

# Gross National Income Inventory (ESA 2010)

2010

The Netherlands





Statistics Netherlands

Division of Economic and Business statistics and National accounts

National Accounts Department

# **GROSS NATIONAL INCOME INVENTORY (ESA 2010)**

## **2010**

## **The Netherlands**

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## **CHAPTER 1 OVERVIEW OF THE SYSTEM OF ACCOUNTS ..... 9**

<b>1.1</b>	<b>Introduction .....</b>	<b>9</b>
1.1.1	Statistics Netherlands .....	9
1.1.2	The National Accounts Department .....	10
1.1.3	Supervisory and control systems for national accounts .....	11
1.1.4	Cooperation Statistics Netherlands and the Central Bank.....	14
1.1.5	Geographical coverage of the Netherlands .....	15
<b>1.2</b>	<b>The revisions policy and the timetable for revising and finalising the estimates; major revisions since the last version of the GNI Inventory .....</b>	<b>16</b>
1.2.1	The revision policy.....	16
1.2.2	The timetable for revising and finalising the estimates.....	19
<b>1.3</b>	<b>Outline of the production approach.....</b>	<b>19</b>
<b>1.4</b>	<b>Outline of the income approach.....</b>	<b>21</b>
<b>1.5</b>	<b>Outline of the expenditure approach .....</b>	<b>22</b>
<b>1.6</b>	<b>The balancing or integration procedure, and main approaches to validation.....</b>	<b>24</b>
<b>1.7</b>	<b>Overview of the allowances for exhaustiveness.....</b>	<b>26</b>
<b>1.8</b>	<b>The transition from GDP to GNI .....</b>	<b>28</b>
<b>1.9</b>	<b>Main classifications used.....</b>	<b>29</b>
<b>1.10</b>	<b>Main data sources used .....</b>	<b>29</b>

## **CHAPTER 2 THE REVISIONS POLICY AND THE TIMETABLE FOR REVISING AND FINALISING THE ESTIMATES; MAJOR REVISIONS SINCE THE LAST VERSION OF THE GNI INVENTORY..... 31**

<b>2.1</b>	<b>The revisions policy and the timetable for revising and finalising the estimates .....</b>	<b>31</b>
<b>2.2</b>	<b>Major revisions due to the transition from ESA 1995 to ESA 2010.....</b>	<b>35</b>
2.2.1	Research and Development .....	35
2.2.2	Military equipment .....	36
2.2.3	Transfer of ownership based recording of import and export .....	36
2.2.4	Illegal activities .....	37
2.2.5	Other conceptual changes .....	38
2.2.6	Transition from ESA 2010 to ESA 95, following the entries in Table 2 of the GNI questionnaire	
2014	40	
<b>2.3</b>	<b>Major revisions since the last version of the GNI Inventory other than due to conceptual changes in ESA 2010</b>	<b>44</b>
<b>2.4</b>	<b>Planned actions for improvements .....</b>	<b>48</b>

## **CHAPTER 3 THE PRODUCTION APPROACH ..... 51**

<b>3.0</b>	<b>GDP according to the production approach .....</b>	<b>51</b>
------------	---	-----------

3.1	The reference framework.....	56
3.1.1	The business register.....	56
3.1.2	Structural Business Statistics .....	60
3.2	The borderline cases .....	69
3.3	Valuation .....	72
3.4	Transition from private accounting and administrative concepts to ESA 2010 national accounting concepts.....	76
3.5	The roles of direct and indirect estimation methods and of benchmarks and extrapolations .....	78
3.6	The main approaches taken with respect to exhaustiveness.....	80
3.7	Agriculture, forestry and fishing (NACE Rev.2 Section A).....	82
3.7.1	Agriculture and hunting (NACE 01) .....	83
3.7.2	Forestry and logging (NACE 02).....	94
3.7.3	Fishing and aquaculture (NACE 03).....	94
3.8	Mining and quarrying (NACE B).....	96
3.8.1	Extraction of crude petroleum and natural gas (NACE 06) and Mining support service activities (NACE 09) .....	97
3.8.2	Other mining and quarrying (NACE 08) .....	98
3.9	Manufacturing (NACE Rev. 2 Section C).....	99
3.9.1	Manufacture of food products (NACE 10) .....	100
3.9.2	Manufacture of beverages (NACE 11).....	102
3.9.3	Manufacture of tobacco products (NACE 12) .....	103
3.9.4	Textiles, wearing apparel and leather industry (NACE 13, 14 and 15) .....	103
3.9.5	Manufacture of wood products (NACE 16).....	104
3.9.6	Paper and paper products industry (NACE 17) .....	105
3.9.7	Printing and reproduction of recorded media (NACE 18) .....	106
3.9.8	Manufacture of coke and refined petroleum products (NACE 19) .....	106
3.9.9	Chemicals industry (NACE 20) .....	107
3.9.10	Pharmaceuticals industry (NACE 21).....	108
3.9.11	Rubber and plastic products industry (NACE 22).....	109
3.9.12	Manufacture of other non-metallic mineral products (NACE 23) .....	110
3.9.13	Manufacture of basic metals. (NACE 24) .....	110
3.9.14	Manufacture of metal products. (NACE 25).....	111
3.9.15	Manufacture of electronic products (NACE 26).....	112
3.9.16	Manufacture of electrical equipment (NACE 27).....	113
3.9.17	Manufacture of machinery n.e.c. (NACE 28) .....	113
3.9.18	Manufacture of cars and trailers (NACE 29) .....	114
3.9.19	Manufacture of other transport (NACE 30) .....	115
3.9.20	Manufacture of furniture (NACE 31) .....	116
3.9.21	Manufacture of other products (NACE 32) .....	117
3.9.22	Repair and installation of machinery (NACE 33) .....	118
3.10	Electricity, gas, steam and air conditioning supply (NACE Rev. 2 Section D) .....	118
3.11	Water supply; sewerage, waste management and remediation activities (NACE Rev. 2 Section E). .....	119
3.12	Construction (NACE Rev. 2 Section F) .....	120
3.12.1	Construction buildings, development (NACE 41) .....	121
3.12.2	Civil engineering (NACE 42) .....	123
3.12.3	Specialised construction activities (NACE 43).....	124

<b>3.13</b>	<b>Wholesale and retail trade; repair of motor vehicles and motorcycles (NACE Rev. 2 Section G) .....</b>	<b>125</b>
3.13.1	Wholesale and retail trade and repair of motor vehicles and motorcycles (NACE 45) .....	126
3.13.2	Wholesale trade, except of motor vehicles and motorcycles (NACE 46) .....	127
3.13.3	Retail trade, except of motor vehicles and motorcycles (NACE 47) .....	128
<b>3.14</b>	<b>Transportation and storage (NACE Rev. 2 Section H) .....</b>	<b>129</b>
3.14.1	Land transport (NACE 49) .....	130
3.14.2	Water transport (NACE 50) .....	131
3.14.3	Air transport (NACE 51) .....	132
3.14.4	Warehousing and support activities for transportation (NACE 52) .....	132
3.14.5	Postal and courier activities (NACE 53) .....	134
<b>3.15</b>	<b>Accommodation and food service activities (NACE Rev. 2 Section I) .....</b>	<b>134</b>
3.15.1	Accommodation services (NACE 55) .....	135
3.15.2	Food and beverage serving services (NACE 56) .....	136
<b>3.16</b>	<b>Information and communication (NACE Rev. 2 Section J) .....</b>	<b>137</b>
3.16.1	Publishing (NACE 58) .....	137
3.16.2	Movies, TV and radio (NACE 59-60) .....	138
3.16.3	Telecommunication (NACE 61) .....	139
3.16.4	Support activities in the field of IT (NACE 62) .....	140
3.16.5	Information service activities (NACE 63) .....	141
<b>3.17</b>	<b>Financial and insurance activities (NACE Rev. 2 Section K) .....</b>	<b>142</b>
3.17.1	Financial institutions, except insurance and pension funding (NACE 64) .....	142
3.17.2	Insurance and pension funding (NACE 65) .....	153
3.17.3	Other financial services (NACE 66) .....	164
<b>3.18</b>	<b>Real estate activities (NACE 68) .....</b>	<b>166</b>
<b>3.19</b>	<b>Professional, scientific and technical activities (NACE Rev. 2 Section M) .....</b>	<b>178</b>
3.19.1	Legal services, administration, etc. (NACE 69) .....	179
3.19.2	Holding companies (not financial) and management advise (NACE 70) .....	179
3.19.3	Architects, technical services etc. (NACE 71) .....	180
3.19.4	Research and development (NACE 72) .....	181
3.19.5	Advertising and market research (NACE 73) .....	183
3.19.6	Other specialised business services (NACE 74) .....	184
3.19.7	Veterinary activities (NACE 75) .....	185
3.20.1	Renting and leasing of capital goods (NACE 77) .....	186
3.20.2	Employment activities (NACE 78) .....	187
3.20.3	Travel agencies, tour operators, etc. (NACE 79) .....	188
3.20.4	Security and investigation (NACE 80) .....	189
3.20.5	Cleaning activities, gardening, etc. (NACE 81) .....	190
3.20.6	Other business services (NACE 82) .....	190
<b>3.21</b>	<b>Public administration and defence; compulsory social security (NACE Rev. 2 Section O) .....</b>	<b>191</b>
<b>3.22</b>	<b>Education (NACE Rev. 2 Section P) .....</b>	<b>194</b>
3.22.1	Primary, special, secondary, higher education (NACE 852-854) .....	195
3.22.2	Other education (NACE 855-856) .....	196
<b>3.23</b>	<b>Human health and social work activities (NACE Rev. 2 Section Q) .....</b>	<b>198</b>
3.23.1	Human health activities (NACE 86) .....	199
3.23.2	Residential care and guidance (NACE 87) and Social work activities without accommodation (NACE 88) .....	201
<b>3.24</b>	<b>Arts, entertainment and recreation (NACE Rev. 2 Section R) .....</b>	<b>203</b>

3.24.1	Creative, arts and entertainment activities; libraries, archives, museums and other cultural activities; gambling and betting activities (NACE 90-92).....	204
3.24.2	Sports activities and amusement and recreation activities (NACE 93).....	207
3.25	Other service activities (NACE Rev. 2 Section S).....	209
3.25.1	Activities of membership organisations (NACE 94).....	210
3.25.2	Repair of computers and personal and household goods (NACE 95) .....	212
3.25.3	Other personal service activities (NACE 96) .....	213
3.26	Activities of households as employers; undifferentiated goods- and services- producing activities of households for own use (NACE Rev. 2 section T).....	214
3.27	Activities of extraterritorial organisations and bodies (NACE Rev. 2 section U) .....	214
3.28	Taxes on products, including VAT .....	214
3.28.1	Taxes on products.....	214
3.28.2	VAT .....	216
3.29	Subsidies on products.....	217
<b>CHAPTER 4</b>	<b>THE INCOME APPROACH .....</b>	<b>219</b>
4.0	GDP according to the income approach .....	219
4.1	The reference framework .....	220
4.2	Borderline cases .....	221
4.3	Valuation .....	221
4.4	Transition from private accounting and administrative concepts to ESA 2010 national accounts concepts.....	222
4.5	The roles of direct and indirect estimation methods and of benchmarks and extrapolations .....	223
4.6	The main approaches taken with respect to exhaustiveness.....	223
4.7	Compensation of employees.....	224
4.7.0	Summary and process table .....	224
4.7.1	Wages and Salaries.....	225
4.7.2	Employers' social contributions .....	228
4.8	Taxes on production and imports.....	228
4.9	Subsidies .....	229
4.10	Gross operating surplus.....	230
4.11	Mixed income .....	230
4.12	Consumption of fixed capital .....	231
<b>CHAPTER 5</b>	<b>THE EXPENDITURE APPROACH.....</b>	<b>243</b>
5.0	GDP according to the expenditure approach.....	243

5.1	The reference framework.....	243
5.2	The borderline cases .....	244
5.2.1	The borderline cases for HFCE .....	244
5.2.2	The borderline cases for GFCF.....	245
5.3	Valuation .....	246
5.4	Transition from private accounting and administrative concepts to ESA 2010 national accounts concepts.....	247
5.5	The roles of direct and indirect estimation methods and of benchmarks and extrapolations .....	248
5.6	The main approaches taken with respect to exhaustiveness.....	248
5.7	Household final consumption expenditure (HFCE) .....	249
5.7.1	Overview .....	249
5.7.2	Main data sources and their conversion to national accounts results.....	253
5.7.3	Detailed calculations by COICOP items .....	254
5.8	NPISH final consumption expenditure.....	260
5.9	Government final consumption expenditure .....	262
5.10	Acquisitions less disposals of produced fixed assets.....	265
5.10.1	Overview .....	265
5.10.2	Main data sources and their conversion to national accounts results .....	281
5.10.3	Detailed estimation methods used by AN code .....	283
5.11	Changes in inventories .....	288
5.11.1	Main categories .....	288
5.11.2	Data sources .....	289
5.11.3	Estimation methods .....	289
5.11.4	Balancing in the supply and use table.....	292
5.12	Acquisitions less disposals of valuables .....	293
5.13	Exports and imports of goods.....	294
5.13.1	Summary and process table .....	294
5.13.2	Supply and use table .....	298
5.13.3	Production process of foreign trade statistics .....	298
5.13.4	Adjustments made by the national accounts department. ....	301
5.14	Exports and import of services .....	308
5.14.1	Summary and process table .....	308
5.14.2	Supply and use table .....	311
5.14.3	Source data for the supply and use data .....	312
5.14.4	Processing for national accounts .....	313
5.14.5	Adjustments made by the national accounts department .....	314
<b>CHAPTER 6 THE BALANCING OR BALANCING PROCEDURE, AND VALIDATING THE ESTIMATES.....</b>		<b>329</b>

6.1	GDP balancing procedure.....	329
6.1.1	Introduction.....	329
6.1.2	Supply and use tables.....	329
6.2	Other approaches used to validate GDP.....	344
<b>CHAPTER 7 OVERVIEW OF THE ALLOWANCES FOR EXHAUSTIVENESS.....</b>		<b>349</b>
7.0	Introduction.....	349
7.0.1	Geographical coverage.....	349
7.0.2	General approach to exhaustiveness.....	350
7.1	Allowances for exhaustiveness in the production approach.....	351
7.1.1	Identification of types of non-exhaustiveness (for which adjustments are needed) .....	351
7.1.2	Adjustments made for the different types of non-exhaustiveness.....	353
7.1.3	Exhaustiveness methods.....	355
7.2	Allowance for exhaustiveness in the expenditure approach .....	367
7.3	Allowances for exhaustiveness for the income approach.....	367
<b>CHAPTER 8 THE TRANSITION FROM GDP TO GNI.....</b>		<b>369</b>
8.0	Introduction.....	369
8.1	Compensation of employees.....	371
8.2	Taxes on production and imports paid to the Institutions of the EU .....	372
8.3	Subsidies granted by the Institutions of the EU.....	373
8.4	Cross-border property income .....	373
8.4.1	Interest .....	374
8.4.2	Distributed income of corporations.....	377
8.4.3	Reinvested earnings (RIE) of foreign direct investment (FDI).....	379
8.4.4	Other investment income.....	381
8.4.4.1	Investment income attributable to insurance policy holders.....	381
8.4.4.2	Investment income payable on pension entitlements .....	384
8.4.4.3	Investment income attributable to collective investment fund shareholders .....	385
8.4.4.4	Rent on land and sub-soil assets .....	386
8.5	Recent development in the measurement of property income flows.....	386
<b>CHAPTER 9 MAIN CLASSIFICATIONS USED .....</b>		<b>387</b>
9.1	Classifications used for the production approach.....	387
9.2	Classifications used for the income approach .....	388
9.3	Classifications used for the expenditure approach.....	392

9.4	Classifications used in the transition from GDP to GNI.....	395
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## **CHAPTER 10 MAIN DATA SOURCES USED .....397**

10.1	Statistical surveys and other data sources used for the production approach .....	397
10.1.1	Business Statistics (SBS-statistics) .....	397
10.1.2	Finance of enterprises (SFO) .....	399
10.1.3	ICT-usage and ICT-expenditure, 2010 .....	400
10.1.4	R&D survey .....	402
10.1.5	Netherlands' Housing Survey (WoON).....	403
10.1.6	Rent increase for dwellings .....	404
10.2	Statistical surveys and other data sources used for the income approach .....	406
10.2.1	Administrative records employment and social insurance .....	406
10.2.2	Direct Reporting Scheme (Directe rapportages, DRA).....	407
10.3	Statistical surveys and other data sources used for the expenditure approach .....	409
10.3.1	International trade in services .....	409
10.3.2	International trade in goods .....	411
10.3.3	The household budget survey .....	412
10.3.4.	Gross Fixed Capital Formation (GFCF).....	413
10.4	Statistical surveys and other data sources used for the transition from GDP to GNI.....	413

## **LIST OF ANNEXES .....415**

Chapter 1	.....	415
Chapter 3	.....	415
Chapter 4	.....	416
Chapter 5	.....	417
Chapter 7	.....	418
Chapter 8	.....	418



## CHAPTER 1 OVERVIEW OF THE SYSTEM OF ACCOUNTS

### 1.1 Introduction<sup>1</sup>

#### 1.1.1 Statistics Netherlands

Statistics Netherlands (CBS) is responsible for publishing of reliable and coherent statistical information which responds to the needs of Dutch society. The responsibility of CBS is twofold: firstly, to compile (official) national statistics and secondly to compile European (community) statistics. The legal basis for Statistics Netherlands and its work is the Act of 20 November 2003 last amended by the Act of 15 December 2004 governing the Central Bureau of Statistics (Statistics Netherlands).

The statistical programmes of Statistics Netherlands cover a multitude of societal topics, from macro-economic indicators such as economic growth and consumer prices, to the incomes of individuals and households. Statistics Netherlands' statistical programmes (the long-term statistical programme and the annual work programme) are set by the Central Commission for Statistics. This is an independent commission supervising the independence, impartiality, relevance, quality and continuity of the statistical programme. The Director-General is the decision-making authority for applied statistical methodology and the publication of statistical information. Statistics Netherlands aims to minimise its administrative burden on companies and the public. To this end CBS is granted access to existing administrative registrations of both government and government-funded organisations. These Registers are accessible for official statistics free of charge. Where registers are not able to provide the required information, Statistics Netherlands is allowed to conduct supplementary business and household surveys. Companies are usually obliged by law to supply information to Statistics Netherlands and can be forced to cooperate under certain circumstances. Statistics Netherlands may use sanctions such as administrative fines. Statistics Netherlands is obliged to keep all individual data confidential. As an exception data sharing with Eurostat, NSIs in EU member states, Dutch Central Bank and academic researchers is allowed under certain conditions.

On 3 January 2004, Statistics Netherlands became an autonomous agency with legal personality. This implies there is no longer a hierarchical relationship between the Minister of Economic Affairs and the CBS organisation. However, the minister is still responsible for maintaining a system for the provision of governmental statistical information; in other words the minister is politically responsible for legislation and budget, for assuring the service of independent and publically available and high quality statistics. The costs of tasks and activities undertaken to put this legislation into practice are accountable to the government's budget.

Statistical information published by Statistics Netherlands covers a wide variety of social and economic aspects. For this purpose, hundreds of surveys are conducted on annual, quarterly or monthly basis among enterprises, households, private and government bodies. Statistics Netherlands ensures the confidentiality of individual data.

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<sup>1</sup> The chapter describes the situation at the time of compiling the benchmark year. In the meantime this situation has changed. For the current organisation, see <https://www.cbs.nl/en-gb/about-us/organisation>

Survey results provide a wealth of information on Dutch society. Statistical expertise backed up by scientific analysis ensures the adequacy and reliability of the information.

The organisation of Statistics Netherlands includes two statistical divisions:

- the “Division for Economic and Business Statistics and National Accounts” (EBN) is responsible for providing business, enterprise statistics and macro-economic statistics including the national accounts and the CPI;
- the “Division of Socio-economic and Spatial Statistics” (SER) is responsible for personal, household and regional statistics;

The Division EBN is divided into six departments, namely “Government finance and consumer price statistics”, “Business Registers”, “Business Statistics” (two departments: one in Heerlen and one in The Hague), “National Accounts” and a Staff Department.

The division, “Operational management, IT and Methodology takes care of statistical and IT support activities within Statistical Netherlands as well as software and methodological development and other supporting activities.

### **1.1.2 The National Accounts Department**

The National Accounts Department is responsible for compiling integrated statistics which provide a coherent overview of socio-economic developments in the Dutch society at both macro and meso level. The core of the national accounts includes supply and use tables, institutional sector accounts (financial and current accounts) and labour accounts. The National Accounts Department relies on a large number of statistics compiled by other divisions of Statistics Netherlands and from other institutes such as the Dutch Central Bank, for the compilation of its statistical output.

The above mentioned three sub-systems, supply and use tables, institutional sector accounts and labour accounts are published quarterly and annually. The three sub-systems are fully consistent representing the elements one national accounting system. Maintaining this overall consistency is very resource demanding in terms of organisational skills and subject knowledge. About 100 fte highly educated and mostly experienced staff of Statistics Netherlands is involved in the compilation of the Dutch National Accounts. It should be mentioned that the National Accounts Department is also responsible for a range of supplementary macro- and socio-economic statistics such as environmental accounts, tourism accounts, sustainability monitor, regional accounts, sub-categorisations of the household sector, KLEMS-based growth accounts and (micro) productivity statistics, MIP Indicators and various statistics on the financial market and financial institutes.

Main users of the National Accounts are society at large, policy makers and scientists. The ‘heavy users’ in the Netherlands of national accounts statistics are the Bureau for Economic Policy Analysis, the Dutch Central Bank and the Ministries of Economic Affairs and Finance. Publications on e.g. quarterly economic growth and recent macro-economic developments receive broad public interest and media attention.

### 1.1.3 Supervisory and control systems for national accounts

#### *General procedure*

The general framework for quality management at CBS is set by the Quality Guidelines (see annex 1.1). These guidelines are structured in accordance with the Object-oriented Quality and Risk Management model (OQRM: <http://www.oqrm.org/English>). This means that standards are set at three levels, i.e. object, one or more attributes of each object, and one or more requirements for each attribute. Objects are for example agreements, statistical output, and processes.

The Quality Guidelines contribute to:

- achievement of Statistics Netherlands' mission;
- achievement of Statistics Netherlands' core values: reliability, relevance, consistency and timeliness. Statistics Netherlands also takes due care with regard to privacy and confidentiality;
- conformity with legislation;
- the confidence of all stakeholders in Statistics Netherlands and its products;
- stakeholder satisfaction with the products of Statistics Netherlands;
- the image and reputation of Statistics Netherlands;
- the transparency of Statistics Netherlands.

Moreover, the Quality Guidelines:

- serve as input and explanatory notes for an audit framework;
- serve as input and explanatory notes in setting the self-assessment questions;
- provide a framework for statistical process redesign and amendment;
- ensure conformity with existing lower-level frameworks.

Standards in the Quality Guidelines are subdivided into three levels of importance. These levels are elaborated in Section 7.2 of the Quality Guidelines 2014. All standards that refer to the Code of Practice and the ESS QAF are at level 1 or 2.

Next to internal quality management also international assessments on quality of statistical procedures within CBS are carried out. The International Monetary Fund (IMF) carried out a ROSC-mission to the Netherlands during 3-17 October 2007. In this mission the IMF made an assessment according to their Data Quality Assessment Framework (DQAF). The following five statistics were scrutinised during the mission: National Accounts; Consumer Price Index; Producer Price Index; Government Finance Statistics; Balance of Payments.

The results of this mission are published in the Report on the Observance of Standards and Codes (ROSC) – Data Module. This Report is accessible via the IMF-website:

<http://www.imf.org/external/pubs/cat/longres.cfm?sk=21578.0>

#### *Statistical audits*

At Statistics Netherlands different tools are put in place to review processes. The 18 key statistical processes and 17 other general critical processes are subject to statistical audits on a regular basis. An audit team evaluates these processes every three years on a rolling basis. Ten audits are scheduled each year, and around 0.3 of a full-time equivalent is spent on each audit.

The audits are managed by a central department: Quality Management and Auditing. The auditors themselves are all internal statisticians and methodologists. An audit team consists of one audit team leader, two auditors from statistical departments, and optional one auditor from the methodological department. Two out of four audit team leaders have an external postgraduate degree in auditing. Audits are directly reported to our director-general. The results of the audits are used by process owners to plan improvement actions.

The director-general can also order an audit on other processes on an ad hoc basis or in the case of an emergency.

The total annual costs are equivalent to around 6.5 full-time equivalents.

### *ISO 9001*

In 2015, Statistics Netherlands started with the implementation of a quality management system complying with ISO 9001:2015 in one of the departments. This department was certified in December 2015. In the first half of 2016 four other processes and one statistical department will be ISO 9001 certified. Mid 2016 a time schedule will be set for other (statistical) processes.

As a result of this effort, statistical audits are put on hold until 2017. However, ISO 9001:2015 demands internal audits on the quality management system. These audits will be performed.

### *Self-assessment*

All statistical processes are subject to self-assessment. Annual assessments are conducted for so-called critical processes and three-yearly assessments for all other processes. The self-assessment questionnaire is also based on the Quality Guidelines. The purpose of the self-assessment is to identify points for improvement. Process owners are expected to compile action plans based on the results of the self-assessment.

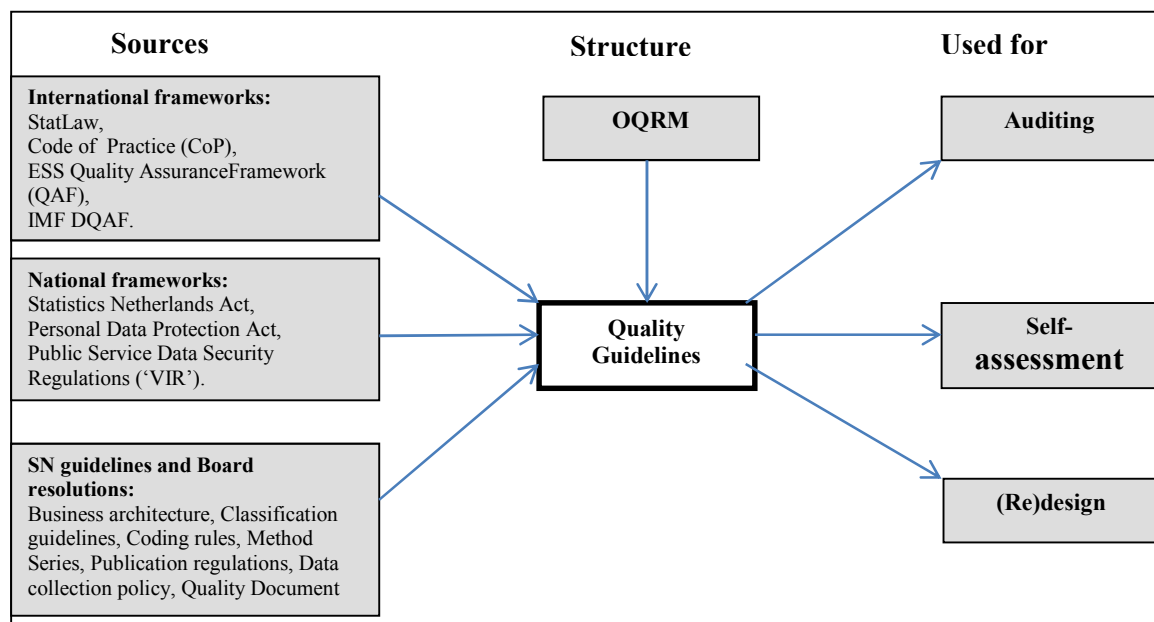
The total annual costs are equivalent to 0.5 of a full time equivalent.

### *Process descriptions*

Each statistical process maintains a Quality Document. As of 2014, this Quality Document consists of:

- a front page including an action plan to be signed by the process owner and department manager;
- a written and a graphical process description;
- an overview of the information systems used in the process;
- a documentation overview: titles and links
- agreements with data users and data suppliers;
- a completed self-assessment questionnaire.
- The Quality Document is regularly updated: annually for the 18 key statistics and three-yearly for all other statistics. The updates are centrally planned and monitored.

**Figure 1.1 Relationship between sources, structure and goals of the Quality Guidelines**



Quality assurance will guarantee the quality of statistical processes and in the end data quality. To this end a special unit within Statistics Netherlands is responsible for the coordination of the introduction of all quality assurance systems, inclusive The Regulation for the Security of Information of Central Government (VIR). The maintenance and updates of process documentation is the responsibility of the subject-matter departments.

The VIR creates an obligation to keep the descriptions of processes up-to-date. These descriptions provide insight in the structure of processes. Moreover, they indicate the constituent processes, their mutual relationships and who are the suppliers and who are the customers of these processes. Furthermore, service level agreements with suppliers and customers are being established, the input and the output of the subsequent processes are described, the owner of the process is identified, the structure of tasks, responsibilities and competences are established, the information systems supporting these processes are indicated, the final result of the process is described, the relationship to other processes is described and – on a higher level – the link of the process in the chain of activities is indicated.

The full description of processes creates awareness of (possible) risks and bottlenecks to which processes are exposed. This supports prevention of incidents. When incidents or calamities nevertheless occur, the VIR allows for proper and effective solutions to prevent these problems in future.

Each Department of Statistics Netherlands provides an annual work program which includes a risk paragraph. Risks are evaluated in quarterly progress reports. In this way entire management is informed about potential risks (statistical risks, personnel risks, ICT risks and so on) and can take the appropriate measures to minimise these risks.

Project management at Statistics Netherlands follows PRINCE 2 principles. Among other things, this means that Project Initiation Documents (PIDs will include a risk paragraph.

### *Lean Six Sigma*

In 2014 Statistics Netherlands started with an institute wide program to implement Lean Six Sigma as the standard method for optimizing operational processes (see annex 1.2). The goal of introducing Lean Six Sigma at CBS is enabling the organisation to carry out process improvement of operational processes in a structured manner and to build a culture of continuous improvement in which process optimization is obvious and routine. The program started with the introduction of the Lean Six Sigma project based approach with training of staff and performing improvement projects. Mid 2015 the program has been expanded with the introduction of Lean Operational Management. In the LOM approach complete teams are involved and improvement will become a part of the day's work for them, in contrast to the project approach where only project team members are involved.

### *Service Level Agreements*

CBS internal data deliveries are subject to Service Level Agreements (SLAs) and Standard Service Levels (SSLs). The National Accounts Department maintains SLAs with all Departments of Statistics Netherlands responsible for providing source statistics. These SLAs include a description of the statistical products and services that are needed for National accounts purposes. The SLAs also define the timely delivery of good quality data and the delivery of meta data including quality reports (e.g. response rates, definitions, imputations, location and treatment of outliers).

Statistics Netherlands and the Dutch Central Bank work closely together and the cooperation between the two organisations is intensified in recent years. As a result the data exchanges between the two organisations are substantive and laid down in what is called the "Cooperation Agreements". This 70 pages annually updated document specifies all mutual data deliveries, calendars, contact persons etc.

### *Internal checking procedures*

In the final stage of each quarter and year compilation cycle a quality control (a so-called check-recheck) meeting is held attended by internal, independent experts, not involved in the compilation process including the chief economist of Statistics Netherlands. The aim of these meetings are discussing the main results, informing colleagues about recent economic developments and formally approving the results. In preparing such meetings all compilers have to report on major events and summary reports of are sent to the Management Team of the National Accounts Department.

## **1.1.4 Cooperation Statistics Netherlands and the Central Bank**

The institutional sector accounts (current account, capital account, financial account and balance sheet) in the Netherlands are compiled by Statistics Netherlands, whereas the Balance of Payments and the International Investment Position (BOP/IIP) are compiled by the Central Bank (De Nederlandsche Bank, DNB). Although the operational cooperation between both institutions is close and has intensified over the past years, different use of sources and compilation methods (including revision strategies) have resulted in inconsistencies.

In 2014, The Dutch Central Bank and Statistics Netherlands made together the strategic decision to move toward a fully integrated compilation process for BOP/IIP statistics and

Sector accounts, which after implementation should result in fully consistent quarterly and annually published BOP/IIP and the rest-of-the-world account. These arrangements include the design of new joint reporting formats serving both BOP/IIP and national accounts needs, the development of a single revision policy, and the agreement on a clear division of tasks for the whole statistical process, from data collection to data dissemination. Expectedly this new integrated production process will be implemented step-by-step in 2017 and 2018 (see annex 1.3).

### **1.1.5 Geographical coverage of the Netherlands**

The delimitation of the Dutch economic territory and the designation of residents are in conformity with the definitions given in ESA 2010, sections 2.04 to 2.11 inclusive.

On 10 October 2010 the Netherlands Antilles ceased to exist. On that date the Islands Curaçao and St. Maarten became independent countries within the Kingdom of the Netherlands. The other islands of the former Netherlands Antilles, Bonaire, St. Eustatius and Saba, became special municipalities (“Openbare Lichamen”) within the Netherlands.

So, in the reporting year 2010 the Kingdom of the Netherlands consisted of three parts until 10-10-10, namely:

- The Netherlands, that is the territory of the Kingdom in Europe;
- The Netherlands Antilles (Curaçao, Bonaire, part of the Island of St. Martin (St. Maarten), St. Eustatius and Saba);
- Aruba (separated from the Netherlands Antilles on 1 January 1986).

From 10-10-10 onward the Kingdom of the Netherlands consists of four parts:

- The Netherlands, that is the territory of the Kingdom in Europe plus Bonaire, St. Eustatius and Saba as special municipalities;
- Curaçao;
- St. Maarten;
- Aruba.

While a number of matters subject to the authority of the Kingdom, such as defence and foreign relations, are regulated jointly, the four parts enjoy complete autonomy with regard to other ‘national’ matters.

The Dutch economic territory does not encompass Aruba, Bonaire, Curaçao, St. Maarten, St. Eustatius and Saba, because:

- Under the protocol of 25 March 1957, the Treaty of Rome applies only to the Kingdom in Europe and Netherlands New Guinea;
- By a convention of 13 November 1962, the Netherlands Antilles were incorporated in Annex IV (associated countries and areas) of the Treaty of Rome;
- The European Community is based on a customs union (Article 9 of the Treaty of Rome); ESA 95, section 2.05, refers to the territory benefiting from the free movement of goods;
- Only that part of the territory of the Kingdom lying within Europe forms part of the Community customs area (Directive 2151/84/EC of 23 July 1984).

The above-mentioned is confirmed in Commission Regulation (EC) No 109/2005 of 24 January 2005 on the definition of the economic territory of Member States for the purpose of Council Regulation (EC, Euratom) No 1287/2003 on the harmonisation of gross national income at market prices. In this regulation is stated that the territory of the Netherlands encompasses ‘the territory of the Kingdom of the Netherlands, with exception of the overseas countries and territories over which it exercises sovereignty, as defined in Annex II of the Treaty establishing the European Community’. In this Annex II Aruba and the Netherlands Antilles are stated.

There are no free trade areas within the Dutch territory. The value added in bonded warehouses, as a result, for instance, of storage and duty-free sales at airports, is included in GDP.

The Dutch section of the continental shelf is regarded as part of the economic area of the Netherlands. The extraction of oil and gas that takes place in this area is thus included in Dutch GDP. Inclusion in the statistics is based on the grant of an operating licence.

Territorial enclaves as defined in ESA 2010, section 2.05, relate in particular to Dutch embassies and some barrack areas in NATO partner countries or other countries. Extra-territorial enclaves as defined in ESA 2010, section 2.06, include foreign embassies and consulates and establishments of organisations such as the International Court of Justice, the Permanent Court of Arbitration, the Dutch Reactor Centre, ESTEC, EUROCONTROL, the Organisation for the Prohibition of Chemical Weapons, the International Criminal Court and the NATO.

The Netherlands does not have any deposits situated in international waters outside the Dutch part of the continental shelf that are exploited by resident units.

A point worth mentioning is that, in the province of Noord-Brabant, there are about 30 small Belgian areas that together form the municipality of Baarle-Hertog. These areas in turn enclose two small enclaves, which form part of the Dutch municipality of Baarle-Nassau.

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

### **1.2.1 The revision policy**

The national accounts provide a quantitative description of the economic developments over a given period in the Netherlands. The information required for the compilation of the national accounts is obtained from a great variety of sources which differ, in composition and quality, over time. Changes in data sources can lead to new insights with regard to level estimates and price and volume changes of variables. Because the information requirements of national accounts users also change in the course of time, it may be necessary to amend definitions, classifications and estimation methods.

A proper description of an economic phenomenon (actor, transaction) should satisfy two conditions:

- Up-to-date level estimates;
- Correct growth estimates (continuity principle).

Up-to-date levels refer to description of the economic process over a given period, applying the latest insights in definitions, statistical sources, etc. Continuity refers to comparability of the data over a sequence of periods, resulting in proper estimates of value, volume and price changes.

It is not (always) possible to meet both requirements simultaneously. In the Dutch national accounts priority is given to the continuity condition and ensuring that the data are comparable with those of a pre-determined base year, the year for which the latest benchmark revision was carried out. To this end, price and volume changes of product transactions between individual periods are estimated as accurately as possible. Level estimates are brought back to source statistics when conducting benchmark revisions. In this way the continuity requirement is met at all times. The continuity principle is particularly crucial within the supply-use framework and its main use for measuring economic growth (GDP growth in volume terms).

The up-to-date levels requirement is met by frequently conducting benchmark revisions when level estimates of national accounts variables are adjusted in line with the latest findings in the field of concepts, definitions, classifications, estimation methods and the like. The national accounts are revised periodically, however not too frequently in order not to distort the comparability of data over time too often. Limiting the occurrence of data gaps and disturbances in time series is much appreciated by the most important national accounts users in the Netherlands.

Over the last four decades benchmark revisions of the Dutch national accounts addressed the reporting years 1977, 1987, 1995, 2001 and 2010. New industrial classifications (NACE, rev. 1) were implemented for the reporting years 1993 and (NACE, rev. 2) 2008 reporting year. These ‘technical’ adjustments did not lead to revisions of the macroeconomic data. Table 1.1 below shows the adjustments in GDP-figures in the subsequent revision years.

**Table 1.1 GDP revisions in benchmark years**

	1969	1977	1987	1995	2001	2010
million euros						
<b>GDP after revision 2010</b>	NA	NA	NA	<b>325.341</b>	<b>476.696</b>	<b>631.512</b>
Rev 2010	NA	NA	NA	20.080	28.965	44.723
Rev 2001 <b>Orig 2010</b>	-63	1.374	810	3.028	18.386	<b>586.789</b>
Rev 1995 <b>Orig 2001</b>	2.173	4.410	7.793	11.972	<b>429.345</b>	
Rev 1987 <b>Orig 1995</b>	676	1.788	4.841	<b>290.261</b>		
Rev 1977 <b>Orig 1987</b>	2.848	6.135	<b>195.203</b>			
<b>Orig 1977</b>	→ → →	<b>118.623</b>				
<b>Orig 1969</b>	<b>46.156</b>					

In a benchmark revision, all recent insights are processed simultaneously and all level estimates are reviewed. Subsequently the existing time series are back-casted accordingly, restoring comparability over time. Benchmark revisions obviously require considerable effort, which makes annual benchmarking and back-casting very resource demanding, particularly in the context of maintaining full consistency of all GDP estimates within a quarterly and annual

supply-use framework. Similarly, such a strategy would not be appreciated by the most important national accounts users in the Netherlands.

One of the main reasons for the current 2010 revision are the conceptual changes as laid down in the ESA 2010. Conceptual changes in ESA 2010 compared to ESA 95 concern in particular the broadened scope of gross fixed capital formation and amending some of the consequences of globalisation. The scope of gross fixed capital formation is extended in respect of intangible assets (intellectual property products) which are seen as a typical feature of the present (new) economy. The main item in this field is research and development (R&D). Other important items are Military equipment, economic ownership and illegal activities.

Another reason for the 2010 revision is accommodating the changes in statistical information. Since the 2001 benchmark revision many changes in the compilation of source statistics took place. As a consequence of the continuous attention CBS pays to the reduction of the administrative burden on the business community, statistics are lesser based on surveys and increasingly on existing administrative data like tax registers. The information in tax registers is often less detailed but on the other hand holds a nearly exhaustive coverage of the target population. An important example is the use of VAT declarations in the compilation of business statistics. In the past, samples were grossed up to the target population as registered in the general business register. Nowadays turnover from the VAT-declarations is used as target for grossing up samples for small and medium enterprises. A second important administrative source used in this benchmark revision is the tax declarations for wages. These are the most important source for the estimation of the compensation of employees and the number of employee jobs in the NA. They also provide an opportunity to check the plausibility of business survey statistics.

The Dutch National Accounts are regularly subject to a comprehensive benchmark revision. The most recent benchmark revision relates to the reference year 2010. This revision was finalised in 2014. The previous benchmark revision concerned the reporting year 2001. The penultimate benchmark revision addressed the reporting year 1995. The 1995 revision also included the implementation of the European System of Accounts (ESA 95). The introduction of the ESA 95 sought to modernize national accounts and to improve international comparability of macro and meso data. This is particularly important in the European Union, as a number of ‘administrative’ regulations are based on national accounts data. Examples are the EU member state contributions to the EU Commission’s own resources, which are largely based on the gross national income (GNI) and agreements about the government deficit and debt within the framework of the Economic and Monetary Union (EMU).

The 2001 benchmark revision was also used to implement a number of conceptual changes in accordance with international agreements about national accounts after 1995. The main conceptual items in the 2001 benchmark revision concerned FISIM and SPE’s. The revision was also used to incorporate new statistical insights and sources in the national accounts. The same goes for the most recent revision 2010. The changes in the variables concerned are firstly due to conceptual changes as a consequence of the new ESA 2010 implementation and secondly on changes according to new statistical insights (“sources and methods”).

The revision 2010 of the national accounts had the following main consequences for the macroeconomic aggregates and policy indicators:

- Gross domestic product (GDP) was adjusted upwards by 44.7 billion euros (7.6 per cent). Conceptual adjustments contributed for 17.5 billion euros (3.0 per cent) to this GDP adjustment while 27.2 billion euros (4.6 per cent) originates from the implementation of new statistical insights;

- Gross national income (GNI) was adjusted upwards by 57.7 billion euros (10.0 per cent). The conceptual adjustments equalled 19.6 billion euros (3.4 per cent) while new data sources and methods led to an adjustment of 38.1 billion euros (6.6 per cent);
- The government deficit (according to the EMU definition, the EDP-deficit) relative to GDP was adjusted by minus 0.1 percentage points, from 5.1 to 5 per cent;
- The EDP-debt was adjusted by +4.4 percentage points, from 59.0 per cent to 63.4 per cent of the GDP.

The compensation of employees was adjusted upwards by 10.0 billion euros. Labour input of employees was raised by 28 thousand full-time equivalent jobs. The number of jobs of self-employed persons was raised upwards by 598 thousand. The Social Statistical Database (SSD) was used much more exhaustively to estimate wages and salaries and labour input.

### **1.2.2 The timetable for revising and finalising the estimates**

The publication National accounts of the Netherlands (online and as pdf-file) is annually released in the first half of July. This release provides provisional estimates for the two most recent years (t-1 and t-2) and the 'final' estimates for years earlier. Provisional data are subsequently adjusted. Published final data are generally not revised; they remain unchanged until the next benchmark revision.

In general, preliminary data contain less levels of detail than the final results. For both provisional and final national accounts, the comparability of results over time is ensured.

For the QNA, two estimates are published, namely the flash estimate 45 days after the end of the quarter and the regular estimate 90 days after the end of the quarter. Consequently, a first annual estimate for (T-1) is available mid-February of year T and a second annual estimate is released by the end of March of year T.

## **1.3 Outline of the production approach**

### *The main data sources*

The Dutch GDP calculations are primarily production and expenditure approach based. Estimating GDP according to the production approach entails the calculation of value added by industry. Value added is calculated as the difference between output and intermediate consumption. The process table shows for each separate branch of industry the composition of output, intermediate consumption and value added. Starting point for the estimates is either a statistical/administrative source (or a combination of both), like the Structural Business Survey, or an extrapolation/model (e.g. the estimate of output for owner occupied dwelling services).

The structural business survey is coordinated on the basis of a Statistical Business Register (SBR). The SBR records are obtained from the obligatory subscription of all businesses with the Chambers of Commerce (Nieuw Handelsregisters) including the unincorporated business. All businesses have to report on the nature of their activities in terms of NACE coding. Data on employment is integrally obtained from the employers' tax register. Its coordination is equally based on the SBR.

A variety of other surveys and administrative data sources are used for specific branches such as agriculture, forestry and fishing, financial and insurance activities, education, health and government services as for these branches business surveys are not available. Details on government activities are obtained administrative data of Central and Local Governmental bodies. For financial institutions most of the data sources originate from the Central Bank.

For National Accounts purposes adjustments of these sources are needed to meet the ESA 2010 requirements. On the one hand data adjustments are also needed to ensure exhaustiveness. A main conceptual adjustment in the 2010 benchmark revision is the inclusion of Research and Development expenditure (in addition to expenditure on software, entertainment, literary and artistic originals and other intellectual property products) in gross fixed capital formation, instead of intermediate consumption. Exhaustiveness adjustments cover among others illegal activities and hidden and informal economy. They are broken down in the Process Table according to the typology (N1-N7), according the “Eurostat's Tabular Approach to Exhaustiveness” (see document GNIC/050).

### *The Dutch SUT*

In the Netherlands the production approach is applied within the framework of supply and use tables (SUTs) in conjunction with the expenditure and income approach. It is important to notice that operating surplus/mixed income is determined as a balancing item which implies the production and income approach are balanced at all times. The production and expenditure based estimations of GDP are integrated in the annually compiled supply-use tables. The Dutch SUT distinguishes approximately 130 industries and 650 product groups. Output and intermediate consumption have the same product group breakdown. Prior to balancing, all data sources are translated into the required product group classification and as such the SUT provides a structured overview of the supply and use of products including the possible occurrence of statistical discrepancies. In a subsequent step the production and expenditure based estimates are balanced individually for each product group by first examining and solving the largest discrepancies after which minor discrepancies are balanced in an automated way. In the process table the effect of balancing on the production approach of GDP is quantified in column (10). See table 1.2.

**Table 1.2. Output, intermediate consumption and value added (GDP) Dutch Economy, 2010, according to the production approach**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
<b>Output</b>	813.449	90.834	160.237	118.388	0	1.182.908	-20.442	6.704	8.228	-112	1.177.286
<b>Intermediate cons.</b>	497.104	36.657	79.238	15.808	0	628.807	-19.516	11.794	-6.544	-5.012	609.529
<b>Value added</b>	316.345	54.177	80.999	102.580	0	554.101	-926	-5.090	14.772	4.900	567.757

The first 6 paragraphs of Chapter 3 on the production approach of GDP raise general issues such as the reference framework, valuation issues and applied estimation methods. The other parts of the chapter (3.7 to 3.27) provide detailed descriptions of all the branches of industry.

The last two paragraphs go into detail on taxes on products, including VAT (3.28) and subsidies on products (3.29).

### *Exhaustiveness*

Chapter 7 provides an overview of the various types of adjustments made in relation to exhaustiveness in the production approach. Before the 2010 benchmark revision estimates addressing the non-observed economy (NOE) were already included. Following the tabular approach of Eurostat, the estimates for exhaustiveness are classified in the N-classes, i.e. N1 (underground production), N2 (illegal production, drugs, smuggling), N3 (producer is not obliged to register), N6 (cost fraud) and N7 (income in kind). This disaggregation, however, proved to be difficult due to several N-class overlaps and due to issues of interpretation. The results covering all branches of industry are shown in table 1.3.

**Table 1.3 Estimates for exhaustiveness in the production approach disaggregated by N-classes**

Types of non-exhaustiveness								Total
	N1	N2	N3	N4	N5	N6	N7	
million euros								
Output	1.825	3.053	2.684	0	0	0	666	8.228
Intermediate cons.	-743	653	182	0	0	-746	-5.890	-6.544
Value added	2.568	2.400	2.502	0	0	746	6.556	14.772

The activities that contribute most to the value added are income in kind (6.556 million euros, part of N7), cleaning of houses and buildings (1.437 million euros, part of N3), missing units in SBR (1.205 million euros, part of N1), cannabis (1.039 million euros, part of N2) and house renovations and maintenance (972 million euros, also part of N1). Relatively important branches of industry in the field of non-exhaustiveness are “N. Administrative and support service activities” (additional value added estimate of 2.358 million euros), “G. Wholesale and retail trade, repair of motor vehicles and motorcycles” (additional estimate of 2.257 million euros) and “F. Construction” (1.827 million euros).

## **1.4 Outline of the income approach**

As stated in the section above, in the national accounts of the Netherlands the income approach is automatically balanced with the production approach as operating surplus/mixed income is determined as a balancing item in the SUT. Nevertheless independent estimates for value added components such as the compensation of employees and mixed income are made based on (administrative) statistical data. Next to that plausibility checks are carried out on (net) operating surplus. By applying the so-called ‘dual classification’ on the components of value added in the supply and use table, these are redistributed from the branches of industry of the supply and use tables to the sectors of the institutional sector accounts.

### *The main data sources*

Several sources are used to rearrange the transactions from industries of the supply and use tables into the sectors in the sector accounts such as business statistics, statistics on corporate finance and the Statistical Business Register (SBR). The estimates of mixed income are based on the tax records of self-employed workers (the “Satelliet Zelfstandige Ondernemers”, SZO) and used for splitting operating surplus/mixed income split. It must be emphasised that for large parts of the general government and the financial institutions data sources are primarily sector accounts oriented. The supply and use table estimates for these sectors are subsequently derived in close connection with the institutional sector accounts. Therefore the dual classification requires mainly supplementary estimations in relation to the non-financial corporations, households and non-profit institutions serving households and not or less for the government and financial institutions sectors.

### *Main results*

In table 1.4 the data are summarised for the income approach. As gross operating surplus is derived as a residual item in the production method, no source data are used for an autonomous estimate of this variable. Therefore estimates for gross operating surplus appear only in the final column (11).

**Table 1.4 Components of value added (GDP) Dutch Economy, 2010, according to the income approach**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	million euros										
Comp of employees	0	295.674	0	12.523	0	308.197	0	0	2.143	131	310.471
Gross oper. Surplus	-	-	-	-	-	-	-	-	-	-	207.586
Mixed income	0	41.304	2.536	0	296	44.136	0	79	7.204	0	51.419
Taxes prod. and imp.	0	73.329	0	0	0	73.329	0	0	0	0	73.329
Subsidies	0	11.293	0	0	0	11.293	0	0	0	0	11.293
GDP	-	-	-	-	-	-	-	-	-	-	631.512

### *Exhaustiveness*

The estimate for exhaustiveness in table 1.4 refers to income in kind (value added is 2.143 million euros) and to additional estimates for tipping in some branches of industry, i.c. 49 “taxis”, 55/56 “hotels and restaurants etc.” and 96 “hairdressers” (470 million euros in total). See chapter 7.

## **1.5 Outline of the expenditure approach**

The expenditure approach is to a large extent independently estimated within the context of the SUT framework. Within the Dutch SUT final expenditure compared and balanced with the industry-based estimates of output, intermediate consumption leading to harmonization of the expenditure and production approaches of GDP.

### *The main data sources*

The main sources for the calculation of final consumption expenditure by households (including NPISH) are the household budget survey and SBS statistics on retail trade, as well as a number of supplementary surveys addressing special categories of consumption expenditure, for example the survey of paid rents for dwellings. For GFCF annual surveys of Statistics Netherlands are used and for changes in inventories most information comes from the SBS statistics. For the imports and exports of goods the international trade in goods statistics are used and for the imports and exports of services the international trade in services statistics are used, combined with some other sources such as information from the Dutch Central Bank in relation to measuring financial and insurance services.

**Table 1.5 Components of value added (GDP) Dutch Economy, 2010, according to the expenditure approach**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
FCE (incl. NPISH)	98.148	39.363	7.232	99.578	0	244.321	0	27.444	10.757	-12	282.510
Government CE	0	144.890	0	24.780	0	169.670	0	-2.438	0	0	167.232
GFCF	48.804	25.627	5.940	40.154	3.491	124.016	1.317	-344	0	-340	124.649
Changes in inventories	4.211	0	0	341	0	4.552	0	-608	0	364	4.308
Exports of goods/serv	450.843	0	11.441	2.818	0	465.102	-1.600	-12.828	3.835	-111	454.398
Imports of goods/serv	388.026	0	16.746	1.535	0	406.307	12.313	-24.497	2.450	5.012	401.585
GDP	213.980	209.880	7.867	166.136	3.491	601.354	-12.596	35.723	12.142	-5.111	631.512

### *Exhaustiveness*

The estimate for exhaustiveness in table 1.5 is disaggregated into N-classes. For Household Final Consumption Expenditure (including NPISH) the total estimate of 10.757 million euros is divided into the classes N1 (hidden activities), N2 (illegal production, drugs, prostitution), N3 (not registered production, e.g. cleaning of dwellings and babysitting), N6 (impact of cost fraud) and N7 (wages in kind).

**Table 1.6 Estimates for exhaustiveness in the total household final consumption expenditure disaggregated by N-classes**

Types of non-exhaustiveness								Total
	N1	N2	N3	N4	N5	N6	N7	
million euros								
HFCE	418	1.485	1.834	0	0	746	6.274	10.757
Exports	0	2.224	0	0	0	0	1.611	3.835
Imports	188	1.187	0	0	0	0	1.075	2.450

## **1.6 The balancing or integration procedure, and main approaches to validation**

Chapter 6 deals with valuation issues and balancing of the Dutch supply and use table. Further, the classifications of the rows (product groups) and columns (branches of industries, final expenditure categories) on the working level of the SUTs are reviewed. An important point is that the source data are directly linked to the units of observation as defined in the statistical business register (SBR). The current balancing process entails a simultaneously balancing of values and volume terms i.e. balancing in terms of prices of the previous year.

### *General procedure*

In the first stage of the balancing process the largest discrepancies between supply and use are taken into account. The process of eliminating these large (absolute and relative) discrepancies is a manual process requiring the expertise and involvement of ‘transaction and branch specialists’. In a second stage the remaining minor discrepancies are solved by way of automatic balancing with the help of a so-called “balancing machine”. In short, this is a mathematical optimisation procedure under a set of restrictions, e.g. “hard” restrictions implying that no adjustments are allowed.

### *2010 Benchmark Procedure*

Contrary to the above explained process in the course of a benchmark revision, such as 2010, all product groups are balanced manually. The reason for this is that the weights and restrictions of the balancing machine are partly the result of experiences from preceding years. A benchmark revision leads to re-examination and revision of all weights and restrictions, based on the most recent experiences obtained from balancing of the benchmark year. Furthermore, balancing of the 2010 revision year is only done in current prices as no corresponding 2009 2009 existed, constant (previous year) prices analyses are irrelevant.

### *Final check*

When the balancing is completed, the supply and use table (SUT) produce a set of consistent and coherent data of supply and use of goods and services on a detailed level in current prices and in volume growth terms (including plausible value, price and volume changes). The results are discussed by a small group of (process) managers and experts that are not necessarily involved in the compilation process. This final review may lead to usually a restricted number of final data improvements which bring the SUT compilation process to an end.

### *Results of the 2010 revision year balancing process*

At the start of the balancing process at macro level product use appeared to surpass product supply. This use surplus was dominated by services and building materials. Generally output is considered more reliable than intermediate consumption as the former is (partly) based on administrative VAT-data. As a result uses were on average downwardly adjusted. In manufacturing and trade the negative balancing adjustments in services are partly compensated because of a surplus of supply in freight brokerage and industrial services. In

case of building materials not only intermediate consumption was adjusted, also output was (upwardly) adjusted, however to a much lesser extent.

**Table 1.7 Balancing adjustments production method, million euros**

	Initial estimate	Balancing	Final estimate
Output of goods and services (at basic prices)	1.177.398	-112	1.177.286
Intermediate consumption (at purchasers' prices )	614.541	-5.012	609.529
Gross value added (at basic prices)	562.857	4.900	567.757
Taxes on products	67.306	0	67.306
Subsidies on products	3.551	0	3.551
<b>Gross domestic product</b>	<b>626.612</b>	<b>4.900</b>	<b>631.512</b>

**Table 1.8 Balancing adjustments expenditure method, million euros**

	Initial estimate	Balancing	Final estimate
<b>Total final consumption expenditure</b>	<b>449.754</b>	<b>-12</b>	<b>449.742</b>
Household final consumption expenditure	277.055	139	277.194
NPISH final consumption expenditure	5.467	-151	5.316
General government final consumption expenditure	167.232	0	167.232
<b>Gross capital formation</b>	<b>128.933</b>	<b>24</b>	<b>128.957</b>
Gross fixed capital formation	124.989	-340	124.649
Changes in inventories	3.603	264	3.867
Acquisitions less disposals of valuables	341	100	441
<b>Exports of goods and services</b>	<b>454.509</b>	<b>-111</b>	<b>454.398</b>
goods	360.527	-231	360.296
services	93.982	120	94.102
<b>Imports of goods and services</b>	<b>396.573</b>	<b>5.012</b>	<b>401.585</b>
goods	298.696	1.371	300.067
services	97.877	3.641	101.518
<b>Gross domestic product</b>	<b>636.623</b>	<b>-5.111</b>	<b>631.512</b>

In the process tables, the deciding factor for the recording of adjustments is whether, considering the state of art of the data sources, it would have lead (without using any information from other data source) to a different initial estimate of the concerning industry or expenditure category. If so, the adjustment is recorded under data validation, if not it is recorded under balancing adjustments. The results in Tables 1.7 and 1.8 are based on this criterion. Only the result from the production and expenditure approaches are shown as the income approach cannot be independently applied from the production approach.

