estimate of deductions for bad debts of just under 2% may account for DKK 2 545 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 1 667 million. Of these DKK 1 667 million, DKK 639 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.

The formula from 98/527/EC says:

Evasion “without complicity” = Theoretical VAT receipts less actual VAT receipts less time differences less insolvencies less missing revenue (evasion “with complicity”)
Using the formula for Denmark gives (thousand DKK):

639.312 = 211.547.712 less 208.643.023 less 0 less 0 less 1.027.289 *less 1.238.088 (all tDKK)*

Where the last part of 1.238.088 tDKK is a residual. In Denmark VAT is on an accrual basis (meaning we use the capital transfer method for non-collected VAT) and therefore the items “time difference” and “insolvencies” are 0.

Output related to *VAT not collected due to bankruptcy* (insolvencies) should not to be confused with deductions for bad debts. It is included in output and gross operating surplus. Output is based on turnover in companies' accounts from the account statistics. The turnover includes the amounts never received due to bankruptcy, because these losses are deducted elsewhere in the accounts of the companies.

In the Danish supply-use tables VAT is calculated in a subsystem at the most detailed level using the VAT legislation and combinations of products and uses (industry, consumption group, GFCF). The reduced rate of 24,54 % is used. No VAT is allocated to hidden or illegal activity. VAT calculated this way is then aligned to total VAT revenue from government finance statistics (S.13) in the final round of the balancing.

Theoretical VAT is calculated using the balanced supply-use tables as a starting point. Again this is done at the most detailed combination of products and uses, the VAT legislation and the reduced rate of 24,54 %. In addition, VAT is calculated for the products for the hidden and illegal economy.

The amount 1.027.289 tDKK is calculated VAT on fraud with complicity and illegal activity.

The amount 639.312 tDKK is explicitly calculated VAT on under-declaration without complicity (it should be noted, that under-declaration without complicity in the Danish supply-use tables is split between "under-declaration without complicity" and "associated VAT fraud with under-declaration". Both parts are included in output and GDP).

The residual of 1.238.088 tDKK consists of calculated theoretical VAT on own final consumption of agricultural products (17.723 tDKK), VAT on value added related to materials used for GFCF in dwellings (311.424 tDKK) and other adjustments of 908.941 tDKK. The other adjustments cover various minor adjustments to products in the supply use tables, and thus contain the overall uncertainty in the calculations.

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. 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 18 265 bill. DKK and 0.8 percent of GDP in 2017.

Table 3.77 Subsidies on products, 2017

DKK million	From general government	From the EU	**Subsidies on products, total**
		DKK mill.	
Subsidies on products	18 265	0	**18 265**
		pct.	
Percentage of GDP			**0.8**

Table 3.78 Subsidies on products, 2017, by scheme

Subsidy scheme	
	DKK mill.
EU-schemes, total	**0**
Export subsidy schemes	0
Subsidy on the production of skimmed milk, etc.	0
Danish schemes, total	**18 265**
Municipal housing for pensioners, etc.	63
Refuse disposal and incineration	237
DSB (*De Danske Statsbaner)* [Danish State Railways]	4 499
Municipal buses and other transport	3 394
Price reductions in public transportation	558
Municipal estates	624
Central government subsidies to regional theatres	177
Subsidies on magazines and newspapers	379
Subsidies on cultural events	257
Collection of tires, cars and batteries	58
Subsidies on production of electricity	0
Subsidies on wind mills and other sustainable energy production	7 698
Other subsidies on products to private enterprises	320
Subsidies on products, total	**18 265**

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.

4. The Income Approach

4.0 GDP according to the income approach

For 2017, the calculation of income based GDP can be summarised as in table 4.1 below:

Table 4.1 GDP, income approach, 2017

	Value	% of GDP
	DKK mill.	pct.
Compensation of employees	1 118 479	51.0
+ Gross operating surplus and mixed income	767 552	35.0
+ Taxes on production and imports	352 143	16.1
- Subsidies	45 213	2.1
= GDP	**2 192 961**	**100.0**

All components of GDP from the income side (GDP(I)) are compiled at the 117 national accounts industry level. Compensation of employees and taxes and subsidies on production are compiled directly using independent sources. Compensation of employees is based on the Working time accounts (see section 4.7), and taxes and subsidies are based on government accounts (see sections 4.8 and 4.9). Gross operating surplus and mixed income is compiled as a residual using value added after the balancing of GDP(P) and GDP(E).

Table 4.2 and 4.3 shows value added and GDP from the income side by industry (Nace section) and by institutional sector. Taxes and subsidies on products are only applicable for the whole economy and GDP at market prices can only be compiled for the whole economy.

Table 4.2 Value added/GDP by the income approach. Breakdown by industry, 2017

		Value added/GDP	Compensation of employees (D.1)	Taxes on products (D.21)	Other taxes on production and imports (D.29)	Subsidies on products (D.31)	Other subsidies on production (D.39)	Gross operating surplus and mixed income
		DKK mill.						
A	Agriculture, forestry and fishing	28 614	11 545		1 716		7 349	22 703
B	Mining and quarrying	21 424	4 210		41		27	17 199
C	Manufacturing	285 290	140 109		2 599		1 210	143 792
D	Electricity, gas, steam and air conditioning supply	26 644	5 573		236		763	21 597
E	Water supply, sewerage etc.	14 948	4 969		354		218	9 843
F	Construction	106 586	69 554		1 297		633	36 368
G	Wholesale and retail trade	246 914	160 297		2 127		1 833	86 324
H	Transportation and storage	103 137	57 898		2 253		2 540	45 526
I	Accommodation and food service activities	30 956	23 033		459		641	8 105
J	Information and communication	87 786	51 742		487		418	35 975
K	Financial and insurance activities	110 395	54 528		8 028		298	48 137
L	Real estate activities	198 025	15 691		21 546		3 624	164 413
M	Professional, scientific and technical activities	118 868	79 186		586		1 530	40 627
N	Administration and support activities	61 433	48 674		950		546	12 355
O	Public administration	91 589	72 239		824		620	19 146
P	Education	117 390	96 801		587		814	20 817
Q	Human health	195 219	181 370		2 275		2 451	14 025
R	Arts, entertainment	28 675	15 951		552		1 297	13 469
S	Other service activities	27 976	20 102		876		134	7 132
T	Activities of households as employees	5 006	5 006		0		0	0
	Total	**1 906 875**	**1 118 478**		**47 792**		**26 948**	**767 553**
	GDP	**2 192 961**		**304 351**		**18 265**		

Manufacturing (Nace section C) and wholesale and retail trade (Nace section G) account for the largest part of total value added followed by real estate activities (Nace section L) human health (Nace section Q). The largest

shares of compensation of employees relative to value added are in education (Nace section P) and human health (Nace section Q), that are dominated by non-market activity. For industries dominated by market-activities the largest share of compensation of employees relative to value added are in accommodation and food service industries (Nace section I. Looking at gross operating surplus and mixed income, Real Estate Activities (Nace section L), that includes owner occupied dwellings, accounts for the by far largest share. Looking at industries other than Real estate activities, Manufacturing accounts for the largest share followed by Wholesale and retail trade.

Table 4.3 Value added/GDP by the income approach. Breakdown by institutional sector, 2017

		Value added/GDP	Compensation of employees (D.1)	Taxes on products (D.21)	Other taxes on production and imports (D.29)	Subsidies on products (D.31)	Other subsidies on production (D.39)	Gross operating surplus and mixed income
		DKK mill.						
S11	Non-financial Corporations	1 170 390	668 560		19 435		15 683	498 079
S12	Financial Corporations	110 485	54 609		8 777		296	47 395
S13	General Government	390 163	332 611		2 710		3 921	58 763
S14	Households	209 352	37 354		16 796		7 031	162 234
S15	NPISH	26 484	25 345		74		17	1 081
S1	**Total**	**1 906 874**	**1 118 479**		**47 792**		**26 948**	**767 552**
	GDP	**2 192 961**		**304 351**		**18 265**		

Note: Taxes on products (D.21) and subsidies on products (D.31) are only applicable at the level of the total economy (GDP at market prices are only compiled for the whole economy)

Looking at institutional sectors, non-financial corporations (S.11) and general government (S.13) by far account for the largest share of compensation of employees while at the same time non-financial corporations (S.11) and households (S.14) account for by far the largest share of gross operating surplus and mixed income. When looking at households (S.14) it must be kept in mind, that gross operating surplus related to owner occupied dwellings (78.754 mill. DKK) is placed here.

4.1 The reference framework

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

6. The annual working time accounts (WTA) (compensation of employees)
7. The system for compiling fixed capital in the national accounts (consumption of fixed capital, CFC)
8. Administrative data (accounting information) for compiling general government (other taxes on production and imports and other subsidies on production)
9. Value added at industry level as a result of balancing GDP(P) and GDP(E)
10. Gross operating surplus and mixed income are compiled as residuals.

All components and sources are collected – directly or indirectly - through regular enterprise surveys or administrative registers. Taxes and subsidies are available from general government accounts, compilation of CFC is based on annual estimates of capital stocks for various types of capital, compensation of employees is to a large extent based on administrative tax information and gross operating surplus and mixed income is compiled as a residual using value added after balancing GDP(P) and GDP(E).

The most important source to describe in this chapter is the annual working time accounts (WTA) which is used for the compilation of compensation of employees in the national accounts. The WTA is elaborated on in the following paragraph. The sources used for compiling other taxes on production and imports, other subsidies on production and consumption of fixed capital will be described in sections 4.8, 4.9 and 4.12 respectively.

Distribution of output, intermediate consumption and value added by sector is in line with the compilation by the expenditure approach, see section 3.1.2.

The Working Time Accounts
The system for the Working Time Accounts (WTA) is the result of a 3-year project established in Statistics Denmark in 1995 with grants by The European Social Fund. The purpose of the project was to improve the current statistical description of the Danish labour market. The background to the WTA was that there had been a considerable expansion in the number of statistics covering the labour market, and the figures from different statistics were not immediately comparable. The project work was focused on developing statistical systems integrating already existing labour market statistics. In December 1998 the project ended with the publication of a report: "Integrated Labour Market Statistics - the Labour Market Accounts and the Working Time Accounts 1995-97" ("Integreret arbejdsmarkedsstatistik - Arbejdsmarkedsregnskab og Arbejdstidsregnskab 1995-97") in which two new statistical systems were presented. In 1999 the WTA were presented by Statistics Denmark with the inclusion of annual as well as quarterly statistics.

In December 2012, the Working Time Accounts were adjusted, because a new data source, the Danish electronic, administrative register, eIncome (eIR) was introduced for the compilation. Subsequently, the WTA are compiled on the basis of eIR. As changes have been made to the population, concepts, sources as well as methods, this has resulted in revised levels and revised developments throughout the year.

The Working Time Accounts transmit quarterly data to the short term business statistics (STS). The variables transmitted to STS_Eurostat are: - Number of Persons Employed (Variable 210) – Hours Worked (Variable 220): Paid hours worked in the jobs. - Gross Wages and Salaries (Variable 230): Earned DKK earned as compensation for hours worked or for hours paid but not worked.

The WTA is now published regularly with annual figures once a year and quarterly figures four times a year.

The primary purpose of the Working Time Account (WTA) is to compile time series on hours worked. Furthermore, its object is to compile data on earnings and employment for the national accounts statistics, adopting the definitions of work, earnings and employment as applied in the national accounts. The current statistics includes data broken down by sex, industry, two sectors (general government, corporations and organizations) and socioeconomic status (self-employed, assisting spouses or employees).

The WTA is an integrated statics with consistent time series on employment, jobs, hours worked and wages on both annual and quarterly basis. The data base consists of a number of statistics are adapted and adjusted to the framework provided by the WTA system.

The WTA is compiled in Statistics Denmark's division for labour market statistics. The annual WTA is used as benchmark and few adjustments are made in the national accounts. For a description of these adjustments please see section 4.4.

The WTA are based on a combination of census and survey data. The WTA are compiled on the basis of three primary data sources:

1. The Register of Employment Statistics forming the basis for both:

- The Register-based labour force statistics (RAS statistics)
- The Establishment-related Employment Statistics (ERE statistics)

The WTA use the Register of Employment Statistics for obtaining data on jobs and persons employed at end-November as well as annual data on aggregate payroll costs (compensation of employees) and annual paid hours of work for employees.

The structural data incorporated in the 2013 WTA, which are made up by the Register of Employment Statistics (the basis for RAS statistics and the ERE statistics at the end of November 2013), are based on a special version exclusively for internal use in the Working Time Accounts, National Accounts and Industrial Accounts Statistics, where the former methods and sources are applied. This internal version is used for the purpose of avoiding breaks in the statistics mentioned.

- Employment Statistics for Employees (BfL)

The Employment Statistics for Employees (BfL) contain monthly data on jobs, paid hours of work and total wage and salary costs relating to employees throughout the year. The data are used in the WTA for projecting compensation of employees, hours worked, employment, primary and side line jobs for employees during the year.

The three above-mentioned statistics are compiled on the basis of eIncome (eIR).

2. The Structural Earning Statistics

The Statistics on Earnings are used in the WTA for converting paid hours of work into hours worked by employees during the year.

Where the above-mentioned structural statistics set the level for the statistics in the WTA, the short-term statistics are used for describing the development throughout the year.

3. The Labour Force Survey (LFS)

The Labour Force Survey (LFS) is used for describing the development in the number of hours worked during the year.

Furthermore, the LFS is also used for measuring the effect derived from each day of absence from work during the Easter holiday on the distribution of hours worked between the months March and April. Subsequently, the effect derived from the Easter holiday is calculated by counting the number of Easter days of absence, falling in each of the two months during each year.

The LFS is also applied in undertaking projections of employment and jobs for self-employed and assisting spouses during the period, following the latest November-statistics of RAS statistics. Finally, the LFS is applied in describing how many hours of work were performed by self-employed and assisting spouses compared to hours worked by employees. The basis for calculating hours worked by self-employed persons and assisting spouses are hours worked per job for employees. These hours are enumerated by the number of jobs for self-employed persons and assisting spouses and adjustments are made on the basis of the number of more hours worked by self-employed persons and assisting spouses compared to hours worked by employees according to the LFS.

For self-employed and assisting spouses, the development in employment and jobs is calculated as a steady development from one structural statistics to another (employed persons in the RAS statistics and the number of jobs in the ERE statistics). However, moving averages from the LFS are used for projections in the period following the latest structural statistics.

Average employment (and average number of jobs) over the year is estimated as an average figure of average employment during the 4 quarters of the year (respectively average number of jobs of 4 quarters). Against the background of the projections, it is possible to compile preliminary annual statistics for the period following the latest structural statistics.

In deciding which data sources to apply in compiling the WTA, attention is centred on the major advantages provided by each individual statistics. For example, register-based data are used to ensure complete coverage in the calculation of employment, number of jobs, aggregate payroll costs and paid hours of work. Register-based short-term statistics are used for describing the development throughout the year in the same variables. Information from the wage and salary system of the business enterprises is used to convert paid hours of work into hours worked during the year. Personal interviews are used to obtain information on the distribution of hours worked during the year as well as information on the groups that are not covered by the registers.

The Working Time Accounts are exclusively based on existing data sources, which are subsequently converted to the concepts used in the WTA. The WTA is flexible in its choice of primary sources, which can be replaced by other sources, if these have proved to be more accurate. The choice of primary source decides the amount of data editing necessary. When it comes to integrating all the sources, however, all the concepts are consistent in conforming to international standards and every variable fulfils the requirement of the system for the WTA.

In the WTA consistent time series on employment, jobs, hours worked and compensation of employees are compiled. The basics statistics used are adapted and adjusted to achieve agreement between the concepts and definitions used. Below these concepts and definitions are described.

There is an accounting, definitional relation between hours worked, jobs, employment and compensation of employees respectively:

Employment: Employment is an assessment of how many people (headcount) employed at any given time. Employed is, if one has an attachment to a workplace in the form of a job where you at least have one hour of paid work in the reference week. Persons who are temporarily absent due to leave, but who are connected to a workplace in the form of having a job to return to, are counted as being employed. In the WTA as well as the national accounts it is the average number of employed persons in the course of the reference period that are accounted for. For corrections made to employment when the WTA is integrated in the national accounts, please see section 4.7.

1. Employment = number of primary jobs + persons on leave

Job: Jobs shows the number of jobs that are active (excluding temporary absences in the form of eg. maternity or other leave) at any given time. The labour market statistics is a job actively, if there is a minimum of 1 paid hour per week. A job is defined as a person connected to a workplace. The same person can have several jobs at the same time. Explicit series on jobs are not part of the Danish national accounts.

2. Number of jobs = number of primary jobs + number of secondary (or more) jobs

Hours worked: The number of hours worked in the WTA is defined as hours paid by employers, including paid overtime and excluding paid hours of absence. Paid meal breaks are regarded as hours of availability and are included in hours worked. Paid hours of overtime are defined as the number of paid hours that are worked in excess of normal paid hours (i.e. contractual hours) and include extra hours of work for part-time employed without additional overtime pay. Hours worked include hours paid by employers, including the hours in jobs that are not part of the person's primary job. For corrections made to hours worked when the WTA is integrated in the national accounts, please see section 4.7.

3. Actual hours worked = Paid hours adjusted to hours worked using the statistics earnings

Compensation of employees: Compensation of employees in the WTA includes total wages and salaries in cash or in kind which the employer pays to an employee for work performed in an accounting period. Compensation of employees also includes employers' actual or calculated social contributions including contribution to pensions. The compensation of the self-employed and assisting spouses is not included in the WTA. For corrections made to compensation of employees when the WTA is integrated in the national accounts, please see section 4.7.

The margins of statistical uncertainty associated with the working time statistics are related to the statistical uncertainty of the individual primary statistical sources that are used. The conceptual consistency and the uniform adaptation of sources over time contribute to a reduction of the margins of statistical uncertainty in the WTA. Especially, the juxtaposition of information from the primary sources in a joint system of the WTA implies that the results will automatically be compared and thereby reveal, if any, errors and inherent problems of consistency in the basic concepts and data. These errors and inconsistencies are reported back to the primary sources. The work on integrating statistical systems will thus be instrumental in enhancing the general data quality of the primary statistical data.

The compilation of Working Time Accounts is based on the idea that the figures are comparable over time to the highest possible degree. The sources will continuously be improved and replaced by other sources if these have proved to be more accurate. New sources will always be adapted to the concepts of the Working Time Accounts System. This implies that adjustments of existing sources cannot immediately be seen as changes of variables and concepts in the Working Time Accounts Statistics, although adjustments of the level of the specific variable may be made according to the new and improved information.

4.2 Borderline cases

The primary source for compensation of employees is the WTA that to a large extent follow the principles of the current SNA/ESA. Wages and salaries in kind (fringe benefits) exclude expenditures that are necessary for the employer in the production process.

Gross operating surplus and mixed income is derived as a residual using value added from balancing GDP(P) and GDP(E). For a description of borderline cases relating to GDP(P) and GDP(E) please see chapters 3 and 5.

For borderline cases concerning taxes on production and imports and subsidies on production, please see sections 4.8 and 4.9

The compilation of gross fixed capital formation for intangible assets are described in section 5.10.

The treatment of daily allowance is subject to a transversal reservation with a deadline in September 2022. The issue will be addressed as part of this process.

4.3 Valuation

Both compensation of employees and gross operating surplus and mixed income are estimated at factor cost, ie exclusive of other taxes on production and imports and other subsidies on production. Compensation of employees is recorded according to the accrual principle except for bonuses etc., which are recorded when they are due for payment. Gross operating surplus and mixed income are based on an estimate of value added at basic prices as calculated in the balancing of GDP(P) and GDP(E), which is already adjusted to ESA2010 concepts.

The valuation of wages and salaries in kind are described in chapter 7.

Other taxes on production and imports and other subsidies on production are recorded according to the accrual principle as described in section 4.8 and 4.9.

Consumption of fixed capital is estimated as part of the system for compiling fixed capital. Valuation is according to national accounts principles and not company accounts principles, which often use historical cost prices. See also section 4.12.

4.4 Transition from private accounting and administrative concepts to ESA2010 concepts

Table 4.4 is an extract from the process tables and shows the sources used for and the adjustments made to GDP from the income side. The source for compensation of employees is the working time account (WTA) described in section 4.7 which is put in the category "combined data". Gross operating surplus is compiled as a residual and put in the category "other" except for households (S.14), where gross operating surplus by definition is gross operating surplus in owner occupied dwellings and the source therefore is "dwellings stratification". Conceptual adjustments are adjustments made to the WTA in order to arrive at the national accounts estimate – they are described in more detail in section 4.7. Exhaustiveness adjustments relate to wages and salaries in kind, "black wages" and mixed income related to N1 producer should have registered, N2 illegal activity and N3 producer not obliged to register. Exhaustiveness adjustments are described in chapter 7.

Table 4.4 Estimation method used for components of GDP according to the income approach, 2017

	Component/institutional sector	Adm. Records	Combined data	Dwellings stratification	Other	Total sources	Conceptual adjustments	Exhaustiv. adjustments	Balancing	Total adjustments	Final estimate
		DKK mill.									
	Compensation of employees		**1 100 152**			**1 100 152**	**3 575**	**14 849**	**-98**	**18 327**	**1 118 479**
S.11	Non-Financial Corporations		656 276			656 276	4 119	8 138	-150	12 107	668 383
S.12	Financial Corporations		56 370			56 370	-3 027	1 331		-1 696	54 674
S.13	General government		326 981			326 981	4 027	1 603		5 630	332 611
S.14	Households		32 162			32 162	1 527	3 678	52	5 257	37 419
S.15	NPISH		28 363			28 363	-3 070	99		-2 971	25 392
	Gross operating surplus			**78 754**	**589 725**	**668 479**		**15 593**		**15 593**	**684 072**

S.11	Non-financial corporations		482 486	482 486	15 593	15 593	498 079
S.12	Financial corporations		47 395	47 395			47 395
S.13	General government		58 763	58 763			58 763
S.14	Households	78 754		78 754			78 754
S.15	NPISH		1 081	1 081			1 081
	Mixed income		**73 875**	**73 875**	**9 605**	**9 605**	**83 480**
S.14	Households		73 875	73 875	9 605	9 605	83 480
	Other taxes on production	47 792		47 792			47 792
	Other subsidies on production	26 948		26 948			26 948
	Taxes on products	304 351		304 351			304 351
	Subsidies on products	18 265		18 265			18 265
	GDP						**2 192 961**

As gross operating surplus and mixed income are based on the estimate of value added from the production side, the adjustments made to ensure compliance with ESA 2010 are described in chapter 3.3. In chapter 3 and 5 are also detailed descriptions on conceptual adjustments relevant for the production approach and measurement of GFCF.
Margins on trading financial assets is part of transversal reservation no. 2 with a deadline in September 2022. The issue will be addressed as part of this process.

4.5 The roles of direct and indirect estimation methods and of benchmarks and extrapolations

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

The estimates of compensation of employees and taxes and subsidies on production are direct estimates of levels based on total coverage of wages and salaries in the primary statistics.

4.6 The main approaches taken with respect to exhaustiveness

The most important explicit allowances for exhaustiveness related to GDP according to the expenditure approach are wages and salaries in kind and the black economy.

Table 4.4A Exhaustiveness adjustments, 2017

	Exhaustiveness	N1	N1	N3	N4	N5	N6	N7
		DKK mill.						
	Compensation of employees	**3 170**	**0**	**0**	**0**	**0**	**0**	**11 679**
S.11	Non-Financial Corporations	0	0	0	0	0	0	8 138
S.12	Financial Corporations	0	0	0	0	0	0	1 331
S.13	General government	0	0	0	0	0	0	1 603
S.14	Households	3 170	0	0	0	0	0	508
S.15	NPISH	0	0	0	0	0	0	99
	Gross operating surplus	**0**	**0**	**0**	**0**	**0**	**0**	**0**
S.11	Non-financial corporations	0	0	0	0	0	0	0
S.12	Financial corporations	0	0	0	0	0	0	0
S.13	General government	0	0	0	0	0	0	0
S.14	Households	0	0	0	0	0	0	0
S.15	NPISH	0	0	0	0	0	0	0
	Mixed income	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Taxes on production and imports	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Subsidies	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Total	**3 170**	**0**	**0**	**0**	**0**	**0**	**11 679**

Table 4.4A above list the various exhaustiveness adjustments – based on process tables – for the main variables regarding the income approach. In total, the adjustments for exhaustiveness are minor, most relevant is supplement for wages and salaries in kind (N7) and "black wages" (N1). For further description of exhaustiveness, see chapter 7.

4.7 Compensation of employees

Compensation of employees includes all payments in cash and in kind that employers pay their employees for the work done. Compensation of employees consists of wages and salaries on the one side and employers social contributions on the other side.

Table 4.5 shows by Nace group how compensation of employees is broken down by wages and salaries in cash, wages and salaries in kind (fringe benefits), employers' actual social contributions and employers' imputed social contributions.

Total compensation of employees amounts to 1.118.479 mill. DKK. Wages and salaries in cash accounts for the largest part by far. Employers' imputed social contributions relate to civil servants in general government (S.13) and they are estimated using the so-called Freiburg Model.

Table 4.5 Compensation of employees, 2017

Nace		Wages and salaries in cash	Wages and salaries in kind	Employers' actual social contributions	Employers' imputed social contributions	Compensation of employees
		DKK mill.				
A	Agriculture, forestry and fishing	10 750	157	638	0	11 545
B	Mining and quarrying	3 924	152	134	0	4 210
C	Manufacturing	130 025	4 321	5 540	0	140 109
D	Electricity, gas, steam and air cond. supply	4 637	187	749	0	5 573
E	Water supply, sewerage etc.	4 565	96	309	0	4 969
F	Construction	65 960	941	2 652	4	69 554
G	Wholesale and retail trade	149 998	4 964	5 350	0	160 297
H	Transportation and storage	54 065	1 179	2 583	70	57 898
I	Accommodation and food service activities	22 135	375	523	0	23 033
J	Information and communication	48 094	1 822	1 826	0	51 742
K	Financial and insurance activities	42 133	1 403	10 991	0	54 528
L	Real estate activities	14 713	441	537	1	15 691
M	Professional, scientific and technical activities	74 482	1 829	2 868	8	79 186
N	Administration and support activities	45 536	755	2 343	41	48 674
O	Public administration	61 030	489	8 494	2 227	72 239
P	Education	82 420	528	13 467	386	96 801
Q	Human health	159 047	932	20 964	426	181 370
R	Arts, entertainment	14 462	167	1 287	35	15 951
S	Other service activities	18 071	278	1 451	303	20 102
T	Activities of households as employees	4 642	0	363	0	5 006
	Total	**1 010 898**	**21 015**	**83 070**	**3 495**	**1 118 479**

Table 4.6 Compensation of employees, 2017

Sector		Wages and salaries in cash	Wages and salaries in kind	Employers' actual social contributions	Employers' imputed social contributions	Compensation of employees
		DKK mill.				
S11	Non-financial corporations	626 783	17 039	24 738	0	668 560
S12	Financial corporations	42 206	1 406	10 996	0	54 609
S13	General government	283 764	1 814	43 538	3 495	332 611
S14	Households	35 437	654	1 263	0	37 353
S15	Non-profit institutions serving househ.	22 709	102	2 535	0	25 353
S1	**Total domestic economy**	**1 010 898**	**21 015**	**83 070**	**3 495**	**1 118 479**

4.7.1 Wages and salaries and employers' social contributions

Wages and salaries come in cash and in kind. Wages in cash consists of regular wages plus i.e. commissions, overtime payments, bonuses, payments on public holidays and payments on other holidays. Social contributions, income taxes etc. which fall on the employee are included even when they in practice are kept back for direct payment to relevant authorities by the employer.

Wages and salaries in kind – fringe benefits – consist of products which are provided freely or to reduced price by the employer to the employee as part of the conditions of employment. Wages and salaries in kind are not necessary in the production process. If they were, they should be treated as intermediate consumption. They are described in more detail in chapter 7.

Employers social contributions consists of the employers payments to secure the employees against social risks and for fulfilments of social needs related to age, disablements and accidents and illness related to work. Employer's social contributions can be actual or imputed. Actual contributions are payments to funded schemes, such as autonomous pension funds or insurance enterprises. Imputed contributions are made in cases where the benefits are paid directly by the employer to the employees (or former employees). Imputed pension benefits relate to civil servants.

Compensation of employees is mainly based on the annual Working Time Accounts (WTA) as described in chapter 4.1.

In order to arrive at compensation of employees according to the national accounts, adjustments to the WTA are made. Table 4.7 shows at the aggregate level the relation between compensation of employees in the WTA and the national accounts.

Table 4.7 Compensation of employees in the WTA and the national accounts, 2017

	DKK mill.
Working Time Accounts	**1 100 172**
Alternative or additional sources	18 405
of this, national accounts population	-20
of this, employers' imputed pension contributions	3 495
of this, employers' actual non-pension contributions	2 080
of this, supplement for black wages	3 170
of this, supplements for wages and salaries in kind	11 679
Final harmonisation	-98
Final national accounts estimate	**1 118 479**

In the process table for GDP(I) "Alternative or additional sources" are put in the category "other conceptual adjustments" except the of which items "supplement for black wages" and "Supplements for wages and salaries in kind" which are classified according to the relevant N-type. Final harmonisation is put in the category "Balancing".

For certain industries, compensation of employees from the WTA is replaced by *alternative sources*. For example this is done for the financial sector and also for industries partly or fully covered by general government non-market activity.

The *national accounts population* adjustment is made because the WTA includes wages and salaries paid by non-residents.

The calculation of *imputed pension contributions* for civil servants is based on the actual number of active civil servants and the so-called "Freiburg model", which is used for estimating general government's pension obligations.

The value of Employers' actual social contributions (D.121) is 2080 million DKK for 2017. Employers' actual non-pension contribution (D.1212) is part of D.121. Figures for D.1212 are composed of the employer's actual social contribution for non-life insurance and labour market business insurance for households. Sources are the Danish Financial Supervisory Authority [Finanstilsynet] and Insurance & Pension Denmark [interesseorganisationen Forsikring og Pension].

4.8 Taxes on production and imports

Table 4.7A summarises other taxes on production (ESA D.29) in the national accounts for 2017.

Table 4.7A Other taxes on production, 2017

Type of tax	DKK mill.
Employer contributions to *Arbejdsgivernes Elevrefusion* (AER)	5 085
Duty on occupational injuries	409
Road charges for heavy trucks	471
Weight duty on vehicles used in production	3 188
Property taxes	28 465
Payroll taxes	8 536
Taxes on pollution	272
Duties paid to the working environment fund	85
Carbon dioxide emmission tax	533
Payments to the Fund for winding up	748
Other taxes on production, total	**47 792**

The AER contribution, which finances apprenticeships and traineeships, does not give the individual employer or employee any rights and is therefore classified as a tax.

Duty on occupational injuries is calculated from the lump sum conpensation from a work-related accident.

The road charges for heavy trucks are linked to input (weight), not products.

The share of total weight duty relating to vehicles used in production is calculated from a breakdown by owner of the total number of vehicles registered. In the national accounts, weight duty on consumers' vehicles is "direct taxes", i.e. taxes on income and wealth etc.

Property taxes are not linked to products.

Payroll taxes are a tax on the wages and salaries paid by financial institutions, to offset the fact that most financial services are exempt from VAT.

Taxes on pollution is tax on waste water.

Duty paid to the working environment fund is a tax paid by relevant institutions to finance the Working Environment Council.

Tax on carbon dioxide emissions is calculated as the numbers of surrendered allowances times an average auction price

Payments to the Fund for winding up is a contribution from financial corporations to help with guarantees, loans etc. in connection with restructuring and winding up.

4.9 Subsidies

Subsidies on production which are not linked to products come under both EU and national schemes. Table 4.8 summarises these other subsidies:

Table 4.8 Other subsidies on production, 2017

Type of subsidy	DKK mill.
Other subsidies on production, total	**26 948**
EU-schemes, total	**6 665**
Single farm payment	3 782
Environmental subsidies	0
Subsidies for different agricultural products	179
Subsidies for agricultural arrangements	210
Subsidies for ecological production	259

Development and demonstration projects in farms	105
Subsidies related to forestry	53
Other EU-schemes, other subsidies on production	2 076
Danish schemes, total	**20 283**
Subsidies for pharmacists	258
Interest-guarentee and -contribution concerning housing conditions	2 559
Municipal subsidies for private sportscentres	370
Municipal subsidies for theatres, orchestras, cinemas etc.	278
Public subsidies for regional orchestras	146
Employers reimbursement system	3 078
Spending according to law on the counties land tax	260
Other municipal busservice and transport	1 576
Subsidies for canteens	222
Subsidies for cultural purposes	350
Subsidy for replanting	3
Subsidy related to CO2	11
Flex and sheltered jobs	5 848
Activated recipients of social assistance benefits	109
Regional development	211
The fund for better working environment and labour retention	16
Green transition and commercial renewal	160
Export promotion	19
Municipal grant for running costs for social housing estates	400
Municipal urban renewal	198
Business development	273
Development of competence and technology	789
Innovationsfonden	503
Wage subsidy for hiring insured unemployed	491
Other subsidies related to PSO	186
Other subsidies on production n.e.c	1 980
Other subsidies on production, total	**26 948**

The subsidy "*Employers reimbursement system"* has a counterpart in other taxes on production. All employers contribute to a pool which finances apprenticeship and trainee places in connection with vocational training. Those employers who employ apprentices and trainees receive a subsidy from the pool.

4.10 Gross operating surplus and 4.11 Mixed income

Gross operating surplus and mixed income is calculated as a residual using gross value added resulting from the balancing of GDP(P) and GDP(E), compensation of employees (described in section 4.7), other taxes on production and imports (described in section 4.8) and other subsidies on production (described in section 4.9).

For owner occupied dwellings (belonging to the household sector, S14) there is by definition only gross operating surplus. The total value for gross operating surplus in households (S14) is identical to gross operating surplus in owner occupied dwellings. The rest is mixed income.

For all sectors except the household sector, gross operating surplus and mixed income is gross operating surplus only.

Own account Research and Development Gross Operating Surplus
The guidelines on measurement of *Research and Development* suggest 2 different options for measure gross operating surplus (GOS); (1) the mark-up method or (2) capital service method. Statistics Denmark has chosen the first method.

For a given industry, it is assumed the capital input into the production of R&D is the same as the capital input into all other products. The mark-up for capital input is measured as gross operating surplus divided by (intermediate consumption plus compensation of employees).

To avoid inflation of the mark-up ratio, a benchmark for GOS, intermediate consumption and compensation of employees was compiled excluding the impact of R&D assets. These are the benchmark numbers which are taken forward in time by the development in national account figures for GOS, intermediate consumption and compensation of employees.

This estimate for the mark-up for capital input at the level of industry is used as a mark-up on wages and intermediate consumption from the Frascati Manual. The guidelines suggest, as a possibility, to use mark-up figures for the NACE 72 industry for all other industries. For Denmark, however, the figures for GOS are very volatile for the NACE 72 industry and for some years GOS is even negative. For this reason, figures for NACE 72 are not used in general.

By applying this method Statistics Denmark does not directly include CFC for R&D in the estimates for GOS. Including CFC of R&D directly in the estimate of gross operating surplus risk inflate the figures for R&D output.

4.11 Consumption of fixed capital

In general, the estimate of the consumption of fixed capital (CFC) is not relevant to GDP or GNI, since these concepts are, of course, *gross*, i.e. production or income aggregates before deduction of the fixed capital consumed.

There is, however, one very important exception to this main rule, namely non-market activity, where by convention output is calculated from the costs point of view, and where the consumption of fixed capital is one of the components of costs. Non-market activity occurs in Sector S.13, general government and Sector S.15, non-profit institutions serving households. The latter is private non-market output. The vast majority of non-market output comes from government.

Conceptual changes between ESA95 and ESA2010 relating to small tools, land improvements and government, public and private sector classifications have been taken into account when compiling GFCF and CFC.

Reclassifications of assets between sectors, including in and out of the non-market sectors, rarely occurs. When it happens, an estimate of the unit's total stock of capital is made, and the stock of capital is transferred into or out of the government sector as K.6 Changes in classification. Sale and purchase of existing assets is treated as positive and negative gross fixed capital formation for the units in question.

The description below refers solely to the consumption of fixed capital in S.13, general government and S.15 Non-profit institutions severing households. The remaining sectors are described later in this section.

Consumption of fixed capital for S13 General government and S15 NPISH
In order to make the compilation of the annual national accounts smoother, it has been decided that the final estimates for consumption of fixed capital for general government should be compiled one year in advance compared with other final figures. Since input to the compilation is not yet final at the compilation time, provisional data sources are used in the estimation. This implies that final figures for CFC are estimated by using provisional data for gross fixed capital formation. The experience has shown that the CFC estimation based on the provisional data sources do not vary significantly to the corresponding CFC figures based on final data sources for GFCF.

General government and NPISH capital stock consists of buildings, structures such as roads, bridges etc., machinery, transport equipment and intangible fixed assets, which for this sector is in practice software. Prior to the introduction of ESA2010, Winfrey curves and straight line depreciation was applied. With the introduction of ESA2010 in September 2014 geometric depreciation method was incorporated into the calculations from the year 2008 and onwards, except for dwellings and non-residential buildings, where geometric depreciation was incorporated from 1995 and onwards. For the new types of capital, Research and Development and Military Weapon Systems, geometric depreciation was applied for the whole time series. The depreciation factor used for estimating consumption of fixed capital by the geometric depreciation approach was derived by using the old service lives and values for "declining balance rate" values used by BEA, if a reasonable corresponding value exist. However, the "declining balance rate" values were also subject to adjustment in order to minimize any break between the old levels and the new calculations with geometric depreciation.

One important strong point in Denmark's estimate is that for buildings and transport equipment the calculations are based on a *direct estimate of stocks* which in turn was based on register information for a benchmark year - in this case 1995 - for non-residential buildings, and every year for transport equipment. In contrast to PIM calculations, there is therefore absolutely no uncertainty as to how many square metres of buildings there actually

were in S.13 in 1995. The only uncertainty concerns their lifetimes. For non-residential buildings, the PIM was used to project the 1995 benchmark back to 1966 and forward.
Table 4.9 shows the methods used for each type of capital formation:

Table 4.9 Methods for estimating capital stock in S.13 / S.15

Type	Period	Method	Assumed average service life	Products
Machinery	1966-2007	PIM, Winfrey curves and linaer depreciation	Varying	Approx. 350
Machinery	2008+	PIM, Geometric depreciation	Varying	Approx. 350
Transport equipment	1966-2007	Direct estimate of stocks, Winfrey curves and linaer depreciation	Varying	4
Transport equipment	2008+	Direct estimate of stocks, Geometric depreciation	Varying	4
Other structures	1966-1995	PIM, Winfrey curves and linaer depreciation	23 – 120 years	3
Other structures	1995+	PIM, Geometric depreciation	23 – 120 years	4
Non-residential buildings	1966-1995	Direct estimate of stocks for 1995	Varying	2
Non-residential buildings	1995+	PIM, Geometric depreciation	Varying	2
Roads and bridges	1966-2007	PIM, Winfrey curves and linaer depreciation	40 years / 50 years	1
Roads and bridges	2008+	PIM, Geometric depreciation	50 years	1
Software	1966-2007	PIM, Winfrey curves and linaer depreciation	4-6 years	2
Software	2008+	PIM, Geometric depreciation	4-6 years	2
R&D	1966+	PIM, Geometric depreciation	8-12 years	6
Military weapons systems	1966+	PIM, Geometric depreciation	15	7

The gross stock (end of year 2017) of other structures owned by non-marked producers (548 billion DKK for S.13 and 0,1 billion DKK for S.15) does not exceed 15 per cent of the total gross stock of all types of assets (12.270 billion DKK), the share can be calculated to 4,5 per cent. In general, capital stocks for other structures are compiled by industries and subsequently subdivided into institutional sectors. With the exception of a few large infrastructure projects, no subdivision is made on products. Identifying specific products can only be done by identifying the relevant industry investing/owning the specific product, however, the relevant industry may in principle own several different types of products which can not be independently identified. Government owned roads and bridges can be identified because it is considered the only type of other structures within a specific industry.

Military weapon systems
As described in chapter 5.10, the source for GFCF in military weapon systems is Government Finance Statistics. The breakdown by product is derived using the commodity flow method, and some balancing adjustments may take place as part of compiling the supply-use tables.

Time series of GFCF from Government Finance Statistics was created from 1971 and onwards and in order to use the PIM, a benchmark was created in 1971. For current year's investment, the compilation of capital stocks and CFC use the following breakdown on products:

- Fighters/helicopters (40 years)
- Tanks (25 years)
- War ships (25 years)
- Confidential shipments (15 years)
- Weapons for military use (8 years)
- Military constructions (40 years)
- Other (12 years)

After the introduction of the new figures in the fall 2014, an average depreciation rate for military weapon systems was calculated and used for the following years until a more detailed breakdown was introduces as described

above. The average depreciation rate was calculated to 0,11 which corresponds to an average service life of 15 years with a declining balance rate of 1,65.

The GNI Committee's task force on consumption on fixed capital on roads, bridges etc. has made some recommendations on this subject. In the following, the Committee's recommendations and Statistics Denmark's practise are described:

- Recommendation 1: Proper distinction between market and non-market GFCF in PIM.
    - Statistics Denmark separates the results of the PIM estimations by institutional sector. CFC compiled by using *direct estimate of stocks* are based on register data which are matched with information on institutional sector, which ensures a proper distinction between sectors.

- Recommendation 2: Proper distinction of GFCF between activities.
    - This question is addressed in chapter 5.

