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

Table 2.1 illustrates the revision policy (apart from benchmark revisions) for the Danish national accounts followed by Statistics Denmark from November 2001. 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 2001

Year	Month of publishing	Year T, Q1	Year T, Q2	Year T, Q3	Year T, Q4	Year T
T	End May	P				
	Begin. July	R				
	End August	-	P			
	Begin October	R	R			
	End November	-	-	P		
T+1	Begin. January	R	R	R		
	End February	-	-	-	P	P (SQ)
	Begin. April	R	R	R	R	R (SQ)
	Begin. July	R	R	R	R	R (SQ)
	Begin. October	-	-	-	-	-
	End November					R (AP1)
T+2	Begin. January	R	R	R	R	-
	Begin. April	-	-	-	-	-
	Begin. October	-	-	-	-	-
	End November					R (AP2)
T+3	Begin. January	R	R	R	R	-
	Begin. April	-	-	-	-	-
	Begin. October	-	-	-	-	-
	End November					F
T+4	Begin January	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
Figures are published unchanged compared to the earlier published figures.
The revisions of the quarterly figures in January T+2, T+3 and T+4 are made in order to make the quarterly figures consistent with the annual figures.

The 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 of November t+2 while the ProdCom statistics is implemented in the supply use tables published for the first time in November t+3. Government Finance statistics on an annual basis is implemented for the first time in July 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 1980-2012. 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 1980-2012

	First publication	Publication 12 months after the end of the year
	pct.-points	
Average deviation	0.54	0.54
Bias	0.08	-0.01
The 23 years revisions distributed according to the numerical value of the revision:	number of years	
0.0 – 0.5 pct. point	19	15
above 0.5 – 1.0 pct. point	8	13
above 1.0 – 1.5 pct. point	6	5

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. At the end of this section a planned revision of the national accounts in November 2016 is described. This revision follows a revision of the balance of payments back to 2005 to be published in October 2016.

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 the most recent 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 will be revised in October 2016. The statistics will be revised back to 2005 and the figures will be published in October 2016.

The revision of the balance of payments will be implemented in the national accounts and published in November 2016. For GDP from the production side, the revision is limited to the industries affected by the revision of the balance of payments (10 out of a total of 117 industries). For GDP from the expenditures side, all expenditure components except government final consumption expenditure and NPISH final consumption expenditure are affected. Some of the problems addressed by the revision of the balance of payments statistics had gradually made it increasingly difficult to balance the supply-use tables, so it is expected, that the continuing effort to confront data already at the level of primary statistics will be to a future benefit of the national accounts.

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.51g	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, which has a minor effect on GDP.

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.

(8) VAT-based third EU own resource

The VAT-based third EU own ressource is treated as a transfer according 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 revision, so no effect.

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

2.2.1 Country specific reservations

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		

2.2.2 Transversal reservations

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 2.14 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 2.14 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 2.15.

Table 2.15 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 2.16. 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 2.16 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 2.17 below.

Table 2.17 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

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.

2.3 Planned actions for improvements

As a result of the implementation of BPM6 in the balance of payments – more specific the new treatments of goods sent abroad for processing and merchanting – some difficulties and inconsistencies vis-à-vis other statistical domains were revealed. Therefore an investigation into these difficulties and inconsistencies was carried out and it was found necessary to revise the balance of payments. The revised balance of payments will be published in October 2016. It will be implemented in the national accounts and published in November 2016. A more detailed description can be found in section 2.1.