## 1.7 Overview of the allowances for exhaustiveness

The general approach to exhaustiveness that is followed at Statistics Netherlands can be said to be an activity specific approach. As a first step, a list of activities was compiled which were considered relevant in the context of the non-observed economy (NOE). Secondly, for each activity a provisional estimate of output and intermediate consumption was made, using the most suitable method given the availability of data sources. In case of illegal activities, output based estimates and expenditure based estimates were made simultaneously

Examples of used data sources are research reports, administrative data, newspaper articles and internet information. Sometimes, when information is entirely lacking, estimates result from expert judgement. The last step is to translate the estimated non-observed activities into labour inputs. Hereto information is used about average remuneration for specific activities which are derived mostly from incidental research or surveys on certain underground activities. Sometimes proxy wages are used from the industry in which the NOE-activity is occurring. In a second step, the number of hours worked was translated into man-years and the number of man-years was translated into number of jobs (distinguishing self-employed and employees) taking into account the expected average number of worked hours per worker (part-time factor). As a result, consistency is achieved between the production accounts, the institutional sector accounts and the labour accounts.

The estimates of exhaustiveness are in principle annually updated. The precise estimation process depends on the specific activity in question. In most cases the 2010 benchmark estimate is extrapolated based on the development of indicators such as population, prices, or growth rates in specific NACE activities. Parameters used in the activity specific methods such as seizure rates for drugs are usually not revised, due to the absence of reliable and comparable annual data. Methodological revisions as well as the addition of new NOE-activities only occur during benchmark revisions.

The production approach is generally considered most exhaustive. The exhaustiveness of the statistical business register which was improved in the last 5 years because of changes in legislation, play an important role. Not only for those parts covered by statistics, also a better picture of parts of the economy not covered by statistics in terms of the number of units and employees became available. For a number of industries the initial production data from business statistics is overruled by estimated expenditure data. For instance, in case of hairdressers, the consumption estimate of hairdressing services is based upon population data and information from the branch organisation on the number of visits by customers by and prices charged. The reported value in business statistics is adjusted in order to include underground production.

Technically speaking, the estimates for NOE-activities are added to estimates of production and (final) use in the processing stage prior to balancing. An additional mark-up is added or an adjustment to the observed economic activities is made. This requires that the estimated values for non-observed production and intermediate consumption are translated into the required product detail of the Dutch national accounts. It needs to be mentioned that due to the issue of double counting value added of non-observed activities need not be equal to the impact their inclusion will have on GDP. Some revenues may already be included in national accounts. For instance, coffee shops (sales of cannabis) are recorded in the statistical business register and therefore will have (at least) imputed production as a consequence of grossing up of samples. Also some expenditure may already be recorded in the accounts under final consumption. Some of these expenses need to be relocated or adjusted for double counting.

In table 1.9 an overview is given for estimated non-observed activities, their type (N-class) and the values of output, intermediate use and value added in the production approach.

**Table 1.9 Overview of estimates made for exhaustiveness**

Activity	Type	ISIC	Production	Interm.	
				Cons.	Value added
			mln	mln	mln
House renovations and maintenance	N1	41, 43	1.535	563	972
Car repair and maintenance	N1	45	151	75	76
Food/beverage service activities	N1	56	204	105	99
Temporary employment mediation	N1	78	565	125	440
Hairdressers and landscaping	N1	81, 96	418	111	307
Double counting units	N1	86	-1.667	-891	-776
Missing units in GBR	N1	63,64	355	-850	1.205
Other	N1	multiple	264	19	245
<b>Subtotal</b>	<b>N1</b>		1.825	-743	2.568
Cannabis	N2	12, 56	1.417	378	1.039
Drugs (e.g. XTC, heroin/cocaine)	N2	21, 47	474	54	420
Smuggling cigarettes and fencing	N2	47	399	4	395
Illegal copying and gambling	N2	59, 92	267	23	244
Prostitution	N2	96	861	321	540
Adjustment double counting			-365	-127	-238
<b>Subtotal</b>	<b>N2</b>		3.053	653	2.400
Own account construction	N3	41	403	172	231
Cleaning houses and buildings	N3	81	1.437	0	1.437
Babysitters and childcare	N3	88	751	0	751
Other	N3		93	10	83
<b>Subtotal</b>	<b>N3</b>		2.684	182	2.502
Costfraud	N6	multiple	0	-746	746
<b>Subtotal</b>	<b>N6</b>		0	-746	746
Tips	N7	49,55,56,96	470	0	470
Income in kind	N7	multiple	196	-5.890	6.086
<b>Subtotal</b>	<b>N7</b>		666	-5.890	6.556
<b>Total</b>			<b>8.228</b>	<b>-6.544</b>	<b>14.772</b>

## 1.8 The transition from GDP to GNI

### *Cooperation between the Dutch Central Bank and Statistics Netherlands*

The Dutch Central Bank (DNB) is responsible for compiling the Balance of Payments (BoP), which is an important source for the transition items from GDP to GNI in National Accounts. At the time of finishing the ESA 2010 revision, DNB had not yet implemented BPM6. The first BoP results according to BPM6 were published by DNB on 25 November 2015. The 2010 national accounts revision was therefore based on the BPM5 BoP combined with adjustments linking the data to ESA 2010. In the course of subsequent reporting years (2011 and further) DNB and CBS intensified their efforts to close existing differences between BoP and NA. In the past, the cooperation between CBS and DNB focussed, among other things, on aligning as much as possible the reporting of cross border property income flows of the most significant non-financial corporations and captive financial institutions to CBS and DNB. Nevertheless substantial differences between the national accounts and the BoP could still occur. Recently this cooperation between CBS and DNB was intensified with the purpose of further diminishing the differences between both statistics. The ultimate goal is to fully align the Dutch national accounts and BoP.

### *Main data sources in relation to property income*

Table 1 of chapter 8 shows the 2010 GDP-GNI difference (5.1 billion euros) which is by far dominated by the balance of property income flows from and to the rest of the world. The balance of property income (10.6 billion) is the result of extremely large property income payments to (212.1 billion), and receipts from (222.7 billion) the rest of the world. The size of these gross in- and outflows correspond to more than 33 per cent of GNI.

With regard to measuring these property income flows, one of the main sources is a dedicated BoP survey of DNB called “Directe RAportage” (DRA). Another major source is “Statistiek Financiën Ondernemingen” (SFO), which consists of a survey for large non-financial corporations (SFGO) and of tax data for small non-financial corporations (SFKO). In addition to BoP, supplementary data sources, referring to non-financial corporations, financial institutions, government, households, non-profit institutions serving households (NPISH), are used to compile the GDP-GNI transition items.

**Table 1.10 Transition from GDP to GNI, 2010, million euros**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
GDP	316.345	117.193	80.999	102.580	0	617.117	-926	-4.351	14.772	4.900	631.512
Comp empl from ROW	0	0	0	1.099	0	1.099	0	0	0	0	1.099
Comp empl paid ROW	0	5.532	0	0	0	5.532	0	0	0	0	5.532
Taxes on prod/EU	0	1.968	0	0	0	1.968	0	0	0	0	1.968
Subsidies/EU	0	895	0	0	0	895	0	0	0	0	895
Property income from ROW	0	0	223.972	0	0	223.972	0	-2.905	0	1.659	222.726
Property income paid ROW	0	0	211.728	0	0	211.728	0	-1.622	0	2.000	212.106
GNI	316.345	110.588	93.243	103.679	0	623.855	-926	-5.634	14.772	4.559	636.626

## *Process Table*

Table 1.10 shows the items in the transition from GDP (final estimate is 631.512 million euro) to GNI. In chapter 8 the transition is shown in more detail.

### **1.9 Main classifications used**

Chapter 9 provides an overview of the classifications used in the supply and use table (SUT) and the institutional sector accounts.

The first classification refers to the so-called regkols, which is a Dutch abbreviation for the column entries in the SUT (the branches of industry and final expenditure as used in the tables). The list of regkols connects the regkol to NACE, rev. 2 codes and includes the regkol names and those of the corresponding 4 or (if necessary) 5 digits NACE, ref. 2 codes. The product classification in the SUT as presented in chapter 9 is linked to CPA.

Chapter 9 also provides an overview of the sector-classifications as found at compilation level in the institutional sector accounts system together with the classification of transactions in the sector accounts.

The classification of the branches of industry in the labour accounts is principally the same as the regkols in the SUT. The relationship between the Sectors and the regkols for output (table 3.1), intermediate consumption (table 3.2) and value added (table 3.3) is described in chapter 3 on the more aggregated level (the so-called “dual classification”). In the National Accounts publications (e.g. on StatLine) the dual classification is published for value added components including compensation of employees.

The third section of chapter 9 introduces the classifications underlying the expenditure approach of GDP. The classification of goods and services found in the household budget survey includes nearly 2.200 lines items. These items are bridged to the classification of goods and services in the SUT (an excel sheet is attached to chapter 9). Chapter 9 also includes information on the relationship between the classifications of goods and services in international trade and the SUT.

Finally, the classification of gross fixed capital formation by asset type at compilation level is presented in this section.

### **1.10 Main data sources used**

The main data sources are listed in chapter 10. For the production approach the main data source is the Structural Business Statistics (SBS). This is why the SBS is separately discussed in chapter 3. Paragraph 3.1.2 explains that in 2009 a new compilation system for the SBS was implemented. This was part of an overall redesign programme of economic statistics. One important feature of the new system is the increased use of administrative data (VAT data). In table 1 in paragraph 3.1.2 population and sample sizes of the SBS in 2010 are listed. Dedicated questionnaires are used for the various industry categories. In chapter 10 an example is attached for the manufacturing industry.

Other surveys used for the production approach are government statistics, health accounts and statistics on financial corporations. For each these surveys the questionnaires are attached and the key figures of the surveys are given according the scheme of Eurostat.

The administrative data in the Statistical Social Database (SSD) are a key source underlying the income approach. These data form the basis for the labour accounts, which are fully integrated in the Dutch national accounts. The SSD contains information from the administrations of the social security institutions and has an almost full coverage of the compensation of employees in the Netherlands. Section 10.2 provides a description of the administrative records of employment and social insurance. A very important source for financial transactions in the Dutch national accounts is the Direct Reporting Scheme (DRA) from the Central Bank. According the Eurostat template, the characteristics of this source are listed in chapter 10. Two examples of DRA questionnaires are added.

A survey form of the international trade in services questionnaire is attached to section 10.3 which sums up those surveys underlying the expenditure approach. In addition to the GFCF survey list section covers e.g. ICT usage and ICT expenditure survey, the R&D survey. Also reference is made to the international trade in goods survey (for intra EU-trade) and to the information obtained from customs (for trade with third countries). Section 10.3 includes a reference to the CBS webpage with more detailed information on the household budget survey and the GFCF survey.

## **CHAPTER 2 THE REVISIONS POLICY AND THE TIMETABLE FOR REVISING AND FINALISING THE ESTIMATES; MAJOR REVISIONS SINCE THE LAST VERSION OF THE GNI INVENTORY**

### **2.1 The revisions policy and the timetable for revising and finalising the estimates**

The statistical description of an economy preferably satisfies two conditions, namely (1) up-to-date level estimates and (2) continuity in terms of correct value, price and volume changes. Up-to-date level estimates relate to the most accurate possible description of a transaction or an economic activity over a given period, whilst continuity concerns comparability in time of statistical information over several periods. It is not always possible to meet both requirements simultaneously. In the Dutch national accounts priority is given to comparability in time with respect to the latest benchmark revision year. This priority implies that level shifts in source data are not translated to national accounts estimates until the next benchmark revision. Price and volume changes between two subsequent periods are estimated, using the up-to-date source data however adjusted for level shifts. These adjustments guarantee estimated levels that are fully comparable with the corresponding benchmark year. In this way, the continuity requirement is met while also using up-to-date source data.

The up-to-date requirement is met by conducting benchmark national accounts revisions on a regular five-year basis. In a benchmark revision the level estimates are adjusted in line with the latest insights, concepts, definitions, classifications, estimation methods and the like.

#### *Revision policy*

National accounts estimates are regularly updated when new statistical information becomes available. Each reporting year is covered by a sequence of three national accounts estimates. For the two most recent years (t-1 and t-2) provisional estimates are made which rely on the results of the quarterly estimates combined with annual information which is available at the time of compilation. The final estimate (t-3) is made from 'scratch' and thus independently from earlier estimates, by using annual data sources which are not earlier available such as Structural Business Statistics (SBS), R&D-statistics and statistics on gross fixed capital formation. After publication of the final estimates further data revisions generally do not occur. The final estimates remain unchanged until the next benchmark revision.

#### *Timetable for annual (routine) revisions*

The press release and online data are released annually at the end of June. The publication 'National accounts of the Netherlands' (online and as pdf-file) is released in the first half of July. This release provides provisional estimates for the two most recent years (t-1 and t-2) and the 'final' estimates for previous years. Provisional data are updated in subsequent years. Published final data are generally not revised and remain unchanged until the next benchmark revision. It should be noticed that from 2017 onwards the release of annual national accounts data only includes one preliminary (t-1) year estimate and one final (t-2) estimate. In 2016 two subsequent final estimates were published for the reporting years 2013 and 2014, together with the preliminary estimate for 2015. The scheme below reflects the annual publication schedule in use before 2016.

*National accounts published in June of year T:*

- provisional figures for year T-1;
- revised provisional figures for year T-2;
- final figures for year T-3.

*National accounts published in June of year T+1:*

- provisional figures for year T;
- revised provisional figures for year T-1;
- final figures for year T-2.

*National accounts published in June of year T+2:*

- provisional figures for year T+1;
- revised provisional figures for year T;
- final figures for year T-1.

For the compilation of preliminary estimates a less detailed product classification in the SUT is used compared to the final estimates. For both preliminary and final estimates in the national accounts comparability in time is ensured.

For the quarterly national accounts two estimates are published, namely the flash estimate 45 days after the end of the quarter (only the SUTs) and the regular estimate 90 days after the end of the quarter (SUTs and Institutional sector accounts). Consequently, a first annual estimate for GDP of T-1 is available mid-February of year T and a second annual estimate is released by the end of March of year T. This estimate is updated in the June/July as part of the annual data release.

Scheme 2.1 provides an overview of the annual estimates. The timetable of regular revisions is linked to the main data sources available.

Table 2.1 provides an overview of the impact of routine revisions on GNI and GDP for the annual data in the period 2001-2012. Percentage differences are shown for consecutive estimates: preliminary (P), revised preliminary (RP), final (F). Also the total difference between the first (preliminary) and last (final) estimate is provided.

### *Benchmark revisions*

The up-to-date requirement is met by regular benchmark revisions of the national accounts. The level estimates are then adjusted in line with the latest insights, concepts, definitions, classifications, estimation methods and the like.

Economies are changing continuously driven by phenomena such as the internet boom, on-going globalisation of production chains, the growth of trade in financial products such as derivatives and the increasing role of intellectual property products such as research and development. The national accounts (NA) must be able to keep track of each of these developments. This is why the international national accounts guidelines (SNA, ESA) occasionally require an update. Under the auspices of the United Nations the modernization of the guidelines was carried out and laid down in the System of National Accounts 2008 (SNA2008). The SNA2008 is fully consistent with the Balance of Payments Manual 6 of the International Monetary Fund. These international guidelines for compiling the balance of payments were introduced by the Dutch Central Bank in 2014.

## Scheme 2.1 Annual estimates of national accounts

Assessment and revision dates for year-t figures	Bases for calculation
<b>1. Mid February, year t-1</b>  First provisional annual <b>GDP</b> estimate	This first annual GDP estimate is the sum of three regular quarterly estimates (QI, QII and QIII) and the flash estimate for QIV. Main sources underlying the quarterly supply-use table compilations, on which these GDP estimates are based, are short term business surveys combined with VAT tax register data.
<b>2. End March (85 days after the reference quarter), year t-1</b>  First <b>GNI</b> estimate combined with an updated <b>GDP</b> estimate.	This first annual GNI estimate is based on the sum of four quarterly estimates (QI, QII, QIII and QIV). The GNI estimate is based on the GDP related sources mentioned under 1 supplemented with surveys for the non-financial corporations, financial corporations, balance of payments and administrative sources for the government.
<b>3. End June, year t-1</b>	This preliminary annual GNI estimate is an update of the sum of four quarters (2) based on updates of the set of data sources specified under 2. National account estimates are based on an updated t-2 reference year.
<b>4. End June, year t-2</b>	Revised preliminary GNI estimate is largely based on the annual data sources as explained in detail in the 2010 GNI Inventory. National account estimates are based on an updated t-3 reference year.
<b>5. End June, year t-3</b>  <b>Final result</b>	The final result is based on (updates) of the annual data sources as explained in detail in the 2010 GNI Inventory. In 2017 the t-3 result will no longer be published as all annual data sources are already available at t-2. This implies that from 2017 onwards the final result will be published at t-2.

**Table 2.1 Impact of routine revisions on GNI and GDP**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>GNI</b>	million euros											
2004	451.110	469.468	477.176	489.791								
2005			482.368	503.801	510.183							
2006				504.333	512.162	543.116						
2007					515.885	557.017	582.295					
2008						554.741	576.875	580.214				
2009							581.275	584.899	556.518			
2010								581.855	556.842	583.424		
2011									559.385	579.317	607.180	
2012										577.787	600.964	604.993
	%											
P--> RP				2,9	0,4	2,6	-0,9	0,8	0,1	-0,7	-1,0	
RP-->F			1,1	0,1	0,7	-0,4	0,8	-0,5	0,5	-0,3		
P-->F				3,0	1,1	2,1	-0,2	0,3	0,5	-1,0		
<b>GDP</b>	million euros											
2004	447.731	465.214	476.349	488.642								
2005			476.945	489.854	505.646							
2006				491.184	508.964	534.324						
2007					513.407	539.929	567.066					
2008						540.216	568.664	595.883				
2009							571.773	596.226	571.979			
2010								594.481	571.145	588.414		
2011									573.235	588.740	601.973	
2012										586.789	599.047	599.338
	%											
P--> RP				0,2	0,7	1,0	0,3	0,1	-0,1	0,1	-0,5	
RP-->F			0,1	0,3	0,9	0,1	0,5	-0,3	0,4	-0,3		
P-->F				0,5	1,5	1,1	0,8	-0,2	0,2	-0,3		

Due to the specific user need in Europe, such as establishing the EU's own resources based on gross national income (GNI) and VAT and monitoring the agreements on government deficit and debt, the European Commission released in 2013 the European System of Accounts 2010 (ESA2010). ESA2010 is fully compliant with SNA2008. However several guidelines in the ESA2010 is more specific, more precise and more elaborated compared to SNA2008, in order to get a more harmonized interpretation of concepts in compiling NA within the EU. It also improves the international comparability of national accounts data which is important in the context economic policy of the EU and the Economic and Monetary Union (EMU).

ESA2010 is the successor of ESA1995 and has the power of law within the EU. From September 2014 onwards the NA data of all member states of the EU have to be compiled in conformity with the ESA2010 regulation.

Implementation of ESA2010 required a methodological revision of the Dutch NA. This methodological revision was combined with a benchmark revision. The introduction of ESA2010 created the opportunity to go thoroughly into the statistical system and the accounting procedures routinely applied. Since the last benchmark revision the collection of data and the compilation of statistics changed, which gave rise to changes in the quantitative results. The implementation of ESA2010 provided an opportunity to simultaneously adopt the Dutch national accounts to the most recent statistical knowledge and source data.

The national accounts are revised periodically, however not too frequently in order to avoid distortions in data comparability over time. Together with a benchmark revision, all conceptual information and data updates were processed in one go, leading to updated level estimates for all variables in the system. Subsequently the existing time series were adjusted accordingly, which means that data comparability over time was re-established but linked to the most recent benchmark estimates. Benchmark revisions require substantive resources, which is an important reason why level estimate re-assessments cannot be conducted on an annual basis. In addition the most important users of the national accounts in the Netherlands, particularly the Dutch Bureau for Economic Policy Analysis and the Dutch Central Bank, generally do not welcome frequent revisions of time series as their forecasting models require consistent and long national accounts time series.

Previous Dutch benchmark revisions addressed the accounting years 1969, 1977, 1987, 1995, 2001 and 2010.

The immediate impetus for the 1995 and 2010 revisions was the introduction of ESA 1995 and ESA 2010 respectively. The most recent revision, reference year 2010, includes the conceptual changes resulting from the ESA 2010 implementation. The most significant conceptual changes of the ESA2010 implementation were the capitalisation of expenditure on Research and Development and on Military weapons.

## **2.2 Major revisions due to the transition from ESA 1995 to ESA 2010**

### *Conceptual changes*

Conceptual changes in ESA2010 compared to ESA1995 concern in particular the scope of gross fixed capital formation and the consequences of globalisation. These conceptual changes are further explained below.

#### **2.2.1 Research and Development**

According to previous international guidelines (SNA93/ESA95) expenses on R&D were considered as current costs and recorded as intermediate consumption in the NA. In the Dutch national accounts R&D produced on own account was recorded as output and intermediate consumption within the same enterprise. This exception of the rule that ancillary activities within an enterprise are not recorded in the NA ensured the expenses on R&D were visible, but would not influence value added and GDP. The revised guidelines prescribe R&D to be recorded as gross fixed capital formation (GFCF) as these expenses, similar to other capital goods, will generate revenues in the future. As a consequence, intermediate consumption of R&D ceases to exist and GFCF in R&D will be introduced in the accounts as a new item. This concerns both R&D purchases as R&D produced on own account. As a logical consequence consumption of fixed capital (depreciation) of R&D must be taken into account. For market producers the impact of R&D capitalisation on value added and GDP corresponds to the R&D added to GFCF. For non-market producers such as the government the impact on value added and GDP equals the consumption of fixed capital of R&D.

### **2.2.2 Military equipment**

Following the guidelines of ESA2010 expenses on military equipment which fulfil the criteria of GFCF –to be used for more than one year in a production process– have to be recorded as GFCF instead of intermediate consumption. Examples are fighters, frigates and anti-aircraft guns. As buying of military equipment is a monopoly of the government (a non-market producer), the impact on GDP equals the consumption of fixed capital of the equipment.

### **2.2.3 Transfer of ownership based recording of import and export**

More strictly than its predecessor, ESA2010 prescribes the change of ownership as the primary principle for recording transactions in goods. As a consequence these transactions align more closely to the counter financial transactions. In particular this change has consequences for the recording of foreign trade in goods and services. Crossing border registration of goods is no longer a leading principle for measuring import and export in the national accounts. This principle is replaced by a recording of import and export at the moment a change of ownership of the good is being observed between a resident and a non-resident entity. This way of recording matches better with the actual monetary flows and cross-border production processes within multinational enterprises. Two factories applying the same physical production process can therefore be recorded differently in the NA. A factory commissioned to process raw materials into final products, both owned by the same principal, provides a service without buying the necessary raw materials. A factory applying the same production process but processing raw materials into final products on own account, buys raw material and produces (and sells) goods. As a consequence two factories applying the same physical production process can show a totally different input-output structure in the NA. The input-output structures within the branches of industry become less homogeneous and more volatile, which may complicate the construction and proper use of input-output tables, for example in ‘classical’ input-output analyses.

Already in ESA1995 the change of economic ownership was the primary principle of recording economic transactions. However, exceptions were made for specific transactions between resident and non-resident units. In order to correspond with the observed data of foreign trade based on border crossing, in ESA1995 change of ownership was imputed where it did not exist (e.g. goods sent for processing arrangements) or denied where it existed (e.g. merchanting). ESA2010 states that the principle of change of economic ownership has to be applied without exception. This change in guidelines has substantial consequences for the recording of goods for processing, deliveries between affiliated enterprises, production abroad and merchanting. The impact on GDP is however limited, as is the impact on the (foreign) trade balance. On the other hand the gross import and export figures will be considerably adjusted. Under a merchanting arrangement a net recording of exports of goods is being required. The imported purchases for reselling are recorded as a negative entry under exports. Practically speaking this adjustment implies a shift in recording of related trade margins from exports of services (ESA1995) to exports of goods (ESA2010).

In relation to goods sent for processing arrangements two alternatives are being observed:

- Outward processing: goods owned by a resident company are sent abroad for (further) processing and subsequently returned to the principal or directly sold to foreign customers. No physical transformation takes place in the Netherlands
- Inward processing: goods owned by a non-resident company are sent to a domestic processor for (further) processing and subsequently sent back to the principal abroad or

are directly sold to a Dutch customer. The physical transformation takes place in the Netherlands.

In case of outward processing following the principle of change of economic ownership implies that goods sent abroad for processing and subsequently returned to the Netherlands are no longer recorded in imports and exports (ownership of goods sent for processing does not change). What remains are payments for (industrial) services provided by a non-resident company which are recorded as import of services. In general one can say that the balance of goods returned and sent, is roughly speaking equal to the value of the service provided. Therefore the impact on GDP of the 'net' recording of processing is nil. *Mutatis mutandis* the same holds for inward processing in which case a resident company carries out the processing. The balance of goods sent and received is then compensated in the exports of services.

For cross-border deliveries between affiliated enterprises (mother and daughter companies) ESA1995 assumed by definition a change of economic ownership. The new guidelines require a judgement whether or not the resident unit is the economic owner of the goods. In that judgement the degree of control about contracts, determination of prices and quantities sold play an important role. In cases the resident unit is not designated as the economic owner, it provides an export of services. In the opposite case when the resident unit is the owner of the goods, an import of services will arise. It is assumed that the trade balance of goods roughly equals the import or export of services implying a zero impact on GDP.

One feature of globalisation is the outsourcing of physical transformation. For example, a resident company owns the patents of a design of a product and/or owns (part of) the raw materials and the final products. Although the physical production is carried out abroad, the final products are considered as domestic output and the raw materials as intermediate use. In case the raw materials are bought abroad and the final products are sold abroad these transactions should be recorded as imports and exports of goods. These transactions are not observed in foreign trade statistics which are based on a border crossing registration. In order to comply with ESA2010 these transactions should therefore be added to the foreign trade data. The counterpart of the balance in trade of goods is the import of services. When resident companies carry out productive activities commissioned by a non-resident company only export of services is recorded in the NA. In this case the observed foreign trade data have to be adjusted as well.

#### **2.2.4 Illegal activities**

Although illegal activities should already have been included in the NA according to ESA1995, this was not the case in the Netherlands and many other member states in the EU. The reason was the lack of data quality and insufficient comparability of estimates. Within the EU an agreement was reached on the incorporation of illegal activities at the moment of ESA2010 implementation. Table 2.2 provides an overview of production, intermediate consumption and value added of illegal activities in the Netherlands.

**Table 2.2 Illegal activities in the Netherlands 2010**

	Production	Intermediate consumption	Value added
	million euros		
Cannabis	1.417	378	1.039
Heroin	346	29	317
XTC	128	25	103
Prostitution	861	321	540
Fencing	282	3	279
Illegal gambling	192	21	171
Illegal copying	75	2	73
Smuggling	117	1	116
Total	3.418	780	2.638

## 2.2.5 Other conceptual changes

### *Intellectual property products (IPPs)*

In ESA2010 databases are explicitly mentioned as a separate type of asset and thus added to GFCF. This only concerns the supplementary costs of data collection and processing. The costs of software related to database development were already recorded as GFCF in software. A second change in relation to IPPs concerns the recording of licenses for software. In ESA1995 all payments for licenses were recorded as GFCF in software. In ESA2010 only payments for license contracts with a service life of more than one year must be recorded as GFCF. Annual license payments have to be recorded as intermediate consumption. The estimates of GFCF in software were adjusted in order to be in line with the manual ‘On the measurement of intellectual property’ of the OECD. For own account GFCF in software this implies that in addition to the direct costs an amount for the costs of capital and profits has to be imputed. Also the costs of consultancy related to software development have to be recorded as GFCG. Until now this was recorded as intermediate consumption. Similar changes have been made for the estimates of originals.

### *Financial intermediation services indirectly measured*

With this benchmark revision financial intermediation services indirectly measured (FISIM) are no longer recorded for transactions between banks. This holds both for resident and non-resident banks. As a consequence output and intermediate consumption of banks and export and import of services were reduced. This change has an impact on GDP but not on GNI.

### *Insurance*

In ESA1995 output of services by non-life insurance was defined as the difference between premiums plus other revenues generated with premiums (return on investments) minus claims. In theory and practice this way of calculating output could lead to negative output in circumstances where claims in a certain period are exceptionally high. In order to prevent this negative output the methodology for estimating output of insurance services was revised in ESA2010. Instead of direct claims so called ‘adjusted claims’ must be deducted from premiums. In ESA2010 a distinction is made between ‘normal claims’ and exceptional claims in case of disasters. The latter have to be recorded as capital transfers. In the Netherlands an incident is called a disaster when claims arising are more than 0.5 per cent of GDP. In the past fifty years there have been no such disasters in the Netherlands. To calculate adjusted claims firstly claims arising from disasters have to be deducted from total claims. In the Dutch national accounts a five-year moving average of the remaining (normal) claims is applied as adjusted claims in the estimation of the services of non-life insurance.

A second change in this field concerns the recording of re-insurance of both life and non-life insurance. After revision for re-insurance a gross recording as non-life insurance is implemented. Until now Statistics Netherlands applied a net recording for this type of insurance. Services provided as intermediate consumption only lead to a re-allocation of value added. The shift of exceptional claims from income transfers to capital transfers has no influence on either GDP or GNI.

### *Contribution to the EU based on VAT*

ESA1995 prescribed the recording of the contribution to the EU based on VAT as taxes on production and imports paid to the rest of the world. In ESA2010 the recording is changed to an income transfer of the government to the EU. This change has no impact on GDP, but GNI is reduced with the amount of the contribution.

### *Guarantees*

Until now payments for governmental guarantees were recorded as market output of the central government. From this benchmark revision onwards these payments will be recorded as income transfers. As a consequence, the collective consumption of the government will increase. This is offset by a reduction of intermediate consumption and an increase of value added.

### *Central bank*

Both ESA1995 and ESA2010 prescribe the calculation of the output of the central bank as sum of costs. ESA2010 adds that the full non-market part of output has to be attributed to intermediate consumption of other financial intermediaries. This is offset by an income transfer of the central bank to the above mentioned intermediaries.

## 2.2.6 Transition from ESA 2010 to ESA 95, following the entries in Table 2 of the GNI questionnaire 2014

This section provides an overview table on the impact of changes from ESA 95 to ESA 2010 on the GNI Questionnaire for all transition items. For each transition item identified as having an impact on GNI in the Manual on the Changes between ESA 95 and ESA 2010 (i.e. Transition Items 1-11) a detailed description of the calculation for a chosen year is provided, including numerical evidence.

**Table 2.3: Transition from ESA2010 to ESA95 (GNI Questionnaire 2014)**

	2010	2011	2012	2013	2014
	million euros				
Total impact of differences in definitions between ESA2010 and ESA95 on GNI (ESA2010 minus ESA95)	11.832	11.670	12.698	13.202	14.293
Of which:					
(1a) R&D created by a market producer	7.848	7.988	8.114	8.097	8.617
(1b) R&D created by a non-market producer	2.973	3.050	3.121	3.173	3.229
(2) Valuation of output for own final use for market producers	245	243	256	259	266
(3) Non-life insurance - output, claims due to catastrophes, and reinsurance	-54	-534	289	746	743
(4) Weapon systems in government recognised as capital assets	624	633	661	667	644
(5) Decommissioning costs for large capital assets	0	0	0	0	0
(6) Government, public and private sector classification	0	0	0	0	0
(7) Small tools	0	0	0	0	0
(8) VAT-based third EU own resource	196	289	257	260	794
(9) Index-linked debt instruments	0	0	0	0	0
(10) Central Bank - allocation of output	0	1	0	0	0
(11) Land improvements recognised as a separate asset	0	0	0	0	0

For the three approaches of GDP in the tables 2.3.a – c the breakdown is shown for the benchmark year 2010 for the transition items 1-11. Table 2.3.d shows the transformation from GDP to GNI.

**Table 2.3.a: Transition from ESA2010 to ESA95, production approach**

	Production approach		
	Output	Int. consumption	Value added
	million euros		
(1a) R&D created by market producers	0	-7848	7848
(1b) R&D created by non market producers	-128	-3101	2973
(2) Valuation of output for own final use	245		245
(3) Non-life insurance-output, claims due to catastrophes and reinsurance	-193	-139	-54
(4) weapon systems in government recognised as as capital assets	-55	-679	624
(5) Decommissioning costs for large captial assets	0	0	0
(6) Government, public and private sector classification	0	0	0
(7) Small tools	0	0	0
(8) Vat-based third EU own resource	0	0	0
(9) Index-linked debt instruments	0	0	0
(10) Central Bank - allocation of output	0	0	0
(11) Land improvements recognised as a separate asset	0	0	0

**Table 2.3.b: Transition from ESA2010 to ESA95, income approach**

	Income approach		
	compensation of employees	Cons of Fixed Capital (CFC)	net operating surplus
	million euros		
(1a) R&D created by market producers	0	7475	373
(1b) R&D created by non market producers	0	2973	0
(2) Valuation of output for own final use	0	0	245
(3) Non-life insurance-output, claims due to catastrophes and reinsurance	0	0	-54
(4) weapon systems in government recognised as as capital assets	0	624	0
(5) Decommissioning costs for large capital assets	0	0	0
(6) Government, public and private sector classification	0	0	0
(7) Small tools	0	0	0
(8) Vat-based third EU own resource	0	0	0
(9) Index-linked debt instruments	0	0	0
(10) Central Bank - allocation of output	0	0	0
(11) Land improvements recognised as a separate asset	0	0	0

**Table 2.3.c: Transition from ESA2010 to ESA95, expenditure approach**

	Expenditure approach							
	FCHH/NPISH	Ggovt	GFCF	Exp goods	Exp serv	Imp goods	Imp serv	GDP
	million euros							
(1a) R&D created by market producers	0	0	7848	0	0	0	0	7848
(1b) R&D created by non market producers	0	-128	3101	0	0	0	0	2973
(2) Valuation of output for own final use	0	0	245	0	0	0	0	245
(3) Non-life insurance-output, claims due to catastrophes	53	0	0	0	-34	0	73	-54
(4) weapon systems in government recognised as as capital assets	0	-55	679	0	0	0	0	624
(5) Decommissioning costs for large capital assets	0	0	0	0	0	0	0	0
(6) Government, public and private sector classification	0	0	0	0	0	0	0	0
(7) Small tools	0	0	0	0	0	0	0	0
(8) Vat-based third EU own resource	0	0	0	0	0	0	0	0
(9) Index-linked debt instruments	0	0	0	0	0	0	0	0
(10) Central Bank - allocation of output	0	0	0	0	0	0	0	0
(11) Land improvements recognised as a separate asset	0	0	0	0	0	0	0	0

**Table 2.3.d: Transition from ESA2010 to ESA95, transformation from GDP to GNI**

	GDP	transformation GDP to GNI	GNI
	million euros		
(1a) R&D created by market producers	7848	0	7848
(1b) R&D created by non market producers	2973	0	2973
(2) Valuation of output for own final use	245	0	245
(3) Non-life insurance-output, claims due to catastrophes and reinsurance	-54	0	-54
(4) weapon systems in government recognised as as capital assets	624	0	624
(5) Decommissioning costs for large capital assets	0	0	0
(6) Government, public and private sector classification	0	0	0
(7) Small tools	0	0	0
(8) Vat-based third EU own resource	0	-196	-196
(9) Index-linked debt instruments	0	0	0
(10) Central Bank - allocation of output	0	0	0
(11) Land improvements recognised as a separate asset	0	0	0

## 1. R&D

Estimates of gross fixed capital formation in R&D are mainly based on three source statistics, i.e. the R&D survey, COFOG-based government data, data from the Association of Universities in the Netherlands (VSNU) and R&D survey data on medical research centres of universities. The R&D benchmark estimates are made for the reporting year 2011 because the R&D survey set-up was revised in 2011. The results from the revised survey were used for estimating R&D in 2011 with a back casting to 2010.

Data on imports and exports of R&D are derived from statistics on foreign trade in services. Intermediate consumption of R&D is only recorded in R&D-industry (NACE 72000) and is derived from SBS.

Gross fixed capital formation in R&D of market producers accounts for 7.8 billion euros in 2010 (item 1a of table 2.3). The transition item 1b refers to the consumption of fixed capital related to R&D assets owned by non-market producers. The contribution to GDP of non-market producers (3.0 billion euros in 2010) originates from R&D related consumption of fixed capital as estimated by the PIM. For market producers own-account GFCF in R&D is valued by the sum of costs plus a mark-up.

The methods for estimating R&D are described in more detail in chapter 5 and annex 5.5. The annex contains the full text of the grant report “Improvement in the Measurement of Intellectual Property Products”.

## 2. Valuation of output for own final use by market producers

Mark-ups are applied explicitly for output for own account production of investments goods, in case these remain unreported in the SBS-survey. For own account production of investment goods that are reported the SBS-survey, it is assumed that the reported value of the good represents its market value. In practice, this approach implies that a mark-up is included for own account production of R&D and software. The estimate of the mark-up on output for own final use (mainly software) by market producers is estimated as 5 per cent of own account GFCF on software, amounting 245 million euros in 2010. The 5 per cent mark-up corresponds to the percentage of gross operating surplus, adjusted for mixed income, in total costs in IT-services industry.

In estimating production of agricultural products for own final use, an implicit mark-up is used, as the value is estimated by multiplying quantities by corresponding output prices.

## 3. Non-life insurance output, claims due to catastrophes and re-insurance

The use of adjusted claims in the calculation of output of insurance has an impact on GDP. Adjusted claims are estimated as follows. Firstly actual claims are adjusted for price changes. In case no disasters occur (which is mostly the case) the adjusted claims are calculated applying a five-year moving average. This approach is used for all types of (re-) insurance. Data for the revised recording of premium supplements in re-insurance are directly derived from statistics provided by the Dutch Central Bank.

Impact on GDP of -54 million euros is a balance of changes of imports, exports and consumption of households and includes next to indemnity and health the changes due to the application of adjusted claims on re-insurance (only imports and exports).

#### 4. Weapon systems in government recognised as capital assets

As statistics Netherlands has access to the data on expenditure of the government including defence, GFCF in military equipment can be obtained directly from government data. The impact on GDP equals consumption of fixed capital which is estimated using the PIM-method. This method is described in par. 4.12.

#### 5. Decommissioning costs for large capital assets

Decommissioning costs for large assets are included in the estimates GFCF at the time related expenses are actually made. This recording was already followed prior to the 2010 revision. This way of recording implies that accounting for consumption of fixed capital of these assets is done ex post instead of ex ante. Information on the basis of which decommissioning costs can reasonably be estimated ex ante is not available. As a result the assumption is made that in the course of time ex ante and ex post CFC cancel out, implying a zero impact on GNI.

#### 6. Government, public and private sector classification

The delineation of government was subject of research in the benchmark revision of the Dutch NA. Only a few very small units were reclassified of which the total impact on GNI is close to zero.

#### 7. Small tools

Section 3.130 of ESA 2010 state that purchases of small tools for production purposes must be recorded as intermediate consumption. It is assumed that current bookkeeping practice expenses on small tools will generally be recorded as current costs coincide with the ESA2010 guidance in this matter. As a consequence no changes were made in the benchmark revision of the Dutch National Accounts. The standing practice of following the bookkeeping of companies in this matter is continued after the ESA2010 revision.

#### 8. VAT-based third EU own resource

The data on VAT-based third EU own resources are directly derived from government data.

#### 9. Index-linked debt instruments

In relation to this transition item no changes were made in the benchmark revision of the Dutch national accounts. Information on index-linked debt instruments is scarce. Based on pension funds statistics, 25 per cent of total bond assets of pension funds (177 billion euros) is index linked, of which about 80 per cent is emitted by the rest of the world. For the calculation of the index linked change in the principal value, relevant for interest following ESA4.46c, access to micro data on contracts is needed. Unfortunately this information is not available. Furthermore, pension funds statistics are the only statistics providing a split of total fixed income securities.

A fictitious calculation of the impact to interest of index-linked bonds for the reporting year 2013 can be made for the case of fixed coupon bonds, assuming a rate of 2 per cent. This would approximately increase the interest received by pension funds from the rest of the world by 700 million euro. However, other sectors may also have index linked debt instruments on their balance sheets. Next to that, foreign residents may own domestically

issued index linked debt instruments. Foreign ownership Dutch issued bonds surpass the ownership of Dutch residents of foreign bonds. Information on the value change due to an index link received by foreign entities is not available.

Given the omission of data sources at present, the net interest as a result of index-linked bonds is assumed to be 0.

#### 10. Central Bank - allocation of output

As no data are available, it is assumed that 10 per cent of the concerning output (2010: 5 million euros) is allocated to export of services. For 2010 the rounded (to million euros) amount is zero.

#### 11. Land improvements recognised as a separate asset

No changes were made in the benchmark revision of the Dutch national accounts, as land improvements were already recorded as GFCF in infrastructure under ESA1995. Other forms of land improvement are unlikely to occur in the Netherlands.

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

#### *GNI reservations*

Concerning the GNI reservations for the years 2002 – 2010 (the reservations for 1995 – 2001 were already lifted) the following conclusions can be made. In the notification 27<sup>th</sup> of January 2012, the European Commission states that the verification process for the Netherlands is completed. The process has revealed four specific reservations concerning the reliability, comparability and exhaustiveness of the GNI of the Netherlands:

- The estimation of own-account construction and small-scale building maintenance needs to be based on more recent benchmark data (applicable to years from 2002 to 2010).
- The payments for the use of motorways (eurovignette) should be reclassified from taxes on production to transactions in services (applicable to years from 2002 to 2010)<sup>2</sup>.
- In the context of the use of foreign trade statistics for national accounts, the estimation of "re-exports" and of "transit trade" transactions needs to be based on more recent benchmark data (applicable to years from 2002 to 2010).
- The estimation of imports and exports of government services needs to be based on more recent administrative sources (applicable to years from 2002 to 2010).

The Commission notified the Dutch authorities that it reserved its position as to the accuracy of GNI on the above points relating to the years indicated for each point.

In the GNI questionnaire 2012 revised estimates addressed concerning the first three specific reservations. After verification, the Commission considered that first three specific reservations were properly addressed, and decided to lift these specific reservations.

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<sup>2</sup> Eurostat guidance on accounting rules for EDP. Classification of payments for the use of roads, 13 March 2008

In the GNI questionnaire 2013 reported estimates addressing the fourth specific reservation. Also for this point, the Commission considered that this specific reservation was properly addressed, and has lifted the reservation.

In table 2.4 the GNI-effects of specific and transversal issues for the Netherlands for the years 2002 – 2010 (in both nominal and relative terms) is summarised.

**Table 2.4.a GNI-effect of specific and transversal issues, 2002 – 2010**

		2002	2003	2004	2005	2006	2007	2008	2009	2010
		million euros								
<b>Specific issues</b>										
(1)	The estimation of own-account construction and small-scale building maintenance	-61	-99	-119	-91	-92	-108	-112	-116	-111
(2)	The payment for the use of motorways eurovignet	-105	-102	-102	-102	-83	-119	-106	-102	-142
(3)	The estimation of re-export and of transit trade	-420	-418	-476	-548	-559	-588	-588	-588	-588
(4)	The estimation of import and exports of government services	99	106	80	96	110	137	150	185	137
<b>Transversal issues</b>										
I	The treatment of cross border property income	-134	45	-12	-18	1.749	2.835	3.238	2.906	2.336
II	The calculation and allocation of financial intermediation services indirectly measured (FISIM)	0	0	0	0	0	0	0	0	3.337
III	The treatment of entities with little or no physical presence	0	0	0	0	0	0	0	0	0
IV	The treatment of car scrap schemes	0	0	0	0	0	0	0	0	0
V	The treatment of cooperative dwellings	0	0	0	0	0	0	0	0	0
VI	The inclusion of illegal activities in national accounts	2.052	2.163	2.181	2.179	2.114	2.132	2.338	2.419	2.402
VII	Vehicle tax registration	0	0	0	0	0	0	0	0	0
VIII	IC for rentals in the estimation of housings services	0	0	0	0	0	0	0	0	0

**Table 2.4.b GNI-effect of specific and transversal issues, 2002-2010, in percentages of GNI**

		2002	2003	2004	2005	2006	2007	2008	2009	2010
		% GNI (ESA95)								
Specific issues										
(1)	The estimation of own-account construction and small-scale building maintenance	0	0	0	0	0	0	0	0	0
(2)	The payment for the use of motorways eurovignet	0	0	0	0	0	0	0	0	0
(3)	The estimation of re-export and transit trade	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
(4)	The estimation of import and exports of government services	0	0	0	0	0	0	0	0	0
Transversal issues										
I.	The treatment of cross-border property income	0	0	0	0	0.3	0.5	0.6	0.5	0.4
II.	The calculation and allocation of FISIM	0	0	0	0	0	0	0	0	0.5
III.	The treatment of entities with little or no physical presence	0	0	0	0	0	0	0	0	0
IV.	The treatment of car scrap schemes	0	0	0	0	0	0	0	0	0
V.	The treatment of cooperative dwellings	0	0	0	0	0	0	0	0	0
VI.	The inclusion of illegal activities in national accounts	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
VII.	Vehicle tax registration	0	0	0	0	0	0	0	0	0
VIII.	IC for rentals in the estimation of housing services	0	0	0	0	0	0	0	0	0

The 2010 benchmark revision includes all adjustments made in response of these reservations. More recent source data were introduced for estimates of own account construction and small scale maintenance of dwellings. The same holds for the delineation of re-exports and (quasi) transit trade. Concerning the eurovignette the registration is changed with the benchmark revision of 2010. Until the benchmark revision the payments for the eurovignette, a levy on heavy motor vehicles, were recorded as other taxes on production in the Dutch NA. From this benchmark revision onwards the payments for the eurovignette will be recorded as the purchase of a government service. This change leads to an increase of intermediate consumption and thus to a decrease of GDP. This way of recording also allows for non-resident payments for the eurovignette, which was impossible in the case of its recording under other taxes on production. These supplementary exports are counterbalanced by a reduction of government consumption.

### *Major revisions in source data since the GNI Inventory 2001*

Since the 2001 revision of the national accounts several developments in source statistics at Statistics Netherlands (CBS) have occurred playing an important role in the results of the 2010 revision. Three main developments strongly influenced the statistical process and official statistics in the Netherlands. Firstly, new legislation came into force in the Netherlands from 2003 onward. Secondly, CBS was confronted with budget cuts which had not only an effect on its statistical program but also statistical compilation processes. Finally, the (policy) goal of reducing the administrative burden on respondents also affected statistical processes at the CBS.

New legislation for CBS (“CBS-wet”) came into force in 2003 which strengthened its position. For questionnaires that are obligatory by law, the possibility was opened to impose administrative fines to non-respondents by the Director-General of CBS. In such cases the non-respondent has the opportunity to go to court if the fine is disputed. According to the previous law, it was CBS that had to go to court to enforce a response to obligatory questionnaires by the enterprise. Another important feature of the new law is the free and full access of CBS to all relevant administrative data of government in the Netherlands for statistical purposes. As a consequence, CBS is no longer allowed to survey the information that can be obtained from these administrative records.

Another important development that took place in the years 2000-2010 was a redesign of the Statistical Business Register (SBR). In addition, in the same period, a redesign of the annual Structural Business Statistics (SBS) was equally a major achievement. As a consequence of the new statistical law, the first deliveries of tax data on wages replaced the surveying of data. All these developments, combined with the strong political pressure to reduce the administrative burden for enterprises, led to the start of a large project in 2006 with the aim to redesign the complete system/process of economic statistics.

The redesign of the Statistical Business Register (started already in 2004) led to an improved link to the data bases of the Chamber of Commerce and to the extended information of the tax authorities. By means of these links the changed and modernised rules for constructing and delineating the statistical units could be kept complete and up-to-date. Furthermore, Statistics Netherlands benefitted from new and better information on employed persons which helped to improve the classification of enterprises into size classes.

The project to redesign the complete system of economic statistics consisted of a number of subprojects. Firstly, the introduction of VAT and wage data in the SBS statistics was an important project. Secondly, the redesigned SBR and the link to administrative records were used for delineating between small & medium sized enterprises from the large enterprises. For the largest enterprises a special project, and afterwards a special unit (CONGO = consistent handling of large enterprises), was established to improve data consistency for these large enterprises before being transmitted to the subject matter statistical departments and subsequently to the national accounts. The idea is that for this kind of enterprises, apart from the administrative records, alignment of information is necessary to get the complete and consistent picture of their activities. A more individual approach of these enterprises proved to be helpful in improving the quality of the data of these (very) large enterprises.

**Scheme 2.2 Overview of statistical developments in the Netherlands since the last revision of the national accounts in 2001**

<b>Year</b>	<b>Issue</b>
2003	New law on statistics
2006	Redesign of the General Business Register (GBR)
	Redesign of the SBS-questionnaires
	Free delivery of tax data on wages
	Start of the redesign project on economic statistics
2008	NACE, ref. 2
	Law on registration of businesses at the Chamber of Commerce
	First delivery of administrative VAT-data
2009	Introduction of NACE, ref. 2 in the GBR (SBS year 2008)
	System of national accounts 2008
2010	SBS-questionnaires based on NACE, ref. 2
	Unit on large enterprises (CONGO) started
2011	First data from the unit on large enterprises (year 2009)
2012	Results of new SBS-process (year 2010)
2013	ESA 2010
	Benchmark revision of national accounts 2010
2014	Publication of first results ESA revision national accounts 2010

Another aspect of redesigning the system of economic statistics was the further development of the automation of several throughput processes. For example, a redesign of the processing of micro data in SBS was carried out. In the chain of processes of economic statistics also the deliveries of statistical information to the national accounts was further automated. The so-called balancing machine (software tool) was developed for the national accounts balancing procedure. . Another innovation was a machine developed for rebasing the quarterly accounts, the so-called “kwartaalmachine”. For the back casting of the national accounts succeeding a benchmark revision, a “time series machine” was developed by following the same kind of methodology.

In 2008 the new classification of branches of industry (NACE, rev. 2) was introduced by carrying out a so-called ‘technical’ revision. The NACE, rev. 2 resulted in a new breakdown of activities into branches of industry while keeping the macro-economic aggregates unchanged. In the same year the law for obligatory registration of small businesses at the Chamber of Commerce came into force. This resulted in an increase in the number of statistical units (in particular the self-employed persons or unincorporated enterprises) in the SBR. Furthermore, Statistics Netherlands obtained the first deliveries of administrative VAT data.

The introduction of NACE, rev. 2 in the SBR and the first SBS statistics (relating to the reporting year 2008) according to the new industrial classification breakdown were operational from 2009 onwards. In this year the new System of National Accounts (SNA) 2008 was published, so the first explanatory analyses to the consequences for the national accounts system could start. In the Netherlands the special unit for large enterprises (CONGO) became operational in 2010. In 2011 the first results were implemented in the SBS (reference year 2009).

So, the results of several processes of the redesign of economic statistics gradually appeared in different economic statistics, and in particular in SBS. The original plans for the new benchmark revision of the national accounts resulted in a revision of the two reporting years 2009 and 2010. Indeed a start was made to revise 2009 in 2012, but this process was stopped at the moment it became clear that a level shift would occur between SBS 2009 and SBS 2010. The full statistical consequences became only apparent with the release of SBS 2010. The combined benchmark/ESA 2010 revision took place in 2013 and 2014 addressing the reporting year 2010. The provisional 2009 estimates became part of the time series project. The first results of the benchmark revision of the national accounts – the revised figures for 2010 – were published on 6 March 2014.

## **2.4 Planned actions for improvements**

### *Improvements to source statistics*

In 2011 preparations were started for a Framework Regulation for Integrating Business Statistics (FRIBS). The aim of this European program is to replace 10 separate laws for business statistics by one single law to achieve more consistency in statistics and to promote the use of existing data for more efficient production of statistics and less administrative burden. Furthermore a number of improvements in the statistical program are included in the future FRIBS regulation.

Among other expected improvements, FRIBS will lead to improvements of the SBR, in particular statistical units in the domains Education, Health care and Culture. In addition the aim of FRIBS is to apply as much as possible uniform definitions, classifications and coverage. The reuse of data implies improvements and / or reduction of administrative burden in several fields. An example is Intrastat. In the statistics of international trade some improvements are possible by the reuse of data collected in member states. Additional to the SIMSTAT proposal, Statistics Netherlands proposes a less frequent survey of middle-sized enterprises. A large-scale reduction of administrative burdens may be the result of such a proposal. Another example is micro-data linking. The combination of micro data in existing surveys, like SBS statistics, international trade statistics, R&D statistics, etc. makes it possible to compile newly statistical products without an increase of administrative burden. So, an improvement of efficiency is possible with the help of micro-data linking.

In the statistical program improvements are reachable in the statistics for the service industries. For example the one hand a better coverage is desirable, e.g. for NACE groups P, Q and R, while the timeliness of statistics of service industries could be improved. The quarterly frequency should be replaced by a monthly frequency. Also more information on volume-changes would be welcome, in addition to the existing information on turnover. On the one hand FRIBS proposes a reduction of administrative burden as a consequence of the additional proposals for Intrastat. On the other hand FRIBS leads to a limited extra burden for the services industries. According a first calculation of the effects, on the balance a reduction of administrative burden will result.

Statistics Netherlands also aims to improve the Business Register in the next years. Firstly, the Register should contain units that are now still missing, e.g. some governmental units. Secondly, some more characteristics should be added to the information in the Register. An important improvement (among others for the national accounts) is the addition of a sector-code to the units in the Register. A special project (named KOESTER) is initiated for these improvements. Sector coding is introduced in the SBR from 2017 onwards.

### *Improvements to national accounts*

It is challenging to meet simultaneously the two demands of accuracy: level estimates versus continuous change estimates. . If, for example, the use of register data leads to an improved estimate of the output of a certain branch of industry which happens to be twice as high as the previous estimate, a biased picture of the growth of that industry would result (assuming the estimates of the previous period are unaltered). The dilemma of adequacy and continuity is traditionally solved in the national accounts by giving preference to the comparability in time of the data. For this purpose the correct changes (growth rates, prices changes) from one period to another are crucial. By focussing first of all on change estimates the resulting level estimates are maintained fully comparable to those originating from the latest benchmark revision. In this way the continuity criteria is met at all times. The requirement of adequacy is being met by revising the national accounts on a regular basis, adapting the levels of the national accounts data to the most recent insights and definitions. At the same time the level estimates of preceding reporting years will be linked to the revised level estimates of the benchmark revision, restoring comparability in the revised time series.

For a number of purposes, however, the current level estimates of macro-economic variables and their components has become much more important. Financial information, e.g. in the governmental statistics, must be up-to-date as it relates to important macro-economic variables for monitoring purposes, for example governmental deficit and debt as a percentage of GDP. In the Dutch system of national accounts the financial accounts and balance sheets will be revised annually combining the best possible level estimates with time series comparability. This is done in close cooperation with the Dutch Central Bank (see also the annex 1.3). This revision policy cannot be applied to the full set of national accounts. Apart from resource constraints, such a policy would not be in the interest of our domestic users.

To ensure a close comparability to the other parts of the national accounts, the supply and use table and labour accounts will be subject to more frequent benchmark revisions. It is scheduled that benchmark revisions of the whole system of national accounts are carried out every five years, i.c. the years ending on “0” and “5”. The next benchmark revision will be carried out for the reporting year 2015. The results of this benchmark revision will be published in 2018.



## **CHAPTER 3    THE PRODUCTION APPROACH**

### **3.0    GDP according to the production approach**

Estimating GDP according to the production approach largely entails the calculation of value added by industry. Value added is calculated as the difference between output and intermediate consumption. Table 3.0 provides an overview of output, intermediate consumption and gross value added by branches of industry for the 2010 benchmark revision. The figures are consistent with the information provided in the Process Tables (annex A). The breakdown in table 3.0 corresponds to the tables in the annual publication National Accounts and is more detailed than NACE sections.

Tables 3.0.1 – 3.0.3 provide an overview of output, intermediate consumption and gross value added by NACE sections and institutional sectors.