- Recommendation 3: Separate GFCF on roads.
    - Statistics Denmark has a separate time series for GFCF on roads.

- Recommendation 4: Consistency of GFCF time series, also for the early years.
    - During the introduction of ESA95 in the Danish national account, a separate time series for gross fixed capital formation and consumption of fixed capital on roads was estimated. This ensures a consistent time series for roads. Statistics Denmark publishes figures for capital stock and consumption of fixed capital back to 1966.

- Recommendation 5: Distinguish the main components of infrastructure assets (roads).
    - Statistics Denmark does not have detailed information on the components of roads. In the PIM-estimation on CFC on roads, only a single product is used in the estimation.

- Recommendation 6: Lifetime assumptions should be investigated at least every 5 to 10 years.
    - Statistics Denmark has worked on an update of the service lives for selected types of assets. For technical reasons, and because the Eurostat TF on Capital Stocks currently works on recommendations regarding service lives, the introduction of updated service lives has been delayed, most likely to the next benchmark revision in 2024. The last time the service live assumptions was investigated was in 2001 with the exception of the service life for government owned roads, which has been increased from 40 to 50 years because the size of the road network was increased but the gross stock was declining, this change was introduced some years later than 2001.
- Recommendation 7: A bell-shaped retirement function should be used.
    - Statistics Denmark uses a bell-shaped Winfrey L3 retirement function for roads until 2008. With the introduction of ESA2010 and geometric depreciation approach, no retirement function is applied in the calculation of CFC after 2008.

Consumption of fixed capital for sectors other than S13 and S15

Statistics Denmark uses the PIM method and geometric depreciation as method for estimating capital stocks and consumption of fixed capital for most types of assets. The exceptions are the estimation of capital stocks for transport equipment and dwellings, where direct estimates are incorporated into the calculations.

Input into the PIM estimation is investment matrices (GFCF with break down on type of asset, industry and products) and assumptions on service lives (and declining balance rates). This information determines net stock and the distribution of consumption of fixed capital across time.

For most types of asset (machinery, transport equipment and software etc.), geometric depreciation was introduced in 2008, figures before 2008 was compiled by using Winfrey curves and a linear depreciation profile. Figures are published from 1966 and onwards, and the PIM-calculations are based on long time series.
For non-residential buildings, the estimations are based on a benchmark from 1995. Figures have been taken forward and backward in time by applying the PIM-method. From 1993 and forward, geometric depreciation is used. A separate PIM-calculation is made for costs of ownership transfers regarding non-residential buildings. The total value for non-residential buildings is the sum of the 2 components.

For dwellings and transport equipment the direct method is used, which in basic is a price multiplied with quantity method. At detailed level, the Net Stock is derived by using information on age and service lives together with assumptions on depreciation pattern.
For dwellings, quantity is measured by the number of square meters, by type of dwellings, and prices are measured by price per square meter. Price per square meter is based on a benchmark, which has been taken forward in time by indirectly using construction cost indices. In addition to the price multiplied with quantity method, a supplement is added for costs of ownership transfers. GFCF for costs of ownership transfers are transformed into capital stock values by using the PIM method.

Outputs of the first part of the calculations are figures with a break down on type of asset and industries. The figures are further subdivided into sectors. The net stock, subdivided by type of asset, industries and sector, for the previous period is taking forward by adding GFCF and subtract CFC, both at the level of asset, industry and sector. CFC for S13 and S15 is calculated in a sub system and for the other sectors, CFC is divided into sectors by using same ratio as for the net stock. CFC for S13 and S15 are compiled by using the depreciation rates from the previous period together with provisional data for GFCF and net stock at the beginning of the period.

Figures for GFCF by type of asset, industry and sector is compiled by using investment matrices (by type of asset, industry) and use distribution keys for S11 and S14. Figures for GFCF by type of asset, industries and sector are calculated in a sub system for S13 and S15. Figures for GFCF by industries for S13 are available from the DIOR database. For S15, values are compiled by the division for Government Finances.

5. The expenditure approach

5.0 GDP according to the expenditure approach

For 2017, the calculation of expenditure-based GDP can be summarised as in table 5.1 below:

Table 5.1 GDP, expenditure approach, 2017

	Value	Pct. of GDP
	DKK mill.	pct.
Total final consumption expenditure	1 551 992	70.8
Household final consumption expenditure	985 797	45.0
NPISH final consumption expenditure	30 848	1.4
General government final consump. expenditure	535 347	24.4
Gross capital formation	483 615	22.1
Gross fixed capital formation	465 471	21.2
Changes in inventories	14 757	0.7
Acquisitions less disposals of valuables	3 387	0.2
Exports of goods and services	1 207 825	55.1
Imports of goods and services	1 050 472	47.9
GDP	**2 192 960**	**100.0**

The table shows that household final consumption expenditure in Denmark made up a little less than half of GDP in 2017, general government final consumption expenditure a quarter, gross capital formation one-fifth and net exports the final 7%. Exports of goods and services accounted for 55% and imports 48%.

5.1 The reference framework

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

Household final consumption expenditure:
Retail trade statistics, DOI (level of retailable consumption)
FU [household budget survey] (structure of retailable consumption, services)
VAT statistics
Surveys of housing rentals
Housing surveys (housing stock, stratified)
Energy statistics (electricity, gas, district heating)
Statistics on financial institutions (financial services)
Statistics on public finances (user payments to public institutions)
Tax statistics (quantities of goods on which excise duties are levied)
Supply side estimates
Motor vehicle statistics (households' acquisitions of new cars)
Balance of payments statistics (tourist revenue and expenditure)

Final consumption expenditure in NPISHs:
Financial statements from NPISH organisations
General Government Accounts (Private schools who were formerly part of general government)

Gross fixed capital formation:
Agricultural statistics
Public finance statistics
Accounts statistics for industries predominated by public corporations
Register of buildings and dwellings (BBR)
Index of construction costs
Product statistics for the IT industries
Turnover in the construction industry
ICT expenditure
External trade statistics
Account statistics for non-agricultural private sector (SBS)
Specific industry statistics

Media statistics
Register of motor vehicles
Register of vessels
Register of aircrafts

Research and Development
R&D statistics
External trade statistics

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

Changes in inventories:
Account statistics for non-agricultural private sector
Tax accounts
Accounting statistics for industries where public corporations predominate
Specific industry statistics, including agricultural statistics
Energy statistics
Agricultural statistics

Imports and exports of goods and services:
External trade statistics (Intrastat and Extrastat)
Balance of payments statistics

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

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

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

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

For energy products and acquisitions of motor vehicles, there is special information available based on physical data. In these cases, the FU figures are replaced either when the initial estimates of private consumption of the expenditure components in question are made, or later during the balancing process. The FU figures for the consumption of hotel and restaurant services are also known to be seriously underestimated. For these groups, the initial household consumption estimate is therefore based on supply, i.e. sales in hotels and restaurants, the starting point being that share of the supply which was allocated to household consumption in the most recent final national accounts. A detailed description of sources and methods underlying the initial estimates for the individual consumption groups can be found in Section 5.7.2.

5.2 The borderline cases

In the following the borderline cases for household final consumption expenditure and gross fixed capital formation is described.

5.2.1 The borderline cases for HFCE

Household final consumption expenditures on dwelling services are covered by two consumption groups 04100 Rents and 04200 Imputed rents for owner-occupiers. Both these groups are based on supply side estimates. Thus the production value of industry 680023 Renting of residential buildings, is also the HFCE value for consumption group 04100, and the production value of industry 680024, Owner-occupied dwellings, is also the value of consumption group 04200, imputed rents for owner-occupiers.

Wages and salaries include all income received by employed persons including income in kind. The Danish tax authorities generally do not distinguish between income in cash and income in kind. In general the data on wages and salaries received from the tax authorities include salary in kind. There are some special cases where salaries in kind are not part of the taxable income and therefore not included in the data from the tax authorities, e.g. internet connections with access to the company network. In these cases a supplementary calculations is made to account for this. Also in some case the taxable value of a fringe benefit is lower than the market value. In these cases a mark-up is calculated to reflect the market value when calculating the value of the fringe benefit.

In the agriculture industry there are additions to the production of livestock, milk and eggs to account for the retained consumption of these products by members of the household. These mark-ups are then recorded as consumption in the relevant consumption groups.

Materials for minor repairs to and interior decoration of dwellings are covered by the household budget survey (FU), where there are questions regarding a series of purchases related to these activities e.g. wallpaper, paints and other materials for maintenance work.

The value of any goods purchased under hire-purchase agreements is included in the estimate of HFCE as the source of the level of HFCE is based on the retail turn-over statistics, which record the sale of retail goods to households including sales that are made under hire-purchase agreements.

In the household budget survey there are specific questions regarding the purchase and sales of used/second hand goods for durable and semi-durable goods. This enables us to estimate correctly the net purchase of these types of goods. For non-durables the purchase and sales of second hand goods negligible and therefore these are not considered important.

For information regarding the calculation of FISIM, insurance services used for HFCE, the implicit service charge for pension funding services and direct payments from insurer to repairer please refer to chapters 5.7.3 and 3.4. All of these calculations are made in a special subsystem, where detailed information on e.g. insurance is available. This facilitates the distribution of insurance to household final consumption and intermediate consumption respectively thus ensuring that the part of insurance paid by the consumers (e.g. home insurance) is actually recorded as HFCE. The calculations are based on accounts from insurance and financial institutions which facilitate the calculation of the implicit service charge as detailed information on premiums and claims.

Car registration taxes are part of product taxes. The car registration tax is placed on a handful of goods in the SUT namely V870303 Passenger Cars, V870304 New Plug-in hybrid, V870305 Used passenger cars, V870306 Used Plug-in hybrid, V870307 New electric cars, V870308 Used electric cars, V870410 Trucks less than 5 tons and

V871103 Motorcycles and mopeds. Apart from V870410 Trucks less than 5 tons these goods are for a big part going to private household consumption and thus the car registration taxes are also being placed as household consumption.

From the government finance division a data file is received with the public sector accounts coded according to national accounts definitions. The general government accounts statistics contains information on expenditures by type, i.e. transfers in kind e.g. have a special code in the accounts as does service charges etc. In the SUT the service charges are placed on special products labelled sales income (Salgsindtægter in Danish) and they are on the use side being recorded as intermediate consumption or HFCE. The expenditures labelled social transfers in kind are used to establish the totals for general government final consumption in the SUT. The detailed information available ensures the proper allocation of the items from the general government accounts. The detailed information also insures that taxes are not treated as HFCE.

In the SUT the production of NPISH is placed on separate product numbers. The production of these products is then recorded as NPISH final consumption thereby ensuring they are not recorded as HFCE.

5.2.2 The borderline cases for GFCF

Information on changes in livestock used in production year after year is available from the agricultural accounts produced within Statistics Denmark and these are used for GFCF for livestock.

Information on GFCF regarding trees and other plants that are cultivated year after year is also available from the agricultural accounts. The figures are merged with land improvements and shown as part of other structures.

Some part of military equipment includes buildings and other structures used for military purpose. See chapter on CFC.

For other borderline cases concerning for example R&D and software please refer to chapters 3 and 5.10.

5.3 Valuation

When the final demand components are estimated directly from the point of view of the purchaser, the observed value level is purchasers' prices including non-refundable VAT, as required by the ESA2010. In these cases, there is no need to process primary data to obtain value levels. In all other cases, for example when a final demand component is estimated from the supply side, it is ensured that proper trade margins, product taxes and -subsidies and VAT are included. This is typically done as part of setting up product balances.

For own-produced products the value is calculated as the sales price of the product times the volume. For instance in the case of the consumption of own-produced eggs the value is calculated as the volume of own-produced eggs times the price the farmer receives when selling his eggs thus ensuring the price level being basic prices.

Data on gross fixed capital formation is taken form accounting statistics. Data is thus readily available in purchasers' prices and there is no need for additional corrections. Regarding own account gross fixed capital formation the international recommendations in the Frascati manual is applied ensuring the correct valuation of these. See more on measurement and valuation of GFCF in section 5.10.

In the national accounts, exports of goods are based directly on Statistics Denmark's estimates of external trade. The value levels in external trade statistics are f.o.b. for exports and c.i.f. for imports. Please refer to sections 5.13-5.16 and section 10.4 for further information

5.4 Transition from private accounting and administrative concepts to ESA2010 national accounting concepts

Table 5.2 Conceptual adjustments, expenditure approach, 2017

Compilation of GNI	Level of Details	Conceptual			
		Allocation of FISIM	Allocation of insurance	Other conceptual	**Total conceptual**

Total final consumption expenditure			**6 727**	**0**	**22 538**	**29 266**
Household final consumption expenditure	**Total**		**6 727**	**0**	**0**	**6 727**
COICOP (1-dig)	01 - Food and non-alcoholic beverages		0	0	0	**0**
	02 - Alcoholic beverages, tobacco and narcotics		0	0	0	**0**
	03 - Clothing and footwear		0	0	0	**0**
	04 - Housing, water, electricity, gas and other fuels		0	0	0	**0**
	05 - Furnishings, household equipment and routine household maintenance		0	0	0	**0**
	06 - Health		0	0	0	**0**
	07 - Transport		0	0	0	**0**
	08 - Communication		0	0	0	**0**
	09 - Recreation and culture		0	0	0	**0**
	10 - Education		0	0	0	**0**
	11 - Restaurants and hotels		0	0	0	**0**
	12 - Miscellaneous goods and services		6.727	0	0	**6 727**
	Transition to national concept		0	0	0	**0**
NPISH final consumption expenditure			0	0	0	**0**
General government final consumption expenditure			0	0	22 538	**22 538**
Gross capital formation			0	0	0	**0**
Gross fixed capital formation	Total		0	0	0	**0**
AN	111	Dwellings	0	0	0	**0**
	112	Other buidlings and structures	0	0	0	**0**
	113	Machinery and equipment	0	0	0	**0**
	114	Weapons systems	0	0	0	**0**
	115	Cultivated biological resources	0	0	0	**0**
	117	Intellectual property products	0	0	0	**0**
Changes in inventories			0	0	0	**0**
materials and supplies			0	0	0	**0**
work-in-progress			0	0	0	**0**
finished goods			0	0	0	**0**
goods for resale			0	0	0	**0**
Acquisitions less disposals of valuables			0	0	0	**0**
Exports of goods and services			0	0	64 153	**64 153**
Goods			0	0	64 153	**64 153**
Services			0	0	0	**0**
Imports of goods and services			0	0	41 863	**41 863**
Goods			0	0	41 863	**41 863**
Services			0	0	0	**0**

In household and business accounts, purchases of goods and services are recorded in terms of purchasers' prices including non-refundable VAT. Refundable VAT is not included in the acquisition prices, on which information is available, which is consistent with the ESA 2010 net VAT system.

Various acquisitions which the national accounts treat as gross fixed capital formation are included in business accounts as current operating expenditure in the form of intermediate consumption or wages and salaries which

are not capitalised. Examples would be consumables as well as purchased and own-produced software. The corrections which have to be made to bring business accounts into line with national accounts concepts were described in Chapter 3 as part of the description of the output-based estimate of GDP. The corrections on the expenditure side are a mirror image of the corrections to output value (e.g. own-produced software) and intermediate consumption (consumables and purchased software) in the output-based estimate. The logical corrections to the output, expenditure and income sides are made simultaneously for the intermediate system, as described in chapter 3.4. Regarding the valuation of inventories please refer to chapters 3.4 and 5.11.

For import and export of services, the statistical challenge arising from the use of settlements statistics for the estimate of *aggregate* exports/imports of services lies in ensuring that the definition of what constitutes an export or an import of services remains consistent with the external trade statistics and national accounts estimates of exports of goods f.o.b. and imports of goods c.i.f. Since the payments in the settlements statistics are coded as goods or services depending on whether transport and insurance services are invoiced separately or not, the settlements statistics' delimitation of external trade in goods/services will not tally with the national accounts' definitions. When settlements statistics are used for national accounts, therefore, a correction is made to exports and imports of services as estimated in the settlements statistics to bring the latter into line with the estimate of exports of goods f.o.b. and imports of goods c.i.f. For a more detailed description, please see section 5.14 and 5.16.

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

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

Other than for those areas of the economy (general government, owner-occupied dwellings, NPISH), where the output- and expenditure-based calculations cannot by definition be independent, GDP from the production side and GDP from the expenditure side are largely independent of one another prior to balancing.

Acquisitions less disposables can in principle be estimated in two ways, either directly using information on the expenditure (uses) side (purchaser's side) or indirectly on the basis of supplies of products to the domestic market, using estimated shares of supplies to the final demand components to calculate final uses from the resources side.

In the Danish national accounts, the initial estimates for the final demand components are compiled as direct estimates from the expenditure side.

Since the Danish national accounts are adjusted in a detailed product balance system, there is a systematic confrontation in connection with the balancing. One of the strongest cross-checks for the compilation of national accounts consists in comparing information from purchasers on their acquisitions less disposals of the individual products or groups of products with information on the sellers' side on supplies to the domestic market.

Regarding the estimation of black economy data are based on survey data obtained from supplementary questions asked once a year in connection with the LFS. Please refer to chapter 7 for more details.

Table 5.3 Estimation method used for GDP expenditure approach, 2017

	Survey censuses	Adm. Records	Combined data	Benchm. Extrapol.	Commodity Flow Model	CFC (PIM)	Dwellings Stratific. Method	FISIM	Other E&M	Other	**Total**
					DKK mill.						
National account industry											
Househ. final consumpt. exp.	**398 369**	**94 262**	**0**	**0**	**259 019**	**0**	**201 593**	**0**	**0**	**0**	**953 242**
01 – Food and non-alc. bev.	89 622	24 042	0	0	0	0	0	0	0	0	**113 665**
02 – Alc. bev., tobacco and narc.	0	31 653	0	0	0	0	0	0	0	0	**31 653**
03 – Clothing and footwear	40 764	0	0	0	0	0	0	0	0	0	**40 764**
04 – Housing, water elect. etc.	6 955	0	0	0	74 413	0	201 593	0	0	0	**282 961**
05 – Furnishings etc.	49 616	0	0	0	2 143	0	0	0	0	0	**51 759**
06 - Health	24 139	0	0	0	4 151	0	0	0	0	0	**28 290**
07 – Transport	47 233	38 567	0	0	23 137	0	0	0	0	0	**108 936**
08 – Communication	20 575	0	0	0	0	0	0	0	0	0	**20 575**
09 – Recreation and culture	99 525	0	0	0	15 743	0	0	0	0	0	**115 268**
10 – Education	0	0	0	0	8 167	0	0	0	0	0	**8 167**
11 – Restaurants and hotels	0	0	0	0	54 402	0	0	0	0	0	**54 402**
12 – Misc. Goods and services	29 217	0	0	0	76 864	0	0	0	0	0	**106 081**
NPISH final consumpt. exp.	**0**	**8 959**	**20 808**	**0**	**0**	**1 081**	**0**	**0**	**0**	**0**	**30 848**
Gen. gov. final consumpt. exp.	**0**	**454 046**	**0**	**0**	**0**	**58 763**	**0**	**0**	**0**	**0**	**512 809**
Gross fixed capital formation	**345 747**	**75 155**	**324**	**0**	**0**	**0**	**0**	**0**	**31 003**	**10 010**	**462 240**
111 Dwellings	100 537	0	0	0	0	0	0	0	0	0	**100 537**
112 Other buildings and struct.	65 880	37 488	0	0	0	0	0	0	1 110	6 891	**111 368**
113 Machinery and equipm.	119 930	12 198	0	0	0	0	0	0	4 509	0	**136 636**
114 Weapon systems	0	1 836	0	0	0	0	0	0	0	0	**1 836**
115 Cultivated biol. resources	143	0	0	0	0	0	0	0	0	0	**143**
117 Intell. property products	59 257	23 634	324	0	0	0	0	0	25 384	3 119	**111 719**
Changes in inventories	**7 862**	**0**	**3 520**	**0**	**0**	**0**	**0**	**0**	**-5**	**-1 703**	**9 674**
- materials and supplies	181	0	2 394	0	0	0	0	0	-5	-1 703	**867**
- work-in-progress	459	0	0	0	0	0	0	0	0	0	**459**
- finished goods	0	0	1 125	0	0	0	0	0	0	0	**1 125**
- goods for resale	7 223	0	0	0	0	0	0	0	0	0	**7 223**
Acq. less disposals of valuables	**0**	**0**	**0**	**0**	**3 387**	**0**	**0**	**0**	**0**	**0**	**3 387**
Exports of goods and services	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1 143 671**	**1 143 671**
goods	0	0	0	0	0	0	0	0	0	669 197	**669 197**
services	0	0	0	0	0	0	0	0	0	474 474	**474 474**
Imports of goods and services	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1 007 033**	**1 007 033**
goods	0	0	0	0	0	0	0	0	0	607 349	**607 349**
services	0	0	0	0	0	0	0	0	0	399 684	**399 684**

For more details on compilation of various variables regarding HFCE and GFCF, see section 5.7 and 5.10.

Table 5.4 Exhaustivenesses in expenditure approach, 2017

	N1	N2	N3	N4	N5	N6	N7	**Total exhaustiveness**
				DKK mill.				
Househ. final consumpt. exp.	**6 760**	**4 353**	**72**	**0**	**0**	**0**	**14 952**	**26 137**
01 – Food and non-alc. bev.	514	169	72	0	0	0	0	**756**
02 – Alc. bev., tobacco and narc.	121	2 908	0	0	0	0	0	**3 029**
03 – Clothing and footwear	8	0	0	0	0	0	0	**8**
04 – Housing, water elect. etc.	1 659	0	0	0	0	0	635	**2 294**
05 – Furnishings etc.	1 014	0	0	0	0	0	0	**1 014**
06 - Health	42	0	0	0	0	0	0	**42**
07 – Transport	409	0	0	0	0	0	6 787	**7 196**
08 - Communication	0	0	0	0	0	0	0	**0**
09 – Recreation and culture	876	0	0	0	0	0	893	**1 769**
10 – Education	30	0	0	0	0	0	0	**30**
11 – Restaurants and hotels	1 212	0	0	0	0	0	6 637	**7 849**
12 – Misc. Goods and services	874	1 276	0	0	0	0	0	**2 150**
NPISH final consumpt. exp.	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Gen. gov. final consumpt. exp.	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Gross fixed capital formation	**520**	**0**	**0**	**0**	**0**	**0**	**0**	**520**
111 Dwellings	520	0	0	0	0	0	0	**520**
112 Other buildings and struct.	0	0	0	0	0	0	0	**0**
113 Machinery and equipm.	0	0	0	0	0	0	0	**0**
114 Weapon systems	0	0	0	0	0	0	0	**0**
115 Cultivated biol. resources	0	0	0	0	0	0	0	**0**
117 Intell. property products	0	0	0	0	0	0	0	**0**
Changes in inventories	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
- materials and supplies	0	0	0	0	0	0	0	**0**
- work-in-progress	0	0	0	0	0	0	0	**0**
- finished goods	0	0	0	0	0	0	0	**0**
- goods for resale	0	0	0	0	0	0	0	**0**
Acq. less disposals of valuables	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Exports of goods and services								
goods	0	0	0	0	0	0	0	**0**
services	0	0	0	0	0	0	0	**0**
Imports of goods and services								
goods	0	1 576	0	0	0	0	0	**1 576**
services	0	0	0	0	0	0	0	**0**

5.6 The main approaches taken with respect to exhaustiveness

As regards the legitimate (as opposed to the black) economy excluding fringe benefits, the most important steps taken are corrections and supplements to the sources underlying the calculations of household consumption expenditure. Retail sales statistics do not cover all industries of retail trade. In the national accounts calculations, these statistics are therefore supplemented by VAT statistics to ensure that the whole of retail trade is covered, as described in section 5.7.

The calculations of fringe benefits, the black economy and illegal activities are described in chapter 7.

5.7 Household final consumption expenditure (HFCE)

5.7.1 Overview

Various sources are used to provide information on household final consumption expenditure. The two most important are:

- The retail trade index (Danish abbreviation DOI), which contains information on level of sales to private individuals, and
- The household budget survey (Danish abbreviation FU)

Section 5.7.2 describes in detail how the FU and DOI are combined and used to the three main groups of goods in DOI:

1. Food, beverages and tobacco and convenience goods
2. Clothing etc.
3. Other consumer goods.

For non-retail consumption, i.e. other goods and all services, the preferred source is in general the FU with a number of corrections. In cases where the FU is known to cause problems, supply statistics are used, i.e. supplies of certain product balances and the commodity flow method or alternatively, the balanced consumption group as in the early versions of the provisional national accounts.

Table 5.5 shows the main source, estimation method and value for each of the 74 consumption groups in the national accounts' most detailed consumption grouping. The estimation methods are described in section 5.7.2. The following abbreviations are used:

DOI:	Retail turnover index
FU:	Uncorrected household budget survey
FU corr.:	Household budget survey with certain – in most cases conceptual – corrections
FU + product:	Household budget survey plus a product balance
Supply:	Supply-side estimates using commodity flow method
FNR:	Balanced values for the latest provisional national accounts calculated in year t+1
BB:	Balance of payments statistics
Energy:	The energy sub-system which compiles supply and use of energy products

Table 5.5 Statistical sources for the national accounts estimated of household final consumption expenditure, 2017

Consumption group		Source	Estimation method	Value
				DKK mill.
01110	Bread and cereals	FU/DOI	Grossed up FU	14 811
01120	Meat	FU/DOI	Grossed up FU	23 461
01130	Fish	FU/DOI	Grossed up FU	4 673
01141	Eggs	FU/DOI	Grossed up FU	1 890
01142	Milk, cream, yoghurt etc.	FU/DOI	Grossed up FU	8 141
01143	Cheese	FU/DOI	Grossed up FU	5 838
01150	Oils and fats	FU/DOI	Grossed up FU	3 644
01167	Fruit and vegetables except potatoes	FU/DOI	Grossed up FU	16 377
01179	Potatoes etc.	FU/DOI	Grossed up FU	2 303
01181	Sugar	FU/DOI	Grossed up FU	571
01182	Ice cream, chocolate and confectionery	FNR	Balanced preliminary accounts	15 037
01190	Food products n.e.c.	FU/DOI	Grossed up FU	5 272

01210	Coffee, tea and cocoa	FU/DOI	Grossed up FU	4 619
01220	Mineral waters, soft drinks, fruit and vegetable juices	FNR	Balanced preliminary accounts	9 248
02112	Spirits and wine	FNR	Balanced preliminary accounts	12 051
02130	Beer	FNR	Balanced preliminary accounts	5 499
02900	Tobacco etc.	FNR	Balanced preliminary accounts	17 356
03113	Articles of clothing	FU/DOI	Grossed up FU	32 452
03140	Cleaning, repair and hire of clothing	FU corr	Corrected FU	384
03200	Footwear	FU/DOI	Grossed up FU	8 909
04100	Actual rentals for housing	Supply	Supply-side estimate	78 916
04200	Imputed rentals for housing	Supply	Supply-side estimate	122 929
04300	Maintenance and repair of the dwelling	FU	FU	9 098
04401	Water supply and sewerage services	Supply	Supply-side estimate	15 924
04402	Refuse collection, other services n.e.c.	Supply	Supply-side estimate	7 003
04510	Electricity	Energy	Use in energy sub-system	23 101
04520	Gas	Energy	Use in energy sub-system	4 857
04530	Liquid fuels	Energy	Use in energy sub-system	2 123
04545	District heating etc.	Energy	Use in energy sub-system	20 862
05100	Furniture and furnishings, carpets and other floor coverings	FU/DOI	Grossed up FU	22 144
05200	Household textiles	FU/DOI	Grossed up FU	5 229
05312	Household appliances	FU/DOI	Grossed up FU	8 049
05330	Repair of major household appliances	FU	FU	378
05400	Glassware, tableware and household utensils	FU/DOI	Grossed up FU	5 835
05500	Tools and equipment for house and garden	FU/DOI	Grossed up FU	5 923
05610	Non-durable household goods	FU/DOI	Grossed up FU	4 614
05620	Domestic services and household services	Supply	Supply-side estimate	2 821
06112	Pharmaceutical products and other medical products	FU/DOI	Grossed up FU	8 381
06130	Therapeutic appliances and equipment	FU/DOI	Grossed up FU	4 601
06200	Out-patient services	FU	FU	11 647
06300	Hospital services	Supply	Supply-side estimate	4 115
07100	Purchase of vehicles	FNR	Balanced preliminary accounts	38 897
07213	Maintenance and repair of vehicles	FU corr	Corrected FU	23 546
07220	Fuels and lubricants for personal transport equipment	Energy	Use in energy sub-system	24 159
07240	Other services in respect of personal transport equipment	FU corr	Corrected FU	15 886
07300	Transport services	FU corr	Corrected FU	13 307
08100	Postal services	FU corr	Corrected FU	235
08200	Telephone and data communication equipment	FU	FU	4 592
08300	Telephone and data communication services	FU	FU	15 545
09110	Radio and television sets etc.	FU/DOI	Grossed up FU	7 779
09120	Photographic equipment etc.	FU/DOI	Grossed up FU	1 205
09130	Data processing equipment	FU/DOI	Grossed up FU	10 103
09140	Recording media for pictures and sound	FU/DOI	Grossed up FU	1 873
09150	Repair of a/v and data processing equipment	FU	FU	1 111
09200	Other major durables for recreation and culture	FU/DOI	Grossed up FU	4 906
09300	Other recreational items and equipment, gardens and pets	FU/DOI	Grossed up FU	20 838
09400	Recreational and cultural services	FU corr	Corrected FU	45 798
09513	Books, newspapers, periodicals and miscellaneous printed matter	FU/DOI	Grossed up FU	8 094
09540	Stationery and drawing materials etc.	FU/DOI	Grossed up FU	1 343
09600	Package holidays	Supply	Supply-side estimate	15 152
10000	Education	Supply	Supply-side estimate	8 133
11100	Catering services	FNR	Balanced preliminary accounts	50 858
11200	Accommodation services	FNR	Balanced preliminary accounts	9 553
12110	Hairdressing salons and personal grooming establishments	FU corr	Corrected FU	7 641
12123	Appliances, articles and products for personal care	FU/DOI	Grossed up FU	12 434
12310	Jewellery, clocks and watches	FU/DOI	Grossed up FU	2 468
12320	Other personal effects	FU/DOI	Grossed up FU	4 051
12401	Retirement homes, day-care centres etc.	Supply	Supply-side estimate	5 051
12402	Kindergartens, creches etc.	Supply	Supply-side estimate	10 256
12500	Insurance	Supply	Supply-side estimate	22 628
12600	Financial services n.e.c.	Supply	Supply-side estimate	42 760
12700	Other services n.e.c.	FU + product	FU + product balance	9 189
99800	Final consumption of non-residents on the economic territory	BB	Balance of Payment data	-57 836
99900	Final consumption of residents in the RoW	BB	Balance of Payment data	43 155

5.7.1 Main data sources and their conversion to national accounts results

Various sources are used to provide information on household final consumption expenditure. The two most important are:

- The retail index (Danish abbreviation DOI), which contains information on level of sales to private individuals, and
- The household budget survey (Danish abbreviation FU)

Although the first of these sources is officially referred to as the "retail turnover index" (DOI), it is in fact a monthly estimate of the level of retail turnover. To calculate the index, turnover in the sample is grossed up to cover the total population of retail trade enterprises. The national account uses the DOI levels for compiling household consumption expenditure.

The DOI breaks down retail into three categories, namely:

- sales to private individuals
- sales to (market producers) enterprises
- sales to (non-market) public institutions

This breakdown is important, since only sales to private individuals are relevant to the estimate of household final consumption expenditure. If the only sales known were total sales in retail enterprises, the calculation would be less reliable. The minor share of sales reported as being to private individuals, but which are actually to sole proprietorships, and should therefore not be included are assumed for practical purposes to offset the minor share of sales from manufacturing and wholesale enterprises to private individuals, which also should be included in the estimate of household final consumption expenditure.

The retail turnover index also covers sales via the Internet in the following industries:
- 479111: Retail sale of groceries via the Internet
- 479112: Retail sale of electronic or electrical equipment and photographic equipment via the Internet
- 479113: Retail sale of electrical or household goods, other than electrical appliances, via the Internet
- 479114: Retail sale of books, office supplies, music or movies via the Internet
- 479115: Retail sale of hobby goods, musical instruments, sports equipment, toys, bicycles via the internet
- 479116: Retail sale of clothing, shoes, leather goods, watches or baby equipment via the Internet
- 479117: Retail sale of medicines and personal care products via the Internet
- 479119: Retail sale of other goods via the Internet
- 479120: Retail sale of digital products via the Internet

Sales via the Internet from other countries within the European Union to households are covered by mini one-stop shop (MOSS).

The main idea behind the calculation system is a breakdown of household consumption expenditure into groups by purpose/products, each group being calculated on the basis of the most reliable of the available sources, but in a way which seeks to make optimum use of all available information. The basic breakdown of household consumption expenditure is into retail and non-retail consumption expenditure. The former is the share of final consumption expenditure of goods which involves retail trade. In this context, retail trade excludes motor vehicles etc. and energy goods, which are not covered by the DOI.

Sales to private individuals as taken from the DOI are normally considered the best source of information on household final consumption expenditure. In particular, this source is not subject to the same sampling uncertainty and problems with the treatment of tourist expenditure and other possible skewness as the FU. The enterprises are sampled on the basis of yearly turnover, based on VAT-declarations to the Tax administrations. In the sample all enterprises with a turnover of more than 50 million DKK/year (ex VAT) as well as the top 30 pct. of firms with the highest turnover for each of the 42 groups of goods represented in the statistic. The remaining sample is based on stratified random selection for all firms with a turnover above 2.5 million DKK/year (ex VAT). The total sample size was approximately 3,500 enterprises on 1 January 2021 with each of the monthly publications including between 1,600 and 2,000 responses. DOI breaks down sales into three main groups of goods, which is used in national accounts:

1. food, beverages, tobacco and convenience goods (FD)
2. clothing etc (B)
3. other consumer goods (A)

For the national accounts, target totals have to be worked out at a much more detailed level. The next stage is therefore to use the FU to split the main groups of goods into subgroups. The view taken here is that the FU is essentially more reliable as a distribution key than as an estimate of levels. There are exceptions, however, where the FU is known to give a misleading picture of consumption expenditure.

Both the DOI and the FU is in purchasers' prices including VAT, i.e. the value relevant to household final consumption expenditure. Consequently, no valuation correction is needed.

The calculation for the national accounts consumption groups based on DOI and FU can be broken down in following steps:

Step 1: Link between the three main groups in DOI and the national accounts consumption groups
It is necessary to create a link between the three main groups from the DOI and the national accounts consumption groups. The following links were adopted between the national accounts consumption groups defined by purpose - c.f. Section 9.1, table 9.2 - and main groups of goods in the DOI:

FD - Food, beverages and tobacco, convenience goods:
01110 Bread and cereals
01120 Meat
01130 Fish
01141 Eggs
01142 Milk, cream, yoghurt etc.
01143 Cheese
01150 Oils and fats
01167 Fruit and vegetables except potatoes
01181 Sugar
01182 Ice cream, chocolate and confectionery
01190 Food products n.e.c.
01210 Coffee, tea and cocoa
01220 Mineral water, soft drinks, fruit and vegetable juices
02112 Spirits and wine
02130 Beer
02900 Tobacco etc.
05610 Non-durable household goods
12123 Appliances, articles and products for personal care

B - Clothing:
03113 Articles of clothing
03200 Footwear

A - Other consumer goods
05100 Furniture, furnishing, carpets etc.
05200 Household textiles
05312 Household appliances
05400 Glass, tableware and household utensils
05500 Tools and equipment for house and garden
06112 Pharmaceutical products and other medical products
06130 Therapeutic appliances and equipment
09110 Radio and television sets etc.
09120 Photographic equipment etc.
09130 Data processing equipment
09140 Recording media for pictures and sound
09200 Other major durables for recreation and culture
09300 Other recreational items and equipment, gardens and pets
09514 Books, newspapers, periodicals and misc. printed matter
09530 Stationery and drawing materials etc.
12310 Jewellery, clocks and watches
12320 Other personal effects

Step 2: Adding retail trade industries not covered by DOI and deducting goods used as input in construction

The DOI does not cover all retail trade industries (outside the motor vehicle group and energy). As a first step, the missing DK-NACE retail trade industries are identified and their VAT sales are used instead. VAT sales multiplied by one plus the VAT rate is as a general rule assumed to be equivalent to DOI sales to private consumers. The following detailed NACE industries are used:

43.21.00 Electrical installation
47.41.00 Retail sale of computers, peripheral units and software in specialized stores
47.42.00 Retail sale of telecommunications equipment in specialized stores
47.52.10 Retail sales of paints, varnishes and lacquers
47.52.20 DIY centres and tool stores
47.59.40 Retail sale of musical instrument
47.59.90 Retail sale of furniture, lighting equipment and household articles n.e.c. in specialized stores
47.65.00 Retail sale of games and toys in specialized stores
47.73.00 Dispensing chemist in specialized stores
47.74.00 Retail sale of medical and orthopaedic goods in specialized stores
47.76.30 Retail sale of pet animals and pet food
47.78.40 Activities of commercial art galleries
47.78.90 Retail sale of other goods n.e.c.
47.81.00 Retail sale via stalls and markets of foods, beverages and tobacco products
47.82.00 Retail sale via stalls and markets of textiles, clothing and footwear
47.89.00 Retail sale via stalls and markets of other goods

The major part of these industries are used in full, however there are some exceptions as described below:

For the very large industry 47.41.00 Retail sale of computers, peripheral units and software in specialized stores, it is assumed that only 85% of VAT sales are to private consumers. This percentage is based on the high level of household consumption of PCs which emerged from the FU over a number of years, an item which is subject to a great deal of sampling uncertainty in any given year.

The DOI covers “do-it-yourself centres” (DIY centres) and paint and wallpaper shops. Most sales in these units, however, are goods used for input in construction and not household consumption expenditure. Only 5% of sales are assumed to be household consumption expenditure and the remaining 95% to be input in construction. The latter share, including VAT, is deducted from sales to households as consumers according to DOI on the basis of VAT sales in 47.52.10 Retail sales of paints, varnishes and lacquers and 47.52.20 DIY centres and tool stores. However, with these percentages it should be remembered that all materials for repair and maintenance of buildings in the Danish national accounts are channelled through the special materials industry 430004, as described in Section 3.12. The share of expenditure on materials, which goes to ordinary minor repair and maintenance of dwellings, and which is normally the responsibility of tenants, and the corresponding share for owner-occupiers, are lumped together under consumption in households under the product balance "building repairs".

Step 3: Grossing up the household budget survey

For any given year, the FU is grossed up by the national accounts division using the method recommended by the primary statistics division. The Danish FU includes a correction for differential non-response in the individual strata. The reason is that in Denmark it is possible to use income information from register data relating to households in the sample, thus ensuring that all income groups are correctly represented in the grossing up.

Step 4: National accounts coding of the FU and extra grossing up

A key is established to convert from the FU product codes to the national accounts consumption groups and the grossed up FU is aggregated to consumption groups. A correction is also made for definitional differences between the national accounts and the FU (insurance, gambling, etc.). There is then an extra grossing up to correct for any skewness in the FU's average household size and persons not living in households. The correction factor is calculated as the average number of persons in the country in the reference year divided by the number of persons covered by the FU.

The “extra grossed up FU” is used as the only source and without any further adjustments for consumption groups:

04300 Maintenance and repair of dwelling
04401 Water supply and sewerage services
05330 Repair of major household appliances
08200 Telephone and data communication equipment
08300 Telephone and data communication services
09150 Repair of a/v and data processing equipment

Step 5: Creating a distribution for the DOI, supplemented and corrected for, and for the FU
For each of the three main groups of goods in DOI, the initial estimate is equal to the value of retail sales to private consumers taken from the DOI as supplemented and corrected. Within each of the main groups of goods, the totals are distributed over the individual consumption groups as shown in step 1 in proportion to the FU distribution (the extra grossed up FU from step 4. The FU figures are grossed up/down so that the totals match the supplemented and corrected DOI. But five groups where the FU figures are systematically skew are not included. These are 01182 Ice cream, chocolate and confectionary, 01220 Mineral waters, soft drinks, fruits and vegetable juices, 02112 Spirits and wine, 02130 Beer and 02900 Tobacco etc.

Figures are added for farmers' consumption of own products and direct sales to private consumers in consumption groups 01120 Meat, 01141 Eggs and 01142 Milk, cream, yoghurt, etc. The source is agricultural statistics. The consumption of own products by other economic operators, as assessed for tax purposes, is considered to be covered via the DOI's VAT-based grossing up. During a subsequent step, there is an allowance for fringe benefits, black and illegal activity.

Step 6: Initial values based on the provisional national accounts
The following consumption groups initial value is based on the provisional accounts calculated in year t+1:

01182 Ice cream, chocolate and confectionary
01220 Mineral waters, soft drinks, fruit and vegetable juices
02112 Spirits and wine
02130 Beer
02900 Tobacco etc.
07100 Purchase of vehicles

The goods covered by these consumption groups are all imposed by product taxes, and information about the taxed quantities combined by the tax rules are the basis for the estimates of household consumption. When the provisional accounts are less detailed, they are broken down to the detailed final accounts consumption groups using the latest final year.

Step 7: Allocation of consumption of non-resident (tourist income)
When the target totals are calculated on the basis of the FU, purchases by foreign tourists in Denmark is not included in the consumption expenditure on the economic territory. In order to incorporate this expenditure in the relevant consumption groups a correction is made on the basis of input/output multipliers. The following consumption groups based on the FU are corrected for tourist expenditure:

03140 Cleaning, repair and hire of clothing.
06200 Out-patient services
07213 Maintenance and repairs of mother vehicles
07240 Other services in respect of personal transport equipment
07300 Transport services
08100 Postal services
09400 Recreational and cultural services

Step 8: Consumption groups estimated from the supply side
For various consumption groups, the best initial estimate is obtained by using supply values either directly or as a supplement to the FU. In some of these groups household final consumption is the only - or at least the dominant - domestic use of the products in question; within insurance and financial services, household final consumption is determined in the subsystems in which the entire balances of supply and use are compiled for each product. The following consumption groups are covered by supply side estimates:

04100 Actual rentals for housing
04200 Imputed rentals for housing
05620 Domestic services and home care services
06300 Hospital services
09600 Package holidays
10000 Education
12401 Retirement homes, day-care centres etc.
12402 Kindergartens, crèches etc.
12500 Insurance
12600 Financial services n.e.c.

Step 9: Water and energy
Initial estimates for the consumption groups are obtained from the products balances for energy products compiled in the special "energy sub system":

04510 Electricity
04520 Gas
04530 Liquid fuels
04545 Hot water, steam etc.
07220 Fuels and lubricants for personal transport equipment

Step 10: Tourist expenditure and –income
Consumption groups 99800 (P34) Final consumption of non-residents on the economic territory and 99900 (P33) Final consumption of residents in the ROW, which is the same as tourist income and –expenditure, are given from the balance of payment import and export of services, that are described in sections 5.14 and 5.16.

Step 11: Inclusion of fringe benefits, black and illegal activity
After the above described calculations, fringe benefits and expenditure on black and illegal activities are added to relevant consumption groups. There is no explicit adjustment made to exclude items used as intermediate consumption of producers of illegal activities, since this is assumed to be a minor issue. The calculation of fringe benefits, black and illegal activities is described in section 7.

Step 12: Balancing correction based on experience
Finally, the values for the individual consumption groups are multiplied by a set of factors which are determined by experience with the balancing of the national accounts during previous year (t-1). When the initial estimates are made, account is taken of any known bias in the estimate of the individual consumption groups based on sources from the expenditure (uses) side. If, for example, the first of the consumption groups, 01110, bread and cereals, was adjusted in the latest final national accounts to a value which was two percent above the initial estimate, the level obtained from Step 9 is multiplied by a factor of 1.02 when the final initial estimate is worked out for household consumption of group 01110.

Step 13: Balancing in the framework of the national accounts product balance system
The target totals as described in step 1-12 for household consumption expenditure are included with the other estimates for the supply and use components in the balancing of the national accounts. In Denmark's case, supply and use or, equivalently, GDP as compiled from the output and expenditure angles – are balanced in a very detailed product balance system covering around 2.530 products. The product balance system is further described in section 6.1.

Table 5.6 shows the grossed up household budget survey (step 4), the target totals (step 10), adjustment to exhaustiveness (step 11) and the balanced final value (step 13).

Table 5.6 Initial estimates and final balanced value for the household consumption by COICOP, and the grossed up household budget survey for the year 2017.

	Consumption group	FU	Target totals	Exhaustivenes s	Final balanced value
		DKK mill.			
01110	Bread and cereals	13 828	14 685	20	14 811
01120	Meat	21 498	23 270	37	23 461
01130	Fish	4 927	4 658	10	4 673

01141	Eggs	1 670	1 790	22	1 890
01142	Milk, cream, yoghurt etc.	7 005	7 817	12	8 141
01143	Cheese	5 148	5 522	0	5 838
01150	Oils and fats	2 679	3 420	0	3 644
01167	Fruit and vegetables except potatoes	18 254	16 292	152	16 377
01179	Potatoes etc.	2 010	2 276	0	2 303
01181	Sugar	284	597	0	571
01182	Ice cream, chocolate and confectionery	9 407	14 860	267	15 037
01190	Food products n.e.c.	5 785	5 127	0	5 272
01210	Coffee, tea and cocoa	3 338	4 421	0	4 619
01220	Mineral waters, soft drinks, fruit and vegetable juices	5 981	9 682	233	9 248
02112	Spirits and wine	9 341	12 009	63	12 051
02130	Beer	3 139	5 428	351	5 499
02900	Tobacco etc.	5 695	17 559	2 929	17 356
03113	Articles of clothing	25 527	31 754	8	32 452
03140	Cleaning, repair and hire of clothing	331	325	0	384
03200	Footwear	5 734	8 692	0	8 909
04100	Actual rentals for housing	77 751	78 097	0	78 916
04200	Imputed rentals for housing	87 215	124 130	635	122 929
04300	Maintenance and repair of the dwelling	11 390	8 615	1 659	9 098
04401	Water supply and sewerage services	12 916	15 495	0	15 924
04402	Refuse collection, other services n.e.c.	12 392	7 007	0	7 003
04510	Electricity	19 752	24 082	0	23 101
04520	Gas	4 888	4 853	0	4 857
04530	Liquid fuels	2 503	2 069	0	2 123
04545	Hot water, steam etc.	38 844	20 907	0	20 862
05100	Furniture, furnishing, carpets etc.	16 480	21 366	8	22 144
05200	Household textiles	2 743	4 919	0	5 229
05312	Household appliances	6 057	8 016	0	8 049
05330	Repair of major household appliances	54	328	261	378
05400	Glassware, tableware and household utensils	3 875	5 431	0	5 835
05500	Tools and equipment for house and gardens	4 004	5 271	0	5 923
05610	Non-durable household goods	5 205	4 555	0	4 614
05620	Domestic services and home care services	3 160	2 887	745	2 821
06112	Pharmaceutical products and other medical products	6 583	7 966	0	8 381
06130	Therapeutic appliances and equipment	3 354	4 335	0	4 601
06200	Out-patient services	11 133	11 880	42	11 647
06300	Hospital services	175	4 151	0	4 115
07100	Purchase of vehicles	42 664	38 567	0	38 897
07213	Maintenance and repair of vehicles	13 943	24 301	256	23 546
07220	Fuels and lubricants for personal transport equipment	18 683	23 137	0	24 159
07240	Other services in respect of personal transport equipment	5 456	17 083	7 263	15 886
07300	Transport services	13 804	13 520	153	13 307
08100	Postal services	370	335	0	235
08200	Telephone and data communication equipment	4 252	4 545	0	4 592
08300	Telephone and data communication services	16 582	15 694	0	15 545
09110	Radio and television sets etc.	2 375	7 242	0	7 779
09120	Photographic equipment etc.	564	1 279	0	1 205
09130	Data processing equipment	5 140	9 921	1 058	10 103
09140	Recording media for pictures and sound	501	1 823	0	1 873
09150	Repair of a/v and data processing equipment	565	1 105	523	1 111
09200	Other major durables for recreation and culture	2 452	4 822	0	4 906
09300	Other recreational items and equipment, gardens and pets	16 381	20 384	4	20 838
09400	Recreational and cultural services	26 916	45 475	270	45 798
09513	Books, newspapers, periodicals and misc. printed matter	6 127	8 075	0	8 094
09540	Stationery and drawing materials etc.	967	1 260	8	1 343
09600	Package holidays	16 727	15 743	0	15 152
10000	Education	4 755	8 196	30	8 133
11100	Catering services	35 215	50 681	5 803	50 858
11200	Accommodation services	4 034	9 524	0	9 553
12110	Hairdressing salons and personal grooming establishments	7 278	7 967	854	7 641
12123	Appliances, articles and products for personal care	10 715	11 685	0	12 434
12310	Jewellery, clocks and watches	3 165	2 278	0	2 468
12320	Other personal effects	1 793	3 984	0	4 051
12401	Retirement homes, day-care centres etc.	846	4 803	0	5 051
12402	Kindergartens, crèches etc.	10 087	10 256	0	10 256
12500	Insurance	40 438	22 210	0	22 628
12600	Financial services n.e.c.	2 154	42 631	0	42 760
12700	Other services n.e.c.	1 363	7 868	20	7 913

99800	Final consumption of non-residents on the economic territory	1 200	-57 836	0	-57 836
99900	Final consumption of residents in the ROW	1 900	48 558	0	43 155
	Total	**801 467**	**983 665**	**23 696**	**984 520**

5.7.2 Detailed calculations by COICOP items

The detailed description of the method of calculation regarding HFCE can be found in chapter 5.7.2. In this section only a few special cases are described.

07100 Purchase of vehicles

The Danish car scrap scheme contains no requirement for buying a new car in order to qualify for the premium. The premium is in fact on the scrapping service and not on the condition of buying a new car. The aim of the Danish car scarp scheme is purely environmentally and is designed to encourage people to use environmentally sound scrapping services. Typically, the household gives the car to tan authorised car-scrapper who then in turn collects the premium.

09130 Data processing equipment

The target for expenditure on software, including games is based on the grossed up FU. But as described in step 13 in the previous section, is the targets for household consumption balanced with other estimates for supply and use in a product balance system. This means that the household consumption of software will be balanced to the total supply together with the rest of the use side.

12500 Insurance

Household final consumption of insurance is determined in a subsystem in which the entire balances of supply and use are compiled. A description of the calculation of output of insurance is found in section 3.17 and a description of the distribution of uses is found in section 3.4. The distributions between intermediate consumption by industries and household final consumption are calculated for detailed products. For instance “Other non-life insurance” covers a number of different types of insurance. The different types of insurance are allocated individually depending on their character. E.g. air transport insurance is allocated to air transport, house insurance is allocated to dwellings, and family insurance is allocated to household final consumption expenditure.

12600 Financial services n.e.c.

Household final consumption of financial services (both directly paid and FISIM) is determined in a subsystem in which the entire balances of supply and use are compiled. A description of the calculation of output of financial services is found in section 3.17 and a description of the distribution of uses is found in section 3.4. The distributions between intermediate consumption by industries and household final consumption are calculated for detailed products.

5.8 NPISH final consumption expenditure

The NPISH units are included in the Business Registry. There have been issues in the past with coverage of the NPISH units. Coverage has steadily improved since units are required to have a legal status to engage with the authorities. Statistics Denmark collects a sample of annual accounts for each industry, and then grosses up to the population using data on wages. The annual accounts contain useful information regarding market- and non-market production as well as current transfers to and from the industries. It is thus possible to determine whether a price is economically significant or not and thus distinguish between market- and nonmarket production for a given good.

Output is calculated in accordance with ESA 2010 section 3.49:

Table 5.7 Calculation of NPISH output, 2017

NPISH output	Value
	DKK mill.
Intermediate consumption	17 125
+ Wages	25 345
+ Consumption of fixed capital	1 081
+ Other production taxes	74
- Other production subsidies	17
Output	43 609

The measurement of NPISH expenditure is not subject to any conceptual or exhaustiveness adjustments. See also the process tables.

Table 5.8 Calculation of output for different types of NPISH, 2017

DK-NACE	Industry	Output	NPISH Final Consumption Expenditure	Household Final Consumption Expenditure	Sources	Estimation method
		DKK mill.				
850010	Primary Education	9 017	6 254	2 763	Ministry of Education	Covers entire population
850020	Secondary Education	4 842	3 031	1 811	Ministry of Education, Surveys censuses, data on wages	Grossing to population by using data on wages
850042	Adult-, other educ. (non-market)	4 368	2 787	1 582	Surveys censuses, data on wages	Grossing to population by using data on wages
880000	Social work without accomond.	7 527	4 928	2 599	Surveys censuses, data on wages	Grossing to population by using data on wages
910002	Libraries, museums (non-market)	1 877	1 155	721	Surveys censuses, Ministry of Culture, data on wages	Grossing to population by using data on wages
930012	Sport activities (non-market)	2 920	2 665	255	Surveys censuses, data on wages	Grossing to population by using data on wages as well as industry survey
940000	Activities of membership org.	13 059	10 029	3 031	Surveys censuses, data on wages	Grossing to population by using data on wages

The data source for primary level education, industry 850010 comes from administrative records directly from the Ministry of Education. The records are detailed and classifying according to ESA 2010 is straightforward.

The data source for industry 850020, 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 reported by the entire industry.

The data source for industries 850042 (Adult education), 880000 (childcare and centres), 910002 (libraries and museums), 940000 (associations and organisations) are annual reports and financial statements submitted to ministries as a prerequisite to receive public financing. Data from 910002 is supplemented with data from the Ministry of Culture, as state recognised museums are required to send their financial statements. The samples are then grossed up using data on wages reported by the entire industry.

The data source for industry 930012 (sports associations) is a combination of annual reports and a comprehensive questionnaire made in 2011. The income structure for the industry is a macro-estimation based on the questionnaire, as is the intermediate consumption. D.1 comes from data on wages reported by the entire industry. A large sample of annual reports are then used to estimate the structure of the remaining variables, such as costs on loans, insurance premiums, current transfers made by the industry and depreciations.

The data sources for Religious associations, not included in the government sector, are a sample of annual, websites for the respective religious associations, Ankestyrelsen (the authority that approves the religious communities), Center for Religion at Aarhus University, Lektor Peter Birkelund Andersen from 'Institut for Tværkulturelle og Regionale Studier' at Copenhagen University regarding Scientology. The grossing up from sample to industry is made according to the number of members of the religious communities.

NPISH Final Consumption Expenditure is calculated in accordance with ESA 2010 section 3.97. As explained in chapter 3 sections 22 through 25 NPISH output is broken down by products on the basis of the various uses of the products. This includes a distinction between output of non-market producers' services for consumption and for sales income and own-account capital formation. NPISH final consumption expenditure is therefore given by the product that are output from non-market producers whereas products that are the result of sales income are being labelled household final consumption expenditures.

Subscriptions and contribution payments of households to NPISH are excluded from household final consumption expenditure, as these are treated as current transfers. Output of NPISH includes own account formation of software, and it is excluded from NPISH consumption expenditure. The estimates of NPISH consumption expenditure do not include social transfers in kind. Distinction between market- and non-market producers is made in accordance with ESA 2010 section 3.30-3.36.

5.9 Government final consumption expenditure

Government final consumption expenditure can be split into:

1) Individual consumption expenditure
2) Collective consumption expenditure

1) Individual consumption expenditure
Individual consumption expenditure consists of:

- Social transfers in kind – general government and NPISHs non-market production (D.631) and
- Social transfers in kind – market production purchased by general government and NPISHs (D.632).

In this chapter only the part relating to general government is described. A description of the part relating to NPISH can be found in chapter 5.8.

Social transfers in kind – general government and NPISHs non-market production (D.631) consists of output of government, individual non-market services less sales income from these individual services less the value of own-produced software in those units. The sources and methods for estimating output were described in Section 3.1.3.1 as part of the description of the output-based estimate of GDP and Section 4.12 referring to the consumption of fixed capital. Reference should therefore be made to these sections. Information on sales income is taken directly from government accounts. The value of own-produced software is based on total wages and salaries for highly qualified computer staff assumed to be working on the development of software and large databases. A mark-up factor is applied to total wages and salaries to cover intermediate consumption and the consumption of fixed capital.

Social transfers in kind – market production purchased by general government and NPISHs (D.632) refers to goods and services which general government purchases on the market and makes available to households. According to ESA 2010, such purchases are not included in intermediate consumption or the output value of general government but are allocated directly to final uses as individual consumption of market goods and services paid for by government. This is logical, since the products purchased by government non-market producers are not processed further before being made available to households. In the vast majority of cases, they are supplied directly from the market producer - a general practitioner, for example - to the recipient households. In Denmark's case, almost all transfers in kind of market products are health insurance benefits. The values are taken directly from government accounts which have 100% coverage, and must be considered fully reliable.

2) Collective consumption expenditure
Collective consumption expenditure consists of output of government non-market services used for collective, i.e. non-individualisable, government consumption, minus sales income from these collective services minus the value of the research and development and software produced in those units. The sources and methods for estimating the output value were described in Section 3.1.3.1 as part of the description of the output-based estimate of GDP and Section 4.12 referring to the consumption of fixed capital. Reference should therefore be made to these sections. The value of own-produced software is based on total wages and salaries for highly qualified computer staff assumed to be working on the development of software and large databases. A mark-up factor is applied to total wages and salaries to cover intermediate consumption and the consumption of fixed capital.

The split between transfers of individual non-market goods or services and government collective consumption expenditure is based on the COFOG classification as defined in ESA 2010 Paragraph 3.104.

The relationship between government output and government final consumption expenditure by sub-sector is shown in table 5.9

Table 5.9 Relationship between general government output and final consumption expenditure by sub-sector, 2017

Generel government output and final expenditure by sub-sector	S.1311	S.1313	S.1314	S.13
			DKK mill.	
Compensation of employees	87 568	242 723	2 320	332 611
Consumption af fixed capital	30 630	28 134	0	58 763
Intermediate consumption	65 019	125 579	789	191 387
Other taxes and subsidies	749	-1 960	1	-1 211
Output	183 965	394 475	3 110	581 550

	0	0	0	0
Social benefits in kind	387	30 421	0	30 808
Income from sales	-24 349	-32 000	-8	-56 356
Own account R&D and software	-18 396	-2 259	0	-20 655
Consumption expenditure	141 608	390 638	3 102	535 347

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

5.10 Acquisitions less disposals of produced fixed assets

5.10.1 Overview

The components of final expenditure are estimated in the Danish national accounts by the following product breakdown:

Table 5.10 Gross fixed capital formation in assets, by type, 2017

	DKK mill.
Buildings and structures	**212 611**
Dwellings	101 223
Non-residential buildings	67 669
Structures	43 719
Transport equipment	**59 902**
ICT equip., other machinery and equipment and military equipment	**77 673**
Computer hardware	16 822
Telecommunication equipment	2 621
Other machinery and equipment and weapon systems	58 230
Cultivated biological resources	**143**
Intellectual property products	**115 141**
R&D	64 454
Mineral exploration and evaluation	324
Software	42 988
Originals	7 375
Total	**465 470**

Tables 5.11 and 5.12 show GFCF by type of asset and sector (5.11) and industry (5.12) respectively.

Table 5.11 GFCF by type of asset and sector, 2017

	S.11	S.12	S.13	S.14	S.15	**Total**
			DKK mill.			
Dwellings	25 396	0	0	75 827	0	**101 223**
Other buildings than dwellings	39 014	- 309	23 970	4 026	970	**67 669**
Other structures and land improvements	29 724	0	13 577	418	0	**43 719**
Transport equipment	45 620	8 987	2 199	3 033	63	**59 902**
ICT equipment, other machinery and equip. and weapon systems	57 203	2 183	11 701	5 874	714	**77 674**
Cultivated biological resources	0	0	0	143	0	**143**
Intellectual property products	81 013	8 882	22 925	1 714	606	**115 141**
Total	**277 970**	**19 742**	**74 371**	**91 036**	**2 352**	**465 471**

Table 5.12 GFCF by type of asset and industry, 2017

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	
	Dwellings	Oth. buildings	Other struct.	Transp. equipm.	ICT, mach. etc.	Cultiv. bio. res.	Intell. prop.	**Total**
				DKK mill.				
A Agriculture, forestry, fishing	0	2 297	216	1 202	5 286	143	944	**10 089**
B Mining and quarrying	0	178	1 236	14	812	0	483	**2 723**
C Manufacturing	0	11 642	13	392	14 697	0	43 285	**70 029**
D Electricity, gas and steam	0	2 202	11 316	242	5 327	0	891	**19 977**
E Water, sewerage and waste	0	1 500	7 831	248	3 346	0	571	**13 496**
F Construction	0	586	534	1 559	3 426	0	610	**6 715**
G Wholesale and retail trade	0	3 891	139	3 914	6 460	0	5 172	**19 575**
H Transportation	0	5 791	5 972	25 674	7 273	0	1 620	**46 330**
I Accomodation, food services	0	1 182	5	155	1 739	0	236	**3 318**
J Information and communication	0	2 788	5 618	69	4 678	0	14 922	**28 075**

K Finance and insurance	0	- 309	0	8 987	2 183	0	8 882	**19 742**
LA Real estate, rent of non-res. Buildings	0	10 039	401	151	1 079	0	658	**12 328**
LB Dwellings	101 223	0	0	99	768	0	1 028	**103 119**
M Knowledge based services	0	802	10	331	3 833	0	7 332	**12 308**
N Administr. and support service activities	0	1 040	157	14 155	2 105	0	1 593	**19 049**
O Public admin., defence etc.	0	4 641	9 616	1 795	3 608	0	2 930	**22 589**
P Education	0	7 775	350	263	1 728	0	15 665	**25 782**
Q Human health; social work	0	9 064	101	231	6 521	0	2 625	**18 543**
R Arts and entertainment etc.	0	1 575	201	205	1 317	0	4 615	**7 912**
S Other service activities	0	986	3	214	1 488	0	1 079	**3 771**
T Households as employers etc.	0	0	0	0	0	0	0	**0**
Total	**101 223**	**67 670**	**43 719**	**59 900**	**77 674**	**143**	**115 141**	**465 470**

*Note:

(A) Dwellings

(B) Other buildings than dwellings

(C): Other structures and land improvements

(D) Transport equipment

(E): ICT equipment, other machinery and equipment and weapon systems

(F): Cultivated biological resources

(G): Intellectual property products

Statistics Denmark does not compile figures for additions to value for non-produced assets such as contracts, leases and licenses. Figures for costs of ownership transfer is shown in the section for dwellings and non-residential buildings. The costs of ownership transfer are assumed to cover both buildings and land. Figures for land improvement are included in figures for other structures. More in section 5.10.3.

Table 5.13 GFCF, intellectual property products, 2017

	Value
	DKK mill.
Research and development	64 454
Of which: Own account	49 368
Mineral exploration and evaluation	324
Computer software and databases	42 988
Of which: Own account	22 715
Entertainment, literary or artistic originals and other intellectual property products	7 375

Detailed method description follows in the following sections.

5.10.2 Main data sources and their conversion to national accounts result

As far as possible all of these components are estimated using the expenditure approach. Since the account statistics for non-agricultural private sector in 1999 was extended to cover most industries with market producer units, it has been possible to estimate the capital formation in tangible fixed assets in most industries with a distribution by buildings, structures and a residual consisting of machinery, transport- and other equipment. The account statistics cover figures for GFCF together with figures for output and GVT. Additional sources are used for industries not covered by the account statistics.

The accounting statistics include figures for transactions of existing assets. In the account statistics, separate headings exist for purchase and departure of existing assets. These headings capture transactions in existing capital goods and are included in the calculation of gross fixed capital formation. See section 3.1.4 for detailed description of the account statistics (SBS).

The estimates for the construction of other buildings are based on accounting statistics. Estimates for dwellings are based on statistics on turnover in the construction industry with a significant supplement for costs of ownership transfer.

In the statistical sources for agriculture, certain industries dominated by a few big units and government or government controlled units, can be assumed to contain very reliable estimates of GFCF. For all industries covered by the industrial accounts statistics, the same kind of information is available. It should, however, be taken into account that the GFCF-estimates are often less reliable than other estimates based on the industrial accounts statistics. Annual GFCF-figures tend to be more volatile than, for instance, the figures for intermediate

consumption. Fluctuations in the reported figures will be reflected in the grossed up values, adding to uncertainties in the GFCF-estimates of industries for which the investment figures are only partially based on questionnaires or published annual reports. Furthermore the methods used in grossing up will tend to underestimate investment in newly started enterprises that have not yet supplied questionnaires or annual reports to the accounts statistics. During the start-up phase such enterprises will often have comparatively small sales and employment, but considerable capital formation can take place in the same period.

Even after the introduction of a direct estimate of capital formation in machinery and equipment which is expenditure-based, it seems likely that the estimate for this component will still to some degree need to be adjusted to take into account the supply of investment goods.

A new project introduced for monitoring large new investments projects
The last few years have been characterized by some large investment in new wind farms and datacentres in Denmark. These investment projects are often characterized by being organized into new companies (units) with low initial turnover and employment. Without explicit deviation from normal practice, the method used for grossing up for these units would in many cases underestimate the investment for these units.
In order avoid the risk of underestimate the investment for these units, a group of employees at Statistics Denmark, as part of their work, has been given the task to monitor the large new investment projects in Denmark and ensure that they are correctly recognized in the statement of the investment. In principle this group cover all types of large new investment projects, in practice new wind farms and datacentres are the dominant.

Indirect costs regarding own account construction
The installation charges are assumed to be included in the business accounts. This is based on the accounting rules. According to paragraph 40 in the Danish Financial Statements act *the cost of fixed assets must comprise all expenses incurred in connection with the acquisition until the time at which the asset is ready for use or expenses directly attributable to the asset produced. In addition, interest on capital borrowed to finance the production and concerning the production period may be included in the cost*. The statement in paragraph 40 refers to class B companies (smaller companies), which are not obliged to include interest payments in the cost of the asset. Companies in class C (larger companies), are urged to include indirect costs when calculating the value of an own account asset, including interest payments. It should be stressed, that it is only in the period of construction and is in order to give a true and fair value of the asset.

No adjustments are made to cover the interest paid during the construction period for the smaller companies (class B) as this is non-material as shown in the following.

The legislative requirements for the financial reports differ for different sizes of companies. Public listed companies are met with the greatest requirements and the smallest companies are met with fewer requirements. Class B companies are not required to report.

Comparing B-class companies to total, at the level of industry reveal, that B-class companies GFCF account for 39.28 per cent of total GFCF. We then assume this share can also be used for all industries not covered by Non-agricultural Industries Accounts. This will most likely be an overstatement as the industries not covered by the Non-agricultural Industries Accounts are predominantly financial industries and industries dominated by General Government. In these industries Class B companies are fewer than in other industries leading to an overstatement of the importance of these companies. Using these assumptions GFCF that might not include interest payments on borrowed capital can be estimated to be DKK 4.872 million.

Table 5.14 Own account GFCF, 2017

	Value
	DKK mill.
Total own account GFCF (excluding R&D and software)	12.404
Class B companies share	0,3928
Own account GFCF by Class B companies	4.872

Own-account software and own-account R&D are compiled in line with international guidelines based on other sources than the structural business statistics, and these figures should not be subject to changes because of interest paid during the construction. Therefore, own-account software and own-account R&D is omitted from the total figure for own-account-GFCF

Further assuming that half of own account GFCF is produced using borrowed funds and that the interest rate is 10 percent and that the production period is one year and that none of the Class B companies include interest payments in their GFCF costs we can calculate what can be considered an upper bound for the missing cost to be 0.1 * 4.872* 0.5 = DKK 244 million. As the Danish GNI for 2017 is 2.240.963 DKK million this accounts 0.01 percent - well below the materiality threshold.

5.10.3 Detailed estimation methods used by an code

Transport equipment

The initial estimate prior to balancing for acquisitions less disposals of motor vehicles, is based on the Vehicle Statistics Register, which in turn is based on the Register of Motor Vehicles. Similarly, the estimate of capital formation in large ships, aircrafts, small ships, boats and aircraft, railway rolling stock, containers and other types of transport equipment is estimated from the supply side using the commodity flow method. In 2017, capital formation in transport equipment covered 64 products in the supply and use tables.
Description of car scrap schemes can be found in section 5.7.3.

Dwellings

Estimates for construction of new dwellings and capital repair of existing dwellings are based on statistics on turnover in the construction industry with a significant supplement for costs of ownership transfer. Further, smaller supplements are added for hidden construction activity and mark-up for value added regarding own-account production of capital repair. Table 5.15 shows the decomposition of investment in dwellings by products.

Table 5.15 GFCF for dwellings, by type, 2017

	Value
	DKK mill.
GFCF on dwellings	**101 223**
Construction of new dwellings and capital repair of existing dwellings	85 776
Of which: Construction of new buildings	34 847
Of which: Capital repair	43 232
Of which: Own-account production	7 696
Costs of ownership transfer on dwellings	13 659
Mark-up on own account construction	1 269
Hidden construction activity	520

Non-residential construction (buildings)

Gross fixed capital formation for non-residential buildings can be divided into 3 main categories; Own-account production, costs of ownership transfer and construction of new buildings and capital repair of buildings. The latter make up by far the largest part of the GFCF on non-residential constructions.

Costs of ownership transfer consist of payments regarding estate services real estate agents, lawyers, stamp duties, government sales income connected with court rulings all produced outside NACE section F Construction.

Figures for GFCF construction of new non-residential buildings and capital repair of non-residential buildings are based on expenditure side sources. The main source is account statistics, which contain information on the combined value of construction of new non-residential buildings and capital repair of non-residential buildings from an expenditure perspective, and government statistics, which also contain information on gross fixed capital formation. It should however be noted, that government statistics does not separate between different types of GFCF, therefore the sub-division must be calculated based on previous years division at the level of industries.

Table 5.16 GFCF for non-residential buildings, by type, 2017

	Value
	DKK mill.
Non-residential buildings	**67 669**
Own-account construction	8
Costs of ownership transfer	4 794
Construction of new non-residential buildings and capital repair of existing non-residential buildings	62 868
Of which: Private non-residential buildings	36 385
Of which: Public construction for commercial use	5 759
Of which: Public construction for non-commercial use	20 725

Structures

The estimation of GFCF for structures can be subdivided into 3 types of structures, Private structures, public commercial structures and public non-commercial structures, all of which has a different source. Table 5.17 shows the values for 2017. Figures for land improvements are included in figures for structures.

Table 5.17 GFCF, structures, 2017

	Value
	DKK mill.
Private structures	43 719
Public commercial structures	1 987
Public non-commercial structures	27 882

Private structures

Capital formation is calculated from the expenditure side, as the total value of all new civil engineering structures, according to the available sources. In practice almost all investment in such structures are covered either by agricultural statistics, by surveys of investment in extraction of crude oil and gas or by the industrial accounts statistics. The calculation is the same as the one used to calculate target totals for capital formation by industry. It is assumed that there are no net product taxes and VAT levied on private structures.

Public commercial structures

Capital formation in structures in public corporations from accounting statistics for industries where public corporations predominate.

Public non-commercial structures

Capital formation in structures for general government sector comes from the DIOR database. Figures for general government sector are based on the DOIR database, which also contain figures for GFCF. The information on new capital formation in the OIMA is broken down by type of investment with the help of the breakdown of capital formation by DK-NACE industry and subsector. However, at this level of detail, no distribution of asset by type is available, and the distribution for the current year is estimated by using previous year's distribution together with common sense.

This capital formation for structures can be seen in Table 5.17.

Livestock

The relatively minor item "changes in agricultural livestock" is explained in the chapter 5.2.2.

Machinery and equipment

Machinery and equipment, which include Computer hardware, Telecommunication equipment, other machinery and equipment and weapon systems, are at the level of product derived by the commodity flow method. However, the target totals (including transport equipment) are derived from the account statistics but some adjustments take place using the information on supply at the product level.

Intellectual property products

Exploratory drilling

In Denmark's case, the only expenditure on mineral exploration at present is on exploratory drilling in the North Sea oil and gas-fields. All concession-holders have to supply accounts to the Danish supervisory authorities, containing information on expenditure on items such as exploratory drilling. The national accounts' estimate is based on this exhaustive accounting information.

Software and large databases

Purchased software and large databases

In the Danish national accounts, the total capital formation of purchased software is estimated from the supply side using the commodity flow method, which also determines intermediate consumption.

The current practice in the Danish business accounts seems to contain purchases of software under various headings: To the extent that the software is capitalized the correct solution should be to show it as an investment in intangible fixed assets, but some software will probably still be included as part of tangible fixed assets,

especially when software and hardware are purchased together. Some GFCF in software can be found in business accounts among acquisitions of equipment etc. that are treated as current expenses or written down during the accounting year, and some software may even be included in other categories of intermediate consumption. A description of the conversion from business accounts data to the concepts used in the national accounts can be found in chapter 3.

The assumption that purchases of software to be used in production < 1 year are included in intermediate consumption is based on Danish company accounts. The basic principles in the Danish Financial Statements Act §13(1) are shown below.

Please refer to 13(1), 1) regarding relevance and materiality and 13(1), 6) regarding periodization. In practice this implies that purchase of software is not regarded as current expenses in those cases, where it is purchased for considerable amounts and a considerable part of the lifetime at the same time is more than the current accounting year.

It is therefore assumed, that overall there is no significant purchase of software with a lifetime < 1 year that is not recorded as current expenses in company accounts.

13(1) The annual report shall be prepared in accordance with the basic assumptions set out below:

1) It must be prepared in a clear and understandable manner (clarity).
2) The substance of transaction rather than formalities without any real content must be accounted for (substance over form).
3) All relevant matters must be included in the annual report unless they are insignificant (materiality). But where several insignificant matters are deemed to be significant when combined, they must be included.
4) The operation of an activity is based on a going concern assumption unless it is to be discontinued or it is assumed that it will not be possible to be continued. If an activity is discontinued, classification and presentation as well as recognition and measurement must be adjusted accordingly.
5) Any change in value must be shown irrespective of the effect on equity and income statement (neutrality).
6) Transactions, events and changes in value must be recognised when occurring irrespective of the time of payment (accrual basis).
7) Methods of recognition and measurement basis must be applied uniformly to the same category of matters (consistency).
8) Each transaction, event and change in value must be recognised and measured individually, and individual matters must not be offset against each other (gross presentation).
9) The opening balance sheet for the financial year must be equivalent to the closing balance sheet for the previous financial year (formal consistency).

The updated questionnaire from the account statistics has a separate item for software, however some purchase of software might be other categories under the heading licenses etc. Further, the level of investment in software is much lower in the questionnaire compared to the estimate from the commodity flow approach based on turnover in the IT-industries, which is considered more reliable.

Since 1996 the product statistics for the IT-industries gives a detailed breakdown by product of turnover in the IT-industries. The turnover in each of the industries is broken down into software and different types of IT-services. A considerable share of this turnover is in fact trade in hardware and standard software. The trade activity is separated out and treated as wholesale or retail trade and the production is converted into trade margins. On the other hand some production of software is by-product in wholesale trade, renting of machinery and equipment and in telecommunications and this production is included in the supply.

Estimates of imports and exports are based on information from foreign trade in services, based on information used in the compilation of balance of payments. Please refer to chapter 5.15 and 5.17 for a description of the treatment of foreign trade in services.

In the final national accounts for 2017, total capital formation in purchased software and large databases has been estimated from the commodity-flow as 20,272 million DKK. This figure includes standard software as well as some IT-services (planning, programming, adjustment, installation etc.) that should be included as a part of the GFCF in software. As illustration simplified product balances are shown for software excluding own account (but

including value of recorded media) and the relevant IT-services that include production of customised software and tailoring of software to specific needs.

Table 5.18 Software excluding own account, software programming, consultancy etc., 2017

Software						
Supply	**Basic price**					
	DKK mill.					
Domestic production	13 650					
Imports	13 504					
Total supply	**27 154**					
Use	**Basic price**	**Wholesale trade margin**	**Retail trade margin**	**Net tax on products**	**VAT**	**Purchasers' price**
			DKK mill.			
Intermediate consumption	5 784	3 229	921	0	243	10 177
Household final consumption	3 110	613	599	0	1 054	5 377
Investment in software	11 371	5 199	889	0	1 184	18 643
Change in inventories	11	6	1	0	0	19
Exports	29	17	0	0	0	46
Total use	**27 154**	**9 192**	**2 411**	**0**	**2 481**	**41 238**

Table 5.19 Software programming, consultancy etc., 2017

Software programming, consultancy etc.						
Supply	**Basic price**					
	DKK mill.					
Domestic production	64 192					
Imports	20 729					
Total supply	**84 921**					
Use	**Basic price**	**Wholesale trade margin**	**Retail trade margin**	**Net tax on products**	**VAT**	**Purchasers ' price**
			DKK mill.			
Intermediate consumption	67 587	0	0	0	5 008	72 595
Household final consumption	649	0	0	0	158	807
Investment in software	1 518	0	0	0	111	1 629
Investment, other	2 994	0	0	0	0	2 994
Exports	12 174	0	0	0	0	12 174
Total use	**84 921**	**0**	**0**	**0**	**5 278**	**90 199**

Software and large databases produced at own account

Own-produced software etc. accounted for 22,795 million DKK or 52.8% of total GFCF in software and databases in 2017.

Own output is calculated from the supply side, more specifically from total wages and salaries which in each of the national accounts' 117 industries are considered to relate to own output of software.

Total wages and salaries are compiled from Statistics Denmark's salary statistics, i.e. the statistical system which provides information on wage and salary levels and changes by job category. This statistics cover all workplaces with ten or more employees. The employment figures used for calculation of the value of own-account software are grossed up to cover the economy as a whole.

Since 1995 the starting point is total wages and salaries according to the statistics on employees in DISCO groups 251, Software and applications developers and analysts, and in 252, Database and network professionals. DISCO is the Danish implementation of ISCO, the international classification of occupations. It is thus assumed that wages and salaries in the category of 50% of DISCO 2511 “systems analyst”, 100% of DISCO 2512, “Software developers”, 100% of DISCO 2513, “Web and multimedia developers”, 100% of DISCO 2514, “Applications programmers”, 20% of DISCO 2519, “Software and applications developers and analysts not elsewhere classified”,

50% of DISCO 2521, "Database designers and administrators", 50% of DISCO 2522, "Systems administrators", 50% of DISCO 2523, "Computer network professionals" and 20% of DISCO 2529, "Database and network professionals not elsewhere classified". In this way it is taken into consideration, that some of the people with the highest education are usually working as executives or as consultants and analysts who are involved in decision making with respect to choice of software systems or even in research and development. The inclusion of ordinary application programmers in the calculation is an important improvement, as most of the coding of computer programs has actually been done by people in this group[17].

According to international recommendations only half of the work time of the selected people is considered production of software for GFCF, as no better estimate exist. Furthermore, in NBR industry 620000 (=NACE 62) it is assumed that only 25% of the time is spent on production of own-account software because the programmers of this industry mostly produces customised software sold to other units.

In 2017 the total wages and salaries of the people in question working in market production are multiplied by a mark-up factor of 2.356 or, to put it another way, total wages and salaries are grossed up by 135.6%. This factor is based on accounting ratios in the published industrial accounts statistics for industry 620000 adjusted for that part of the activity that is considered trade in hardware or software. It covers intermediate consumption (including overheads at firm level), the consumption of fixed capital, other taxes on production, net, and net operating surplus. For own-account production of software in non-market activities a reduced mark-up factor of 2.1713 is used, that is output is grossed up by 117,13% in 2017, as no mark-up for net operating surplus is applied for non-market activity.

Entertainment, literary or artistic originals

Overall, two categories of originals can be distinguished: *film and television originals* and *other*. The specific underlying assets in the supply-use tables are shown below (codes and text as shown in the supply-use tables):

Table 5.20 Entertainment, literary or artistic originals, by type, 2017

Text	Product	Asset	Value
			1000 DKK.
Film and video, own account asset	K591110	5179	1 040 101
TV-programs, own account asset	K591120	5179	2 751 545
Recording of film and video	U591110	5179	115 595
Recording of TV-programs	U591120	5179	25 361
Originals-library money	U900011	5179	183 100
Originals-publishers contract	U900012	5179	289 464
Originals-Koda	U900013	5179	780 443
Originals-Ncb	U900014	5179	13 497
Originals-Copy-dan	U900015	5179	1 830 539
Originals-Gramex	U900016	5179	205 471
Originals, license paym. from ROW	U900017	5179	140 103

As might be expected, there are no statistical sources providing information on the value of original works produced in any given year. For *other than film and television* originals, it has therefore been necessary to base the national accounts calculation on the assumption that the value of the originals in question is equal to the discounted value of future royalty incomes which they will earn.

The problem is that the future royalties are not, of course, known. Denmark is in a favourable situation compared with other countries in that information on current income from royalties from culture and entertainment is available in annual statistics. In the national accounts the simple assumption is chosen, to use the value of royalties received by the artists in question in year t as a proxy for the value of originals created in year t. The reasoning behind this simple convention is as follows: Since there is no information on future royalty earnings, it is assumed that in the long term royalties actually increases somewhat faster than the economy as a whole, since leisure activities have income elasticity greater than one. More specifically, the future real growth rate is taken to be equal to the real rate of interest, which likewise is normally greater than the growth rate of the economy. With these assumptions, the equilibrium value of the originals created in any given year may be estimated as the income from royalties in the same year.

[17] It must be emphasised that groups DISCO 3122, IT-operators, or DISCO 3129, programming of industrial robots are not included in the calculations as these people are working with the operating of computers or computerized systems and they are usually not writing computer programs.

The value of GFCF *for film and television* is based on benchmark calculations from 2007-2009. GFCF for the subsequent years are calculated using the average ratio between GFCF and total production of the products in question in the three years prior to the year in question. The benchmark calculations are based on data on production and development funding from the Danish Film Institute (DFI). This is thought to cover all film production because close to all film production in Denmark is funded by the DFI. Television program data are based on the accounts of the Danish broadcasting stations.

The value thus calculated for 2017 was DKK 7 375 million.

Research and development (R&D)

Private R&D

The estimation of private R&D (R&D output produced by market producers) is compiled in a sub-system, which is mainly based on R&D statistics (Frascati Manual) and foreign trade statistics. Total output is measured by sum of costs, and the starting point is R&D expenditure estimated in accordance with the GERD definition (Gross Domestic Expenditure on Research and Development) which is adjusted to match national account definitions. The transformation of R&D expenditure in accordance with the Frascati Manual towards output and GFCF in accordance with ESA2010 follow the recommended procedure in the *Manual on measuring Research and Development in ESA2010*.