Table 3.0: Output, Intermediate consumption and Value added (gross, basic prices) by Industry, 2010

	Output	Intermediate Consumption	Value added
	mln euro		
<b>Industries</b>			
<b>Agriculture, forestry and fishing</b>	<b>27 953</b>	<b>17 125</b>	<b>10 828</b>
<b>Mining and quarrying</b>	<b>20 846</b>	<b>3 563</b>	<b>17 283</b>
<b>Manufacturing</b>	<b>258 384</b>	<b>191 360</b>	<b>67 024</b>
Manufacture of food, beverages and tobacco	52 890	41 383	11 507
Manufacture of textile-, leatherproducts	3 158	2 125	1 033
Manufacture of paper-, wood products, printing	13 086	8 670	4 416
Manufacture of coke and petroleum	26 352	25 682	670
Manufacture of chemicals	39 467	31 174	8 293
Manufacture of pharmaceuticals	5 741	2 983	2 758
Manufacture of plastic and building material	12 287	8 058	4 229
Manufacture of basic metals and -products	24 886	17 032	7 854
Manufacture of electronic products	24 871	20 418	4 453
Manufacture of electrical equipment	4 932	2 931	2 001
Manufacture of machinery n.e.c.	21 027	13 190	7 837
Manufacture of transport equipment	12 454	8 734	3 720
Other manufacturing and repair	17 233	8 980	8 253
<b>Electricity and gas supply</b>	<b>17 772</b>	<b>10 471</b>	<b>7 301</b>
<b>Water supply and waste management</b>	<b>8 814</b>	<b>5 273</b>	<b>3 541</b>
<b>Construction</b>	<b>87 521</b>	<b>56 990</b>	<b>30 531</b>
Construction buildings, development	36 903	26 494	10 409
Civil engineering	14 985	10 067	4 918
Specialised construction activities	35 633	20 429	15 204
<b>Trade, transport, hotels, catering</b>	<b>215 946</b>	<b>105 474</b>	<b>110 472</b>
Sale and repair of motor vehicles	16 419	8 774	7 645
Wholesale trade (no motor vehicles)	80 622	35 005	45 617
Retail trade (not in motor vehicles)	34 773	13 372	21 401
Land transport	25 874	14 910	10 964
Water transport	7 102	4 897	2 205
Air transport	9 472	6 632	2 840
Warehousing and support activities for transportation	17 481	9 037	8 444
Postal and courier activities	4 992	2 454	2 538
Accommodation and food service activities	19 211	10 393	8 818
<b>Information and communication</b>	<b>51 302</b>	<b>23 459</b>	<b>27 843</b>
Publishing, audiovisual and broadcasting activities	10 589	5 507	5 082
Telecommunications	17 244	8 083	9 161
IT- and information services	23 469	9 869	13 600
<b>Financial and insurance activities</b>	<b>76 281</b>	<b>28 559</b>	<b>47 722</b>
Financial activities, no insurance and pension funding	49 961	15 764	34 197
Insurance and pension funding	20 300	10 870	9 430
Other financial services	6 020	1 925	4 095
<b>Real estate activities</b>	<b>68 660</b>	<b>37 061</b>	<b>31 599</b>
<b>Business services</b>	<b>131 253</b>	<b>56 019</b>	<b>75 234</b>
Management, technical consultancy	64 489	28 345	36 144
Research and development	4 594	2 068	2 526
Advertising, design and other services	13 858	7 905	5 953
Renting and leasing of tangible goods	10 439	4 293	6 146
Employment activities	17 322	3 529	13 793
Travel agencies, tour operators etc.	6 669	5 044	1 625
Other business services	13 882	4 835	9 047
<b>Government and care</b>	<b>186 579</b>	<b>62 833</b>	<b>123 746</b>
Public administration and defence; compulsory social security	75 319	31 915	43 404
Education	37 741	8 170	29 571
Human health activities	40 979	13 138	27 841
Social work activities	32 540	9 610	22 930
<b>Culture, recreation, other services</b>	<b>25 975</b>	<b>11 342</b>	<b>14 633</b>
Arts, entertainment and recreation	13 774	6 431	7 343
Other service activities	11 776	4 911	6 865
Households with domestic personnel	425	–	425
<b>Subtotal</b>	<b>1 177 286</b>	<b>609 529</b>	<b>567 757</b>
Goods and services n.e.c.	1 638	1 638	0
<b>Total (basic prices)</b>	<b>1 178 924</b>	<b>611 167</b>	<b>567 757</b>

**Table 3.0.1 Output by industry and institutional sector, 2010 (million euros)**

	Total economy	Non- financial corporations	Financial corporations	General government	Households	NPI's serving households
million euros						
<b>Industries</b>						
Agriculture, forestry and fishing	27 953	7 660	0	155	20 138	0
Mining and quarrying	20 846	20 839	0	0	7	0
Manufacturing	258 384	248 049	0	3 916	6 419	0
Manufacture of food, beverages and tobacco	52 890	50 686	0	0	2 204	0
Manufacture of textile-, leatherproducts	3 158	2 970	0	0	188	0
Manufacture of paper-, wood products, printing	13 086	12 613	0	0	473	0
Manufacture of coke and petroleum	26 352	26 352	0	0	0	0
Manufacture of chemicals and pharmaceuticals	45 208	45 058	0	0	150	0
Manufacture of plastic and building material	12 287	12 100	0	0	187	0
Manufacture of basic metals and -products	24 886	24 072	0	0	814	0
Manufacture of electronic products	24 871	24 742	0	0	129	0
Manufacture of electrical equipment	4 932	4 851	0	0	81	0
Manufacture of machinery n.e.c.	21 027	20 764	0	0	263	0
Manufacture of transport equipment	12 454	12 321	0	0	133	0
Other manufacturing and repair	17 233	11 520	0	3 916	1 797	0
Electricity and gas supply	17 772	17 685	0	0	87	0
Water supply and waste management	8 814	8 581	0	177	56	0
Construction	87 521	74 278	0	0	13 243	0
Wholesale and retail trade; repair of motor vehicles	131 814	116 535	0	0	15 279	0
Transportation and storage	64 921	58 838	0	2 072	4 011	0
Accommodation and food service activities	19 211	10 775	0	0	8 436	0
Information and communication	51 302	48 403	0	0	1 955	944
Financial and insurance activities	76 281	0	75 665	1	615	0
Real estate activities	68 660	34 392	0	0	34 268	0
Professional, scientific and technical activities	82 941	69 179	12	1 429	12 321	0
Administrative and support service activities	48 312	41 753	830	230	5 499	0
Public administration and defence; compulsory social security	75 319	0	0	75 319	0	0
Education	37 741	1 715	0	34 578	1 448	0
Human health and social work activities	73 519	54 738	0	5 532	13 133	116
Arts, entertainment and recreation	13 774	8 685	0	1 157	2 635	1 297
Other service activities	12 201	3 736	0	314	4 486	3 665
Goods and services n.e.c.	1 638	1 638	0	0	0	0
<b>Output</b>	1 178 924	827 479	76 507	124 880	144 036	6 022

**Table 3.0.2 Intermediate consumption by industry and institutional sector, 2010 (million euros)**

	Total economy	Non- financial corporations	Financial corporations	General government	Households	NPI's serving households
	million euros					
<b>Industries</b>						
Agriculture, forestry and fishing	17 125	4 297	0	83	12 745	0
Mining and quarrying	3 563	3 562	0	0	1	0
Manufacturing	191 360	187 181	0	799	3 380	0
Manufacture of food, beverages and tobacco	41 383	40 491	0	0	892	0
Manufacture of textile-, leatherproducts	2 125	2 025	0	0	100	0
Manufacture of paper-, wood products, printing	8 670	8 425	0	0	245	0
Manufacture of coke and petroleum	25 682	25 682	0	0	0	0
Manufacture of chemicals and pharmaceuticals	34 157	34 120	0	0	37	0
Manufacture of plastic and building material	8 058	7 947	0	0	111	0
Manufacture of basic metals and -products	17 032	16 618	0	0	414	0
Manufacture of electronic products	20 418	20 316	0	0	102	0
Manufacture of electrical equipment	2 931	2 885	0	0	46	0
Manufacture of machinery n.e.c.	13 190	13 003	0	0	187	0
Manufacture of transport equipment	8 734	8 667	0	0	67	0
Other manufacturing and repair	8 980	7 002	0	799	1 179	0
Electricity and gas supply	10 471	10 445	0	0	26	0
Water supply and waste management	5 273	5 183	0	53	37	0
Construction	56 990	50 409	0	0	6 581	0
Wholesale and retail trade; repair of motor vehicles	57 151	50 909	0	0	6 242	0
Transportation and storage	37 930	35 124	0	753	2 053	0
Accommodation and food service activities	10 393	5 897	0	0	4 496	0
Information and communication	23 459	22 229	0	0	614	616
Financial and insurance activities	28 559	3	28 380	1	175	0
Real estate activities	37 061	10 392	0	0	26 669	0
Professional, scientific and technical activities	38 318	32 354	4	314	5 646	0
Administrative and support service activities	17 701	15 664	409	34	1 594	0
Public administration and defence; compulsory social security	31 915	0	0	31 915	0	0
Education	8 170	551	0	7 195	424	0
Human health and social work activities	22 748	17 297	0	2 019	3 403	29
Arts, entertainment and recreation	6 431	3 991	0	597	1 062	781
Other service activities	4 911	1 618	0	145	1 527	1 621
Goods and services n.e.c.	1 638	1 638	0	0	0	0
<b>Intermediate consumption</b>	<b>611 167</b>	<b>458 744</b>	<b>28 793</b>	<b>43 908</b>	<b>76 675</b>	<b>3 047</b>

**Table 3.0.3 Value added (gross, basic prices) by industry and institutional sector, 2010 (million euros)**

	Total economy	Non- financial corporations	Financial corporations	General government	Households	NPI's serving households
million euros						
<b>Industries</b>						
Agriculture, forestry and fishing	10 828	3 363	0	72	7 393	0
Mining and quarrying	17 283	17 277	0	0	6	0
Manufacturing	67 024	60 868	0	3 117	3 039	0
Manufacture of food, beverages and tobacco	11 507	10 195	0	0	1 312	0
Manufacture of textile-, leatherproducts	1 033	945	0	0	88	0
Manufacture of paper-, wood products, printing	4 416	4 188	0	0	228	0
Manufacture of coke and petroleum	670	670	0	0	0	0
Manufacture of chemicals and pharmaceuticals	11 051	10 938	0	0	113	0
Manufacture of plastic and building material	4 229	4 153	0	0	76	0
Manufacture of basic metals and -products	7 854	7 454	0	0	400	0
Manufacture of electronic products	4 453	4 426	0	0	27	0
Manufacture of electrical equipment	2 001	1 966	0	0	35	0
Manufacture of machinery n.e.c.	7 837	7 761	0	0	76	0
Manufacture of transport equipment	3 720	3 654	0	0	66	0
Other manufacturing and repair	8 253	4 518	0	3 117	618	0
Electricity and gas supply	7 301	7 240	0	0	61	0
Water supply and waste management	3 541	3 398	0	124	19	0
Construction	30 531	23 869	0	0	6 662	0
Wholesale and retail trade; repair of motor vehicles	74 663	65 626	0	0	9 037	0
Transportation and storage	26 991	23 714	0	1 319	1 958	0
Accommodation and food service activities	8 818	4 878	0	0	3 940	0
Information and communication	27 843	26 174	0	0	1 341	328
Financial and insurance activities	47 722	- 3	47 285	0	440	0
Real estate activities	31 599	24 000	0	0	7 599	0
Professional, scientific and technical activities	44 623	36 825	8	1 115	6 675	0
Administrative and support service activities	30 611	26 089	421	196	3 905	0
Public administration and defence; compulsory social security	43 404	0	0	43 404	0	0
Education	29 571	1 164	0	27 383	1 024	0
Human health and social work activities	50 771	37 441	0	3 513	9 730	87
Arts, entertainment and recreation	7 343	4 694	0	560	1 573	516
Other service activities	7 290	2 118	0	169	2 959	2 044
Goods and services n.e.c.	0	0	0	0	0	0
<b>Value added (gross, basic prices)</b>	<b>567 757</b>	<b>368 735</b>	<b>47 714</b>	<b>80 972</b>	<b>67 361</b>	<b>2 975</b>

### **3.1 The reference framework**

This section describes the reference framework for the production approach of GDP. Section 3.1.1 focusses mainly on the statistical business register (SBR) as the key coordination framework of most data sources underlying the production approach of GDP. This section explains the main sources feeding the business register, the units in the register, its maintenance strategy and the types of statistical units found in the register in relation to those units distinguished in ESA 2010. At the end of the section attention is paid to the quality of data sources underlying the production approach. Section 3.1.2 provides a discussion on the structural business surveys as the main source for estimating value added for most NACE-sections.

#### **3.1.1 The business register**

##### *Statistical units in the Dutch Business Register*

The Statistical Business Register (SBR) as maintained at Statistics Netherlands represents the survey framework for the official economic statistics of the Netherlands. The SBR contains three basic units: the legal unit, the enterprise, and the enterprise group. The legal unit is the smallest unit in the register.

The main statistical unit is the enterprise. It is defined as the smallest combination of legal units representing an organizational unit engaged in producing goods and/or services and having a certain degree of autonomy in decision-making, especially concerning the allocation of its current resources. In general, an enterprise corresponds either to one legal unit or to a combination of legal units. In some cases, especially for public institutions and a few very large enterprise groups, a legal unit will be part of more than one enterprise.

The enterprise is the statistical unit that is used for almost all business surveys, including the annual structural business surveys. Its main characteristics are the economic activity, classified according to the Dutch, more detailed, version of the European NACE, and the size class, expressed in terms of employment. Each enterprise consists of at least one local unit, which is assigned automatically.

The third unit type identified in the business register is the Enterprise Group, defined as an association of enterprises, bound together by chains of ownership/control. In comparison to the enterprise, which is autonomous with regard to the allocation of its current resources, the enterprise group is an actor at a more strategic level, making strategic decisions on behalf of and affecting all of its constituent enterprises. They are formed using control relationships between legal units, since an enterprise group can also be considered as an association of legal units instead of enterprises. For multinational enterprise groups only the part consisting of legal units that are resident in the Netherlands is registered in the Dutch Business Register. The enterprise group is the statistical unit for the quarterly and annual survey on the finances of enterprise groups, aimed at collecting data on the profit and loss account and (changes in) balance sheets.

##### *The relation between the statistical units in the business register and the units in ESA 2010*

The units in the SBR are delineated according to the Eurostat business register recommendations manual and therefore strictly speaking not in full accordance with ESA 2010. However, in practical terms the definition of the institutional unit in ESA 2010 and the definition of the enterprise group in the manual on business register are closely related. Both the institutional unit and the enterprise group may be defined as an economic entity that is capable in its own right of owning assets, incurring liabilities and engaging in economic activities and in transaction with other entities. Therefore for national accounts purposes the enterprise group is considered as an appropriate approximation of the institutional unit.

A similar relationship holds with regard to the (local) Kind of activity Unit (KAU) and the enterprise. An institutional unit may be partitioned into local KAU's following the principles by which an enterprise group is partitioned into enterprises. Both the local KAU and the enterprise are defined as producers with activities that are characterized by an input of products, a production process and an output of products, whereby in the SBR the activities are classified at the class level (four digits) of NACE Rev. 2. In the definition of the local KAU emphasis is put on the location of production at a single site or at closely related sites. This is absent in the definition of the enterprise. In the business register the local KAU can be compared to the local unit as it is distinguished within an enterprise.

In the remainder of this chapter the terms enterprise group and enterprises will be used, because these are the terms used in the business register and the business statistics that represent an important building block of the production approach of GDP. From a national accounts perspective "enterprise group" should be read as "institutional unit" and "enterprise" as "KAU".

### *Sources for the Business Register*

The most important source for the SBR is the trade register as maintained by the Dutch Chambers of Commerce. The trade register is the unique administrative source for legal units in the business register. In the trade register all legal units with one or more establishments on Dutch territory that perform economic activities are obliged to register by law, including unincorporated enterprises, private non-profit institutions, non-profit institutions serving businesses and non-market producers. One of the characteristics that are registered for each unit in the trade register is the NACE-coding. The trade register also supplies information on all 100% ownership relations between legal units. These ownership relations are necessary to determine the enterprise group in the SBR.

Another important source for the SBR is the register of the Dutch tax office. This register contains information on the units for value added tax (VAT), the units for corporate tax and the units for tax on wages. Next to the trade register administrative data on VAT and wage tax are used to check the exhaustiveness of the SBR. In the Netherlands the tax units for different sorts of taxes are not necessarily identical, especially not for larger enterprise groups. Moreover the tax register supplies additional information on ownership relations between legal units, including relations with less than 100% ownership. Also this information supports the determination of enterprise groups in the business register. More generally, the information from the tax office register is essential to link administrative data to statistical units, which facilitates their use in the compilation of business statistics.

The third important source for the Dutch business register is the administration of taxes on wages, which provides information on the number of persons employed for each legal unit.

Together these sources assure that the SBR is an (almost) exhaustive register for unincorporated enterprises, private non-profit institutions, non-profit institutions serving businesses and non-market producers.

However, the SBR does not cover NPISHs and general government units completely. NPISHs are present in the SBR as legal units, but will not lead to a statistical unit when economically insignificant. A very small number of general government units are missing in the trade register, because they are exempted from the obligation to register (parliament is an example). Because they are missing in the trade register these units are not included in the SBR either. However, from the supplementary government unit register, these omitting general government units are known. Data on government units are not necessarily collected via the SBR coordinated surveys, but are also directly obtained from exhaustive administrative sources.

For NACE classes including NPISHs, information from the labour accounts is used to assure the population of these NACE classes is covered exhaustively. Because there is a time delay between the occurrence of events (births and deaths) in the trade register and the processing in the SBR the use of exhaustive wage tax data might point at missing units in the SBR. In case a legal unit in the wage tax data cannot be linked to a statistical unit in the SBR, yet its wages will be attributed to a NACE class based on the NACE code of the legal unit. Wage data play an important role in estimating these parts of the economy (see section 3.24).

### *Maintenance of the Business Register*

The SBR contains more than 2 million legal units and is daily updated based on new information on legal units from the trade register. Once the legal unit and its characteristics have been registered, its economic relevance is checked to prevent economically irrelevant legal units from becoming an enterprise group or an enterprise. Two indicators are derived: one that indicates whether or not the legal unit on itself should lead to an Enterprise Group, regardless of the ownership relations it might have with other legal units, and one that indicates whether it should lead to an enterprise. The algorithm to derive these indicators depends on the following variables: the number of employed persons, the NACE-code (auxiliary or not) and the turnover of the corresponding value added tax unit.

The SBR covers more than 1.5 million enterprises and nearly as many enterprise groups. The majority of these enterprise groups consist of only one enterprise and only one legal unit. All enterprise groups are derived with automated algorithms, making use of the available information on ownership relationships between legal units.

With the exception of the 1,900 largest enterprise groups, an enterprise as defined in the SBR represents the full enterprise group. This appeared to significantly improve the concordance of administrative units to enterprises. This improved linkage supports the use of administrative data to compile business statistics, which not only reduces the administrative burden on respondents, but also increases the quality as administrative sources provide a much higher (integral) coverage than sample based surveys. Although this may lead to lesser homogeneity of enterprises (the enterprise may be less homogenous than prescribed by the requirements for the Local KAU), the improved linkage between statistical units and administrative sources outweighs this disadvantage.

The 1.900 largest enterprise groups are profiled manually. These enterprise groups are selected using a set of criteria, including the size in terms of employment and balance sheet total, the existence of ownership relations with foreign entities, their impact on statistical

outcome, and the diversity of their activities. The profiling exercise leads to the construction of individual enterprises within the enterprise group and determining their characteristics such as NACE and size class. Usually the breakdown into enterprises is done in cooperation with representatives of the enterprise group itself, since it must be assured that respondents are able to report statistical information at enterprise level. In general, the more diverse the production activities inside an enterprise group are, the more enterprises will be distinguished.

For all enterprises and enterprise groups, including those outside the 1.900 manually profiled enterprise groups, it is possible to correct frame errors and change for example the NACE coding of a unit in the register if this turns out to be incorrect.

Each month a population frame is derived from the live register of the Dutch SBR. This frame describes a steady situation of the statistical units, their characteristics and their linkages to the administrative units in order to coordinate populations to produce statistical output or to conduct coordinated surveys. Before the new population frame is made available to users, a macro-validator has to approve all changes caused by the sources and the profilers by judging the impact for the users and take action if necessary. In case further enquiry is necessary, a foreseen change can be postponed by one month or as long as is necessary to gather the required information.

### *Special Purpose Entities*

In the SBR legal units representing special purpose entities (SPE's) are characterized as such by a dedicated sector code. The main source for SPE's is the register for SPE's maintained by the Dutch central bank (DNB), supplied with information from surveys by Statistics Netherlands, mainly the survey on the finances of enterprise groups. Data reported in this survey can lead to the suspicion that a legal unit might be an SPE. The population of SPEs is continuously being coordinated between DNB and CBS.

A decision tree indicates the status of a potential SPE candidate. This decision tree is described in detail in annex 3.2. The decision tree addresses the existence of a foreign mother and foreign group companies and makes use of financial statements (balance sheet and the profit & loss account).

Once a legal unit is identified as an SPE, the sector coding in the SBR is adjusted accordingly. Data on SPEs are collected by DNB and provided to Statistics Netherlands to be included in the national accounts (see section 3.17).

### *The quality of the statistical sources used for the production approach*

For most NACE-sections annual data are collected by business surveys, which is described in more detail in section 3.1.2. The Structural Business Statistics (SBS), for which the enterprise is the statistical unit, constitute the main source for the production approach of GDP. The main exceptions, for which no SBS-data are available, are sections A (agriculture), K (financial and insurance activities), O (public administration), P (education), the parts of sections Q, R, S and T (health, entertainment and other services). For these sections the business register is currently not used for surveying. The respective sections covering each of these NACE-sections include a description of the data sources used.

For the 350 largest non-financial enterprise groups the data from different surveys are processed by an organizational unit inside Statistics Netherlands dedicated to large and complex enterprise groups, the so called Congo-unit (acronym for consistent observation of

large and complex enterprise groups). The aim of the unit is to deliver consistent data on enterprise groups and underlying enterprises for a number of variables, suitable for direct use in subject matter statistics and national accounts.

The data consistency analysis of a particular enterprise group includes nine different statistics and two fiscal sources (see Table 3.1.1.1). Several consistency rules were formulated in cooperation with the national accounts department. In essence these rules represent a micro level translation of the data balances and inconsistency checks carried out in the SUT at meso and macro level. Consistency rules may be applied at the level of both the enterprise group and the enterprise. Enterprise group estimates should correspond to the sum of individual enterprises within the group taking account of (de)consolidation. Consistency is not only checked for a fixed reference period, but also in time, for example data consistency in relation to short term (monthly, quarterly) and annual statistics. Also the longitudinal development of indicator ratios is analysed as a way to detect outliers or unexpected major events.

The new organisational unit started its work with the analysis of data for the reference year 2009 and has been analysing and solving inconsistencies for annual and short-term statistics for these 350 enterprise groups from that year onwards. This has resulted in more consistent and complete datasets as input for the various economic statistics, and thus in improved quality and efficiency in the chain of economic statistics, including national accounts. The Congo-unit has especially proven its value added for multinational enterprise groups, for which data inconsistencies appeared to be particularly related to conceptual differences between the various data sources. Conceptual differences are particularly encountered in observing enterprise groups involved in global production arrangements. For these enterprise groups the data from statistics on international trade in goods, based on the cross border concept, tend to be inconsistent with SBS data, in which the principle of economic ownership prevails. In these cases the Congo-unit supplies national accounts with the information which guarantees consistent national accounts estimates based on inconsistent, or conceptually divergent, micro data.

### **3.1.2 Structural Business Statistics**

#### *Introduction*

In 2009 a new system for the compilation of Structural Business Statistics was implemented at Statistics Netherlands. This redesign project for Structural Business Statistics was part of an overall redesign programme (see annexes 3.3, 3.4, 3.5, 3.6, 3.7 and 3.8), aimed at restructuring the whole chain of economic statistics from an integrated perspective. This system encompasses the collection, processing, analyses and publication of data for various economic statistics, in particular the business register, Structural Business Statistics (SBS), Short Term Statistics (STS) and National Accounts.

The redesign programme was started for three reasons: quality improvement, higher efficiency, and reduction of the administrative burden. One of the aspects for which an improvement of the quality was considered to be necessary, was the consistency between short term and annual data.

**Table 3.1.1.1 Statistics that are subjected to consistency checks, the statistical unit under examination, and frequency at which the statistics are being compiled**

<i>Statistics</i>	<i>Statistical unit</i>	<i>Frequency</i>
Finances of enterprise groups	Enterprise group	Annual and Quarterly
Structural Business Surveys (SBS)	Enterprise	Annual
Short Term Statistics (STS)	Enterprise	Quarterly or Monthly
Prodcom	Enterprise	Annual
Investment Statistics	Enterprise	Annual
International Trade in Goods	VAT-unit	Monthly
International Trade in Services	Enterprise group or Enterprise	Quarterly
Research & Development Statistics	Enterprise	Annual
Statistics on Employment and Wages	Tax unit for tax on wages	Quarterly
Corporate Tax	Tax unit for corporate tax	Annual
Value Added Tax	VAT-unit	Annual, Quarterly or Monthly

A second goal of the redesign programme was to realise higher efficiency. Alongside the more or less systematic attention for efficiency improvement of its operational processes, Statistics Netherlands was forced to reassess the way of producing statistics as a consequence of substantial budget restraints imposed by the government: it necessitated to look for possibilities of producing the same statistical output, with at least the same quality, more cost-effectively.

The third goal of the programme was to reduce the administrative burden for the business community. Under the new Dutch Statistical Law that came into force in 2003, Statistics Netherlands is only allowed to collect data via surveys if no adequate administrative sources are available for this information. Furthermore, whereas the statistical office is only responsible for less than 0.3 per cent of the total administrative burden in the Netherlands, the perceived burden caused by Statistics Netherlands is much larger. This resulted in the need to look for possibilities to replace survey data with administrative data.

In the remainder of this section firstly more information in general is given on the changes that were implemented in the statistical processes as a result of the redesign programme. After that the different stages of the process to produce Structural Business Statistics, the main source for the production approach of the GDP for most NACE-sections, is described in more detail.

### *Changes in statistical processes*

One important feature of the new system is the increased use of administrative data. In the new system VAT data are used as a major source for turnover statistics for several branches of the economy and thus as an important input for the National Accounts. Within the redesign programme it was demonstrated that - with an improved delineation of enterprise groups and enterprises in the business register - VAT data on small and medium-sized enterprises combined with survey data on the largest enterprises and enterprise groups resulted in plausible estimates for turnover. This specific project also contributed to quality improvement as administrative data provide almost full coverage of the target population. In addition, as first and final estimates can be based on the same data, the revisions should become substantially smaller. Within the production process of Structural Business Statistics, methodology for weighing and imputations was redesigned. The weighing procedures are designed in such a way that annual turnover estimates will automatically be equal to the sum of four quarterly turnover totals. Imputations are computed by using value added tax data as much as possible. In this way, the quality of Structural Business Statistics was increased.

For Structural Business Statistics value added tax is also used for estimates for small enterprises. A research project was completed that looked at the stability of output and cost structures. Some sections within the SBS-domain turned out to have such stable structures, that they could be computed by weighing the structures for two subsequent years to the total turnover values. Every third year, questionnaires are sent out to obtain up-to-date estimates of the input structures. In this way, administrative burden within the annual Structural Business Statistics was reduced too.

A second major adjustment in the production process of economic statistics is the introduction of a new process and system for consistently processing of the data of the 350 largest and most complex non-financial enterprise groups in the Netherlands. All the work concerning large enterprise groups, from the delineation of the enterprise groups and enterprises to data editing, imputation and analysis, is concentrated in one organisational unit, the so called Congo-unit that was already mentioned in the context of the business register earlier in this chapter.

In the new system, the focus shifted from a bottom-up to a top-down approach. This means that no longer every microeconomic unit is analysed and edited, but that they are only subject to editing if analysis at meso-aggregate level yields implausible results. The new system provides tools for graphical presentations of the results in which users can search for outlier data. Users can zoom in into a certain variable or size class to detect what caused the implausible result and adjust the micro data when necessary. This top-down approach was first used in the analysis of the data for the SBS for 2009. The approach has led to increased efficiency as less data need to be edited at a microeconomic level. In addition, it has led to better quality of the results as the focus is now on variables to be published. These variables are monitored better during the process and staff can be employed where it is deemed most relevant.

### *Coverage of Structural Business Statistics*

Structural Business Statistics cover the following NACE-classes:

- 016 Support activities to agriculture and post-harvest crop activities
- B Mining and quarrying
- C Manufacturing
- D Electricity, gas, steam and air conditioning supply

E	Water supply; sewerage, waste management and remediation activities
F	Construction
G	Wholesale and retail trade
H	Transportation and storage
I	Accommodation and food serving
J	Information and communication
L	Real estate activities (the non-business part of NACE 6820 partly is excluded)
M	Other specialised business services
N	Renting and other business support
S	Other service activities (NACE S94 excluded)
Q	Human health and social work activities (parts of NACE 8692, 8810, 8891, 8893)

All size classes (by persons employed) are covered.

### *Sample design and sample size*

The sample survey of Structural Business Statistics is stratified as follows:

- The enterprises belonging to the 350 largest and most complex enterprise groups are exhaustively surveyed.
- Large and medium sized enterprises (100+ persons employed) that are not part of a Top 350 enterprise group are also exhaustively sampled.
- Sample fractions for other enterprises are derived for each NACE x size class for all enterprises with  $\geq 1$  person employed.
- Smaller enterprises have sample fractions  $>0$  and  $\leq 1$ . The allocation of the sample survey is optimised for Value Added using a Neyman allocation, optimising on the whole domain level.
- Some NACE x size class combinations are not sampled, since VAT information is used in combination with survey results of a previous year.

The sample size for Structural Business Statistics varies by NACE code and size class. Table 3.1.2.1 gives an overview of the sample size and the corresponding total population size for the reference year 2010.

### *Response rate*

The response rate of Structural Business Statistics varies by NACE code and size class. On average the response rate for 2010 was 63 per cent for enterprises with 5 or less persons employed, 70 per cent for enterprises with 5 to 100 persons employed and 88 per cent for enterprises with more than 100 persons employed.

### *Types of observation*

Structural Business Statistics are based on an annual sample survey combined with the use of administrative data from the VAT registry. The specific data sources used vary by NACE class, size class of the enterprise and complexity of the enterprises involved:

**Table 3.1.2.1 Population size and sample size for annual Structural Business Statistics 2010**

NACE group	Number of employees n											
	n ≤ 5			5 < n < 100			n ≥ 100			total		
	Popula- tion	sample size	%	Popula- tion	sample size	%	Popula- tion	sample size	%	Popula- tion	sample size	%
Support activities to agriculture	10369	577	6%	1084	182	17%	5	5	100%	11458	764	7%
Mining and quarrying	263	112	43%	80	51	64%	19	19	100%	362	182	50%
Manufacturing	40892	2149	5%	12598	4870	39%	1300	1300	100%	54790	8319	15%
Electricity, gas, steam and air conditioning supply	727	384	53%	65	45	69%	32	32	100%	824	461	56%
Water supply; sewerage, waste	843	205	24%	380	224	59%	74	74	100%	1297	503	39%
Construction	126061	3964	3%	11749	4324	37%	457	457	100%	138267	8745	6%
Wholesale and retail trade and repair of motor vehicles and motorcycles	24912	1247	5%	4222	841	20%	128	128	100%	29262	2216	8%
Wholesale trade, except of motor vehicles and motorcycles	67871	5104	8%	12554	6031	48%	579	579	100%	81004	11714	14%
Retail trade, except of motor vehicles and motorcycles	91604	3447	4%	12565	2038	16%	302	302	100%	104471	5787	6%
Transportation and storage	27089	2386	9%	5431	1901	35%	388	388	100%	32908	4675	14%
Commercial service activities <sup>1</sup>	406798	18570	5%	33903	9852	29%	1487	1488	100%	442188	29910	7%
Real estate activities	31747	298	1%	1389	146	11%	25	25	100%	33161	469	1%
Activities of head offices (NACE 701)	8906	193	2%	648	271	42%	75	75	100%	9629	539	6%
Human health and social work activities	12250	1186	10%	2872	1131	39%	231	231	100%	15353	2548	17%
<b>Total</b>	<b>850332</b>	<b>39822</b>	<b>5%</b>	<b>99540</b>	<b>31907</b>	<b>32%</b>	<b>5102</b>	<b>5103</b>	<b>100%</b>	<b>954974</b>	<b>76832</b>	<b>8%</b>

<sup>1</sup> Sections I, J, M (excluding NACE 701), N and S

### *Enterprises part of the 350 largest and most complex enterprise groups*

The results of enterprises belonging to a large and complex enterprise groups (the so called Congo enterprise groups) are always collected and estimated using survey data. The enterprises involved are exhaustively sampled provided that the NACE code is within the domain of Structural Business Statistics. The results of these enterprises have been made consistent with other data available for these enterprises, such as STS-data and information available on the enterprise group level.

### *Enterprises not part of the Top 350, survey only*

Part of the NACE x size classes covered is also estimated, using survey data only. This is specifically the case for enterprises in NACE classes where VAT data cannot be used in the estimation process (for example: some activities are VAT exempted, which implies that for these activities VAT data cannot be used to estimate the total turnover/production of the specific NACE-group). Larger size classes are covered exhaustively by the SBS-survey, smaller size classes are sampled.

### *Enterprises not part of the Top 350, survey data combined with VAT data*

Part of the NACE x size classes covered is estimated, using survey data and VAT data. In these cases the survey results on the enterprise level are calibrated in the weighing process using VAT information. The exhaustive nature of the VAT data allows for improving the estimates for a NACE class. See scheme 3.1 below.

### *Enterprises not part of the Top 350, VAT data in combination with survey data of a previous year*

Part of the NACE x size classes covered is estimated, using the results of survey data of a previous year combined with VAT data. In these cases total turnover is estimated using VAT information. The results of other variables are derived, using the ratio of these variables in relation to the turnover of previous years. This procedure is applied for the small enterprises (<10 persons employed) in a number of NACE groups.

### *Enterprises not part of the Top 350, VAT data only*

The turnover of the smallest enterprises (mainly enterprises with 0 persons employed, after rounding) is calculated using VAT information only. The other variables are calculated using information from enterprises in a higher size class.

Table 3.1.2.2 gives an overview of the different types of observations. In annex 3.1 a more detailed overview is given which method was used per NACE x size class combination.

**Table 3.1.2.2 Percentage turnover by type of observation. The column “other survey” comprises the NACE-groups for which only survey data are used as well as those for which survey data are combined with VAT-data**

NACE-group	Primarily VAT data		Primarily observations	
	VAT only	VAT and previous year	Top 350	Other Survey
Support activities to agriculture and post-harvest crop activities	4%	0%	3%	92%
Mining and quarrying	0%	0%	94%	6%
Manufacturing	1%	2%	51%	45%
Electricity, gas, steam and air conditioning supply	1%	0%	89%	10%
Water supply; sewerage, waste management and remediation activities	3%	0%	35%	62%
Construction	3%	12%	27%	58%
Wholesale and retail trade and repair of motor vehicles and motorcycles	1%	2%	18%	79%
Wholesale trade, except of motor vehicles and motorcycles	2%	7%	28%	64%
Retail trade, except of motor vehicles and motorcycles	1%	11%	27%	61%
Transportation and storage	2%	0%	36%	62%
Commercial service activities <sup>1</sup>	5%	5%	24%	67%
Activities of head offices	0%	0%	0%	0%
Human health and social work activities	0%	0%	1%	99%
<b>Total</b>	<b>2%</b>	<b>5%</b>	<b>36%</b>	<b>57%</b>

<sup>1</sup> Sections I, J, M (excluding NACE 701), N and S

### *The automated editing process*

The survey data received from the responding enterprises are subjected to editing procedures. In the new system more automated processes have been implemented in order to improve efficiency. In the compilation process of data for SBS the automated micro-editing of the various variables was improved. Although the focus of the analysis has shifted to a top-down approach, it is still very useful to adjust data at a microeconomic level when obvious errors occur. The previous system already contained a tool for automatic editing of some obvious errors. However, in the redesign programme the automatic editing rules have been revised so that a larger number of survey data can be processed automatically. Nowadays, almost 70 per cent of the survey forms can initially be processed using an automated approach. Eventually

part of the automatically edited records still need interactive in editing, but in the end 60 per cent of the total number of response records needs no interactive editing at all.

In the automated editing process for Structural Business Statistics a large number of automated and standardised adjustments are made. The process can be described by the following steps:

- pre-detection;
- pre-adjustment;
- optimised automated editing (SLICE);
- post-adjustment;
- post-detection.

In the pre-detection phase the input data are verified. Records with complex errors are sent to interactive editing. Records that have no or only a limited number of problems follow the automated editing process.

In the pre-adjustment phase, those records are corrected for which a simple solution is available. Common mistakes or missing values in certain variables are adjusted using for example cell averages or previous year data.

In the optimised automated editing process (SLICE) an algorithm is used to correct records adjusting the data only as minimal as possible. This procedure is especially efficient for solving minor inconsistencies.

The post-adjustment phase concerns adjusting mistakes that are still prevalent after the use of SLICE. Certain errors can best be solved after running SLICE.

In the post-detection phase a number of indicators are used to check whether the automatically adjusted record is accepted or should still be edited interactively.

#### *The interactive editing process*

The interactive editing process is used for two types of records:

- Records with mistakes that could not be edited automatically.
- Records that were detected and selected after top-down analysis of the results.

In the interactive editing process records are adjusted by a staff member using various sources (additional information obtained by contacting the respondent, previous year data, external information, etc.).

#### *The calculation of NACE totals*

Structural Business Statistics are in principle compiled at NACE 4-digit level. Smaller NACE 4-digit groups are however pooled together into larger NACE activity groups in order to maintain stability of results. The following grossing up method is applied:

a) NACE groups for which VAT information is of sufficient quality:

Since enterprises belonging to the 350 largest and most complex enterprise groups are exhaustively sampled, all those enterprises are weighted with a weighing factor equal to 1. Missing values are imputed. For these enterprises no use is made of VAT data.

For other enterprises which are representatively sampled (the larger enterprises) all enterprises are weighted with a weighing factor equal to 1. Missing values are imputed. For NACE-groups for which VAT can be used, the VAT data are used to calibrate the reported data at the enterprise level for turnover and also for all other financial variables.

For enterprises which are not sampled (the middle sized and sometimes small enterprises) all enterprises are weighted using a grossing up algorithm. In this algorithm several data sources are used to calculate grossing up factors:

- the population size
- the number of respondents
- the number of persons employed of every survey and population unit in the business register
- the VAT information of each population unit

A regression model is used to calculate the grossing up factors and population totals. This results in survey totals in consistency with the VAT turnover totals and the number of employed persons as recorded in the business register.

The smaller enterprises are calculated using the VAT totals and variable-to-turnover ratio's from previous years or higher size classes.

### **Scheme 3.1 Calculation of SBS-totals for NACE – size class combinations covered by a sample survey and with use of VAT-data**

To calculate SBS-totals for NACE x size class combinations which are not observed exhaustively in the survey all enterprises are weighted using a grossing up algorithm. In this algorithm several data sources are used to calculate grossing up factors within a specific NACE group:

- The population size and number of respondents are used to calculate the starting weights for the weighing procedure.
- The size class (SC) based on persons employed is used for each enterprise in the survey and for the total populations of the NACE group (5 classes: 1 person employed, 2-4 persons employed, 5-9 persons employed, 10-19 persons employed, 20-49 persons employed).
- The legal form (LF) is used for each enterprise in the survey and for the total population of the NACE group (2 classes: incorporated and non-incorporated enterprises)
- The number of persons employed (PE) is used for each enterprise in the survey and for the total population of the NACE group.
- The turnover (T) is used for each enterprise in the survey. For the entire population of the NACE group the VAT turnover total is available.

The weighing cells are equal to the non-integral part of a NACE group. For a weighing cell the following weighing model is used to calculate the grossing up factors and population totals:

$$SC(5) + LF(2) + PE + SC(5) \times T$$

The notation above follows a common way of notation for regression modelling. A “+” stands for a combination of auxiliary variables without crossing, a “x” stands for a complete crossing of auxiliary variables.

Applying this weighing model within a NACE group means that the following results are achieved with a minimal adjustment of the starting weights:

1. The sum of the weights is equal to the population totals for each of the five size classes.
2. The sum of the weights is equal to the population totals for each of the two legal forms.
3. The sum of the weighted persons employed is equal to the population totals of persons employed.
4. The sum of the weighted turnover is equal to the population total estimate derived from VAT for each of the five size classes.

The result is that for each weighing cell the SBS-totals are consistent with the VAT turnover totals and the total number of persons employed as recorded in the business register.

The results from the grossing up procedure for the non-exhaustively surveyed part and the survey results for the exhaustively surveyed part of a NACE group are added to yield the SBS-totals.

b) NACE groups for which VAT information is of insufficient quality:

For these NACE groups a similar approach is followed except that VAT is not used in the estimation process. Missing data for exhaustively sampled enterprises are imputed using data for the previous year, annual reports or NACE size class averages. For smaller enterprises the response data are grossed up using an algorithm that is based on the population size, the number of respondents and the number of persons employed of every survey and population unit.

Totals per NACE 4-digit, the underlying micro data and weighing factors are transmitted to the National Accounts department, where all necessary adjustments are made to meet the definitions and the requirements of the national accounts.

### **3.2 The borderline cases**

Usually the delineation of output, intermediate consumption and gross fixed capital formation is straightforward, there are however a number of borderline cases which are discussed in this section.

#### *Production*

In chapter 5 provides information on own-account gross fixed capital formation (GFCF) estimates of those asset types which remain expectedly uncovered by SBS, for example mineral exploration, entertainment, literary and artistic originals, software and research and development. These supplementary data compilation must be added to SBS-output.

Further, own-account production of agricultural products by households must be included in the estimates of output. This output solely for own final consumption in kitchen gardens remains unobserved in agricultural statistics. Consequently an additional estimate is made for this own-account output of agricultural products which is based on the allotment area in hectares and an anticipated average output per hectare (see also Section 3.7).

Estimates of dwelling services produced by owner-occupiers are derived from information on renting values of corresponding dwellings occupied by tenants. Linear regressions between rental values and capital values of dwellings are used, where the capital value of dwellings is obtained from the so-called “WOZ”-values. The latter are obtained from municipalities registers for taxation purposes (details are found in Section 3.18).

NACE section T includes the household services produced by employing paid domestic staff. These are services provided by e.g. butlers or private nurses. The size of these services is quite small (4 million euros). Corresponding estimates are derived from the labour accounts which are based on administrative data on wage tax declarations. Furthermore care bought by personal budgets provided by the government (PGB) is included in this section as well. In the Netherlands disabled people are, under certain conditions, entitled to personal budgets for purchasing various forms of individual care services.

Services like housecleaning and babysitting are considered to be produced by self-employed persons. Therefore, they are not included in section T but instead in the NACE section of the corresponding services.

Activities undertaken by volunteers resulting in goods merely consists of GFCF in buildings (churches, sports accommodation). However nowadays such activities are rare in the Netherlands and therefore judged as negligible. Most voluntary activities in e.g. amateur sports clubs, religious organisations, political parties, will result in the output of services.

Output used for payments in kind is accounted for in relation to access granted by transport enterprises to their employees of to travel for free or at reduced prices, and for employees of financial institutions who are granted loans against interest rates below market rates.

For products bartered no additional estimates are made. These transactions hardly occur in the Dutch economy.

No supplementary estimates are required for products supplied by one KAU to another within the same institutional unit. The KAU is the unit of observation for business statistics and intra company transactions are included in output and intermediate consumption in the survey data.

The output in relation to growth of multi-annual plantations and livestock is gradually spread over time and is not solely recorded at the moment of harvest or slaughtering. The methods used are according to recommendations in the Agricultural and Forestry Accounts Handbook (See Section 3.7.1. for further details).

### *Intermediate consumption*

In ESA 2010 the delineation of intermediate consumption in relation to gross fixed capital formation (GFCF) has changed compared to its predecessor. Expenses which can be recorded as current costs in bookkeeping like expenses on valuables, mineral exploration, major repairs and improvements, software, research and development have to be excluded from intermediate consumption as they are part of GFCF. Expenditure to be treated as the purchase of non-produced assets, e.g. long-term contracts, leases and licenses must be excluded from intermediate consumption as well. This also holds for (part of) expenditure by employers in

favour of their employees which must be recorded as wages and salaries in kind, payments for government licenses and fees that must be recorded as other taxes on production, and payments for licences for using natural resources (e.g. land) to be recorded as rents. Based on SBS data in combination with additional sources (wage tax data) and assumptions, estimates are made for the required adjustments of intermediate consumption, wages, other taxes on production and property income.

Cost for the decommissioning of large capital assets should not be included in intermediate consumption. In the case of the Netherlands it is not likely that such expenditure is being recorded as intermediate consumption. Instead, expenditure on substantive decommissioning projects are (implicitly) ex post included in the estimates of GFCF (see section 2.2.6).

In business statistics, as well as in financial and governmental reports, the items “costs of using rented fixed assets”, “inexpensive tools”, “subscriptions”, “goods and services used as inputs into ancillary activities”, “contributions and dues paid to non-profit business associations” and “expenditure by employees reimbursed by the employer” will always be covered, perhaps not explicitly. These items will be recorded in various other aggregated cost items such as ‘office needs’, ‘costs of transport’, ‘sales costs’. For non-life insurance data sources from the Dutch Central Bank will cover insurance premiums paid. In the translation of this data to NA-definitions, the premiums paid are transformed into the output of insurance service charges (see also Section 3.4).

Information on R&D purchases is obtained from business statistics as well as from dedicated R&D surveys. Only R&D services purchased by entities in the R&D industry (NACE 72) are being recorded as intermediate consumption. All other domestic R&D purchases are recorded as GFCF.

Intermediate consumption is adjusted for wages in kind such as the private use of a company car, meals and drinks provided to employees, etc. The required estimates are partly based on tax information and partly on assumptions concerning specific items in intermediate consumption as observed in business statistics. For those branches not covered by business statistics amounts per employee are used to estimate wages in kind.

In general SBS statistics provide rather detailed information on the intermediate consumption of enterprises. However, the more general cost items are often more aggregated and do not necessarily match with the classification of goods and services found in the supply and use table. Also data obtained from bookkeeping records of enterprises are sometimes not detailed enough to match with the requirements of the SUT. In such cases a breakdown of these aggregates is made according to the classification of goods and services in the supply and use table. These aggregates may also include other taxes on production. The breakdown of aggregated survey response items may therefore also result in transaction reclassifications, in this case from intermediate consumption to value added.

As already stated in the section on borderline cases in production, no additional estimates are needed for items of intermediate consumption obtained via intragroup deliveries. Intra company transactions are included in output and intermediate consumption variables as obtained from business surveys.

FISIM is allocated to intermediate consumption in a two stage procedure. On the level of institutional sectors FISIM is allocated using balance sheet information. As the latter are not available at manufacturing industry level the allocation to industries is, in conformity with the international guidelines based on total industry output and corresponding institutional sector totals for FISIM consumption.

Borderline cases related to taxes and subsidies on products are explained in sections 3.28 and 3.29.

### **3.3 Valuation**

The Dutch supply use system is balanced at purchasers' prices excluding VAT. Chapter 6 provides an overview of the Dutch SUT framework including its valuation principles. Domestic output is valued according to three kinds of prices:

- Purchasers' prices including VAT;
- Purchasers' prices excluding VAT;
- Basic prices.

The purchasers' price is the price of a product as paid by the purchaser. In theory all transactions are including VAT, however many producers are allowed to deduct VAT from purchases on both intermediate consumption and gross fixed capital formation. Those producers are actually paying a purchasers' price excluding VAT. The basic price is the amount that results after deduction of trade and transport margins and taxes less subsidies on products from the purchasers' price and is in fact the revenue for the producer. For imports the c.i.f.-price (price at the Dutch border, see chapter 5 for more details) replaces the basic price.

As already explained the producer of a product will usually receive a price below the purchasers' price as the latter will include wholesale, retail trade and transport margins. These services may be provided by other parties than the goods producer. Deducting trade and transport margins and non-deductible VAT from the purchasers' price results in the so called producers' price. Producers' prices are mostly reported in business statistics and in administrative VAT-data.

The producer may have to invoice taxes on products (such as excises) or will be receiving subsidies on products. The remaining price, is the so-called basic price which is the actual price received by the producer.

The schemes below provide an overview of how the various prices are linked together.

*Valuation types of domestic output*

purchasers' price including VAT  
minus VAT  
= purchasers' price excluding VAT  
    minus: trade and transport margins  
= producers' price  
    minus: taxes on products paid  
    plus: subsidies on products received  
= basic price

*Valuation types of imported products*

purchasers' price including VAT  
minus VAT  
= purchasers' price excluding VAT  
    minus: trade and transport margins  
        in the Netherlands  
    minus: taxes on imports  
    plus: subsidies on re-exports  
= cif-price

The valuation of various macroeconomic variables is in more detail discussed below.

*Output (basic prices)*

In the Dutch supply and use tables output is valued at basic prices. Data on output at basic prices are often not directly available from source statistics as mostly output at producers' prices is reported. Based on Structural Business Statistics (SBS) output at basic prices is calculated using output at producers' prices and data on and taxes less subsidies on products which are separately reported in the surveys.

Output at producers' price  
minus: taxes on products paid  
plus: subsidies on products received  
= output at basic prices

These figures are assumed to be consistent on the level of the unit of observation, implying that taxes and subsidies on products are directly subtracted/added respectively in order to arrive at output at basic prices. Any differences between the SBS and government taxes and subsidies on products will be part of output at purchasers' prices (excl. VAT) as recorded in the SUT.

The scope of taxes and subsidies on products in this calculation process reported in SBS and the scope of taxes and subsidies on products from government accounts are the same.

In general output estimates based on SBS-data are derived as sum of turnover, changes in inventories and own account GFCF. A well-known exception is the output of trade as derived from the measurement of trade margins. Nevertheless in some cases adjustments have to be made in relation to goods sent of processing (adding only the processing fee to output), production abroad and divergent judgements of change in ownership in relation to global production arrangements. Next to turnover SBS contains an item 'Other revenues' which include among other things royalties, rental of buildings which are part of output in the NA.

Special cases:

*Trade* is the distribution of goods in time and space without any physical transformation. So, trade services are produced in relation to goods (not services). The value of trade services (the so-called trade margins) is the difference between the value of sales and the value of purchases for resale.

*Real estate activities* not only include services of non-residential buildings and rented dwellings, but also imputed services of owner-occupied dwellings. The latter are valued on the basis of rents of comparable rented dwellings.

*Banking* mainly deals with financial intermediation, i.e. the acquisition, transformation and issuing of financial assets. The compensation for these services is implicitly included in the interest paid to and received from banks. Imputed bank services (FISIM) are estimated based on balance sheet data from the institutional sector accounts and interest rates, including a reference rate. Furthermore, banks produce fees and commissions on financial transactions and payments for services such as the use of pin passes, i.e. services for which clients pay explicitly.

*Insurance and pension funding* mainly transforms individual risk into collective risk. The value of these services of non-life insurance companies is set as the difference between premiums earned (including implicit premium supplements) and adjusted claims incurred. In the case of pension funds and life insurance companies the value of these services equals the sum of production costs plus an allowance for normal profit of life insurance companies.

*Government* mainly produces non market services, both collective and individual ( services directly provided to individuals such as education). Since no market prices available, government output is determined as sum of costs of intermediate consumption, compensation of employees, consumption of fixed capital and the balance of other taxes and subsidies on production paid/received by the government itself.

*Non-profit institutions serving households* are non-market producers. The value of their output is determined as sum of costs, similar to government output.

### *Intermediate consumption (purchasers' prices excluding VAT)*

Intermediate consumption consists of goods and services transformed into other goods or services and used up entirely in the course of the production process. According to international standards an acquired good or service is classified as a fixed asset rather than intermediate consumption when it lasts in a production process over one year. Goods and services that are part of intermediate consumption are valued at market prices at the time they are used.

The accrual principle is followed in the valuation of intermediate consumption (intermediate consumption be recorded and valued when it enters the production process). Revaluation adjustments are only made for products in between different accounting periods. Within one accounting period no adjustments are made for revaluation. See for detailed information on this subject section 5.11.

Adjustments made to render changes in inventories are consistent with the valuation of intermediate consumption. So changes in inventories of materials are deducted from purchases of materials intended to be used as inputs in the calculation of intermediate consumption.

As most producers are allowed to deduct VAT from their purchases, the valuation of the Dutch use table is purchasers' prices excluding VAT in order to obtain a homogeneous valuation for all entries. This implies that data on intermediate consumption linked to VAT-exempted activities have to be adjusted to arrive at purchasers' prices excluding VAT. Most important examples of exempted activities are government, health and financial services. Based on intermediate consumption data detailed by product group the prevailing VAT-rates of individual product groups are applied in order to arrive at the required valuation. Non-deductible VAT is included in the SUT in a separate row entry in the use table.

### *Taxes on products*

Taxes on products are taxes payable per unit of a given good or service produced or imported. The tax may be a specific amount of money per quantity unit of a good or service, or may be calculated as a specified percentage of the price per unit or value of the goods and services produced or traded. Taxes on products are a column entry in the supply table bridging the gap between the basic/cif prices in the supply table and the purchasers' price excluding VAT as found in the use table. See for more information on tax related issues section 3.28.

### *Subsidies on products*

Subsidies on products are subsidies receivable per unit of a good or service produced or imported. The subsidies are related to the value or volume of product. Subsidies on products are part of the supply table in order to bridge the gap between the basic/cif prices of the supply table and the purchasers' price excluding VAT of the use table. See for more information on subsidy related valuation issues section 3.29.

### *Products produced for own final use*

The scheme below shows the valuation method for the various products produced for own final use.

**Valuation of products for own final use**

<b>Gross fixed capital formation of market producers</b>	<b>Valuation</b>
SBS-data own account GFCF	Basic prices assumed
Software	Model approach, implicit mark up
R&D	Sum of costs plus mark up
Originals	Based on royalties, basic prices assumed
Cultivated biological resources	Balance sheet information, basic prices assumed
own account construction of dwellings	sum of costs
<b>Gross fixed capital formation of non-market producers</b>	<b>Valuation</b>
Software	sum of costs
R&D	Sum of costs
Other	Sum of costs
<b>Consumption of households</b>	<b>Valuation</b>
Imputed rent of owner occupied dwellings	Basic prices
Agricultural products	Basic prices (auction prices)
Use of public transport by own employees of transport companies	Valuation not explicitly addressed
Discounts with financial institutions	Basic prices

### 3.4 Transition from private accounting and administrative concepts to ESA 2010 national accounting concepts

A number of ESA 2010 concepts are defined differently compared to business accounts. A well-known example is the concept of 'depreciation' versus consumption of fixed capital. In business accounting various methods for the calculation of depreciation are applied and may differ from enterprise to enterprise. Since this incomparability is undesirable from a national accounts point of view, a harmonised method for the calculation of the consumption of fixed capital is applied for all industries. Consumption of fixed capital is determined with reference to historical series of fixed capital formation using the perpetual inventory method (PIM). For more detail see section 4.12.

In order to comply with ESA 2010 concepts it is necessary to depart from the registration normally adopted in business accounting. Next to consumption of fixed capital this concerns the delineation of intermediate consumption and GFCF for items such as R&D, software and the recording of inventories. The valuation of inventories in business accounting and SBS will generally not be strictly in line with the ESA2010 requirements and adjustments have to be made for the revaluation part of observed changes (see par 5.11.3). The revaluation has an impact on the estimate of intermediate consumption.

Software, entertainment, literary and artistic originals and R&D related expenditure is frequently recorded as intermediate costs in business accounts instead of GFCG as required in NA. In responding on questionnaires the business accounting way of recording of these items will generally be followed. In ESA 2010 these types of expenditure must be classified as gross fixed capital formation. As a consequence in the transition from business statistics to national accounts the total intermediate consumption will decrease with the amount reclassified to gross fixed capital formation. This will result in a corresponding increase of value added. It is assumed that expenses on small tools which are recorded as current costs in business accounting all concern tools for general use and are therefore, in conformity with ESA 2010, also in the NA recorded as intermediate consumption.

Although it could be argued that the delineation of intermediate consumption and GFCF concerning maintenance and repair of buildings in bookkeeping differs from ESA2010 requirements, no adjustments are made in the processing of SBS-data for NA-purposes. For the initial estimates it is assumed that the SBS-data fulfil the requirements of ESA2010. In the balancing of the supply and use of repair and maintenance of buildings (other than dwellings) the definite distinction between intermediate consumption and GFCF is being determined.

For leasing, businesses accounts record operational lease as intermediate use and financial lease as GFCF, so for this item no adjustments on business accounts data are required. For “insurance service charges” and “FISIM”, business accounts need to be adjusted as they record premiums paid for insurance and will not report data on FISIM directly. Section 3.17 discusses the output of “insurance service charge” and “FISIM”. The output of FISIM is allocated to intermediate consumption which will reduce value added at industry branch level.

As said above business statistics will record insurance premiums paid but not the insurance service according to ESA 2010. As explained in section 3.17, for non-life insurance the ratio between the insurance service and the insurance premium is about 35 per cent. It is assumed that this ratio applies to all industries. Therefore, for all industries, an adjustment of 65 per cent of the insurance premium is made to arrive at intermediate consumption of insurance services. However, information on insurance premiums payable are not necessarily available from business statistics. Related expenses are often included in generic cost categories such as “housing cost” or “other expenses”.

Therefore, when no directly observed data for insurance premiums are available (outside agriculture, financial institutions and parts of the transport industry) the insurance premiums by industry are estimated based on information on type of insurance. Total intermediate consumption of insurance services is derived from data from the insurance companies themselves (see section 3.17). These insurance services consist of four parts: insurance services for transport equipment, insurance services for dwellings and buildings (including machinery and inventories), insurance services for transportation of goods and insurance of other activities. Estimates for the insurance premiums for transport equipment and for buildings are based on the net capital stock by industry and typical ratio's between the insurance premiums and the underlying asset. These ratios are based on data obtained from websites that compare insurance companies.