To estimate output in accordance with the definitions in the national accounts, it has, generally speaking, been necessary to conduct the following adjustments in R&D expenditure, estimated in accordance with the GERD definition:

1. Investments in buildings and equipment are removed from the GERD figures. The values for GFCF are directly distinguishable in the source statistics.
2. Overlapping investments in software is excluded. If the producers of R&D output report that some R&D expenditure is target towards a software output, this expenditure is excluded.
3. An estimate for subsidies is subtracted. This is a very small item; the government pay virtually no subsidises towards R&D. Figures from government accounting is used as source.
4. An estimate for gross operating surplus is added, it summarizes the input of capital services into production of R&D-services. Capital services consist of consumption of fixed capital and a return to capital. In practise is the estimate for gross operation surplus estimated as a mark-up on wages and intermediate consumption.
5. Other adjustments. Contain adjustments which can be attributed towards identified errors, balancing purposes and consistency across time etc.

The adjusted Frascati based output figures is in practise compiled by a sum-of-costs approach, and the costs for unsuccessful R&D is included in the figures.

Table 5.21 below shows the calculation of R&D output for the year 2017 for market R&D. In practise, the calculation is made at the level of industry, by the 117-classification.

Table 5.21 Calculation of market output of R&D, 2017

	DKK mill.
R&D expenditure by private business (Frascati Manual)	41 508
Investment included in Frascati output	-2 434
Overlap with software	-9 127
Subsidies	0
Supplement for gross operating surplus	8 341
Adjustments	49
Adjusted Frascati based output	**38 336**
Purchase of R&D treated as intermediate consumption	4 707
Other adjustments / balancing	1 400
Domestic marked output	**44 443**

The second part of the compilation is about GFCF in R&D. Table 5.22 shows the results. The source for import and export of R&D is foreign trade statistics and the source for purchased R&D is R&D statistics in accordance with the Frascati Manual. R&D statistics contain information on industries buying R&D products, but no information on industries selling the R&D, it is assumed that most of the R&D is sold by the industry *720001*

Research and development, but the*720001 Research and development* can only sell as much as they produce. All R&D purchased by the industry *720001 Research and development* is treated as intermediate consumption.

Table 5.22 R&D (market), Gross fixed capital formation, 2017

	DKK mill.
Own account R&D	29 865
Purchased R&D[1]	14 579
Domestic output	**44 443**
Import	11 962
Total supply (basic price)	**56 405**
Intermediate consumption	4 707
Gross fixed capital formation	44 298
Export	7 400
Total use (basic price)	**56 405**

Table 5.21 and 5.22 is a summary of the templates from the Manual on measuring Research and Development in ESA 2010. The figures in table 5.21 and 5.22 are based on figures from the R&D subsystem, small adjustment could be made to the figures because of balancing of the supply and use tables.

Non-market R&D for General Government

R&D produced by the general government is compiled in the office for government statistics. Own-account production of R&D is identified by using the COFOG distribution of government expenditures.

The COFOG distribution has 10 main headings (first level); General public services, Defence, Public order and safety, Economic affairs, Environment protection, Housing and community amenities, Health, Recreation, culture and religion, Education and Social protection. At second level of the classification, it is possible to separate out R&D expenditure. The second level is a breakdown of first level headings into 6-9 subgroups, depending on the specific heading. Statistics Denmark has selected the following second level headings as R&D: 01.4 Basic Research, 01.5 R&D general public services, 02.4 R&D Defence, 03.5 R&D Public order and safety, 04.8 R&D Economic affairs, 05.5 R&D Environmental protection, 06.5 R&D Housing and community amenities, 07.5 R&D Health, 08.5 R&D Recreation, culture and religion, 09.7 R&D Education, 10.8 R&D Social protection.

All own-account expenditure classified as R&D in accordance with the COFOG classification is "transferred" to GFCF for R&D.

Freely available R&D by general government, presumably most relevant to universities, is treated as GFCF.

Non-market R&D for NPISH

The treatment of R&D activities for NPISH units is based on studying a number of financial statements for a range of selected NPISH units for a specific year. It was discovered that several NPISH unit funds R&D projects, but only one unit produce in-house R&D output. It was concluded, based on the information in the financial statements, that the funding of R&D project correspond to capital transfers and not purchase of R&D assets by the NPISH units. Because only one NPISH unit could be identified as R&D-producer, no grossing up is made.
In subsequent years after the study, R&D output for the NPISH sector is limited to this one unit, based on the unit's financial statements. Because NPISH R&D is based on one unit, the detailed NPISH numbers cannot be published.

R&D sector classification and avoiding double counting

Figures for S13 and S15 are compiled separately. Figures for S11, S12 and S14 are compiled combined. The method for compiling the combined figures is described above under "Private R&D". GFCF for S12 is derived by using the breakdown by industry; all GFCF by units in 10a3 group K, Finance and insurance is allocated to sector S12. Distribution keys (based on business accounting figures for depreciation by industry and sector) are used to separate between S14 and S11.

As described, R&D output in the national accounts is based on different sources depending on sector. Government output is based on government statistics, NPISH output is based on surveying NPISH unit(s), and all other sector units are covered by Frascati statistics for the business sector. Units in the different source statistics are selected

by the use of the Business Register, which also includes sector classification; this should ensure that no unit is taken into account twice.

A couple of years ago, one unit was discovered in both the sample for Frascati statistics for the business sector and for Frascati statistics for government sector. This error was corrected. The second source is not used directly in the national account, but used for checking R&D COFOG figures.

All R&D output for Higher education sector is allocated towards non-market sector (S13). No R&D output is attributed to Sector 11 or Sector 15 for industry P Education.

We believe that double counting of units is not a problem regarding R&D source data.

Table 5.23 below shows figures for 2017 in the template for table 1 from the final report from the Task Force on Capitalisation of Research and Development in National accounts (DMES 2012/11/08). The table shows a breakdown on cost elements for institutional sector 13. The breakdown is not shown for NPISH (S.15).

Table 5.23 R&D by cost component and institutional sector, 2017

		S13
		DKK mill.
1	Intermediate consumption	8 281
2	Compensation of employees	12 438
3	Other taxes on production*	30
4	Other subsidies on production	636
5	Gross operating surplus	1 007
6	Adjustment for exhaustiveness	0
7	Other adjustments**	-199
8	**TOTAL = OUTPUT**	**21 557**

Notes: *: Net of "Other subsidies on production". **: Part of government own-account produced R&D is own account software, which is moved to GFCF own account software.

Construction of time series for R&D
The year 2003 was the first year the current method was used. Data prior to 2003 was compiled by using the growth rates from the old R&D Satellite Account published in 2006, which covered the period 1966 – 2003. The R&D Satellite Account was, for the years in which the information was collected, based on Frascati survey data collected by Danish Centre for Studies in Research and Research Policy (CFA) or figures available from the OECD database. Figures before 1981 were not accessible from the mentioned sources, instead indicators based on intermediate consumption, by industries, was used to back-cast Frascati output.

Service lives for R&D assets
Statistics Denmark apply the following service lives for market R&D assets: Basic research 12 years, applied research 10 years and experimental development 8 years. For government R&D, the service lives are within the range 8 – 12 years. The split on type of R&D investment is based on information from the R&D survey.

Breakdown of GFCF by industry and type ("Investment matrices")
GFCF by industry
There is considerable user interest in the breakdown of gross fixed capital formation by industry, and we therefore describe below the sources and methods used for this breakdown, even though it may not always seem directly relevant to GNI. The methods used for estimation of GFCF from the uses side will, however, influence total output of a number of important products that are mainly used, and directly or indirectly they will affect the size of total gross value added.

Industries with general government non-market activity
OIMA (the calculation system for government non-market activity) based on the DIOR database determines the totals, divided by investment into "new capital formation" and "capital formation in existing buildings and structures". Figures are also received for capital formation in own account software and own account R&D, subdivided by industry. The OIMA capital formation is transferred to the intermediate system using MLS codes:

6100: New fixed capital formation
6321: Purchases minus sales of existing buildings and structures.

6105: Research and development

The worksheets with the detailed breakdown of capital formation into DK-NACE industries and subsectors (integrated county, municipal authority and central government, non-integrated county, municipal authority and central government, funds etc.) are received every year from the Public Finances Division. No detailed (or even provisional) breakdown of the individual subsectors' capital formation into buildings and structures, machinery and equipment etc. is produced annually, but such a breakdown was available for the year 1995. These breakdowns have been projected to the following years using series on most detailed level available from the division of government finances as basis for the extrapolation. The figures in a full breakdown are matched with the final OIMA system figures in the national accounts' 117-industry breakdown. Figures for purchases minus sales of existing buildings and structures in a breakdown by industry are included.

Industries covered by corporations controlled by government
A worksheet containing the results of statistics for industries where public corporations predominate is received from the Public Finances Division. This sheet supplies input data for various industry-specific calculations as well as capital formation figures for buildings and structures which are used to work out the value of new buildings and new structures in public enterprises in the construction system.

The worksheet includes capital formation in buildings, structures, machinery and equipment and transport equipment plus tangible fixed assets under construction, subdivided by DK-NACE industry. With the help of an extract from accounting statistics for industries where public corporations predominate, it is also possible to produce a separate estimate for that share of the capital formation which relates to purchases minus sales of existing buildings and structures.

In 2017 industries where public corporations predominate covers national accounts' 117 industries 350010-383900, 510000-530000, 600000-610000, 920000, 930020.

Industries covered by the industrial accounts statistics
In 2017 national accounts' 117 industries 080090-330000, 414300-470000, 490020-500000, 520000, 550000-590000, 620000-630000, 680010-720001, 730000-820000, 840021, 850010-850020,850041- 910002 and 930011-96000, CFCF by industries is estimated by using industrial accounts statistics (SBS).

The statistics are now exhaustive in this field, i.e. they assign accounting figures to all units in the industries in question. The information is available as firm and/or workplace statistics. For national accounts purposes, the two sets are processed so that all the capital formation information used is allocated to workplaces, and it is this information which is used to compile capital formation by function. With the processing of accounting statistics, information on capital formation is transferred to the sub-system for compiling investment figures, with the following sub-division:

Table 5.24 Variables from SBS used for compiling GFCF

Code	DK	Main Headings
IEBY	Køb af eksisterende bygninger (inkl. grundværdi)	Purchases of existing buildings (incl. Value of land)
IOPNY	Opførelsesudgifter for nybygninger (ekskl. grunde)	Construction of new buildings
IOFBB	Ombygning og forbedring af bygninger og bygningsinstallationer, herunder opvarmnings- og ventilationsanlæg	Capital repair of buildings
IVHPK	Veje, havne, pladser o.l. Køb af eksisterende anlæg, ny anlæg samt ombygninger, herunder grundforbedring, byggemodning mv.	Other structures
ITAM	Produktionsanlæg og maskiner	Machinery and equipment
IADI	Andre anlæg, driftsmateriel og inventor	Machinery and equipment
IFMA	Materielle anlægsaktiver under udførelse og forudbetalinger for materielle anlægsaktiver (TFMA)	Assets under construction
IAUER	Arbejde udført for egen regning og opført under aktiver	Own-account production/GFCF

For the variable IEBY, the value of land is included in the account statistics. During the transformation to national account figures, 20 per cent is excluded as a default option, assumed to be the land-part of the variable. The variable IFMA is split into non-residential buildings, other structures and machinery/transport equipment depending on industry.

A problem in the industrial accounts statistics is that start-ups are seldom included in the statistics on the basis of reporting forms or accounts. In such cases, information on capital formation is normally compiled from employment or VAT information using standard ratios based on enterprises which have been operating normally throughout the period in question. As already mentioned, capital formation must be expected to be underestimated in respect of businesses which have just started up.

Attempts have been made to correct for this undervaluation with the help of statistics on start-ups. In the compilation of investment figures, Business Demography statistics is used to estimate a supplement which covers the investment for start-ups.

Industries covered by other sources
There are independent sources of information on capital formation in a few other private industries. The industry *060000 Extraction of oil and gas* is covered by information gathered by the Danish Energy Agency ("Energistyrelsen"). GFCF for the industry *K Finance and Insurance* is compiled by using specific collected information on GFCF for these industries. Agricultural capital formation is taken from agricultural statistics.

GFCF by industry and type
Buildings and other structures
Capital formation in buildings in government non-market services, public corporations, agriculture and industries covered by the industrial accounts statistics is worked out in the systems which process the capital formation in question - cf. above. Within these areas, capital formation is normally retained as calculated, with the estimated breakdown into new building and purchases less sales of existing buildings.

Total construction of non-residential buildings is estimated based on information from account statistics, including a supplement for government owned non-residential buildings based on total GFGF from the DIOR database. The calculation of the output value of construction and civil engineering ignores, of course, that share of capital formation accounted for by purchases and sales of existing buildings. GFCF for dwellings is based on information from product statistics for construction, see chapter 3.12.

Net purchases and net sales of existing buildings on Danish territory should add up to the same total value. (At present, in line with the calculations of construction and civil engineering, all change of ownership costs are for practical reasons distributed together with construction of new buildings). Purchases or sales of existing buildings are as a general rule shown in those industries where the figures can be based on sources. However, it was decided to allocate the residual to industry 680030 Renting, non-residential buildings.

As was the case with buildings, capital formation in structures in government non-market services, public enterprises, agriculture and industries covered by accounting statistics is worked out in the systems which process the capital formation in question. We assume here that there is normally no capital formation in structures other than in industries for which it can be compiled from a specific source. One exception is branch 680030, Renting, non-residential buildings, to which is allocated the residual of investment/disinvestment in existing structures, since, as for buildings in the strict sense, we are constrained by the rule that used structures may not appear or disappear through purchases/sales between industries. The value of new structures is thus determined from the expenditure side, and it is the systems for the compilation of capital formation in a breakdown by industry which supply the final figures for capital formation in structures for the calculation of the output value of construction and civil engineering.

Initial estimates for capital formation in construction and civil engineering in a breakdown by industry are obtained as the sum of the initial estimates for buildings and structures.

Transport equipment
Motor vehicles
Briefly, the method is as follows: information is received from vehicle statistics on opening and closing stocks of motor vehicles recorded in the central register of motor vehicles, and these figures are then divided up by type of vehicle, size category and year of first registration. Next, by matching with the business register, the national accounts' 117 branch codes are added to the vehicles in the industries to give a division into the 117 industries/households, albeit with an undistributed remainder which the National Accounts Division itself has to divide up to ensure that the system tallies. The figures correspond to those used in the "vehicle distribution system". Vehicles by industries with year of registration which match the reference year is used as distribution

key for the total investment in vehicles. Total GFCF for Vehicles are estimated from the supply side, and compiled as part of the setup of the supply and use tables. The figures for all capital formation in vehicles are then summed to give the contribution of vehicles to the capital formation target totals for transport equipment.

Other transport equipment
Supply of other transport equipment: railway rolling stock, containers, ships and aircraft.
For other types of transport equipment counted as capital formation, the supply is calculated by product number on the basis of the sources used for the compilation of the supply and use tables (SUTs). The SUT balances for ships and, over the last few years, railway rolling stock as well, plus larger aircraft, are compiled as predetermined values which are retained for the balancing of the SUT. Here, information on the individual deliveries is used, and in a few cases changes in inventories have been specifically calculated imputed (2064 changes in inventories) to produce a match between the supply and use information.
On the basis of a few relatively simple assumptions about which industries invest in the various types of transport equipment and parts etc., the contribution of these products to the target totals for capital formation in transport equipment can be worked out. When these figures are combined with the targets for capital formation in motor vehicles, we get the column showing the initial estimates for target total code 5131 capital formation, transport equipment.

Machinery and equipment
For government non-market services, public corporations, industries included in the industrial accounts statistics, agriculture, the extraction of oil and gas, financial services and insurance, once again capital formation in machinery and equipment and transport equipment - taken together - is calculated from accounting statistics information - cf. above. For each of these industries, targets can be set for the different types of capital formation:

5131 Transport equipment
5132 Computer hardware
5133 Telecommunication equipment
5139 Other Machinery and equipment

GFCF for transport equipment and the combined value for Transport equipment, Computer hardware, Telecommunication equipment and Other Machinery and equipment is available by industries. Subdivision into Computer hardware, Telecommunication equipment and Other Machinery and equipment by industries is done by using previous years share.

Software
The estimation of total investment in software is explained earlier in this chapter. The total account of investment in purchased software is distributed by industries by using the account statistics on investment in software by industries and intermediate consumption by industries. Previous, survey on ICT-expenditure was used, but this statistics in no longer compiled. Own-account software is investment in the same industry as it is produced.

R&D
The calculation of R&D output and investment is done by the level of industries. Earlier in this chapter, the calculation of R&D output and investment is described.

5.11 Additions to the value of non-produced non-financial assets

There are two groups in this category of product transactions:

AN.1123 Land improvements
AN.116 Costs of ownership transfer for non-produced non-financial assets

AN.1123 Land improvements
In Denmark's case, this category covers only soil improvement work in agriculture (drainage etc.), information on which is available from agricultural statistics. This component of capital formation is calculated together with capital formation in structures, and is covered by capital formation in private structures as shown in Table 5.9.

AN.116 Costs of ownership transfer for non-produced non-financial assets

This heading covers the costs of transfers of ownership (estate agents, lawyers, stamp duties, public sales income relating to courts of law) of land and natural resources etc. Since the costs of transferring the ownership of land can seldom be estimated independently of the costs of transferring the ownership of the buildings and installations on that land, the aggregate costs of transferring the ownership of land and real estate are considered to be part of gross fixed capital formation in buildings as described in Section 5.10. The transfer of ownership costs for land and real estate included in the estimate of gross fixed capital formation in 2017 can be seen in Table 5.25.

Table 5.25 Transfer of ownership costs for land and real estate, 2017.

	1000 DKK
Stams, Courts of law etc.	367 784
Lawyers	4 616 526
Real estate agents	13 468 303
Total	**18 452 613**

Transfer of ownership costs are not published separately. They are calculated for land and buildings (together) only.

5.12 Changes in inventories

The principles underlying the national accounts' treatment of changes in inventories as compared with the estimates in business accounts were discussed in chapters 1 and 3. The section below is more technical and includes an example of the national accounts' calculations of inventories. As already mentioned, for a correct estimate of GDP, it has to be possible to split changes in inventories (reported at market prices on the respective dates) between the start and end of the period in question into product transactions in national accounts terms and revaluations (plus, in some cases, other volume changes). In the national accounts, changes in inventories (product transactions) are posted to the capital account whereas revaluations go to the revaluation account. It is also important to ensure that the estimate of changes in inventories at industry level is consistent with the estimate based on special information on the individual products.

The calculation of changes in inventories can be divided into:

- Changes calculated on the basis of the change in inventories during the year, according to accounts. These changes occur under MLS codes 2060 (raw materials), 2061 (wholesaling), 2062 (retailing) and 2065 (finished goods and work in progress);

- Changes which are calculated regularly on the basis of special information relating to changes in stocks of individual goods, mainly under MLS code 2063.

Changes which are calculated from special information on any given year or introduced at the time of the actual balancing are entered under MLS code 2064.

The below table shows information on the main source for the different inventory types.

Table 5.26 Inventories by kind, 2017

	Change	Main source
Type of inventory	DKK mill.	
Raw materials	2 394	Accounts statistics
Biological assets	459	Forestry data
finished goods and work in progress	1 125	Accounts statistics
Wholesaling	5 259	Accounts statistics
Retailing	1 964	Accounts statistics
Agricultural and energy (special treatment)	-1 527	Industry specific Accounts statistics
Other inventory changes related to balancing etc.	5 083	Industry specific accounts statistics

Table 5.27 Process table for inventories, 2017

								Adjustments						Final estimate
	Surveys and Censuses	Administrative Records	Combined Data	Extrapolation and Models*		Other	Total sources	Data validation	Conceptual	Exhaustiveness	Balancing	Total adjustments	
				Other E&M	Total Extrap + Models				Total conceptual	Total exhaustiveness			
	DKK mill.												
Changes in inventories	7 862	0	3 520	-5	-5	-1 703	9 674	0	0	0	5 083	5 083	14 757
materials and supplies	181	0	2 394	-5	-5	-1 703	867		0	0	5 083	5 083	5 950
work-in-progress	459	0	0	0	0		459		0	0		0	459
finished goods	0	0	1 125	0	0		1 125		0	0		0	1 125
goods for resale	7 223	0	0	0	0		7 223		0	0		0	7 223

5.12.1 Accounting figures underlying the calculation of inventories broken down by industry

Industrial accounts statistics

From 1995, the old accounting statistics for manufacturing was replaced by the new industrial accounts statistics, whose coverage have be extended over time to more and more private urban industries. In 2017 Industrial accounts statistics covers DK-NACE industries 060000-330000, 383900, 450010-470000, 490020-590000, 610000-630000, 680010, 690010-720001, 730000-820000 and 950000.

In the industrial accounts statistics, all the firms and workplaces in the statistics are assigned the accounting figures which come from questionnaires, annual reports or the tax accounts for firms not covered by the sample. In cases where neither annual accounts, questionnaires nor tax accounts are collected, the missing accounting figures are calculated with the help of "standard ratios" compiled with reference to units for which the data are known. This therefore applies to a large number of small units which are known from VAT statistics only. By grossing up, therefore, the accounting statistics' inventories cover all firms and workplaces in the accounting statistics' industries and there should be no need for the figures to be grossed up any further. The connection between the inventory items in the industrial accounts statistics and the intermediate system codes can be seen in Table 5.28.

Table 5.28 Connection between the industrial accounts statistics and the intermediate system (MLS)

Items in Industrial accounts statistics	Text	MLS-code Opening	MLS-code Closing
44	Raw materials, ancillary materials, fuel and packaging	5060	6060
45	Work in progress	5065	6065
46	Finished goods	5065	6065
47	Goods for resale	5061/5062	6061/6062

The primary statistics processing throws up problems such as the lack of concordance between manufacturing/trading activity and the incidence of finished goods and inventories of goods for resale. For the national accounts calculations, there is a (computerised) reallocation of inventories in such units which appear to be incorrectly allocated. The inventories from the accounting statistics thus revised are then transferred to the intermediate system.

SLS-E statistics

Changes in inventories in industries still based on the SLS-E statistics in 2017 have generally only comparatively small inventories of materials used for intermediate consumption. Since the input data for the tax accounting system include information on closing stocks only, opening stocks have to be based on the closing figures from the previous year. Some improbable changes in the inventories of the individual branches are thus unavoidable, most of them arising from a change in the delimitation or branch allocation of units from one year to the next. Since it is not possible in the tax accounting system to trace these changes back to the individual enterprises, a number of estimated corrections have to be made in the breakdowns of opening stocks, where possible in the form of switches from one industry to another or one sector to another within the same industry. The corrected inventories are supplied to the intermediate system in the usual form.

Industry-specific accounting statistics

To the extent that inventory data are collected in sub-systems using industry specific accounting statistics, the national accounts changes in inventories are calculated outside the central inventory calculation system. The resulting aggregate changes in inventories are transferred to the intermediate system under the codes for changes in inventories only, i.e. 206x, and no stocks are input into the system. In 2017, there were only 2063 changes in inventories in agriculture, 010000, which were transferred to the intermediate system file. Thus any changes in inventories in other industries, where the calculations are based on industry-specific accounting statistics, are ignored unless they come under 2063 or 2064 inventories.

5.12.2 Breakdown of inventories by product

The intermediate system collects data on the industries' inventories at the level of DK-NACE industry/sector and intermediate system codes. For the calculation of changes in inventories in the intermediate system, opening and closing stocks are needed at average prices for the year, and this in turn requires a complete breakdown of

inventories by good. The system for the goods breakdown is therefore part of the system for producing the intermediate system, as well as being part of the system for the breakdown of accounting figures by product.

In the national accounts, there may in principle be inventories of raw materials in all industries, not only manufacturing but also in trade, even, or construction and civil engineering and service industries. Inventories of finished products and work in progress occur in manufacturing and a few service industries, whilst inventories of goods for resale, as a result of the definition by activity of the trading industries, occur only in wholesale and retail trade industries. The intermediate system inventories are broken down by sector.

The breakdown by product of the industries' inventory totals is based on the product composition in the balanced supply and use tables for the previous year. The main rule is that for each of the intermediate system's inventory totals there is a column or a combination of columns from the previous year's supply and use matrix. From each of these columns, those products are selected which can go into the inventories in question, i.e. negative SUT values (scrap, disinvestment or negative consumption) are omitted and services, for example, or expenditure on advertising or electricity are not included in the basis for the distribution. The only records in the SUT columns which are extracted for the breakdown of wholesale and retail inventories are those which include wholesale or retail margins. Each inventory total at DK-NACE industry/sector level is then divided up by product in proportion to the selected values from an SUT column or with weighted values from more than one SUT column.

The breakdown by product of the intermediate system inventory totals is at MLS code/DK-NACE industry/sector level, whilst the supply and use matrices (SUTs) contain only breakdowns by commodity number/target total module code/industry. For the breakdown of inventories of raw materials and finished goods, the calculation is based on an SUT for the previous year, which is grossed up to include breakdowns for all DK-NACE industries, with the national accounts industry breakdown used for all sub-industries. For inventories of finished goods, raw materials and goods for resale, the same breakdown by product is used for each sector represented in the industry.

Totals for inventories of finished goods are broken down as the output of the industry at basic prices. The raw materials totals are broken down as the input of the industry at purchasers' prices excluding VAT. As a general rule, wholesale inventories are divided on the basis of the composition of inputs at basic prices for the types of industry which may be assumed to buy the goods in question. However, there are various branches whose inventories of goods for resale cannot be divided up in this way, and for most of these fixed breakdowns have been laid down. Inventories of retail goods are likewise divided using the composition of basic prices plus wholesale margins for consumption groups, with the individual groups weighted using a key corresponding to the key for the conversion from retail trade branch to consumption group used in the consumption and retail trade margin systems.

Table 5.29 Method for the breakdown of inventories by product

Type of inventory	MLS codes, value level	National accounts industries	Broken down as previous year's SUT
Finished products	5065/6065 basic prices	All	National accounts industry output
Raw materials	5060/6060 purchasers' prices excl. VAT	All	National accounts industry intermediate consumption
Wholesale	5061/6061 basic prices	Main rule	Input in national accounts industry acc. key
	Included in manufacturing basic prices		Output in national accounts branch
	Included in construction and civil engineering basic prices		Input in national accounts branch(es) acc. key
	451110-451920, 454000,461100 462100-463100, 463600-463890, 464330,464910, 464990,465220		Fixed breakdowns by product number.
	467100		Assumed covered by energy system.
Retail	5062/6062 basic prices + wholesale margin	All except 477630	Consumption group(s) acc. key

For various industries such as agriculture and those which consist solely of general government, industry target totals are not used for inventories. For agriculture, changes in inventories are covered by the special calculation of agricultural inventories (2063 inventories) at product level.

5.12.3 Calculation of national accounts changes in inventories

For each type of inventory, changes in inventories in the business accounts are calculated as the value of closing stocks minus the value of opening stocks, estimated according to the enterprises' own accounting principles, which means that opening and closing stocks are calculated at different price levels. In the national accounts, changes in inventories should be estimated at the average prices for the year. Ideally, changes in inventories should be monitored throughout the year and all changes split into revaluations (holding gains) and national accounts changes in inventories. Normally, a reasonable approximation of the correct change can be produced by converting the value of both opening and closing stocks to the average prices for the year using the ratio of the year's average price to the price on the date of the inventory estimate. The national accounts change in inventories is then calculated as the difference between closing and opening stocks, at the average prices for the year (ignoring sporadic instances of inventory values being written up or down for reasons other than price changes).

The method used has been unchanged since the benchmark years 1988-92. The price indices used for the conversion of inventories to the average prices for the year are now in every case the "NF index" which can be found for all product numbers in the inventory calculations and is based predominantly on the producer price index. As the end-of-year index , 2/3 of the December index + 1/3 of the following January index is used. No different treatment is attempted for inventories estimated according to different accounting principles.

Opening and closing stocks are converted to average prices for the year for all combinations of product number/target total module code/DK-NACE industry/sector following the breakdown of inventory totals by product. The national accounts change in inventories is calculated as closing stocks minus opening stocks for each of these combinations.

Goods which appear in 2063-inventories and energy goods are also included in the breakdown by product of inventories of raw materials, since inventories in the accounts include such stocks. When the changes in inventories columns are worked out in the SUTs, it is assumed that these goods are covered in full by 2063 changes in inventories, and they are therefore omitted from the other changes in inventories, although they are, of course, included in the intermediate system figures for national accounts changes in inventories by MLS industry/sector.

The difference between the MLS industries' (i.e. the detailed DK-NACE industries') national accounts and business accounts changes in inventories is transferred to the intermediate system as a "price correction" under MLS codes 2098 referring to inventories of raw materials and 2099 for inventories of goods for resale. These items are used here to switch from business accounts to national accounts intermediate consumption and consumption of goods for resale.

Table 5.30 Comparison of changes in inventories in business accounts and national accounts, DK-NACE industries, 2017

MLS code	DK-NACE	Sector	Opening	Closing	Change	Increase in inventories	Price correction
					DKK 1 000		
2060	016100	S11	113 278	140 824	27 546	15 434	-12 112
2060	016100	S14	108 558	112 577	4.019	-7 088	-11 107
2060	016200	S11	39 663	44 063	4.400	279	-4 121
2060	016200	S14	31 258	49 676	18.418	14 843	-3 575
2060	016400	S11	268 910	223 505	-45.405	-71 660	-26 255
2060	031100	S11	19 021	33 779	14.758	15 002	244
2060	031100	S14	16 104	16 318	214	156	-58
2060	031200	S14	1 350	119	-1 231	-1 264	-33
2060	032100	S11	59 356	68 724	9 368	9 328	-40
2060	032100	S14	468	806	338	343	5
2060	032200	S11	147 323	139 579	-7 744	-8 513	-769
2060	032200	S14	41 600	48 947	7 347	7 333	-14
2060	061000	S11	600 332	572 775	-27 557	-37 662	-10 105
2060	081100	S11	13 791	12 655	-1 136	-1 043	93
2060	081100	S14	69	65	-4	-4	0
2060	081200	S11	55 629	55 401	-228	223	451
2060	081200	S14	4 667	4 711	44	76	32
2060	089100	S11	95	89	-6	1	7
2060	089200	S11	2 245	2 230	-15	10	25
2060	089200	S14	7	7	0	2	-2
2060	089300	S11	12 457	12 468	11	118	107
2060	089300	S14	190	178	-12	-12	0
2060	089900	S11	12 895	15 927	3 032	3 172	140
2060	089900	S14	36	33	-3	-1	2

2060	091000	S11	89 978	70 555	-19 423	-20 717	-1 294
2060	091000	S14	105	83	-22	-23	-1
2060	099000	S11	98	79	-19	-20	-1
2060	099000	S14	3	3	0	1	1
2060	101110	S11	95 045	116 446	21 401	17 851	-3 550
2060	101110	S14	148	159	11	8	-3
2060	101190	S11	57 334	106 642	49 308	46 725	-2 583
2060	101190	S14	1 476	1 579	103	59	-44
2060	101200	S11	36 552	36 691	139	-1 135	-1 274
2060	101200	S14	1	1	0	0	0

Table 5.31 Examples of the calculation of inventories. Inventories of raw materials in DK-NACE industry 032200: freshwater fish farms, divided by sector

Product NO	117-Indust. No	Sect.	Opening Price index 2017-pr. = 100	Closing Price index 2017-pr. = 100	Opening stock	Closing stock	Change without price-correction	Opening stock, 2017-prices	Closing stock, 2017-prices	Change in national accounts	Price correction
			index		DKK 1 000						
V030100	030000	S11	99.49	100.51	3 131	2 580	-551	3 147	2 567	-580	-29
V050800	030000	S11	112.50	100.00	9	7	-2	8	7	-1	1
V051103	030000	S11	118.70	101.36	18 404	13 939	-4 465	15 505	13 752	-1 753	2 712
V051105	030000	S11	99.64	101.28	3 634	2 997	-637	3 647	2 959	-688	-51
V230903	030000	S11	115.73	106.18	1 567	1 186	-381	1 354	1 117	-237	144
V271005	030000	S11	98.06	99.99	97 758	81 264	-16 494	99 687	81 271	-18 416	-1 922
V271007	030000	S11	103.31	104.79	312	153	-159	302	146	-156	3
V271013	030000	S11	103.52	108.98	66 093	56 241	-9 852	63 844	51 605	-12 239	-2 387
V271015	030000	S11	121.25	128.04	2 334	1 740	-594	1 925	1 359	-566	28
V271021	030000	S11	97.07	102.31	761	621	-140	784	607	-177	-37
V271101	030000	S11	99.32	113.46	293	236	-57	295	208	-87	-30
V391704	030000	S11	100.64	100.00	314	256	-58	312	256	-56	2
V391711	030000	S11	97.06	100.00	33	27	-6	34	27	-7	-1
V391713	030000	S11	100.00	100.00	9	7	-2	9	7	-2	0
V391900	030000	S11	100.00	100.00	2	1	-1	2	1	-1	0
V392302	030000	S11	99.47	100.49	745	612	-133	749	609	-140	-7
V392304	030000	S11	100.00	100.00	1	1	0	1	1	0	0
V560700	030000	S11	97.75	100.92	261	220	-41	267	218	-49	-8
V560801	030000	S11	91.67	100.00	11	10	-1	12	10	-2	-1
V560805	030000	S11	100.00	100.00	2	2	0	2	2	0	0
V560900	030000	S11	94.44	101.12	102	90	-12	108	89	-19	-7
V611000	030000	S11	99.19	100.00	123	102	-21	124	102	-22	-1
V950700	030000	S11	100.13	100.16	787	643	-144	786	642	-144	0
	030000	S11			196 686	162 935	-33 751	192 904	157 562	-35 342	-1 591
V030100	030000	S14	99.49	100.51	543	582	39	546	579	33	-6
V050800	030000	S14	112.50	100.00	2	2	0	2	2	0	0
V051103	030000	S14	118.70	101.36	3 192	3 145	-47	2 689	3 103	414	461
V051105	030000	S14	99.64	101.28	630	676	46	632	667	35	-11
V150400	030000	S14	115.74	106.35	272	268	-4	235	252	17	21
V230903	030000	S14	115.73	106.18	16 955	18 336	1 381	17 290	18 337	1 047	-334
V271005	030000	S14	98.06	99.99	54	34	-20	52	33	-19	1
V271013	030000	S14	103.52	108.98	11 463	12 690	1 227	11 073	11 644	571	-656
V271015	030000	S14	121.25	128.04	405	393	-12	334	307	-27	-15
V271021	030000	S14	97.07	102.31	132	140	8	136	137	1	-7
V271101	030000	S14	99.32	113.46	51	53	2	51	47	-4	-6
V391704	030000	S14	100.64	100.00	54	58	4	54	58	4	0
V391711	030000	S14	97.06	100.00	6	6	0	6	6	0	0
V391713	030000	S14	100.00	100.00	1	2	1	1	2	1	0
V392302	030000	S14	99.47	100.49	129	138	9	130	137	7	-2
V560700	030000	S14	97.75	100.92	45	50	5	46	49	3	-2
V560801	030000	S14	91.67	100.00	2	2	0	2	2	0	0
V560900	030000	S14	94.44	101.12	18	20	2	19	20	1	-1
V611000	030000	S14	99.19	100.00	21	23	2	21	23	2	0
V950700	030000	S14	100.13	100.16	137	145	8	137	145	8	0
	030000	S14			34 112	36 763	2 651	33 456	35 550	2 094	-557

5.12.4 Calculation of changes in inventories using information on products

Special 2063 inventories are calculated for a small number of national accounts product numbers, all of them agricultural products and including a few pre-processed ones regularly calculated from information on the individual goods (excluding some specific changes in inventories which, by tradition, are entered under MLS code 2064).

Table 5.32 Increases in inventories calculated from information on products, 2017

CODE: 2063	PRODUCT- Nº	MLS CODE	Purchasers' prices incl. VAT
			DKK 1 000
Bovine animals, live, other than for breeding	V010203	2063	-67 019
Pigs, live	V010300	2063	110 759
Meat from bovine animals, fresh/refrigerated	V020100	2063	12 886
Wheat, wheat and rye mixed seed	V100100	2063	79 110
Rye	V100200	2063	-33 348
Barley	V100300	2063	28 115
Oats	V100400	2063	50 018
Mink, beaver, fox and seal fur	V430101	2063	-4 738
Increase in inventories, special products	**Total**	**2063**	**175 783**

The calculation of 2063 changes in inventories is based on information on inventories in *physical units,* in contrast to the general method which is based on information on the *value* of inventories at industry level.

For those products included in the energy system, changes in inventories are calculated in the Environment and Energy Division in connection with the estimate of energy balances. The starting point here is information from *Energistyrelsen* [the Danish Energy Agency] on volumes and prices of the individual goods. Changes in inventories divided by product are received from the green national accounts Division, with no indication as to where in the inventories and industries the changes occur. As for the 2063 changes in inventories, the 2064 changes for energy are based on information on physical quantities.

Table 5.33 Increases in inventories from the energy system, 2017

CODE: 2064	PRODUCT- Nº	MLS CODE	Purchasers' prices incl. VAT
			DKK 1 000
Hard coal and hard coal briquettes	V270100	2064	-8 634
Lignite??	V270200	2064	-44
Coke and semi-coke of coal	V270400	2064	37 781
Petroleum oils and crude oils	V270900	2064	-40 911
Kerosene-type jet fuel and medium oil	V271001	2064	1 913 950
Aviation spirit and motor spirit	V271005	2064	-49 052
Medium oil, petroleum	V271011	2064	9 720
Gas-oil	V271013	2064	2 388 935
Fuel oils other than for further processing	V271019	2064	1 146 287
Fuel oils etc. for processing	V271023	2064	664 286
Natural gas, propane, butane, etc.	V271101	2064	-72 658
Petroleum coke	V271301	2064	56 470
Wood chips	V440120	2064	-91 814
Wood pellets	V440130	2064	-254 416
Increase in energy inventories	**Total**	**2064**	**5 699 900**

5.12.5 Special changes in inventories - other 2064 inventories

The other 2064 changes in inventories are also compiled for individual goods, but in principle should not be produced on a regular basis as results from national accounts subsystems. It is debatable whether this is the case with all products occurring here. The estimate of some 2064 changes in inventories for ships and railway rolling stock has gradually become an ongoing process. However, more often than not changes in inventories are either introduced with the balancing or their actual figure is not finally fixed until that point, and cannot be worked out from the accounting sources. Some of these changes may, however, occur within inventories covered by the accounts.

Table 5.34 Increases in inventories, other special inventories, 2017.

CODE: 2064	PRODUCT- Nº	MLS CODE	Purchasers' prices incl. VAT
			DKK 1 000

Raw furskins	V430100	2064	-617 132
Increase in other special inventories	**Total**	**2064**	**-617 132**

Initially, 2064 changes in inventories are worked out by linkage with the supply and use tables (SUTs) with no breakdown by sector or industry. As regards the institutional accounts, however, a breakdown by sector is necessary, and these changes in inventories are subsequently broken down (somewhat roughly) by industry and sector.

5.12.6 Relation between changes in inventories calculated based on inventory totals broken down by industry and information on individual products.

Table 5.31 outlines how national accounts changes in inventories are obtained. Since the purpose here is to show where there is a possible overlap between changes calculated from different sources, the aggregate inventory calculations are divided up into 2060-, 2061-, 2062- and 2065- inventories on the one hand and 2063- and 2064-inventories on the other.

Table 5.35 Relation between changes in inventories broken down by industry and information on individual products

Industries Products	Industries where changes in inventories are calculated on the basis of inventories in accounts	Industries where changes in inventories cannot be calculated from inventories in accounts	Changes in inventories by product
Products for which changes in inventories are worked out using a breakdown of changes in inventories in the accounts	These are obtained as the difference between opening and closing stocks as broken down in the accounts, calculated in average prices for the year. There may be 2064-changes in inventories here, in which case there are balancing corrections to the changes in inventories originally calculated.	Only 2063- or 2064- changes in inventories can occur here.	*Here, chan. in invent. broken down by product are obtained as the sum of the changes in invent divided over the individual industries + any 2063- and 2064- chang. in invent.*
Products for which the aggregate change in inventories is calculated in terms of goods (2063- and 2064- inventories)	These are calculated on the basis of the breakdown of inventories but at the same time are incl. in those changes in inv. which are calc. on the basis of information on goods. To avoid double counting, they are omitted when the aggr. change in invent. is worked out in a breakdown by product. They are, however, incl. in the calc. of the industries' national acco. changes in invent. and the change from business accoun. to national accounts consumption.	This area is covered in full by changes in inventories calculated on the basis of information on goods, even though these are not available in a breakdown by industry. It covers items such as stocks of energy in energy supply and transport industries, which are calculated in A-files.	Total changes in inventories for goods where changes are calculated on the basis of information by good.
Changes in inventories broken down by industry.	Total changes in inventories calculated from inventories in the business accounts plus any additions (2064).	*These changes in inventories are included in the totals compiled at goods level with no breakdown by industry.*	National accounts aggr. changes in invent..

The first column in the table shows the changes in inventories according to the intermediate system, broken down by good according to the "inventory breakdown system". The national accounts aggregate changes in inventories are obtained as the sum of these changes excluding those goods for which all changes are determined in terms of goods as 2063- or 2064-inventories. Implicitly, the value of the overlap between the two calculations is also estimated in the inventory breakdown system. It is the cells (row 4, column 2) and (row 3, column 4) for which information is available before the start of the balancing.

It is clear that the calculation of the overlap will be somewhat uncertain. The system used for distribution of accounts statistics' inventories by products has some built in "handles" that are used to adjust the changes inside the overlap to the changes that are calculated as 2063- or energy inventory changes while keeping the values of opening and closing stocks equal to their values from accounts statistics. There is, however, also a certain amount of uncertainty about the figures in the accounting statistics which refer to inventories. If the calculated inventory data conflict with other information when the product balances are balanced, it may still in some cases be reasonable to amend the aggregate changes in inventories[18].