The total premiums for the transportation of goods are based on the insurance premium tax. In the Netherlands, this tax is levied on all types of insurance except travel insurance and insurance of the transportation of goods. By comparing the received insurance premium tax with the received insurance premiums, an estimate can be made on the premiums on travel insurances and the premium on the insurance of the transportation of goods. The premiums on travel insurance is based on the number of inhabitants in the Netherlands and an average premium of 20 euros per year. The remainder represents premiums for the transportation of goods. This premium is distributed among the trade and transport industry, mostly based on expert opinion.

The remaining premium is considered the premium on other activities which is distributed by industries according to output ratios.

To arrive at insurance services, premiums paid as observed in the business accounts are multiplied by 0.35 (see for more details section 3.17).

Business accounts, and therefore also business statistics, classify certain types of expenditure as current (intermediate) costs, whereas in the national accounts these items must be recorded as wages and salaries. This concerns for example in-company meals and company-car use. In

these cases, intermediate consumption has to be adjusted downwards as these cost items must be reclassified to wages and salaries (see section 7.2.3).

Further a number of self-produced services provided for free or at reduced prices to employees must be recorded as output and as wages in kind. This may require adjustments in information as obtained from the business accounts. Examples are preferential banking and insurance interest and subsidised travel for transport-company employees. For these items output and wages and salaries are adjusted upwards.

In the business statistics outsourced transportation costs are included in sales and intermediate costs. In the Dutch national accounts, these costs are not recorded as output in basic prices, but instead recorded as transport margins. Business statistics provide information about the outsourced transportation costs. These costs are deducted from intermediate consumption for all activity groups separately. Subsequently, the same amount is deducted from turnover. The adjustment is distributed over the turnover by type of goods.

Specific adjustments are made for cost fraud, which is assumed to occur only in small enterprises. The expenditure of enterprises with less than 10 employees is determined for all business categories in which substantial cost fraud is suspected. See section 7.2.3 for further details.

The recording of tips in output is explained in section 7.2.3.

In table 3.4.1 the size of various conceptual adjustments is given as distinguished in this section: the “allocation of FISIM”, the “other conceptual adjustments”, “R&D”, “software”, “outsourced transportation”, “insurance services”, “other transfers” and “other”. Other transfers mainly consist of the transfer of other taxes and subsidies on production from costs items in SBS to value added. The main adjustment in “other” concerns insurance services provided to the government because of the obligatory health insurance (see section 3.21 of the inventory).

**Table 3.4.1. Summary table of the total of conceptual adjustments in the transition from bookkeeping to ESA 2010 concepts**

Compilation of GNI	Level of Details							
		1	2	3	4	5	6	7
		Allocation of FISIM	Other conceptual	R&D	Software	Outsourced transportation	Insurance services	Other transfers of receipts and costs to VA
Output of goods and services (at basic prices)	A - U (01 -99)	1178	5626	2325	2815	-1839	0	120
Intermediate consumption (at purchasers' prices )	A - U (01 -99)	30057	-18293	-3545	-6420	-1839	-3738	-4833
Gross value added (at basic prices)	A - U (01 -99)	-28909	23819	5870	9235	0	3738	4953
Compensation of employees	A - U (01 -99)	0	2040	0	0	0	0	2040
Operating surplus/mixed income	A - U (01 -99)	-28909	21779	5870	9235	0	3738	2913

### 3.5 The roles of direct and indirect estimation methods and of benchmarks and extrapolations

Ideally estimation methods based on direct observation are available for all relevant variables. Alternatively, in the absence of such statistical sources, estimates must be based upon indirect estimation methods, such as models. The variables listed below are derived from indirect estimation models, sometimes combined with statistical sources. The references between brackets refer to the sections providing more details on the applied models.

- FISIM (par. 3.17)
- Consumption of Gross Fixed Capital (section 4.13)
- Imputed rents of owner occupied dwellings (section 3.18)
- Intermediate use for leasing dwellings and enterprise buildings (section 3.18)
- Other services (NACE 87-96, section 3.24 and 3.25 )
- Insurance services (section 3.4 and 3.17 )
- Black economy (section 3.6 and 7.2.3)
- Illegal economy (section 3.6 and 7.2.3)
- Wages in kind (section 3.6 and 7.2.3)
- Cost fraud (section 3.6 and 7.2.3)

**Table 3.5.1 the use of indirect methods in the production approach of the GDP, 2010 (million euros)**

Compilation of GNI	Level of Details	Surveys & Censuses	Administrative Records	Combined Data	Basis for NA Figures								Other	Total (sources)
					Extrapolation and Models									
					Benchmark extrapolations	Commodity Flow Model	CFC(PIM)	Dwellings - stratification method	RISM	Other EBM	Total Extrapolations			
Output of goods and services (at basic prices)	A(01+02+03)	3551		24600									28161	
Intermediate consumption (at purchasers' prices )	A(01+02+03)	1918		15633									17551	
Gross value added (at basic prices)	A(01+02+03)	1643		8967									10610	
Output of goods and services (at basic prices)	B(06+08+09)	19401											19401	
Intermediate consumption (at purchasers' prices )	B(06+08+09)	3579											3579	
Gross value added (at basic prices)	B(06+08+09)	15822											15822	
Output of goods and services (at basic prices)	C(10 - 33)	262145											262145	
Intermediate consumption (at purchasers' prices )	C(10 - 33)	199681											199681	
Gross value added (at basic prices)	C(10 - 33)	62464											62464	
Output of goods and services (at basic prices)	D(35)	20801											20801	
Intermediate consumption (at purchasers' prices )	D(35)	13805											13805	
Gross value added (at basic prices)	D(35)	6996											6996	
Output of goods and services (at basic prices)	E(36 - 39)	8869		79									8948	
Intermediate consumption (at purchasers' prices )	E(36 - 39)	5436		57									5493	
Gross value added (at basic prices)	E(36 - 39)	3433		22									3455	
Output of goods and services (at basic prices)	F(41+42+43)	85554											85554	
Intermediate consumption (at purchasers' prices )	F(41+42+43)	58328											58328	
Gross value added (at basic prices)	F(41+42+43)	27226											27226	
Output of goods and services (at basic prices)	G(45+46+47)	131815											131815	
Intermediate consumption (at purchasers' prices )	G(45+46+47)	63295											63295	
Gross value added (at basic prices)	G(45+46+47)	68520											68520	
Output of goods and services (at basic prices)	H(49 - 53)	69949											69949	
Intermediate consumption (at purchasers' prices )	H(49 - 53)	44530											44530	
Gross value added (at basic prices)	H(49 - 53)	25419											25419	
Output of goods and services (at basic prices)	I(55+56)	18535											18535	
Intermediate consumption (at purchasers' prices )	I(55+56)	10708											10708	
Gross value added (at basic prices)	I(55+56)	7827											7827	
Output of goods and services (at basic prices)	J(58 - 63)	49100											49100	
Intermediate consumption (at purchasers' prices )	J(58 - 63)	24497											24497	
Gross value added (at basic prices)	J(58 - 63)	24603											24603	
Output of goods and services (at basic prices)	K(64+65+66)			36805					33694	5966	39660		75455	
Intermediate consumption (at purchasers' prices )	K(64+65+66)			27664						2013	2013		29677	
Gross value added (at basic prices)	K(64+65+66)			8141					33694	3943	37637		45778	
Output of goods and services (at basic prices)	L(68)	9579						59056			59056		68635	
Intermediate consumption (at purchasers' prices )	L(68)	4777						13442			13442		18219	
Gross value added (at basic prices)	L(68)	4802						45614			45614		50416	
Output of goods and services (at basic prices)	M(69 - 75)	81932	1568	1980						623	623		86103	
Intermediate consumption (at purchasers' prices )	M(69 - 75)	45069		741									45810	
Gross value added (at basic prices)	M(69 - 75)	36863	1568	1239						623	623		40293	
Output of goods and services (at basic prices)	N(77 - 82)	47216		221									47437	
Intermediate consumption (at purchasers' prices )	N(77 - 82)	19137		35									19172	
Gross value added (at basic prices)	N(77 - 82)	28079		186									28265	
Output of goods and services (at basic prices)	O(84)		60215				12907			718	13625		73840	
Intermediate consumption (at purchasers' prices )	O(84)		30083							353	353		30436	
Gross value added (at basic prices)	O(84)		30132				12907			365	13272		43404	
Output of goods and services (at basic prices)	P(85)		29051	4545			5434				5434		39030	
Intermediate consumption (at purchasers' prices )	P(85)		6574	2050									8624	
Gross value added (at basic prices)	P(85)		22477	2495			5434				5434		30406	
Output of goods and services (at basic prices)	Q(86+87+88)			72969									72969	
Intermediate consumption (at purchasers' prices )	Q(86+87+88)			23381									23381	
Gross value added (at basic prices)	Q(86+87+88)			49588									49588	
Output of goods and services (at basic prices)	R(90 - 93)			13376									13376	
Intermediate consumption (at purchasers' prices )	R(90 - 93)			7076									7076	
Gross value added (at basic prices)	R(90 - 93)			6300									6300	
Output of goods and services (at basic prices)	S(94+95+96)	4871		6237									11108	
Intermediate consumption (at purchasers' prices )	S(94+95+96)	2427		2601									5028	
Gross value added (at basic prices)	S(94+95+96)	2444		3636									6080	
Output of goods and services (at basic prices)	T(97+98)			425									425	
Intermediate consumption (at purchasers' prices )	T(97+98)													
Gross value added (at basic prices)	T(97+98)			425									425	

In general, the models are (re)calculated or estimated for each reporting year and the models result in plausible estimates for the resulting variables. Assumptions underlying these models are reviewed regularly, at least in every benchmark revision (i.e. at five year frequency). When models cannot be (re)calculated annually, additional extrapolation techniques will lead to estimates for subsequent years.

Table 3.5.1 shows in which NACE, rev. 2 sections, and the extent to which, indirect methods are used.

Agricultural statistics are largely based on estimates of volume data (observed and harvest estimates) multiplied by (observed) prices. Estimates for manufacturing and construction are likewise largely based on observed data (business statistics), although in a number of cases only administrative data (VAT) are available for the smallest units.

With respect to services both direct and indirect estimation are being applied. . Direct estimates mainly rely on business statistics and cost and financing data. Indirect estimates refer to several types of price and volume (including labour) data. Broadly speaking, business statistics are available for the trade, hotel and catering industries, transport and business services. Cost and financing statistics are available for health and social service estimates. Price, volume and labour data are used both for estimates of other services, owner-occupied dwellings and some supplementary estimates.

Government data are obtained from the State accounts. Data in respect of financial corporations are obtained from the Dutch Central Bank (DNB) and annual reports.

Table 3.5.2 provides an overview of items for which the non-benchmark year final estimates are based on extrapolations from a benchmark year. With every benchmark revision an attempt is made benchmark autonomous level estimates and to review the assumptions underlying extrapolations. When, in between two benchmark revisions, new data sources become available, these will be applied in extrapolations, An example is ‘Other financial services’ for which in 2004 new data sources became available (see paragraph 3.17)

**Table 3.5.2 Items extrapolated from benchmark year to non-benchmark year**

NACE	Description	Amount output	Base year	Extrapolation method
64	Money market funds	4	2008	constant
66	Other financial services	5952	1995	Base: annual reports of large companies covering ca 40% of total output
68	Houseboats and caravans	82	1997	volume: number of dwellings
68	Recreational accomodations	387	2008	volume: change of capital value (WOZ see paragraph 3.18)
68	Free standing garages and sheds	90	1995	volume: assumption: rental value constant
87	Community centres	1298	1995	volume: labour; price: index of labour, see par. 3.23
	Total output based on extrapolation	7813		
	Percentage of total output NL	0,66		
	Total output NL (after balancing)	1177286		

### 3.6 The main approaches taken with respect to exhaustiveness

Chapter 7 discusses in detail the information used and methods applied to ensure exhaustiveness. In this section provides a brief description of the most significant items.

### *Wages in kind*

Most business accounts, and therefore business statistics, classify certain types of expenditure as intermediate costs, whereas these must be reported under wages and salaries in the national accounts. This concerns company-car use, preferential banking and insurance interest and subsidised travel for transport-company employees. As a consequence (1) output is upwardly adjusted to include these employee benefits in kind and (2) intermediate consumption is downwardly adjusted due to reclassifying certain expenditure items as wages and salaries.

### *Cost fraud*

In the 2010 revision, adjustments were made for cost fraud, which is assumed to occur only in small enterprises. Downward adjustments in intermediate consumption were made for enterprises with less than 10 employees in those business categories in which substantial cost fraud was suspected.

### *White spaces and black- en illegal activities*

Data according to business statistics are not always exhaustive from a national accounts viewpoint. For example, respondents will not take their ‘hidden’ and illegal activities into account when completing their business statistics questionnaires. In addition to these hidden and illegal activities, the source statistics also do not include certain regular activities (white spots), for example activities of households falling within the production boundary of the national accounts, such as the construction of an own house. Additional estimates are made to cover the hidden economy and illegal activities.

### *Summary table*

Section 7.2 provides an overview of those adjustments made for different types of non-exhaustiveness in the production approach. Before the 2010 benchmark revision the Dutch national accounts already included to some extent estimates of the non-observed economy (NOE). So, the additional estimates are supplementing those already covered in the pre-2010 situation. According to the tabular approach as defined by Eurostat, the estimates for exhaustiveness are as much as possible classified by N-classes. This disaggregation is however not straightforward as several N-classes seem to overlap. The result of the disaggregation for the total of all branches of industry is shown in Table 3.6.1.

The estimate for exhaustiveness is divided into the classes N1 (underground production), N2 (illegal production, drugs, smuggling), N3 (producer is not obliged to register), N6 (cost fraud) and N7 (income in kind).

Activities mostly contributing to value added are income in kind (6.086 million euro, N7), cleaning houses and buildings (1.437 million euro, N3), cannabis (1.039 million euro, N2) and house renovations and maintenance (972 million euro, N1). Branches of industry for which significant non-exhaustiveness estimates are included are Trade (additional value added estimate of 2.257 million euro) and Construction (additional value added estimate 1.827 million euro).

**Table 3.6.1 Estimates for exhaustiveness in the production approach, disaggregated by N-classes, 2010 (million euros)**

	Exhaustiveness							
	N1	N2	N3	N4	N5	N6	N7	Total exhaustiveness
Output of goods and services (at basic prices)	1825	3053	2684	0	0	0	666	8228
Intermediate consumption (at purchasers' prices)	-743	653	182	0	0	-746	-5890	-6544
Gross value added (at basic prices)	2568	2400	2502	0	0	746	6556	14772

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

**Table 3.7.0 Process table of output, intermediate consumption and value added of agriculture, hunting, forestry and fishing, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	3.561	0	24.600	0	0	28.161	-344	105	14	17	27.953
Intermediate cons.	1.918	0	15.633	0	0	17.551	-185	-210	-191	160	17.125
Value added	1.643	0	8.967	0	0	10.610	-159	315	205	-143	10.828

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added for Agricultural services (NACE 016) are based on the Structural Business Statistics (SBS). Section 3.1.2 provides general information on the SBS and on specific measurement methods per size class.

#### *(3) Combined data*

For the growing of crops, market gardening, horticulture and the farming of animals, functional (product based) estimates rather than institutional (industry based) estimates were compiled by combining exhaustive survey data, administrative records, and commodity flow models, see section 3.7.1. For forestry and forestry services, data are obtained from the forestry accounting network and the annual national forestry management report, see section 3.7.2. Data on fishing were obtained from shipping registry accounts, see section 3.7.3.

#### *(7) Data validation*

The largest adjustments were made in NACE 01 Agriculture and hunting, see section 3.7.1

#### *(8) Conceptual*

As described in section 3.4. adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

Own-account production by non-farming households requires a separate estimate. For more details, see section 3.7.1. Furthermore, as described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

The largest adjustments were found for NACE 01 Agriculture and hunting, see section 3.7.1.

The agriculture, hunting, forestry and fishing industry is divided into agriculture and hunting (NACE 01), forestry (NACE 02) and fishing (NACE 03). The calculation of the output, intermediate consumption and gross value added (at basic prices) of these NACEs is described in detail in sections 3.7.1 and 3.7.2. and 3.7.3.

## **3.7.1 Agriculture and hunting (NACE 01)**

**Table 3.7.1 Output, intermediate consumption and value added of agriculture and hunting (NACE 01), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	3.561	0	23.838	0	0	27.399	-344	105	14	8	27.182
Intermediate cons.	1.918	0	15.269	0	0	17.187	-185	-202	-188	139	16.751
Value added	1.643	0	8.569	0	0	10.212	-159	307	202	-131	10.431

### *(1) Surveys & censuses*

Output, intermediate consumption and value added for Agricultural services (NACE 016) are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(3) Combined data*

For the growing of crops, market gardening, horticulture and the farming of animals, functional estimates (product based) rather than institutional (industry based) estimates were made by combining exhaustive data from surveys, administrative records, and commodity flow models.

### *(7) Data validation*

The largest adjustments were made in NACE 016 Agricultural services for double counting growing crops and horticulture.

#### *(8) Conceptual*

As described in section 3.4. adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation activities.

#### *(9) Exhaustiveness*

Own-account output of non-farming households requires a separate estimate. A negative adjustment was made for the inputs of cannabis production regarding to double counting. This illegal activity is recorded in the tobacco industry, but the assumption is made that these inputs are also partly included in de source information and (initial) estimates of agriculture. The latter as a consequence of estimating a substantial part of intermediate consumption in agriculture using commodity flow methods.

Furthermore, as described in section 3.6, adjustments have been made for cost fraud and income in kind.

#### *(10) Balancing*

In the balancing process supply and use for a number of products was adjusted. Overall these adjustments resulted in a positive adjustment of both output and intermediate consumption. Balancing did not lead to substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual product groups.

### **Further information**

Agriculture and hunting (NACE 01) comprises the following sub-groups:

- growing of non-perennial crops (NACE 011);
- growing of perennial crops (NACE 012);
- plant propagation (NACE 013);
- animal production (NACE 014);
- mixed farming (NACE 015);
- support activities to agriculture and post-harvest crop activities (NACE 016);
- hunting, trapping and related service activities (NACE 17).

### **Agriculture (NACE 011 – 016)**

Estimates of agricultural output, intermediate consumption and value added are largely functional. This implies that most estimates of farming/horticulture and stockbreeding are based on product data irrespective of the actual producer as opposed to institutional information which is based on data from business units (industry) irrespective of what these units produce. Structural Business Statistics (SBS) used to estimate agricultural services (NACE 016) are an example of an institutional source. Functional estimates are unavoidable in most agricultural areas due to the absence of comprehensive and reliable institutional sources. On the other hand the available functional sources provide exhaustive and high-quality information. The functional estimation method used for certain areas of agriculture has implications for the recording of other economic activities in national accounts. For example, stockbreeding undertaken by fodder producers is not classified as a subsidiary activity of the fodder industry, but as stockbreeding in agriculture.

In addition to the functional estimates for agricultural products, estimates are made for a number of side activities directly related to agriculture like cheese production, leasing of agricultural machinery and agri-tourism.

Most agricultural products serve as input of the food industry. Measuring agricultural output is thus closely linked to measuring intermediate consumption of the food industry, which covers:

- the supply of animals to slaughterhouses;
- the supply of milk to the dairy and dairy product industry;
- the supply of raw materials to flour factories, the fodder industry and breweries (cereal), the starch industry and potato processing factories (potatoes), the sugar industry (sugar beet) and the fruit and vegetable processing industry (fruit and vegetables).

Exports constitute another major sales category.

A commodity flow method is used to estimate output for each of these products. For example the supply of raw milk to the dairy industry minus the import plus the export is the output of raw milk in the agricultural industry (stock changes of raw milk do not occur).

The relationship between agriculture and the food industry can sometimes be reversed, most notably in the case of large-scale fodder industry supplies to agriculture. In these cases the output information of the fodder industry gathered in SBS determines intermediate inputs of agriculture.

The interconnection between agriculture and food industry generates a lot of information giving rise to detailed and simultaneous estimation procedures. Highly detailed price and volume data provided by commodity boards<sup>3</sup> are important inputs of the estimation process. The same data are, additionally to SBS, used for estimates of food processing industry, see section 3.9.1. Because of the interaction in estimating agriculture and food processing the following aspects have to be taken into account:

- Many enterprises in agriculture and food processing base their operations on a financial year which is linked to the natural cycle of agricultural production. As a consequence information in business statistics (SBS) of food processing does not always correspond to calendar years of the NA and therefore have to be adjusted. Additional (functional) data are required for this purpose;
- Subsidies and levies on (finished) products used and sold by the economic agents must be appropriately recorded in the national accounts as valuation of output must be at basic prices and of intermediate consumption at purchasers' prices excluding VAT. It is however not always possible to identify subsidies and levies on individual products from statistics on sales and purchases for intermediate consumption, since some of those subsidies and levies are actually received and paid for by wholesalers. The production data are adjusted in order to get output at basic prices. In practice, subsidies and levies on products are (functionally) recorded for individual products.

In the Netherlands, agriculture is subject to simultaneous estimation in the context of national accounts and agricultural accounts. The latter are an offshoot of national accounts, providing supplementary data and using specific agricultural concepts, which are described in the

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<sup>3</sup> The commodity boards are abolished on 1 January 2015. Their co-administration tasks went to the government. This means also that the former commodity boards statistics for the year 2013 and later are available from a number of government departments and other organizations such as Statistics Netherlands and LEI. For the estimates of the 2010 reporting year which are presented in this report, the source data was still supplied by the commodity boards.

handbook 'Agricultural and Forestry Accounts (rev. 1.1)'. The concepts of the Agricultural and Forestry Accounts are nearly the same as ESA. Nevertheless there are a number of differences, such as the treatment of intra-unit consumption, growing own crops for leisure etc. The handbook also proposes practical registration and valuation methods for agricultural products such as seasonal production, cattle and fruit tree cultivation. Generally these methods are also used for agricultural estimates conducted within the framework of the national accounts.

## **Sources and methods for agriculture (NACE 011- 015)**

### **Functional estimates**

#### *Output*

Detailed information on imports and exports provided by foreign trade statistics is crucial for many estimates of output of agriculture. To ensure accurate coverage on a calendar-year basis, the corresponding monthly statistical extracts are retroactively adjusted to take account for, for example, post-deadline and annual submissions. These adjustments are applied on a detailed product level.

Information supplied by product boards represents another important source. These bodies collect a lot of functional information about the output and industrial processing of agricultural products and foodstuffs. They are responsible for applying European Union product regulations and advising the Government on all aspects of the Common Agricultural Policy (CAP).

The Agricultural Census plays an important part in the estimation of agricultural output. This comprehensive survey covers approximately 72,000 agricultural units, which are operating at a significant level in any agricultural activity. The survey covers cultivated areas, numbers of cattle, the workforce and main and secondary activities. It also provides a useful register for sampling surveys including harvest estimates, conducted by Statistics Netherlands and the Farm Accountancy Data Network (FADN) survey conducted by the Agricultural Economics Institute.

Since 2002 the Agricultural census is part of the so-called Combined Data Collection (Gecombineerde Data Inwinning; GDI), which is run by the Rijksdienst voor Ondernemend Nederland (RVO). In addition, data collection for the agricultural census is combined with the data collection for various administrative arrangements regarding to the CAP, e.g. agricultural subsidies.

The data obtained by RVO are checked on obvious errors at micro level by CBS. In a top down approach plausibility checks are initially made on macro- and meso-level including comparability with previous year's estimates. If necessary, adjustments are made at micro level. The results are discussed with RVO. The agricultural census covers all units and has a response rate of over 96 per cent. The statistical reliability is considered high. Preregistration for the Agricultural Census is required by law as the data are used for the execution of various administrative arrangements (subsidies, fertiliser legislation etc.).

#### *Crop output*

The harvest estimate of arable crops is an important source for calculating the output for a number of arable products. The estimate is made on the base of data from a sample survey conducted by Statistics Netherlands among arable farms. The sample comprises

approximately 2,500 of the approximately 20,000 units that belong to the target population as stated in the Agricultural Census. The response is grossed up to get estimates for the total target population.

The hay harvest and hay reserves are obtained from the annual grassland statistics compiled by Statistics Netherlands on the basis of a sample of 2,500 units out of a population of 50,000 units.

The harvest estimates for vegetables and fruit provided by Statistics Netherlands are important sources for calculating production for a number of vegetables. This includes estimates for fruit, field-scale vegetables and greenhouse vegetables. The estimate for field-scale vegetables is based on data from a sample survey among agricultural farms. The sample comprises approximately 1,500 of the approximately 3,000 units that belong to the population as stated in the Agricultural Census. The response is grossed up to estimates for the total target population. The estimate for fruit (apples and pears) is based on a sample of 1,000 units of the approximately 2,000 units that belong to the population.

The estimates for greenhouse vegetables are largely based on the area of land as recorded in the annual agricultural census. For these vegetables no sample survey is carried out as it is possible to determine the quantities harvested of these vegetables using data from the Fruit and Vegetables Board. These data are based on the export figures of the Quality-Control Bureau for fruit and vegetables (Kwaliteits-Controle-Bureau; KCB). An expert working group, including representatives of Statistics Netherlands and the Ministry of Agriculture, Nature Management and Fisheries discusses the data and approves the harvest estimates after adjusting if judged necessary.

The output of bulbs, flowers and plants, trees and seeds is calculated using data exports with domestic origin supplied by the Ornamental Plants Board.

### *Animal output*

The following sources are important for the calculation of livestock production:

- Slaughter statistics, which cover the authorised slaughter of home-grown cattle (including domestic pig slaughter). These are comprehensive monthly statistics (using approximately 222 reporters, the 'inspectors').
- Data supplied by the Poultry and Eggs Board are used to determine poultry slaughter;
- Foreign trade statistics relating to live cattle (values and numbers);
- The Agricultural Census used to determine annual livestock variations (numbers).

The dairy-product statistics compiled by Statistics Netherlands in cooperation with the Dairy Products Board on the basis of weekly reports contain data on milk deliveries to dairy and dairy-product producers, direct consumer supplies, farm butter and cheese production and cattle rearing both for selling on the market and own intermediate consumption. Coverage is comprehensive. Egg production is estimated with reference to data supplied by the Poultry and Eggs Board.

### *Valuation of output*

The above mentioned sources provide information on quantities. These quantities are converted to values with price information.

Price information is obtained with reference to:

- Market quotations;
- Structural Business Statistics (SBS) of the food, beverages and tobacco industry;
- Foreign Trade Statistics;
- Commodity board data.
- Price statistics from LEI

For the determination of output, quantities are generally estimated with reference to a number of products indicated in the above-mentioned sources. Quantities are evaluated at basic prices per product with the help of price information and data on taxes and subsidies on products.

### *Accrual principle and seasonal crop output*

Output should be valued and recorded at the time it is generated (accrual principle). It is therefore to be recorded when produced and not when paid for by the purchaser.

In the ESA production is treated as a continuous process in which goods and services are converted into other goods and services. This process may take place over different accounting periods depending on the products, and the periods may also exceed an accounting period. Therefore production, combined with the accrual principle, may result in the recording of output in the form of work-in-progress. Thus according to the ESA, the output of agricultural products should be recorded as if produced continuously over the entire production period (and not simply when the crops are harvested or animals slaughtered). Growing crops, standing timber and stocks of fish or animals reared for the purposes of human consumption should be treated as stocks of work-in-progress during the production process, and transformed into stocks of finished products when the process is completed.

Recording output as work-in-progress is both desirable and necessary for economic analysis when the production process occurs over a period exceeding the accounting period. This allows consistency to be maintained between the recording of costs and that of output in order to obtain meaningful data on value added. The NA are based on calendar year, the recording of work-in-progress can be assumed to apply only to products whose production process was not completed within a calendar year and also in cases when prices change rapidly during the accounting period.

However, for farm products whose production cycle is shorter than the accounting period, it is unnecessary to record the output as work-in-progress in annual national accounts. Recording of output at the finished product stage, i.e. at the harvest (for crop production), in fact allows an adequate degree of consistency with the production costs. This holds for most agricultural output whose production cycle lasts less than a year. In theory work-in-progress has to be recorded in short-cycle crops whose production process runs into a second calendar year. However, in these cases growing crops are not recorded as stocks of work-in-progress because the production overlaps are not significant and the sum is assumed to be zero over a number of years.

In practice, only products with a long production cycle need recording in the form of work-in-progress. This concerns particularly livestock and crop products such as plantations whose ageing is an integral part of the production process.

In the Agricultural and Forestry Accounts Handbook a so called reference method is recommended for the valuation of crop output with a short production cycle. For most of these types of crops this method is used by Statistics Netherlands. However for potatoes, onions, apples and pears another method is used. The methods differ in the interpretation of

the storage activity and the time of recording the change in the value of the goods resulting from their stay in stocks.

The reference method consists of evaluating total production harvested during calendar year  $n$  using the weighted average price for the marketing year  $(n/n+1)$ . It is founded on the assumption that there are no stocks left over at the end of the marketing year (the end of the first half of the next calendar year). For most of the crop output the marketing year is equal to the calendar year and the harvest is valued with the average price of the last half of the calendar year (harvest period). The application of this method minimizes the inclusion of holding gains or losses in the measurement of output. It ensures consistency between the calculations of output in value and quantity.

The alternative method for potatoes, onions, apples and pears is chosen because prices are difficult to predict and the storage on agricultural farms reaches economically significant levels. Unfortunately adequate sources regarding to sales and stocks are not available. In theory the argument that prices are difficult to predict only applies for to estimating quarterly accounts and the first annual estimates of EAA because information on prices is not timely available. Although this is not valid for the annual accounts, for the sake of consistency between quarterly accounts, preliminary annual estimates and the final estimates, a harmonized approach is preferred.

In this alternative method output is defined as total calendar-year sales valued at basic prices.

In general the value of gross output at current prices of these products is calculated as follows:

- the harvest quantities in year  $N-1$  as indicated in the data sources is broken down in two parts which refer to the sales/use period in calendar-years  $N-1$  and  $N$ ;
- the harvest quantities in year  $N$  as indicated in the data sources is broken down in two parts which refer to the sales/use period in year calendar-years  $N$  and  $N+1$ ;
- the volume of harvest-years  $N-1$  and  $N$  which refer to sales/use period  $N$  are added (=gross output);
- gross output in quantities is valued at the basic prices on a quarterly basis as indicated in the data sources.

Estimates of the output of plantations and productive animals need to be considered. The growth of multi-annual plantations and animals must be recorded as being produced continuously over the entire period of production, and not simply when the crops are harvested, animals slaughtered). The methods used in the NA, are recommended by the Agricultural and Forestry Accounts Handbook:

- Production of plantations is calculated as the difference between the opening and closing stock derived from balance sheets. Plantations are valued at fair value, usually the market price at the balance sheet date. The calculations are conducted by the LEI on the basis of Agricultural Census data and FADN.
- Production of productive animals is estimated by valuing the difference in the number of animals at the beginning and end of the accounting year at the average annual price. Simply valuing the difference this way, does however not take into account the fact that the value of livestock as a productive asset is higher than the value as slaughter animals at the end of its life. The 'exclusion percentage' is relevant in this context. This 'exclusion percentage' refers to the difference in value of livestock as productive and as slaughter animals at the time of their withdrawal from the stock of fixed assets. The production of productive animals is underestimated, if this exclusion percentage is not taken into account.

## Other subjects

The registration of export subsidies requires additional attention, as only support for domestic production should be taken into account. The Agricultural Equalisation Fund of the Ministry of Agriculture, Nature Management and Fisheries records all refunds paid in the Netherlands, so it also covers payments to non-resident enterprises by exporting via the Netherlands benefiting from European Union freedom-of-movement legislation. The proportion of refunds can be determined by comparing extra-community exports from Dutch origin as shown in the Foreign Trade Statistics with the Agricultural Equalisation Fund data.

A product breakdown of subsidies and levies is based on information obtained from the commodity boards and the Dutch Intervention Board. These data are processed to correlate with the Agricultural Equalisation Fund totals.

## *Intermediate consumption*

A great variety of sources is used to estimate intermediate consumption:

- Intermediate consumption of characteristic agricultural products is the result of breaking down output by destination;
- Intermediate consumption of fodder is determined with reference to estimates of the output and sales breakdown by destination of the fodder industry in combination with price information on compound feed compiled by the LEI;
- Intermediate consumption of fertiliser is based on the output and sales breakdown by destination of the fertiliser industry. The LEI supplies corresponding input prices;
- The value of imported sowing and seed products is taken from the Foreign Trade Statistics. Total value is assumed to be intermediate consumption of agriculture;
- Intermediate consumption of pesticide is based on information provided by domestic producers in the annual business statistics (SBS) of the artificial fertiliser industry, plus imports and minus exports. The calculations also take into account intermediate consumption of products from other industries, for example, earth foam supplied by the sugar industry and imported guano;
- Energy consumption data are obtained from:
  - Annual energy consumption statistics for agriculture and horticulture of CBS. The survey is based on a sampling per industry, with subsequent a grossing up to the basis of the Agricultural Census;
  - A LEI survey based on data on energy consumption supplied by agricultural accounting agencies;
- The other cost categories for which information cannot be obtained from the agricultural and horticultural output calculation, and information of agricultural suppliers, are estimated individually by FADN. These costs categories are often not available in detail regarding to the NA commodity groups, but were broken down to product groups using the commodity structure of the NA pre-benchmark estimates.

## *Gross value added*

Gross value added is obtained by deducting intermediate consumption from production. Value added components are wages and salaries, other taxes and subsidies on production and gross operating surplus/mixed income:

- The estimation of wages and salaries is based on labour accounts data. Sources for labour accounts concerning agriculture are:
  - Data on hours worked obtained from the Agricultural Census;
  - Monthly micro-datasets on job level (economic activity, working hours, total amount of wages and the number of days for which wages paid) derived from the 'Register of the Employees Insurance Agency' via the 'Social Statistical Database (SSD)' see 4.8.;
  - Data on other subsidies and levies with respect to agricultural production are provided by the Agricultural Equalisation Fund, with breakdowns of these data supplied by the commodity boards and Public Accounts data;
- The gross operating surplus is obtained by deducting the wages and salaries and the balance of other taxes, levies and subsidies from gross value added.
- For the loss regarding inventories of work-in-progress for livestock, a distinction needs to be made between recurrent losses and non-recurrent losses (i.e. exceptional and catastrophic losses). The compensation payments for recurrent losses are recorded as other subsidies on production and for non-recurrent losses as other capital transfers. The recurrent losses themselves are recorded as changes in inventories and the non-recurrent as other changes in the volume of assets.

### **'Institutional additions'**

Ancillary activities directly linked to agricultural activities such as cheese production, renting of agricultural machinery and agri-tourism, are added to the otherwise functional description of this industry. Output of non-farming activities of farmers is estimated using the data from FADN run by the LEI.

The FADN-survey provides annual information on agricultural operations (excluding agricultural service units). Observation is based on a stratified sample using the results of the Agricultural Census, supplemented by data from agricultural accounting agencies. This involves some 1,700 respondents, whose results are grossed up to estimates for the whole population of the Agricultural Census population. Information on animals for leisure is missing in the sources statistics for the functional estimates. A separate estimate was made for the producers of pets, cats, horses etc. which information is based on administrative VAT data in conjunction with SBR NACEs 0143 and 0149.

### **Exhaustiveness**

Concealed activities are implicitly incorporated in the estimates, because of the functional estimation method used for agriculture. The functional estimate will also include the own-account production of farming households as harvest estimates covers all yield which is based on total farmland acreage in the Netherlands. Also most significant parts of intermediate consumption are based on commodity flow estimation.

Own-account production by non-farming households (kitchen gardens) requires a separate estimate taking the total allotment area in hectares (3762 hectares in 2010) is a starting point. The latter number is based on the survey 'Land Use' run by Statistics Netherlands. The anticipated average output per hectare is assumed to equal that of small agricultural enterprises (data from LEI, FADN). For the estimate of intermediate consumption the ratio of intermediate consumption and output relating to small enterprises is used. The information stems also from FADN. Value added compiled as output minus intermediate consumption.

In the Dutch national accounts the production of cannabis is not recorded in agriculture but in manufacturing of tobacco products. The reason is that the full process of cannabis production is more than only agricultural activities which are all in one hand. Further processing such as drying, etc. results finally in a tobacco product.

A substantial negative adjustment was made for growing crops and horticulture in NACE 016 regarding to double counting. Growing crops and horticulture are already estimated in the functional estimates for NACE 011- 015. Also a negative substantial adjustment was made for rearing animals in manufacture of food products (NACE 10). Rearing animals is already estimated in the functional estimates for NACE 014.

### **Sources and methods for agricultural services (NACE 016)**

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2. This part of agriculture is based on institutional sources.

Agricultural services are services provided by units which are at least partially involved in agricultural production. These activities, which may also be performed by farmers themselves, include ploughing, mowing, threshing, shepherding and fruit gathering. Nevertheless, other services are also provided; these include artificial insemination, cleaning and insect and weed control by contracted workers. Contract labour may also be employed for other agricultural activities like the operation of irrigation systems, the design, planting and maintenance of gardens, parks, and green areas for sports facilities and the like; tree pruning and hedge trimming, etc.

A negative adjustment has been made for the growing crops and horticulture regarding to double counting. Growing crops and horticulture are already estimated in the functional estimates for NACE 011- 014.

### **Hunting (NACE 017)**

There is no commercial hunting in the Netherlands. Hunting is essentially a feature of flora and fauna management, and is mainly confined to the shooting of weak and unhealthy animals. There is a limited amount of sport hunting, involving private consumption of the animals killed. Value added in hunting is negligible. Therefore no estimates for hunting are made in the Dutch national accounts. Research<sup>4</sup> shows that the sales by hunting are around 0,4 million euros. Including production for own final consumption, the output will be less than 1,5 million euros.

### **Relationships between EAA and national accounts (bridge table)**

The EAA agricultural industry differs in some respects from the branch as defined for National Accounts purposes. The differences relate to the definition of both characteristic activities and units. Some characteristics need special attention in the Netherlands.

The EEA records intra-unit consumption of feeding stuffs as output and intermediate consumption as it wants to have a view on gross flows from one agricultural activity to another. In fact the EEA uses the unit of homogeneous production for describing agriculture.

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<sup>4</sup> Waarde van de jacht. Tijd en geld besteed door jagers aan maatschappelijke diensten. CLM Onderzoek en advies. April 2014

However in the NA the KAU is the unit of observation in which intra unit flows should not be recorded (Table 3.7.2 column e).

The EAA excludes service activities other than contract work at the production stage for the agricultural production process, whereas they are included in the NA in agricultural service industry (e.g. artificial insemination) (table 3.7.2 column f, row 3). The EAA includes these service activities (other than contract work) only in the case it is an inseparable secondary activity of an agricultural unit. Other activities like repair, installation, construction, renting real estate are also excluded in the EAA as separable secondary activities (Table 3.7.2 column f, row 4).

According to the ESA, the own-account production of agricultural products by households has to be included in the industry account. However, agricultural units below the minimum threshold of the farm survey (production solely for own final consumption in kitchen garden and private livestock rearing) are excluded from the EAA, whereas agricultural products retained by farmers are generally included. Where the household production not covered in the EAA is significant the corresponding values have to be added to the EAA data in order to arrive at the NA values (Table 3.7.2 column d).

Within the EAA agricultural activities are always considered to be separable activities by convention. This is mainly due to the nature of the statistical data sources (functional estimates). Nevertheless, it might happen, that within the industry accounts of the NA some units are not able to separate all their agricultural activities, and record them as an inseparable activity in their proper industry account. This introduces some double counting, which should be avoided. In this context a substantial adjustment has been made for the output of growing crops and horticulture in NACE 016 Agricultural services (see section 3.7.1.1.) and some adjustment has been made in NACE10 Manufacturing of food products regarding to agricultural output (see section 3.9.1.1.).

The EAA excludes life stock from intermediate consumption. In the Netherlands the deliveries of animals in a breeding program between units within agriculture are registered as output and intermediate consumption in the S&U tables of NA (Table 3.7.2 column g).

**Table 3.7.2 Relationships between EAA and national accounts (bridge table), 2010 (million euros)**

Item		EAA	NA	Differences NA-EAA				
		Value at basic prices	Value at basic prices	Total	Kitchen gardens	intra unit consumption fodder	Non-EAA activities	Intermediate consumption animals
		(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	CROP OUTPUT	12632	12330	-302	14	-316		
2	ANIMAL OUTPUT	9385	10217	832				832
3	AGRICULTURAL SERVICES OUTPUT	2395	2550	155			155	
4	SECONDARY ACTIVITIES	907	2085	1178			1178	
5	OUTPUT OF THE AGRICULTURAL 'INDUSTRY' (1+2+3+4)	25319	27182	1863	14	-316	1333	832
6	TOTAL INTERMEDIATE CONSUMPTION	15546	16751	1105	6	-316	583	832
7	GROSS VALUE ADDED AT BASIC PRICES (5-6)	9673	10431	758	8		750	

### 3.7.2 Forestry and logging (NACE 02)

**Table 3.7.3 Process table of output, intermediate consumption and value added of forestry and logging (NACE 02), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	0	0	233	0	0	233	0	0	0	7	240
Intermediate cons.	0	0	131	0	0	131	0	0	0	5	136
Value added	0	0	102	0	0	102	0	0	0	2	104

#### *(3) Combined data*

For forestry and forestry services, data were obtained from the forestry accounting network and the annual national forestry management report and VAT data and labour statistics.

#### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual product groups.

#### *Further information*

Output of forestry (NACE 02) is very small in the Netherlands. Aggregated data on output and intermediate consumption are derived from the annual national forestry management report and the statistics on private enterprise forestry of the LEI. In addition, a separate estimate was made for the small units active in forestry services based on administrative VAT data and labour statistics. The Netherlands knows recreation and conservation forests. Dedicated production forests hardly exist. Therefore no estimates for the growth of multi-annual standing timber are made. Small scale sales of timber occur as a side activity of forestry services like maintenance and conservation management. These sales are recorded in the national accounts.

### 3.7.3 Fishing and aquaculture (NACE 03)

**Table 3.7.4 Process table of output, intermediate consumption and value added of fishing and aquaculture (NACE 03), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	0	0	529	0	0	529	0	0	0	2	531
Intermediate cons.	0	0	233	0	0	233	0	-8	-3	16	238
Value added	0	0	296	0	0	296	0	8	3	-14	293

### *(3) Combined data*

This refers to data from the Agricultural Economics Institute (LEI) obtained from shipping registry accounts and estimations of Aquaculture farms.

### *(8) Conceptual*

As described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments have been made for cost fraud. The data cover ‘grey’ fishing, i.e. catches not notified under the European Union quota system, but subject to Value Added Tax.

### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual product groups.

### *Further information*

Estimates of output, intermediate consumption and value added are based on LEI data, obtained from shipping registry accounts. Sample surveys cover approximately 30 per cent of potential reporters. Mussel farming is also included, apart from cutter fisheries and large-scale high-seas fishing. Aquaculture farms are also estimated by the LEI. Eel and catfish are the primary species bred. In addition, a separate estimate was made for ‘tropical’ fish farming for leisure (e.g. koi carp) which information derived from the VAT registry in conjunction with SBR NACE 0149.

**Table 3.7.5 Output of Fishing by branch, 2010 (million euros)**

	2010
	<i>million euro</i>
<i>For consumption</i>	
Cutter fisheries	218
Large-scale high sea fishing	123
Other fishing (e.g. mussels)	93
Aquaculture fish farming	60
<i>For leisure</i>	
Tropical fish farming	35
Total output	529

### 3.8 Mining and quarrying (NACE B)

**Table 3.8.0** Process table of output, intermediate consumption and value added of NACE B Mining and quarrying, 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	19.401	0	0	0	0	19.401	1.094	-52	0	403	20.846
Intermediate cons.	3.579	0	0	0	0	3.579	499	-571	-17	73	3.563
Value added	15.822	0	0	0	0	15.822	595	519	17	330	17.283

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(7) Data validation*

The largest adjustments were made in NACE 06 Extraction of crude petroleum and gas and NACE 09 Mining support service activities, see for more information section 3.8.1.

#### *(8) Conceptual*

Costs related to mineral exploration are recorded as gross fixed capital formation instead of intermediate consumption. Furthermore, as described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation activities.

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments have been made for cost fraud and income in kind.

#### *(10) Balancing*

The largest adjustments were made in NACE 06 Extraction of crude petroleum and gas and NACE 09 Mining support service activities, see for more information section 3.8.1.

### 3.8.1 Extraction of crude petroleum and natural gas (NACE 06) and Mining support service activities (NACE 09)

**Table 3.8.1** Process table of output, intermediate consumption and value added of the combined NACE 06 Extraction of crude petroleum and gas and NACE 09 Mining support service activities, 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	18.545	0	0	0	0	18.545	1.247	-2	0	405	20.195
Intermediate cons.	3.011	0	0	0	0	3.011	652	-522	-14	70	3.197
Value added	15.534	0	0	0	0	15.534	595	520	14	335	16.998

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(7) Data validation*

In the SBS, output of small oil and gas fields was judged to be too low. In this industry output per employed person is very volatile, particular in smallest size classes. Therefore it is difficult to gross up production to the total population level by relying entirely on employment data. As such sampling may lead to biased totals. Therefore Business Statistics data for the smallest size classes have been adjusted by using tax data (VAT).

This industry includes a large wholesale company in natural gas. In SBS, purchases of net-services (network services) were mistakenly recorded as purchases of goods for resale (trade). Therefore, output and intermediate consumption are upwards adjusted to include the value of these net-services.

The available data sources do not give direct information on the amount of intermediate consumption of mineral exploration. It is assumed that mineral exploration executed by large companies is always intended for GFCF or export, whereas mineral exploration executed by smaller firms is subcontracting and therefore intermediate consumption.

#### *(8) Conceptual*

Expenditure on mineral exploration is registered as gross fixed capital formation instead of intermediate consumption. Furthermore, as described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation activities.

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments have been made for cost fraud and income in kind

### *(10) Balancing*

Balancing did lead to a few substantial adjustments in this industry. Adjustment of production of natural gas is the result of the confrontation of supply and use.

### *Further information*

According to the ESR 2010, costs related to mineral exploration have to be treated as gross fixed capital formation (GFCF). GFCF in mineral exploration is estimated with the commodity flow method (GFCF = production + import – intermediate consumption – export).

## **3.8.2 Other mining and quarrying (NACE 08)**

**Table 3.8.2 Process table of output, intermediate consumption and value added of NACE 08 Other mining and quarrying, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	856	0	0	0	0	856	-153	-50	0	-2	651
Intermediate cons.	568	0	0	0	0	568	-153	-49	-3	3	366
Value added	288	0	0	0	0	288	0	-1	3	-5	285

### *(1) Surveys & censuses*

Data on output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

In the SBS, turnover of trade in goods was sometimes mistakenly reported as output of mineral products. This turnover and the corresponding intermediate consumption were reclassified as trade and purchases for resale and as a consequence both output and intermediate consumption are downwards adjusted with the same amount.

### *(8) Conceptual*

As described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments have been made for cost fraud and income in kind

### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual product groups.

## **3.9 Manufacturing (NACE Rev. 2 Section C)**

**Table 3.9.0 Process table of output, intermediate consumption and value added of manufacturing industry, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	262.145	0	0	0	0	262.145	-6.128	641	1.308	418	258.384
Intermediate cons.	199.681	0	0	0	0	199.681	-6.305	-3.273	-339	1.596	191.360
Value added	62.464	0	0	0	0	62.464	177	3.914	1.647	-1.178	67.024

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

This item generally includes adjustments on the source data due to rounding. Large adjustments were made in NACE 19 en NACE 20. See sections 3.9.8 and 3.9.9 for more details.

### *(8) Conceptual*

As described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

In tobacco industry and pharmaceutical industry estimates for illegal production of cannabis and xtc are included. Furthermore, as described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Adjustments are made based on the confrontation of supply and use of individual products in the supply and use tables.

The manufacturing industry (NACE 10-33) is subdivided into the following categories:

- Manufacture of food products, beverages and tobacco products (NACE 10-12);
- Manufacture of textiles, wearing apparel and leather products (NACE 13-15);
- Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials (NACE 16);
- Manufacture of paper and paper products (NACE 17);
- Printing and reproduction of recorded media (NACE 18);
- Manufacture of coke and refined petroleum products (NACE 19);
- Manufacture of chemicals and chemical products (NACE 20);
- Manufacture of basic pharmaceutical products and pharmaceutical preparations (NACE 21);
- Manufacture of rubber and plastic products (NACE 22);
- Manufacture of other non-metallic mineral products (NACE 23);
- Manufacture of basic metals (NACE 24);
- Manufacture of fabricated metal products, except machinery and equipment (NACE 25);
- Manufacture of computers, electronic and optical products (NACE 26);
- Manufacture of electrical equipment (NACE 27);
- Manufacture of machinery and equipment n.e.c. (NACE 28);
- Manufacture of motor vehicles, trailers and semi-trailers (NACE 29);
- Manufacture of other transport equipment (NACE 30);
- Manufacture of furniture (NACE 31);
- Manufacture of other products n.e.c. (NACE 32);
- Repair and installation of machinery and equipment (NACE 33).

### 3.9.1 Manufacture of food products (NACE 10)

**Table 3.9.1 Process table of output, intermediate consumption and value added of manufacture of food products (NACE 10), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	46.999	0	0	0	0	46.999	-42	-260	0	-54	46.643
Intermediate cons.	37.677	0	0	0	0	37.677	-41	-661	-95	859	37.739
Value added	9.322	0	0	0	0	9.322	-1	401	95	-913	8.904

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added for Manufacture of food products (NACE 010) are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(7) Data validation*

SBS is supplemented by data from Statistics Netherlands and the Commodity Boards. Manufacture of food products receives European Union subsidies, their production is subject to excise duties and also export refunds apply.

#### *(8) Conceptual*

As described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation services.

#### *(9) Exhaustiveness*

As described in section 3.6., adjustments have been made for cost fraud and income in kind.

#### *(10) Balancing*

Further adjustments are made based on the confrontation of supply and use of individual product. An adjustment was made on intermediate consumption as compensation for the conceptual adjustment on R&D which proved to be too high.

#### *Further information*

Specific adjustments to SBS data were made when estimating parts of the food industry (e.g. slaughterhouses and dairy industry). This is mainly because a number of non-standard high quality sources are available for these sub-industries. As a consequence, estimates for this industry are conducted at a more detailed level than for other manufacturing industries.

#### *Slaughterhouses*

The SBS and Prodcom data on private and local-authority slaughterhouses are an important information source. The slaughter statistics of Statistics Netherlands (information from Commodity Board) are used to make a supplementary estimate of slaughtering related output. With the aid of these slaughter statistics, the weight of live animal purchases is distributed over different sales categories. These quantities are converted into values with price information provided by CBS and LEI. In the slaughter statistics all slaughtered cattle is registered. At the product level, the quality of these data is higher than the information from the SBS and Prodcom. This will lead to adjustments of SBS data.

#### *Dairy industry*

The (SBS) and Prodcom data on dairy products provide an important information source for dairy estimates. The Dairy product statistics of Statistics Netherlands (information from the Commodity Board) contain quantitative information on the production of milk and milk products, butter, cheese, cream, cheese, milk powder, condensed milk and whey powders. In addition, these statistics also contain quantitative information on processed raw milk supplied by farmers. These quantities are converted to values with price information provided by CBS and LEI. At the product level, the quality of these data is higher than the information from the SBS and Prodcom. This will lead to adjustments of SBS data.

Many enterprises in agriculture and food processing base their operations on a financial year which is linked to the natural cycle of agricultural production. As a consequence information in business statistics (SBS) of food processing like sugar and starch potatoes industry does not always correspond to calendar years of the NA and therefore have to be adjusted. Additional (functional) data are required for this purpose.

Negative adjustments are made for agricultural output regarding to double counting due to the functional estimation procedure in NACE 011-014.

### 3.9.2 Manufacture of beverages (NACE 11)

**Table 3.9.2 Process table of output, intermediate consumption and value added of manufacture of beverages (NACE 11), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	4.003	0	0	0	0	4.003	-4	-36	0	3	3.966
Intermediate cons.	2.794	0	0	0	0	2.794	-4	-57	-18	10	2.725
Value added	1.209	0	0	0	0	1.209	0	21	18	-7	1.241

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(7) Data validation*

Some minor adjustments have been made on the SBS results.

#### *(8) Conceptual*

As described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation services.

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments have been made for cost fraud and income in kind.

#### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

### 3.9.3 Manufacture of tobacco products (NACE 12)

Table 3.9.3 Process table of output, intermediate consumption and value added of manufacture of tobacco (NACE 12), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	1.091	0	0	0	0	1.091	0	12	1.178	0	2.281
Intermediate cons.	555	0	0	0	0	555	0	12	330	22	919
Value added	536	0	0	0	0	536	0	0	848	-22	1.362

#### (1) Surveys & censuses

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### (8) Conceptual

As described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation services.

#### (9) Exhaustiveness

Adjustments are made specifically for hidden illegal activities (cannabis). The supplementary estimate of illegal activities leads to an upward adjustment of output in this branch by 1178 million. The value added increased by 844 million. See section 7.2.3 for more details.

Furthermore as described in section 3.6, adjustments have been made for cost fraud and income in kind.

#### (10) Balancing

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual product groups.

### 3.9.4 Textiles, wearing apparel and leather industry (NACE 13, 14 and 15)

Table 3.9.4 Process table of output, intermediate consumption and value added of textile, wearing apparel and leather products (NACE 13-15), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	3.110	0	0	0	0	3.110	-2	-4	2	52	3.158
Intermediate cons.	2.106	0	0	0	0	2.106	-2	-20	-16	57	2.125
Value added	1.004	0	0	0	0	1.004	0	16	18	-5	1.033

*(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

*(7) Data validation*

In this particular case, the adjustments are due to rounding in the underlying subgroups.

*(8) Conceptual*

As described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation services.

*(9) Exhaustiveness*

As described in section 3.6 adjustments have been made for cost fraud and income in kind.

*(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

### 3.9.5 Manufacture of wood products (NACE 16)

**Table 3.9.5 Process table of output, intermediate consumption and value added of manufacture of wood products (NACE 16), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	2.587	0	0	0	0	2.587	-1	-3	0	-2	2.581
Intermediate cons.	1.726	0	0	0	0	1.726	-1	-8	-13	-1	1.703
Value added	861	0	0	0	0	861	0	5	13	-1	878

*(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

*(7) Data validation*

In this particular case, the adjustments are due to rounding in the underlying subgroups

*(8) Conceptual*

As described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation services.

### *(9) Exhaustiveness*

As described in section 3.6 adjustments have been made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

## **3.9.6 Paper and paper products industry (NACE 17)**

**Table 3.9.6 Process table of output, intermediate consumption and value added of paper and paper products (NACE 17), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	5.757	0	0	0	0	5.757	-8	-68	0	90	5.771
Intermediate cons.	4.261	0	0	0	0	4.261	-8	-64	-15	17	4.191
Value added	1.496	0	0	0	0	1.496	0	-4	15	73	1.580

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

### *(7) Data validation*

In this particular case, the adjustments are due to rounding in the underlying subgroups

### *(8) Conceptual*

As described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation services.

### *(9) Exhaustiveness*

As described in section 3.6 adjustments have been made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

### 3.9.7 Printing and reproduction of recorded media (NACE 18)

Table 3.9.7 Process table of output, intermediate consumption and value added of printing and reproduction of recorded media (NACE 18), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	4.621	0	0	0	0	4.621	-4	21	0	96	4.734
Intermediate cons.	2.888	0	0	0	0	2.888	-4	-30	-28	-50	2.776
Value added	1.733	0	0	0	0	1.733	0	51	28	146	1.958

#### (1) Surveys & censuses

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

#### (7) Data validation

In this particular case, the adjustments due to rounding in the underlying subgroups

#### (8) Conceptual

As described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation services.

#### (9) Exhaustiveness

As described in section 3.6, adjustments have been made for cost fraud and income in kind.

#### (10) Balancing

Balancing has led to relatively limited adjustments on the supply and use of different commodities.

### 3.9.8 Manufacture of coke and refined petroleum products (NACE 19)

Table 3.9.8 Process table of output, intermediate consumption and value added of coke and refined petroleum products (NACE 19), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	31.575	0	0	0	0	31.575	-5.145	35	0	-113	26.352
Intermediate cons.	30.513	0	0	0	0	30.513	-5.145	-4	-6	324	25.682
Value added	1.062	0	0	0	0	1.062	0	39	6	-437	670

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

### *(7) Data validation*

In the SBS trade activities were recorded incorrectly as industrial production and industrial intermediate consumption. Based on additional information from the respondents adjustments have been made in order to transform turnover to trade margins for the estimation of output.

### *(8) Conceptual*

As described in section 3.4, adjustments have been made for FISIM, software, R&D, insurance services and outsourced transportation services.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments have been made for cost fraud and income in kind.

### *(10) Balancing*

Balancing has led to relatively limited adjustments on the supply and use of different commodities. As value added is very small in this industry the impact of balancing on value added is (relatively) quite substantial.

## **3.9.9 Chemicals industry (NACE 20)**

**Table 3.9.9 Process table of output, intermediate consumption and value added of chemicals (NACE 20), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	40.477	0	0	0	0	40.477	-903	-204	0	97	39.467
Intermediate cons.	32.392	0	0	0	0	32.392	-900	-692	-48	422	31.174
Value added	8.085	0	0	0	0	8.085	-3	488	48	-325	8.293

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

### *(7) Data validation*

A large company engaged in processing of goods reported as being the owner of the goods being processed. The SBS wrongly reported on purchases of raw materials and turnover from output. This was leading to the recording of output of a processing fee.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing led to relatively limited adjustments on the supply and use of different commodities.

## **3.9.10 Pharmaceuticals industry (NACE 21)**

**Table 3.9.10 Process table of output, intermediate consumption and value added of pharmaceuticals (NACE 21), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	5.466	0	0	0	0	5.466	-1	-1	128	149	5.741
Intermediate cons.	3.490	0	0	0	0	3.490	-1	-600	-20	114	2.983
Value added	1.976	0	0	0	0	1.976	0	599	148	35	2.758

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

### *(7) Data validation*

In this particular case, the adjustments are due to rounding in the underlying subgroups

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services. In this industry, the adjustment is almost entirely related to Research and Development.

### *(9) Exhaustiveness*

Adjustments were made for the illegal production of xtc. In addition adjustments were made for cost fraud and income in kind, as described in section 3.6.

### *(10) Balancing*

Balancing led to relatively limited adjustments on the supply and use of different commodities.

## **3.9.11 Rubber and plastic products industry (NACE 22)**

**Table 3.9.11 Process table of output, intermediate consumption and value added of rubber and plastic products (NACE 22), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	6.773	0	0	0	0	6.773	-8	-36	0	130	6.859
Intermediate cons.	4.521	0	0	0	0	4.521	-8	-105	-27	116	4.497
Value added	2.252	0	0	0	0	2.252	0	69	27	14	2.362

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

### *(7) Data validation*

In this particular case, the adjustments are due to rounding of data on underlying subgroups.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services.

### *(9) Exhaustiveness*

As described in section 3.6 adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Further adjustments are made based on the confrontation of supply and use of products. A careful comparison is made with construction data, since a large amount of the products supplied by the rubber and plastics industry is used in the construction.

### 3.9.12 Manufacture of other non-metallic mineral products (NACE 23)

Table 3.9.12 Process table of output, intermediate consumption and value added of manufacture of other non-metallic mineral products (NACE 23), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	5.502	0	0	0	0	5.502	-11	-66	0	3	5.428
Intermediate cons.	3.674	0	0	0	0	3.674	-11	-107	-24	29	3.561
Value added	1.828	0	0	0	0	1.828	0	41	24	-26	1.867

#### (1) Surveys & censuses

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

#### (7) Data validation:

In this particular case, the adjustments are due to rounding in the underlying subgroups.

#### (8) Conceptual

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services.

#### (9) Exhaustiveness

As described in section 3.6, adjustments were made for cost fraud and income in kind.

#### (10) Balancing

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

### 3.9.13 Manufacture of basic metals. (NACE 24)

Table 3.9.13 Process table of output, intermediate consumption and value added of the manufacture of basic metals (NACE 24), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	7.999	0	0	0	0	7.999	-3	2	0	7	8.005
Intermediate cons.	6.151	0	0	0	0	6.151	-3	2	-19	-14	6.117
Value added	1.848	0	0	0	0	1.848	0	0	19	21	1.888

*(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

*(7) Data validation*

In this particular case, the adjustments are due to rounding in the underlying subgroups.

*(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services.

*(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

*(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

### 3.9.14 Manufacture of metal products. (NACE 25)

**Table 3.9.14 Process table of output, intermediate consumption and value added of manufacture of metal products (NACE 25), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	16.770	0	0	0	0	16.770	28	80	0	3	16.881
Intermediate cons.	11.115	0	0	0	0	11.115	-5	-48	-80	-67	10.915
Value added	5.655	0	0	0	0	5.655	33	128	80	70	5.966

*(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

*(7) Data validation*

In this particular case, the adjustments are due to rounding in the underlying subgroups.

*(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

## **3.9.15 Manufacture of electronic products (NACE 26)**

**Table 3.9.15 Process table of output, intermediate consumption and value added of the manufacture of electronic products (NACE 26), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	24.638	0	0	0	0	24.638	0	234	0	-1	24.871
Intermediate cons.	20.708	0	0	0	0	20.708	0	-179	-28	-83	20.418
Value added	3.930	0	0	0	0	3.930	0	413	28	82	4.453

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS), supplemented with data from a large company with industrial activities, which was wrongly allocated in wholesale trade in the SBR. Due to confidentiality these data cannot be displayed separately.

### *(7) Data validation*

In this particular case, the adjustments are due to rounding in the underlying subgroups.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services. In this industry, the adjustment for Research and Development were relatively high.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

### 3.9.16 Manufacture of electrical equipment (NACE 27)

Table 3.9.16 Process table of output, intermediate consumption and value added of the manufacture of electric equipment (NACE 27), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	4.671	0	0	0	0	4.671	-1	258	0	4	4.932
Intermediate cons.	3.148	0	0	0	0	3.148	-1	-192	-25	1	2.931
Value added	1.523	0	0	0	0	1.523	0	450	25	3	2.001

#### (1) Surveys & censuses

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

#### (7) Data validation

In this particular case, the adjustments are due to rounding in the underlying subgroups.

#### (8) Conceptual

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services. In this industry, the adjustment for Research and Development were relatively high.

#### (9) Exhaustiveness

As described in section 3.6, adjustments were made for cost fraud and income in kind.

#### (10) Balancing

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

### 3.9.17 Manufacture of machinery n.e.c. (NACE 28)

Table 3.9.17 Process table of output, intermediate consumption and value added of the manufacture of machinery n.e.c. (NACE 28), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	20.613	0	0	0	0	20.613	-10	425	0	-1	21.027
Intermediate cons.	13.715	0	0	0	0	13.715	-9	-317	-80	-119	13.190
Value added	6.898	0	0	0	0	6.898	-1	742	80	118	7.837

*(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

*(7) Data validation*

In this particular case, the adjustments are due to rounding in the underlying subgroups.

*(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services.

*(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

*(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

### 3.9.18 Manufacture of cars and trailers (NACE 29)

**Table 3.9.18 Process table of output, intermediate consumption and value added of the manufacture of cars and trailers (NACE 29), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	5.853	0	0	0	0	5.853	-3	75	0	-1	5.924
Intermediate cons.	4.253	0	0	0	0	4.253	-3	-64	-13	-33	4.140
Value added	1.600	0	0	0	0	1.600	0	139	13	32	1.784

*(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

*(7) Data validation*

In this particular case, the adjustments are due to rounding in the underlying subgroups.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, Research and Development, insurance services and outsourced transportation services.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

## **3.9.19 Manufacture of other transport (NACE 30)**

**Table 3.9.19 Process table of output, intermediate consumption and value added of other transport (NACE 30), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	6.476	0	0	0	0	6.476	-1	54	0	1	6.530
Intermediate cons.	4.639	0	0	0	0	4.639	-1	-14	-18	-12	4.594
Value added	1.837	0	0	0	0	1.837	0	68	18	13	1.936

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

### *(7) Data validation*

In this particular case, the adjustments are due to rounding in the underlying subgroups.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

### *Further information*

The manufacture of other transport is a heterogeneous industry covering production of boats, trains, planes and other transport equipment. However, observation in SBS takes place at more detailed NACE-classes, and consequently high quality estimates of supply and use for each of the underlying industries can be made.

## **3.9.20 Manufacture of furniture (NACE 31)**

**Table 3.9.20 Process table of output, intermediate consumption and value added of the manufacturing of furniture (NACE 31), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	3.222	0	0	0	0	3.222	-1	85	0	0	3.306
Intermediate cons.	2.116	0	0	0	0	2.116	-156	-40	-23	4	1.901
Value added	1.106	0	0	0	0	1.106	155	125	23	-4	1.405

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

### *(7) Data validation*

A adjustment has been made due to a mistake in the source data of the intermediate consumption.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

### 3.9.21 Manufacture of other products (NACE 32)

Table 3.9.21 Process table of output, intermediate consumption and value added of the manufacturing of other products n.e.c. (NACE 32), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	6.100	0	0	0	0	6.100	-7	11	0	-43	6.061
Intermediate cons.	1.983	0	0	0	0	1.983	-1	-56	-28	55	1.953
Value added	4.117	0	0	0	0	4.117	-6	67	28	-98	4.108

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

#### *(7) Data validation*

In this particular case, the adjustments are due to rounding in the underlying subgroups

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services.

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

#### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

#### *Further information*

NACE 32 covers sheltered employment and the manufacture of jewellery, musical instruments, sports goods, games and toys, medical instruments and other goods not elsewhere classified. For the estimation of this industry SBS-data on a more detailed level are available.

### 3.9.22 Repair and installation of machinery (NACE 33)

**Table 3.9.22 Process table of output, intermediate consumption and value added of the repair and installation of machinery (NACE 33), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	7.842	0	0	0	0	7.842	-1	27	0	-2	7.866
Intermediate cons.	5.256	0	0	0	0	5.256	-1	-29	-45	-55	5.126
Value added	2.586	0	0	0	0	2.586	0	56	45	53	2.740

#### (1) Surveys & censuses

Output, intermediate consumption and value added are based on the survey-based Structural Business Statistics (SBS).

#### (7) Data validation

In this particular case, the adjustments are due to rounding in the underlying subgroups

#### (8) Conceptual

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation services.

#### (9) Exhaustiveness

As described in section 3.6, adjustments were made for cost fraud and income in kind.

#### (10) Balancing

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual products.

## 3.10 Electricity, gas, steam and air conditioning supply (NACE Rev. 2 Section D)

**Table 3.10.0 Process table of output, intermediate consumption and value added of NACE D Electricity, gas, steam and air conditioning supply, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	20.801	0	0	0	0	20.801	-3.018	146	0	-157	17.772
Intermediate cons.	13.805	0	0	0	0	13.805	-3.151	-8	-43	-132	10.471
Value added	6.996	0	0	0	0	6.996	133	154	43	-25	7.301

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

In the SBS, turnover of trade in energy products was sometimes mistakenly recorded as production of energy products. This turnover and the corresponding intermediate consumption, are reclassified and treated as trade and purchases for resale. As a consequence production and intermediate consumption are decreased by the same amount.

Furthermore, some minor adjustments were made on the SBS results.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual product groups.

## **3.11 Water supply; sewerage, waste management and remediation activities (NACE Rev. 2 Section E)**

**Table 3.11.0 Process table of output, intermediate consumption and value added of NACE E Water supply; sewerage, waste management and remediation activities, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	8.869	0	79	0	0	8.948	0	49	0	-183	8.814
Intermediate cons.	5.436	0	57	0	0	5.493	0	-153	-41	-26	5.273
Value added	3.433	0	22	0	0	3.455	0	202	41	-157	3.541

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(3) Combined data*

Joint-municipality arrangements also produce environmental services. This activity is not covered by business statistics (SBS). A lot of municipalities also produce environmental services on their own (for example waste treatment). These activities are included in NACE 84.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual product groups.

## **3.12 Construction (NACE Rev. 2 Section F)**

**Table 3.12.0 Process table of output, intermediate consumption and value added of NACE section F, Construction, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
<b>Output</b>	85.554	0	0	0	0	85.554	130	141	1.938	-242	87.521
<b>Intermediate cons.</b>	58.328	0	0	0	0	58.328	-56	100	111	-1.493	56.990
<b>Value added</b>	27.226	0	0	0	0	27.226	186	41	1.827	1.251	30.531

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

Adjustments were made in NACE 42 Civil engineering and NACE 43 Specialised construction activities, see section 3.12.2 and section 3.12.3.

In the business register a company was mistakenly recorded in NACE 42. The business register has subsequently been adjusted, so that the company is recorded in the correct industry in the following years. In NACE 43 data for intermediate consumption contained an error; the total was not equal to the sum of the subcategories.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for hidden activities like construction by households and concealed activities. Furthermore adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Adjustments were made in NACE 41 Construction buildings, development, NACE 42 Civil engineering and NACE 43 Specialised construction activities, see section 3.12.1, section 3.12.2 and section 3.12.3. Initially for many raw materials for construction the supply was outnumbered by the use. This resulted in downward adjustments on the intermediate consumption in construction.

## **3.12.1 Construction buildings, development (NACE 41)**

**Table 3.12.1 Process table of output, intermediate consumption and value added of construction buildings, development (NACE 41), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	35.454	0	0	0	0	35.454	-1	33	1.694	-277	36.903
Intermediate cons.	26.536	0	0	0	0	26.536	-1	69	530	-640	26.494
Value added	8.918	0	0	0	0	8.918	0	-36	1.164	363	10.409

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

Minor adjustments were made on the SBS results due to rounding.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

Data obtained from the Structural Business Statistics for repair activities in (mainly) dwellings are incomplete. Adjustments were made for concealed activities construction for the repair and maintenance of dwellings (output 1292 million euros). A separate estimate is made in respect of own-account construction of dwellings by households (output 403 million euros). See section 7.2.3 for more details.

Furthermore, as described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Further adjustments are made based on the confrontation of supply and use of individual product groups. Initially for many building construction materials the supply was outnumbered by the use. This resulted in downward adjustments on the intermediate consumption in construction of buildings.

### *Further information*

The main data source is the annual business survey for construction industry. As a plausibility check the results of the business survey is confronted with other data sources although the latter cover only part of the relevant construction activities. For example the data from the statistics “Costs of alteration and new buildings” is used for plausibility checks.

In the statistics “Costs of alteration and new buildings” the output of construction is approximated by a model based estimation taking the amount of the permit (provide by municipalities) and the expected time necessary for construction as starting points. The following table shows output resulting from permits and SBS.

	Construction based on permits		SBS	
2010	15777		22272	
2011	14550	-7,8	22778	2,3
2012	11868	-18,4	19261	-15,4
2013	8821	-25,7	16923	-12,1
2014	7647	-13,3	17023	0,6
2015	8644	13,0	19152	12,5

The levels differ because in the permit no subcontracting is included, while in SBS this increases output and intermediate consumption substantially. Next to that the permits are only necessary for projects above 50.000 euros and no grossing takes place for non-responding municipalities.

Differences the annual changes can be (partly) explained buy economic policy directed at construction. Both in 2011 and 2015 the VAT rate for the wage part in maintenance of dwellings was temporarily reduced to 6%. As a consequence output of construction shifted from new to maintenance. The latter often not needing a permit causes SBS and permits to diverge. Therefor the use of the “Costs of alteration and new buildings” for plausibility checks in direct sense (similar figures) is limited, but is useful for analysing the developments construction industry.

The supply of building materials is harmonised with intermediate consumption in construction industry and final uses (exports, consumption of households). The harmonisation indicates no under-coverage in construction output as the data on the use of building materials (export, intermediate consumption, final consumption) outweighs the data on supply.

The business survey separates turnover as main contractor from turnover from subcontracting. The costs of hiring subcontractors are included in the business survey. The turnover data are leading for estimating output of subcontracting. The business survey includes specific questions on exports of construction services. The survey asks for turnover from construction activities abroad and the local expenditures for these activities abroad. By convention turnover from construction activities abroad, for a period less than one year, minus the local expenditures is recorded as domestic output.

### 3.12.2 Civil engineering (NACE 42)

**Table 3.12.2 Process table of output, intermediate consumption and value added of civil engineering (NACE 42), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	14.826	0	0	0	0	14.826	133	47	0	-21	14.985
Intermediate cons.	10.270	0	0	0	0	10.270	79	33	-109	-206	10.067
Value added	4.556	0	0	0	0	4.556	54	14	109	185	4.918

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(7) Data validation*

A adjustment was made for a company that was mistakenly recorded in the business register in NACE 71 Architects, technical services etc. The business register has subsequently been adjusted, so that the company is recorded in the correct industry in the following years.

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Further adjustments are made based on the confrontation of supply and use of individual commodities. Initially for many civil engineering materials the supply was outnumbered by the use. This resulted in downward adjustments on the intermediate consumption in civil engineering.

### **3.12.3 Specialised construction activities (NACE 43)**

**Table 3.12.3 Process table of output, intermediate consumption and value added of specialised construction activities (NACE 43), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
<b>Output</b>	35.274	0	0	0	0	35.274	-2	61	244	56	35.633
<b>Intermediate cons.</b>	21.522	0	0	0	0	21.522	-134	-2	-310	-647	20.429
<b>Value added</b>	13.752	0	0	0	0	13.752	132	63	554	703	15.204

#### *(1) Surveys & censuses:*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(7) Data validation*

The data for intermediate consumption contained an error; the total was not equal to the sum of the subcategories. The latter are adjusted by a total of -134 million euros.

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

#### *(9) Exhaustiveness*

A adjustment has been made for concealed activities specialised construction to households (small maintenance). Output is 244 million euros. Intermediate consumption is assumed to be zero, because the use of building materials and other costs are taken into account in the estimates for the consumption of households or intermediate consumption of owner occupied dwellings. See section 7.2.3. for more details

Furthermore, as described in section 3.6, adjustments were made for cost fraud and income in kind. (intermediate consumption -310 million euro).

#### *(10) Balancing*

Further adjustments are made based on the confrontation of supply and use of individual product groups. Initially for many specialised construction activities materials the supply was outnumbered by the use. This resulted in downward adjustments on the intermediate consumption in construction of specialised activities.

### **3.13 Wholesale and retail trade; repair of motor vehicles and motorcycles (NACE Rev. 2 Section G)**

**Table 3.13.0 Process table of output, intermediate consumption and value added of NACE G Wholesale and retail trade; repair of motor vehicles and motorcycles, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	131.815	0	0	0	0	131.815	-1.919	782	921	215	131.814
Intermediate cons.	63.295	0	0	0	0	63.295	-2.071	-2.289	-1.336	-448	57.151
Value added	68.520	0	0	0	0	68.520	152	3.071	2.257	663	74.663

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2. In these data, the reclassification of a large company towards manufacturing as a result of the ESA guidelines regarding economic ownership has already been processed.

The output of wholesale and retail trade is defined as trade margins. The business survey asks for a breakdown of trade and non-trade revenues for all branches in its domain.

#### *(7) Data validation*

The adjustments concern mainly reclassifications that were done between for instance purchases for resale and (raw) materials for production, taking into account the nature of the economic activity. Adjustments were made on units that reported trade revenues but no corresponding purchases for resale. These reclassifications did not have an effect on value added, but resulted in changes of output and intermediate consumption.

#### *(8) Conceptual*

Furthermore, as described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

#### *(9) Exhaustiveness*

As described in section 7.2.3, adjustments were made for cost fraud and missed production due to car repair and maintenance, to illegal activities such as smuggling, fencing, and sale of cannabis (through so called coffee shops).

As described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

The largest adjustments were made in NACE 46 (output) and NACE 45, 46 and 47 for intermediate consumption, see sections 3.13.2-4.

### *Further information*

Trade as a secondary activity occurs frequently in many other branches and related output is recorded consistently as trade margins. As trade estimates are based on institutional SBS-data, double counting of trade as a secondary activity in non-trade industries is avoided.

In the initial estimates total supply of trade margins is allocated to products using detailed information on turnover by product from the business survey on a 5-digit NACE-level. The level of detail of the product breakdown varies with the 5-digit NACE-level of SBS. No breakdown of the purchases for resale is available, and it is therefore assumed that the allocation of margins is similar to product structure of turnover.

In the balancing process, for each product supply is compared with total use both valued at purchaser's prices excluding VAT. The balancing may result in adjustments of trade margins for individual products.

## **3.13.1 Wholesale and retail trade and repair of motor vehicles and motorcycles (NACE 45)**

**Table 3.13.1 Process table of output, intermediate consumption and value added of NACE 45 Wholesale and retail trade and repair of motor vehicles and motorcycles (NACE 45), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	16.315	0	0	0	0	16.315	-12	-24	151	-11	16.419
Intermediate cons.	9.440	0	0	0	0	9.440	-165	-376	-93	-32	8.774
Value added	6.875	0	0	0	0	6.875	153	352	244	21	7.645

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

Adjustments were made to SBS data to correct for double counting of costs.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

A estimate is made for missed production of car repair and maintenance (see section 7.2.3 for more details of the estimate). Further, as described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

The balancing process includes a confrontation between the output of motor vehicles repairs vis-à-vis corresponding household consumption. Independent estimates are made for supply and use of repair services of motor vehicles using data from independent sources. Supply is based on SBS in combination with an estimate for hidden repairs (see section 7.3.2.1). HFCE is based on data on total costs for damage repair (889 million euros, see section 5.7.2.3) and the HBS for normal maintenance and repair (not being damage, 2596 million euros). In addition 404 million euros is added for car wash based on information of the production board Manufacturing (Hoofdbedrijfschap ambachten). In the balancing process HFCE was adjusted downward by 98 million euros. As a plausibility check the estimated wholesale and retail trade margins on motor vehicles were compared with reports from branch organisations with details on car sales.

The supply-use balancing process led overall to a downward adjustment of intermediate consumption of wholesale and retail trade and repair of motor vehicles and motorcycles.

## **3.13.2 Wholesale trade, except of motor vehicles and motorcycles (NACE 46)**

**Table 3.13.2 Process table of output, intermediate consumption and value added of NACE 46 Wholesale trade, except of motor vehicles and motorcycles (NACE 46), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	81.376	0	0	0	0	81.376	-1.900	465	25	656	80.622
Intermediate cons.	39.690	0	0	0	0	39.690	-1.900	-1.321	-1.047	-417	35.005
Value added	41.686	0	0	0	0	41.686	0	1.786	1.072	1.073	45.617

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). The output of wholesale trade is defined as trade margins. For more general information on the SBS and for specific methods per size class, see section 3.1.2. In this data, the reclassification of a large company towards manufacturing as a result of the ESA guidelines regarding economic ownership has already been included.

### *(7) Data validation*

The adjustments are mainly reclassifications that were done between for instance purchases for resale and (raw) materials for production, taking into account the nature of the economic activity. Adjustments were made on units that reported trade revenues but no corresponding purchases for resale. These reclassifications did not have an effect on value added, but resulted in changes of output and intermediate consumption.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

As described in chapter 3.6, adjustments were made for cost fraud, income in kind and for missed production due to wholesale of textiles and metal waste as well.

### *(10) Balancing*

In the balancing process, two large adjustments were made. Firstly, checks indicated that some non-trade revenues were possibly recorded as trade revenues. For these case adjustments were made in data validation. For those cases this misreporting could not be confirmed, adjustments are recorded under balancing. Since trade activities are recorded net, this led to a decrease of both production and intermediate consumption of 526 million euros.

The second largest adjustment was made for the production of scrap and waste products. For these products, large differences existed between supply and demand. Analysis of the data of wholesale trade in waste and scrap showed that the turnover was in line with the demand for scrap and waste. Purchases for resale were in line with turnover but by far outweighed supply. This led to the conclusion the inconsistency was caused by an insufficient supply rather than by an overestimated use. A large part of the discrepancy difference is attributed to production of the wholesale trade in waste and scrap. This led to an increase in production of 1,171 million euros.

## **3.13.3 Retail trade, except of motor vehicles and motorcycles (NACE 47)**

**Table 3.13.3 Process table of output, intermediate consumption and value added of NACE 47 Retail trade, except of motor vehicles and motorcycles (NACE 47), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	34.124	0	0	0	0	34.124	-7	341	745	-430	34.773
Intermediate cons.	14.165	0	0	0	0	14.165	-6	-592	-196	1	13.372
Value added	19.959	0	0	0	0	19.959	-1	933	941	-431	21.401

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). The output of retail trade is defined as trade margins. To this end trade related commodity purchases and sales are surveyed as such. For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

Only minor adjustments were made to the SBS results due to rounding.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

In NACE 47 estimates are made for illegal activities such as smuggling, fencing, and sales of cannabis (in so called coffee shops). See section 7.2.3 for more information.

As described in chapter 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

During the balancing process a large number of products supplied were adjusted. The overall effect was a downward adjustment of production in NACE 47.

## **3.14 Transportation and storage (NACE Rev. 2 Section H)**

**Table 3.14.0 Process table of output, intermediate consumption and value added of transport and storage (section H), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	69.949	0	0	0	0	69.949	-5.316	322	117	-151	64.921
Intermediate cons.	44.530	0	0	0	0	44.530	-5.761	-672	-331	165	37.931
Value added	25.419	0	0	0	0	25.419	445	994	448	-316	26.990

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

Validation largely refers to adjustments for recharged transport costs paid and received by shipper agents (NACE 52), see section 3.14.4 for details. Furthermore, a state company did not report its fixed capital formation on own account in the survey, but this information was obtained from its annual report. Subsidies to tram and bus companies were adjusted based on more reliable information from local government. Government services related to warehousing and support activities for transportation (NACE 52) were adjusted to comply with the standardised calculation of consumption of fixed capital (PIM) at national accounts.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

Special estimates are made for the taxi branch (NACE 49) concerning hidden activities and tips. Further, as described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

The largest adjustments were made in NACE 49 – NACE 51 see section 3.14.1 – 3.14.3.

At the 2-digit level, transportation and storage are subdivided into:

- land transport (NACE 49);
- water transport (NACE 50);
- air transport (NACE 51);
- warehousing and support activities for transportation (NACE 52);
- postal and courier activities (NACE 53).

## **3.14.1 Land transport (NACE 49)**

**Table 3.14.1 Output, intermediate consumption and value added of land transport (NACE 49), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	25.758	0	0	0	0	25.758	0	108	92	-84	25.874
Intermediate cons.	15.243	0	0	0	0	15.243	-149	-426	-123	365	14.910
Value added	10.515	0	0	0	0	10.515	149	534	215	-449	10.964

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). Land transport (NACE 49) is covered by six separate business statistics relating to rail transport, public road transport, taxi transport, other regulated and unregulated road passenger transport, goods transport and pipeline transport. For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

For a company in public transport an error in reported intermediate consumption was adjusted.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

Special estimates are made for the taxi branch (NACE 49) concerning hidden activities and tips. Further, as described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

The upward adjustment of intermediate consumption was mainly caused by a surplus of supply of freight brokerage. As output is judged more reliable than intermediate consumption the latter is adjusted (see chapter 6).

## **3.14.2 Water transport (NACE 50)**

**Table 3.14.2 Output, intermediate consumption and value added of water transport (NACE 50), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	7.123	0	0	0	0	7.123	0	15	0	-36	7.102
Intermediate cons.	5.002	0	0	0	0	5.002	0	-47	-23	-35	4.897
Value added	2.121	0	0	0	0	2.121	0	62	23	-1	2.205

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). Water transport (NACE 50) is described in two separate Structural Business Statistics, namely those for shipping and inland shipping. For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

Further, as described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did not lead to substantial adjustments in this industry.

### 3.14.3 Air transport (NACE 51)

Table 3.14.3 Output, intermediate consumption and value added of air transport (NACE 51), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	9.356	0	0	0	0	9.356	0	84	25	7	9.472
Intermediate cons.	6.908	0	0	0	0	6.908	0	-36	-73	-166	6.633
Value added	2.448	0	0	0	0	2.448	0	120	98	173	2.839

#### (1) Surveys & censuses

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### (8) Conceptual

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

#### (9) Exhaustiveness

Further, as described in section 3.6, adjustments were made for cost fraud and income in kind.

#### (10) Balancing

This item mainly refers to an adjustment of intermediate consumption regarding to the used hedged price of jet fuel in the response for Structural Business Statistics. Comparison of the Structural Business Statistics for 2010 and 2011, combined with data from annual reports, indicated that for 2010 large differences existed between the market price and the (reported) hedged price. Since the market price should be recorded, an adjustment was made. However, since the evidence for the hedge-difference was incomplete, this adjustment is recorded under balancing and not under conceptual adjustments or data validation.

### 3.14.4 Warehousing and support activities for transportation (NACE 52)

Table 3.14.4 Output, intermediate consumption and value added of warehousing and support activities for transportation (NACE 52), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	22.723	0	0	0	0	22.723	-5.316	100	0	-26	17.481
Intermediate cons.	14.839	0	0	0	0	14.839	-5.612	-47	-94	-49	9.037
Value added	7.884	0	0	0	0	7.884	296	147	94	23	8.444

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). The Structural Business Statistics in respect of supporting transport activities involve several separate surveys relating to loading, unloading and transfer; storage; land transport services; water transport services; airports and other air transport services; dispatchers, ship brokers, freighting, weighing and measuring. For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(7) Data validation*

For the major part this refers to the adjustments for recharged transport costs paid and received by shipper agents. Companies that only mediate the transport of goods, recorded the cost of the complete transportation contract as both output and input in the Structural Business Statistics. In this case only mediation services have to be recorded and thus an adjustment is made in both production and intermediate consumption.

Furthermore, a state company did not report its gross fixed capital formation on own account in the survey, but related information was found in its annual report. Government services related to land (NACE 52) were adjusted to comply with the standardised calculation of consumption of fixed capital (PIM) at national accounts.

#### *(8) Conceptual*

There are no steps taken to exclude holding gains and losses from output of storage companies because they are not the owners of the stored goods. These companies produce only the storage services.

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

#### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry.

### 3.14.5 Postal and courier activities (NACE 53)

**Table 3.14.5 Output, intermediate consumption and value added of postal and courier activities (NACE 53), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	4.989	0	0	0	0	4.989	0	15	0	-12	4.992
Intermediate cons.	2.538	0	0	0	0	2.538	0	-116	-18	50	2.454
Value added	2.451	0	0	0	0	2.451	0	131	18	-62	2.538

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). The post and courier activities Structural Business Statistics cover a number of separate surveys, relating to national and local postal services and courier services. For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

#### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry.

## 3.15 Accommodation and food service activities (NACE Rev. 2 Section I)

**Table 3.15.0 Process table of output, intermediate consumption and value added of Accommodation and food service activities (NACE I), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	18.535	0	0	0	0	18.535	0	47	690	-61	19.211
Intermediate cons.	10.708	0	0	0	0	10.708	-14	-162	4	-144	10.392
Value added	7.827	0	0	0	0	7.827	14	209	686	83	8.819

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

Adjustments for data validation are due to rounding.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

### *(9) Exhaustiveness*

Estimates were made for concealed production and for tipping. See sections 3.15.1 and 3.15.2 for details. Adjustments have also been made for illegal activities. Furthermore, as described in section 3.6, adjustments were made for cost fraud and income in kind. See section 3.15.1 and 3.15.2 for more information.

### *(10) Balancing*

Balancing did lead on balance to substantial adjustments in this industry. A lot of different small adjustments were made based on the confrontation of supply and use of individual product groups.

## **3.15.1 Accommodation services (NACE 55)**

**Table 3.15.1 Process table of output, intermediate consumption and value added of the combined NACE 55 Accommodation services, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	5.039	0	0	0	0	5.039	0	22	-28	-8	5.025
Intermediate cons.	2.831	0	0	0	0	2.831	0	-160	-48	105	2.728
Value added	2.208	0	0	0	0	2.208	0	182	20	-113	2.297

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

Adjustments for data validation are due to rounding.

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

#### *(9) Exhaustiveness*

Adjustments for exhaustiveness are relatively small in this branch. Since, in particular in hotels, electronic and credit card payments are frequent, it is hard to hide payments and tips for tax authorities. The amounts also appear in the employers administrative data and, consequently, in the business statistics. Next to that the adjustment for double counting in illegal activities (prostitution in this case) results on balance in a negative total adjustment in this industry. See for more information section 7.2.3.

Furthermore, as described in section 3.6, adjustments were made for cost fraud and income in kind.

#### *(10) Balancing*

Balancing did not lead to any substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual product groups.

### **3.15.2 Food and beverage serving services (NACE 56)**

**Table 3.15.2 Process table of output, intermediate consumption and value added of the combined NACE 56 Food and beverage serving services, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	13.496	0	0	0	0	13.496	0	25	718	-53	14.186
Intermediate cons.	7.877	0	0	0	0	7.877	-14	-2	52	-249	7.664
Value added	5.619	0	0	0	0	5.619	14	27	666	196	6.522

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(7) Data validation*

Adjustments for data validation are due to rounding.

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and outsourced transportation activities.

#### *(9) Exhaustiveness*

Adjustments were made for concealed production, tipping and illegal activities (cannabis) (677 million value added). See for more section 7.2.3.

Furthermore, as described in section 3.6, adjustments were made for cost fraud and income in kind.

### (10) Balancing

On balance balancing led to substantial adjustments in intermediate consumption in this industry. A lot of different small adjustments were made based on the confrontation of supply and use of individual product groups (see also chapter 6).

#### Further information

Output and input in this industry is recorded gross. This means that the value of output includes the value of the food, beverages, etc. consumed (food and drink services), while it is also included in intermediate consumption (the actual goods).

## 3.16 Information and communication (NACE Rev. 2 Section J)

**Table 3.16.0 Process table of output, intermediate consumption and value added of information and communication (section J), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	49.100	0	0	0	0	49.100	1.116	873	215	-2	51.302
Intermediate cons.	24.497	0	0	0	0	24.497	899	-379	-543	-1.015	23.459
Value added	24.603	0	0	0	0	24.603	217	1.252	758	1.013	27.843

*This section consists of the following NACE-groups:*

- 58 Publishing
- 59-60 Movies, TV and radio
- 61 Telecommunication
- 62 Support activities in the field of IT
- 63 Information service activities

### 3.16.1 Publishing (NACE 58)

**Table 3.16.1 Process table of output, intermediate consumption and value added of publishing (NACE 58), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	6.252	0	0	0	0	6.252	-2	42	0	44	6.336
Intermediate cons.	3.456	0	0	0	0	3.456	-2	-113	-68	-112	3.161
Value added	2.796	0	0	0	0	2.796	0	155	68	156	3.175

#### (1) Surveys & censuses

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

Adjustments for data validation are due to rounding.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services, revaluation and outsourced transportation activities.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for income in kind and cost fraud.

### *(10) Balancing*

Balancing did not lead to very substantial adjustments in this industry. Adjustments were made based on the confrontation of supply and use of individual product groups.

## **3.16.2 Movies, TV and radio (NACE 59-60)**

**Table 3.16.2 Process table of output, intermediate consumption and value added of movies, tv and radio (NACE 59-60), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	3.959	0	0	0	0	3.959	0	141	75	78	4.253
Intermediate cons.	2.231	0	0	0	0	2.231	0	64	-24	75	2.346
Value added	1.728	0	0	0	0	1.728	0	77	99	3	1.907

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D and insurance services. Next to that an additional estimate was included for originals (see below) which led to an additional value added of 120 million euros.

### *(9) Exhaustiveness*

Adjustments were made for cost fraud, income in kind and illegal production of pirate copies (value added € 73 million). See section 7.2.3. for more details.

### (10) Balancing

Balancing did not lead to substantial adjustments in this industry. Adjustments were made based on the confrontation of supply and use of individual product groups.

#### *Further information*

Originals are a part of the output of this branch. This output remains often uncovered in the (SBS) data sources. Therefore, the output of originals is estimated separately with the help of annual reports from collective management organizations such as “het Filmfonds”.

The output of originals is estimated based on production costs (Dutch Films and documentaries), the flow of royalties (Dutch Television formats) and assumptions (Dutch Television Drama). In this regard the following products are distinguished:

- *Films and documentaries*: the estimate of gross fixed capital formation of films is based on production costs. Data are provided by “het Filmfonds”. The annual report of this organisation shows the production costs of all Dutch films that were subsidized by this agency (in practice these are all Dutch movies). Production costs are also available for all documentaries and animated movies subsidized by “het Filmfonds”. International (co)productions are excluded from the estimate of investments except when these productions are subsidized too, but such subsidized productions are exceptional.
- *Television formats*: Since 2007 royalty receipts are part of the SBS questionnaire. This refers only to royalties of enterprises in the NACE 60 (radio and television) but not to the NACE 59 (films).
- *Television drama*: Dutch television drama is hardly ever repeated in subsequent years and normally will not be sold abroad. This estimate is therefore based on the assumption that gross fixed capital formation in this case will be approximately 1 per cent (expert guess) of total production value.

Gross fixed capital formation is based on royalty payments (an adjustment is made for price changes and the nominal growth of royalties according to OECD recommendations).

### 3.16.3 Telecommunication (NACE 61)

**Table 3.16.3 Process table of output, intermediate consumption and value added of telecommunication (NACE 61), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	15.954	0	0	0	0	15.954	1.118	240	0	-68	17.244
Intermediate cons.	7.333	0	0	0	0	7.333	1.118	-2	-85	-281	8.083
Value added	8.621	0	0	0	0	8.621	0	242	85	213	9.161

#### *(1) Surveys & censuses*

Data on output, intermediate consumption and value added are all based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

Adjustments are made for (smart)phones paid for via subscriptions. In the Netherlands subscriptions on telecommunication services may include the provision of a (smart) phone. The purchase of this telephone is implicitly included in the monthly subscription fees. As no turnover is being observed in relation to sales of cell phones, telecom enterprises may report negative trade margins in the SBS. In response the following adjustment was made: negative trade margins were removed from the production value and replaced by costs of purchased telephones in intermediate consumption.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, (own account) software, R&D and insurance services.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for income in kind and cost fraud.

### *(10) Balancing*

Balancing did not lead to substantial adjustments in this industry. Adjustments were made based on the confrontation of supply and use of individual product groups.

## **3.16.4 Support activities in the field of IT (NACE 62)**

**Table 3.16.4 Process table of output, intermediate consumption and value added of support activities in the field of IT (NACE 62), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	21.342	0	0	0	0	21.342	0	369	0	2	21.713
Intermediate cons.	10.545	0	0	0	0	10.545	-217	-227	-387	-584	9.130
Value added	10.797	0	0	0	0	10.797	217	596	387	586	12.583

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

Because of an internal inconsistency in the SBS data an adjustment was made. In this case the sum of detailed intermediate consumption in SBS did not equal the total amount. The detailed information which was initially use was adjusted to fit tot the total amount.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, (own account) software, R&D, insurance services and revaluation.

### *(9) Exhaustiveness*

As described in section 3.6 adjustments were made for income in kind.

### *(10) Balancing*

Balancing led to substantial adjustments in this industry. A substantive part of intermediate consumption in this industry was incorrectly recorded as purchases of goods like computers and data carriers. In the balancing process only part of this consumption could be replaced by computer services. On balance negative adjustments were made based in the confrontation of supply and use of individual products. In general there was more demand than supply especially of services (see also chapter 6).

## **3.16.5 Information service activities (NACE 63)**

**Table 3.16.5 Process table of output, intermediate consumption and value added of information service activities (NACE 63), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	1.593	0	0	0	0	1.593	0	81	140	-58	1.756
Intermediate cons.	932	0	0	0	0	932	0	-101	21	-113	739
Value added	661	0	0	0	0	661	0	182	119	55	1.017

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, (own account) software, R&D and insurance services.

### *(9) Exhaustiveness*

As described in section 3.6 adjustments were made for income in kind. In addition adjustment were made for Output, intermediate consumption and value added of units that were missing in the SBS population. labour accounts provided data about employed persons and wages of these units.

### (10) Balancing

Balancing did not lead to very substantial adjustments in this industry. Adjustments were made based on the confrontation of supply and use of individual products.

## 3.17 Financial and insurance activities (NACE Rev. 2 Section K)

This section presents the production account and the estimation methods of NACE 64 Financial institutions, except insurance and pension funding (section 3.17.1), NACE 65 Insurance and pension funding (section 3.17.2), and NACE 66 Other financial services (section 3.17.3). Table 3.17.1 presents the process table for output, intermediate consumption and value added, from source data to final estimate, of all financial institutions (NACE section K).

**Table 3.17.1 Process table of NACE 64-66 output, intermediate consumption and value added, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
<b>Output</b>	0	0	35,805	39,650	0	75,455	-674	831	360	309	76,281
<b>Intermediate cons.</b>	0	0	27,664	2,013	0	29,677	-674	1,186	-1,314	-316	28,559
<b>Value added</b>	0	0	8,141	37,637	0	45,778	0	-355	1,674	625	47,722

One of the main sources for production and intermediate consumption is a survey of the Dutch Central Bank (DNB) called ‘Directe RAportage’ (DRA). Several institutional units which are part of NACE 64 or 65 report both on a quarterly and yearly basis to DNB. On a yearly basis DNB compiles the profit and loss accounts of these financial institutions. With respect to production and intermediate consumption, the DRA source contains the reporting units of investment funds (S.124), special purpose entities (S.127), insurance companies (S.128) and pension funds (S.129). Another major source is the profit and loss account in annual reports. This source is particularly used for estimating Other Financial Institutions (OFIs). The sources and different adjustments are discussed in more detail in the following subsections.

### 3.17.1 Financial institutions, except insurance and pension funding (NACE 64)

**Table 3.17.2 Process table of NACE 64 output, intermediate consumption and value added, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
<b>Output</b>	0	0	16,001	33,698	0	49,699	-674	433	215	288	49,961
<b>Intermediate cons.</b>	0	0	16,094	0	0	16,094	-674	556	-210	-2	15,764
<b>Value added</b>	0	0	-93	33,698	0	33,605	0	-123	425	290	34,197

### *(3) Combined data*

Financial institutions (NACE 64) consist of 6411 Central banking, 6419 Other monetary intermediation, including Money Market Funds (MMFs), 6420 Financial holdings, 6430 Investment funds, 6491 Financial leasing, 6492 Other credit granting (mortgage banks and building funds, municipal credit banks and commercial finance companies, participation companies, bill-brokers and other credit granting), 6499 Other financial intermediation.

#### NACE 6411 Central banking

Data on the Dutch Central Bank are obtained from their annual accounts. These provide a formal report on the reporting year, which includes a profit and loss account. The annual accounts becomes available four months after the end of the reporting year in question. The data are reliable and no adjustments are required. Production is estimated as sum of costs (intermediate consumption and compensation of employees).

2010		Mill. Euro
	Cost of production of bank notes	21
+	Costs employees	22
+	Other intermediate consumption	70
=	<b>Total intermediate consumption</b>	<b>113</b>
+	Consumption of fixed capital	39
+	Compensation of employees	163
+	Other taxes less subsidies on production	0
=	<b>Output</b>	<b>276</b>
=	<b>Gross value added</b>	<b>163</b>

#### NACE 6419 Other monetary intermediation

Source for other Monetary Financial Institutions (MFIs) is the 'FINance REPort' (FINREP), via which the eight largest banks report to the Dutch Central Bank. In 2010 these banks had a market share of 80,5 per cent; data are grossed up to get estimates for the total population. The FINREP source contains the profit and loss accounts and provides data on fees and commissions, income from renting real estate, and business costs (intermediate consumption and compensation of employees). The production of Financial Intermediation Services Indirectly Measured is estimated using a model type approach (see section 3.17.1.2). No source data are available for Money Market Funds, which are very small, so they are estimated otherwise (see process step 4 Extrapolation and models).

#### NACE 6420 Financial holdings

A Special Purpose Entity (SPE) is part of a non-resident enterprise group located in the Netherlands and gathers financial resources from the rest of the world and funds non-resident entities of the enterprise group on their own account. Special Purpose Entities are classified in NACE 6420 and are the main part of that industry. The SPEs located in the Netherlands are mainly holding assets of non-resident subsidiaries, managing royalties and film rights on behalf of the parent companies and play an important part in the financial activities of the mother companies within the scope of mergers, takeovers and capital raising. SPEs are characterised by voluminous current and property transactions, disproportional to their productive activities in the Netherlands. Their main reason of existence is tax planning.

The statistical source for SPEs is a survey conducted by the Dutch Central Bank (DRA). On an annual basis an almost exhaustive data set is obtained from more than 14 thousand reporting entities. This survey contains information on export and import of royalty and licence services, fees and commissions, and business costs. This source is supplemented with the data from labour accounts on wages and social premiums (see section 4.8).

The production of NACE 6420 financial holdings is estimated as the sum of costs. The costs reported in DRA are primarily the intermediate consumption of intercompany services. The compensation of employees is also part of the costs. The production of financial holdings is divided into fees and commissions, royalty and licence services, and intercompany services.

#### *Fees and commissions*

Revenues on Fees and commissions are available in the DRA survey.

#### *Royalty and licence services*

Production of royalty and licence services consists of two parts, related to international trade and domestic market. The production of royalty and licence services by SPEs related to international trade should be valued as margin (source: Task Force on the recording of certain activities of multinationals in national accounts 2009, and then also Task Force on Holdings and SPEs, 2012). The major part on production of royalty and licence services of SPEs consists of the balance of export and import. This is recorded as production having the rest of the world as destination. The second part is the production for the Dutch market, is reported in DRA. This is recorded as domestic production of royalty and licence services and represents only a small fraction. Table 3.17.3 shows the different components of the production of royalty and licence services.

**Table 3.17.3 Production of royalty and license services, 2010 (million euros)**

<b>Royalty and license services</b>	<b>2010 (million euros)</b>
Production total	1,814
Production for Dutch market	105
Production for rest of the world = export - import	1,709
Export	14,455
Import	12,746

#### *Intercompany services*

The production of intercompany services is hard to measure. To ensure that the production of financial holdings equals the sum of costs, this item functions as a balancing item.

#### NACE 6430 Investment funds

Non-MMF investment funds (sector S.124) report to the Dutch Central Bank (DRA). The DRA source contains data on rent income from real estate, and business costs. Production of fees and commissions are estimated as sum of the costs related to fees and commissions:

management costs (P.2), compensation of employees (D.1), other taxes on production (D.29), taxes on income (D.51).

#### NACE 6491 Financial lease

While enterprises active in operational leasing are considered to be part of the sector Non-financial corporations (S.11), financial leasing and hire purchase contracting are both included in the subsector Other Financial Intermediaries (S.125), which is part of NACE 6491. However, many other companies may be involved in operational leasing, financial leasing or hire purchase contracts. The categorisation into S.11 or S.125 is done by the Dutch Central Bank, and is based on the characteristics of the main output, financial or non-financial. DNB considers the majority of the transactions of financial leasing and hire purchase companies to be long term loans (F.42). It is also assumed that the loans often concern those on fixed assets, but not exclusively. Rental payments are considered to comprise repayment on principal, interest payment and payment for Financial Intermediation Services Indirectly Measured (FISIM). The repayment on principal is considered a financial transaction (F.4). Both interest payments and FISIM are estimated, based on balance sheet information of leasing companies. The FISIM part of the rental payments is treated as intermediate consumption. For a detailed description of FISIM, see section 3.17.1.2. Production and intermediate consumption of financial lease is partly derived from profit-and-loss accounts in annual reports (production 898 million euros). Other financial lease companies are a daughter company of a MFI, but are themselves not a MFI. These non-MFI daughter companies contain financial lease and other financial intermediaries. Total production (874 million euros) and intermediate consumption of all non-MFI daughter companies are estimated, using the same growth rates as monetary financial institutions.

#### NACE 6492 Other credit granting and NACE 6499 Other financial intermediation

The population of Other Financial Intermediaries (OFIs) is heterogeneous, and contains head offices of financial institutions and thousands of other small businesses. The largest entities are taken into account, under the assumption that they cover nearly the whole market. The non-MFI daughter companies of MFI's are estimated using the same growth rates as monetary financial institutions. Other OFIs are derived from the profit and loss account in annual reports (85 entities in sector S.125 and 80 entities in sector S.126). For all OFIs, the labour accounts provide data on wages and social premiums (see section 4.8).

#### *(4) Extrapolation and models*

NACE 64 contains the producers of FISIM. See section 3.17.1.2 for a detailed description of the FISIM calculation. Money Market Funds (MMFs), being part of NACE 6419, are very small. They reported to the Dutch Central Bank until 2008-Q3. Since then production and intermediate consumption of MMFs are kept constant at the level of 4 million euros.

#### *(7) Data validation*

Most costs of SPEs are reported in the DRA survey: fees and commissions expenses, royalty and licence costs, and the intermediate consumption of intercompany services, which consists of intercompany business costs and other intercompany costs. For a small part of intermediate consumption an additional estimate is made. Information in the source data on 'other

domestic costs' are considered as less reliable, so they are estimated at 17 per cent of intercompany business costs. This percentage is based on time series of the cost structure of SPEs. For reasons of data validation intermediate consumption is corrected with -674 million euros. Consequently, this adjustment is also made on the production, which is measured as the sum of costs.

#### *(8) Conceptual*

Conceptual adjustments are made for R&D and intermediate consumption of FISIM.

#### *(9) Exhaustiveness*

Exhaustiveness adjustments are made for income in kind. Further, exhaustiveness of the SPE population is achieved, by adding Labour Account data of SPEs that do no report to DNB. Consequently, production as sum of the costs, is also adjusted.

#### *(10) Balancing*

Balancing adjustments are made to match supply and demand of primarily financial services. Operating surplus of financial holdings remains 0.

#### *(11) Final estimate*

The main output of NACE 64 consists of fees and commissions and Financial Intermediation Services Indirectly Measured (FISIM). Measurement of these services is discussed in detail in sections 3.17.1.1 and 3.17.1.2.

### **3.17.1.1 Fees and commissions**

Fees and commissions cover a wide range of services. In the reports of banks (S.122), for instance, the following fees and commissions are distinguished<sup>5</sup>: securities, clearing and settlement, asset management, trust, financial mediation, fiduciary activities, payments services, travel agency services, structured finance, servicing fees from securitization activities, insurance and other fee and commission income. Fees and commissions of Central Bank (276 million euros) is calculated as follows.

2010		Mill. Euro
	Cost of production of bank notes	21
+	Costs employees	22
+	Other intermediate consumption	70
=	<b>Total intermediate consumption</b>	<b>113</b>
+	Consumption of fixed capital	39
+	Compensation of employees	163
+	Other taxes less subsidies on production	0
=	<b>Output</b>	<b>276</b>
=	<b>Gross value added</b>	<b>163</b>

<sup>5</sup> These types of fees and commissions are also distinguished in FINREP (financial reporting) framework of EBA

Table 3.17.4 Fees and commissions, 2010 (million euros)

<b>Fees and commissions</b>	<b>2010 (million euros)</b>
<b>Production</b>	<b>10.523</b>
<i>Of which</i>	
Central bank (S.121)	276
Other Monetary Financial Institutions (S.122)	5.062
Money Market Funds (S.123)	4
Non-MMF investment funds (S.124)	1.290
Other Financial Intermediaries (S.125)	1.001
Head offices (S.126)	282
Financial holdings (S.127)	2.626
<b>Import</b>	<b>1.573</b>
<b>Intermediate consumption</b>	<b>7.324</b>
<i>Of which</i>	
Financial institutions (NACE 64)	1.507
Insurance and pension funding (NACE 65)	1.760
Other financial services (NACE 66)	133
Other	3.924
<b>Final consumption</b>	<b>1.739</b>
<b>Export</b>	<b>2.992</b>
<b>Investment</b>	<b>41</b>

The fees and commissions received by financial institutions (NACE 64) are produced by different subsectors. Main producers are subsectors S.122, S.124 and S.127. The output of the total bank fees and commissions is partly available in source data (S.122, S.127) and partly estimated, for example as sum of costs (S.121, S.124). Most of the data on fees and commissions are received from the Dutch Central Bank via DRA-statistics. Further, fees and commissions are imported from the Rest of the World. A large part of intermediate consumption concerns mainly financial institutions (investment funds), insurance companies and pension funds.

Investment funds report (in DRA) their management costs. Some of these management costs are attributed to costs related to renting real estate. For non-MMF investment funds, who are the major real estate investor within NACE 64, the operating expenses for real estate are estimated to be 60 per cent of rental income. This percentage is based on the size of costs in other industries that are renting real estate. Intermediate consumption of fees and commissions is determined as total management costs minus investment funds' operating expenses for real estate.

For insurance companies and pension funds the management costs are divided into fees and commissions (55 per cent) and other financial services (45 per cent). The percentages are based on the asset holdings of non-MMF investment fund shares (F.522).

### 3.17.1.2 Financial Intermediation Services Indirectly Measured (FISIM)

The following method description of FISIM has been presented in revised form in the Eurostat Grant “Choosing a method for the deflation of FISIM” (Den Boer 2014).

Statistics Netherlands calculates the FISIM transactions P.119 (production), P.2B (intermediate consumption), P.31AB (final consumption), P.62B (export), P.72B (import) and P.119C (FISIM adjustment on D.41A interest). These transactions are determined per subsector S.11, S.12, S.13, S.14 and S.15. Section A shows the reference rate that is chosen. Section B explains the calculations to correct for interbank FISIM. Section C describes the split between S.14 and S.15.

FISIM is subdivided into FISIM on loans  $A$  (the A from assets) and FISIM on deposits  $D$ . FISIM on loans is calculated by the interest spread on loans times the stock of loans, FISIM on deposits is the interest spread on deposits times the amount of deposits.

$$FISIM^t \equiv FISIM_A^t + FISIM_D^t = \sum_{n=1}^N p_{An}^t q_{An}^t + \sum_{n=1}^N p_{Dn}^t q_{Dn}^t \quad (1)$$

The stocks of loans  $q_A$  and deposits  $q_D$  are average stocks derived from the balance sheets. For each type of loan or deposit  $n$  the average of the stocks at the beginning and the end of period  $t$  is calculated. The interest spread on loans  $p_A$  is the difference between the interest rate that banks receive on loans and the reference rate:

$$p_{An}^t = r_{An}^t - r_R^t \quad (2)$$

where  $r_A$  is the interest rate on loans and  $r_R$  is the reference rate. The interest spread on deposits  $p_D$  is usually written as the difference between the reference rate and the interest rate that banks pay to customers on their deposits:

$$p_{Dn}^t = r_R^t - r_{Dn}^t \quad (3)$$

$r_D$  being the interest rate on deposits.

#### A. Reference rate

Statistics Netherlands uses a reference rate that is a weighted average of different market rates. The weights used for the weighted average reference rate are the average stocks of loans and deposits, and depend on maturity and currency. Only the stocks that are both assets and liabilities of financial intermediaries (domestic and abroad) are taken into account. So, these stocks refer to banks/OFIs borrowing from other banks/OFIs or banks/OFIs holding deposits at other banks. The sources of these stocks are the balance sheets of institutional sector accounts. For determining the reference rate the following market rates are used:

- Short-term loans: three-month Euribor
- Long-term loans: latest ten-year government bonds
- Short-term deposits: call money euros area
- Long-term deposits in euros: three-month Euribor
- Long-term deposits in other currency: three-month euro-dollar deposits

Regarding the different currencies, FISIM on deposits is calculated separately for each of the important currency groups such as euros and other currency (almost entirely consisting of U.S. dollars). Therefore, the three-month euro-dollar deposits rate is used for FISIM on deposits in other currency.

### ***B. Interbank FISIM***

ESA 2010 does not allow the recording of interbank FISIM. The term ‘interbank’ relates to the user sectors S.122 (Banks), S.125 (OFIs) and part of S.2 (Rest of the world). Sector S.2 can be divided into financial intermediaries (FI) and non-financial intermediaries (NFI). By convention, the domestic financial intermediaries (S.122 and S.125) and the financial intermediaries abroad (S.2 FI) do not consume FISIM. This means that both assets and liabilities of these financial intermediaries do not belong to the stocks of loans  $q_A$  and deposits  $q_D$  in formula (1) above. These ‘cells’ (e.g. deposits assets S.122, liabilities S.2 FI) are only used to determine the weights for the weighted average reference rate. The Dutch Central Bank provides detailed information on the subsectors of S.2. This makes it possible to divide sector S.2 into FI and NFI. Table 3.17.5a gives the shares of S.2 FI and S.2 NFI in the deposits of S.2 (assets) held by S.122. In table 3.17.5b the loans of S.122 to S.2 (liabilities) are divided into S.2 FI and S.2 NFI.

**Table 3.17.5a Interbank deposits, share in closing balance sheet 2010, assets S.2 liabilities S.122 (%).**

<b>Transaction</b>	<b>Description</b>	<b>S.2 FI</b>	<b>S.2 NFI</b>
AF.22A	Short-term deposits (euros)	60	40
AF.22B	Short-term deposits (other currencies)	46	54
AF.29AA	Saving accounts (euros)	0	100
AF.29AB	Saving accounts (other currencies)	0	100
AF.29BA	Other long-term deposits (euros)	91	9
AF.29BB	Other long-term deposits (other currencies)	89	11

*Source: Dutch Central Bank*

**Table 3.17.5b Interbank loans, share in closing balance sheet 2010, assets S.122 liabilities S.2 (%).**

<b>Transaction</b>	<b>Description</b>	<b>S.2 FI</b>	<b>S.2 NFI</b>
AF.41B	Short-term consumer credit	0	100
AF.41C	Other short-term loans	48	52
AF.42B	Real estate loans	0	100
AF.42C	Long-term consumer credit	0	100
AF.42D	Other long term-loans	49	51

*Source: Dutch Central Bank*

Saving accounts, consumer credit and real estate loans relate only to households abroad, so they do not involve interbank operations. Export of FISIM on deposits is multiplied by the share of S.2 NFI in interbank deposits to exclude interbank FISIM on deposits. Likewise, export of FISIM on loans is multiplied by the share of S.2 NFI in interbank loans to exclude interbank FISIM on loans. After correcting for FISIM users in respect of sector S.2, the next

step is to determine the FISIM producers by splitting sector S.2 into S.2 FI and S.2 NFI. This is only done for loans, since deposits are held by financial intermediaries only. Table 3.17.5c gives the balance sheet shares of S.2 FI and S.2 NFI in other short and long-term loans; in the Netherlands there is no import of consumer credit and real estate loans.