[18] The balancing, however, normally complies with the principle that there has to be a counterpart entry to corrections to inventories in other changes in inventories which may reasonably be considered to have taken place within the same enterprise. There are only a few exceptions, most often the introduction of 2064 changes in inventories in the goods in question.

5.13 Acquisitions less disposals valuables

Acquisitions less disposals of valuables are estimated from the supply side using the commodity flow method. Table 5.36 shows net acquisitions of valuables divided into those products which were included in this capital accumulation category in 2017.

Table 5.36 Acquisitions less disposals of valuables, 2017

Product nº	Text	Category	value
			DKK mill.
V570201	Kelem and similar hand-woven rugs	AN.133	244
V710206	Diamonds, unfitted	AN.131	40
V711301	Articles of jewellery of silver	AN.133	945
V711303	Articles of jewellery of precious metals	AN.133	695
V711401	Articles of silversmiths' wares	AN.133	7
V711403	Articles of goldsmiths'/silversmiths' wares of precious metals	AN.133	12
V711600	Goods of natural pearls/cultured pearls	AN.131	0
V711700	Imitation jewellery n.e.c.	AN.133	217
V711800	Coins	AN.133	18
V970100	Paintings, drawings and pastels, collages etc.	AN.132	443
V970200	Original engravings, prints or lithographs	AN.132	232
V970300	Original sculptures or statuary	AN.132	423
V970500	Collections and collectibles	AN.132	101
V970600	Antiques of an age exceeding 100 years	AN.132	9
Total			**3 387**

5.14 Exports of goods

Links to Documentations of statistics for External Economy (import and export of goods and services) are provided in chapter 10. More details on sources and methods can be found in these Documentations of statistics.

Goods accounted for DKK 733,351 million, or 60.7%, of the DKK 1,207,825 million total exports of goods and services in 2017.

Table 5.37 Exports of goods, 2017

	value
	DKK mill.
Exports of goods, Intra-EU	431 240
Exports of goods, Extra-EU	302 110
Exports of goods, Total	**733 351**

In the national accounts, exports of goods are based directly on Statistics Denmark's estimates of external trade. External trade statistics are described in greater detail in Section 10.2.2. The estimates use one method for EU trade (Intrastat) and a different one for trade with non-EU countries (Extrastat).

The statistics have the same geographical coverage as the national accounts and are grossed up to cover all external trade in goods regardless of any administrative threshold values for the reporting of EU trade to the Intrastat system. EU trade not reported is estimated on the basis of the quarterly VAT returns on all EU trade. Therefore the primary statistics do not need to be grossed up for use in the national accounts. The value levels in external trade statistics are f.o.b. for exports and c.i.f. for imports.

The external trade statistics include all exports listed in §3.165 in ESA2010. The estimate for smuggled goods is calculated in the National Accounts unit whereas the other items are collected by the Externat Trade unit. The items listed in §3.166 in ESA2010 are excluded from the External Trade statistics except from for the items mentioned in the table below. For these items the National Accounts unit make corrections when implementing the data in the supply use tables.
The items are treated as follows

- Merchanting figures are received from export of services statistics and added to the export of goods. In the supply use table this is placed on the product number T460009
- Goods sold abroad after processing abroad are based on data from the external trade in services statistics. The data from the trade statistics contain information on processing by firm. The data on each firm's export of goods after processing abroad is combined with information from the industrial commodity

statistics to determine what products are exported. In a few cases the exporting firms are not covered by the industrial commodity statistics. In these cases expert judgement is used for the distribution on products.

- Goods exported for use in construction abroad by Danish companies are marked with a special code in the external trade with goods statistics thus making it possible to remove them before use in the national accounts statistics.
- Goods sent abroad after processing in Denmark and goods sent abroad for processing are both marked with special codes in the external trade with goods statistics thus making it possible to remove them before use in the national accounts statistics.
- Exportation of household goods when moving can, like the items mentioned above, be identified in the external trade statistics and thus removed before use in the national accounts statistics.
- Finally goods returned are removed from the external trade with goods. Here detailed information from the external trade statistics is used to identify the original products involved.

Table 5.38 Corrections to external trade in goods statistics, exports, 2017

	value
	DKK mill.
Exports according to external trade statistics	669 197
Merchanting	41 878
Goods sold abroad after processing abroad	61 826
Goods exported for use in construction abroad by Danish companies, repairs	-5 200
Goods exported for use in construction abroad by Danish companies, maintenance	-261
Goods sent abroad after processing in Denmark	-3 138
Goods sent abroad for processing	-3 162
Exportation of household goods when moving 2)	-231
Other goods not covered by ITGS	-9 262
Trade with non-residents within Denmark	3 554
Goods returned	-1 899
Goods returned in import statistics 4)	-4 493
Export of goods in National Accounts	733 351

Export and import in the external trade statistics only include goods that cross the border. As the criteria in ESA2010 is change of ownership, a correction of the external trade figures regarding transactions involving changes of ownership of goods, which do not cross the border, is needed. This correction is based on detailed information from external trade statistics regarding e.g. goods returned and the balance of payments statistics regarding e.g. bunkering.

5.15 Exports of services

Exports of services accounted for DKK 474,474 million, or 39.3%, of the DKK 1,207,825 million total exports of goods and services in 2017.

Table 5.39 Exports of services, 2017

	Value
	DKK mill.
Exports of services, Intra-EU	236 176
Exports of services, Extra-EU	238 299
Exports of services, Total	**474 474**

The estimate of the services export is based on a survey conducted by the External Economy unit in Statistics Denmark. For a more detailed description of the sources and methods used to compile the export of services in the External Economy unit please refer to chapter 10. The survey includes questions regarding the export of construction services and processing services making it possible to estimate the processing fee.

The data from the External Economy unit contains information on the kind of activity of the exports and the industry of the exporter. This information is used to determine what products are exported. For each kind of activity export, a distribution on products is formed. In some cases the entire kind of activity export is placed on one product. For instance the export labelled commissions regarding commodity trade is placed on the product for commissions in the supply use tables. This is the case for DKK 83,973 million, or 17.7% of the service exports.

DKK 112,239 million or 23.7% is distributed on products using the industry of the exporter. This is the case for amongst others the data on computer services and royalties and license fees. For instance the export labelled computer services in the service export data are assumed to be regarding software licenses if the exporting industry is the software producing industry.

The remaining DKK 278 262 million or 58.6% are distributed on products using fixed percentage distributions for each kind of activity export.

5.16 Imports of goods

Goods accounted for DKK 650,788 million, or 62.0%, of total imports of goods and services in 2017 (DKK 1,050,472 million).

Table 5.40 Imports of goods, 2017

	Value
	DKK mill.
Imports of goods, Intra-EU	440 704
Imports of goods, Extra-EU	210 084
Imports of goods, Total	650 788

Table 5.41 Corrections to external trade in goods statistics, imports, 2017

	Value
	DKK mill.
Imports according to external trade statistics	607 349
Bunkering regarding ships	28 075
Bunkering regarding air crafts	1 186
Bunkering not regarding ships and air crafts	2 299
Spare parts and other provisioning in conjunction with repairs of ships	834
Spare parts and other provisioning in conjunction with repairs of air crafts	64
Spare parts and other provisioning in conjunction with other repairs related to transportation	134
Goods bought abroad for processing abroad	12 755
Goods imported for use in construction in Denmark by foreign companies, repairs	-112
Goods imported for use in construction in Denmark by foreign companies, maintenance	-126
Goods received from abroad for processing in Denmark	-3 001
Goods returned after processing in Denmark	-2 855
Exportation of household goods when moving 2)	-288
Illegal imports of goods	1 576
Other goods not covered by ITGS	5 163
Trade with non-residents within Denmark	3 130
Goods returned	-4 493
Goods returned in import statistics 4)	-1 899
Import of goods in National Accounts	650 835

Reference should be made to Section 5.14, since sources and methods are the same for imports as for exports of goods, except for procurements, for which the source is the account statistics for shipping.

5.17 Imports of services

Imports of services accounted for DKK 399,684 million, or 38.0%, of the total imports of goods and services in 2017 (DKK 1,050,472 million).

Table 5.42 Imports of services, 2017

	Value
	DKK mill.
Imports of services, Intra-EU	229 303
Imports of services, Extra-EU	170 381
Imports of services, Total	399 684

Reference should be made to Section 5.15, since the sources and methods are the same for imports as for exports of services.

6. The balancing or integration procedure and validating the estimates

6.0 GDP balancing procedure

6.0.1 Target total module

Before the balancing of GDP can take place in the supply and use tables, so-called target totals for supply and use are compiled. This is done by collecting the information from intermediate system 2 and other systems in the target total module. The codes in the target total module and how they are defined from the intermediate system 2 are shown in table 6.2. The TRANS codes correspond to transaction codes, and are those used in the supply use tables. The interpretation is:

Table 6.1 Codes in the target total module

0100	Production
0700	Imports
0900	Customs and duties on imports
2000	Intermediate consumption
3110	Household final consumption
3130	NPISH consumption
3141	Government individual consumption expenditure, market
3142	Government individual consumption expenditure, non-market
3200	Collective consumption
5110	GFCF in Residential Buildings
5121	GFCF in Non-residential Buildings
5122	GFCF in Structures
5131	GFCF in Transport equipment
5132	GFCF in IT equipment
5133	GFCF in Communication equipment
5139	GFCF in other machinery and equipment
5140	GFCF in Weapons systems
5150	GFCF in Changes in cultiv.assets
5171	GFCF in Research and development
5172	GFCF in Mineral exploration
5173	GFCF in Computer software
5179	GFCF in Entertainment, literary or artistic originals
5210	Changes in inventories, Materials
5221	Changes in inventories, work-in-progress on cultivated biological assets
5223	Changes in inventories, Finished goods
5251	Changes in inventories, Goods for Wholesale trade
5252	Changes in inventories, Goods for Retail trade
5263	Changes in inventories, specially compiled
5264	Changes in inventories,
5300	Acquisition less disposals of valuables
6001	Exports of goods and services, Danish production
6007	Exports of goods and services, re-exports

Total supply is defined as: 0100+0700+0900
Total use is defined as: 2000+3110+3130+314x+3200+51xx+52xx+5300+600x

Rearranging the variables and accounting for taxes on products, net gives GDP:

0100-2000+Taxes on products, net= GDP from the production side
3110+3130+314x+3200+51xx+52xx+5300+600x(net) = GDP from the expenditure side

After the balancing, which takes place at the product level (2350 products), the two expressions for GDP equal. It must be noted that 0100 and 2000 are compiled at the 117 industry level and 3110, 3130 and 314x at the level of 74 individual consumption groups and 3200 is subdivided into 10 groups according to purpose.

Table 6.2 National accounts target totals - functional system

TRANS	Intermediate system code	Definition/comment

0100	Domestic production		
	=	1003	Output of originals
	+	1005	Hidden economy output
	+	1007	Fringe benefits, output
	+	{1008}	{FISIM (financial industries only)}
	+	1009	Work for processing
	+	1011	Repair and installation work for others
	+	1012	Manuf.e of plant and machi. for own use
	+	1013	Other net sales, own products
	+	1014	Output for own consumption
	+	1015	Own account software
	+	1016	Sales of goods for resale
	-	7019	Consumption of goods for resale
	+	1017	Income from licenses and royalties
	+	1018	Other operating income
	+	1059	Other turnover
	+	2065	Changes in inventories, finished goods
	+	2099	Total price correction, goods for resale
0700[1]	Imports of goods and services		
0900[1]	Customs and duties		
2000	Intermediate consumption		2011+2018
2011	Input, ex. R+M, IPC and FISIM		
	+	2009	Interm. cons., total gen. gov. (OIMA)
	+	2013	Purchases (consumpt.) of fuel and power
	+	2014	Purchases of work for processing
	+	2015	Other consumption of raw materials
	-	2098	Total price corr., stocks of raw materials
2018	Input; R+M, IPC and FISIM =		
	+	7020	Expenditure on rentals, excl. heating
	+	7021	Renting and leasing of machinery
	+	7022	Renting and leasing of transport equipm.
	+	7023	Rent. and leasing of computer equipm.
	+	7024	Other exp. on renting and leasing
	+	7025	Expendit. on consumables
	+	7027	Repair and maintenance; buildings
	+	7028	Repair and mainten.; other constructions
	+	7029	Repair and mainten.; transport equipm.
	+	7030	Repair and mainten.; machinery
	+	7031	Repair and mainten.; buildi. and constr.
	+	7032	Rep. and maint.; machi. and transp. equi.
	+	7035	Rep. and maint.; not specified.
	+	7040	Contributions to the trade
	+	7041	Expenditure on licences and royalties
	+	7042	Other external expenditure incl. in input
	+	7044	Public fees as purchases of services
	+	7050	Financial interme. services directly paid
	+	7051	FISIM
	+	7055	Insurance (negative) corr. from premiums to services
	+	7059	IPC corr. when transf. to/from other MLS-codes

Note: [1] Indicates that data are not derived from the intermediate system.

Table 6.2 National accounts target totals - functional system, cont.

ANVID	Intermediate system code	Definition/comment
3110[1]	Household final consumpti. expen.	
3130[1]	Consumption, NPISHs	
3141[1]	Gov. indiv. consum., market output	
3142[1]	Gov. indiv. consum., non-market output	
3200[1]	Government collective consumption	
5110[1]	Residential buildings	
512.	Capital formation, build. and struc.=	
	+ 6121 (part of)	Acquisitions, existing buildings
	+ 6123	Construction expenditure, new buildings
	+ 6124	Rebuilding, building improvements, etc.
	+ 6125	New construct. and rebuild. of roads etc.
	+ 6126 (part of)	Acquisitions of other real estate
	+ 6140 (part of)	Acquisitions, work in progress
	- 6221 (part of)	Disposals, existing buildings
	- 6223 (part of)	Disposals, roads harbours etc.
	+ 6321	Acqui. and disp. of exist. build. (gen. gov. (OIMA))
513.	GFCF, machin. and transp. equip.=	
	+ 6131	Purchases of machinery and equipment
	+ 6132	Purchase of cars
	+ 6133	Purchase of other transport equipment
	+ 6134	Purchase of other equipment
	+ 6140 (part of)	Acquisitions, work in progress
	- 6231	Disposals of equipment
	- 6232	Disposals of cars
	- 6233	Disposals of other transport equipment
	- 6234	Disposals of other equipment
5140[1]	GFCF in Weapons systems	
5150	Capital formation, breeding stock=	(relevant for agriculture only)
	+ 6127	Purchases of breeding stock
	– 6227	Sales of breeding stock
5300[1]	Net purchases of valuables=	
5171[1]	GFCF in Research and development	
5172	Mineral exploration=	
	+ 6104	Mineral exploration
5173	Purcha. and own account software=	
	+ 6101	Own account software
	+ 6102	Purchased software
	– 6202	Disposal of software
5179	Entertainment, cultural and artistic originals=	
	+ 6103	
	+ 6110 (part)	Originals, own account and purchased
	- 6203	Other acquisitions of intangible assets
		Disposals of artistic originals
5210	Changes in invento., raw materials=	
	+ 2060	Changes in inventories of raw materials
5221[1]	Changes in inventories, work-in-progress on cultivated biological assets	
5223	Chang. in invent., finished produc.=	
	+ 2065	Changes in inventories, Finished products
5251	Changes in inventories, wholesale=	
	+ 2061	Goods for resale, wholesale
5252	Changes in inventories, retail=	
	+ 2062	Goods for resale, retail 1)
5263[1]	Changes in inventories=	
	+ 2063	Changes in invent., sources other than account statis.
5264 [1]	Chang. in inventories=	
	+ 2064	Changes in inventories, based on product balancing
600. [1]	Exports of goods and services	2081 + 2082
6001[1]	Exports of goods and services, Danish production	
6007[1]	Exports of goods and services, re-exports	

Note: [1] Indicates that data are not derived from the intermediate system.

When the target totals are compiled, they are subsequently distributed by 2350 products as described in section 6.0.2

6.0.2 Supply and use tables as a framework for balancing

Supply and use tables and the compilation of national accounts

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

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

In general terms the advantage of having the compilation of SUT as an integral part of the production of national accounts can be formulated as follows:

- It is the most efficient way to incorporate all basic data – aggregated or detailed – into the national accounts framework in a systematic way.

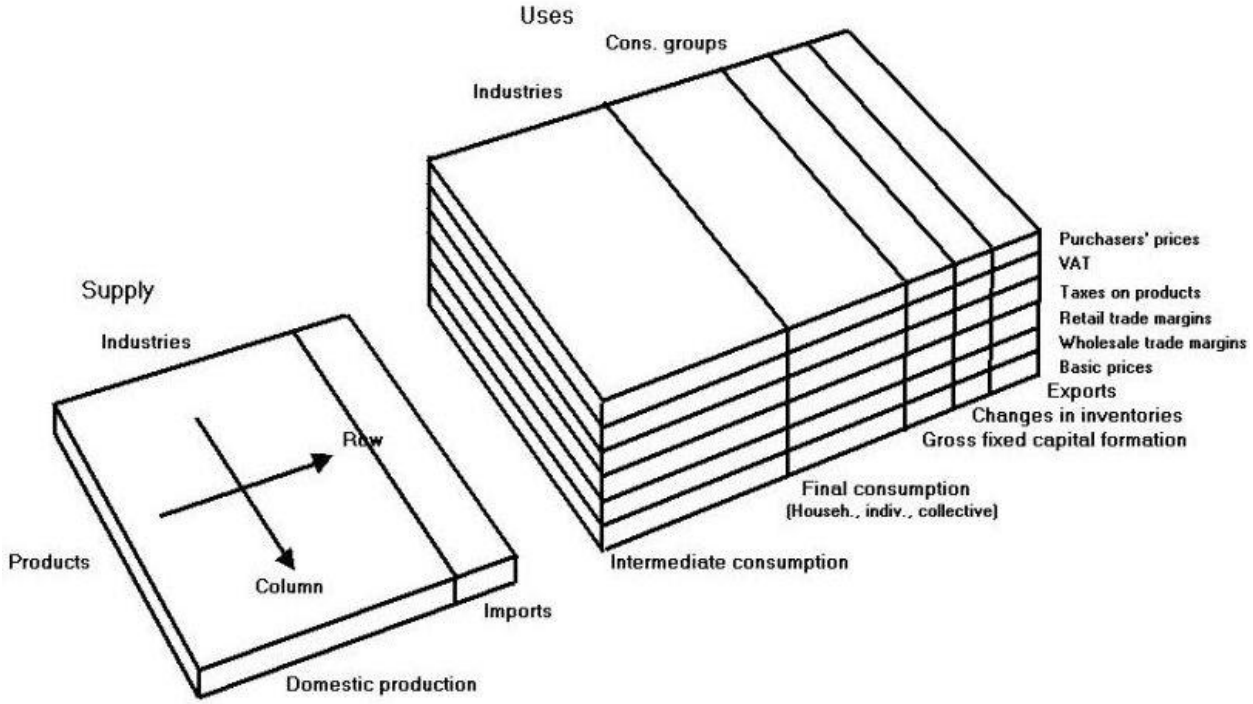
- It is an effective way to ensure consistency at a detailed level and thereby improve the overall quality of the national accounts.

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

The framework of Supply and use tables in Denmark

The principle of the Danish SUT-system is illustrated in figure 6.1. It shows the supply and use of all products and the treatment of the connection between the different value-levels (basic values, purchasers' values). The sub matrices for basic values, trade and transport margins, net taxes on products, non-deductible VAT and purchasers' values are stacked as "layers" to visualise the transformation from basic to purchasers prices for each cell of the system.

Figure 6.1



Products are shown as rows, categories of use (by industries, consumption groups etc. when relevant) are shown as columns. Notice that what is here referred to as rows and columns consist of the relevant parts of all the “layers” shown in the figure.

As a starting point supply is shown as a matrix of basic values in the left side of the figure. At the right side of the figure the use matrix at basic prices is shown as the bottom "layer". In the balanced commodity flow system total supply at basic prices must equal total uses at basic prices for each product. Trade- and transport margins are here a special case: At the supply side they are shown as output of trade services at basic prices from the industries in which they are produced but they are left out from the basic price level on the uses side. Here they are shown in the margin-matrices where they are distributed together with the basic values to which they are related. The wholesale trade matrix also includes transport margins.

Net taxes on products and non-deductible value added tax are also distributed as matrices uses side.

In the rows and the columns we distinguish between the following groups:

There are at this moment approximately 2350 products, which consist of approximately 1960 goods and 410 services. For goods the categories are defined as one or more 6-digit Harmonized System groups. There is at least one NA-good for each 4-digit HS-group. A key linking the NA-goods to CPA has been established. For services the categories are in principle based on 4-digit CPA. In some areas 4-digit CPA groups have been subdivided (e.g. in the area of business-services) in others a number of 4-digit CPA groups have been aggregated to the NA-categories (e.g. trade) The NA-categories for services are kept almost constant for a number of years. The key defining the NA-categories for goods are updated annually in order to take account of - normally relatively few - changes in the HS-groups.

The number of columns for domestic production is 117 reflecting that we distinguish between 117 activity groups. Those groups are based on the official Danish nomenclature for activities, which have direct links to NACE and ISIC. The classification in to activities is based on establishment units (Local-kind-of activity units). In a few cases we have found it important to have more homogeneous branches defined by activity. This applies to agricultural production, construction, trade and motor vehicle repair. Thus for example we combine all trading activity into the activity-defined trade-industries, regardless of the industry in which the activity is classified in the primary statistics.

The import column is a vector showing import by products. At a later stage we expand it into a matrix including a geographical dimension, but this is not a part of the core SUT-framework.

Intermediate consumption is broken down by the same 117 industries as domestic production. Until recently the uses side had an extra branch showing the intermediate consumption of FISIM; this branch has disappeared as FISIM is now distributed by uses.

Final consumption expenditure of households and NPISH is subdivided into 74 COICOP groups. The classification is based on COICOP.

Final consumption expenditure of general government is divided into three major groupings, collective consumption expenditure, individual consumption expenditure on services produced by general government and individual consumption expenditure on services produced by market producers but paid by general government and supplied to households - without any transformation – as social transfers in kind. The first group is further subdivided into 10 COFOG groups, whereas the other groups are further subdivided into the 74 COICOP groups.

Gross fixed capital formation is subdivided into thirteen groups according to type of investment good (transport equipment, new buildings etc.). In combination with the product-rows this leads to a diagonalistic structure with very few off-diagonal elements. The justification for this subdivision has to do with practical aspects of our systems for preliminary and quarterly accounts. A separate system distributes each type of GFCF by products and 69 industries.

Changes in inventories are classified into 7 groups depending on the kind of stocks (for example stocks of raw materials, inventories in wholesale trade etc.)

Exports are for reasons of deflation divided into two categories, ordinary exports and re-export. At a later stage we expand it into a matrix including a geographical dimension, but this is not a part of the core SUT-framework.

Overview of the balancing process

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

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

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

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

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

Incorporation of available data on the actual year
In a number of subsystems all available data are prepared by suitable corrections before they are incorporated into the SUT-framework. The available data for a given year is never complete in the sense that it enables us to fill out the full supply and use tables. However it offers – as briefly described below – a sufficiently restrictive frame for the values in the system in order to fill out the complete SUT in a reliable way.

In general terms a short description of the data that on an annual basis is incorporated directly into the SUT-framework would be:

On the supply-side (cf. fig. 1) the available data allows us to fill out the complete supply matrix annually. Data from the agricultural accounts, accounting statistics (from the Structural Business Statistics) and the General government accounts makes it possible to calculate total output in basic values (column totals for industries in fig.1) for almost all industries. Only for a few branches (financial intermediation) separate calculations have to be made.

The distribution of the total output of industries on products is for agriculture and general government derived directly from the primary statistics. For manufacturing the output-totals are combined with the Prodcom statistics to calculate the product distribution. Information on the product-distribution in the service area is somewhat scarcer. For some service industries we have annual information on the output by products, for example transport and IT-industries. For others we might rely on older ad-hoc information on the product distribution. In some cases where it seems reasonable and we have no other information we assume equality between output of a given service industry and the characteristic product. For example we assume that the output of architects consists of architectural services and the output of hairdressers consists of hairdressing. When this assumption is used it is done at the most detailed industry-level (in total 800 industries).

The total and product-distribution of the import column is directly available from the foreign trade (goods) and balance of payments (services) statistics.

On the uses side we have less abundant information, usually only for column totals. Except for final consumption expenditure of general government, exports and change in inventories we only have scattered and often irregular information about the use in a given category distributed by products.

For intermediate consumption by industry the total values in purchasers' prices are extracted from the same sources used for the calculation of total output.

The totals at purchasers' prices for each of the 74 groups of final consumption expenditure of households are estimated using a variety of sources, most important information on the value of retail turnover to households and the household budget surveys. Data on final consumption expenditure of general government are available directly from the statistics on general government accounts both for the totals and the distribution by products.

The subsystem for the estimation of the totals at purchasers' prices for the ten different groups of gross fixed capital formation is rather comprehensive. The accounting statistics together with information on new established firms gives us for each industry a grand total for gross fixed capital formation. Together with information on the total domestic supply of some investment goods (transport equipment, construction, breeding stocks a.o.) the totals at purchasers' values for each of the ten groups can be estimated.

Changes in inventories pose a special problem, first of all because it would be nonsense to assume a distribution by products proportional to the preceding year. Secondly a residual calculation of the change in inventories of each product using the definition that supply equals demand at basic prices is refused in part because we think we can make more reliable estimates but most importantly because this would eliminate the use of the identity between supply and use as a tool for evaluating all the other estimates.

In some cases we have available data on stocks of specific products, notably agricultural and energy products, but the usual data input is information on the value of opening and closing stocks in each industry. These stocks are then distributed by products based on particular assumptions. For example inventories of raw materials in a given industry will be distributed proportional to the intermediate consumption of goods in that branch. Stocks in a given trade branch will be distributed proportional to the supply of goods typically traded in that trade branch. The changes in inventories are then calculated for each product using the usual price-correction-technique. The

result is a column for changes in inventories distributed by products (at purchasers' values) that might be attached a reasonable amount of plausibility.

The total and product-distribution of the export columns (at purchasers' values) are directly available from the foreign trade (goods) and balance of payments (services) statistics.

As it has been seen most column totals will be calculated at the level of purchasers' prices. We have however some subsystems that calculate column totals for other value-levels as well. For example we make calculations for the column total of retail trade margins for some consumption groups. This implies that for those groups we have column totals for two (or more) value levels.

On the use side we also have some subsystems that annually determines parts of the use-matrices. For instance we have subsystems for repair and maintenance of buildings and other construction and a subsystem for energy products. These subsystems determine the complete rows for these products on the use side at all value levels.

Other subsystems determine individual cells or a number of cells on the use side. This includes gross fixed capital formation in construction, railroad rolling stock, ships and airplanes and a few other areas. For a given year there might be ad hoc information in certain areas that is considered suitable enough in order to enter as predetermined.

Furthermore we have subsystems that calculate the total (accrued) net taxes on each product (row totals in the matrix taxes on products) and the grand total of the (accrued) non-deductible VAT based on statistics for General Government.

The above description covers data that are considered to be reliable enough to be classified as predetermined. This means that it will not be changed in the process of automatic balancing but only can be changed later according to a manual decision. It follows from these considerations that there are other information – usually less reliable – that are used in the SUT-framework. This is described in the section on automatic balancing.

The calculations results in coverage of the following parts of the SUT-framework cf. figure 1:

1. A complete supply matrix
2. Target column totals for all uses at purchasers' values
3. Distribution on the use side by products of the columns for exports and changes in inventories at purchasers' values and of the columns for final consumption expenditure of general government at all value levels.
4. Full specification for certain products (rows) at all value levels on the use side.
5. Specification of certain cells or groups of cells on the use side.
6. Total value of net taxes on products by product (Row totals for the matrix "Taxes on products").
7. Grand total for the VAT-matrix.
8. Furthermore the logic of the framework offers the following general information:
9. Total use of products at basic values (row totals for the use part of the basic value matrix) being identical to the total supply of the product. Although this is a simple feature of the system it is probably the most important feature and highly useful in ensuring the overall quality of the national accounts.
10. Grand total for the wholesale trade matrix being equal to the output of the wholesale branch.
11. Grand total for the retail trade matrix being equal to the output of the retail branch.

All column totals are made exhaustive prior to entering the balancing process which implies that neither of the approaches is balanced towards a single exhaustive measure from either the supply or use side.

In addition, all conceptual adjustments are compiled in separate subsystems, which deliver input to the intermediate system, which again is used for compiling target totals (column totals). At the same time these subsystems compile balanced predetermined values at the product level. These predetermined values are kept balanced throughout the balancing process.

Initial automatic balancing procedures.

Starting point

The data described in the previous section is directly incorporated in the SUT-framework. It is as mentioned treated as predetermined values which means that it will not be changed in the process of automatic balancing but only can be changed later according to a manual decision.

Before any balancing or distributive procedures can begin we have to have some plausible figures in all relevant cells on the use side. A standard default solution is here to use inflated values and relations from the balanced SUT of the preceding year. In the absence of better knowledge we assume that product structures at basic values and corrected for price movements are constant. This is the same as assuming that the product-structure in a given column at constant prices is unchanged. Further on we assume that trade margin percentages, percentages of taxes on products and VAT are constant over time or at least are moving in the same direction in a proportional way.

However there are a number of cases were we feel we have better information about the product structure than the standard information from updated last-years-structures. This kind of information is not considered reliable enough or suitable to enter directly as predetermined values but still to have informative value.

An example on this kind of data is the survey on raw materials in manufacturing which is carried out every year. Another is in gross fixed capital formation where a sub-system offers a first bid on the product-structure for those cells which are not predetermined. A third example is corrections to the matrices on taxes on products and VAT in order to take account of changes in tax rates and systems.

In addition information from numerous ad hoc investigations have over the years been incorporated in the SUT-framework in this way. This can for example be investigations by the Anti Trust Authorities on the cost structure in particular industries, investigations by Statistics Denmark on building cost structure in relation to a new index for building costs, output of advertising services distributed by customers etc. The list is very long.

As mentioned above all these kinds of data replace the standard information from updated previous-years-structures. Since, however, they are not deemed predetermined they will be changed during the automatically balancing procedures described below.

Column adjustments. "Vertical distribution"

The procedures described in the previous section give us a starting point for the automatic balancing procedures. The matrices will at this point be unbalanced in the sense that total use will not equal total supply at basic values for most products, and the sum of the values in a given column will not equal the calculated target column total.

A first step towards a balanced system is adjustment of the values in the columns so they add up to the target column totals. For most uses targets exist only for totals at purchasers' values, in the full system targets may exist for other levels as well. Trade margins used in certain consumption groups can be an example.

The adjustments are made simultaneously at all price levels without changing any predetermined values. To adjust the values in a column, all non-predetermined purchasers' values are multiplied by:

(target column total - sum of predetermined values)
divided by
(sum of starting values - sum of predetermined values).

In the simple case, with a target for purchasers' values only, the same correction-factor is used for non-predetermined values in all levels. If targets exist for other levels, the situation is somewhat more complex and there is a need for general corrections to trade margin percentages and/or tax-percentages used in the column. All these problems are solved automatically.

Some restrictions are put on the automatic adjustments to avoid creation of strange values. Automatic changes of sign are not allowed. The appearance of negative basic and purchasers' values are restricted to certain products that may be negative private consumption or disinvestments (examples: scrap, ships, cars) and uses (example: changes in inventories) unless the negative values are entered as predetermined. When both positive and negative uses are present in the same column the results of proportional adjustments can be unpredictable. In such cases we enter all negative uses as predetermined values. The programming ensures that warnings are issued when problems of this kind are encountered.

It follows that automatic adjustment will in certain cases fail to equal column totals to targets. In these cases the columns are written to a list of unsolved problems.

After “vertical balancing” we have a set of columns that (with the exception of the problematic columns mentioned above) represent an initial breakdown of the target value for purchasers’ values into products using the initial assumptions about product structure from the starting values. Since all levels are adjusted simultaneously we have also a breakdown of all purchasers’ values into the levels from basic prices to VAT.

Total use at basic values of each product will only equal supply in special cases as a result of predetermined values or by pure coincidence. Likewise the sum of the values in the other value levels will usually differ from their target values.

Row adjustments. "Horizontal distribution"
The next step towards balanced system is an adjustment of the values in the rows on the use side to the target totals in the rows.

The procedure starts by adjusting the level of basic values, and the adjustments are again made without changing the predetermined values at basic prises. These include basic values in cells with predetermined purchasers’ values to avoid either distortion to trade margin percentages or changes to the original predetermined purchasers’ values of these cells. All the non-predetermined basic values in a row (product) are multiplied by

(supply at basic prices - sum of predetermined values)
divided by
(sum of basic values from the "vertical distr." - sum of predetermined values)

and in these uses non-predetermined margins and taxes on products are changed by the same factor.

In the matrix for net taxes on products the non-predetermined values are then adjusted to the target row totals and finally the non-deductible VAT is recalculated to reflect the adjustments in the other levels.

Like in the vertical balancing procedure the computer-program is able to trap adjustments that would lead to strange and incredible values. For the same reasons as mentioned above the automatic balancing will fail to equal supply and use for a number of products. Typically supply is insufficient to cover the predetermined uses of the product. The rows that are left unbalanced in one or more levels can - like the unbalanced columns - be written to a list of unsolved problems.

The use table that is the result of the horizontal balancing procedure will (except for the unbalanced products mentioned above) fulfil the requirement that for every product total use must equal total supply at basic values and that net taxes on products should equal their target row totals.

However the sum of the values in a given column will usually differ from the target column total. Further on the sum of all trade and transport margins on the uses side will be different from the output of the trade industries and the sum of VAT will differ from the calculated total.

Automatic balancing as a repeated process.
For illustrative purposes the description of vertical and horizontal balancing has here treated the automatic balancing as two separate processes. In reality the whole procedure is handled by a single job that uses a few minutes on a PC (with a master file of approximately 50.000 records. Preparation of the data-inputs for the process is far more time-consuming). Every time the job is run, new listings of unsolved problems and resulting totals are produced.

When run for the first time with data for a new year a number of serious problems in the data-inputs will usually be revealed. Often problems can be traced back to errors and inconsistencies in data from the statistical sources. Some of these will need to be corrected because they will otherwise cause major distortions in the initial balances.

Before the system is ready for manual balancing the totals of trade and transport margins and non-deductible VAT should be brought within acceptable distance from their respective targets. Adjustments to total trade and transport margins are done by proportional adjustments to all trade margin percentages of the starting file before the vertical/horizontal balancing except in cells with predetermined trade and transport margins. If total VAT cannot be brought within acceptable limits by small adjustments to rates and assumptions used in the

calculations, VAT may be left unbalanced at this stage. A search for a specific explanation of the difference may be more appropriate in this case.

In principle the vertical-horizontal balancing procedure could be repeated in an iterative manner, where each new iteration would use the result from the preceding as the starting point. In this early stage, where many problems are unsolved, this could however be a dangerous method and is therefore not used. Repeating the automatic balancing procedure from the initial starting point with specific corrections to the data inputs should not be mixed up with the iterative RAS-procedure.

Manual balancing

The unbalanced SUT resulting from the automatic balancing procedures is now transferred to the process of manual balancing. This task is conducted by 4 to 6 persons (balancers) within a month. Each person is responsible for an area of the economy. Such areas consist of a complex of industries and categories of final use with a high degree of interaction and their common products on either the uses- or production side. On the other hand all products and categories of use must belong to a complex to ensure, that they all are looked after by a responsible person.

The tasks of each balancer are the following:

Eliminate still existing differences between supply and use of products at basic prices. These differences can have various explanations. As mentioned earlier, serious problems may reveal a need to correct data from primary statistics. However, many remaining differences may be explained by differences in the coding of the same kind of products between production- and foreign trade- statistics, and the problem can then be solved by moving output, im- or exports from one product to another.

To check the credibility of the results from the automatic balancing.

To redistribute products between uses until the sum of values in a column are inside an acceptable distance from their targets.

To evaluate whether the results indicates needs for adjustment of the target column totals. The target-values will usually not be equally well founded on statistical sources. The less well-founded target column totals might be reconsidered in the light of the additional information obtained from the SUT-framework.

To keep the system manageable certain rules are to be followed. One of these is that all products are kept balanced with total uses = supply during the balancing process. This also applies to net taxes on products other than VAT. Another rule is that even though balancers are allowed to make corrections outside their "own" area they must ensure that major changes outside one's own complex are always negotiated with the "owners" of the other complexes involved, and that information is passed between the relevant persons.

Yet another important aspect of the manual balancing procedures is the need for documentation. Many corrections entered by the "balancers" will be independently motivated with references to statistical and other available sources or with common-sense considerations. It is important that the considerations behind the solutions are visible to other "balancers" and that the solutions can be reproduced, when the same problems are encountered in following years. These comments are entered directly in the spreadsheets where the adjustments are made.

The "balancers" use spreadsheets as an interface to a master file containing the SUT-tables. The master file is placed on a network server and is shared by all "balancers". Procedures for extracting data from master-file to spreadsheet and transferring corrections from spreadsheet to the updated master-file are available as macros called from toolbars in the spreadsheet environment.

When updating the shared master-file it is important, that no invalid data are allowed as corrections. All corrections are tested for errors before they are accepted. Corrections to the cells need not necessarily be specified for all levels from basic- to purchasers' prices by the "balancers". The software used to update the master-file will carry out the calculation of the missing values from default assumptions such as preservation of the trade margin percentages and recalculation of VAT using the same rules as in the original master file.

In the process the "balancers" need access to updated information on the state of the system like remaining differences between supply and uses at basic prices by product and the actual distances between column-totals and their targets. This information is obtained via the macros in the spreadsheet environment. It is also possible to extract information from the master-files of previous years for comparison purposes and to merge data covering several years into spreadsheets as time series.

Final balancing

When all manual corrections have been made, the sum of values in a given column will usually still differ from (the final version of) the target column totals. However such differences will be small for uses whose targets are considered to be based on reliable statistics. Furthermore there will be small differences between the grand totals of the trade margin matrices and their respective target values as well as a difference between the VAT-total and its target.

The first step in the final balancing procedures is to adjust the trade margin matrices to their targets by proportional adjustments of non-predetermined margins and recalculate VAT based on the adjusted values.

This will result in new – but still small – differences between the sum of values in a given column and the corresponding target column total. We now divide the target column totals into two groups: Those that are binding and those where small deviations can be accepted. This division of course reflect to a large degree the statistical sources and the reliability thereof. In our case the target totals where small deviations can be accepted are usually to be found for a number of groups of private consumption expenditure, certain groups of gross fixed capital formation and a few groups of intermediate consumption.

The second step in the final balancing is then to distribute the differences between the sum of column values and their binding targets. The cells that can participate in these corrections without causing inconsistencies in the system can be isolated. The corrections are made at the basic values and create new (small) differences between supply and uses for many products.

These differences are removed in the third step by a new horizontal distribution among the uses without binding targets. In this process trade and transport margins by products are not allowed to change and changes to margin percentages should be kept to a minimum. If these calculations should result in significant distortions the program issues warnings. Some manual adjustments may still be needed where too little value can be moved without creating significant distortions.

The total of non-deductible VAT that is a result of the balancing procedure cannot be expected to exactly match the target that is based on government accounts. It may be preferred to proportionally adjust VAT in specific columns, where the exact share of VAT-liable use is uncertain. A final proportional adjustment of VAT on all private consumption is used to eliminate the remaining difference.

Further automation?

The use of automatic procedures in the balancing of the Danish SUTs has by tradition been limited almost to the minimum needed to manage the amount of detailed data in the system. We have been rather sceptical to proposals to replace manual balancing by an automatic algorithm of some kind. It was mentioned earlier that even though it is possible to proceed in a RAS-like manner when the initial version of the SUT is created, it has been considered dangerous to do so. The initial data inputs usually contain errors and inconsistencies that are revealed during the manual balancing. Further automatic balancing could introduce significant distortions in the system if performed at this early stage. In the final balancing the situation is of course different, as it must be assumed that errors and inconsistencies have been removed before it takes place.

On the other hand, in some cases where information on the input structure of certain industries is very scarce, as they are not covered by surveys of the use of raw materials or services, to avoid unnecessarily time consuming manual balancing, the redistribution of inputs between industries can be performed by a technique similar to the RAS-like procedure mentioned above, with automatic corrections limited to relevant areas at the uses side, and of course subject to the usual restrictions i.e. predetermined values, VAT-rules and the like. This seem often to result in more plausible figures than the results from a manual balancing where adjustments have to be kept within a limited number of products with significant values.

Software

Historically programs used in the Danish final national accounts have been written in 3.generation languages as Cobol, Fortran or Pascal as well as some in-house products used on a mainframe that is now being phased out. The programs used for preparation of data inputs to SUTs have now been rewritten in SAS. Programs that need to make many "intelligent" decisions are still written in 3.generation languages, mostly Pascal. Today the Pascal programs are compiled using a Delphi compiler. Such programs are used for setting up the initial version of the SUT and for any kind of automatic balancing used during the final balancing step.

As mentioned above the system used for manual balancing uses Excel as the user interface. Visual basic macros are here used to find the relevant filenames, to export and import data, to format imported data and to call the (very fast) Pascal (Delphi-) programs that do most of the calculation work. As a typical Danish SUT file has approximately 50.000 records, the speed of calculation is not without importance for programs that are executed hundreds of times a day.

6.0.3 Size of balancing adjustments

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

Once the initial target totals are compiled and the balancing takes place one can in principle distinguish the balancing adjustments. However, in practice, it is necessary to draw the line between the different steps in the compilation process in order to delimit what exactly is balancing adjustments. This is because the compilation is a process of many minor steps, and sometimes it is necessary to make corrections that relate to earlier steps during the balancing procedure if errors are detected at this stage.

The process table is a tool, which aims at distinguishing between different elements in the compilation and balancing process. In particular, when compiling the process table, all adjustments should be allocated to the proper category regardless whether they are found during the balancing process. This implies that any errors found in the underlying data during the manual balancing process should be allocated to data validation and not balancing adjustment. Therefore, balancing adjustments in the process table in principle shows pure balancing, i.e. pure differences between GDP(P) and GDP(E).

Table 6.3 shows an extract from the process table for 2017.. Table 6.3 shows that the balancing accounts for 0.0% on GDP(P) and +0.2% on GDP(E).

It has to be stressed, that the two approaches are not perceived as separate GDP-estimates. They are seen as completely integrated due to the underlying Supply and Use framework. However, the balancing process will normally show larger adjustments to the initial targets on the use side compared to the adjustments on the supply side, in accordance with the underlying reliability of the primary statistical sources.

Table 6.3 Compilation of GDP, extract from the process table, 2017

	Total sources	Data validation	National accounts adjustments	GDP before balancing	Balancing adjustments	Balanced GDP
			DKK mill.			
GDP(P)	2 125 833	18 001	48 726	2 192 560	400	2 192 960
GDP(E)	2 108 838	2 820	76 637	2 188 295	4 665	2 192 960
			pct. of GDP			
GDP(P)	96.9	0.8	2.2	100.0	0.0	100.0
GDP(E)	96.2	0.1	3.5	99.8	0.2	100.0

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

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

Table 6.4 The production approach, Impact of balancing adjustments, 2017

		Before Balancing	After Balancing	Balancing Adjustments
		DKK mill.		
A	Agriculture, forestry and fishing			
	Output of goods and services (at basic prices)	87 137	87 137	0
	Intermediate consumption (at purchasers' prices)	58 523	58 523	0

	Gross value added (at basic prices)	28 614	28 614	0
B	Mining and quarrying			
	Output of goods and services (at basic prices)	30 620	30 620	0
	Intermediate consumption (at purchasers' prices)	9 296	9 196	-100
	Gross value added (at basic prices)	21 324	21 424	100
C	Manufacturing			
	Output of goods and services (at basic prices)	747 962	747 847	-115
	Intermediate consumption (at purchasers' prices)	462 672	462 557	-115
	Gross value added (at basic prices)	285 290	285 290	0
D	Electricity, gas, steam and air conditioning supply			
	Output of goods and services (at basic prices)	51 828	51 828	0
	Intermediate consumption (at purchasers' prices)	25 185	25 185	0
	Gross value added (at basic prices)	26 644	26 644	0
E	Water supply; sewerage, waste management and remediation activities			
	Output of goods and services (at basic prices)	38 852	38 852	0
	Intermediate consumption (at purchasers' prices)	23 905	23 905	0
	Gross value added (at basic prices)	14 948	14 948	0
F	Construction			
	Output of goods and services (at basic prices)	282 891	282 891	0
	Intermediate consumption (at purchasers' prices)	176 305	176 305	0
	Gross value added (at basic prices)	106 586	106 586	0
G	Wholesale and retail trade; repair of motor vehicles and motorcycles			
	Output of goods and services (at basic prices)	446 234	446 234	0
	Intermediate consumption (at purchasers' prices)	199 320	199 320	0
	Gross value added (at basic prices)	246 914	246 914	0
H	Transportation and storage			
	Output of goods and services (at basic prices)	386 311	386 311	0
	Intermediate consumption (at purchasers' prices)	283 474	283 174	-300
	Gross value added (at basic prices)	102 837	103 137	300
I	Accommodation and food service activities			
	Output of goods and services (at basic prices)	71 113	71 113	0
	Intermediate consumption (at purchasers' prices)	40 156	40 156	0
	Gross value added (at basic prices)	30 956	30 956	0
J	Information and communication			
	Output of goods and services (at basic prices)	178 425	178 425	0
	Intermediate consumption (at purchasers' prices)	90 639	90 639	0
	Gross value added (at basic prices)	87 786	87 786	0
K	Financial and insurance activities			
	Output of goods and services (at basic prices)	182 084	182 084	0
	Intermediate consumption (at purchasers' prices)	71 689	71 689	0
	Gross value added (at basic prices)	110 395	110 395	0
L	Real estate activities			
	Output of goods and services (at basic prices)	285 938	285 938	0
	Intermediate consumption (at purchasers' prices)	87 913	87 913	0
	Gross value added (at basic prices)	198 025	198 025	0
_L	*___Imputed rents of owner-occupied dwellings*			
	Output of goods and services (at basic prices)	201 999	201 999	0
	Intermediate consumption (at purchasers' prices)	54 315	54 315	0
	Gross value added (at basic prices)	147 684	147 684	0
M	Professional, scientific and technical activities			
	Output of goods and services (at basic prices)	217 159	217 159	0
	Intermediate consumption (at purchasers' prices)	98 291	98 291	0
	Gross value added (at basic prices)	118 868	118 868	0
N	Administrative and support service activities			
	Output of goods and services (at basic prices)	126 666	126 666	0
	Intermediate consumption (at purchasers' prices)	65 233	65 233	0
	Gross value added (at basic prices)	61 433	61 433	0
O	Public administration and defence; compulsory social security			
	Output of goods and services (at basic prices)	147 709	147 709	0
	Intermediate consumption (at purchasers' prices)	56 119	56 119	0
	Gross value added (at basic prices)	91 589	91 589	0
P	Education			
	Output of goods and services (at basic prices)	157 762	157 762	0
	Intermediate consumption (at purchasers' prices)	40 371	40 371	0
	Gross value added (at basic prices)	117 390	117 390	0
Q	Human health and social work activities			
	Output of goods and services (at basic prices)	283 036	283 036	0
	Intermediate consumption (at purchasers' prices)	87 817	87 817	0
	Gross value added (at basic prices)	195 219	195 219	0
R	Arts, entertainment and recreation			

	Output of goods and services (at basic prices)	50 121	50 121	0
	Intermediate consumption (at purchasers' prices)	21 446	21 446	0
	Gross value added (at basic prices)	28 675	28 675	0
S	Other service activities			
	Output of goods and services (at basic prices)	44 594	44 594	0
	Intermediate consumption (at purchasers' prices)	16 618	16 618	0
	Gross value added (at basic prices)	27 976	27 976	0
T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use			
	Output of goods and services (at basic prices)	5 006	5 006	0
	Intermediate consumption (at purchasers' prices)	0	0	0
	Gross value added (at basic prices)	5 006	5 006	0
	Total			
	Output of goods and services (at basic prices)	**3 821 445**	**3 821 330**	**-115**
	Intermediate consumption (at purchasers' prices)	**1 914 970**	**1 914 455**	**-515**
	Gross value added (at basic prices)	**1 906 474**	**1 906 874**	**400**

Table 6.5 The expenditure approach, Impact of balancing adjustments, 2017

	Before Balancing	After Balancing	Balancing Adjustments
	DKK 1 000		
Gross capital formation	478 640 293	483 614 838	4 974 656
Gross fixed capital formation	465 579 552	465 471 329	-108 223
Dwellings	101 056 144	101 223 291	167 147
Other buildings and structures	111 368 438	111 388 282	19 844
Machinery and equipment	139 456 410	136 201 836	-3 254 574
Weapon systems	1 835 750	1 373 604	-462 146
Cultivated biological ressources	143 353	143 353	0
Intellectual property products	111 719 457	115 140 963	3 421 506
Changes in inventories	9 673 923	14 756 691	5 082 768
Materials and supplies	867 262	5 950 030	5 082 768
Work-in-progress	458 584	458 584	0
Finished goods	1 125 483	1 125 483	0
Goods for resale	7 222 594	7 222 594	0
Acquisitions less disposals of valuables	3 386 818	3 386 818	0
Household consumption expenditure	986 106 471	985 796 671	-309 800
NPISH final consumption expenditure	30 848 434	30 848 434	0
General Government final consumption expenditure	535 347 219	535 347 219	0
Import	1 050 472 029	1 050 472 029	0
Export	1 207 824 882	1 207 824 882	0

Table 6.6 The income approach, Impact of balancing adjustments, 2017

			Before Balancing	After Balancing	Balancing Adjustments
				DKK mill.	
Compensation of employees			1 118 577	1 118 479	-98
	S11	Non-Financial Corporations	668 710	668 560	-150
	S12	Financial Corporations	54 609	54 609	0
	S13	General Government	332 611	332 611	0
	S14	Households	37 302	37 354	52
	S15	NPISH	25 345	25 345	0
	S2	Rest of the world	0		
Gross operating surplus			684 072	684 072	0
	S11	Non-Financial Corporations	498 079	498 079	0
	S12	Financial Corporations	47 395	47 395	0
	S13	General Government	58 763	58 763	0
	S14	Households	78 754	78 754	0
	S15	NPISH	1 081	1 081	0

Mixed income					
	S14	Households	83 480	83 480	0
Other taxes on production			47 792	47 792	0
Other subsidies on production			26 948	26 948	0
Taxes on products			304 351	304 351	0
Subsidies on products			18 265	18 265	0

6.1 Other approaches used to validate GDP

Apart from all the checks that take place as part of the balancing in the supply use framework, source data, which are generally received electronically and at a detailed level, are always compared at the aggregate level with published figures. If there are any differences, a clarification is made and the error is corrected. When and if new data sources occur they are always assessed before being introduced to the national accounts.

The balanced supply-use tables are also assessed in the process of compiling supply-use tables in previous years' prices. Another validation is the comparison of wages and salaries with value added at the industry level.

As described in chapter 3, a comparison of theoretical VAT revenue with actual VAT revenue is also made in order to assess the coverage of GDP.

Validation of compilation methods and compilation systems are usually made in connection with major revisions or, if necessary, if changes in source data necessitate changes.

7. Overview of the allowance for exhaustiveness

7.0 Introduction

7.0.1 Geographical coverage

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

7.0.2 General approaches to exhaustiveness

GDP from the production side is generally considered the most reliable. Therefore, the exhaustiveness adjustments, as described below, have mainly been described from the production side in the tabular approach to exhaustiveness (TAE) and the process tables. However, some exhaustiveness adjustments are calculated from the demand side, for example illegal activities relating to narcotics and areas in the black economy where the household budget survey (HBS) is considered more reliable; the so-called discrepancy method (as described below).

In the Danish national accounts, there are two types of allowance for the black economy. First of all, there are estimates for the *work that is hidden* to the authorities in order to avoid taxes. In these cases, both the seller and the buyer of a product will typically know that the production is not reported to the tax authorities, and the price will be below market price. Secondly, there are allowances for the *under-reporting and the associated VAT fraud* that companies take advantage of. In these cases, buyers do not necessarily know that the production is not declared. In any industry, there is only one type of allowance in order to avoid the risk of double counting. This would probably be the case if both types of allowance were introduced in a given industry since a significant part of the extra profits made by taking advantage of under-reporting will be spent on hiring black labour. The allowances for the black economy are additions to output and value added. There are no corrections to intermediate consumption.

The latest benchmark survey for the black economy was made in 2004 with reference to the year 2003, which was partly financed by the EU[19]. The values from the benchmark study are extrapolated using various methods, one important source being annual supplementary questions in the LFS regarding hours worked in the "black" economy. The methods are described in detail below. A new benchmark survey for the black economy will be carried out in 2021-2022. The new benchmark will be implemented in connection with the national account revision in 2024.

As recommended in Commission Decision (98/527/EC, Euratom) Statistics Denmark has made calculations on the basis of the supply-use tables that compare theoretical and actual VAT revenue for the period 2011-2018. The results of the calculations are shown in chapter 3.28 and generally the difference between theoretical and actual VAT revenue were relatively low and constant over the period.

7.1 Allowance for exhaustiveness in the production approach

7.1.1 Identification of types of non-exhaustiveness (for which adjustments are needed)

Comparison of employment data with demographic sources

Until recently, the latest comparison between employment data and national accounts data was undertaken in 1994 with 1991 as reference year. The comparison was made in relation to the implementation of the Commission Decision (94/168/EC, Euratom) of 22 February 1994 on measures to be taken for the implementation of Council Directive 89/130/EEC, Euratom on the harmonization of the compilation of gross national product at market prices ("exhaustiveness decision"). In 2019, this exercise was repeated using 2015 as reference year in the report *Validating employment underlying GDP*.

In order to validate the employment underlying GDP by confronting it with employment based on the population, the Danish LFS (called the AKU) has been used.

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

Employment in the Danish national accounts is based on the Danish Working Time Accounts (WTA). The domestic concept in ESA2010 11.17 is almost followed by the WTA – only a few adjustments are necessary mainly supplements for the hidden economy (called the "black" and illegal economy).

Table 7.1 shows the employment numbers in National accounts, Working time accounts and Labor force survey, respectively.

Table 7.1 Employment in national accounts, Working time accounts and LFS (AKU), 2015

	Employment	Difference
	1 000 persons	
National accounts	2 829	
Working time accounts	2 791	38
LFS (AKU) 15-74 years old	2 754	37

In the WTA a person is employed if he/she has a job with minimum one hour of paid work per week. Temporarily absent persons are included.

The working time accounts is a register based statistics based mainly on income as declared by employers for their employees to the tax authorities (so called eIncome). The WTA covers consistent time series for employment, jobs, hours and wages by gender, branch, sector and self-employed/employee.

The definitions in the Working Time Accounts are close to those in ESA2010, i.e. it is based on the domestic concept and it uses the same sector classification. The biggest difference relates to the hidden and illegal economy, in which case the national accounts makes adjustments.

Table 7.2 below shows the adjustments between Working Time Accounts and national accounts.

Table 7.2 From WTA to NA by type of adjustment, 2015

	persons	
WTA		*2 790 968*
Population	*-145*	
Alternative sources	*+3 525*	
"Black" economy	*+28 835*	
Illegal economy	*+5 272*	
Manual adjustments	*+546*	
Total adjustments		*38 034*
National accounts		*2 828 998*

Employed persons in the LFS (AKU) are "persons, that in a given week has worked minimum one paid hour and persons that are temporarily out of job due to illness, holiday, maternity, courses, time off and the like".

The Danish LFS, called the *AKU*, is a survey which is carried out quarterly and includes a variety of questions related to the labor market. Approximately 20.000 persons are surveyed each quarter (and a grossing up procedure is carried out). For the present analysis, annual LFS employment is estimated as the average of the four quarters of 2015. The AKU has some conceptual differences compared to the WTA and NA. Another difference is that the AKU has more detailed information on the type of employment - information that cannot be obtained by registers.

Table 7.3 below shows the adjustments between the Labor Force Survey and Working Time Accounts.

Table 7.3 From LFS to WTA, 2015

	1 000 persons	
LFS 15-74 years old	2 754	
Non-residents employed in Denmark		57
Persons < 15 years old		20
Persons > 74 years old		17

"Adjusted LFS"	2 848	
WTA	2 791	
"Adjusted LFS" minus WTA		57
Of which		
Black employment		29
Illegal employment		5
Residents working abroad		2
Residual		*21*

Use of tax audit information
Denmark does not use tax audit information in the calculations of exhaustiveness adjustments.

When the estimation system for the "black economy" was established, it was considered to use results from fiscal audits as one option. However, it was found that the information was neither representative nor sufficiently systematic to be used. Instead it was decided to use surveys as described later in this chapter.

Description of allowances according to types of non-exhaustiveness (N1-N7)
Allowances for exhaustiveness are made for the following N-types:

N1 Producer should have registered (incl. N6 Misreporting by the producer)
N2 Illegal producer
N3 Producer not obliged to register
N5 Registered entrepreneur not included in statistics (incl. N4 Registered legal person not included in statistics)
N7 Not all required data are asked

N1 covers output in the "black economy" which includes both work that is hidden to the authorities in order to avoid taxes and under-reporting and associated VAT-fraud. There is no allowance for intermediate consumption associated with output in the "black economy" as this is assumed to be already accounted for.

N2 covers illegal activity relating to smuggling, drugs and prostitution. There is no allowance for intermediate consumption associated with illegal activity as this is assumed to be already accounted for.

N3 adjustments cover values for farmers' output for own consumption etc. They are available from agricultural statistics and are assumed to cover farm-gate sales as well, most of which presumably come under the "black" economy (N1). The values are based on agricultural selling prices for the products concerned, i.e. they are at basic prices, as required by ESA2010. Table 7.1 shows the adjustments by industry. Total adjustments to value added amount to 72 mill. DKK.

N5 covers adjustments for value threshold in source statistics. There are adjustments to both output and intermediate consumption.

N7 covers adjustment for production for own final use by market producers and wages and salaries in kind ("fringe benefits").

There are no adjustments for N4 Registered legal person is not included in statistics (they are included in N5). Adjustments for N6 Mis-reporting by the producer are included in N1.

Implicit adjustments
For agriculture etc. output is estimated, using a price times quantity calculation. This captures the value of underreporting and work in the black economy implicitly, since the method ensures that all output in these areas is covered. The same goes for letting of non-residential premises, where the output value is estimated from the expenditure side.

For dwellings work in the hidden economy is also implicitly captured. Based on assumptions, an "of which" estimate for the black economy has been made. Assuming that black letting of dwellings primarily relates to the letting of holiday homes and that this takes place on average one week per year, a value of 243.438 mill. DKK has been arrived at. Implicit adjustments are not shown in the TAE tables.

7.1.2 Adjustments made for the different types of non-exhaustiveness

The tabular approach exercise (TAE) has been carried out in order to document existing explicit exhaustiveness adjustments. The TAE has been carried out from the production side. Firstly, existing explicit adjustments have been identified. In that process, delimitation between exhaustiveness adjustments and other adjustments had to be made. To be consistent with the process tables, we carried out the two exercises in parallel. The result is that all adjustments to primary statistics are documented – whether as N-types in the TAE or other adjustments in the process tables.

Implicit adjustments are not shown in table 3a. The reason is that we would lose the consistency between the process tables and the TAE.

Table 7.4 shows the result of the TAE in the form of table 3A which summarises the N-type adjustments (value added by sector and nace rev.2 21 (groups)) and table 7.5 shows the result of the TAE in the form of exhaustiveness methods and N-type adjustments.

Table 7.4 Summary of TAE (table 3A), 2017

	N1	N2	N3	N4	N5	N6	N7	**Total**	Percent of GDP
	DKK mill.								pct.
S11	0	0	0	0	460	0	23 272	**23 731**	1.08
S12	0	0	0	0	0	0	0	**0**	0.00
S13	0	0	0	0	0	0	0	**0**	0.00
S14	8 453	2 543	72	0	1 218	0	488	**12 775**	0.58
S15	0	0	0	0	0	0	0	**0**	0.00
NACE A	10	0	35	0	0	0	48	**92**	0.00
NACE B	0	0	0	0	1	0	64	**64**	0.00
NACE C	79	0	37	0	118	0	3 904	**4 138**	0.19
NACE D	0	0	0	0	0	0	58	**58**	0.00
NACE E	0	0	0	0	0	0	37	**38**	0.00
NACE F	2 554	0	0	0	160	0	1 652	**4 367**	0.20
NACE G	862	1 501	0	0	461	0	3 804	**6 627**	0.30
NACE H	153	0	0	0	50	0	634	**837**	0.04
NACE I	1 800	0	0	0	58	0	6 458	**8 316**	0.38
NACE J	238	0	0	0	177	0	2 408	**2 823**	0.13
NACE K	0	0	0	0	0	0	0	**0**	0.00
NACE L	0	0	0	0	19	0	919	**938**	0.04
NACE M	20	0	0	0	463	0	2 902	**3 385**	0.15
NACE N	11	0	0	0	156	0	666	**833**	0.04
NACE O	0	0	0	0	0	0	10	**10**	0.00
NACE P	30	0	0	0	0	0	13	**43**	0.00
NACE Q	42	0	0	0	0	0	67	**109**	0.00
NACE R	270	0	0	0	0	0	45	**315**	0.01
NACE S	1 638	1 042	0	0	16	0	73	**2 770**	0.13
NACE T	745	0	0	0	0	0	0	**745**	0.03

Table 7.5 Summary of TAE (exhaustiveness methods), 2017

Types and elements of non-exhaustiveness	Telephone interviews extrapolated	Discre-pancy method	Indicator method	Price times volume	Agricultural statistics	Grossing up using gen. enterprise statistics	Imputations for payments in kind	Industrial account statistics	Account statistics	**Total**
						DKK mill.				
N1	4 448	1 599	2 406							**8 453**
N2				2 543						**2 543**
N3					72					**72**
N5						1 678				**1 678**
N7							14 188	8 017	1 555	**23 760**
- Fringe benefits							14 188			**14 188**
- Capital goods for own final use								8 017		**8 017**
- Royalties and licences									1 555	**1 555**
										36 506

The adjustments as presented in the table are mainly made at the detailed level using the supply-use tables (SUT), which contain information at product level for explicit adjustments for the “black” economy (N1), illegal activity

(N2), production of output for own final use (N3) and fringe benefits and production of capital goods for own final use (N7). This makes it possible to extract the detailed information at industry level.

Adjustments for N5 cannot be identified in the SUT. These adjustments for the value threshold are made at the industry level and have no explicit product breakdown.

The sector dimension has been obtained in different ways depending on the N-type. N1, N2 and N3 adjustments are assumed to be carried out in the household sector (S14) only. For N5 information is used from the accounting statistics. For N7 information from the tax authorities is used.

7.1.3 Exhaustiveness methods

This section has a more detailed description of the explicit exhaustiveness adjustments by N-type. At the end of the section, there is a description including an estimate of the implicit adjustments.

Adjustments for N1 Producer should have registered

Adjustments for N1 cover output in the "black" economy. There are two types of allowance for the black economy. First of all, there are estimates for the *work that is hidden* to the public authorities in order to avoid taxes. In these cases, both the seller and the buyer of a product will typically know that the production is not reported to the tax authorities, and the price will be below market price. Secondly, there are allowances for the *under-reporting and the associated VAT fraud* that companies take advantage of. In these cases, buyers do not necessarily know that the production is not declared. In any industry, there is only one type of allowance in order to avoid the risk of double counting. This would probably be the case if both types of allowance were introduced in a given industry since a significant part of the extra profits made by taking advantage of under-reporting will be spent on hiring black labour. The allowances for the black economy are additions to output and value added. There are no corrections to intermediate consumption.

Table 7.6 shows all allowances for the black economy (N1), i.e. underreporting and associated VAT-fraud and hidden economy divided by industry and product. The basic price equals the purchasing price and the allowances for production equals the allowances for value added. The total adjustment for N1 is 8,453 mill. DKK or 0.38 percent of GDP in 2017.

Table 7.6 N1 Producers should have registered, 2017

Industry	Adjustment method	Adjustment for	Gross output	Intermediate consumption	Value added
			DKK mill.		
A	Tel. interviews extrapolated	Fishing	10	0	10
C	Tel. interviews extrapolated	Building materials	32	0	32
C	Tel. interviews extrapolated	Toys and jewellery	4	0	4
C	Tel. interviews extrapolated	Bakeries	20	0	20
C	Tel. interviews extrapolated	Paper and stationary	8	0	8
C	Tel. interviews extrapolated	Furniture	8	0	8
C	Tel. interviews extrapolated	Clothing	8	0	8
F	Tel. interviews extrapolated	Construction	2 554	0	2 554
G	Tel. interviews extrapolated	Car repair	256	0	256
G	Indicator method	Under reporting and associated VAT-fraud	606	0	606
H	Tel. interviews extrapolated	Taxies etc.	29	0	29
H	Tel. interviews extrapolated	Freight transport	124	0	124
I	Indicator method	Under reporting and associa. VAT- and tips fraud	1 800	0	1 800
J	Tel. interviews extrapolated	Software services	238	0	238
M	Tel. interviews extrapolated	Accounting/bookkeeping	20	0	20
N	Tel. interviews extrapolated	Cleaning in companies	11	0	11
P	Tel. interviews extrapolated	Teaching	30	0	30
Q	Tel. interviews extrapolated	Health services	42	0	42
R	Tel. interviews extrapolated	Theater, concerts	270	0	270
S	Tel. interviews extrapolated	Repair of household machines	784	0	784
S	Discrepancy method extrapolated	Underreporting and ass. VAT fraud (hairdressers)	854	0	854
T	Tel./discrepancy extrapolated	Private households with employed persons	745	0	745
Total			**8 453**	**0**	**8 453**

The following describes the three different methods as indicated in table 7.6 used for the benchmark year 2004 and the extrapolation.

Telephone interviews
These adjustments are based on benchmark estimates from 2004 that are extrapolated using annual information from supplementary questions regarding *hours worked in the black economy* in the Danish Labour Force survey.

The main source behind the benchmark estimates of the *hidden work* was more than 10,000 telephone interviews, which have been carried out in connection with the Danish Labour Force Survey (LFS) in the first two quarters of 2004. As mentioned, the estimates stemming from the telephone interviews are primarily used in industries, where *hidden work* is believed to be the dominant underground activity.

The information from the telephone interviews is valued at "black" prices, which are the actual transaction prices and therefore the market values. The respondents were asked about the value of the black work. In cases when they did not give this information, the value has been imputed.

Industries where telephone interviews have been used are indicated in table 7.3

As mentioned earlier, the benchmark survey for the black economy will be updated in 2021-2022 and implemented in the national account revision in 2024.

Discrepancy method
The idea behind the discrepancy methods is to confront information from the supply side with ditto from the demand side. It is assumed that income/production is not always registered whereas expenditure would usually be registered. When the figures on the demand side are higher than on the supply side, the discrepancy must be the production that is not registered on the supply side.

A well-known discrepancy method used for national accounts purposes is to confront registered production in a given industry with the expenditure estimates from the consumer surveys. The method is used to make an annual estimate of the allowance for under-reporting and the associated VAT fraud in *hairdressing salons and beauty parlours* and part of the *hidden production of cleaning services for private household*s as indicated in table 7.6.

Indicator method
The indicator method is used to estimate the value of under-reporting in the national accounts industries *retail trade of food* and *restaurants* because under-reporting is thought to be the dominant black activity in these industries. In addition, an allowance is made for *tips in restaurants* that are not declared to the tax authorities.

The adjustments are based on a set of indicators, which are estimated using information collected in the economy. These indicators are used to make annual estimates for the allowance to turnover for under declaration and to tips that are not declared.

For example, under-reporting and the associated VAT-fraud in restaurants is estimated by using the reported turnover in the 5 underlying detailed industries from the statistics *Purchases and sales by* enterprices and multiply each of them by a factor that indicates the estimated underreporting in each of the 5 industries. The factors are determined in an earlier benchmark survey and usually between 2 and 15 % in the relevant detailed industries. 20% of the value is considered VAT-fraud (as the VAT rate is 20%) and the remaining 80% is considered under-reporting.

The basic idea behind the indicator method is that information collected in the economy can be used directly to estimate the value of under-reporting. Naturally, the tax authorities get valuable pieces of information when carrying out their unannounced raids. In addition to this, personal interviews carried out by Rezaei (2003, 2004)[20] is used to identify in which industries the under-reporting takes place, and what the value of the under-reporting is. Rezaei's study focuses solely on immigrants who own a firm or who are employed. His sample is not

[20] Rezaei, Shahamak (2003). Det dual arbejdsmarked i et velfærdsstatsligt perspektiv – et studie af dilemmaet mellem uformel økonomisk praksis og indvandreres socio-økonomiske integration.Delrapport 1. RUC, Roskilde.
Rezaei, Shahamak (2004). Det duale arbejdsmarked i et velfærdsstatsligt perspektiv – et studie af dilemmaet mellem uformel økonomisk praksis og indvandreres socioøkonomiske integration. Delrapport 2. RUC, Roskilde.

representative for the whole population and must be used with caution. Based on these sources of information, a set of indicators that reveal the hidden share of turnover in different industries can be constructed.

Adjustments for N2 Illegal activity

Statistics Denmark includes three types of illegal activity (N2): Prostitution, drugs and smuggling of alcohol, tobacco, soft drinks and sweets. This is in line with the decision made by the GNI Committee, and the methodology used is also in line with the recommendations of the GNI Committee (GNIC230). Also in line with the GNI committee recommendations, there are no adjustments to the transition from GDP to GNI.

According to ESA2010, illegal activity is included in the production boundary. Illegal activity differs from the black economy in that the activity is illegal in itself. The black economy is illegal in the sense that the evasion of taxes etc. makes it illegal, but the activity is not illegal as such.

Table 7.7 below shows the amounts estimated for illegal activity. The total adjustment amounts to 2,709 mill. DKK or 0.12 percent of GDP in 2017.

Table 7.7 Adjustments for N2 Illegal activity, 2017

Industry	Adjustment method	Adjustment for	Gross output	Intermediate consumption	Value added
			DKK mill.		
G	Price times volume	Retail trade marg. (smuggling and drugs)	1 206	-	1 206
G	Price times volume	Whole sale trade marg. (smuggling and drugs)	461	-	461
S	Price times volume	Prostitution services	1 042	-	1 042
Total			**2 709**	**-**	**2 709**

No explicit corrections have been made for *double counting*. First of all only trade margins are included. This means, that there is no risk that values already included in imports are included again. Secondly, there is not sufficient information for corrections due to for example money laundering. It is not unlikely, that part of the income generated by illegal activities is laundered in other industries by routing the income to these industries and hereby increasing turnover. Thirdly, it is not unlikely that some expenses on prostitution are already included as expenses in bars and clubs. No corrections have been made for that, however the estimates for prostitution are expected to be on the lower side.

The three types of illegal activity will be described in more detail below.

Smuggling

Smuggling is defined as: *Imports of goods for reselling not subject to payment of Danish taxes and duties. The goods may have been imported subject to or not subject to duties paid abroad.* Smuggling includes smuggling of alcohol, tobacco, soft drinks and sweets, and the estimates are made as quantities times prices. The estimates are to a large extent based on information from the Ministry of Taxation, which regularly publishes reports on cross-border trade including smuggling[21]. It is assumed that any intermediate consumption or gross fixed capital formation related to the smuggling activity is already accounted for. Therefore, the trade margins, as described below, account for total value added related to smuggling.

Smuggling of alcohol includes beer and wine. The smuggled beer and wine is mainly sold at small groceries because it is difficult for them to obtain favourable prices at the whole-saler because they only purchase small amounts.

For *beer* it is assumed that the smuggled quantity is 8 per cent of the quantities subject to duties for 2017. Annual information on prices for a bargain box of beer south of the Danish border (Germany) is from German border shops' advertisements in Denmark. These prices are used for the import value. For the illegal sales price in Denmark, the price of a bargain box of beer in Denmark is used. The difference between the two is the trade margin.

For *wine* it is assumed that the smuggled quantity makes up 1 per cent of the quantities subject to duties. A benchmark price for a bargain box of 6 bottles of wine of standard quality south of the Danish border (Germany)

[21] Reports have been published in 2000, 2001, 2004, 2006, 2007, 2010, 2012, 2014, 2015, 2016 and 2017. They are named "Rapport om grænsehandel".

in 2006 is used for the import value. The price is extrapolated using the German consumer price index for wine. For the illegal sales price in Denmark, the price of a bargain box of 6 bottles of wine in Denmark is used. The difference between the two is the trade margin.

For *tobacco* only very limited information is available. It is assumed that the quantity (number of cigarettes) of smuggled cigarettes is 1 per cent in 2017 of quantities subject to duties. It is also assumed that the majority of smuggled cigarettes come from Eastern Europe and are mainly sold at pubs and large workplaces. The import price is based on prices in Poland and the illegal sales price in Denmark is assumed to be well below the Danish legal price. The market for smuggled tobacco is declining as the Danish consumption of cigarettes is declining.

In Denmark there is an illegal market for *soft drinks*, as Danish prices are usually higher than in fx Poland and Germany. The information on quantities is from the Ministry of Taxation. It is assumed that the major part of smuggled soft drinks comes from Poland and the Polish retail price is used for the import price. For the illegal sales price in Denmark, observed prices in small "kiosks" in Copenhagen extrapolated using the consumer price index are used.

Sweets and chocolates are also subject to duty in Denmark. It is assumed that the smuggled amounts in 2017 are a little less than 3 percent of total consumption. Smuggled sweets and chocolates are mainly from Germany. Therefore, import prices are based on prices in Germany and the illegal sales prices are based on bargain prices in Danish Supermarkets. Smuggled sweets and chocolates are sold in small kiosks or groceries.

Table 7.8 shows value added, household final consumption expenditure and imports of smuggled goods. The values shown for the different products are at retail prices and the value shown for tourist expenditure (part of private consumption expenditure) is the total value at import prices.

Table 7.8 The impact of smuggling on GDP and GNI, 2017

	Tobacco	Beer and wine	Sweets, soft drinks and chocolate
	DKK mill.		
Output	2	23	37
Intermediate consumption	0	0	0
Household consumpt. Expendit.	77	298	169
Imports	75	275	132
Gross operating surplus	2	23	37
VA/GDP	2	23	37
GNI	2	23	37

Prostitution

Prostitution is compiled from the supply side, but a demand side estimate has been made for a benchmark year. The supply side estimate is based on number of prostitutes, divided into 5 types of prostitution and multiplied by prices and averge number of contacts per prostitute. The number of prostitutes is based on a report from the Danish Centre for research on social vulnerability. The number of prostitutes are divided between resident prostitutes (prostitutes that stay in the country for one year or more), who produce services as domestic production and prostitutes that stay less than one year on tourist visas, who produce imported services. Prices are based on adds from newspapers and the internet. The demand side estimate (which was only made for three benchmark years) is based on a study also from the Danish Centre for Research on Social Vulnerability, which has asked a number of men on the number of visits to prostitutes. The number of visits was then multiplied by an average price per visit estimated on the basis of adds. Comparing the supply and the demand side estimates revealed that the demand side estimates were about 500 mill. DKK higher than the supply side estimates for the benchmark years 2002-2004. However, all sources indicate, that the supply side information is more reliable than the demand side information.

It is assumed that expenses on intermediate consumption are already partly accounted for elsewhere in the system. Some of the expenses may be part of household consumption expenditure, and in principle should be reclassified to intermediate consumption, but this is most likely insignificant and within the margin of error of the estimates.

Table 7.9 below shows the impact of prostitution on GDP.

Table 7.9 The impact of prostitution on GDP and GNI, 2017

	Street	Clinic	Individuals working from home	Escort	Club	**Total**
			DKK mill.			
Output	23	695	146	149	29	**1 042**
Intermediate consumption	0	0	0	0	0	**0**
						0
Household consumpt. Expendit.	45	859	181	184	36	**1 306**
Imports	23	164	35	35	7	**263**
						0
Gross operating surplus	23	695	146	149	29	**1 042**
						0
VA/GDP	23	695	146	149	29	**1 042**
GNI	23	695	146	149	29	**1 042**

Drugs

It is assumed that there is no production of *drugs* in Denmark, only trade in drugs. Value added from the sale of drugs is estimated from the demand side. Estimates from the supply side based on seizured amounts have also been made as a one-off exercise but are not used because they are too fluctuating. The demand side is estimated as the average quantities consumed per drug user multiplied by the number of drug users and again multiplied by import- and retail prices respectively. The difference between consumption valued by import and retail prices then makes the trade margin which is equal to value added. The total number of drug users is made up by the number of "hard" users and the number of recreational users. Information on the number of hard users is taken from a report from the National Board of Health and information on the number of recreational users is based on assumptions on seizures from a report by the police on organised crime in Denmark and assumptions on average consumption by recreational users. Information on the number of hard users is available on a regular basis from the above mentioned report – estimates are available for 2000, 2005, 2008, 2010, 2013 and 2017. Between those benchmark years the number is extrapolated. Prices are based on information from the above mentioned report from the police on organised crime in Denmark. For import prices (=basic prices), so called" whole-sale prices" are used and for retail-prices, so-called "street prices" are used. It is assumed that any intermediate consumption and gross fixed capital formation related to the trade of drugs is already accounted for elsewhere in the national accounts.

Table 7.10 shows the impact of trade in drugs on value added, household consumption expenditure and import. The values shown for the different drugs are at retail prices and the value shown for tourist expenditure (part of private consumption expenditure) is the total value at import prices.

Table 7.10 The Impact of illegal drug trafficking and production on GDP and GNI, 2017

	White heroin	Brown heroin	Cocaine	Amphe-tamine	Ecstasy	Cannabis	**Total**
			DKK mill.				
Output	257	115	671	173	10	212	**1 439**
Intermediate consumption	0	0	0	0	0	0	**0**
							0
Household consumpt. Expendit.	430	223	1 225	271	16	368	**2 533**
Imports	173	108	554	99	6	155	**1 095**
							0
Gross operating surplus	257	115	671	173	10	212	**1 439**
							0
VA/GDP	257	115	671	173	10	212	**1 439**
GNI	257	115	671	173	10	212	**1 439**

Adjustments for N3 Producer not obliged to register

N3 adjustments cover values for farmers' output for own consumption etc. They are available from agricultural statistics and are assumed to cover farm-gate sales as well, most of which presumably come under the "black" economy (N1). The values are based on agricultural selling prices for the products concerned, i.e. they are at basic prices, as required by ESA2010. Table 7.11 shows the adjustments by industry. Total adjustments to value added amount to 72 mio. DKK.

Table 7.11 N3 Producer not obliged to register, 2017

Industry	Adjustment method	Adjustment for	Gross output	Intermediate consumption	Value added
			DKK mill.		
A	Agricultural statistics	Own consumption of eggs and milk	35	0	35

C	Agricultural statistics	Own consumption cattle and pigs	37	0	37
Total			**72**	**0**	**72**

Adjustments for N5 Registered entrepreneur not included in statistics

Adjustments for N5 cover allowances for activity in enterprises below the value threshold of the Accounts Statistic. There are additions to output and intermediate consumption resulting in a total adjustment of value added of 1,678 mio. DKK or 0.1 percent of GDP. Table 7.12 shows the adjustments to output, intermediate consumption and value added by industry.

Table 7.12 N5 Registered entrepreneur not included in statistics, 2017

Industry	Adjustment method	Adjustment for	Gross output	Intermediate consumption	Value added
			DKK mill.		
B	Grossing up using general enterprise statistics	Value threshold	2	2	1
C	Grossing up using general enterprise statistics	Value threshold	318	200	118
E	Grossing up using general enterprise statistics	Value threshold	1	1	0
F	Grossing up using general enterprise statistics	Value threshold	432	272	160
G	Grossing up using general enterprise statistics	Value threshold	906	445	461
H	Grossing up using general enterprise statistics	Value threshold	130	80	50
I	Grossing up using general enterprise statistics	Value threshold	139	81	58
J	Grossing up using general enterprise statistics	Value threshold	355	178	177
L	Grossing up using general enterprise statistics	Value threshold	44	25	19
M	Grossing up using general enterprise statistics	Value threshold	919	456	463
N	Grossing up using general enterprise statistics	Value threshold	372	216	156
S	Grossing up using general enterprise statistics	Value threshold	44	28	16
Total			**3 662**	**1 984**	**1 678**

The adjustments are made as part of the national accounts processing of the account statistics and are made at the industry level (not product level). Based on the general enterprise statistics that contains turnover figures for all enterprises and includes information on whether each enterprise is covered by the industrial accounts statistics a grossing-up factor is calculated for each combination of DK-Nace-industry/ESA2010-institutional sector. A more detailed description can be found in chapter 3.

Adjustments for N7 Not all required data are asked

Adjustments for N7 cover adjustments for wages and salaries in kind (fringe benefits) and the production of capital goods for own final use (excluding own-account software and own-account R&D).

Total adjustments to gross output and value added are 23,760mill. DKK or 1.08 percent of GDP in 2017. 14.188 mill. DKK are fringe benefits. Table 7.13 shows the adjustments by industry. Below there is a description of the adjustments for fringe benefits and production of capital goods for own final consumption.

Table 7.13 N7 Not all required data are asked, 2017

Industry	Adjustment method	Adjustment for	Gross output	Intermediate consumption	Value added
			DKK mill.		
A		Fringe benefits (car and pc) + capital goods for own final use	48	0	48
B		Fringe benefits (car and pc) + capital goods for own final use	64	0	64
C		Fringe benefits (car and pc) + capital goods for own final use	3 904	0	3 904
D		Fringe benefits (car and pc)	58	0	58
E		Fringe benefits (car and pc)	37	0	37
F		Fringe benefits (car and pc) + capital goods for own final use + value added on construction materials	1 652	0	1 652
G		Fringe benefits (car and pc) + capital goods for own final use	3 804	0	3 804
H		Fringe benefits (car and pc) + capital goods for own final use	634	0	634
I		Fringe benefits (canteens, car and pc) + capital goods for own final use	6 458	0	6 458
J		Fringe benefits (news paper, telephone, car and pc) + capital goods for own final use	2 408	0	2 408
K		Fringe benefits (car and pc)	0	0	0
L		Fringe benefits (car and pc) + capital goods for own final use	919	0	919
M		Fringe benefits (car and pc) + capital goods for own final use	2 902	0	2 902
N		Fringe benefits (car and pc) + capital goods for own final use	666	0	666
O		Fringe benefits (car and pc)	10	0	10
P		Fringe benefits (car and pc)	13	0	13

Q	Fringe benefits (car and pc)	67	0	67
R	Fringe benefits (car and pc) + capital goods for own final use	45	0	45
S	Fringe benefits (car and pc) + capital goods for own final use	73	0	73
Total		**23 760**	**0**	**23 760**

Capital goods for own final use
Capital goods for own final use are compiled using information from the industrial account statistics using the variable "Own-account work" at industry/sector level.