Subsector S.127 (Captive financial institutions and money lenders) consists mainly of Special Purpose Entities (SPEs). In contrast with other subsectors these SPEs have the majority of their loans from non-financial intermediaries. Financial intermediaries abroad do provide loans to SPEs, but these are particularly intra-concern loans; by convention, FISIM is not calculated on intra-concern loans. Import of FISIM on loans is multiplied by the share of S.2 FI in other loans, since only S.2 FI can produce FISIM. Of course, FISIM export by subsectors S.122 and S.125 is set to zero, because of excluding interbank FISIM.

**Table 3.17.5c Other loans, share in closing balance 2010, assets S.2 liabilities other subsectors (%).**

Transaction		AF.41C		AF.42D	
Description		Other short-term loans		Other long term-loans	
Liabilities		Assets			
Subsector	Description	S.2 FI	S.2 NFI	S.2 FI	S.2 NFI
S.11	Non-financial institutions	91	9	83	17
S.121	Central bank	100	0	100	0
S.122	Banks	100	0	80	20
S.123	Money market funds (MMF)	100	0	100	0
S.124	Non-MMF investment funds	83	17	87	13
S.125	OFIs	99	1	91	9
S.126	Financial auxiliaries	100	0	100	0
S.127	Captive financial institutions and money lenders	24	76	3	97
S.128	Insurance corporations	100	0	0	100
S.129	Pension funds	99	1	100	0
S.13	Government	100	0	100	0
S.1A	Households	100	0	100	0

*Source: Dutch Central Bank*

For determining the external reference rate, subsector S.2 must also be divided into S.2 FI and S.2 NFI. Regarding the average balances of deposits, the assets of S.2 are multiplied by the balance sheet share of S.2 FI (table 6a) to get interbank deposits. Likewise, the S.2 liabilities of the average balances of loans are multiplied with the balance sheet share of S.2 FI (table 6b) to get interbank loans. Finally, the S.2 assets of the average balances of loans are multiplied by the balance sheet share of S.2 (table 6c) to get interbank loans. The external reference rate is calculated on international interbank loans and deposits.

### ***C. Division between S.14 and S.15***

Sector Households and Non-Profit Institutions Serving Households (NPISH) is divided into S.14 Consumers, S.14 House-owners, S.14 Unincorporated enterprises and S.15 NPISH. In the Sector accounts balance sheets for 2010 are only available for the aggregate S.14+S.15. The stocks of mortgages are totally attributed to S.14 House-owners. Deposits and other loans are attributed to the other S.14 subsectors and S.15, using their share in interest received and

paid in 2010. Balances of deposits are divided using data on interest received, balances of other loans are divided using data on interest paid (table 3.17.6). The shares are estimated using statistics on labour income and entrepreneurial income and wealth.

**Table 3.17.6 Interest received/paid per S.14 and S.15 subsector, 2010 (million euros)**

Sector	Deposits		Loans (excluding AF.42B Mortgages)	
	Interest received (mln euro)	Share in S.14+S.15 (%)	Interest paid (mln euro)	Share in S.14+S.15 (%)
S.14 Consumers	8,095	91.9	33,893	92.6
S.14 Unincorporated enterprises	385	4.4	2,655	7.3
S.15 Non-profit institutions serving households	326	3.7	51	0.1
S.14 (excluding house-owners) + S.15	8,806	100.0	36,599	100.0

The division of S.14+S.15 into different subsectors is necessary, because of the distinction between final consumption (S.14 Consumers) and intermediate consumption (S.14 House-owners, S.14 Unincorporated enterprises and S.15 NPISH).

Summarizing, both sub-sectors S.122 (deposit-taking corporations except the central bank) and S.125 (other financial intermediaries, except insurance corporations and pension funds) are included in the calculation of FISIM. For sub-sectors S.122 and S.125 the average stocks of loans and deposits are available, with breakdown per sector, from the Flow of Funds accounts. Accrued interest is estimated. These rates are sector-specific, i.e. individually computed for each institutional user sector. They are weighted according to the maturity breakdown. Thus, FISIM is calculated separately for each user sector. The internal reference rate is calculated as the ratio of interest receivable on loans between (and within) S.122 and S.125 to stocks of loans between (and within) S.122 and S.125. 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 times external reference rate). FISIM on the deposits of non-residents is equal to (deposit stocks times (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 times external reference rate). FISIM imported for deposits is equal to (deposit stocks times external reference rate) - interest payable by non-resident financial intermediaries. The external reference rate (used to calculate FISIM exports and imports) 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. It is ensured that the flows of interest between and within the subsectors S.122 and S.125 and between resident FIs and non-resident FIs as well as the corresponding stocks of loans and deposits impact the production of FISIM only through the internal and external reference rates; there is no allowance for interbank recording of FISIM in ESA 2010. The allocation of FISIM (domestically produced and imported) is based on reliable information, also as concerns allocation among the sectors/uses having an impact on GNI: intermediate consumption of General Government and NPISH and intermediate consumption/HFCE within households. FISIM is allocated to households broken down into intermediate consumption (households in their capacity as owners of dwellings and of unincorporated enterprises) and final consumption. The data on loans to households are broken down into dwelling loans, loans to households as owners of unincorporated enterprises and other loans to households. The data on deposits of households are broken down into deposits of households as owners of unincorporated enterprises and deposits of individuals.

Finally, FISIM per subsector is allocated among industries according to the size of their production. Table 3.17.7 gives an overview of FISIM on deposits and loans, per ESA 2010 subsector.

Table 3.17.7 FISIM, 2010 (million euros)

FISIM	Subsector	Deposits	Loans	Total
<b>Production</b>	Total	899	32,795	33,694
	S.122	899	21,866	22,765
	S.125	0	10,929	10,929
<b>Import</b>	S.2	-397	1,932	1,535
	Total	502	34,727	35,229
<b>Intermediate consumption</b>	Total	986	29,101	30,087
	S.11	949	7,409	8,358
	S.121	0	0	0
	S.122	0	0	0
	S.123	-2	0	-2
	S.124	40	436	476
	S.125	0	0	0
	S.126	27	197	224
	S.127	-141	332	191
	S.128	82	206	288
	S.129	12	291	303
	S.13	88	951	1,039
	S.14 House-owners	0	18,963	18,963
	S.14 Unincorporated enterprises	-37	310	273
	S.15	-32	6	-26
<b>Final consumption</b>	S.14 Consumers	-794	3,118	2,324
<b>Export</b>	S.2	310	2,508	2,818
	Total	502	34,727	35,229

After many discussions in Task Forces it has been agreed that negative FISIM is possible<sup>6</sup>. The ECB (Colangelo 2012)<sup>7</sup> concludes correctly that “the discussion should not aim at a methodology that excludes negative margins, but rather at *a method which can explain negative margins*. Such negatives may well reflect the economic reality. For instance, the fact that during the financial crisis (especially after the collapse of Lehman Brothers) many European banks were offering (and still do) deposit rates higher than money market rates to

<sup>6</sup> FISIM Task Force (2011), *Summary Minutes of the ISWGNA FISIM Task Force meeting: July 5-6, 2011, New York*

<sup>7</sup> Colangelo, Antonio (2012), *Measuring FISIM in the euro area under various choices of reference rate(s)*, European Central Bank

improve their liquidity positions is well known. In addition, this does not mean that banks would necessarily make losses on deposits as in many cases direct charges also apply on deposit accounts.”

### 3.17.2 Insurance and pension funding (NACE 65)

**Table 3.17.8 Process table of NACE 65 output, intermediate consumption and value added, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
<b>Output</b>	0	0	19,804	0	0	19,804	0	351	145	0	20,300
<b>Intermediate cons.</b>	0	0	11,570	0	0	11,570	0	417	-985	-132	10,870
<b>Value added</b>	0	0	8,234	0	0	8,234	0	-66	1,130	132	9,430

#### (3) Combined data

Insurance and pension funding services (no compulsory social security) (NACE 65) consists of different types of insurance companies and pension funds: life insurance companies (incl. insurance in kind and slate clubs), non-life insurance companies (incl. guarantee funds), reinsurance companies and pension funds (incl. early retirement funds).

These companies/funds generate various types of output, the main output being insurance services. Insurance services consist of direct life insurance, direct non-life insurance (including voluntary additional health insurance), reinsurance (incl. indirect life and non-life insurance by life and non-life insurance companies) and pension insurance services.

Health insurers receive an additional ‘compensation’ from the central government for the extent to which actual total health care expenses (macro-final expenses) exceed the mandatory health insurance related total budgeted expenses (ex-ante macro costs estimate).

The method for calculating intermediate consumption of insurance companies and pension funds is for all NACE 65 industries similar.

Insurance companies and pension funds report to the Dutch Central Bank (DNB) via the Direct Reporting (DRA) system, which is used as the main source for the industry’s estimate for the supply and use tables. Supervisory data are used as an additional information.

The above mentioned types of insurance services cannot be calculated uniformly; output of life insurance services and pension insurance services is based on the sum of costs (mainly intermediate consumption and compensation of employees), while output of non-life insurance and reinsurance services is based on premiums and (adjusted) claims. The methods of calculating the insurance service output for all types of insurance are described in section 3.17.2.1. Estimates are presented in 3.17.2.2.

#### Methods of calculating insurance output

##### Life insurance services

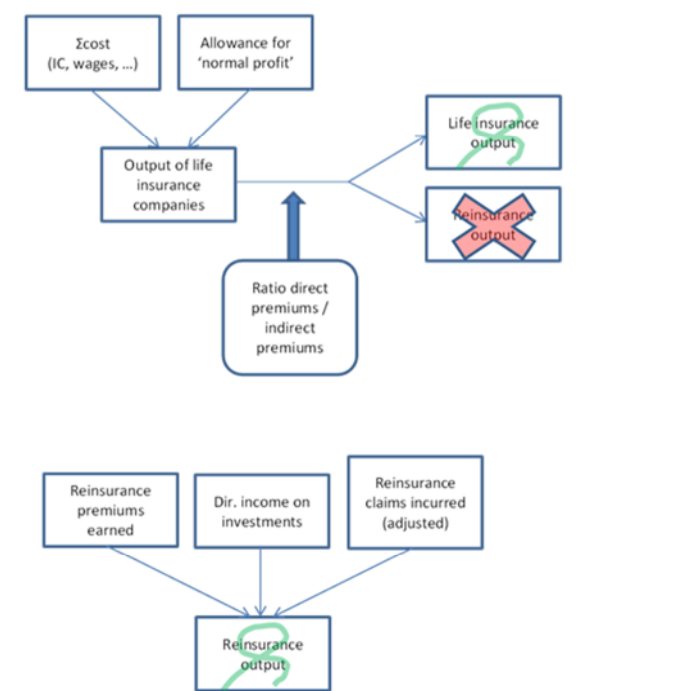
The output of life insurance services is calculated as the sum of costs (intermediate consumption<sup>8</sup> + compensation of employees) plus an allowance for ‘normal profit’. Data on

<sup>8</sup> Not according to the NA-definition but according to business administration, so including depreciation.

the costs are available from the main source DRA. The normal profit is calculated by using the average yield on perpetual bonds (both corporate and government bonds) which is multiplied by the equity of the life insurers. The average yield is calculated with data available from the stock exchange (a separate statistics of Statistics Netherlands). The equity of the life insurers is available in the main data source as well as in the supervisory data from the Dutch Central Bank. The underlying idea of this method is that shareholders of the insurance companies (mostly a financial holding) expect a minimal return on their investment equal to the yield on perpetual bonds. The risk profiles of both these ‘securities’ do not differ very much, so the expected return also will equally not differ much. The allowance for normal profit is as such understood as an expected profit, but fluctuating in relation to equity and yield levels in each period.

As the sum of cost method for life insurance output is applied and no separate information for cost components of life and reinsurance activities of the life insurance corporations are available, the sum of costs for estimating total production of life insurance corporations (direct plus indirect) has to be calculated first. In a next step direct life insurance output is separated out from this sum by using a ratio between (direct) life insurance premiums and (indirect) reinsurance premiums received by life insurance corporations. The remaining ‘estimate’ for reinsurance output is not used, as for reinsurance output ESA2010 prescribes a different valuation method (premiums + direct income on investments +/- claims). For life insurance corporations data on all of these components are available, so reinsurance output of life insurers is estimated using the preferred method.

The scheme below clarifies the abovementioned:



### Pension schemes output:

The calculation of the output of pension schemes is similar to the life insurance service, but without addition of the allowance for ‘normal profit’, because pension funds do not make any profit. Data are available in DRA.

### Non-life insurance service (excl. Reinsurance):

Non-life insurance service in The Netherlands is provided by health insurers (only voluntary additional health insurance<sup>9</sup>), other non-life insurers supervised by the Dutch Central Bank and non-supervised insurers (guarantee funds). The main source DRA provides separate data in the profit and loss account for the additional health insurance.

The output for non-life insurance services is calculated as:

total premiums earned *plus* property income earned on technical reserves  
*less* adjusted claims incurred.

Data on premiums and claims are available from the main source DRA, except for the guarantee funds for which this information is taken from annual reports. Adjusted claims are to be interpreted as expected claims. Statistics Netherlands implemented the concept of expected claims by using the average of the claims, catastrophic losses excluded, over the last 5 years, inflated by the Consumer Price Index (CPI) as published by Statistics Netherlands.

Property income earned on technical reserves attributed to policyholders is derived from direct investment income in the primary income account (plus gross income on rentals) minus interest paid, almost all information is obtained from the main data source for insurers except for retained earnings attributable to collective investment fund shareholders (D.4432), information which is taken from the non-MMFs survey (also DRA).

### Reinsurance service:

The output of reinsurance is measured the same way as the output of direct non-life insurance. However, there are some transactions peculiar to reinsurance, such as commissions payable to the direct insurer under proportionate reinsurance and profit sharing in excess of loss reinsurance.

Once these are taken into account the output of reinsurance is calculated as:

premiums earned *less* commissions payable  
*plus* premium supplements  
*minus* both adjusted claims incurred and profit sharing.

As earlier mentioned, reinsurance services are not only provided by main reinsurers, but also by 'normal' life and non-life insurers. For all three categories of insurers the output is calculated separately according to the formula above, using DRA data.

### Intermediate consumption of the insurance industry

Total intermediate consumption, except the use of reinsurance services, is derived from reported profit and loss account items in the main source DRA. These items do not match the

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<sup>9</sup> Mandatory basic health insurance is considered as a social security scheme in National Accounts and government finance statistics (GFS). As a consequence, Statistics Netherlands reroutes all obligatory health care premiums and (basic) health care expenses under the Health Care Insurance Act as government revenues and expenditures. Private health insurance companies are compensated for the financial risk that the actual total health care expenses (macro-final expenses) exceed the total budgeted expenses (ex-ante macro costs estimate); the amount of this compensation is determined by the Government sector in NA and is registered as part of the output of the health insurers.

classification of the product groups of the supply and use tables of Statistics Netherlands, so assumptions and small adjustments are necessary. The explanatory notes with the reporting forms for the DRA source from the Dutch Central Bank give more detail about the content of the concerning profit and loss account items. This makes it possible to make estimates on the level of product groups of the supply and use tables.

## Estimates of insurance and pension funding, 2010

### Life insurance service

The output of the life insurance service provided by life insurers in 2010 is calculated based on the following figures:

Intermediate consumption	1,777 mln	
Compensation of employees	2,630 mln	+
Allowance for 'normal profit'	2,032 mln <sup>10</sup>	+
Ratio direct/total premiums	.9736	*
Output life insurance	6,269 mln	

Export of the life insurance service is calculated with a ratio between premiums received from abroad and total premiums received, based on supervisory data.

Output life insurance	6,269 mln	
Ratio premiums abroad/total	.0287	*
Export life insurance services	180 mln	

Import is calculated by multiplying the life insurance premiums paid to insurers abroad and a ratio between the value of the life insurance services (combined with pension insurance services) and the premiums with the domestic life insurers (combined with pension premiums). Data are derived from international trade statistics.

Premiums paid to insurers abroad	62 mln	
Ratio life/pension insurance	.1889 <sup>11</sup>	*
Import life/pension insurance services	12 mln	

Then the ratio between the export of life insurance services and pension insurance services is used to divide the 12 mln import in 9 mln import for life insurance services and 3 mln for pension insurance services.

<sup>10</sup> Q1: equity 24,609 mln, yield 7.59%; Q2: equity 25,796 mln, yield 8.35%; Q3: equity 27,251 mln, yield 7.59%; Q4: equity 28,118 mln, yield 8.09%.

<sup>11</sup> Life + pension insurance service 9,556 mln, premiums 50,586 mln. The 9,556 mln slightly differs from the figures above, because it also includes non-supervised insurers (insurance in kind) and pension funds (f.i. early retirement funds).

With the calculations above the (domestic) consumption of life insurance services by households can be derived.

Output	6,269 mln
Import	9 mln +
Export	180 mln -
Consumption	<u>6,098 mln</u>

In addition to the services provided by life insurers, the insurance services provided for insurances in kind (i.e. funeral insurers) are also defined as life insurance service. For this kind of insurances import and export are assumed to be zero, so total output is expectedly consumed by domestic households. In 2010 the value of the output and domestic consumption equals 60 million.

#### Pension insurance service

Pension insurance services provided by pension funds are calculated the same way as life insurance service output, with the exception of allowances for 'normal profit'. For pension insurance services, the profit is set at zero. And because pension funds do not act as reinsurers, there's no ratio between direct and total premiums.

Intermediate consumption	3,112 mln
Compensation of employees	88 mln +
Output pension insurance	<u>3,200 mln</u>

Export of the pension insurance service is calculated with a ratio between premiums received from abroad and total premiums received, based on supervisory data.

Output life insurance	3,200 mln
Ratio premiums abroad/total	.0180 *
Export pension insurance services	<u>58 mln</u>

For pension insurance there is no evidence of the collective insurance of Dutch workers under RoW pension funds. So the import is estimated as zero.

With the calculations above, the (domestic) consumption of pension insurance services by households can be derived:

Output	3,200 mln
Import	3 mln +
Export	58 mln -
Consumption	<u>3,145 mln</u>

The following table contains the figures to compute the 2010 non-life insurance output.

	2006	2007	2008	2009	2010
CPI		1,022	1,051	1,032	1,02
<b>Premiums earned</b>					
Health insurers	3.375	3.382	3.641	3.732	3.916
Other non-life insurers	15.141	15.349	15.220	14.797	14.543
w. premiums written	15.321	15.532	15.326	14.858	14.610
w. $\Delta$ reserves unearned premiums	180	182	107	61	68
Guarantee funds	143	148	131	158	197
<b>Property income</b>					
Health insurers	20	119	20	72	73
Other non-life insurers	373	289	273	265	245
Guarantee funds	30	31	21	33	33
<b>Claims incurred</b>					
Health insurers	3.344	3.144	3.218	3.215	3.552
Other non-life insurers	8.485	8.710	9.071	9.199	9.294
w. claims paid	8.149	8.424	8.497	8.776	8.881
w. $\Delta$ reserves claims outstanding	336	287	574	423	414
Guarantee funds	53	54	55	56	61
<b>Adjusted claims</b>					
Health insurers					3.496
Other non-life insurers					9.476
Guarantee funds					61
<b>Output</b>					
Health insurers					494
Other non-life insurers					5.312
Guarantee funds					169
				Total	5.975

In addition to the services provided by pension funds, services provided by early retirement funds and the service provided by the SAIP (Foundation for administrating Indonesian pensions) is also included in the pension insurance output. For these funds the Dutch Central Bank does not supply data, so data are alternatively obtained from annual reports. Intermediate consumption by these funds is respectively 25 million and 1 million, as is the

output. Export of these services does exist, but explicit figures are not available. Therefore the same ratio based on premiums received from abroad is used as with the pension funds, which results in quite a small export figure of 0.47 million euro's.

### Non-life insurance service

For three types of non-life insurers the output is estimated: health insurers (only additional health insurance<sup>12</sup>), other non-life insurers and guarantee funds (not supervised by Dutch Central Bank). The output is calculated as premiums earned plus property income attributed to policy holders less (adjusted) claims incurred. For the guarantee funds the non-adjusted claims incurred are used, because the volatility in the reported claims is very low.

Statistics Netherlands implemented the concept of adjusted claims by using the average of the claims, catastrophic losses excluded, over the last 5 years (2006-2010), inflated by the Consumer Price Index (CPI) as published by Statistics Netherlands.

#### *Health insurers*

The output of the non-life insurance service provided by health insurers in 2010 is calculated with the following figures:

Premiums earned	3,917 mln	
Premium supplements	73 mln	+
Adjusted claims incurred	3.496 mln	-
(Claims incurred 2010)	(3.552 mln)	
Output non-life insurance	494 mln	

For (additional) health insurance, the international trade is assumed to be zero, so all services are expectedly consumed by domestic households.

#### *Other non-life insurers*

As mentioned before other non-life insurance corporations provide both non-life insurance services and reinsurance services. In this paragraph only the estimation of non-life insurance services is described. The estimation of reinsurance services provided by other non-life insurance corporations is described in the paragraph on 'Reinsurance service'.

The output of non-life insurance services provided by other non-life insurers in 2010 is calculated with the following figures:

Premiums (direct) earned	14,543 mln	
Premium supplements	245 mln	+

<sup>12</sup> Basic health insurance is compulsory and included in the Government sector/industry (section 3.21 and footnote 7)

Adjusted claims (direct) incurred	9.476 mln	-
(Claims incurred 2010)	(9.294 mln)	
Output non-life insurance	5,312 mln	

Export of the non-life insurance service is calculated with a ratio between premiums received from abroad and total premiums received, based on supervisory data.

Output non-life insurance	5,312 mln	
Ratio premiums abroad/total	.1052	*
Export non-life insurance services	559 mln	

Import is calculated by multiplying the non-life insurance premiums paid to insurers abroad (data is derived from International Trade Statistics) and a ratio between the value of the non-life insurance service and the premiums received by domestic non-life insurers. Then the auxiliary insurance services are added, supplied from the international trade statistics, for which it is assumed that it is all attributed to non-life insurance services. This concerns among others Compensation for actuarial services, insurance/pension advisory services, administration services concerning insurance/pension, salvage related services.

Premiums paid to insurers abroad	879 mln	
Ratio non-life insurance service/premiums	.3653	*
Import non-life insurance services	321 mln	
Auxiliary insurance service	49 mln	+
Total import non-life insurance service	370 mln	

In addition to the services provided by non-life insurers, the services provided by guarantee funds (motor traffic, travelling, social housing) are also defined as non-life insurance output. For these funds the Dutch Central Bank does not provide data, so data are alternatively derived from annual reports. Output for these funds is 169 million.

With the above mentioned figures in mind, the output plus import and insurance tax minus export is attributed to different users, like households, companies, government, etc. In research projects for the 2010 Benchmark revision and in consultation with the Dutch Central Bank, it was concluded that 60-65 per cent of the non-life insurance services (health insurance excluded) is purchases as final household consumption. The remaining part is intermediate consumption.

So for 'normal' non-life insurance, health insurance and guarantee funds together, the figures in the supply and uses tables in 2010 are as follows:

Output non-life insurance	5,975 mln
---------------------------	-----------

Import	370 mln +
Insurance tax	861 mln +
Total supplies	7,206 mln

Export	559 mln
Household consumption	3,754 mln +
Intermediate consumption	2,893 mln +
Total uses	7,206 mln

### Reinsurance service

Reinsurance services in The Netherlands are not only provided by professional reinsurers, but also by ‘normal’ life and non-life insurers.

The reinsurance output can initially be estimated as the sum of the reinsurance premiums earned (less commissions payable) and direct income on investments minus adjusted reinsurance claims incurred (and profit sharing); this can be estimated for reinsurance activities of life insurance and non-life insurance corporations and for professional reinsurance corporations. The export of reinsurance services is then derived using the ratios between reinsurance premiums received from domestic ‘policy holders’ and from abroad, which are then multiplied with the concerning domestic reinsurance output.

On the other hand domestic (re)insurance corporations and pension funds are users of reinsurance services, too. Intermediate consumption of reinsurance services can be estimated for each of the concerning ‘branches’ with the same method as for the output. Subsequently the import of reinsurance services is derived using the ratios between reinsurance premiums paid to domestic (re)insurance corporations and (re)insurance corporations abroad, which are then multiplied with the concerning domestic intermediate consumption of reinsurance services.

Domestic supply and use of reinsurance services don’t match, so in balancing the reinsurance service a choice has to be made which approach (supply/use) is better. In consultation with the Dutch Central Bank, being the main data provider, it was concluded that the intermediate consumption of reinsurance services is more reliable than the estimates of supply. So, in the end the output of reinsurance services is estimated as the result of the intermediate consumption plus export minus import.

The following table contains the 2010 figures for the reinsurance service as production and use.

	Non-life Insurers	Life Insurers	Pension Funds	Reinsurers	Total
<b>Production</b>					
Premiums	145	557		1.329	2.031
Dir. Income on investm.	2	217		0	219
Profit sharing	0	0		0	0
Adjusted claims	188	483		501	1.114
Output	-41	291		829	1.079
<b>Export</b>					
Premiums from abroad	49	2		969	1.020
Ratio abroad/total	0,3393	0,0027		0,7292	
Export service	-14	1		604	591
<b>Intermediate consumption</b>					
Premiums	1.411	944	540	325	3.220
Dir. Income on investm.	0	0	0	0	0
Profit sharing	465	248	0	9	722
Adjusted claims	842	234	483	161	1.720
Interm. Consumption	104	462	57	156	779
<b>Import</b>					
Premiums to abroad	605	13	0	311	930
Ratio abroad/total	0,4288	0,0141	0	0,9569	
Import service	45	7	0	149	200
<b>Production = IC + Export -/- Import</b>					1.170

The table below summarizes the results for all types of insurance services.

	Life insurance	Non-life insurance	Reinsurance	Pension Funds	Total
Output	6.329	5.975	1.170	3.226	16.700
Import	9	370	200	3	582
Taxes	0	861	0	0	861
<b>Total supply</b>	6.338	7.206	1.370	3.229	18.143
HFCE	6.158	3.754	x	3.171	13.083
IC of market producers and private households	x	2.842	779	x	3.621
IC of non market producers	x	51 *	x	x	51 *
Export	180	559	591	58	1.388
<b>Total use</b>	6.338	7.206	1.370	3.229	18.143

\* Approximated by the ratio between non-life insurance premiums received from non-market producers and total received non-life premiums

#### *(8) Conceptual*

Conceptual corrections are made for Research and Development (R&D), software and FISIM.

#### *(9) Exhaustiveness*

A large adjustment is made on the intermediate consumption, caused by the fact that (supporting) business units of the NACE 65 companies are not included in the main source DRA, while at the same time the source data included a substantial amount of intermediate consumption of services provided by these supporting parts. As these supporting business units are part of the unit of observation, intra unit deliveries should not be recorded and transactions should be consolidated within NACE 65. As a consequence intermediate consumption is decreased (by almost 900 million euros) and the value added (compensation of employees) is increased by the same amount.

Concerning the income in kind it is known that employees in the financial sector receive to some extent discounts on financial services, for instance non-life insurance. The insurance companies therefore receive no premiums, but the insurance service is provided. For this an increase on the non-life insurance output is estimated as 145 million euros in 2010.

#### *(10) Balancing*

Balancing adjustments are made to match supply and demand. The output of NACE 65, especially the insurance services, is considered more reliable than the demand. This means that no balancing adjustments are made for the output of NACE 65, but mostly for the intermediate consumption. Only for the reinsurance service, which is solely produced and used by NACE 65 (and imported/exported), demand is considered more reliable than supply. When submitting the figures of NACE 65 for reinsurance services to the supply and use tables, production is already adjusted for imbalances.

#### Life insurance service

Life insurance services are consumed by households, both domestic and abroad. Domestic consumption by households is calculated as the output of the life insurance service plus import minus export of this service.

#### Pension insurance service

The same method as applied to the life insurance service is used for the pension insurance services.

#### Non-life insurance service (excl. reinsurance)

Non-life insurance services are used by almost all industries and consumers, both domestic and abroad (export). When balancing the supply and demand of insurance services, the production by insurers is considered to be more reliable than the sum of intermediate consumption of industries. Import and export, derived from the production of non-life insurance and the ratio between the service and the corresponding premiums, are also

considered exogenous in the balancing process. Finally, in order to bridge supply at basic prices and use at purchasers' prices, the supply table contains an column entry for insurance taxes. This information is obtained from government statistics

To balance the supply and demand, intermediate and final consumption are adjusted. An opposed restriction is that consumption of the insurance services by households must approximately equal 60-65 per cent of the total output value. These shares are determined in consultation with the Dutch Central Bank and the Dutch Association of Insurers. Almost all other consuming industries supply figures for the consumption of non-life insurance services based on the business statistics, which are figures of the paid premiums. Based on these premiums the remaining output is proportionally allocated to the industries.

### Reinsurance services

Reinsurance services are used by other (re)insurers and pension funds, both domestic and abroad, but not by households. With data from the main data source DRA it is possible to estimate intermediate consumption of these services by insurance industry and pension funds. The concomitant estimation method is in correspondence with output estimations based on the difference between reinsurance premiums paid and reinsurance claims received.

After deriving the export and import of the reinsurance service, using ratios between reinsurance premiums received from abroad and total received reinsurance premiums (and premiums paid abroad and total paid premiums for calculation of the import), there results a discrepancy between the domestic production and the domestic use of reinsurance services. In consultation with the Dutch Central Bank the assumption is made that the calculated use of reinsurance services is more accurate than production. So in the end the production of reinsurance services is adjusted to the intermediate consumption plus export minus import.

### 3.17.3 Other financial services (NACE 66)

**Table 3.17.9 Process table of NACE 66 output, intermediate consumption and value added, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
<b>Output</b>	0	0	0	5,952	0	5,952	0	47	0	21	6,020
<b>Intermediate cons.</b>	0	0	0	2,013	0	2,013	0	213	-119	-182	1,925
<b>Value added</b>	0	0	0	3,939	0	3,939	0	-166	119	203	4,095

#### *(4) Extrapolation and models*

Other financial services consist of many different financial auxiliaries: 6611 Administration of financial markets, 6612 Stockbrokers, investment consultants etc., 6619 Trust offices, market makers, mortgage, credit and currency brokers, bank and savings bank agencies etc., 6621 Risk and damage evaluation, 6622 Insurance agents, 6629 Other services in the field of insurance and pension funding (no appraisers and insurance agents); Insurance markets, Actuarial and pension consultancy; management of pension funds, Guarantee funding, Other services related to insurance and pension funding, 6630 Fund management.

Foreign exchange and securities dealers are included in subsectors S.125 and S.126 (and included in different NACE groups; i.e. NACE 6492, 6612 and 6619). An estimate for the transactions of foreign exchange and securities dealers is made, based on overall developments in banking activity (subsector S.122). Also, annual reports of the larger foreign exchange and securities dealers are analysed together with annual reports of other entities classified in S.125 and S.126 to estimate output of this industry. However, information sources for these sectors are considered non-exhaustive, weak, and very few details in terms of activities can be made. Also, in the annual reports no distinction is made between trade margins and holding gains. Totals of the revenues of foreign exchange and securities dealers are included in the annual growth rates of output. Foreign exchange (part of 6619.3) and securities dealer's margins (part of 6612) are therefore implicitly included as part of the output of financial services.

Although the population consists of thousands of entities, statistics on production and total intermediate consumption are based on a population of the largest entities, covering all four digit NACE 66 categories. Production and intermediation levels were estimated in 1995, based on tax data (VIS). Over time the VIS data became a less reliable source for financial auxiliaries and therefore were eliminated. As replacement for this source, extrapolations were made based on historical survey data dating from 1995 using growth rates of closely related industries. From 2004 onwards, the production and intermediate consumption are estimated by annual growth rates showed in annual reports. Around 40 per cent of the total production level is covered in annual reports. Because of the random character of these annual reports, this 40% is judged as being representative for the total industry. Growth rates are set on t-1 levels of production and intermediate consumption. These growth rates are determined as turnover and costs developments taken from annual reports.

Growth rates of insurance agents (NACE 6622) are derived from the source data of insurance companies. The income of activities auxiliary to insurance and pension funding mainly consists of commission from insurance products sold. The commission paid by life and property insurance companies is used as the turnover from the activities on behalf of insurance funds. The sources for the commission fees stem from the Dutch Central Bank and from the Dutch Association of Insurers. We use commission fee growth rates to estimate the amounts of output. The basis for output was laid down in 2001. The sources at that moment were annual reports of the Netherlands Association of Insurance Agents and Advisers (NVA) and annually survey of the operating results of the members of the Association of Independent Financial and Insurance Advisers (NBVA).

#### *(8) Conceptual*

Conceptual adjustments are made for Research and Development (R&D), software and FISIM.

#### *(9) Exhaustiveness*

Adjustments for exhaustiveness are made for income in kind.

#### *(10) Balancing*

Balancing adjustments are made to match supply and demand of primarily financial services.

(11) *Final estimate*

The production of financial auxiliaries mainly consists of other financial services. Table 3.17.10 gives an overview of supply and use of other financial services in 2010.

Table 3.17.10 Other financial services, 2010 (million euros)

Other financial services	2010 (mln euros)
<b>Production</b>	<b>7,530</b>
<i>Of which</i>	
Financial institutions (NACE 64)	730
Insurance and pension funding (NACE 65)	451
Other financial services (NACE 66)	5,963
Other	386
<b>Import</b>	<b>119</b>
<b>Intermediate consumption</b>	<b>7,002</b>
<i>Of which</i>	
Financial institutions (NACE 64)	1,583
Insurance and pension funding (NACE 65)	4,917
Other financial services (NACE 66)	12
Other	490
<b>Final consumption</b>	<b>232</b>
<b>Export</b>	<b>312</b>
<b>Investment</b>	<b>103</b>

### 3.18 Real estate activities (NACE 68)

In 2010, the output of real estate activities (NACE 68) amounted to 68.660 million euros (see table 3.18.1). Intermediate consumption and gross value added (at basic prices) were 37.111 million euros and 31.549 million euros respectively.

Table 3.18.1 Process table of output, intermediate consumption and value added of real estate activities (NACE 68), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	9.579	0	0	59.056	0	68.635	3	59	0	-37	68.660
Intermediate cons.	4.777	0	0	13.442	0	18.219	3	19.023	-122	-62	37.061
Value added	4.802	0	0	45.614	0	50.416	0	-18.964	122	25	31.599

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are partly based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(4) Extrapolation and Models*

The output is estimated with the help of various methods which are discussed in detail in the section 'further information' below.

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D and insurance services. For NACE 68 total FISIM as part of intermediate consumption amounts to 19.333 million euros of which 18.963 million euros relates to FISIM on mortgages of owner-occupied dwellings (see section 'further information' below).

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for income in kind and cost fraud.

#### *(10) Balancing*

Balancing did not lead to substantial adjustments in this industry. Adjustments were made based on the confrontation of supply and use of individual product groups.

#### *Further information*

Real estate activities can be sub-divided into the following four (groups of) activities.

- I Immovable property dealings and management and leasing support (NACE's 681 & 683)
- II Leasing of commercial premises (NACE 68204)
- III Exploitation of accommodations (NACE's 68201, 68202 and 68203)
- IV 'Exploitation' of owner-occupied dwellings

Below these (groups of) activities will be discussed successively.

#### *I. Immovable property dealings and management and leasing support*

This first group involves agents and immovable property managers. Their activities relate to:

- purchase and sales of immovable property, sometimes in conjunction with leasing of immovable property (pending sale);
- intermediation in the purchase, sale, rental and leasing of immovable property;
- intermediation in room rental and leasing for more than three months;

- registration of accommodation-seekers and allocation of accommodation, frequently to housing associations;
- intermediation and leasing in respect of houseboat accommodation;
- immovable property valuation and taxation;
- certification of immovable property projects;
- rental arrangements and rent collection in respect of third-party immovable property, sometimes in conjunction with (arrangements for) maintenance of the managed property and domestic administration.

The estimates for this group of activities are based on Structural Business Statistics.

## *II. Leasing of non-residential buildings*

The second group of activities concerns leasing of non-residential buildings (commercial premises). NACE 68204 is only partly covered by survey data, implying that output of commercial property rental for NACE 68 cannot be estimated using this source. Therefore output is estimated using a commodity flow type approach being the balance of non-residential building rentals (intermediate consumption) and rental income of commercial premises by other industries than NACE 68204 (secondary activities), mainly derived from SBS-data. Estimates for intermediate consumption in this NACE-class are based on ratios derived from the above mentioned survey for NACE 68204.

## *III. & IV. Exploitation of residential accommodations*

Residential accommodation management can be subdivided into two parts, namely property leasing and own-accommodation ‘exploitation’. Both parts are initially estimated functionally, i.e. product based for all industries together. This estimate is based on numbers and rental values of rented and owner-occupied dwellings and completed with a number of supplementary estimates. Each of these elements is discussed below.

### *Housing stock (number of dwellings)*

The total number of dwellings has to be divided into rental and owner-occupied property. The breakdown is based on the CBS housing statistic ‘Woningen; hoofdbewoner; huishoudens-2009’, which provides total stock of dwellings, broken down with reference to rental versus owner-occupiers, single-family dwellings versus apartments and type of ownership.

### *Rental survey*

Information of the housing stock is combined with that of the ‘Rental survey 2010’ (huurenquête 2010) that contains the basic rent (i.e. the gross rent minus – if applicable – costs for water, heating, energy, garages and other services for private use) and the capital value (used for tax purposes, WOZ-value), of a sample of almost 12000 dwellings. The basic rent relates to unfurnished dwellings. In case of rental-free or cheap dwellings the actual rent is adjusted to include the full dwelling service. The WOZ-value of each dwelling is determined annually by certified real estate agents under the authority of the local council. As input for their valuation they make use of recent (realized) selling prices of dwellings in the same neighbourhood and assessments of local market conditions. In addition owners of dwellings are entitled to object to the initially set WOZ-value by government which in effect

implies a balancing mechanism which may prevent WOZ-values from being biased. Further tax rates for dwellings and buildings may vary from one municipality to another and will be adjusted annually. Therefore from the municipality's point of view there seems to be no incentive to put an upward pressure on WOZ-values.

The Rental survey distinguishes four types of rental dwellings and four regions.

Regions used in the 'Rental survey 2010'

- I) Groningen, Friesland, Drenthe and Overijssel (2474 records)
- II) Flevoland, Gelderland, Utrecht, Noord- and Zuid-Holland, with the exception of the cities mentioned in region IV (4589 records)
- III) Zeeland, Noord-Brabant en Limburg (3111 records)
- IV) The cities Amsterdam, The Hague, Rotterdam and Utrecht (1669 records)

Types of rental dwellings used in the 'Rental survey 2010'

- a) single-family dwellings owned by housing corporations (5602 records)
- b) apartments owned by housing corporations (4193 records)
- c) single-family dwellings rented out by private owners (993 records)
- d) apartments rented out by private owners (1055 records)

Per region and type of rental dwelling this results in the following average WOZ-value and monthly basic rent).

**Table 3.18.2 average monthly basic rent and average WOZ-value per type of dwelling and per region, 2010, euros**

Average monthly basic rent in 2010				
Type_of dwelling	Region			
	I	II	III	IV
a)	€ 422,20	€ 465,19	€ 442,30	€ 493,36
b)	€ 422,70	€ 439,81	€ 439,26	€ 425,61
c)	€ 519,85	€ 603,29	€ 588,06	€ 605,25
d)	€ 526,96	€ 577,63	€ 611,30	€ 502,80
Average WOZ-value in 2010				
Type_of dwelling	Region			
	I	II	III	IV
a)	€ 148.195	€ 200.873	€ 171.890	€ 216.646
b)	€ 137.722	€ 164.867	€ 153.296	€ 172.697
c)	€ 192.359	€ 236.997	€ 208.756	€ 286.621
d)	€ 149.719	€ 174.758	€ 197.831	€ 195.838

The correlation coefficients of the regression equation between the rental value and the WOZ-value are presented in table 3.18.3. These data indicate the representativeness of the averages per cell.

**Table 3.18.3 correlation coefficients of the regression equation between the rental value and the WOZ-value, 2010**

Type_of dwelling	Correlation coefficients			
	Region			
	I	II	III	IV
a)	0,411	0,309	0,371	0,244
b)	0,732	0,608	0,594	0,303
c)	0,326	0,200	0,497	0,287
d)	0,649	0,763	0,835	0,458
average	0,533	0,467	0,593	0,426

The distribution by region and type of rental dwellings for the Netherlands in total can be obtained from the CBS-publication ‘Woningen; hoofdbewoner; huishoudens-2009’ and is included in Table 3.18.4.

**Table 3.18.4 number of rental dwellings per type of dwelling and per region, 2009 (x 1000)**

Type_of dwelling	Region				All regions	In %
	I	II	III	IV		
a)	199,2	487,7	289,7	77,8	1.054,4	37,0 %
b)	150,0	512,3	214,6	418,4	1.295,3	45,4 %
c)	34,7	89,5	50,0	10,3	184,5	6,5 %
d)	32,8	87,0	46,6	152,0	318,4	11,2 %
Total	416,7	1.176,5	600,9	658,5	2.852,6	100 %

By multiplying the numbers in table 3.18.4 by the corresponding monthly rental values in table 3.18.2, an estimate is made of the total paid rents on rental homes in the Netherlands. It has to be mentioned that the number of dwellings refers to 2009, the rents to 2010.

**Table 3.18.5 rental value per type of dwelling and per region, million euro, based on the number of dwellings for 2009 and the rents for 2010**

Type of dwelling	R e g i o				All regions
	I	II	III	IV	
a)	€ 1.009	€ 2.722	€ 1.538	€ 461	€ 5.730
b)	€ 761	€ 2.704	€ 1.131	€ 2.137	€ 6.733
c)	€ 216	€ 648	€ 353	€ 75	€ 1.292
d)	€ 207	€ 603	€ 342	€ 917	€ 2.069
Total rental value (2010) of all rental homes (2009) in the Netherlands					€ 15.824

The actual rent collected by housing corporations in 2010 amounted to 12.462 million euros (source: Ministry of VROM). This links up with the data in table 4, types of dwelling a) + b) for all regions (5.730 + 6.733).

In order to get an estimate for the reporting year 2010 the total value of 15.824 million euros has to be adjusted for the change in numbers of rental dwellings between 2009 and 2010. This information is obtained from the CBS publications 'Bewoonde en niet-bewoonde woningen naar bouwjaar 2010' and 'Bewoonde en niet-bewoonde woningen naar bouwjaar 2011'. These publications give the following information:

**Table 3.18.6 Number of rental dwellings, 1-12-2010 and 1-1-2011.**

1-1-2010	2.937.100
1-1-2011	<u>2.942.472</u>
Average for 2010:	2.939.786

The total rental value of rental dwellings in 2010 is therefore  $(2.939.786/2.852.600) \times 15.824 = 16.308$  million euros

#### *Production in NACE 68 and other industries*

The above-mentioned method provides functional estimates i.e. estimates for the total rented stock of dwellings. However, the exploitation of immovable property occurs in different NACE-classes. In addition to the housing corporations and private letters in NACE 68, the major operators are banks, insurance companies and investment institutions (see table 3.18.7). Government, specifically the Ministry of Defence, rents out service accommodations as well. Rentals on behalf of these bodies are deducted from the above estimate of 16.308 million to

determine the rental income of NACE 68 (16.308 million - 471 million = 15.837 million euros ).

**Table 3.18.7 Actual rental income of dwellings in other industries**

Banks, investment institutions (NACE 64)	166
Insurance companies, pension funds (NACE 65)	200
Real estate developers (NACE 411)	31
Public bodies (NACE 84)	28
Nursing homes (NACE 87)	24
Other industries	<u>22 +</u>
Total	471

#### *Imputed owner-occupier rental value*

Calculation of the imputed rental value of owner-occupied dwellings is based on Commission Regulation 1722/2005 on dwelling services. Its implementation in the Dutch national accounts is described in this section.

By convention, housing-services cover services associated with both rented and owner-occupied dwellings. Rented property services are evaluated with reference to the rent paid. For imputed rents for owner-occupied dwellings the equivalent-rent approach is applied. In this method the imputed rents are estimated by reference to similar rental dwellings in the same region. The crucial question in applying the equivalent-rent approach is what should be understood by ‘similar dwellings’. The above mentioned Decision allows member states to choose between two methods which may/can be used to estimate the output of owner-occupied housing services.

The first is a stratification method, which seeks to establish a link between the rental (value) of a dwelling and its characteristics. This is based on the assumption that the level of rent and rental value can be explained with reference to specific housing characteristics, locational features and institutional factors. To apply this method it is necessary to dispose of detailed information about the characteristics of all sorts of rented and owner-occupied dwellings. Due to a lack of such information the stratification method cannot be used in the Netherlands.

The second approved method is based on the link between the rent of a dwelling and its capital value. The underlying idea is that this capital value reflects all the important (quality) characteristics of a dwelling. The rental value of an owner-occupied dwelling is then estimated with reference to the rent of a rental dwelling having a similar capital value. Therefore it is necessary to classify the housing stock with reference to the capital value.

In the Netherlands capital values of all individual dwellings are available from the register on property tax (WOZ). For all immovable goods individually the market price (= capital value) is estimated annually. This value is primarily used as tax base for the income tax and a number of local duties. The ‘WOZ-value’ is assessed for both rental and owner-occupied dwellings, source: “Gemiddelde WOZ-waarde woningen naar eigendom en gemeente, 2011”. According to this source the average WOZ-value of owner-occupied dwellings at 1-1-2010 amounts to 283.988 euros.

The rent of owner-occupied dwellings can be estimated on the basis of the capital value of those dwellings. A regression analysis performed for the years 2009/2010 is the basis for the estimation of imputed owner-occupier rental values. The figures for 2011 and subsequent years are determined with reference to the changes according to housing statistics.

From the data of the 'Rental survey 2010' (huurenquête 2010) the following regression equation can be derived: Annual rent = € 4.634 + 0,0103108 x WOZ-value.

The resulting annual rent for an average owner-occupied (unfurnished) dwelling is:

$$4.634 + 0,0103108 \times 283.988 = 7.562 \text{ euros}$$

The quality of the calculated regression between rent and capital value was checked according to the data of the rental survey (see tables 3.18.8 and 3.18.9).

**Table 3.18.8 quality of the regression between rent and capital value, private owners**

<b>Rental dwellings, private owners</b>			
	square sum	degrees of freedom	average square sum
Regression	21.546.943	1	21.546.943
Residues	71.171.360	2.046	34.786
Total	92.718.303	2.047	45.295

The hypothesis that there is no linear relation between the rent and the WOZ-value is examined. The value of the test statistic  $F = 21.546.943/34.786 = 619$ . This value exceeds by far the critical value 3,85 for  $\alpha = 0,95$  with 1 and 2046 degrees of freedom. The hypothesis is therefore rejected.

**Table 3.18.9 quality of the regression between rent and capital value, all owners**

<b>Rental dwellings, all owners</b>			
	square sum	degrees of freedom	average square sum
Regression	52.522.788	1	52.522.788
Residues	158.188.105	11.841	13.359
Total	210.710.893	11.842	17.794

The hypothesis that there is no linear relation between the rent and the WOZ-value is examined. The value of the test statistic  $F = 52.522.788/13.359 = 3.932$ . This value exceeds by far the critical value 3,85 for  $\alpha = 0,95$  with 1 and 11.841 degrees of freedom. The hypothesis is therefore rejected.

The CBS-sources 'Bewoonde en niet-bewoonde woningen naar bouwjaar 2010' and 'Bewoonde en niet-bewoonde woningen naar bouwjaar 2011' provide the following information. Owner-occupied dwellings (only the actually inhabited): 3.818.799 at 1-1-2010 and 3.850.275 at 1-1-2011. The average number for 2010 can be calculated at 3.834.537 and the total rental value of owner-occupied dwellings at  $3.834.537 \times 7.562 = 28.997$  million euros.

### *Unoccupied dwellings*

An annual CBS-survey 'Bewoonde en niet-bewoonde woningen' is used to identify the vacancy of rental property and owner-occupied dwellings. Only data of actually occupied dwellings were used in the calculations.

### Intermediate consumption

For rented dwellings intermediate consumption is based on annual reports of corporations which receive round about 80 % of rental value. In the annual reports separate data on expenditure on maintenance and repair are available. Next to other operating costs these are the base for the estimates of intermediate consumption. The ratio of intermediate consumption and production is also used to estimate the intermediate consumption linked to rentals by private owners. The expenses on maintenance and repair are used to make a breakdown into intermediate consumption and gross fixed capital formation in conformity with the national accounts definitions.

In estimating intermediate consumption for owner occupied dwellings the delineation with consumption of households and GFCF is an important issue. Expenses which are usually the responsibility of tenants have to be recorded as consumption of households. In the Netherlands in general expenditure by tenants concerns inside painting, wallpaper, kitchen machinery (oven, refrigerator etc.) and laundry machines, insurance for furniture etc. including inside windows. Also maintenance of the garden is part expenditure by tenants.

The letter is responsible for the regular maintenance and repair and of the dwelling including central heating system, ceilings, walls, roof etc., outside painting. Also the replacement of kitchens (excl. machinery) are expenses of the landlord.

**Table 3.18.10 breakdown of intermediate consumption and value added for real estate activities, 2010, million euros**

Production, intermediate consumption and value added of real estate activities in 2010, million euros			
	Owner occupied dwellings	Other real estate activities	Total real estate activities
Production	29.610	39.050	68.660
<u>Intermediate consumption</u>	24.084	12.977	37.061
Maintenance and repair	4.746	6.064	10.810
Financial services	19.338	679	20.017
Real estate services	0	2.425	2.425
Other goods and services	0	3.809	3.809
<u>Value added</u>	5.526	26.073	31.599
Wages and salaries	0	3.735	3.735
Taxes less subsidies on production	876	1.163	2.039
Consumption of fixed capital	13.165	12.939	26.104
Net operating surplus	-8.515	8.236	-279

To estimate intermediate consumption of owner-occupiers (see table 3.18.10), reference is made to a survey of the 'Vereniging Eigen Huis' (Association of Owner-Occupiers), titled 'Groot geld voor onderhoud en verbetering' published in 'Woonpeil', august 2011. This survey distinguishes between the costs of normal maintenance, major repairs and improvements. The

latter two items belong to GFCF. The first item concerns expenses to be recorded as intermediate consumptions or as consumption of households. The distinction between these two types of expenses in conformity with the responsibilities of landlords and tenants described above is based on data from the household budget survey and a commodity flow type approach in the SUT. The estimates for HFCE are based on a mix of the commodity flow method and the household budget survey and typically include maintenance and repair of dwellings, painting of dwellings and material for the handyman like paint, construction materials, etc. In Table 3.18.10 a global breakdown of intermediate consumption is presented.

In intermediate consumption an amount of € 18.963 million is included for FISIM on mortgages on owner occupied dwellings. The estimates of FISIM are based on data from the balance sheets, interest rates and the reference rate. For the estimate of FISIM for the reporting year 2010 the following data were used:

*Mortgages of owner occupiers with banks (S.122)*

Opening balance sheet	339.000 million euros
Closing balance sheet	358.462 million euros
Average balance sheet	348.731 million euros
Interest rate on mortgages $r_A$	4,76 %
Internal Reference rate $r_R$	1,61 %
Banking service component	3,15 %
FISIM IC=348.731*3,15 %	10.998 million euros

*Mortgages of owner occupiers with OFIs (S.125)*

Opening balance sheet	256.663 million euros
Closing balance sheet	248.451 million euros
Average balance sheet	252.557 million euros
Interest on mortgages $r_A$	4,76 %
Internal Reference rate $r_R$	1,61 %
Banking service component	3,15 %
FISIM IC=252.557*3,15 %	7.965 million euros

Total FISIM IC of owner occupiers= 10.998+7.965=18.963 million euros

The remaining 375 million euros concerns services connected with hazard insurances. The latter is based on the capital stock of owner occupied dwellings in combination with data on the ratio of premiums and capital value of dwellings and the ratio of services and premiums. Services connected to fire and theft insurances are not included, as these items fall under consumption of households.

Owner-occupier intermediate consumption is shown together with lessors' use in the supply and use tables. This means that balancing adjustments cannot be explicitly related to owners or lessors.

*Room rental*

Commission Regulations specifying the principles for estimating dwelling services state that 'Rents paid for spare rooms within a dwelling shall be considered as a contribution to the main rent as long as the owner or the main tenant continues to occupy the dwelling'. This renders supplementary estimates of such rentals unnecessary.

### *Rental value of other objects*

The 'Rental survey 2010' (huurenquête 2010) does not contain data about special forms of (im)movable property like houseboats, caravans for permanent living, detached garages, student accommodations, old people's apartments and recreational accommodations. For these types of accommodation separate estimates have to be made

#### *Houseboats and caravans*

According to 'Wonen op wielen en water' (CBS 1997), about 8000 caravans and 9800 houseboats were occupied at that time. More recent information is not available. The assumption was made that the total number of such accommodations has increased in the same pace as the total number of dwellings in the Netherlands in the period 1997-2010. The growth of the number of dwellings in that period adds up to 13,2 per cent (7.242.049/6.399.040). The number of houseboats and caravans in 2010 then amounts to 20.145  $((8.000+9.800)*1,132)$ .

As these objects are moveable property, their capital value is not covered in the WOZ. As a consequence the above mentioned regression equation cannot be used. In the absence of another data source the assumption was made that the average monthly rent (actual or imputed) of caravans and houseboats is somewhat below the rent of apartments owned by housing corporations. According to the 'Rental survey 2010' the average monthly rent of such an apartment is 433 euros. Because of less and smaller rooms and less comfort the monthly rent of caravans and houseboats is estimated at approximately 80 per cent of the rent of apartments, i.e. € 340. The total annual rental value of houseboats and caravans in 2010 then amounts to  $20.145 \times 12 \times 340 = € 82$  million euros.

#### *Other accommodations*

Next to rented and owner occupied dwellings additional estimates have to be made for accommodations not yet covered. This concerns recreational accommodations, housing units and freestanding garages and sheds.

For the first two types of accommodations data on the total number (average of 2010 and 2011: 410.514) in a breakdown in classes of capital value are separately available from statistics on the capital value of accommodations (Waarde onroerende zaken, Recreatiewoningen en overige woningen). The average capital value is estimated at 69.857 euros. Applying the results of the regression linking (imputed) rent and capital value results in an imputed average rent of 5414 euros.

#### *Recreational accommodations*

The number of recreational accommodation for 2010 based on statistical information on data of 2008, extrapolated tot 2010 using the growth rate recreational accommodations in 2008 and extrapolated to 2010 is derived from statistics on capital value mentioned above. The total number amounts 102.200 recreational accommodations.

It is assumed that the recreational accommodations is for 70 per cent of time available for the owner. The estimate for this type of accommodation is then:

$0,7$  (time available)  $\times$  5.414 (average imputed rent)  $\times$  102.200 (number of recreational accommodations) = 387 million euros.

In addition an estimate is made for received rents (5000 euros per year) on these accommodations of 511 million euros (5000 \*102.200).

### *Housing units*

According to the CBS-publication 'Waardeklasse onroerende zaken, 1 januari 2012' the total number of housing units and recreational accommodations was 408.935 at 1-1-2010 and 412.092 at 1-1-2011. So the average for 2010 was 410.514.

According to the above presented estimate the average number of recreational accommodations in 2010 was 102.200. In this way the rental value of housing units can be calculated (by means of the regression equation) as  $308.314 \times € 5.414 = 1.669$  million euros.

### *Freestanding garages and sheds*

Part of the garages is directly connected with a dwelling or freestanding next to a dwelling on the same plot of land in the cadastral register. Those garages are registered in the WOZ under dwellings. Part of the garages is freestanding (alone or in blocks) on a separate plot of land in the cadastral register. Those garages are registered in the WOZ under 'other accommodations' together with recreational accommodations and housing units. There is no recent information about freestanding garages as a separate group of accommodations. The assumption is made that since the last observation in 1995 (Household Budget Survey) the number of freestanding garages decreased slightly and the total rental value remained constant. This results in a total rental value of 90 million euros, of which 20 million euros is related to owner-occupied dwellings and 70 million euros to rented dwellings. The figures are extrapolated every year according to the alteration in the number of dwellings and the consumer price index of rented houses.

### *Owner occupied dwellings abroad*

For the incoming flow of property income for owner occupied dwellings of residents abroad an estimate of 91 million is made based on tax declarations in combination with assumptions in order to estimate imputed rent and intermediate consumption. No estimate is made for the flow of property income to the rest of the world as no data are available. Estimates are neither made for imports nor exports of services of the imputed rents.

### *Base year and extrapolation*

This section provides a description of the calculation method for imputed output of owner occupied dwellings for the benchmark year (2010). For subsequent (non-benchmark) years an extrapolation method is used based on a volume and a price component. The volume change concerns the change in the number of dwellings (per type) caused by newly build, demolition and 'type changes'. Data are derived from the register of addresses and buildings (Landelijke Voorziening Basisregistratie Adressen en Gebouwen, BAG) kept by the Land Register. The price change is a weighted average of changes in paid rent per type of dwelling (apartment, free standing, semidetached, terraced dwellings). The weighting scheme is based on the composition of the stock of owner occupied dwellings. Adjustment for quality changes is based on information from the rental survey on the impact of renovations of dwellings.