Wages and salaries in kind
Allowances to compensation of employees are imputed for payments in kind to employees covering the following eight products:

1) free car
2) free telephone
3) canteen subsidies
4) free housing
5) free health insurance
6) free newspaper
7) free pc
8) employee stock options

Except for employee stock options, the allowance for payments in kind affects either output or intermediate consumption:

- As an addition to output if it is produced by the enterprise
- As a reallocation from intermediate consumption to compensation of employees if it is purchased by the enterprise

The adjustment to output is made to take into account that fringe benefits produced by the unit itself are not included in output from account statistics. Therefore, an allowance for the missing output is added. This allowance is not relevant when the fringe benefits are purchased. In these cases, a reallocation is made from intermediate consumption to compensation of employees.

Table 7.14 shows how the seven types of fringe benefits affect compensation of employees and either output or intermediate consumption.

Table 7.14 Allowances for benefits in kind on compensation of employees, output and intermediate consumption, 2017

	Household final consumption expenditure	Compensation of employees	Output	Intermediate consumption
	DKK mill.			
Free car	6 787	7 263	6 787	476
Free telephone	0	1 578	0	1 578
Canteen subsidies	6 049	6 049	6 049	0
Free housing	635	635	635	0
Free health insurance	0	1 732	0	1 732
Free news paper	0	525	0	525
Free PC	718	986	718	268
Total excl. stock options	14 188	18 769	14 188	4 581
Employee stock options		806		
Total incl. stock options		**19 575**		

In 2017, the total amount of allowance to compensation of employees was DKK 19,575 million. Free cars and subsidies to canteens are by far the most important, accounting for DKK 7,263 million and 6,049 million respectively. The total amount of allowance to output was DKK 14,188 million or 0.65 percent of GDP in 2017 and the total adjustment to intermediate consumption was DKK 4,581 million.

The value of *free cars* is taxable and as from income year 1994 has been reported by employers on the salary information forms, together with wages and salaries in cash. The value is estimated in terms of standard rates which reflect realistic market prices, such as the rental payments for a similar car if it was leased with a service agreement plus fuel costs etc. The tax authorities calculate the taxable value as 25 % of the price of the car. In the

national accounts we use instead 29 %. One might legitimately wonder how these rates can claim to be market rates when it is generally considered to be a great financial advantage for individuals to have a company car instead of a normal private car. The answer is simple. Earnings in the form of fringe benefits are taxed on the basis of the value of consumption, whereas earnings in cash are taxed on the basis of income and not the post-tax consumption potential which corresponds to that income – i.e. a much greater amount for the same consumption potential. Even with a realistic assessment of the value of fringe benefits, this asymmetry in the tax system means that, all other things being equal, there is a great advantage in receiving wages or salaries in kind rather than in cash if the goods in question are ones which would have been acquired anyway.

In the national accounts, the tax values are used for the value of free cars, as reported on the information forms to the tax authorities.

The value of *free telephones* is likewise reported on the information forms to the tax authorities in terms of standard rates which are a realistic reflection of market prices. In recent years, high speed internet has become more widespread. As these are a part of free telephones and because there is a limit (DKK 2 500) on the taxable value, we introduce a mark-up of 20 % on the values reported on the information forms in order to properly reflect the value of free telephones. In 2017, the total value of free telephones was DKK 1,578 million.

The value of *canteen subsidies* is not taxable income provided that the employees pay a minimum price for a meal which (more or less) covers the costs of the raw materials. The value of the employer subsidy for the running of canteens is consequently not reported to the tax authorities. The source for the national accounts estimate is a benchmark based on a survey from 1994. The 1994-values are inflated with the price index for the canteen industry as well as the growth in total employment.

The value of *free housing* is reported on the information forms in terms of standard rates which are a realistic reflection of market prices. As for cars, it is the values for tax purposes which are used in the national accounts. In 2017, the total value of free housing was DKK 635 million.

The value of *free newspapers* is based on a survey from 1998 indicating the number of employees who have newspapers paid for by their employer. The value of a free newspaper is calculated as the average price of a one year subscription of a major newspaper (9 newspapers are included). The total value of free newspapers was DKK 525 million in 2017.

The value of *free pc* is not reported on the information forms. Instead we use information on the rise in the number of households having access to a pc at home. We assume that half of the increase can be attributed to pc's paid for by the employer. For the year 2003 and forwards the tax authorities make their own assessment on the number of home pc's paid for by an employer. In 2003 and onward we therefore use the average of the two numbers as an estimate of the number of new home pc's paid for by an employer. The price of the pc's paid for is assumed to reflect the market price for a new pc. Furthermore we set the amortisation of a pc to three years. The total value of *free pc* in 2017 was DKK 986 million.

The value of *free private health insurance* (i.e. health insurance associated to the employees' free time and not to the production process) is based on data from a private nongovernmental organisation who publish records of privately held insurances paid by firms. The total value of *free private health insurance* in 2017 was DKK 1,732 million.

The value of *employee stock options* is principally based on data from the Danish tax authorities on values of stock option salaries that have been reported taxable in our calculation year. However, to impute the value at the accrual basis and not at the time of taxation, the national accounts value is imputed using information on quotation prices and various suppositions, e.g. the earliest date attainable for an employee to cash in his/her stock option coincides with the time of legal acquisition (which is based on a Danish Supreme Court ruling). The notion that a typical stock option programme lasts 7-8 years with a vesting period of 2-3 years is also utilized in the imputation. The value of *employee stock options* in Denmark's non-financial sector was DKK 806 million in 2017.

7.2 Allowance for exhaustiveness in the expenditure approach

All allowances for exhaustiveness are described in section 7.1 for the production approach. The allowances are made in the supply-use (SU) frame-work and in the SU-tables, there is a product for each allowance, which

ensures, that supply equals use for that allowance. So if the allowance is compiled from the supply side, use is defined using that entity and vice versa.

7.2.1 Identification of types of non-exhaustiveness (for which adjustments are needed)

See 7.1.1

7.2.2 Adjustments made for the different types of non-exhaustiveness

Adjustments made for exhaustiveness are described – and for the major part compiled - from the production side in section 7.1.2. The allocation of the exhaustiveness adjustments (as described from the production side) on the expenditure side are made in the process tables and shown in table 7.15

Table 7.15 Summary of TAE (expenditure approach), 2017

	N1	N2	N3	N4	N5	N6	N7	**Total**	Percent of GDP
	DKK mill.								pct.
Household FCE	6 760	4 353	72	0	0	0	14 952	**26 137**	1.19
NPISH FCE	0	0	0	0	0	0	0	**0**	0.00
General government FCE	0	0	0	0	0	0	0	**0**	0.00
GFCF	520	0	0	0	0	0	0	**520**	0.02
Changes in inv.	0	0	0	0	0	0	0	**0**	0.00
Acq. less disp. of values	0	0	0	0	0	0	0	**0**	0.00
Exports	0	0	0	0	0	0	0	**0**	0.00
Imports	0	1 576	0	0	0	0	0	**1 576**	0.07

7.2.3 Exhaustiveness methods

N1: Allocation of adjustments to output and GVA on the expenditure side

Table 7.16 shows all allowances for the black economy (N1), i.e. underreporting and associated VAT-fraud and hidden economy divided by industry and product and their allocation on the expenditure components HFCE, intermediate consumption and GFCF. It describes the three different methods as indicated in table 7.6 used for the benchmark year 2004.

Table 7.16 N1 Producers should have registered, 2017. Shows the allocation of N1 adjustments to output (and GVA) on the expenditure side.

Industry	Adjustment method	Adjustment for	HFCE	Intermediate	GFCF
				DKK mill.	
A	Tel. interviews extrapolated	Fishing	10		
C	Tel. interviews extrapolated	Building materials	32		
C	Tel. interviews extrapolated	Toys and jewellery	4		
C	Tel. interviews extrapolated	Bakeries	20		
C	Tel. interviews extrapolated	Paper and stationary	8		
C	Tel. interviews extrapolated	Furniture	8		
C	Tel. interviews extrapolated	Clothing	8		
F	Tel. interviews extrapolated	Construction	1 628	407	520
G	Tel. interviews extrapolated	Car repair	256		
G	Indicator method	Under reporting and associated VAT-fraud	606		
H	Tel. interviews extrapolated	Taxies etc.	29		
H	Tel. interviews extrapolated	Freight transport	124		
I	Indicator method	Under reporting and associa. VAT- and tips fraud	1 800		
J	Tel. interviews extrapolated	Software services	72	167	
M	Tel. interviews extrapolated	Accounting/bookkeeping	20		
N	Tel. interviews extrapolated	Cleaning in companies		11	
P	Tel. interviews extrapolated	Teaching	30		
Q	Tel. interviews extrapolated	Health services	42		
R	Tel. interviews extrapolated	Theater, concerts	270		
S	Tel. interviews extrapolated	Repair of household machines	784		
S	Discrepancy method extrapolated	Underreporting and ass. VAT fraud (hairdressers)	854		
T	Tel./discrepancy extrapolated	Private households with employed persons	745		
Total			**7 348**	**585**	**520**

As the adjustments to N1 are made from the production side as a starting point, reference is generally made to chapter 7.1.3. In addition the following describes the method for balancing the adjustments for the black economy at the product level to determine the exhaustiveness adjustments on the expenditure side.

The Danish national accounts are based on a detailed system of supply and use tables with approximately 2350 product balances. Estimated values for black activities are shown as separate products and their product balances are prepared in a subsystem outside the general SUT framework. When these product balances are entered into the general framework as "predetermined values" supply and use is already balanced.

When the SUT framework is populated all values on the supply side are estimated outside the system and entered as "predetermined values". They may nevertheless be adjusted during balancing, when errors are detected or initial estimates are found to be in contradiction with more reliable information. On the uses side initial information is mostly less precise. At the start of the balancing exercise "targets" for all column totals of the use table are determined in subsystems. While the use from some product balances – including those for black activities - are entered in their final form, many initial values need to be estimated using more or less precise information on the product structure within each column. A more comprehensive description on how the columns for household final consumption expenditure (HFCE) are populated can be found in chapter 5 of the GNI inventory.

As described in chapter 5.7 of the GNI inventory "Targets" for Household consumption by COICOP groups are calculated in a subsystem based on a number of sources: Household budget survey, retail trade indices, VAT statistics, Accounts- (SBS-) statistics and statistics on specific products. While most of these are based on statistics on turnover by industries or supply of specific products and cannot include hidden activities, the HBS covers some expenditure on hidden production, but to an unknown extent. Furthermore, the levels from the grossed up SBS figures are rather uncertain compared with the other sources. For this reason the HBS figures are primarily used for the distribution by detailed consumption groups. Most figures from the HBS are either adjusted to levels determined by the retail trade indices or replaced by other calculations.

The adjusted grossed up figures that exclude hidden activities are used to extrapolate totals for the non-hidden part of household consumption. Initial indicators for the consumption group totals are calculated by adding the values from the predetermined product balances for hidden activities. As described in the GNI-inventory paragraph 5.7.2 as "step 12", these indicators are adjusted to take into account experience from earlier years; typically they are used to extrapolate figures for household final consumption expenditure from the – fully balanced – SUTs from the previous year.

Balancing of the national accounts uses the target totals and product balances as a starting point. The process involves adjustments in order to reach balanced GDP. In this process items on the expenditure side are typically adjusted in the light of the supply-side as these targets are considered less reliable. The targets for household consumption are in general considered less reliable than, for instance, targets for intermediate consumption that are based on accounts statistics. It should, however, be kept in mind that the relative size of hidden production can be small compared to adjustments to the initial column totals that are needed to balance supply and use of the consumed products. The study of initial differences between targets and available supply can, on the other hand, reveal problematic source data that will need to be corrected during the balancing process.

7.3 Allowance for exhaustiveness in the income approach

Allowances for exhaustiveness in the income approach are made to wages and salaries (black wages and salaries and wages and salaries in kind) and gross operating surplus and mixed income (all remaining value added ends up in gross operating surplus and mixed income).

Wages and salaries in kind are described in section 7.1.2 and black wages are described in chapter 4.
The allocation of the exhaustiveness adjustments (as described from the production side) on the income approach are made in the process tables and shown in table 7.17

Table 7.17 Summary of TAE (income approach), 2017

	N1	N2	N3	N4	N5	N6	N7	**Total**	Percent of GDP
	DKK mill.								pct.
Compensation of employees	3 170	0	0	0	0	0	11 679	**14 849**	0.68
Gross operating surplus	0	0	0	0	460	0	15 134	**15 593**	0.71
Mixed income	5 283	2 543	72	0	1 218	0	488	**9 605**	0.44
Taxes on production and imports	0	0	0	0	0	0	0	**0**	0.00
Subsidies	0	0	0	0	0	0	0	**0**	0.00

7.3.1 Identification of types of non-exhaustiveness (for which adjustments are needed)

See 7.1.1

7.3.2 Adjustments made for the different types of non-exhaustiveness

See 7.1.2

7.3.3 Exhaustiveness methods

See 7.1.3

8. The transition from GDP to GNI

8.0 Introduction

The transition from GDP to GNI is conducted by applying information from the Danish balance of payments statistics (BOP). This information is applied directly, that is without any correction to the BOP figures being performed.

Table 8.1 Transition from GDP to GNI, 2017

		DKK mill.
	GDP	**2 192 960**
+	Compensation of employees from the ROW	8 664
-	Compensation of employees to the ROW	20 686
-	Taxes on production and imports to the ROW	3 170
+	Subsidies from the ROW	6 466
+	Property income from the ROW	174 451
+	Interest	50 875
+	Distributed income	96 036
+	Reinvested earnings	25 413
+	Other investment income	2 127
-	Property income to the ROW	117 722
-	Interest	36 538
-	Distributed income	68 864
-	Reinvested earnings	9 694
-	Other investment income	2 626
=	**GNI for fourth own resource purposes**	**2 240 963**

For BOP the competency is divided between Statistics Denmark and the Central Bank, *Danmarks Nationalbank*. The former conducts the compilation of the current account and the capital account and the latter the financial account and the international investment position. Danmarks Nationalbank also conducts the compilation of property income except for a minor item. Property income is the most important item in the GDP-GNI transition. The BOP compilation is compatible with IMF's Balance of Payments Manual, sixth version (BPM6). BOP is published by Statistics Denmark. The agreement between the two institutions on division of tasks in the statistical area has recently been updated.

Danmarks Nationalbank's system for collection of information on the international investment position and the financial account of the balance of payments is based on the following main sources:

- Reporting by enterprises.
- Statistics on balance sheets of banks and mortgage banks including flows and income
- Insurance and pension fund statistics
- Investment funds statistics
- General-government statistics
- Securities statistics including information from the ECB's centralised security data base (CSDB)

Information on instrument, counterpart country, sector (and a number of other dimensions) is an integrated part of the collection for all sources. Information on counterpart country is used to identify cross-border flows.

8.1 Compensation of employees

The definition of compensation of employees, as set out in ESA 2010 §§4.02 is applied. Data from the balance of payments are used directly.

Compensation of employees to and from the rest of the world is to a large extent based on administrative tax information on income (from employment) from the Danish Tax Authority SKAT. These figures are presented gross including actual or calculated social contributions and contributions to pensions.

The underlying assumption is that the wages and salaries provided by the Danish Tax Authority SKAT are net values excluding social contributions and contributions to pensions. That is why they are supplemented by actual or calculated social contributions and contributions to pensions.

The expenditure data on social contributions and contributions to pensions are based on actual data from the Danish Tax Authority SKAT, while the receipts data are estimated. The estimations are based on the share of these contributions out of total CoE as compiled from the expenditure side. This share is corrected for the approximated relative differences between Danish contributions and the contributions in other countries.

In the information provided by the Danish Tax Authority (SKAT), cross-border employees are defined as persons having a Danish personal number (cpr-nummer) and a foreign address. Accordingly both seasonal and border workers are supposed to be included.

The tax information is supplemented by a number of smaller amounts. Examples are wages paid to foreign residents employed at Danish embassies in foreign countries, as reported by the Danish Ministry of Foreign Affairs, as well as wages paid to Danish residents employed at foreign embassies and international organisations in Denmark, based on Statistics Denmark's special survey on the number of employees at embassies and international organisations in Denmark combined with roughly estimated wage rates.

No register of extra territorial organisations is available.

The calculation of compensation of employees for Danish employees at foreign embassies and organisations is shown below.

310AMB = AMB_U_D * AMBLON

310AMB = Estimated wages paid to Danish residents employed at foreign embassies in Denmark

AMB_U_D = Number of Danish employees at foreign embassies in Denmark. (This information is derived from Statistics Denmark's survey conducted about **every fifth year**, latest in 2015.)

AMBLON = Average monthly salary for Danish employees at foreign embassies in Denmark. (The figure of monthly income of the Danish employees is based on Statistics Denmark's income statistics. The item used is the average income of "Elementary occupations" within the government.)

Numerical example

Total compensation of Danish employees at embassies and consulates in Denmark in 2015:

310AMB = AMB_U_D * AMBLON = 455 * (28.833 * 12) = 157.428.180 DKK

The tax information is also supplemented by wages paid to foreign construction workers employed by Danish enterprises on construction sites in foreign countries. The source for this information is the sample survey on international trade in services, which is a combination of monthly reports from approx. 400 firms and annual reports from approx. 1.300 firms conducted by Statistics Denmark since 2005. The companies are requested to report expenditures abroad on construction abroad in three subitems. These subitems are goods bought abroad, services bought abroad, and wages to foreign residents. It is specified that the wages should be reported gross of labour market and pension contributions.

At the moment we do not use data from the neighboring countries as a source for compensation of employees to and from the rest of the world. Some years ago we became aware that there was established cooperation regarding statistics on *Øresund Region* including an exchange of information on cross-border workers between Denmark and Sweden. We investigated this source closer and we concluded at that point, that it could potentially be used to improve receipts data (compensation of employees from the rest of the world). However this cooperation is suspended and this source is no longer accessible.

8.2 Taxes on production and imports paid to the Institutions of the EU

Taxes on production and imports - Customs duties, Import and Export duties on agricultural produce, and Duty on production of sugar - paid to the Institutions of the EU are recorded directly in the government accounts in gross terms, before the payment of the 25 % of the customs revenues which the Member States receive as a payment for the administrative services. The source is The Danish Tax Authority SKAT and the numbers are recorded on an accrual basis.

Contributions to the EU's third and fourth own resources, which are based on VAT and GNI respectively, are recorded as current transfers to the EU in our government accounts.

8.3 Subsidies granted by the institutions of the EU

Subsidies from the EU institutions are recorded on a detailed level in central government accounts. The subsidies are related to the European Agricultural Guarantee Fund (EAGF) and the European Agricultural Fund for Rural Development (EAFRD), The European Fisheries Fund (EFF), The European Regional Development Fund (ERDF), The European Social Fund (ESF), and The Cohesion Fund. The expenditure and revenue on the central government accounts related to these EU grants, where the beneficiaries are classified outside of general government, are not revenue and expenditure of general government in the national accounts.

The information is very reliable and is recorded on an accrual basis. Additional information on the different types of EU grants, which is used for the classification, is received from "NaturErhvervstyrelsen, Center for tilskud", which is the Danish authority designated to receiving grants from the EU.

8.4 Cross-border property income

8.4.1 Interest

Payments of interest income can be referred to two types of instruments: Loans and deposits and debt instruments. In Denmark the information for these two categories is as follows.

Loans and deposits: Main sources are the reporting by banks and mortgage banks and direct reporting by both financial and non-financial enterprises. Grossing up is used to estimate total figures for Denmark vis-à-vis the rest of the world.

Bills, bonds and other debt instruments: Main sources are security statistics and direct reporting by banks and mortgage banks and direct reporting by both financial and non-financial enterprises. Data from the CSDB for each individual security (by ISIN code) is used to calculating interest income. In accordance with BPM6 accrued interest on discounted and premium bonds is calculated, e.g. where the issuance price are either lower or higher than the amount to be repaid when the liability matures. The calculation used is based on the debtor approach, cf. BPM6 paragraph 11.52, and is applied on both Danish residents' holdings of bonds issued by non-residents and non-residents' holdings of bonds issued by Danish residents.

There is no correction for tax withheld at source of interest income received from and paid to the rest of the world. There is no such tax in Denmark and it is not common in other countries either. Also the information is not available from the CSDB.

In Danish tax legislation interest is taxed as current taxes on income of the holder of a debt instrument. So for interest there is no tax on interest withheld at source.

In our calculation of interest for debt instruments etc. no correction is made for tax withheld at source. There are two cases: First case is debt instruments issued by Danish residents and held by non-resident investors, here we calculate the interest which the issuer is obliged to pay to the investor and any tax payments on this interest is an issue between the non-resident investor and non-resident tax authorities (no crossborder effect). Second case is debt instrument issued by non-residents and held by Danish residents. Here we calculate the interest which the Danish investor had the right to receive and any tax on this interest are an issue between the Danish investor and the Danish tax authorities (no crossborder effect)

The FISIM correction is applied according to BPM6. Full consistency to the FISIM correction of foreign trade in financial services is secured in the BOP production system, cf. 3 and 5.

8.4.2 Distributed income of corporations

Dividends
Information on distributed income of Danish corporations is obtained from two sources. For listed companies the information is received from the VP Securities (Danish Central Depository Custodian) and for non-listed companies the information is collected by direct reporting.

Distributed income paid to Danish investors holding securities issued by non-residents is calculated by using reported information on their holdings (stocks) and information from the CSDB about the distributed income for each security.

No correction is made for withholding tax on income distributed to or received from the rest of the world. It is implicitly assumed that these taxes are always refunded to the relevant dividend recipients in either Denmark or the rest of the world.

8.4.2.1 Withdrawals from the income of quasi-corporations

After thorough investigations following transversal reservation *I The treatment of cross border property income,* it was concluded, that withdrawals from the income of quasi-corporations was not significant in the case of Denmark and that no estimate was needed.

Quasi-corporations in a direct investment relationship are treated in the same way as other direct investments and withdrawals are recorded according to ESA2010 4.58 e.g. before deduction of current taxes on income and wealth.

8.4.3 Reinvested earnings (RIE) of foreign direct investment (FDI)

Reinvested earnings on FDI are based on the direct reporting by Danish companies owned by non-residents (liabilities) or by Danish companies with foreign subsidiaries (assets). The population is updated by using information from an external data provider (Bureau van Dijk) on all transactions involving Danish companies and non-resident companies.

In the direct reporting an ownership share on 20 percent is being used even though BPM6 states that this should be 10 percent. The 20 percent threshold is in line with the Danish rules for a company's annual financial report. Very few investments between Denmark and the rest of the world are positioned between 10 and 20 percent. Estimates have been made which show that the (net-)effect on GNI is -0,005 percent.

Reinvested earnings are calculated as the reported total profit/loss less reported distributed dividend. In accordance with BPM6 a correction is made for net extraordinary revenue or expenditure to exclude holding gains/losses. In the direct reporting we get information on reinvested earnings in underlying subsidiaries for companies using historical cost price and this information is incorporated in the property income.

Statistics Denmark has summited a report to Eurostat on reinvested earnings and R&D regarding transversal reservation no. IV. Reinvested earnings on foreign direct investment. Eurostat is currently analyzing the report.

8.4.4 Other investment income

8.4.4.1 Investment income attributable to insurance policy holders

Investment income attributable to life- and pension-insurance policy holders is reported by Danish insurance companies in a quarterly survey. The distinction between resident and non-resident policy holders are reported in an annual survey. The information about the resident/non-resident dimension from the annual survey is used to distribute the quarterly data. Credit positions are assumed to be zero since the Danish tax rules favors pension saving in Danish pension funds, e.g. household can only get a tax deduction for pension savings in Danish pension funds.

Investment income attributable to non-life-insurance policy holders is compiled by Statistics Denmark. Basic data is reported by the Danish supervisory authorities. To establish the distinction between resident and non-resident

policy holders the reported premiums on direct as well as indirect insurance in the context of foreign trade in services is used.

8.4.4.2 Investment income payable on pension entitlements

All Danish collective pension schemes encountered are insurance-based and are therefore covered by the above.

8.4.4.3 Investment income attributable to collective investment fund shareholders

In accordance with BPM6 reinvested earnings are calculated for investment fund shares. Data reported by Danish investment funds can be used to calculate total investment income excluding holding gains and losses. The Danish investment funds also report distributed income, and so reinvested earnings can be calculated as total income less distributed income. Information on the resident/non-resident dimension is an integrated part of the reporting.

Regarding Danish residents' holdings of investment fund shares issued by non-residents no information on the total income generated by these investment funds is available. An estimation of reinvested income attributed to Danish residents' holdings of investment fund shares issued by non-residents is made based on data for Danish investment funds. It is assumed that the implicit rates of return for Danish and non-resident investment funds with the same investment profile are the same, and then the total income attributed to Danish residents from non-resident investment funds is calculated and distributed income subtracted in order to determine reinvested earnings.

8.4.4.4 Rent on land and sub-soil assets

According to the criteria in ESA2010, no transactions are registered.

9. Main classifications used

9.0 Classifications used for the production approach

Table 9.1 shows the link between the national accounts' grouping by industry and the NACE Rev. 2. There are five levels for publication of the final national accounts, covering 117, 69, 36a2, 19a2 and 10 industries respectively.

Table 9.1 includes references to Statistics Denmark's standard grouping at 127-industry level – a level of aggregation not used in the national accounts. The connection between the 127 standard grouping and the most detailed six-digit DK-NACE industries is documented in the publication "*Dansk Branchekode 2007*" published by Statistics Denmark, annexes 1 and 2 of which include the aggregation key.

There are two reasons why the national accounts cannot use the 127 standard grouping as their most detailed level of publication. Firstly, it does not match the functional breakdown of construction activity in the national accounts, and secondly, within some of the 127 groups, the national accounts need to separate market activity and output for own use from (other) non-market activity.

Table 9.1 Industry groupings

Grupperinger						Dansk branchekode 2007 (DB07)	
10a3	19a2	36a2	69	117		127-standard grp.	
A	**A**	**A**			**Landbrug, skovbrug og fiskeri**		**Agriculture, forestry, fishing**
			01000	010000	Landbrug og gartneri	01000	Agriculture and horticulture
			02000	020000	Skovbrug	02000	Forestry
			03000	030000	Fiskeri	03000	Fishing
B	**B**	**B**	**06090**		**Råstofindvinding**		**Mining and quarrying**
				060000	Indvinding af olie og gas	06000	Extraction of oil and gas
				080090	Indvinding af grus og sten	08009	Extraction of gravel and stone
				090000	Service til råstofindvinding	09000	Mining support service
C	**C**				**Industri**		**Manufacturing**
		CA	**10120**		**Føde-, drikke-, tobaksvare**		**Manufacture of food, tobacco**
				100010	Slagterier	10001	Production of meat
				100020	Fiskeindustri	10002	Processing of fish
				100030	Mejerier	10003	Manufacture of dairy products
				100040	Bagerier, brødfabrikker mv.	10004	Manufacture of bakery products
				100050	Anden fødevareindustri	10005	Other manufacture of food
				110000	Drikkevareindustri	11000	Manufacture of beverages
				120000	Tobaksindustri	12000	Manufact. of tobacco products
		CB	**13150**		**Tekstil- og læderindustri**		**Textiles and leather products**
				130000	Tekstilindustri	13000	Manufacture of textiles
				140000	Beklædningsindustri	14000	Manufacture of wearing apparel
				150000	Læder- og fodtøjsindustri	15000	Manufacture of footwear etc.
		CC			**Træ-, papirindustri, trykkeri**		**Wood and paper products**
			16000	160000	Træindustri	16000	Manufacture of wood etc.
			17000	170000	Papirindustri	17000	Manufacture of paper etc.
			18000	180000	Trykkerier mv.	18000	Printing etc.
		CD	**19000**	190000	**Olieraffinaderier mv.**	19000	**Oil refinery etc.**
		CE	**20000**		**Kemisk industri**		**Manufacture of chemicals**
				200010	Fremst. af basiskemikalier	20001	Manufacture of basic chemicals
				200020	Fremst. af maling og sæbe mv.	20002	Manufact. of paints, soap etc.
		CF	**21000**	210000	**Medicinalindustri**	21000	**Pharmaceuticals**
		CG			**Plast-, glas- og betonindustri**		**Manufacture of plastic, glass**
			22000	220000	Plast- og gummiindustri	22000	Manufacture of rubber etc.
			23000		Glas- og betonindustri		Manuf.of glass, concrete etc.
				230010	Glas-, keramisk industri	23001	Manufacture of glass etc.
				230020	Betonindustri og teglværker	23002	Manufacture of concrete etc.
		CH			**Metalindustri**		**Basic metals, metal products**
			24000	240000	Fremst. af metal	24000	Manufacture of basic metals
			25000	250000	Metalvareindustri	25000	Manufact. of fabricated metal
		CI	**26000**		**Elektronikindustri**		**Manufacture of electronics**
				260010	Fremst. af it-udstyr	26001	Manufact. of computers, etc.
				260020	Fremst. af anden elektronik	26002	Manufact. of other electronics
		CJ	**27000**		**Fremst. af elektrisk udstyr**		**Electrical equipment**
				270010	Fremst. af el-motorer mv.	27001	Manufacture of motors, etc.
				270020	Fremst. af ledninger og kabler	27002	Manufacture of wires, cables
				270030	Fremst. af husholdningsapp.	27003	Manuf.of household appl. etc.
		CK	**28000**		**Maskinindustri**		**Manufacture of machinery**
				280010	Fremst. af motorer, vindmøller	28001	Manufacture of engines etc.
				280020	Fremst. af andre maskiner	28002	Manufacture of other machinery
		CL			**Transportmiddelindustri**		**Transport equipment**
			29000	290000	Fremst. af motorkøretøjer	29000	Manuf. of motor vehicles etc.
			30000	300000	Fremst. andre transportmidler	30000	Mf. of ships, transport equip.
		CM			**Møbel og anden industri mv.**		**Manufacture of furniture etc.**
			31320		Møbel og anden industri		Manuf.of furniture,other manuf
				310000	Møbelindustri	31000	Manufacture of furniture
				320010	Fremst. af medicinsk udstyr	32001	Manufact. of med. instruments
				320020	Fremst. af legetøj mv.	32002	Manufacture of toys, etc.
			33000	330000	Rep. og inst. af maskiner mv.	33000	Repair, inst. of machinery etc

Table 9.1 (continued) **Industry groupings**

Grupperinger						Dansk branchekode 2007 (DB07)	
10a3	19a2	36a2	69	117		127-standard grp.	
D-E					**Forsyningsvirksomhed**		**Utility services**
	D	**D**	**35000**		**Energiforsyning**		**Electricity, gas and steam**
				350010	Elforsyning	35001	Prod., distrib. of electricity
				350020	Gasforsyning	35002	Manuf.and distribution of gas
				350030	Varmeforsyning	35003	Steam and hot water supply
	E	**E**			**Vandforsyning og renovation**		**Water, sewerage and waste**
			36000	360000	Vandforsyning	36000	Water collect.purification etc
			37390		Renovation, affaldsbehandl.mv.		Sewerage,waste collection etc.
				370000	Kloak- og rensningsanlæg	37000	Sewerage
				383900	Renovation,genbrug,foruren.bek	38000 og 39000	Waste and materials
F	**F**	**F**	**41430**		**Bygge og anlæg**		**Construction**
				410009	Nybyggeri	NR-Definition	Construction of new buildings
				420000	Anlægsvirksomhed	NR-Definition	Civil engeneering
				430003	Professionel rep. og vedligeh.	NR-Definition	Professional repair and maint.
				430004	Gør-det-selv rep.og vedligeh.	NR-Definition	Own-account repair and maint.
G-I					**Handel og transport mv.**		**Trade and transport etc.**
	G	**G**			**Handel**		**Wholesale and retail trade**
			45000		**Bilhandel og -værksteder mv.**		**Sale, repair of motor vehicles**
				450010	Bilhandel	45001	Sale of motor vehicles
				450020	Bilværksteder mv.	45002	Repair etc. of motor veh. etc.
			46000	460000	Engroshandel	46xxx	Wholesale
			47000	470000	Detailhandel	47xxx	Retail sale
	H	**H**			**Transport**		**Transportation**
			49000		**Landtransport**		**Land transport, pipelines**
				490010	Regional- og fjerntog	49001	Passenger rail transport etc.
				490020	Lokaltog, bus og taxi mv.	49002	Transp.by suburban trains etc.
				490030	Fragtvognmænd og rørtransport	49003	Road and pipeline transport
			50000	500000	Skibsfart	50000	Water transport
			51000	510000	Luftfart	51000	Air transport
			52000	520000	Hjælpevirksomhed til transport	52000	Support activities for transp.
			53000	530000	Post og kurertjeneste	53000	Postal and courier activities
	I	**I**	**55560**		**Hoteller og restauranter**		**Accommodation, food service**
				550000	Hoteller mv.	55000	Hotels, similar accommodation
				560000	Restauranter	56000	Restaurants
J	**J**				**Information og kommunikation**		**Information and communication**
		JA			**Forlag, tv og radio**		**Publishing, tv and radio**
			58000		**Udgivervirksomhed**		**Publishing activities**
				580010	Forlag	58001	Publishing
				580020	Udgivelse af computerspil mv.	58002	Publishing,computer games etc.
			59600		**Radio,TV,Film-,tv-,musik-prod.**		**Radio,TV.Movie,video,sound pub**
				590000	Prod/uds., radio,tv,film,musik	59000	Motion picture, tv and sound
				600000	Radio- og tv-stationer	60000	Radio, television broadcasting
		JB	**61000**	610000	**Telekommunikation**	61000	**Telecommunications**
		JC	**62630**		**It- og informationstjenester**		**IT and information service**
				620000	It-konsulenter mv.	62000	Information technology service
				630000	Informationstjenester	63000	Information service activities
K	**K**	**K**			**Finansiering og forsikring**		**Financial and insurance**
			64000		**Finansiel virksomhed**		**Financial service activities**
				640010	Pengeinstitutter	64001	Monetary intermediation
				640020	Kreditforeninger mv.	64002	Mortgage credit institutes etc
			65000	650000	Forsikring og pension	65000	Insurance and pension funding
			66000	660000	Finansiel service	66000	Other financial activities
LA	**LA**	**LA**			**Ejend.hand.,udl.af erhv.ejend.**		**Real estate;rent.of non-res.b.**
			68100	680010	Ejendomsmæglere mv.	68001	Buying, selling of real estate
			68300	680030	Udlejning af erhvervsejendomme	68003	Renting, non-resid. buildings

LB	**LB**	**LB**			**Boliger**		**Dwellings**
			68203	680023	Boliger, husleje i lejebolig	68002, del	Renting of resident. buildings
			68204	680024	Boliger, ejerbolig mv.	68002, del	Owner-occupied dwellings

Table 9.1 (continued) **Industry groupings**

Grupperinger						Dansk branchekode 2007 (DB07)	
10a3	**19a2**	**36a2**	**69**	**117**		**127-standard grp.**	
M-N					**Erhvervsservice**		**Other business services**
	M				**Videnservice**		**Knowledge-based services**
		MA			**Rådgivning mv.**		**Consultancy etc.**
			69700		**Advokat,revisor,virksomh-kons.**		**Legal, account.,cons.activit.**
				690010	Advokatvirksomhed	69001	Legal activities
				690020	Revision og bogføring	69002	Accounting and bookkeeping
				700000	Virksomhedskonsulenter	70000	Business consultancy
			71000	710000	**Arkitekter og rådg. ingeniører**	71000	**Architecture and engineering**
		MB			**Forskning og udvikling**		**Research and development**
			72001	720001	Forskning og udv., markedsmæss	72000, del	Research and developm.(market)
			72002	720002	Forskning og udv., ikke-marked	72000, del	Research and dev. (non-market)
		MC			**Reklame o.a. erhvervsservice**		**Advertising and other services**
			73000	730000	Reklame- og analysebureauer	73000	Advertising, market research
			74750		**Dyrlæger og anden videnservice**		**Oth.techn.serv.,veterinary act**
				740000	Anden videnservice	74000	Other technical business serv.
				750000	Dyrlæger	75000	Veterinary activities
	N	**N**			**Rejsebureauer, rengøring mv**		**Travel agent, cleaning, etc.**
			77000	770000	Udlejn. og leasing af materiel	77000	Rental and leasing activities
			78000	780000	Arbejdsformid., vikarbureauer	78000	Employment activities
			79000	790000	Rejsebureauer	79000	Travel agent activities
			80820		**Rengøring, anden forr.service**		**Cleaning, other business serv.**
				800000	Vagt og sikkerhedstjeneste	80000	Security and investigation
				810000	Ejendomsservice mv.	81000	Services to buildings,cleaning
				820000	Anden operationel service	82000	Other business services
O-Q					**Off. adm, undervisn., sundhed**		**Public adm., education, health**
	O	**O**			**Off. adm., forsvar, politi**		**Public adm., defence etc.**
			84202		**Offentlig administration mv.**		**Public administration ect.**
				840010	Offentlig administration	84001	Public administration
				840022	Forsvar,politi,retsv.ikke-mark	84002, del	Defence,publ.order(non-market)
			84101	840021	**Redningskorps mv., markedsm.**	84002, del	**Rescue service ect. (market)**
	P	**P**			**Undervisning**		**Education**
			85202		**Undervisning, ikke makedsm.**		**Education (non-market)**
				850010	Grundskoler	85001	Primary education
				850020	Gymnasier, erhvervsskoler	85002	Secondary education
				850030	Videregående udd.institutioner	85003	Higher education
				850042	Voksenundervisn.,ikke-markeds	85004, del	Adult-,other educ.(non-market)
			85101	850041	**Voksenundervisn.mv, markedsm.**	85004, del	**Adult-,other education(market)**
	Q				**Sundhed og socialvæsen**		Human health; social work
		QA	**86000**		**Sundhedsvæsen**		**Human health activities**
				860010	Hospitaler	86001	Hospital activities
				860020	Læger, tandlæger mv.	86002	Medical and dental practice
		QB	**87880**		**Sociale institutioner**		**Residential care**
				870000	Plejehjem mv.	87000	Residential care activities
				880000	Daginstitutioner, -centre mv.	88000	Social work without accommod.
R-S					**Kultur, fritid, anden service**		**Arts, entertainm. oth.service**
	R	**R**			**Kultur og fritid**		**Arts and entertainment etc.**
			90920		**Kunst, kultur og spil**		**Arts,entertainm.,other culture**
				900000	Teater, musik og kunst	90000	Theatres, concerts, and arts
				910001	Biblioteker,museer, markedsm.	91000, del	Libraries, museums (market)
				910002	Biblioteker,museer,ikke-marked	91000, del	Libraries, museums(non-market)
				920000	Lotteri og andet spil	92000	Gambling and betting
			93000		**Sport,forlystelser,fritidsakt.**		**Sports, amusement, recration**
				930011	Sport, markedsmæssig	93001, del	Sports activities (market)

			930012	Sport, ikke- markedsmæssig	93001, del	Sports activities (non-market)
			930020	Forlystelsesparker mv.	93002	Amusement and recreation
SA	**SA**			**Andre serviceydelser**		**Other service activities**
		94000	940000	Organisationer og foreninger	94000	Activities of membership org.
		95000	950000	Rep. af husholdningsudstyr	95000	Repair of personal goods
		96000	960000	Frisører, vaskerier mv.	96000	Other personal services
SB	**SB**	**97000**	970000	**Private husholdn. med ansatte**	97000	**Households as employers**

9.1 Classifications used for the income approach

Classifications used for GDP compiled by the income approach are the same as classifications used for GDP compiled by the production approach.

Compensation of employees, other taxes on production and imports and other subsidies on production, are all compiled at the national accounts 117 industry level, cf. section 9.1. Therefore, gross operating surplus and mixed income are also compiled at this level.

Consumption of fixed capital is compiled at the national accounts 69 industry level, cf. section 9.1, as this is the most detailed breakdown of gross fixed capital formation.

9.2 Classifications used for the expenditure approach

The most important classifications used for GDP compiled by the expenditure approach are:

- Household final consumption expenditure (72 groups) according to COICOP (table 9.2)
- Gross Fixed Capital Formation by type of asset (table 9.3) (13 asset types)
- Government final consumption expenditure according to COFOG (10 groups) (table 9.4)

Tables 9.5, 9.6 and 9.7 show the relationships between the national accounts consumption grouping and COICOP 2 and COICOP.