**Table 3.18.11 Summary of activities leading to production in NACE 68, 2010, million euros.**

Domestic production of real estate activities and real estate services in 2010, million euros

Commodities	Owner occupied dwellings	Other real estate activities	Total real estate activities	Other industries	Total
Imputed rent o.o. dwellings	29.099		29.099		29.099
Dwellings			28.997		
Houseboats and caravans			82		
Free standing garages			20		
Rental of dwellings		17.963	17.963	471	18.434
Dwellings			15.837		
Free standing garages			70		
Recreational accommodations			387		
Housing units			1.669		
Rental of buildings		15.159	15.159	6.761	21.920
Other real estate services		3.488	3.488	205	3.693
<b>Total real estate services</b>	<b>29.099</b>	<b>36.610</b>	<b>65.709</b>	<b>7.437</b>	<b>73.146</b>
Accommodation services	511		511		
Other goods and services		2.440	2.440		
<b>Total</b>	<b>29.610</b>	<b>39.050</b>	<b>68.660</b>		

### 3.19 Professional, scientific and technical activities (NACE Rev. 2 Section M)

**Table 3.19.0 Process table of output, intermediate consumption and value added of professional, scientific and technical (section M), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
<b>Output</b>	82.053	1.568	1.980	623	0	86.224	-3.880	926	94	-423	82.941
<b>Intermediate cons.</b>	44.986	0	741	0	0	45.727	-3.802	-1.412	-1.117	-1.078	38.318
<b>Value added</b>	37.067	1.568	1.239	623	0	40.497	-78	2.338	1.211	655	44.623

This section consists of the following NACE-groups:

- 69 Legal services, administration, etc.
- 70 Holding companies (not financial) and management advise
- 71 Architects, technical services etc.
- 72 Research and development
- 73 Advertising and market research
- 74 Other specialised business services
- 75 Veterinary activities

### 3.19.1 Legal services, administration, etc. (NACE 69)

**Table 3.19.1 Process table of output, intermediate consumption and value added of legal services, administration, etc. (NACE 69), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	15.436	0	0	0	0	15.436	0	100	3	-85	15.454
Intermediate cons.	5.660	0	0	0	0	5.660	0	-214	-293	-246	4.907
Value added	9.776	0	0	0	0	9.776	0	314	296	161	10.547

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and revaluation.

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for income in kind and cost fraud. Small adjustments have also been made for concealed production.

#### *(10) Balancing*

Balancing did lead to substantial adjustments of intermediate consumption of this industry. On balance negative adjustments were made, based in aligning supply and use of individual product groups. In general demand surpassed supply of a range of goods and services (see also chapter 6).

### 3.19.2 Holding companies (not financial) and management advise (NACE 70)

**Table 3.19.2 Process table of output, intermediate consumption and value added of holding companies (not financial) and management advise (NACE 70), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	33.470	0	1.980	0	0	35.450	-1.575	325	0	-218	33.982
Intermediate cons.	19.498	0	741	0	0	20.239	-1.559	-715	-495	-367	17.103
Value added	13.972	0	1.239	0	0	15.211	-16	1.040	495	149	16.879

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are mainly based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(3) Combined data*

The SBS of NACE 701 does not provide a full coverage of the population. Therefore an additional estimate for the missing small units in NACE 701 was made based on Labour Account data and SBS-data of other NACE-groups. The weighted average ratios between Output, intermediate consumption and value added to wages of small units in NACE-groups 691, 692 and 702 were used to estimate the missing part of NACE 701. The results of this calculation are presented here as 'Combined data'.

### *(7) Data validation*

In the SBS of NACE 701 a number of units reported their trade activities as turnover of services and corresponding purchases of goods as intermediate consumption. This incorrect reporting was solved by adjusting output and intermediate consumption.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and revaluation.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for income in kind and cost fraud.

### *(10) Balancing*

Balancing did not lead to substantial adjustments in this industry. Adjustments were made based on the confrontation of supply and use of individual product groups.

## **3.19.3 Architects, technical services etc. (NACE 71)**

**Table 3.19.3 Process table of output, intermediate consumption and value added of legal services, administration, etc. (NACE 71), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	14.827	0	0	0	0	14.827	-134	324	36	0	15.053
Intermediate cons.	7.127	0	0	0	0	7.127	-325	-263	-179	-25	6.335
Value added	7.700	0	0	0	0	7.700	191	587	215	25	8.718

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

Because of internal inconsistency of the SBS figures an adjustment was made. The sum of detailed data on intermediate consumption in SBS did not equal the total amount. The detailed data were adjusted to fit to the total amount.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and revaluation.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for income in kind and cost fraud. Small adjustments have also been made for concealed production.

### *(10) Balancing*

Balancing did not lead to substantial adjustments in this industry. Adjustments were made based on the confrontation of supply and use of individual product groups.

## **3.19.4 Research and development (NACE 72)**

**Table 3.19.4 Process table of output, intermediate consumption and value added of research and development (NACE 72), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	2.894	1.568	0	623	0	5.085	-521	32	0	-2	4.594
Intermediate cons.	2.480	0	0	0	0	2.480	-268	-47	-32	-65	2.068
Value added	414	1.568	0	623	0	2.605	-253	79	32	63	2.526

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS), the Frascati-based R&D survey and the COFOG (administrative records). R&D output is estimated on the basis of the R&D survey, secondary Output, intermediate consumption and value added on the basis of SBS results. For more general information on SBS and for specific methods per size class, see section 3.1.2. For more information on the R&D survey see section 5.10 and the attached Grant report on intellectual property products (Statistics Netherlands - Improvement in the measurement of intellectual property products). The section below on further information and data validation also provides information on the several aspects of estimating R&D related transactions in national accounts.

## *(2) Administrative records*

Own account production (government) output of total R&D is based on the COFOG (government expenditure by function) breakdown.

## *(4) Extrapolation and models*

The CFC of government GFCF (623 million euros) is recorded as production of government services. More detailed information on the estimation of consumption of fixed capital in the Netherlands is found in section 4.13.

## *(7) Data validation*

Output of R&D services, both market and own-account, is best estimated by the R&D survey and COFOG (government expenditure by function) breakdown. A comparison of SBS R&D output with the survey and COFOG showed that a part of output according to SBS was wrongly classified as secondary output where it should be designated as main output of R&D services. Based on this it was decided to lower secondary output in SBS. As SBS data are used for estimating NACE 72 secondary output and intermediate consumption a downward adjustment amounting to 521 million was made on output and minus 268 million on intermediate consumption.

## *(8) Conceptual*

According to ESA 2010 R&D services are generally recorded as gross fixed capital formation. As described in section 3.4, adjustments were made for FISIM, software, entertainment, literary and artistic originals (see section 3.24.1) and insurance services. As an exception R&D purchases in relation to R&D production is for NACE 72 registered as intermediate consumption, whereas in all other industries all purchases of R&D services are treated as GFCF.

## *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind.

## *(10) Balancing*

Balancing did not lead to substantial adjustments.

## Further information

### *Own account production*

Own account production (government) output of total R&D is based on the COFOG (government expenditure by function) breakdown. Own account R&D output of government units and non-market units is valued at production costs, however excluding a rate of return to capital.

### *Double counting*

Issues related to R&D software output overlap are not addressed in relation to the R&D industry, as own account production of software (50 million euros in 2010) is limited.

### *Consumption of fixed capital of R&D*

Consumption of R&D capital (CFC) is estimated by way of the PIM. For the NACE 72 a Weibull function with a service life of 12 years is used to estimate mortality rates of R&D assets, and a Winfrey function is used to postulate an age-efficiency pattern. All GFCF of R&D in NACE 72 is done on own account by government units, as a defined by COFOG. Purchases of R&D of units used in the process of creating R&D are regarded as intermediate consumption and not as GFCF. Furthermore, the assumption is made that R&D units in the non-financial corporations sector do not produce for own account. All created R&D assets by these units appear in the balance sheet of entities outside NACE 72. More detailed information on the estimation of consumption of fixed capital in the Netherlands is found in section 4.13.

## **3.19.5 Advertising and market research (NACE 73)**

**Table 3.19.5 Process table of output, intermediate consumption and value added of advertising and market research (NACE 73), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	8.021	0	0	0	0	8.021	0	87	34	-55	8.087
Intermediate cons.	5.237	0	0	0	0	5.237	0	-111	-71	-177	4.878
Value added	2.784	0	0	0	0	2.784	0	198	105	122	3.209

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, and insurance services.

### *(9) Exhaustiveness*

As described in section 3.6 adjustments were made for income in kind and cost fraud. Adjustments have also been made for concealed production (delivering of advertising brochures).

### *(10) Balancing*

Balancing did lead to substantial adjustments of intermediate consumption of this industry. On balance negative adjustments were made based in aligning supply and use of individual product groups. In general demand surpassed supply of a range of goods and services (see also chapter 6).

### **3.19.6 Other specialised business services (NACE 74)**

**Table 3.19.6 Process table of output, intermediate consumption and value added of other specialised business services (NACE 74), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	6.783	0	0	0	0	6.783	-1.650	57	21	-59	5.152
Intermediate cons.	4.748	0	0	0	0	4.748	-1.650	-56	-44	-206	2.792
Value added	2.035	0	0	0	0	2.035	0	113	65	147	2.360

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

In the SBS a number of units accounted their trade activities as turnover of services and corresponding purchases of goods as intermediate consumption. This incorrect way of recording production and intermediate consumption was adjusted.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and revaluation.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for income in kind and cost fraud. Adjustments have also been made for concealed production (delivering of newspapers).

### *(10) Balancing*

Balancing did lead to substantial adjustments of intermediate consumption of this industry. On balance negative adjustments were made based in aligning supply and use of individual product groups. In general demand surpassed supply of a range of goods and services (see also chapter 6).

### 3.19.7 Veterinary activities (NACE 75)

**Table 3.19.7 Process table of output, intermediate consumption and value added of veterinary activities (NACE 75), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	622	0	0	0	0	622	0	1	0	-4	619
Intermediate cons.	236	0	0	0	0	236	0	-6	-3	8	235
Value added	386	0	0	0	0	386	0	7	3	-12	384

#### (1) Surveys & censuses

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### (8) Conceptual

As described in section 3.4, adjustments were made for FISIM, software and insurance services.

#### (9) Exhaustiveness

As described in section 3.6, adjustments were made for income in kind.

#### (10) Balancing

Balancing did not lead to any substantial adjustments in this industry. Adjustments were made based on the confrontation of supply and use of individual product groups.

## 3.20 Administrative and support service activities (NACE Rev. 2 Section N)

**Table 3.20.0 Process table of output, intermediate consumption and value added of administrative and support service activities (section N), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	47.216	0	221	0	0	47.437	-946	279	2.097	-555	48.312
Intermediate cons.	19.137	0	35	0	0	19.172	408	-727	-261	-891	17.701
Value added	28.079	0	186	0	0	28.265	-1.354	1.006	2.358	336	30.611

This section consists of the following NACE-groups:

77 Renting and leasing of capital goods

78 Employment activities

79 Travel agencies, tour operators, etc.

- 80 Security and investigation
- 81 Cleaning activities, gardening, etc.
- 82 Other business services

### 3.20.1 Renting and leasing of capital goods (NACE 77)

**Table 3.20.1 Process table of output, intermediate consumption and value added of renting and leasing of capital goods (NACE 77), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	9.784	0	0	0	0	9.784	793	32	0	-170	10.439
Intermediate cons.	4.840	0	0	0	0	4.840	408	-728	-52	-175	4.293
Value added	4.944	0	0	0	0	4.944	385	760	52	5	6.146

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(7) Data validation*

In the SBS certain units were not included. Therefore supplementary estimates were made based on the annual business reports of the missing companies.

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D and insurance services.

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for income in kind and cost fraud.

#### *(10) Balancing*

Balancing did lead to substantial adjustments of intermediate consumption of this industry. On balance negative adjustments were made based in aligning supply and use of individual product groups. In general demand surpassed supply of a range of goods and services (see also chapter 6).

#### *Further information*

Operational lease entails renting out movables (mainly transport equipment) for a restricted period of time. These movable goods remain under economic ownership of the lessor. Operational leasing is registered in both SBS and National Accounts as output of services.

Gross fixed capital formation of rented capital goods is recorded at the level of NACE 77 units.

In the SBS of this branch is asked to report on turnover on rented capital goods, subdivided by different categories of movable goods such as cars, motorcycles, etc. Operational lease is most common among business customers in which case lease services are recorded as intermediate consumption. Nevertheless operational lease services are also privately consumed (private lease) in which case the related expenditures are treated as HFCE (consumers).

### 3.20.2 Employment activities (NACE 78)

**Table 3.20.2 Process table of output, intermediate consumption and value added of employment activities (NACE 78), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	18.304	0	221	0	0	18.525	-1.739	96	565	-125	17.322
Intermediate cons.	3.704	0	35	0	0	3.739	0	89	-52	-247	3.529
Value added	14.600	0	186	0	0	14.786	-1.739	7	617	122	13.783

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(3) Combined data*

The SBS of this NACE does not contain the data of job creation programs (NACE 78203). The estimate for these programs is based on annual reports of the concerning units.

#### *(7) Data validation*

In the SBS a number of units accounted pay rolling activities incorrectly as turnover of sending out services with corresponding payments of wages and social security premiums as value added. In fact the concerned staff is employed at the clients and the units in NACE 78 only receive a fee (net approach). This incorrect way of recording production and value added was adjusted.

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D and insurance services.

### *(9) Exhaustiveness*

For this industry an additional estimate is made for hidden activities of (unregistered) temporary employment mediation (output 565 million). See also section 7.2.3. As described in section 3.6, also adjustments were made for income in kind and cost fraud.

### *(10) Balancing*

Balancing did lead to substantial adjustments of intermediate consumption of this industry. On balance negative adjustments were made based in aligning supply and use of individual product groups. In general demand surpassed supply of a range of goods and services (see also chapter 6).

## **3.20.3 Travel agencies, tour operators, etc. (NACE 79)**

**Table 3.20.3 Process table of output, intermediate consumption and value added of travel agencies, tour operators, etc. (NACE 79), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	6.730	0	0	0	0	6.730	0	50	0	-111	6.669
Intermediate cons.	5.228	0	0	0	0	5.228	0	25	-36	-173	5.044
Value added	1.502	0	0	0	0	1.502	0	25	36	62	1.625

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D and insurance services.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for income in kind and cost fraud.

### *(10) Balancing*

Balancing did lead to substantial adjustments of intermediate consumption of this industry. On balance negative adjustments were made based in aligning supply and use of individual product groups. In general demand surpassed supply of a range of goods and services (see also chapter 6).

### *Further information*

The data on the economic activities of travel agents, tour operators, etc. are based on the turnover specifications as obtained from the SBS. This questionnaire provides information on the following:

- revenues from organizing tours by tour operators (measured by the full expenditures of travellers), gross approach;
- travel agency commissions (measured by the fees and commissions charged by the agency), net approach;
- income from providing information and booking reservations (NACE 799), net approach.

This SBS-information is consistent with the national accounts requirements.

### **3.20.4 Security and investigation (NACE 80)**

**Table 3.20.4 Process table of output, intermediate consumption and value added of security and investigation (NACE 80), 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	1.878	0	0	0	0	1.878	0	19	0	3	1.900
Intermediate cons.	602	0	0	0	0	602	0	-60	-20	-55	467
Value added	1.276	0	0	0	0	1.276	0	79	20	58	1.433

#### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and revaluation.

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for income in kind and cost fraud.

#### *(10) Balancing*

Balancing did lead to relatively substantial adjustments of intermediate consumption of this industry. On balance negative adjustments were made based in aligning supply and use of individual product groups. In general demand surpassed supply of a range of goods and services (see also chapter 6).

### 3.20.5 Cleaning activities, gardening, etc. (NACE 81)

Table 3.20.5 Process table of output, intermediate consumption and value added of cleaning activities, gardening, etc. (NACE 81), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	6.844	0	0	0	0	6.844	0	22	1.529	-140	8.255
Intermediate cons.	2.800	0	0	0	0	2.800	0	-6	-75	-162	2.557
Value added	4.044	0	0	0	0	4.044	0	28	1.604	22	5.698

#### (1) Surveys & censuses

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

#### (8) Conceptual

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services, revaluation and outsourced transportation activities.

#### (9) Exhaustiveness

Supplementary estimates were made for the concealed production of gardening (92 million euros) and cleaning (1437 million euros) both at enterprises and households. As described in section 3.6, also adjustments were made for income in kind and cost fraud.

#### (10) Balancing

Balancing did lead to relatively substantial adjustments of intermediate consumption of this industry. On balance negative adjustments were made based in aligning supply and use of individual product groups. In general demand surpassed supply of a range of goods and services (see also chapter 6).

### 3.20.6 Other business services (NACE 82)

Table 3.20.6 Process table of output, intermediate consumption and value added of other business services (NACE 82), 2010 (million euros)

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	3.676	0	0	0	0	3.676	0	60	3	-12	3.727
Intermediate cons.	1.963	0	0	0	0	1.963	0	-47	-26	-79	1.811
Value added	1.713	0	0	0	0	1.713	0	107	29	67	1.916

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services and revaluation.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for income in kind and cost fraud. A small supplementary estimate has been made for concealed production.

### *(10) Balancing*

Balancing did lead to relatively substantial adjustments of intermediate consumption of this industry. On balance negative adjustments were made based in aligning supply and use of individual product groups. In general demand surpassed supply of a range of goods and services (see also chapter 6).

## **3.21 Public administration and defence; compulsory social security (NACE Rev. 2 Section O)**

**Table 3.21.1 Process table of output, intermediate consumption and value added of NACE Rev. 2 Section O, Public administration and defence; compulsory social insurance, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	0	60.215	0	13.625	0	73.840	0	1.479	0	0	75.319
Intermediate cons.	0	30.083	0	353	0	30.436	0	1.479	0	0	31.915
Value added	0	30.132	0	13.272	0	43.404	0	0	0	0	43.404

### *(1) Administrative records*

The main data sources are administrative records. Output, intermediate consumption and value added are based on data from general government institutions. The data sources for section O are similar to the data sources used in the sector accounts for the sector general government (S.13). The main entities included are:

- The State: ministries, Animal Health Fund, BES Fund, Infrastructure Fund, Municipalities Fund, Provinces Fund, VAT Compensation Fund and government agencies;
- Public corporate organisations;
- Municipalities;
- Provinces;
- Public water boards;
- Local intergovernmental organisations;

- Non-profit institutions (NPIs) and organisations like Statistics Netherlands (CBS) and police districts (until 2012, 25 units);
- Social security funds (Health Care Insurance Board (CVZ), Institute for employee benefit schemes (UWV), Social Insurance Bank (SVB), Central administration office special medical costs (CAK), and National Health Care Institute (ZIN)).

The State and its entities (except the RIVM which is included in Section Q, health care), public corporate organisations, provinces, public water boards and social security funds are fully included in the industry Public administration and defence; compulsory social insurance (Section O). Detailed data are provided by the individual ministries and funds. It must be noted that this information is mainly on a cash basis. However, compensation of employees is recorded on an accrual basis. For intermediate consumption no adjustments are made to transform them to accrual data according to ESA2010 due to lack of detailed information. The provinces and public water boards provide information via so called information for third parties (Iv3) questionnaires which are linked to their annual accounts. The data are on an accrual basis. Estimates on public corporate organisations which perform collective executive tasks for specific branches and product groups are based on budget reports. The social security funds provide annual and quarterly reports which are on an accrual basis.

The central government is broken down into Public administration and defence; compulsory social insurance, and a few other industries. The sub sector municipalities consists - aside from the industry public administration - of other industrial services (sheltered employment), subsidized education and medical services. Data for estimating the latter three industries are obtained from functional information contained in the Iv3 data collection and other statistics. These other statistics yield information on the split between education delivered by municipalities and independent schools as well as information on the split between sheltered employment organised by local intergovernmental institutions and municipalities. Subsequently the estimates are deducted from the sector totals for municipalities to arrive at the estimates for Section O. The public administration category also covers - in addition to local public administration - local school advisory services, music schools, libraries, museums, theatres, sports facilities and environmental services (cleansing) as far as they are an integral part of the budgets of municipalities. The data on municipalities are provided in a similar fashion as the data on provinces, through the so-called Iv3-questionnaires.

Local intergovernmental institutions and non-profit institutions (NPIs) are classified individually to several industries such as manufacture of other products (NACE 32) (sheltered employment), subsidized education, medical services and environmental services (cleansing). Less than half of these units are active in public administration and government services. The local intergovernmental institutions provide data through the Iv3 questionnaires. For large non-profit institutions, annual accounts are used for the estimates.

Since all the entities under Section O are classified as non-market producers, the production is equivalent to the total of production costs: compensation of employees, intermediate consumption, consumption of fixed capital formation and other taxes paid minus other subsidies received. Hence, gross value added, defined as the difference between output value and intermediate consumption, is mainly equivalent to compensation of employees and consumption of fixed capital formation.

## *(2) Extrapolation and models*

Consumption of fixed capital formation is calculated by applying the PIM to the gross fixed capital formation data mainly provided by the government entities (see chapter 4 for more details).

## *(4) Other Extrapolation & models*

For some non-profit institutions and organisations (NPIs) belonging to general government, no direct source data are available. Estimates on for example institutions for legal aid are mainly based on data on grants provided by the State. Also part of the local intergovernmental institutions is not covered by direct sources due to non-response. All the entities with a total expenditure less than 20 million euros are grossed up. All larger entities are part of the sample. These entities are grossed up by using data of previous and/or later periods. If no data of previous or later periods is available an average of responding similar institutions is used.

## *(8) Conceptual*

### *Allocation FISIM:*

FISIM is based on the deposits and loans provided by the government entities and financial intermediaries.

### *Other conceptual:*

The conceptual adjustments partly relate to the purchases of software. In the national accounts they should be included in gross fixed capital formation. Hence, an adjustment has to be made which is based on software estimates for GFCF for the whole economy (see section 5.10.3). In the source data these are assumed to be part of intermediate consumption and hence must be eliminated. This reduces the intermediate consumption and production by 1.3 billion euros. The consumption of fixed capital related to software however increases production.

Intermediate consumption is adjusted due to the imputation of intermediation services by health insurers (2.0 billion euros). Since the basic health insurance under the Health Insurance Act is classified as a social security scheme in Dutch national accounts, premiums (nominal and income-related) should be registered as social contributions (ESA 2010 4.92). Payments from private health insurance companies to care providers concerning basic health care are therefore recorded as government expenditure in the form of social benefits in kind (ESA 2010 4.108). The government entity National Health Care Institute (ZIN) has the task of redistributing the income-related premiums to the private health insurance companies. It must do so in such a way that justice is done to the different types clients of each insurance company. Hence a private health insurance company with relatively old people as clients will get a larger part of the premiums.

Nominal premiums collected and paid social benefits by private health insurance companies are considered as government income and expenditure. Even though the ZIN does not collect the nominal premiums and does not pay the social benefits. This is called rerouting (ESA 2010 1.73-75). Due to the rerouting, the registration of the Health Care Insurance Act in National accounts does not incorporate the risk adjusted contribution. Rerouting should not

affect the net lending / net borrowing of ZIN, even though the re-routed nominal premiums, social benefits don't cancel each other out. Therefore, the balance of the rerouted financial flows and the non-registered risk adjusted contribution must be compensated. This is done by introducing the fictitious transaction "Purchase of intermediation services" paid by ZIN to the health insurance companies which is the balance of the nominal premiums, social benefits in kind and the risk adjusted contribution. It is recorded as intermediate consumption (ESA2010 3.88) of government. In fact, health insurance companies provide a kind of intermediation services between supply and demand of health care services to government. They will be able to make a profit only through a combination of efficiently purchasing of care, a good match between supply and demand and setting the rate for the nominal premium. This means that the risk for setting a too low nominal premium or a bad bargaining with a health care supplier is reflected upon in the accounts of the private health insurance companies and not that of government.

Smaller adjustment relates to gross fixed capital formation related to R&D (mainly the State) which reduces intermediate consumption and output by 0.2 billion euros, and the recording of public private partnerships on government balance sheet which leads to elimination of the service fees (23 million euros).

### *Further information*

The sources for the general government sector are considered to be highly reliable. Therefore, for industries which are fully part of the general government sector like public administration, generally no adjustments in the balancing process are made on the total of market output, intermediate consumption and the components of gross value added. Shifts between products are allowed as far as they do not influence totals of the above mentioned variables.

## **3.22 Education (NACE Rev. 2 Section P)**

**Table 3.22.0 Process table of output, intermediate consumption and value added of NACE Rev. 2 Section P, Education, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	0	29.051	4.545	5.434	0	39.030	0	-137	-1.160	8	37.741
Intermediate cons.	0	6.574	2.050	0	0	8.624	694	-181	-922	-45	8.170
Value added	0	22.477	2.495	5.434	0	30.406	-694	44	-238	53	29.571

In the Netherlands pre-primary education (Nace 85.1 and ISCED – 0) is part of the primary schools (first two years). All primary schools are part of section P. There is however no split between NACE 85.1 and 85.2.

The Dutch national accounts do not follow the NACE-classification exactly in terms of primary, secondary, tertiary, etc. education. In NACE P a distinction is made between subsidized and non-subsidized educational institutions. All subsidized units are controlled by government, and therefore part of general government. (As an example: the Protestant Theological University is controlled and mainly financed by government and therefore classified within general government).

Because no data are available covering all non-subsidized education an estimate for the missing part of NACE P is made using the wage data from the labour accounts which are derived from administrative sources (see chapter 4 of the inventory). The wage data are assumed to be exhaustive and used to make a total estimate.

For certain components of NACE P autonomous estimates are made:

- subsidised education (government data);
- Sports and recreation education and cultural education services (see inventory par. 3.22.2);
- Driving school services (see inventory par. 3.22.2).

Deducting wages incorporated in these autonomous estimated types of education from the total for NACE P provided by the labour accounts, results in the wages for the missing part. In this part private secondary en tertiary education are implicitly included. Combined with VAT-data an estimate for the output of this remainder was made.

### 3.22.1 Primary, special, secondary, higher education (NACE 852-854)

**Table 3.22.1 Process table of output, intermediate consumption and value added of NACE Rev. 2 NACE 852-854, primary, special, secondary, higher education, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
<b>Output</b>	0	29.051	0	5.434	0	34.485	0	-169	0	0	34.316
<b>Intermediate cons.</b>	0	6.574	0	0	0	6.574	694	-169	0	0	7.099
<b>Value added</b>	0	22.477	0	5.434	0	27.911	-694	0	0	0	27.217

#### (2) Administrative records

Output, intermediate consumption and value added are based on data by DUO, a state agency of the Ministry of Education, Culture and Sciences. All subsidized educational institution (schools and universities) are required to transmit the annual accounts via DUO to the Ministry of Education, Culture and Sciences. The Ministry supervises the subsidized educational institutions, and controls them according to the criteria in ESA section 2.39. As the subsidized educational institutions are mainly financed by the State, they are considered as non-market producers.

Since they are classified under non-market producers, the production is equivalent to the total of production costs: compensation of employees, intermediate consumption, consumption of fixed capital formation and other taxes paid minus other subsidies received. Hence, gross value added, defined as the difference between output value and intermediate consumption, is mainly equivalent to compensation of employees and consumption of fixed capital formation.

Non-subsidized schools and universities are among other forms of education part of a separate industry under section P in the Dutch National accounts.

#### (4) Extrapolation & models

Consumption of fixed capital formation is calculated by applying the PIM to the time series of gross fixed capital formation.

### (8) Conceptual

FISIM is based on the deposits and loans of educational institutions.

The purchases of goods and services in the source data include software. In national accounts they should be included in gross fixed capital formation. Hence, an adjustment has to be made which is based on software estimates for GFCF for the whole economy (see section 5.10.3).

### 3.22.2 Other education (NACE 855-856)

**Table 3.22.2 Process table of output, intermediate consumption and value added of NACE Rev. 2 NACE 855-856, other education, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	0	0	4.545	0	0	4.545	0	32	-1.160	8	3.425
Intermediate cons.	0	0	2.050	0	0	2.050	0	-12	-922	-45	1.071
Value added	0	0	2.495	0	0	2.495	0	44	-238	53	2.354

Other education (NACE 85.5 and 85.6) can be divided into:

- Sports and recreation education services (NACE 85.51)
- Cultural education services (NACE 85.52)
- Driving school services (NACE 85.53)
- Other education services n.e.c. (NACE 85.59)
- Educational support services (NACE 85.6)

### (3) Combined data

No exhaustive data sources are available for estimating Output, intermediate consumption and value added for these activities. Various sources were used in order to make estimates, among others the statistical business register, labour accounts, information from branch associations, CBS survey on business training, annual reports. Below the methods for estimating output, intermediate use and value added per sub activity are described.

#### *Sports and recreation education services (NACE 85.51) and Cultural education services (NACE 85.52)*

Output is determined by multiplying the number of employed persons (Business register, reporting year 2010) with the ratio between output and number of employed persons based on information of the publication 'Kunstzinnige Vorming 2005 en 2007 (CBS/Kunstconnectie). Intermediate consumption is determined by multiplying the number of employed persons (Business register, reporting year 2010) with the ratio between intermediate use and the number of employed persons based on the same source mentioned before. Compensation of employees is based on information from labour accounts.

For units providing private lessons it is obligatory to register at the chamber of commerce and are therefore included in the statistical business register and thus included in the estimates of total non-subsidised education. For hidden private lessons an estimate of 14 million euros is made for music lessons and 10 million euros for tutoring (part of the type N3 other in table 7.1 of chapter 7)

#### *Driving school services (NACE 85.53)*

Output is determined by multiplying the number of supplied driving lessons in 2010 by the average price per lesson. This is based on information of CBR (Centraal Bureau voor Rijvaardigheden). Intermediate use is determined by multiplying employment (Labour Accounts, reporting year 2010) with the ratio between intermediate use and employment based on a business plan of a representative entrepreneur. Compensation of employees is based on information of labour accounts.

#### *Other education services n.e.c. (NACE 85.59)*

In a commodity flow type approach output of NACE 85592 is set equal to the expenditures on business training by companies. Information on expenditures on business training is collected by the 'CBS survey on business training'. Intermediate use is determined by multiplying employment (Labour Accounts, reporting year 2010) with the ratio between intermediate use and employment derived from the production structure of a number of representative companies. Compensation of employees is based on information of labour accounts.

Output of NACE 85591 and 85599 is determined by multiplying the number of employed persons (Business register, reporting year 2010) with the ratio between output and the number of employed persons derived the production structure of a number of representative institutions in both NACE-classes. A similar procedure is used for intermediate consumption. Compensation of employees is based on information of labour accounts.

Output of NACE 856 is based on information of a branch association (ED Venture) plus an expert guess for completeness (roundabout 25 per cent of total production of 856). The production structure used here is based on information of a similar NACE class (85591). Intermediate use is determined by multiplying employment (source: business register) with the ratio between intermediate use and employment from if NACE 85591. Compensation of employees is based on information of labour accounts.

#### *(9) Exhaustiveness*

Other education (NACE 855- 856) is used as a residual item for the variables wages and social premiums as estimated in the labour accounts (on the level of NACE P). It is assumed that data on total labour costs of the labour accounts on the level of NACE P are reliable, being based on administrative data. The breakdown of labour costs to the various industries is less reliable. It is also assumed that the total labour cost derived from government accounts are reliable (on the level of NACE 852-854) and are treated as exogenous. Especially because for these activities it is difficult to determine whether a certain unit belongs to other education or subsidised education. It is decided to allocate the residual of wages and social premiums to Other education. As wages and social premiums had to be reduced substantially<sup>13</sup>, also production and intermediate use were reduced in order to get plausible input output relations. Output of NACE 85592 was initially estimated as the level of expenditures on business training by institutions (CBS survey on business training, as mentioned earlier above).

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<sup>13</sup> The initial estimate for private education was based on a distinction between the government part and other education from the SBR. However in SBR many units were classified as other education while they actually are part of government education.

However the necessary reduction combined with VAT data suggested that production of this particular activity should much lower than the estimate based information of the ‘survey on business training’.

As described in section 3.6, adjustments were made for income in kind and cost fraud.

#### *(10) Balancing*

Balancing did not lead substantial adjustments of intermediate consumption of this industry. On balance negative adjustments were made based in aligning supply and use of individual product groups. In general demand surpassed supply of a range of goods and services (see also chapter 6).

### **3.23 Human health and social work activities (NACE Rev. 2 Section Q)**

**Table 3.23.0 Process table of output, intermediate consumption and value added of the combined NACE 86 Health, NACE 87 Residential care and guidance and NACE 88 Social work activities without accommodation 2010 (million euros)**

	Basis for Na Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output	0	0	72969	0	0	72969	-560	0	751	359	73519
Intermediate cons.	0	0	23381	0	0	23381	0	191	-214	-610	22748
Value added	0	0	49588	0	0	49588	-560	-191	965	969	50771

#### *(3) Combined data*

Estimates of Output, intermediate consumption and value added are mostly based on data supplied by Databank DigiMV of the Ministry of Health, Welfare and Sport, with digital annual reports of groups of enterprises financed or partly financed through the Health care insurance act and/or the Exceptional Medical Expenses Act. Most of the sources provide detailed information on output, cost and profits, The latter can be transformed into intermediate consumption and value added. For a small part of the population, the source data only contain production.

For advisory services and some remaining social work, production was estimated by using information on employment obtained from administrative records of the labour accounts.

For those entities of which the source data only contains information on Output, intermediate consumption is estimated using proportions of the part of the population for which detailed information is available.

#### *(7) Data validation*

Adjustments were related to wage subsidies which were included in the production in the source data. Adjustments were made in NACE 86, 87 and 88.

#### *(8) Conceptual*

Adjustments were made for FISIM and software as described in section 3.4.

### *(9) Exhaustiveness*

A supplementary estimate was made for concealed child care and babysitting (751 million euros). See section 7.2.3 for more details. Furthermore, adjustments were made income in kind as described in section 3.6

### *(10) Balancing*

Adjustments were made based on the confrontation of supply and use of individual product groups (see also chapter 6).

## **3.23.1 Human health activities (NACE 86)**

**Table 3.23.1 Process table of output, intermediate consumption and value added of NACE 86 Health, 2010 (million euros)**

	Basis for Na Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	0	0	40960	0	0	40960	-171	0	0	190	40979
Intermediate cons.	0	0	13467	0	0	13467	0	190	-173	-346	13138
Value added	0	0	27493	0	0	27493	-171	-190	173	536	27841

### *(3) Combined data*

#### *Databank DigiMV*

Estimates are based on data supplied by Databank DigiMV of the Ministry of Health, Welfare and Sport, with digital annual reports of groups of enterprises financed or partly financed through the Health care insurance act and/or the Exceptional Medical Expenses Act. Most of the sources provide detailed information on output, cost and profits. The latter can be transformed into intermediate consumption and value added. For a small part of the population, the source data only contains production.

The Databank DigiMV covers the following classes of the Standard Industrial Classification 2008 (SIC 2008):

- 86101 University hospitals;
- 86102 General hospitals;
- 86103 Specialised hospitals (not mental);
- 86104 Mental health and substance abuse hospitals
- 86222 Out-patient care for mental health.

#### *Tax declarations and Dutch Healthcare Authority (NZa)*

The statistics are based on tax declarations of all companies of entrepreneurs in the health care sector, supplemented with accounting data of services delivered by general practitioners outside office hours, as supplied by the Dutch Healthcare Authority (NZa).

The target population consists of entrepreneurs in the health care sector and other health care companies. The population of entrepreneurs is based on the registration of health care professionals in the so-called BIG-register by the Ministry of Health, Welfare and Sport. This register provides clarity and certainty regarding the care provider's qualifications and entitlement to practice. The BIG-register is combined with the registers of health care professionals by the Netherlands institute for health services research (NIVEL) and information regarding entrepreneurs from Statistics Netherlands. Other health care companies in the same branch according to the NACE of non-BIG registered entrepreneurs are added to the population.

This source covers the following classes of the Standard Industrial Classification 2008 (NACE 2008):

- 8621 General medical practices
- 86231 General dental practices
- 86232 Specialised dental practices (only orthodontists)

The following NACE-classes are covered by the NZa source:

- 86911 Practices of midwives
- 86912 Practices of physiotherapists
- 86913 Practices of psychologists
- 86919 Other paramedical practitioners (only remedial therapists)

#### *Data supplied by financiers*

NACE-classes that are not covered by the above-mentioned statistics are based on data supplied by financiers, health insurance funds and private insurers supplemented by own-contributions and own-payments estimates. These concerns the following NACE-classes:

- 86221 Specialist medical practices and outpatients' clinics (no dentistry or psychiatry)
- 86222 Practices of psychiatrics
- 86232 Specialised dental practices (not orthodontists)
- 86919 Other paramedical practitioners (not remedial therapists), (part of NACE 869)

#### *Annual questionnaires*

Support for health care covers a variety of activities such as occupational health, public health care, ambulance services, blood banks, thrombosis services and medical laboratories. Data are collected annually via questionnaires for the following NACE-classes:

- 86922 Health and safety at work and reintegration activities
- 86923 Preventative health care (municipal health services)
- 86924 Medical laboratories, intensive care for thrombotic patients and other analyses supporting medical treatment
- 86925 Ambulance transport and related emergency centres.

Preventative (municipal) health care centres and the National Institute for Public Health and the Environment (RIVM) are mainly financed by the government and thus classified as non-market producers. The non-market production of these organisations was 798 million euros.

For umbrella organisations in the field of health care (NACE 86929) production was estimated by using information on the growth rate of employment obtained from administrative records of the labour accounts. The growth rate of number of jobs (multiplied

with the price index of compensation of employees) in combination with an earlier estimated level, is used to estimate the production.

For those entities of which the source data only contains information on output, intermediate consumption is estimated using proportions of the part of the population for which detailed information is available.

#### *(7) Data validation*

Adjustments were related to wage subsidies which were included in the production in the source data.

#### *(8) Conceptual*

Adjustments were made for FISIM, R&D and software as described in section 3.4.

#### *(9) Exhaustiveness*

Adjustments were made for income in kind as described in section 3.6.

#### *(10) Balancing*

Adjustments were made based on the confrontation of supply and use of individual product groups.

### **3.23.2 Residential care and guidance (NACE 87) and Social work activities without accommodation (NACE 88)**

**Table 3.23.2 Process table of output, intermediate consumption and value added of NACE 87 (Residential care and guidance ) and NACE 88 (Social work activities without accommodation), 2010 (million euros)**

	Basis for Na Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	0	0	32009	0	0	32009	-389	0	751	169	32540
Intermediate cons.	0	0	9914	0	0	9914	0	1	-41	-264	9610
Value added	0	0	22095	0	0	22095	-389	-1	792	433	22930

#### *(3) Combined data*

#### *Databank DigiMV*

Estimates are based on data supplied by Databank DigiMV of the Ministry of Health, Welfare and Sport, with digital annual reports of groups of enterprises financed or partly financed through the Health care insurance act and/or the Exceptional Medical Expenses Act, which provide detailed information on output, cost and profits, The latter can be transformed into intermediate consumption and value added.

The Databank DigiMV covers the following classes of the Standard Industrial Classification 2008 (SIC 2008):

8720 Residential care for disabled persons and  
87301 Day care for disabled persons;  
8710 Nursing care  
87302 Residential care for the elderly  
88101 Home care;  
87902 Residential care for other persons (only homeless);  
87901 Residential care for children  
88991 Social work for children.

#### *Annual questionnaires*

Data are collected annually via questionnaires sent electronically to Statistics Netherlands by enterprise groups for the following NACE-classes:

88102 Welfare for elderly  
88911 Day nurseries for pupils  
88912 Kindergartens (no schools)  
88993 Community and neighbourhood activities

For the following NACE-classes data are taken from the Health Accounts:

88103 Counselling and welfare for disabled  
88992 Social work for adults

Statistics on centres for asylum seekers based on the annual account of the 'Central Organisation Asylum seekers' (COA) are added to the statistics for NACE 87902 Residential care for the homeless. COA, social assistance to children and other persons and some social work activities organisations are mainly financed by the government and thus classified as non-market producers. The non-market production of these organisations was 3919 million euros.

Output was estimated by using information on the growth rate of employment obtained from administrative records of the labour accounts. The growth rate of number of jobs (multiplied with the price index of compensation of employees) in combination with an earlier estimated level, is used to estimate the production of:

879022 Boarding schools.  
88999 Community centres, other consultancy and cooperative bodies in the field of welfare.

Welfare activities are related to the following sub-categories:

Group	Name
889991	Self-help groups
889992	Specific social services
889993	Neighbourhood and clubhouse activities
889994	Welfare umbrella organisations, funds and bodies
889999	Other social welfare institutes

The estimated level of output by community centres stems from reference year 1995 and amounts to 1298 million euros in 2010.

*(7) Data validation*

Adjustments were related to wage subsidies which were included in the production in the source data.

*(8) Conceptual*

Adjustments were made for FISIM, R&D and software as described in section 3.4.

*(9) Exhaustiveness*

A supplementary estimate was made for concealed child care as described in section 7.2.3. Adjustments were made for income in kind as described in section 3.6.

*(10) Balancing*

Adjustments were made based on the confrontation of supply and use of individual product groups.

### 3.24 Arts, entertainment and recreation (NACE Rev. 2 Section R)

**Table 3.24.1 Process table of output, intermediate consumption and value added of NACE R Arts, entertainment and recreation, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	0	0	13.376	0	0	13.376	0	103	300	-5	13.774
Intermediate cons.	0	0	7.076	0	0	7.076	0	-57	-178	-410	6.431
Value added	0	0	6.300	0	0	6.300	0	160	478	405	7.343

This NACE-class (NACE R) is not covered by SBS type statistics. To estimate output, intermediate consumption and value added, many sources of information were used. Next to functional (product or activity based) statistics that give information about revenue and costs, annual reports, industry reports and labour accounts are used for estimating. Together these sources determine the level of output, intermediate consumption and value added. Because of the complexity, heterogeneity and data availability (many different sources), estimates for this NACE class has been categorised under ‘combined data’ in the process table.

*(3) Combined data*

There is no complete data source available for output, intermediate consumption and value added for these activities. Various sources were used in order to make estimates (business register, labour accounts, information of branch associations). Output is estimated by multiplying the compensation of employees with the ratio between output and compensation of employees based on turnover data and data of labour accounts. Estimates of input output structures are made using all kinds of data sources.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D, insurance services.

### *(9) Exhaustiveness*

Adjustments are made for concealed production (music bands, sports). Furthermore, as described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did lead to substantial adjustments in this industry. Many small adjustments were made based on the confrontation of supply and use of individual product groups. Differences in sources on commodity level (supply versus demand) have led to adjustments in this industry.

## **3.24.1 Creative, arts and entertainment activities; libraries, archives, museums and other cultural activities; gambling and betting activities (NACE 90-92)**

**Table 3.24.2 Process table of output, intermediate consumption and value added of NACE 90-92 Creative, arts and entertainment activities; libraries, archives, museums and other cultural activities; gambling and betting activities, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	0	0	7.867	0	0	7.867	0	47	293	5	8.212
Intermediate cons.	0	0	3.627	0	0	3.627	0	-14	-79	-217	3.317
Value added	0	0	4.240	0	0	4.240	0	61	372	222	4.895

### *(1) Surveys & censuses*

There is no complete data source available for output, intermediate consumption and value added for these activities. Data is compiled using various sources (Labour Accounts, reports from branch associations, business register, government data, annual reports). See for more information the section ‘further information’ below.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D and insurance services. Next to that a adjustment has been made for originals (see section ‘further information’ below).

### *(9) Exhaustiveness*

An estimate is made for those music bands and disc jockeys playing at parties and weddings. This estimate is based on the total number of weddings and anniversaries (source: Statistics Netherlands). However, because of a lack of detailed data the following assumptions are made: on 2/3 of all parties and weddings a music band or disc jockey is playing for an average

fee of a 1,000 euros. A part of this has been attributed to the hidden economy (see also section 7.2.3 on exhaustiveness).

Also a adjustment is made for illegal gambling(both online and offline). In the Netherlands all online gambling activities are illegal.

As described in section 3.6, adjustments were made for cost fraud and income in kind.

#### *(10) Balancing*

Balancing did lead to substantial adjustments in this industry. Adjustments were made based on the confrontation of supply and use of individual product groups. Differences in sources on commodity level (supply versus demand) have led to adjustments in this industry.

#### *Further information*

##### *Creative, arts and entertainment services NACE 90*

Output estimates for this branch are based on VAT data and data from the labour accounts (compensation of employees). Both data sources are linked to the business register (ABR). Major missing enterprises are added (based on their annual reports).

##### *Originals*

Originals are included in the output of this branch. Required information cannot be obtained from the data sources. Therefore, the output of originals is estimated separately based on annual reports from collective management organizations like “BumaStemra” and “het Filmfonds”.

The output of originals is derived from (expected) flow of royalties. The following products are being distinguished:

- Books: the received royalties on books for writers is based on information of the top 100 list of best sold books in 2007 and information on average royalties received by writers. Based on this top 100 list the percentage of Dutch books and foreign books has been determined (ca. 40:60). Average royalties are equal to approximately 10 per cent (source :internet) of book revenues. It is further assumed that an author will receive more royalties than a translator. Combining this information results in an estimated percentage of royalties on Dutch books of 5 per cent of the revenue of the books.
- Related rights (films en tv-programs excluded): a large part of the royalties are received by right management agencies (BumaStemra, Leenrecht, Sena, Lira etc.). This concerns royalty payments by third parties for the use of music, books, photos and the like.

Gross fixed capital formation is based on the paid royalties (an adjustment is made for price changes and the nominal growth of royalties) (see OECD recommendations).

##### *Library, archive, museum and other cultural services (NACE 91)*

This branch is distinguished in the following subsectors:

- Library and archive services (91.01)
- Museum services (91.02)
- Operation services of historical sites and buildings and similar visitor attractions (91.03)

- Botanical and zoological garden services and nature reserve services (91.04)

Output estimates for these branches are in general based on tax data (VAT data), data from the labour accounts (compensation of employees) and custom made statistics for specific activities. Compensation of employees (Labour Accounts) is used to gross up output to the population level (multiplying compensation of employees and a particular output wage ratio).

To determine production and the production structure (the ratio between Output, intermediate consumption and value added) for libraries, detailed data from the statistics “Public libraries” were used.

To determine production and the production structure of museum services, detailed data from the statistic “Museums” has been used.

To determine production of art galleries and art exposition space, data from labour accounts (compensation of employees) are used. This information is used to estimate total output. To this end compensation of employees is assumed to be 50 per cent of total output (based on annual reports of several institutes). Intermediate consumption is considered 1/3 portion of output.

To determine output of services of historical sites and buildings and similar visitor attractions, tax data and data from the labour accounts are used. The production structure is based on the following assumptions: intermediate consumption 55 per cent and value added 45 per cent (42 per cent equals the part of compensation of employees included). These assumptions are based on a number of annual reports of representative institutes.

To determine production of botanical and zoological garden services, tax data and data from the labour accounts is used. This data is linked to the business register (ABR). Major missing enterprises are added, estimates being based on their annual reports. The production structure for these services is based on annual reports of a few representative enterprises. Production and the cost structure of nature reserve services are based on the annual report from “Staatsbosbeheer”.

#### *Gambling and betting activities (NACE 92)*

Production and cost structure (the ratio between Output, intermediate consumption and value added) of gambling activities is based on the annual report from the branch organization “College van Toezicht op de Kansspelen”. In this report detailed data are available for every lottery and the only legalized casino with croupiers in the Netherlands “Holland Casino”.

Production and cost structure of amusement and gaming machines is based on the statistic “Recreatie instellingen, personeel, baten en lasten” (Statistics Netherlands) which provide detailed economic data. The information concerning the compensation of employees is checked with the data from the labour accounts.

An extra estimate is made for illegal production (both online and offline, see also section 7.2.3). In the Netherlands all online gambling activities are illegal.

### 3.24.2 Sports activities and amusement and recreation activities (NACE 93)

**Table 3.24.3 Process table of output, intermediate consumption and value added of 93 Sports activities and amusement and recreation activities, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	0	0	5.509	0	0	5.509	0	56	7	-10	5.562
Intermediate cons.	0	0	3.449	0	0	3.449	0	-43	-99	-193	3.114
Value added	0	0	2.060	0	0	2.060	0	99	106	183	2.448

There are no SBS-data available for this NACE class (NACE 93). To determine output, intermediate consumption and value added, many data sources were used. Next to some functional (product or activity based) statistics (which are available at Statistics Netherlands) that give information about revenue and costs, data from annual reports, industry reports and labour accounts are used for estimation. All these sources together (combined data) determine the level of output, intermediate consumption and value added. Because of the complexity, heterogeneity and data availability (many different sources), economic data for this NACE class has been categorised under ‘combined data’ in the process table.

#### *(3) Combined data*

There is no complete data source available for output, intermediate consumption and value added for these activities. Data are compiled using various sources of information (Labour Accounts, branch associations, business register, annual reports, detailed data from the statistic “Sport activities”). See for more information the section *further information* below

#### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D and insurance services.

#### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind. A small estimate is made for concealed production in this area.

#### *(10) Balancing*

Balancing did lead to substantial adjustments in this industry. Many small adjustments were made based on the confrontation of supply and use of individual product groups. Differences in sources on commodity level (supply versus demand) have led to adjustments in this industry.

#### *Further information*

This branch distinguishes the following subsectors:

- Operation of sports facilities (93.11)

- Activities of sport clubs (93.12)
- Fitness facilities (93.13)
- Other sports activities (93.19)
- Activities of amusement parks and theme parks (93.21)
- Other amusement and recreation activities (93.29)

### *Operation of sports facilities (93.11)*

Information on output and cost structure (the ratio between output, intermediate consumption and value added) of sports facilities is based on the statistic “Sportaccommodaties” from which detailed economic data is available.

### *Activities of sport clubs (93.12)*

Output and cost structure of activities of sport clubs is based on the statistic “Sportclubs” from which detailed information is available. Wage data are checked with the corresponding data from the labour accounts.

Output and cost structure of professional soccer clubs is separately estimated. Here data from the branch organization “KNVB expertise centrum” are used. Detailed information about the “Jupiler league” and “Eredivisie” can be found in the reports “het seizoen in cijfers” and “benchmark betaald voetbal”. In addition annual reports of soccer clubs are used. Transfers fees are not included in production and intermediate consumption.

### *Fitness facilities (93.13)*

For fitness activities little information is available. The cost structure and output are based on the report “Fitness in cijfers” from “Mulier instituut”. An additional estimate is made for secondary activities (sales of drinks, foods and dietary supplements, 5 per cent of total output (by assumption). Wages data are checked with the corresponding data from the labour accounts.

### *Other sports activities (93.19)*

Information on output and production costs is obtained from the statistic “Watersport” (source: Statistics Netherlands) which excludes Marinas. This source provides detailed economic data. Wage data are checked with the corresponding data from the labour accounts.

Information on output and production costs in relation to other sports activities is difficult to obtain, due to lack of data sources and the great heterogeneity of this section. As much as possible information from annual reports of enterprises is used (KNVB, NOCNSF etc.) as well as reports from branch organizations (Sportvisserij Nederland, HISWA etc.). However, not for every subsection useful information is available. For some activities (among others professionals, fishing boat trips, organisation of sporting events, etcetera) data from the labour accounts are used to estimate production. Output is determined by multiplying the compensation of employees with the ratio between output and compensation of employees from the production structure of a number of representative institutes and expert guesses).

### *Activities of amusement parks and theme parks (93.21)*

Information on output and production costs related to amusement parks and theme parks is based on the statistics “Attractieparken”. Detailed economic data are available from this statistic. Wage data are checked with the corresponding data from the labour accounts.

Determining production in relation to fairs is also difficult because of the lack of sources. Data from the labour accounts are used to calculate production. Information on the compensation of employees is used to estimate production. It is assumed that the production structure of amusement parks and theme parks is representative for fairs.

## **3.25 Other service activities (NACE Rev. 2 Section S)**

**Table 3.25.0 Process table of output, intermediate consumption and value added of NACE S Other services activities, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	4.871	0	6.237	0	0	11.108	0	110	583	-25	11.776
Intermediate cons.	2.427	0	2.601	0	0	5.028	0	-91	310	-336	4.911
Value added	2.444	0	3.636	0	0	6.080	0	201	273	311	6.865

### *(1) Surveys & censuses*

For the activities of membership organisations (NACE 94) there is no complete data source available for output, intermediate consumption and value added. Data are compiled using various sources (Labour Accounts, branch associations, business register, annual reports). Output is determined by multiplying the compensation of employees with the ratio between output and compensation of employees from the production structure based on turnover data and data from labour accounts. Data on input and output structure are compiled using all kinds of data sources.

Output, intermediate consumption and value added of NACE 95 and NACE 96 are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(7) Data validation*

See the relevant section below on NACE 95 and NACE 96 (3.25.2 and 3.25.3).

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D and insurance services.

### *(9) Exhaustiveness*

Adjustments were made for illegal production (prostitution) and concealed production (hair dressing and reparation). Further, as described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did lead to substantial adjustments in this industry. Many small adjustments were made based on the confrontation of supply and use of individual product groups. Differences in sources on commodity level (supply versus demand) have led to adjustments in this industry.

## **3.25.1 Activities of membership organisations (NACE 94)**

**Table 3.25.1 Process table of output, intermediate consumption and value added of NACE 94 Activities of membership organisations, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	0	0	6.237	0	0	6.237	0	54	-483	131	5.939
Intermediate cons.	0	0	2.601	0	0	2.601	0	-60	-46	4	2.499
Value added	0	0	3.636	0	0	3.636	0	114	-437	127	3.440

There are no SBS-type data available for this NACE class (NACE 94). To determine output, intermediate consumption and value added, many sources were used. Next to functional (product or activity based) statistics (which are available at Statistics Netherlands) that give information about revenue and costs (based on exploitation data), data of annual reports, industry reports and labour accounts are used for estimation. All these sources together (combined data) determine the level of output, intermediate consumption and value added. Because of the complexity, heterogeneity and data availability (many different sources), economic data for this NACE class has been categorised under 'combined data' in the process table.

### *(3) Combined data*

There is no complete data source available for output, intermediate consumption and value added for these activities. Data is compiled using various sources (Labour Accounts, branch associations, business register, annual reports). Output is determined by multiplying the compensation of employees with the ratio between output and compensation of employees from the production structure based on turnover data and data from the labour accounts. See for more information the section further information below.

### *(8) Conceptual*

Furthermore, as described in section 3.4, adjustments were made for FISIM, software, R&D and insurance services.

#### *(9) Exhaustiveness*

An adjustment is made for double counting of government related units (see chapter 7 for more details). Next to that an adjustment is made in order to accomplish consistency with the data of the labour accounts on the level of NACEs 84 and 94. This industry is used as a residual item for the variables wages and social premiums. It is assumed that total wages and social premiums as recorded in the labour accounts are reliable. The breakdown of compensation of employees to the various different industries is less reliable. It is also assumed that compensation of employees of the government are reliable. Setting these data as exogenous implies a possible adjustment in NACE 94. Especially for the activities of NACE 94 it is difficult to determine whether a certain unit belongs to NACE 94 or NACE 84. Therefore residual is allocated in NACE 94.

As described in section 3.6, adjustments were made for cost fraud and income in kind.

#### *(10) Balancing*

Balancing did lead to substantial adjustments in this industry. Many small adjustments were made based on the confrontation of supply and use of individual product groups. Differences in sources on commodity level (supply versus demand) have led to adjustments in this industry.

#### *Further information*

This branch is distinguished in the following subsectors:

- Activities of business, employers and professional membership organisations (94.1)
- Activities of trade unions (94.2)
- Activities of religious organisations (94.91)
- Activities of political organisations (94.92)
- Activities of other membership organisations n.e.c. (94.99)

#### *Activities of business, employers and professional membership organisations (94.1)*

To estimate production for activities of business, employers and professional membership organisations data from the labour accounts are used. The level of compensation of employees is used for estimating production. The production costs (the ratio between output, intermediate consumption and value added) are based on annual reports of a number of representative enterprises like the chamber of commerce. This input output structure is used to estimate production and intermediate use for this industry.

#### *Activities of trade unions (94.2)*

The output of trade unions is based on information from the labour accounts. The level of compensation of employees is used to estimate production. Output is determined by multiplying the compensation of employees with the ratio between output and compensation of employees from the production structure based on annual reports of a big trade unions like FNV and CNV.

### *Activities of religious organisations (94.91)*

Production of religious organisations is based on information from labour accounts. Output is determined by multiplying the compensation of employees with the ratio between output and compensation of employees from the production structure based on the annual report from “Kerkebalans. The latter is a report that gives detailed economic data about the Dutch Catholic Church.

### *Activities of political organisations (94.92)*

Production of political organisations is also based on information from the labour accounts. Output is determined by multiplying the compensation of employees with the ratio between output and compensation of employees from the production structure based on annual reports of political parties like CDA, VVD, PvdA, CU, D66 and SP.

### *Activities of other membership organisations n.e.c. (94.99)*

The other membership organisations n.e.c. is, because of its inhomogeneity, distinguished in the following subsectors:

- Social clubs, hobby clubs and groups of friends
- Support funds and other non-profit organizations
- Overarching agencies and collaborative -and advisory and other advocacy

To estimate production of social clubs, hobby clubs and groups of friends is not straight forward because of the lack of data sources. These activities represent a small production level and won't be volatile and cyclically sensitive. Information on compensation of employees (Labour Accounts) has been multiplied with a typical production structure.