Table 9.2 Household Final Consumption Expenditure

Grupperinger					
11	**41**	**72**	**Varighed**		
A	**011**			**Fødevarer**	**Food**
		01110	IV	Brød og kornprodukter	Bread and cereals
		01120	IV	Kød	Meat
		01130	IV	Fisk	Fish
		01141	IV	Æg	Eggs
		01142	IV	Mælk, fløde, yoghurt mv.	Milk, cream, yoghurt etc.
		01143	IV	Ost	Cheese
		01150	IV	Olie og fedtstoffer	Oils and fats
		01167	IV	Frugt og grøntsager	Fruit and vegetables except potatoes
		01179	IV	Kartofler mv.	Potatoes etc.
		01181	IV	Sukker	Sugar
		01182	IV	Is, chokolade og sukkervarer	Ice cream, chocolate and confectionery
		01190	IV	Næringsmidler i.a.n.	Food products n.e.c.
B				**Drikkevarer og tobak mv.**	**Beverages and tobacco**
	012			**Ikke-alkoholiske drikkevarer**	**Non-alcoholic beverages**
		01210	IV	Kaffe, te og kakao	Coffee, tea and cocoa
		01220	IV	Mineralvand, sodavand, juice samt frugt- og grønsagssaft	Mineral waters, soft drinks, fruit and vegetable juices
	021			**Alkoholiske drikkevarer**	**Alcoholic beverages**
		02112	IV	Vin og spiritus	Spirits and wine
		02130	IV	Øl	Beer
	022	02900	IV	**Tobak mv.**	**Tobacco etc.**
C				**Beklædning og fodtøj**	**Clothing and footwear**
	031			**Beklædning**	**Clothing**

		03113	HV	Beklædningsartikler	Articles of clothing
		03140	T	Rensning, reparation og leje af beklædning	Cleaning, repair and hire of clothing
	032	03200	HV	**Fodtøj**	**Footwear**
D				**Boligbenyttelse**	**Housing**
	041	04100	T	**Husleje**	**Actual rentals for housing**
	042	04200	T	**Beregnet husleje af egen bolig**	**Imputed rentals for housing**
	043	04300	T	**Reparation og vedligeholdelse af boligen**	**Maintenance and repair of the dwelling**
	044			**Vandforsyning og andre tjenesteydelser i relation til boligen**	**Water supply and miscellaneous services relating to the dwelling**
		04401	T	Vand og vandafledningsafgift	Water supply and sewerage services
		04402	T	Renovation mv.	Refuse collection, other services n.e.c.
E	**045**			**Elektricitet, gas og andet brændsel**	**Electricity, gas and other fuels**
		04510	IV	Elektricitet	Electricity
		04520	IV	Gas	Gas
		04530	IV	Flydende brændsel	Liquid fuels
		04545	IV	Fjernvarme mv.	Hot water, steam etc.
F				**Boligudstyr, husholdningsudstyr og vedl. heraf**	**Furn., househ. equipm.,routine househ. maint.**
	051	05100	V	**Møbler og gulvtæpper mv.**	**Furniture, furnishings, carpets etc.**
	052	05200	HV	**Boligtekstiler**	**Household textiles**
	053			**Husholdsapparater og vedligeholdelse heraf**	**Household appliances**
		05312	V	Husholdningsapparater	Household appliances
		05330	T	Vedligeholdelse af husholdningsapparater	Repair of major household appliances
	054	05400	HV	**Glas, service og husholdningsredskaber**	**Glassware, tableware and household utensils**
	055	05500	HV	**Værktøj og udstyr til hus og have**	**Tools and equipment for house and garden**
	056			**Andre varer og tjenester til husholdningen**	**Goods and services for routine household maintenance**
		05610	IV	Rengøringsmidler mv.	Non-durable household goods
		05620	T	Hushjælp mv.	Domestic services and home care services
G				**Medicin, lægeudgifter o.l.**	**Medical products, health services**
	061			**Medicinske produkter, apparater og medicinsk udstyr**	**Medical products, appliances and equipment**

Table 9.2 (continued) Household Final Consumption Expenditure

Grupperinger					
11	**41**	**72**	**Varighed**		
		06112	IV	Medicin, vitaminer mv.	Pharmaceutical products and other medical products
		06130	V	Briller, høreapparater mv.	Therapeutic appliances and equipment
	062	06200	T	**Læge, tandlæge mv.**	**Out-patient services**
	063	06300	T	**Hospitalers tjenesteydelser**	**Hospital services**
H	**071**	07100	V	**Køb af køretøjer**	**Purchase of vehicles**
I				**Anden transport og kommunikation**	**Other transport and communication**
	072			**Drift af køretøjer**	**Operation of personal transport equipment**
		07213	T	Vedligeholdelse af køretøjer	Maintenance and repair of vehicles
		07220	IV	Brændstof og smøremidler til køretøjer	Fuels and lubricants for personal transport equipment
		07240	T	Andre tjenesteydelser vedrørende køretøjer	Other services in respect of personal transport equipment
	073	07300	T	**Transporttjenester**	**Transport services**
	081	08100	T	**Posttjenester**	**Postal services**
	082	08200	T	**Telefon- og datakommunikationsudstyr**	**Telephone and data communication equipment**
	083	08300	T	**Telefon- og datakommunikationstjenester**	**Telephone and data communication services**
J				**Fritidsudstyr, underholdning og rejser**	**Recreation and culture**
	091			**Elektronisk fritidsudstyr mv.**	**Audio-visual, photographic and inform. proc. equipment**
		09110	V	Radio- og tv-apparater mv.	Radio and television sets etc.
		09120	V	Fotoudstyr, videokameraer mv.	Photographic equipment etc.
		09130	V	Pc'ere mv.	Data processing equipment
		09140	HV	Cd'ere, dvd'ere mv.	Recording media for pictures and sound

		09150	T	Reparation af radio, tv, pc mv.	Repair of a/v and data processing equipment
	092	09200	V	**Andre større forbrugsgoder i forb. med fritid og kultur**	**Other major durables for recreation and culture**
	093	09300	HV	**Andet tilbehør og udstyr til fritid, haver og kæledyr**	**Other recreational items and equipment, gardens and pets**
	094	09400	T	**Forlystelser, tv-licens mv.**	**Recreational and cultural services**
	095			**Aviser, bøger og papirvarer**	**Newspapers, books and stationery**
		09513	IV	Bøger, aviser, tidskrifter og blade	Books, newspapers, periodicals and misc. printed matter
		09530	HV	Papirvarer og tegnematerialer	Stationery and drawing materials etc.
	096	09600	T	**Pakkede ferierejser**	**Package holidays**
K				**Andre varer og tjenester**	**Other goods and services**
	100	10000	T	**Undervisning**	**Education**
	111	11100	T	**Restauranter, caféer mv.**	**Catering services**
	112	11200	T	**Hoteller mv.**	**Accommodation services**
	121			**Personligt pleje**	**Personal care**
		12110	T	Frisører mv.	Hairdressing salons and personal grooming establishments
		12123	HV	Toiletartikler, barbermaskiner mv.	Appliances, articles and products for personal care
	123			**Personlige effekter i.a.n.**	**Personal effects n.e.c.**
		12310	V	Smykker og ure mv.	Jewellery, clocks and watches
		12320	HV	Andre personlige effekter	Other personal effects
	124			**Social beskyttelse**	**Social protection**
		12401	T	Plejehjem, dagcentre mv.	Retirement homes, day-care centres etc.
		12402	T	Daginstitutioner for børn	Kindergartens, creches etc.
	125	12500	T	**Forsikring**	**Insurance**
	126	12600	T	**Finansielle tjenester i.a.n.**	**Financial services n.e.c.**
	127	12700	T	**Advokater, andre tjenesteydelser i.a.n.**	**Other services n.e.c.**
				Turistbalance	**Balance of tourism, net**
P33				**Turistudgifter**	**Final consumption of residents in the ROW**
P34				**Turistindtægter**	**Final cons. of non-residents on the economic territory**

V	Varige	Durable
HV	Halvvarige	Semi-durable
IV	Ikke varige	Non-durable
T	Tjenester	Services

Table 9.3 GFCF classified by type of asset

1	Dwellings
2	Buildings other than dwellings
3	Other structures and land improvements
4	Transport equipment
5	ICT equipment, other machinery and equipment and weapon systems
6	of which ICT equipment
7	of which Computer hardware
8	of which Telecommunication equipment
9	of which Other machinery and equipment and weapon systems
10	Cultivated biological resources
11	Intellectual property products
12	of which Research and development
13	of which Mineral exploration and evaluation
14	of which Computer software and databases
15	of which Entertainment, literary or artistic originals and other intellectual property products

Table 9.4 Government final collective consumption expenditure according to COFOG

01	General public services
02	Defence
03	Public order and safety
04	Economic affairs
05	Envirommental protection
06	Housing and community amenitis
07	Health
08	Recreation, culture and religion
09	Education
10	Social protection

Table 9.5 Link between consumption grouping and coicop for NPISH consumption expenditure

Main group	Consumption group	Durability	Text	4-digit coicop
G	06300	(Services)	Hospital services	13.2.7
J	09400	(Services)	Recreational and cultural services	13.3
K	10000	(Services)	Education	13.4
K	12401	(Services)	Retirement homes, day-care centres etc.	13.5
K	12402	(Services)	Kindergartens, creches etc.	13.5

Table 9.6 Link between consumption grouping and coicop for government final individual consumption expenditure (non-market)

Main group	Consumption group	Durability	Text	4-digit coicop
G	06130	(Non-durable)	Therapeutic appliances and equipment	14.2.3
G	06200	(Services)	Out-patient services	14.2.4
				14.2.5
				14.2.6
G	06300	(Services)	Hospital services	14.2.7
J	09400	(Services)	Recreational and cultural services	14.3
K	10000	(Services)	Education	14.4
K	12401	(Services)	Retirement homes, day-care centres etc.	14.5
K	12402	(Services)	Kindergartens, creches etc.	14.5

Table 9.7 Link between consumption grouping and coicop for household final consumption expenditure

Main group	Consumption group	Durability	Text	4-digit coicop
A	01110	(Non-durable)	Bread and cereals	01.1.1
A	01120	(Non-durable)	Meat	01.1.2
A	01130	(Non-durable – Seas. products)	Fish	01.1.3
A	01141	(Non-durable	Eggs	01.1.4
A	01142		Milk, cream, yoghurt etc.	
A	01143		Cheese	
A	01150	(Non-durable)	Butter, oils and fats	01.1.5
A	01167	(Non-durable – Seas. products)	Fruit and vegetables except potatoes	01.1.6
A	01179	(Non-durable – Seas. products)	Potatoes etc.	01.1.7
A	01181	(Non-durable)	Sugar	01.1.8
A	01182		Ice cream, chocolate and confectionery	
A	01190	(Non-durable)	Food products n.e.c.	01.1.9
B	01210	(Non-durable)	Coffee, tea and cocoa	01.2.1
B	01220	(Non-durable)	Mineral waters, soft drinks and juices	01.2.2
		(Non-durable)		02.1.1
B	02112	(Non-durable)	Wine and spirits	02.1.2
B	02130	(Non-durable)	Beer	02.1.3
B	02900	(Non-durable)	Tobacco	02.2.0
B	02900		Narcotics	02.3.0
C	03113	(Semi-durable)	Garments and clothing materials etc.	03.1.1
		(Semi-durable)		03.1.2
		(Semi-durable)		03.1.3
C	03140	(Services)	Laundering, dry cleaning etc.	03.1.4
C	03200	(Semi-durable)	Footwear	03.2.1
				03.2.2
D	04100	(Services)	Actual rentals for housing	04.1.1

				04.1.2
D	04200		Imputed rentals for housing	04.2.1
				04.2.2
D	04300	(Non-durable)	Reg. maint. and repair of the dwelling	04.3.1
		(Services)		04.3.2
D	04401	(Non-durable)	Water supply and sewerage services	04.4.1
D	04402	(Services)	Refuse collection, other services n.e.c.	04.4.2
		(Services)		04.4.3
		(Services)		04.4.4
E	04510	(Non-durable - Energy)	Electricity	04.5.1
E	04520	(Non-durable - Energy)	Gas	04.5.2
E	04530	(Non-durable - Energy)	Liquid fuels	04.5.3
		(Non-durable - Energy)		04.5.4
E	04545	(Non-durable - Energy)	Hot water, steam etc.	04.5.5
F	05100	(Durable)	Furniture, furnishings, carpets etc.	05.1.1
		(Durable)		05.1.2
		(Services)		05.1.3
F	05200	(Semi-durable)	Household textiles	05.2.0
F	05312	(Durable)	Major household appliances	05.3.1
		(Semi-durable)		05.3.2
F	05330	(Services)	Repair of major household appliances	05.3.3
F	05400	(Semi-durable)	Glass, tableware and household utensils	05.4.0
F	05500	(Durable)	Tools and equipment for house and garden	05.5.1
		(Semi-durable)		05.5.2
F	05610	(Non-durable)	Non-durable household goods	05.6.1
F	05620	(Services)	Domestic services and home care services	05.6.2
G	06112	(Non-durable)	Medical and pharmaceutical products	06.1.1
		(Non-durable)		06.1.2
G	06130	(Non-durable)	Therapeutic appliances and equipment	06.1.3
G	06200	(Services)	Out-patient services	06.2.1
		(Services)		06.2.2
		(Services)		06.2.3
G	06300	(Services)	Hospital services	06.3.0
H	07100	(Durable)	Purchase of vehicles	07.1.1
		(Durable)		07.1.2
		(Durable)		07.1.3
		(Durable)		07.1.4
I	07213	(Semi-durable)	Maintenance and repairs of motor vehicles	07.2.1
I	07220	(Non-durable - Energy)	Fuels and lubricants	07.2.2
		(Services)		07.2.3
I	07240	(Services)	Other serv. in respect of prs. trans. equip.	07.2.4
I	07300	(Services)	Transport services	07.3.1
		(Services)		07.3.2
		(Services)		07.3.3
		(Services)		07.3.4
		(Services)		07.3.5
		(Services)		07.3.6
I	08100	(Services)	Postal services	08.1.0
I	08200	(Services)	Telephone and telefax equipment	08.2.0

Table 9.6 (continued) Link between consumption grouping and coicop

I	08300	(Services)	Telephone and telefax services	08.3.0
J	09110	(Durable)	Radio and television sets etc.	09.1.1
J	09120	(Durable)	Photographic equipment etc.	09.1.2
J	09130	(Durable)	Data processing equipment	09.1.3
J	09140	(Semi-durable)	Recording media for pictures and sound	09.1.4
J	09150	(Services)	Repair of a/v and data proces. equipment	09.1.5
J	09200	(Durable)	Other durables for recreation and culture	09.2.1
		(Durable)		09.2.2
		(Services)		09.2.3
J	09300	(Semi-durable)	Other recreational items and equipment	09.3.1
		(Semi-durable)		09.3.2
		(Non-durable)		09.3.3

		(Non-durable)		09.3.4
		(Non-durable)		09.3.5
J	09400	(Services)	Recreational and cultural services	09.4.1
		(Services)		09.4.2
		(Services)		09.4.3
J	09513	(Semi-durable)	Books, newspapers and periodicals	09.5.1
		(Non-durable)		09.5.2
		(Non-durable)		09.5.3
J	09540	(Non-durable)	Stationery and drawing materials etc.	09.5.4
J	09600	(Services)	Package holidays	09.6.0
K	10000	(Services)	Education	10.1.0
		(Services)		10.2.0
		(Services)		10.3.0
		(Services)		10.4.0
		(Services)		10.5.0
K	11100	(Services)	Catering	11.1.1
		(Services)		11.1.2
K	11200	(Services)	Accommodation services	11.2.0
K	12110	(Services)	Hairdressing salons etc.	12.1.1
K	12123	(Non-durable)	Appliances, articles for personal care	12.1.2
		(Non-durable)		12.1.3
K	12700	(Services)	Prostitution	12.2.0
K	12310	(Durable)	Jewellery, clocks and watches	12.3.1
K	12320	(Semi-durable)	Other personal effects	12.3.2
K	12401	(Services)	Retirement homes, day-care centres etc.	12.4.0
K	12402	(Services)	Kindergartens, creches etc.	
K	12500	(Services)	Insurance	12.5.1
		(Services)		12.5.2
		(Services)		12.5.3
		(Services)		12.5.4
		(Services)		12.5.5
K	12600	(Services)	Actual financial services n.e.c.	12.6.1
		(Services)		12.6.2
K	12700	(Services)	Other services n.e.c.	12.7.0

9.3 Classifications used in the transition from GDP to GNI

No other standard classifications than those given in ESA2010 are used for compiling the transition from GDP to GNI.s

10. Main data sources used

10.0 Statistical surveys and other data sources used for the production approach

The sources used for the production approach are:

- Accounts Statistics for Non-Agricultural Private Sector
- General Government Finances
- Public Sector Finances
- Economic Accounts for Agriculture
- Industrial Accounts Statistics
- Accounting Statistics for public corporations
- Industry-specific accounts statistics
- SLS-E statistics

Below are links to Statistics Denmark's most important Documentation of statistics.
The most important sources are:

- Accounts Statistics for Non-Agricultural Private Sector
- General Government Finances
- Public Sector Finances

10.0.1 Documentation of Statistics for Accounts Statistics for Non-Agricultural Private Sector

The relevant Documentation of Statistics for Accounts Statistics for Non-Agricultural Private Sector for the final year 2017 is "Documentation of statistics for Accounts Statistics for Non-Agricultural Private Sector 2017" which can be found in the archive by using the link below:

https://www.dst.dk/en/Statistik/dokumentation/documentationofstatistics/accounts-statistics-for-non-agricultural-private-sector

10.0.2 Documentation of Statistics for General Government Finances

The relevant Documentation of Statistics for General Government Finances for the final year 2017 is "Documentation of statistics for General Government Finances 2019" which can be found in the archive by using the link below:

https://www.dst.dk/en/Statistik/dokumentation/documentationofstatistics/general-government-finances

10.0.3 Documentation of Statistics for the Public Sector Finances

The relevant Documentation of Statistics for Public Sector Finances for the final year 2017 is "Documentation of statistics for The Public Sector Finances 2019" which can be found in the archive by using the link below:

https://www.dst.dk/en/Statistik/dokumentation/documentationofstatistics/the-public-sector-finances

10.1 Statistical surveys and other data sources used for the income approach

The sources used for the income approach are:

- Documentation of Statistics for the Annual and Quarterly Working Time Accounts
- Documentation of Statistics for Employment, Compensation of Employees and Hours Worked

Below is link to Statistics Denmark's most important Documentation of statistics.

10.1.1 Documentation of Statistics for the Annual and Quarterly Working Time Accounts

The relevant Documentation of Statistics for Annual and Quarterly Working Time Accounts for the final year 2017 is "Documentation of statistics for Working time accounts 2018" which can be found in the archive by using the link below:

https://www.dst.dk/en/Statistik/dokumentation/documentationofstatistics/working-time-accounts

10.2 Statistical surveys and other data sources used for the expenditure approach

The sources used for the expenditure approach are:
• Household-budget-survey
• International-trade-in-goods
• International-trade-in-service
• Retail-trade-index
• Census-of-housing
• Construction
• Construction-cost-index-for-residential-buildings
• Construction-cost-indices-for-civil-engineering-projects
• Ict-expenditure-in-enterprises.aspx
• VAT statistics
• Survey of housing rentals
• Housing survey
• Energy statistics
• Statistics on financial institutions (financial services)
• Statistics on public finances (user payments to public institutions)
• Tax statistics (quantities of goods on which excise duties are levied)
• Balance of payments statistics (tourist revenue and expenditure)
• ERE [establishment-related employment statistics] estimates of total wages and salaries
• Agricultural statistics
• Public finance statistics
• Accounts statistics for industries predominated by public corporations
• Index of construction costs
• Product statistics for the IT industries
• ICT expenditure
• Industrial accounts statistics
• Specific industry statistics
• Media statistics
• Register of motor vehicles
• Register of vessels
• Register of aircrafts
• Industrial commodity statistics
• SLS-E statistics
• Accounting statistics for industries where public corporations predominate
• Balance of payments statistics
• Settlements statistics from the Nationalbank
• Accounts statistics for sea water transport.

Below are links to Statistics Denmark's most important Documentation of statistics.
The most important sources are:
• Household-budget-survey
• International-trade-in-goods
• International-trade-in-service

10.2.1 Documentation of Statistics for the Household-budget-survey

The relevant Documentation of Statistics for Household-budget-survey for the final year 2017 is “Documentation of statistics for Household Budget Survey 2017” which can be found in the archive by using the link below:

https://www.dst.dk/en/Statistik/dokumentation/documentationofstatistics/household-budget-survey

10.2.2 Documentation of Statistics for International-trade-in-goods

The relevant Documentation of Statistics for International-trade-in-goods for the final year 2017 is “Documentation of statistics for International Trade in Goods 2017” which can be found in the archive by using the link below:

https://www.dst.dk/en/Statistik/dokumentation/documentationofstatistics/international-trade-in-goods

10.2.3 Documentation of Statistics International-trade-in-service

The relevant Documentation of Statistics for International-trade-in-service for the final year 2017 is “Documentation of statistics for International Trade in Services 2020” which can be found by using the link below:

https://www.dst.dk/en/Statistik/dokumentation/documentationofstatistics/international-trade-in-services

10.3 Statistical surveys and other data sources used for the transition from GDP to GNI

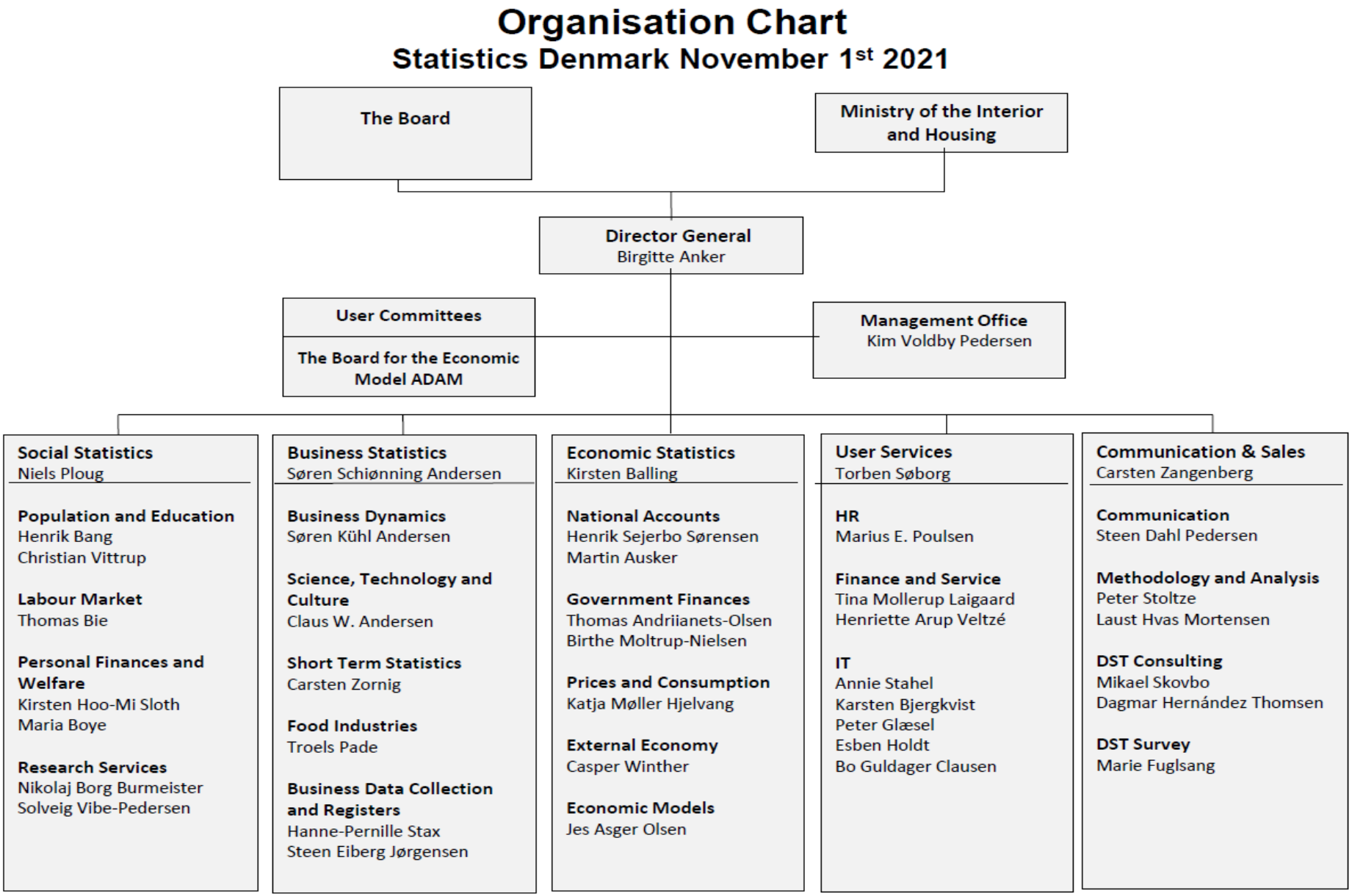
The sources used for the transition from GDP to GNI are:
• Balance of Payments
Below is a link to Statistics Denmark’s Documentation of Statistics.

10.3.1 Documentation of Statistics for the Balance of Payments

The relevant Documentation of Statistics for International-trade-in-service for the final year 2017 is “Documentation of statistics for Balance of Payments 2020” which can be found by using the link below:

https://www.dst.dk/en/Statistik/dokumentation/documentationofstatistics/balance-of-payments

Annex 1 Statistics Denmark's organisation chart



Annex 2 National Account - Organisational chart

Henrik Sejerbo Sørensen Martin Ausker				
Input data, Publication and Administration	**Quarterly National Accounts**	**Annual National Accounts**	**Green national accounts**	**Projects**
Publication Meta data Administration	Quarterly accounts Quarterly employment and wages	SUT, current and constant prices Preliminary annual NA GNI Stocks of fixed capital R&D Productivity Investments matrices	Environmental accounts Energy accounts Input-output Green NA gnskab	Projects
Anette Hertz Bo Siemsen Dennis Jørgensen Bülow Mette Ferslev Nadiia Mamikonian	Carmela Moreno Jonas Dan Petersen Bahar Dudus Louise Julie Bille Jakob Krabbe Nielsen Kris Munch Lavanyan Thedchanamoorth Sabawon Ghazi	Lars Gustafsson Aksel Juel Clemmensen Annette Thomsen Brian Südel Christian Gysting Jonas Johansen Næsby Magnus Børre Eriksen Søren Henri Larsen Laura Amalie Wahlstrøm Ralph Bøge Jensen Frederik Vesta	Ingeborg Vind Bogomil Illiev Leif Hoffmann Ole Gravgård Pedersen Peter Rørmose Jensen Sara Svantesson Thomas Eisler Sofie Kristensen Emil Urhammer Michael Berg Rasmussen	Maria Nilsson Christina Just Brandstrup Ina Drabsch Rasmussen Marianne Vester

Annex 3 Account Statistics 2017

Company cvr-no.

Company name

Date of approval of the official annual report (write: YYYY-MM-DD)

Account statistic 2017

Financial year Results should relate to your firm's financial year, more specifically the one ending in the period 1 May 2017 to 30 April 2018. Please indicate your financial year.

Financial year from: (Write: YYYY-MM-DD)
to: (Write: YYYY-MM-DD)

Amounts are given in : (currency)

Profit and loss statement

		1.000 DKK/ 1.000 EUR
Ordinary non-financial items		
1 Turnover (net sales). Excluding discounts, VAT and excise duties	1	
2 Capitalised work performed by your firm for own purposes	2	
3 Other operating income	3	
4 Cost of sales (must be excl. No 5,7,8,9,10,12-14,15-16)	4	
5 Cost of subcontractors and other work done by others (by non-employees)	5	
6 Rent paid (excl. heating bill)	6	
7 Cost of minor equipment and fixtures not capitalised	7	
8 Payments for temporary workers provided from another enterprise (e.g. agencies)	8	
9 Payments for long-term rental and operational leasing of goods	9	
10 Ordinary write-offs in respect of debtors	10	
11 Other external charges (administrative cost etc.)	11	
12 Wages and salaries	12	
13 Pension costs	13	
14 Other social security costs	14	
15 Depreciation and amortisation of property, plant and equipment, and intangible assets	15	
16 Impairment of property, plant and equipment, and intangible assets	16	
17 Writedowns of current assets (apart from financial current assets)	17	
18 Other operating charges of a non-trading type (administrative cost etc. No. 11)	18	
19 *Profit or loss before financial and extraordinary items*	19	
Financial items		
20 Dividends and Income received from the other fixed financial assets and participating interests. Negative amounts should be added to item	20	
21 Other financial income received from fixed and current assets	21	
22 Impairment on financial assets	22	
23 Interest payable and similar charges	23	
24 *Profit or loss before tax on ordinary result*	24	
Taxes		
25 Corporation tax etc. on ordinary result (not relevant for sole proprietors etc.)	25	
26 Profit or loss for the financial year	26	
Appropriation of profit or treatment of loss		
27 Profit retained or loss sustained	27	
28 Dividends to shareholders and similar payments to owners	28	

Balance sheet

55 Equity	55	
61 Liabilities and equity, total	61	

Investment (capital expenditure)
Investments (acquisitions and disposal) include only assets that are intended for the company's continuing ownership or use.
Acquisitions and disposal: do not include assets transferred from one asset record to another
Acquisitions and disposal: do not include assets transferred in relations to merger/fusion or division of companies
Increase (acquisitions)
Purchase of building plots or construction costs for new buildings intended for resale should not be included.
VAT as well as small inventory / assets that are expensed immediately in the income statement are also excluded.
All costs for own production capitalized in both tangible and intangible assets should be included
Decrease (disposals)
The Total decrease (disposals) should be stated at the written-down value

Investment during the year

Increase

Increase (acquisitions) should be stated at cost value before any adjustments.
Transfer (as result of completion) from item 66 to 77 is not considered an increase.
Acquisitions do not include assets transferred in relations to merger/fusion of companies

	Intangibles	1.000 kr./1.000 euro
62	Increase in completed development project	62
63	Acquired Concessions, Patents, Licences, Trademarks and other similar rights	63
64	Purchase of Software	64
65	Purchase of Goodwill	65
66	Intangible assets in progress	66
67	*Intangibles, total*	67
	Land and buildings	
68	Purchases of existing buildings (incl. Land value)	68
69	Construction of new buildings and installations, including heatinng and ventilating systems	69
70	Purchases of undeveloped land	70
	Alterations and improvements of buildings and installations	
71	including heating and ventilating systems	71
	Constructions, alteration and improvement of roads, harbours, squares, etc	
72	indluding development and improvement of land	72
73	*Land and buildings, total*	73
	Machinery, plant and equipment	
74	Production machinery and equipment	74
75	Other plant, operating assets, fixtures and furniture	75
76	*Machinery, plant and equipment, total*	76
77	Prepayments	77
78	**Increase, total (67+73+76+77)**	**78**

Decrease

The Total decrease (disposals) should be stated at the cost value
Decrease do not include assets transferred from one asset record to another
Decrease do not include assets transferred in relations to division of companies only in case of divestment

	Intangibles	1.000 kr./1.000 euro
79	Decrease in completed development projects (cost value)	79
80	Decrease of Concessions, Patents, Licences, Trademarks and other similar rights (cost value)	80
81	Disposal of Software (cost value)	81
82	Decrease in Goodwill (cost value)	82
83	*Intangibles, total*	83
	Real estate	
84	Disposal of existing buildings (incl. land value) at cost value	84
85	Disposal of undeveloped land (cost value)	85
86	Disposal of roads, harbours, squares, etc (cost value)	86
87	*Real estate, total*	87

	Machinery, plant and equitment		
88	Disposal production machinery and equipment (cost value)	88	
89	Disposal of other plant, operating assets, fixtures and furniture (cost value)	89	
90	*Machinery, plant and equipment, total*	90	
	Reversal of amortisation on disposal of Intangible Assets		
91	Reversal of amortisation on decrease in completed development projects	91	
92	Reversal of amortisation on decrease of concessions, patents, licences, trademarks and other similar rights	92	
93	Reversal of amortisation on disposal of software	93	
94	Reversal of amortisation on decrease in goodwill	94	
95	*Reversal of amortisation on disposal of Intangible Assets, total*	95	
	Reversal of amortisation on disposal of land and buildings		
96	Reversal of amortisation on disposals of buildings including land	96	
97	Reversal of amortisation on disposal of land not built upon including land	97	
98	Reversal of amortisation on disposals of roads harbours squares and similar including land	98	
99	*Reversal of amortisation on disposal of land and buildings, total*	99	
	Reversal of amortisation on disposal of machinery, plant and equipment		
100	Reversal of amortisation on disposal of production machinery and equipment	100	
101	Reversal of amortisation on disposal of other plant, operating assets, fixtures and furniture	101	
102	*Reversal of amortisation on disposal of machinery, plant and equipment, total*	102	
103	**Decrease, total (83+87+90-95-99-102)**	**103**	

Supplementary questions

Free copy of the statistics in return for your help

Enter true in the box

if you wish to receive results of the accounts survey in the form of a table of statistics for your kind of activity. true

Your contact person:

Name and surname

Phone number extension

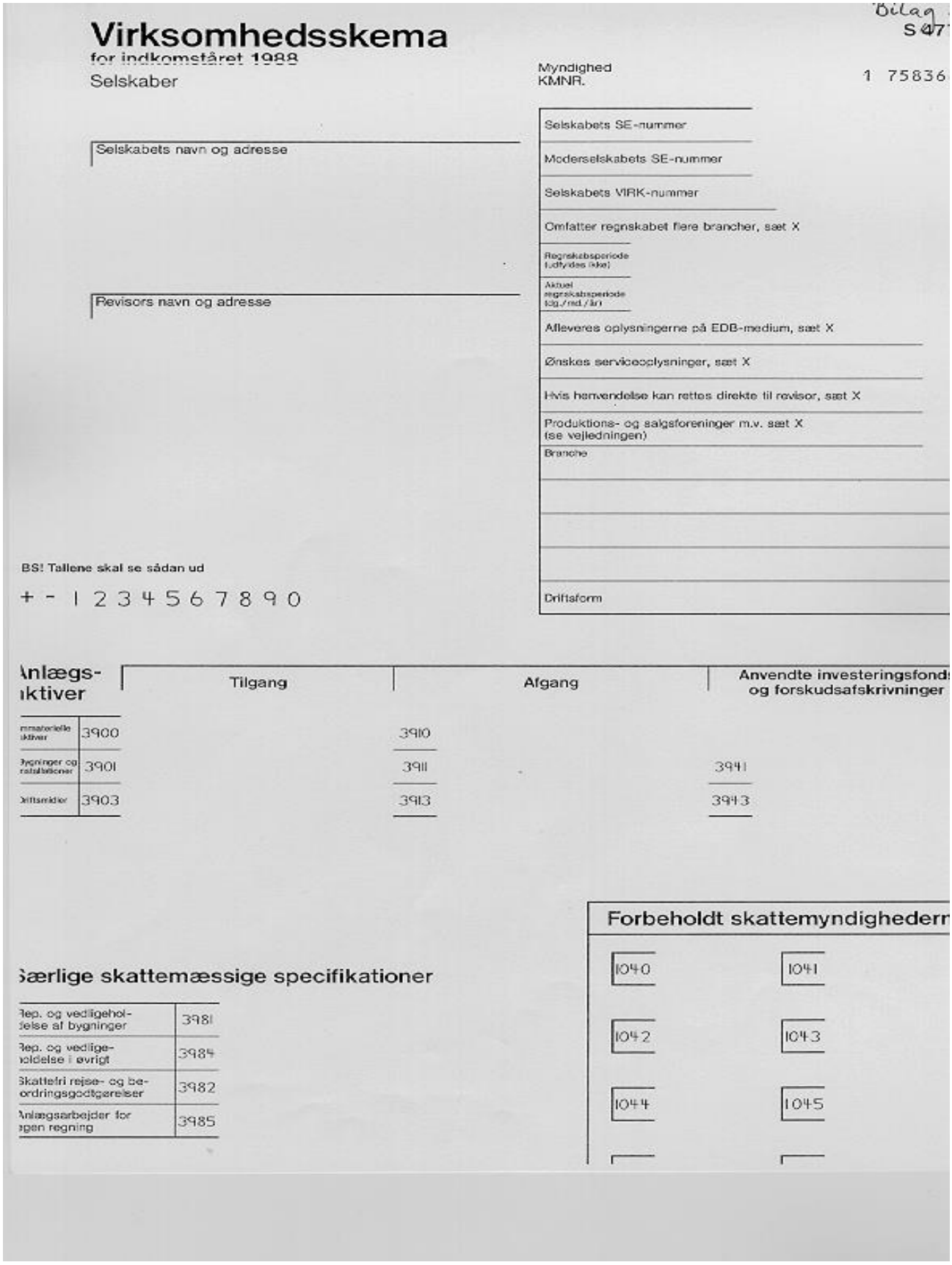
E-mail

Date and certification

Annex 4 Information from tax account return 2017

Selvangivelse+lønoplysningsseddel+pensionskasseoplysninger	DST Spørgeskema 2017
Resultatopgørelse	
Nettoomsætning	OMS
Vareforbrug	FV
Lønoplysningsseddel	LGAG
Pensionskasseoplysninger	PUDG
Andre omkostninger til social sikring	AUDG
Driftsøkonomiske afskrivninger	AMI+NMI+NOAK
Resultat før finansiering og ekstraordinære poster	RFEP
Driftsøkonomisk resultat (før selskabsskat)	ARFS
Skatter (kun selskaber)	SSAR
Balance (ultimo-poster)	
Anlægsaktiver i alt	AAT
Varebeholdning	UVBT
Aktiver i alt = Passiver i alt	AT = PAST
Egenkapital	EGUL
Årets investeringer	
Årets tilgang af materielle og immaterielle anlægsaktiver til købspris	ATIT
Årets afgang af materielle og immaterielle anlægsaktiver til salgspris	AFBT

Annex 5 Detailed SLS-E questionnaire, valid until 1988



Virksomhedsskema

for indkomståret 1988

Selskaber

Bilag
S 47

Myndighed
KMNR. 1 75836

Selskabets navn og adresse

Revisors navn og adresse

Selskabets SE-nummer

Moderselskabets SE-nummer

Selskabets VIRK-nummer

Omfatter regnskabet flere brancher, sæt X

Regnskabsperiode (udfyldes ikke)

Aktuel regnskabsperiode (dg./md./år)

Afleveres oplysningerne på EDB-medium, sæt X

Ønskes serviceoplysninger, sæt X

Hvis henvendelse kan rettes direkte til revisor, sæt X

Produktions- og salgsforeninger m.v. sæt X (se vejledningen)

Branche

Driftsform

BS! Tallene skal se sådan ud

+ - 1 2 3 4 5 6 7 8 9 0

Anlægs-aktiver	Tilgang	Afgang	Anvendte investeringsfonds og forskudsafskrivninger
immaterielle aktiver 3900		3910	
Bygninger og installationer 3901		3911	3941
Driftsmidler 3903		3913	3943

Særlige skattemæssige specifikationer

Rep. og vedligeholdelse af bygninger	3981
Rep. og vedligeholdelse i øvrigt	3984
Skattefri rejse- og beordringsgodtgørelser	3982
Anlægsarbejder for egen regning	3985

Forbeholdt skattemyndighederne

1040	1041
1042	1043
1044	1045

2 75836

Resultatopgørelse

Opgørelse af driftsøkonomisk resultat	Dækningsbidrag	Nettoomsætning	+	2100
	Stykomkostninger	Vareforbrug	-	2205
		Produktionsløn	-	2210
		Andre stykomkost.	-	2240
	Kapacitetsomkostninger	Administrationsløn	-	2300
		Personaleomkostninger	-	2310
		Reklame & marketing	-	2320
		Tab på debitorer	-	2330
		Småanskaffelser	-	2335
		Husleje og varme	-	2345
		Kontorhold	-	2350
		Øvrige kap.omkost.	-	2360
		Driftsøkonomiske afskrivninger	-	2380
		Sekundære indtægter	+	2410
		Sekundære udgifter	-	2415
		Ekstraordinære indtægter	+	2420
		Ekstraordinære udgifter	-	2425
	Renter	Finansieringsindtægter	+	2430
		Finansieringsudgifter	-	2435
		Skatter (fortegn)		2460
		Driftsøkonomisk resultat (fortegn)		2499
Opgørelse af skattemæssigt resultat		Driftsøkonomiske afskrivninger og skatter tilbageført (fortegn)		
	Skattemæssig afskrivning	Bygninger og installationer	-	3871
		Driftsmidler	-	3873
		Andre	-	3875
		Ændring varelagernedskrivning (fortegn)		3800
		Henlagt til investeringsfond	-	3805
		Forskudsafskrivning	-	3810
		Straksfradrag (bygninger)	-	3815
		Skattemæssigt underskud fra tidligere år	-	3840
		Korrektioner - skriv de 3 sidste cifre til det felt der korrigeres, samt beløb med fortegn.		
		Skattemæssigt		

Balance

Opgørelse af driftsøkonomisk egenkapital	Anlægsaktiver	Immaterielle aktiver	+	2500
		Materielle	+	2510
		Finansielle	+	2530
	Omsætningsaktiver	Varebeholdning	+	2553
		Igangværende arbejder	+	2554
		Tilgodehavender for salg	+	2565
		Øvrige tilgodehavender	+	2570
		Værdipapirer	+	2575
		Likvide beholdninger	+	2580
	Gæld	Leverandører af varer	-	2600
		Kortfristet gæld	-	2605
		Langfristet gæld	-	2612
		Hensættelser	-	2625
		Egenkapital ultimo (fortegn)		2799
Opgørelse af skattemæssig egenkapital		Immaterielle og materielle anlægsaktiver tilbageført	-	
	Skattemæssige værdier	Ejendomme	+	3881
		Driftsmidler	+	3883
		Andre anlægsaktiver	+	3885
		Nedskrivning på varelager	-	3865
		Korrektioner - skriv de 3 sidste cifre til det felt der korrigeres, samt beløb med fortegn.		
		Sk.mæssig egenkapital (fortegn)		3799
Kapitalposteringer		Egenkapital primo (fortegn)		2700
		Driftsøkonomisk resultat overført (fortegn)		
		Kapitaludvidelser (kontant)	+	2711
		Kapitalnedsættelser (kontant)	-	2716
		Udbytte	-	2740
		Andre kapitalindtægter	+	2750
		Andre kapitaludgifter	-	2755
		Egenkapital ultimo		