Production and the production structure of support funds and other non-profit organizations can be determined with data from “Centraal Bureau Fondsenwerving”, which gives detailed economic data. In addition annual reports are used to verify the results.

To determine the production structure for umbrella organisations and collaborative -and advisory and other advocacy, data from a couple of big enterprises is used (ANWB, CBR, Consumentenbond). Production is determined with data from labour accounts. The level of wages and social charges is used to estimate production using representative production structures.

## **3.25.2 Repair of computers and personal and household goods (NACE 95)**

**Table 3.25.1 Process table of output, intermediate consumption and value added of 95 Repair of computers and personal and household goods, 2010, (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	751	0	0	0	0	751	0	9	46	-9	797
Intermediate cons.	463	0	0	0	0	463	0	-16	-6	-24	417
Value added	288	0	0	0	0	288	0	25	52	15	380

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(8) Conceptual*

As described in section 3.4, adjustments were made for FISIM, software, R&D and insurance services.

### *(9) Exhaustiveness*

As described in section 3.6, adjustments were made for cost fraud and income in kind. An additional estimate is made for concealed production (reparation of computers).

### *(10) Balancing*

Balancing did not lead to substantial adjustments in this industry. Small adjustments were made based on the confrontation of supply and use of individual product groups.

## **3.25.3 Other personal service activities (NACE 96)**

**Table 3.25.2 Process table of output, intermediate consumption and value added of NACE 96 Other personal service activities, 2010, (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	4.120	0	0	0	0	4.120	0	47	1.020	-147	5.040
Intermediate cons.	1.964	0	0	0	0	1.964	0	-15	362	-316	1.995
Value added	2.156	0	0	0	0	2.156	0	62	658	169	3.045

### *(1) Surveys & censuses*

Output, intermediate consumption and value added are based on the Structural Business Statistics (SBS). For more general information on the SBS and for specific methods per size class, see section 3.1.2.

### *(8) Conceptual*

Furthermore, as described in section 3.4, adjustments were made for FISIM, software, R&D and insurance services.

### *(9) Exhaustiveness*

Additional estimates are made for illegal activities (prostitution) and for the hidden economy (hairdressers). See section 7.2.3 for more details. As described in section 3.6, adjustments were made for cost fraud and income in kind.

### *(10) Balancing*

Balancing did lead to substantial adjustments in this industry. Many small adjustments were made based on the confrontation of supply and use of individual product groups. Differences in sources on commodity level (supply versus demand) have led to adjustments in this industry.

## **3.26 Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (NACE Rev. 2 section T)**

**Table 3.26.0 Process table of output, intermediate consumption and value added of NACE T, activities of households as employers; undifferentiated goods- and services- producing activities of households for own use, 2010 (million euros)**

	Basis for NA Figures						Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and Models	Other	Total (sources)	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Output	0	0	425	0	0	425	0	0	0	0	425
Intermediate cons.	0	0	0	0	0	0	0	0	0	0	0
Value added	0	0	425	0	0	425	0	0	0	0	425

There are no SBS-type data available for this NACE class (NACE T).

### *(3) Combined data*

In the Netherlands disabled people can get a personal budget from the government (PGB). This personal budget is provided for buying care services. Besides the PGB funds there is an estimate for staff employed within households. Examples are the gardener and the butler. However, the size of these services is considered as very small (4 million euro). These estimates are derived from the labour accounts.

No specific estimates are made for income in kind, in particular food and accommodation, of remuneration paid to employed staff. Since total income is so small, income in kind will not exceed half a million euros and thus will be zero in the NA.

## **3.27 Activities of extraterritorial organisations and bodies (NACE Rev. 2 section U)**

This section is relevant for chapter 8. No description is required here.

## **3.28 Taxes on products, including VAT**

### **3.28.1 Taxes on products**

Table 3.28.1 provides a summary of the extent and composition of Dutch taxes on products in 2010. It also summarises the sources and estimation methods used. Value Added Tax is by far the most important tax on products, accounting for 64 per cent of the total. The table also reveals that all taxes on products are state taxes determined on the basis of a statement provided by the tax authorities. The figures are not on a cash basis, but on a one month delayed cash base which is thought to be the best approximation of accrual data.

**Table 3.28.1 Taxes on products (production and imports), 2010**

Tax		Source	Estimation method/adjustments
	<i>million euros</i>	<i>% total</i>	
Value added tax	42 654	64	Monthly statement Tax Authority 1 month deferred liquidity
Import duties to the European Union	1 732	3	Monthly statement Tax Authority 1 month deferred liquidity
Levy on mineral oil product stocks	100	0	Monthly statement Tax Authority 1 month deferred liquidity
European Union levies on food products	236	0	Monthly statement Tax Authority 1 month deferred liquidity
Excise duties	11 120	17	Monthly statement Tax Authority 1 month deferred liquidity
Motor spirits	4 067	6	Monthly statement Tax Authority 1 month deferred liquidity
Other mineral oils	3 592	5	Monthly statement Tax Authority 1 month deferred liquidity
Tobacco	2 437	4	Monthly statement Tax Authority 1 month deferred liquidity
Alcohol	331	0	Monthly statement Tax Authority 1 month deferred liquidity
Other excise duties	693	1	Monthly statement Tax Authority 1 month deferred liquidity
Tax on non-alcoholic beverages, etc.	156	0	Monthly statement Tax Authority 1 month deferred liquidity
Energy levies	4 606	7	Monthly statement Tax Authority 1 month deferred liquidity
Taxes on passenger cars and motorcycles (BPM)	2 096	3	Monthly statement Tax Authority 1 month deferred liquidity
Tax on lotteries and gambling	221	0	Monthly statement Tax Authority 1 month deferred liquidity
Real estate transfer tax	2 785	4	Monthly statement Tax Authority 1 month deferred liquidity
Insurance premium tax	861	1	Monthly statement Tax Authority 1 month deferred liquidity
<b>Total taxes on products</b>	<b>66 567</b>	<b>100</b>	

Taxes on products are determined with reference to ESA 2010. Taxes on products are levied on output (production), whereas other taxes on production consist of all taxes that enterprises incur as a result of engaging in production, independent of the quantity or value of the goods and services produced or sold. There are some borderline cases here. The eurovignette (paid for trucks using Dutch motorways) could be considered a tax on products, but is in line with EU-regulations recorded as a sale of service. Rationale for this registration is that the users of the trucks have sufficient choice both in terms of selecting specific roads and of choosing a determined length of time.

Waste tax is treated as sales of services whereas sewage charges are seen as other taxes on production. Payments for the so-called waste taxes are related to the amounts of waste collected and processed by local government units whereas the sewage charges are compulsory and not directly related to a certain amount of treated wastewater.

### 3.28.2 VAT

Non-deductible Value Added Tax is included as a separate ‘product group’ entry in the supply and use tables: this concerns non-deductible value added tax on purchases by households, enterprises on fixed capital formation and intermediate consumption linked VAT-exempted activities. The main examples are government, banking, insurance and health services. VAT paid on purchases for the production of goods and services that are exempted from VAT cannot be deducted.

The relevant value added tax rate is applied to each individual transaction for calculating value added tax for households and enterprises. The calculation of value added tax is carried out in the same level of detail as used in the supply and use tables.

For the calculation with industries, the share of exempted goods and services in total output is determined first. Assuming that for the tax-exempt output within an industry the same intermediate inputs are used as for the taxable output, VAT can be compiled by multiplying the intermediate consumption with the VAT rate and the exemption fraction for every separate product group. The sum over all product groups is the total non-deductible VAT for the industry in question.

#### *Example*

Total output of industry X is 10 000. The output of this industry includes a number product groups which are exempted from VAT. Production of these services is worth 2 000, giving an exemption ratio of  $2\,000/10\,000 = 0.2$ .

Total intermediate consumption in the category is 8 000; 1 000 is subject to the reduced VAT-rate (6 per cent) and 4 000 to the standard VAT-rate (19 per cent). This gives VAT payments of  $1\,000 * 6\% + 4\,000 * 19\% = 820$ .

$820 * 0.2$  (= exemption ratio) = 164 relates to the provision of VAT-exempted product groups.

Non-deductible of this industry amounts 164.

In the Dutch supply use tables VAT is calculated on taxed transactions irrespective whether it concerns ‘white’ or hidden economy. This implies that in this calculation VAT not being transferred to tax authorities is included. The difference between this theoretical VAT and the actual VAT-receipts by the government is fully allocated to operating surplus/mixed income and with that to GDP. In the case of VAT-fraud without complicity this way of recording gives the correct value added and GDP as sales will include VAT which is not transferred to tax authorities and will be a revenue for the seller. A similar reasoning holds for the case of bankruptcy. For fraud with complicity this way of calculating VAT implies an overestimate of GDP as expenditure is estimated to high, namely including VAT, which is actually not paid. The difference between the theoretical and actual VAT totals for 2010 amounts to 739 million euros.

### 3.29 Subsidies on products

Table 3.29.1 summarises the extent and composition of subsidies on products in the Netherlands. With reference to GDP at market prices, these comprise 0.6 per cent in 2010. The table also summarises the sources and estimation methods used.

The table shows that public transport subsidies are the principal subsidies on products, accounting for 42 per cent of the total.

**Table 3.29.1 Subsidies on products, 2010**

Subsidies			Source		Estimation method/adjustments
	<i>million euros</i>	<i>% total</i>			
European Union subsidies on food	117	3	Different commodity board surveys		Total adjusted for transfers to non-residents and other subsidies
Public transport subsidies	1 491	42	General government accounts		source based data
Subsidies on sustainable electricity	694	20	General government accounts		source based data
Subsidies on recreation, culture and sport	384	11	General government accounts		source based data
Subsidies on social welfare	478	13	General government accounts		source based data
Other (various operating subsidies)	387	11	General government accounts		source based data
<b>Total subsidies on products</b>	<b>3 551</b>	<b>100</b>			

The definition of subsidies on products is determined with reference to ESA 2010 (see, in particular, sections 4.33 to 4.35 inclusive). The main difference compared with other subsidies on production is that subsidies on products are granted on the basis of generated output, whereas other subsidies depend on inputs/costs incurred (for example, wage subsidies, oil reserves subsidy, compensations for harvest rain damage).

Subsidies on products are linked to units of a good or service produced or imported. Subsidies on products are only provided to market producers. They are distinguished from income transfers, because subsidies on products have the objective to influence prices of production whereas current transfers are provided to market or non-market producers with the objective to serve other purposes unrelated to the production.

Subsidies on products are provided to market producers with the objective of influencing the prices of products. Subsidies on production are provided to influence the levels of production or to influence the remuneration of the factors of production. However, the latter subsidies on production can be provided also to non-market producers if these subsidies depend on general regulations applicable to market and non-market producers, e.g. wage subsidies for certain groups of employees.

In order to distinguish between subsidies on products, subsidies on production and income transfers, information about the recipients of the subsidy and the specific conditions are obtained for the different subsidy schemes. For large subsidies, i.e. subsidies granted by the State, Statistics Netherlands examines these subsidy schemes carefully and allocates the subsidy to the right transaction.

## **Scrap schemes**

Scrap schemes (subsidies of 49 million euros is part of the item “Other (various operating subsidies)” in table 3.29.1) are being used in the Netherlands. The setup of the car scrap in the Netherlands: the premium can be received when a person car or delivery van with a year of construction before 1999 (there is a differentiation in the level of the premium linked to type of fuel and age of the car or van) is scrapped and a new car is bought. The purchase of the new car is obligatory. The payment of the scrap premium is made to the motorcar trade industry. Households do not directly receive the scrap premium from the government. The total amount of premiums paid in the reporting years 2009 and 2010 levels up to 60 million euros

In the Dutch national accounts the scrap premium is recorded as subsidies on products. The main reasons for this recording are: a. it is a policy to influence (reduce) the price of the new cars on order to tempt households to buy a new less polluting car. b. The payment of the scrap premium is made to motorcar trade industry (and not directly to households).

## CHAPTER 4 THE INCOME APPROACH

### 4.0 GDP according to the income approach

Table 4.1 describes the breakdown of GDP by NACE, rev. 2 groups in 2010 into compensation of employees, taxes on production and imports, subsidies on production and imports and the gross operation surplus.

**Table 4.1 GDP according the income approach by NACE sections, 2010**

	Compensation of employees	Taxes on products	Other taxes on production and imports	Subsidies on products (-)	Other subsidies on production (-)	Gross operating surplus	Value added (gross) / GDP
million euros							
A Agriculture, forestry and fishing	2.603	—	402	—	939	8.762	10.828
B Mining and quarrying	809	—	21	—	5	16.458	17.283
C Manufacturing	36.912	—	690	—	810	30.232	67.024
D Electricity and gas supply	1.609	—	27	—	7	5.672	7.301
E Water supply and waste management	1.712	—	81	—	84	1.832	3.541
F Construction	18.765	—	181	—	200	11.785	30.531
G Wholesale and retail trade	39.679	—	575	—	605	35.014	74.663
H Transportation and storage	16.148	—	292	—	210	10.761	26.991
I Accommodation and food serving	4.897	—	208	—	98	3.811	8.818
J Information and communication	13.768	—	86	—	244	14.233	27.843
K Financial institutions	18.987	—	299	—	66	28.502	47.722
L Renting, buying, selling real estate	3.735	—	2.080	—	41	25.825	31.599
M Other specialised business services	30.154	—	164	—	1.543	15.848	44.623
N Renting and other business support	19.325	—	542	—	393	11.137	30.611
O Public administration and services	30.264	—	368	—	135	12.907	43.404
P Education	22.882	—	244	—	198	6.643	29.571
Q Health and social work activities	39.806	—	393	—	2.031	12.603	50.771
R Culture, sports and recreation	3.621	—	62	—	28	3.688	7.343
S Other service activities	4.370	—	47	—	105	2.553	6.865
T Activities of households	425	—	—	—	—	—	425
U Extraterritorial organisations	—	—	—	—	—	—	—
Difference imputed and paid VAT	—	—	—	—	—	739	739
Not allocated to industry	—	66.567	—	3.551	—	—	63.016
<b>Total</b>	<b>310.471</b>	<b>66.567</b>	<b>6.762</b>	<b>3.551</b>	<b>7.742</b>	<b>259.005</b>	<b>631.512</b>

In the Netherlands the supply and use tables are leading in estimating GDP using primarily the production and expenditure method. As gross operating surplus is calculated as a balancing item, strictly speaking the income method is not used in GDP-compilation. Nevertheless independent estimates for compensation of employees and mixed income are made, based on administrative and statistical data. Next to that plausibility checks are carried out on the estimates of (net) operating surplus. By applying the so-called ‘dual classification’ on the components of value added of the supply and use table, GDP is redistributed from the branches of industry to the sectors of the institutional sector accounts. Table 4.2 gives the breakdown of GDP by institutional sector.

**Table 4.2 GDP according the income approach by institutional sector, 2010**

	Compensation of employees	Taxes on products	Other taxes on production and imports	Subsidies on products	Other subsidies on production	Gross operating surplus	Value added (gross) / GDP
				(-)	(-)		
million euros							
The non-financial corporations	215.869	–	4.211	–	6.010	155.108	369.178
Financial corporations	18.930	–	341	–	68	28.511	47.714
General government	60.116	–	634	–	366	20.588	80.972
Households	12.848	–	1.545	–	1.298	54.562	67.657
Non-profit institutions serv. households	2.708	–	31	–	–	236	2.975
Not allocated to sector	–	66.567	–	3.551	–	–	63.016
<b>Total</b>	<b>310.471</b>	<b>66.567</b>	<b>6.762</b>	<b>3.551</b>	<b>7.742</b>	<b>259.005</b>	<b>631.512</b>

Several sources are used to rearrange the transactions from industries of the supply and use tables into the sectors in the sector accounts. Important sources are business statistics, statistics on corporate finance and the Statistical Business Register (SBR). For the sector households (S14) the register of self-employed (the “Satelliet Zelfstandige Ondernemers”, SZO) is an important source. It has to be emphasised that large parts of general government and the financial institutions are primarily estimated within the framework of the institutional sector accounts. Estimates for the supply and use table are subsequently derived from the data in the institutional sector accounts. Therefore the dual classification estimates concern mainly non-financial corporations, households and non-profit institutions serving households.

#### 4.1 The reference framework

The calculation of gross domestic product (GDP) from the income perspective involves its estimation as the sum of the various components of value added, namely compensation of employees, the balance of other taxes and other subsidies on production and gross operating surplus/ mixed income.

From the income perspective, GDP can be estimated in different ways - for example based on:

- components of value added for the total economy;
- components of value added for individual industries;
- components of value added for institutional sectors;
- gross operating surplus/mixed income as residual items.
- a combination of the above

As operating surplus is a residual item in the supply and use system strictly speaking the income approach is not applied in the Netherlands in the sense that for all components of value added estimates are made based on independent sources. Nevertheless for compensation of employees, the balance of other taxes and subsidies on production, mixed income and consumption of fixed capital independent estimates are made. Next to that plausibility checks are carried out for (net) operating surplus.

Below an overview is given of the source data for estimating the components of value added both on sector and industry level:

- compensation of employees is estimated for the whole economy and by industry in the labour accounts based on administrative data for wages, government data and data from pension funds for (the totals of) employers' social premiums;
- for government and financial corporations compensation of employees is initially estimated for the concerning sectors and subsequently converted to industries. For the other sectors (non-financial enterprises, households and NPISH) estimates are based on the labour accounts data for individual industries which are redistributed to institutional sectors;
- taxes on production and subsidies are determined for the whole economy based on administrative data of the government and are broken down to industry and sector based on among others business statistics;
- gross operating surplus is estimated as a residual item and redistributed from industries of the supply and use table to institutional sectors (mainly applied for non-financial enterprises, households and NPISH);
- gross operating surplus of government and NPISH (non-market producers) equals consumption of fixed capital, which is estimated using the Perpetual Inventory Method;
- estimates for mixed income are based data from the register of self-employed (the "Satelliet Zelfstandige Ondernemers", SZO).

## 4.2 Borderline cases

Compensation of employees includes wages and salaries in kind resulting both from (additional) output and intermediate consumption. Wages and salaries in kind exclude expenditure that benefits the employer because it is necessary for the production process, such as business travel expenses. However, the meals enjoyed during the business travel are included as the corresponding meal at home is saved by the employee. Another example of exclusion is the expenditure for specific clothing used mainly at work; these are not treated as wages and salaries in kind, but recorded as part of the intermediate consumption in the production process concerned.

The 2010 revision of the national accounts and the accompanying introduction of the ESA 2010 methodology, brought about an enlarged scope of gross fixed capital formation (GFCF). In the translation of data from business statistics to national accounts definitions, where necessary adjustments are made in order to assure that expenditure on intellectual property products, such as R&D and software, are recorded as GFCF instead of intermediate consumption. As a residual item in the supply and use tables, the impact of rerouting expenses from current to capital, gross operating surplus will be adjusted upwardly.

For the recording of taxes and subsidies on production and imports, reference is made to sections 4.9 and 4.10.

## 4.3 Valuation

The sum of compensation of employees, the balance of other taxes and subsidies on production and gross operating surplus / mixed income results in gross value added at basic prices. For these components no specific valuation aspects are at stake. Wages and salaries in kind are valued at basic prices when the provided products are produced by the employer. If the products are purchased by the employer, they are valued at purchasers' prices.

Ad hoc payments such as bonus payments, are recorded in the year in which the bonus is due to be paid. The same holds for more regular payments like the holiday bonus and ‘the 13<sup>th</sup> month’ (or sometimes even the 14<sup>th</sup> month). This way of recording does not follow the accrual principle exactly, but differences tend to be very small as these payments change only gradually over time.

#### **4.4 Transition from private accounting and administrative concepts to ESA 2010 national accounts concepts**

Definitions and concepts used in the national accounts do not always correspond with private accounting and administrative practice. There are many examples of differences, but two are of particular importance for the income approach.

The national accounts concept of wages, or more accurately: compensation of employees, differs significantly from the corresponding concept in private accounting. Company accounts do not include the costs of company-car use, interest discounts, meals, etc. in wages, whereas the national accounts identify these as payments in kind. Next to that, payments during sickness are included in wages, while in the national accounts they must be recorded as (imputed) employers’ social contributions. The estimation process of compensation of employees includes adjustments to overcome these differences in ‘definitions’ (see section 4.8 for more details).

The treatment of taxes and subsidies in the national accounts may differ from private accounting practice, for example, because the moment of actual payment needs not to coincide with the moment an entitlement is acquired. As the national accounts take the accrual government data on taxes and subsidies as a fixed starting point, the allocation to industries may not always be fully adequate. The total is however in line with the principle of the national accounts.

The concept of consumption of fixed capital is quite different from business accounting practice. Enterprises generally determine depreciation based on rules approved by the tax authorities (examples are replacement value, historic cost price). National accounts uses the PIM-model (see section 4.13 for more details) in which assets are always valued at actual market prices.

According to ESA 2010, all expenditure items classified as GFCF, must be subtracted from current costs as reported in business surveys and company reports. As a consequence, gross value added will increase. Important items in this respect are “research and development”, “software and entertainment, literary and artistic originals”. The processing methods of the source statistics include the adequate adjustments for each of these items (see for more details chapters 3 and 5).

The compilation of the output of insurance service charge is described in section 3.17. These service charges are allocated to industries and consumption of households, applying a proportional distribution based on premiums paid.

Production and intermediate consumption of FISIM are estimated based, among others, on data from balance sheets by institutional sector. The allocation to industries is based on production totals. FISIM is included as a separate service item in the supply and use system. As gross operating surplus is calculated as a residual item, the impact of FISIM on value added is automatically accounted for.

The design of the questionnaires for investment statistics and business statistics addresses the distinction between financial lease and operational lease. Assets under financial lease have to be reported as gross fixed capital formation in the accounts of the lessee. The fee paid for assets under an operational lease are part of the lessee's current costs and intermediate consumption.

In the Dutch national accounts decommissioning of large capital assets is recorded as GFCF at the moment the demolition takes place, at the end of the service life of the concerning asset. Demolition as an activity is mainly produced by construction.

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

Besides gross operating surplus all income components of GDP are (largely) based on direct estimation methods. A great variety of statistical sources are available, many of them also used in the production based GDP estimation. Wages and employer's social contributions are largely estimated on the basis of statistical sources, with indirect estimation methods only being required for wages and salaries in kind and a (small) part of pension premiums. Estimates of employer's social contributions rely on the actual receipts of social security organisations, which is a comprehensive observation. Subsidy and tax estimates are based on figures from government registers.

As gross operating surplus is a residual item in the supply and use system strictly speaking the income approach is not applied in the Netherlands in the sense that for all components of value added estimates are made based on independent sources. Nevertheless for mixed income independent estimates are made and plausibility checks on net operating surplus are carried out using data from business statistics.

Level estimates for the national accounts data were determined in the context of the 2010 benchmark revision. In calculations for subsequent years, the greatest possible use was made of business surveys and other annual data sources maintaining level estimates in accordance with these data sources. Since (statistical) level data are not available for each variable, in the preceding years such variables were estimated by using trend indicators.

#### **4.6 The main approaches taken with respect to exhaustiveness**

Although in the Netherlands no independent estimate of GDP applying the income approach is made, additional estimates for exhaustiveness are added to observed data on compensation of employees and operating surplus/mixed income. For compensation of employees additional estimates for wages in kind (2143 million euros) are made. This amount consists of estimates for free travel and interest discounts (488 million euros), wages in kind (excl. company car, 1393 million euros) and concealed payments to regular staff (262 million euros). This amount differs from the results on wages in the process table of the production approach in chapter 3 because parts of wages in kind are already covered by source data or estimating procedures. Examples the use of the company car and interest discounts with banks.

The impact of exhaustiveness estimates on operating surplus / mixed income amounts to 7391 million euros as shown in the process table of the production approach of which 7204 is allocated to mixed income. The main part of this amount is linked to illegal activities (N2,

2400 million euros), cleaning services and babysitting (N3, 2502 million euros). Hidden economy (N1) and cost fraud (N6) are partly allocated to own account workers. Because operating surplus is used as a residual item, the remainder is implicitly recorded as such with (small) incorporate enterprises.

## 4.7 Compensation of employees

### 4.7.0 Summary and process table

Compensation of employees is compiled as part of the Dutch system of labour accounts. These labour accounts are fully consistent with the Dutch national accounts. The main data-sources for the labour accounts with regard to compensation of employees are the monthly micro-datasets on job level derived from the Employees' Register of the Employee Insurance Agency. These datasets are available via the Social Statistical Database (SSD). The main base for national accounts figures on compensation of employees are therefore administrative records (column (2) of the process table). For the breakdown of compensation of employees into branches of industry according to the columns of the supply and use table, the administrative data are linked to the units in the statistical business register (SBR). The total compensation of employees is shown in the process table.

**Table 4.3 Process table for compensation of employees**

<b>Compensation of employees</b>		
<b>Basis for national accounts figures</b>		
Surveys & Censuses	(1)	0
Administrative Records	(2)	295.674
Combined Data	(3)	0
Extrapolation and Models	(4)	12.523
Other	(5)	0
Total (sources)	(6)	308.197
<b>Adjustments</b>		
Data validation	(7)	0
Conceptual	(8)	0
Exhaustiveness	(9)	2.143
Balancing	(10)	131
<b>Final estimate</b>	<b>(11)</b>	<b>310.471</b>

The allocation of the various parts of the estimates of compensation of employees in the process table is derived from the table 4.4. This table shows the composition of the estimates of 'compensation of employees' for 2010.

In column (4) of table 4.3 "other extrapolation and models", estimates are shown for the items (a + b + c + d + e + f) minus the items (k + l + m), i.e. 22,870 million euros minus 10,347 million euros. The estimate for exhaustiveness in column (9) equals the items (g + h + i) of table 4.4. Column (10), balancing, equals item j in table 4.4. All the other items in table 4.4 are considered as administrative records (column (2)) in the process table.

#### 4.7.1 Wages and Salaries

The primary data-source for the compilation of the labour accounts with regard to compensation of employees are the monthly micro-datasets on job level based on the Employees' Register of the Employee Insurance Agency. From 2006 onwards companies are legally obliged to report to the tax authorities on a monthly basis every individual payment to every employee. These datasets are available via the Social Statistical Database (SSD). This register contains information for all existing jobs of all employees working for a company in the Netherlands during 2010. For nearly all these jobs information is available on the economic activity, hours worked, total amount of wages and number of days for which wages were paid. The data in the administrative records are not in full conformity with the definitions of the ESA2010 and need some further processing. An example is payment during sick leave which is recorded as part of wages in the administrative records but must be recorded as (imputed) employers' social contribution in the national accounts.

Next to these administrative records additional estimates have to be made for example for wages in kind and hidden economy.

Table 4.4 gives an overview of the main components of the estimates of wages and employers' social contributions.

Starting point for the estimates of compensation of employees are the gross wages recorded for social security which can be directly derived from the administrative records.

Item a. concerning employee premiums for pension and early retirement programs, are separately available in the administrative records.

Items b. Contributions savings program ("spaarloon") and c. Savings for paid leave ("levensloop") are initially derived from the administrative records but both adjusted as a consequence of the balancing process with the supply and use tables, institutional sector accounts and collective tax declarations on wages.

Item d. Commuting costs are directly derived from the administrative records.

The private use of company cars (item e) is taxed in the Netherlands and is therefore part of the tax declaration. In general an addition of 25 per cent of the catalogue price (the price of the car when registered for the first time in the Netherlands) must be added to the wages. However, in 2010 the addition for environmental friendly cars was less, having rates of 20 per cent and 14 per cent. For the estimates of wages in kind the 25%-rule of the tax authorities is generally applied. The base for the estimates is gross fixed capital formation in private cars by lease companies in the last 4 years. The 4-year period is applied because in general lease cars are sold after 4 years.

The first second column of table 4.5 contains GFCF of the lease companies at purchasers' prices. In order to get the catalogue prices which is the base for taxation and the estimates of wages in kind a mark-up of 5 per cent is applied as a compensation for discounts (see column 2 of table 4.5). The use of lease cars is not strictly limited to enterprises. Consumption of households and exports account for about 10 per cent of turnover of lease companies (see column (3) of table 4.5). Column (4) gives the catalogue value of lease cars available for enterprises. Following the tax rules the last column equals 25 per cent of the catalogue price as estimate for wages in kind.

**Table 4.4 The composition of the compensation of employees, 2010**

	million euros	
Gross wages recorded for social security	231.745	
Total supplementary estimates (+)	25.144	
Of which:		
a. Employee premiums for pension and early retirement programs		13.192
b. Contributions savings program (spaarloon)		1.227
c. Savings for paid leave (levensloop)		680
d. Commuting costs		3.335
e. Company car		4.135
f. Untaxed benefits		301
g. Tips, share options, free public transportation, interest discounts		488
h. Wages in kind		1.393
i. Concealed payments to regular staff		262
j. Balancing item		131
Total supplementary estimates (-)		
Of which:	10.347	
k. Pseudo public sector regulations (-)		1.170
l. Payment during sick leave (-)		9.177
m. Payment during leave due to bad weather (-)		0
Wages and salaries	246.542	
Employers' social contributions	63.929	
Of which:		
n. Employers' contributions to pension schemes		23.486
o. Cure Insurance Act (ZVW)		11.755
p. Act on Work and Income based on Work Capacity (WIA, Whk)		11.312
q. Disablement Insurance Fund (AOK)		124
r. Unemployment Insurance Act (WW, WKO)		5.634
s. Executive Fund of the Government (UFO)		526
t. Employers' other private social insurance contributions		0
u. Imputed social contributions		11.092
<b>Compensation of employees</b>	<b>310.471</b>	

Item f. Untaxed benefits is derived from administrative data and concerns gift of employers to their employees like Christmas presents etc.

Item g. Share options, free public transportation and interest discounts results from various sources and model estimates.

The amount of tips and share options is derived from income tax data (IPO, 58 million). The Dutch Central Bank (DNB) collects data on banking and interest discounts for the staff of banks is a separate question in the questionnaire (234 million) For the estimate of interest discounts in insurance no source information is available. The pre-benchmark of about 60 per cent of the amount of discounts with banking is applied resulting in an estimate of 145 million euros.

**Table 4.5 Wages in kind company cars**

	GFCF	Adjustment Catalogue price	Adjustment for HH consumption and exports		Wages in kind
	(1)	(2)=(1) * 1,05	(3)	(4)=(2) - (3)	(5)=0,25 * (4)
2007	5.526	5.802	542	5.260	1.315
2008	4.841	5.083	475	4.608	1.152
2009	3.048	3.200	300	2.900	725
2010	3.966	4.164	392	3.772	943
Wages in kind 2010					4.135

Free transport services concern employees of the railways, public transport (excluding taxis) and airliners. The estimates are based on the number of employees combined with assumptions about the use of free transport and their own contribution.

**Scheme 4.1 Free transport services estimates**

	Railways	Public transport	Airliners
Number of jobs	12.000	31.000	30.000
Average number of free travels per person	3	3	3
Number of trips	12 per year	12 per year	1 per year
Price per trip	35 euros	10 euros	555 euros
Own contribution	0	0	50%
Total estimate free transport	15 million euros	11 million euros	25 million euros

Item h. Wages in kind includes mainly meals and drinks offered by the employer in the office and during business trips. It is assumed that 50 per cent of the intermediate expenses on meals and drinks should be recorded as wages in kind. The other half concerns meals in case of exceptional working condition and payment for company guests (customers).

The 50%-rule is not applied for traveling agencies, airliners and health care because in these cases meals and drinks are inputs in their production process. A total estimate of 1.722 million euros results from the 50%-rule. Of this amount 1.393 million is attributed to wages in kind. The remaining 329 million is attributed to own account work and thus recorded as part of mixed income.

Item i. Concealed payment of regular staff concerns tips in pubs and restaurants (42 million euros) and payments by unofficial employment agencies (220 million euros). See also chapter 7 for more details.

Excluded from wages and salaries are payments according to pseudo public sector regulations (item k), payments during sick leave (item l) and the payment during weather-related leave (m).

Payments according to pseudo public sector regulations refer to paid leave for mothers (four months) and fathers (two days) of newly born babies in 2010. Because the identity is known of all individuals who had a baby in 2010, the adjustment of the wages can be calculated precisely.

Item l. The payments during sick leave are calculated on the basis of data on sickness absence (a quarterly survey on sick leave).

Item m. Payment during leave due to bad weather only concerns construction. From the production survey on construction, quarterly estimates on the number of lost days are made. Both items are transferred from wages and salaries to the employers' social contributions.

#### **4.7.2 Employers' social contributions**

Employers' social contributions consist of employers' contributions to pension schemes, contribution for social security like health and unemployment and imputed contributions.

The estimates for employers' contributions to pension schemes are derived from source data collected by the Dutch Central Bank. The observed pension premiums of pension funds and collective life insurance is a fixed starting point. In the labour accounts an estimate is made for the employee's part of pension premiums using administrative data on wages mentioned before in combination with some modelling. In general the labour accounts estimates for the employee's part are leading, so that the employers' part is the remaining part to match the total premiums from the Central Bank data. Small adjustments are made for premiums paid by non-residents to resident pension funds and vice versa.

Finally an amount for pre-pension schemes is added which is estimated using annual reports of pre-pension funds. Within the framework of the labour accounts the employee's part is estimated based on administrative data. For pre-pension premiums it is assumed that cross border transactions do not exist.

For the Cure Insurance Act (ZVW), the Act on Work and Income based on Work Capacity (WIA, Whk), the Disablement Insurance Fund (AOK), the Unemployment Insurance Act (WW, WKO) and the Executive Fund of the Government (UFO, finances social benefits for civil servants) two sources of information are available for the national figures. On the one hand information from tax authorities on social premiums paid are available. On the other hand data are available from the institutions actually executing the concerning acts. The two sources are confronted and checked on plausibility. In principle the tax data are leading.

Imputed social contributions consist mainly of payments during sick leave, pregnancy and birth, military pensions and government pre-pension schemes. The former are estimated using labour data (see above). The latter stems from administrative data of the government.

Estimates of employers' social premiums on the industry level are based on the monthly micro-datasets on job level based on the Employees' Register of the Employee These figures are compared to national data described above in order to compute the final figures.

#### **4.8 Taxes on production and imports**

Table 4.6 summarises the scope and composition of other taxes on production in the Netherlands. These represent about 1.2 per cent of GDP at market prices. The table also

indicates the sources used. It shows that property taxes constitute the main type of other taxes on production, representing 45 per cent of the total. Motor vehicle tax, environmental taxes and taxes on payroll and workforce are other important taxes on production.

75 per cent of the total amount of all other taxes on production is levied by the local authorities. Local taxes, the remaining 25 per cent, are national taxes. The amount of other taxes on production of the European Union is negligible.

Other taxes on production are defined in accordance with ESA 2010 (see sections 4.22-4.24). The principal difference with regard to taxes on products is that the latter are levied on outputs (e.g. excise duties), whereas other taxes on production relate to inputs (e.g. taxes on the use of motor vehicles, dwellings or offices). Taxes on products are summarised in section 3.24 of this Inventory.

**Table 4.6 Other taxes on production, 2010**

	million euros	%	Source	Estimation method/adjustments
<b>Property tax</b>	<b>3.046</b>	<b>45</b>	Annual accounts municipalities	Production share based on commercial premises estimate (35 per cent) plus owner/occupier estimate (5/9* 65 per cent)
<b>Taxes on motor vehicles</b>	<b>976</b>	<b>15</b>		
National motor vehicle tax	700	11	Min. of Finance tax survey	Production share based on the most recent budget survey + annual analysis
Provincial motor vehicles tax	276	4	Annual accounts provinces	Production share based on the most recent budget survey + annual analysis
<b>Environmental taxes</b>	<b>1.578</b>	<b>23</b>		
Sewage charges	206	3	Annual accounts municipalities	Production share based on the most recent budget survey + annual analysis
Levies on water pollution	297	4	Annual accounts district water boards	Production share based on database analysis
Polder board levies	695	10	Annual accounts district water boards	Production share based on database analysis
Other environmental taxes	380	6	Annual accounts State / provinces	
<b>Other</b>	<b>1.162</b>	<b>17</b>		
PBO levies/ Chambers of commerce reg. fees	326	5	Annual accounts PBOs	
Tourist tax	131	2	Annual accounts municipalities	
Taxes on payroll and workforce	705	10	Min. of Finance tax survey	
<b>Total</b>	<b>6.762</b>	<b>100</b>		

According to ESA 2010 property taxes, motor vehicle tax and certain environmental taxes, such as sewage charges are recorded as ‘other taxes on production’ or ‘other current taxes on income, wealth, etc.’ depending if they are paid by producers or consumers. When these taxes are paid by producers, they are classified as other taxes on production. When paid by consumers, they are registered as other current taxes. The information to make this split is however not available in the source data. Hence additional statistical sources are used to get the relevant information. Concerning the motor vehicle tax and certain environmental levies, such as sewage charges information from the most recent household budget surveys is used for the breakdown in other taxes on production and other taxes on income, wealth, etc.

## 4.9 Subsidies

Table 4.7 summarises the scale and composition of other subsidies on Dutch production in 2010, which represented 1.4 per cent of GDP at market prices. The table shows that wage and

salary subsidies are the most important of these subsidies, accounting for approximately 46 per cent of the total. Other subsidies of this type relate to the promotion of R&D, energy saving and the stocks of oil.

Other subsidies on production were defined in accordance with ESA 2010 (see sections 4.36-4.40). The major difference compared with subsidies on products is that the latter are granted on the basis of confirmed outputs (for example public transport), whereas other subsidies on production are based on inputs/costs incurred. The composition of subsidies on products in the Netherlands is summarised in section 3.26 of this Inventory.

More than 50 per cent of the total amount of all other subsidies on production are provided by the Dutch central government and around 23 per cent by Dutch municipalities.

**Table 4.7 Other subsidies on production, 2010**

	million euros	% of total
Wage subsidies	3.548	46
Subsidies related to R&D	1.866	24
Subsidies related to agriculture	127	2
Education fund medical specialists	842	11
Mineral oil reserves	89	1
Other (e.g. on energy saving)	492	6
Agricultural Equalisation Fund (LEF)	778	10
Total	7.742	100

#### **4.10 Gross operating surplus**

As gross operating surplus is a residual item in the supply and use system, strictly speaking the income approach is not applied in the Netherlands in the sense that for all components of value added estimates are made based on independent sources. Nevertheless for mixed income independent estimates are made (see section 4.11) and plausibility checks are carried out using data from business statistics.

For non-market producers gross operating surplus equals consumption of fixed capital (see section 4.12 for more details).

#### **4.11 Mixed income**

Mixed income occurs only with the sector households. Operating surplus/mixed income of households amounts 54.562 million euros of which 3143 million is linked owner occupied dwellings, resulting in an estimate for mixed income of 51.419 million.

For the estimation of income and labour of self-employed persons new data came available from 2010 onwards (Satellite un-incorporate enterprises). This satellite contains individual tax declarations for the self-employed, including fiscal income and profits. For the compilation of

the labour accounts for the year 2010 this information is used to make estimates of variables concerning self-employed. The data are also used for estimating the dual classification of production, intermediate consumption and value added and its components in order to link the supply and use tables to the institutional sector accounts. Conceptual adjustments are made for the transformation of insurance premiums to insurance services (352 million euros) and the allocation of FISIM (-273) based on data from the supply and use tables.

Another part of mixed income is the rental from dwellings and other property. The estimate is based on a combination of data sources. From the wealth statistics of Statistics Netherlands (based on data from the tax authorities) the share of the self-employed in the total value of privately owned rented dwellings, other property and the number of privately owned rented dwellings are taken. From the annual report of the Housing Associations Authority (CFV) the share of dwellings owned by Housing Associations and their value is used, and from the rent survey of Statistics Netherlands the sum of the value of dwelling, the sum of rent received from dwellings and garages, and the number of dwellings are received by type of investor. The combination of these data sources lead to an estimate for mixed income for this part of 2536 million euros.

**Table 4.8 Process table for mixed income**

<b>Mixed income</b>		
<b>Basis for national accounts figures</b>		
Surveys & Censuses	(1)	0
Administrative Records	(2)	41.304
Combined Data	(3)	2.536
Extrapolation and Models	(4)	0
Other	(5)	296
Total (sources)	(6)	44.136
<b>Adjustments</b>		
Data validation	(7)	0
Conceptual	(8)	79
Exhaustiveness	(9)	7.204
Balancing	(10)	0
<b>Final estimate</b>	<b>(11)</b>	<b>51.419</b>

Furthermore part of income earned in the non-observed economy is allocated to mixed income. These total to 7204 million euros, which can be broken down further into hidden economy (N1, 1235 million), illegal activities (N2, 2.400 million euros), informal activities like cleaning of dwellings and buildings and babysitting (N3, 2502 million euros), cost fraud (N6, 425 million euros) and tips and income in kind (N7, 642 million euros). See section 7.2.3 for more details on exhaustiveness.

## **4.12 Consumption of fixed capital**

The OECD (2001) handbook on Measuring Capital provides the methodological underpinnings of capital-related macroeconomic statistics such as consumption of fixed

capital, net capital stocks and capital services. The handbook shows that these different statistics are interrelated and should preferably be constructed consistently, based on one conceptual framework. Such a framework has been developed as part of the Dutch national accounts. In this framework the following types of capital stocks are distinguished:

- The framework starts off with the compilation of *gross* capital stocks on the basis of estimated discard functions. The gross capital stock represents the replacement value of all fixed assets used in production. Replacement value means that these assets are valued at current market prices;
- The *productive* capital stock is subsequently derived from the gross capital stock. The productive stock reflects the level of capital services an asset is able to generate. The productive capacity of assets is postulated with the aid of so-called age-efficiency profiles. It is assumed that the age-efficiencies of most assets decline over their service lives as a result of normal wear and tear. The total productive capital stock of a particular asset type is derived by aggregating assets of various vintages according to their transformation into efficiency units. Productive stocks are particularly useful for productivity measurement purposes;
- The *net* capital stock represents the actual market value of all fixed assets used in production. As most capital goods are sparsely traded on second hand markets, market values are approximated based on estimates of the net present value of current and future capital services a capital good is expected to generate during its remaining service life. These expected flows of current and future capital services are determined with the aid of the above mentioned age-efficiency profiles.

The three distinguished types of capital stocks are interrelated and in the Dutch PIM they estimates using the following methods:

### Gross capital stock

The replacement value  $V_{j,t}$  in year  $t$  of assets purchased in year  $j$  (vintage  $j$ ) is determined as follows:

$$V_{j,t} = I_j \prod_{i=j+1}^t P_i = V_{j,t-1} P_t \quad (1)$$

Variable  $I_j$  denotes investments in historic prices and  $P_i$  denotes the corresponding price index of year  $i$  (where  $P_i = 1$  if prices do not change in year  $i$ ). So, all investments are re-valued to current prices.

The gross capital stock  $GCS_{j,t}$  of vintage  $j$  equals the replacement value of all capital goods purchased at  $j$  that are still used in production. Their gross capital stock is determined by multiplying the replacement value  $V_{j,t}$  by a corresponding survival rate  $S_{t-j}$ . This survival rate denotes the fraction of assets of age  $t-j$  that is expected still to be in service.

$$GCS_{j,t} = V_{j,t} S_{t-j} = S_{t-j} I_j \prod_{i=j+1}^t P_i \quad (2)$$

The total gross capital stock  $GCS_t$  is determined by aggregating over the various vintages  $j$  (assets of a particular asset type purchased at  $j$ ).

$$GCS_t = \sum_{j=0}^t GCS_{j,t} \quad (3)$$

### Productive capital stock

The productive capacity of capital goods is determined by their age-efficiency  $AE_{t-j}$ . An age-efficiency function indicates the development of the productive capacity of assets over their service life. For most asset types it is assumed that their age-efficiency declines over time.

The age-efficiency parameter  $AE_{t-j}$  represents the *average* age-efficiency of all assets of the age  $t-j$  that are still used in production. The age-efficiency varies between 1 (new) and 0 (at the end of an assets service life). The age-efficiency parameter  $AE_{t-j}$  is a weighted average of individual age-efficiency profiles of all assets of age  $t-j$  that are part of the gross capital stock at time  $t$ . This average must be taken since assets of a particular vintage will have diverging survival probabilities.

The parameter  $AE_{t-j}$  indicates the average age-efficiency level of a particular capital stock of vintage  $j$  compared to an identical brand new capital stock purchased at time  $t$ . The concomitant productive capital stock ( $PCS_{j,t}$ ) is calculated as follows.

$$PCS_{j,t} = AE_{t-j} GCS_{j,t} \quad (4)$$

The average age-efficiency profile is determined by describing the productive capital stock directly as a function of the replacement value ( $V_{j,t}$ ) of all investments in year  $j$ . For this purpose the total age-efficiency profile  $TAE_{t-j}$  is introduced. The total age-efficiency profile entails the average of age-efficiency profiles of individual capital goods of the vintage  $j$ , weighted by their survival probabilities.

$$PCS_{j,t} = TAE_{t-j} V_{j,t} \quad (5)$$

These individual age-efficiency profiles  $A_{M,t-j}$  are assumed to be determined only by age  $t-j$  of the corresponding asset and its ultimate service life  $M$ . The variable  $L_M$  in the following equation denotes the probability of an asset to end its service life after  $M$  years.

$$L_M = -\frac{d}{dM} S_M \quad (6)^{14}$$

The total age-efficiency is then determined as follows.

$$TAE_{t-j} = \int_0^{\infty} A_{M,t-j} L_M dM \quad (7)$$

It is assumed that the age-efficiency levels of discarded assets equal zero.

The total productive capital stock is ultimately determined by aggregating the productive capital stocks, as estimated above, for each of the different vintages  $j$ .

<sup>14</sup> For assets with relatively short service lives, using a discrete version of this equation may in certain cases lead to measurement inaccuracies. Therefore the continuous version is used instead for net capital stock calculations.

## Net capital stock

The net (wealth) capital stock  $NCS_{j,t}$ , representing all assets of vintage  $j$ , is determined by calculating the net present value of expected capital services (or rents) generated by this group of assets.

$$NCS_{j,t} = \int_0^{\infty} \frac{R_{j,t-j+\tau} d\tau}{(1+r)^\tau} \quad (8)$$

The variable  $R_{j,t-j+\tau}$  denotes the expected capital services in year  $t+\tau$  (at current prices) derived from presently  $t-j$  old assets. Variable  $r$  represents the real discount rate.

Developments in the volume levels of capital services are determined by the total age-efficiency profiles. This implies that the rents in prices of year  $t$  derived from all assets of the vintage  $j$  can be described as a constant  $C_{j,t}$  times the total age-efficiency profile  $TAE_{t-j}$ :

$$R_{j,t-1} = C_{j,t} TAE_{t-1} \quad (9)$$

The net capital stock of all assets of the vintage  $j$  can then be determined as follows.

$$NCS_{j,t} = C_{j,t} \int_0^{\infty} \frac{TAE_{t-j+\tau} d\tau}{(1+r)^\tau} \quad (10)$$

The so-called age-price profile  $AP_{t-j}$  represents the net value of vintage  $j$  stocks at time  $t$  as percentages of their replacement values. The age-price profile can be determined independently from the constant  $C_{j,t}$ .

$$AP_{t-j} = \frac{NCS_{j,t}}{NCS_{j,j}} = \frac{\int_0^{\infty} \frac{TAE_{t-j+\tau} d\tau}{(1+r)^\tau}}{\int_0^{\infty} \frac{TAE_{\tau} d\tau}{(1+r)^\tau}} \quad (11)$$

The so-called asset market equilibrium condition implies that the net present value of both past and expected capital services, as determined by the total age-efficiency profiles, derived from all asset of the age  $t-j$  equals their replacement value  $V_{j,t}$ . This condition is expressed by the following equation.

$$V_{j,t} = C_{j,t} \int_0^{\infty} \frac{TAE_{\tau} d\tau}{(1+r)^\tau} \quad (12)$$

The corresponding net capital stock at any point in time  $t$  can then be determined by substituting equations (12) and (11) in equation (10).

$$NCS_{j,t} = C_{j,t} AP_{t-j} \int_0^{\infty} \frac{TAE_{\tau} d\tau}{(1+r)^\tau} = V_{j,t} AP_{t-j} \quad (13)$$

As a result, the net capital stock of assets of vintage  $j$  is determined by the replacement value  $V_{j,t}$  times its corresponding age-price profile. The total net capital stock is simply derived by adding up the corresponding wealth stocks of all vintages.

## Balance sheets

The subsections above illustrate how the gross, productive and net capital stocks are derived in sequential order from investment time series in current and constant prices. Balance sheets are constructed to keep a systematic record of all changes in assets in the current year. The changes between opening and closing stocks entail the following entries:

- asset price changes;
- gross fixed capital formation;
- consumption of fixed capital;
- other changes in the volume of assets, such as sales and purchases of second-hand assets, reclassifications and bankruptcies. Although sales and purchases are part of gross fixed capital formation, for practical reasons they are registered as other changes in assets in the PIM framework.

ESA 2010 (3.139) defines consumption of fixed capital ( $D_t$ ) as the decline in value of fixed assets as a result of normal wear and tear and obsolescence. Consumption of fixed capital is measured in average prices in the current year. This implies that holding gains and losses are not accounted for in terms of depreciation but as asset price changes. Catastrophic losses are equally excluded from depreciation but accounted for in terms of other changes in assets.

For assets purchased in year  $j$ , in the Dutch PIM consumption of fixed capital is determined as the annual change in the value of assets, measured in current prices, before the recording of fixed capital formation and the other volume changes in assets. Another way to estimate the consumption of fixed capital of assets belonging to vintage  $j$  is to multiply their replacement value by the corresponding change in the age price profile.

$$D_{j,t} = P_t NCS_{j,t-1} - NCS_{j,t} = V_{j,t} (AP_{t-j-1} - AP_{t-j}) \quad (14)$$

The other changes in assets include major sales of assets such as buildings, dwellings and transport equipment (specifically related to the termination of car lease contracts). Two problems emerge in recording sales and purchases of second-hand assets:

- In most cases the age of capital goods that change ownership is unknown. This information is obviously required and therefore assumptions about the average age of sold assets must be made;
- Because of existing differences in services lives, age-efficiency profiles and price developments between different industries, the recording of changes in ownership may lead to (usually small) discrepancies between gross, productive and net capital stocks. Since these discrepancies are usually rather small they are simply ignored.

Various conventions, based on historic cost price and/or fiscal service life, are in agreement with the calculation methods of depreciation in business accounts. This means that the extent of depreciation of assets cannot be directly derived from commercial surveys as they will differ from the national accounts concept. In case of national accounts, consumption of fixed capital is determined with reference to historical series of fixed capital formation using the perpetual inventory method. Consumption of fixed capital is calculated for produced tangible assets (excluding cattle) and intangible assets including public service infrastructure. We distinguish 28 asset types in total for all main sectors (5; S11; S12; S13; S14 and S15) and branches (NACE rev. 2).

Newly included fixed asset categories are weapon systems and R&D. This is in line with the conceptual changes when moving from the 1995 to the 2010 ESA.

The perpetual inventory method (PIM) starts with the value of the capital stock of fixed assets at the beginning of the year. This stock is brought to replacement value by adjusting for price changes in comparable fixed assets during the accounting year. Gross fixed capital formation in that year is added to this figure and the value of suspended assets is subsequently deducted. The result is the fixed capital stock value at the end of the year. The first step is calculating age-price profiles of assets based on the net present value of postulated future rental flows. Next, consumption of fixed capital is calculated with the help of these age-price profiles.

The age-price profiles are calculated based on information about the survival functions, the age-efficiency functions of the assets is needed and a discount rate.

The survival function is based on a Weibull function which offers both sufficient simplicity and adequate flexibility:

$$S_{Wei}(t) = \exp\left(-(\lambda t)^\alpha\right) \quad t \geq 0 \quad (15)$$

where  $\lambda = \exp\left(\Gamma(1 + 1/\alpha)\right)/L$ . Here,  $\Gamma$  refers to the Gamma function,  $L$  is the average service life and  $\alpha$  is a shape parameter. The empirical estimation of the Weibull mortality function parameters is explained in the annexes 4.1 and 4.2. For the age-efficiency function, a Winfrey function is used:

$$\begin{aligned} A_{Win}(M, t) &= \frac{M - t}{M - \beta t} & M > t \\ &= 0 & M \leq t \end{aligned} \quad (16)$$

where  $M$  refers to the maximum age of the asset and  $\beta$  is a shape parameter. For establishing the depreciation function, hyperbolic age-efficiency profiles were postulated with the help of the Winfrey function (OECD, 2001, par. 6.75), as presented in equation 16. The  $\beta$  parameter in this function determines the initial efficiency losses at the beginning of an asset's services lives. The  $\beta$  parameter may vary between 0 and 1. A value of 1 indicates a constant level performance, also referred to as a 'one-horse-shay'. We selected a  $\beta$  value of 0.5 for asset types like machinery and installations and transport equipment, a value of 0.75 for industrial buildings and dwellings and a value of 1.0 for computers, software and other intangible fixed assets.

For the discount rate, a constant real rate of 4 per cent is used. This is in line with government practice for government investments for most years covered. In recent years government real discount rate has been lowered to 2.5 per cent. In keeping a comparable time series, this change was not implemented in the Dutch PIM.

The alpha is estimated for all combinations of industries (NACE) and type of asset for which a fixed capital stock was observed. Every effort is made to optimise the correlation between calculated and observed fixed capital stock. An alpha of 2.5 was chosen for all combinations without observed data.

The beta is based on data from the Australian Bureau of Statistics (ABS) and the Bureau of Economic Analysis (BEA) in the USA and on expert guesses. The fixed assets in estimating CFC cover all fixed assets (except cultivated assets) including intellectual property products.

All conceptual changes relating to ESA 2010 have been introduced in the estimates for GFCF and subsequently been introduced in the PIM, and hence CFC. For each asset long time series

have been constructed, making it possible to construct balance sheets for each asset type and estimating the CFC using the parameters of the Dutch PIM.

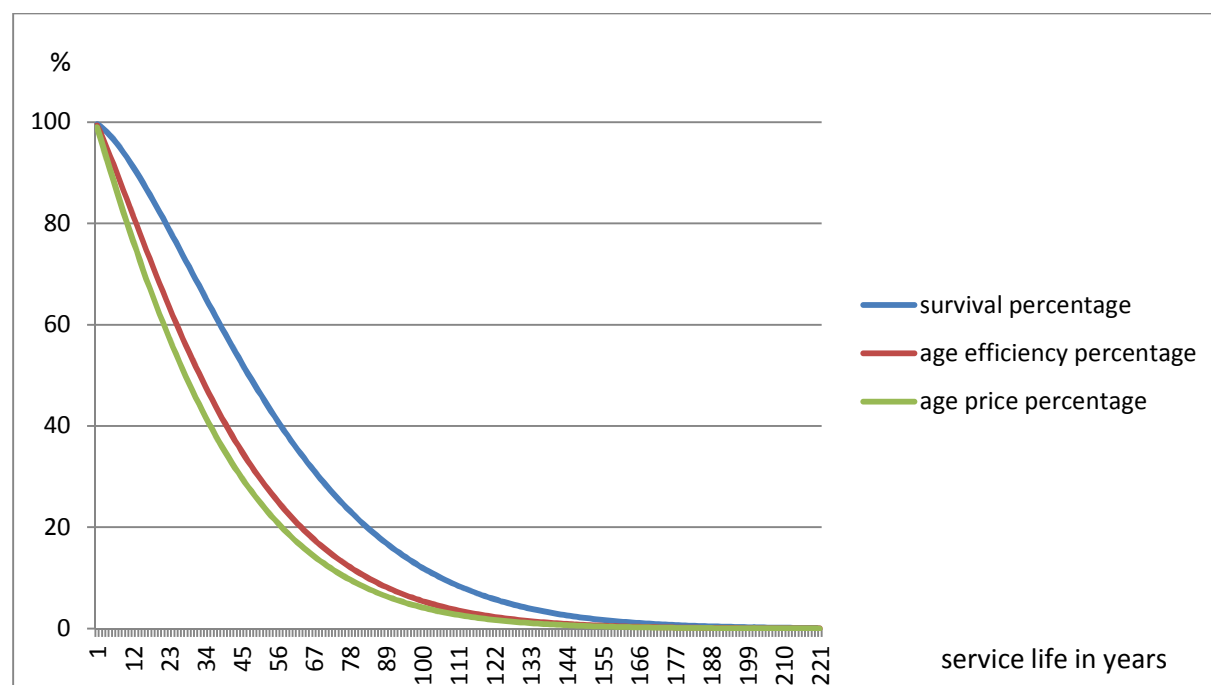
For the revision year and definitive years (t+18 months) the Dutch PIM uses 82 branches (NACE rev2.) times 5 sectors times 28 asset types. The table below shows the service lives of the branches and the asset types. At sector level service lives are obtained from the branch to which a sector relates. Service lives of the same asset category may vary between NACE rev 2 branches.

## Service lives and retirement

A full investigation of service lives has been conducted in 2008 (see annex 4.2). The research concentrated on the manufacturing industry. No special attention was given to composition of GFCF in public infrastructure. In 2012 service lives of some types of assets were revised. A summary can be found below. The retirement function is described above. Using a Weibull mortality function implies that assets in one vintage are not discarded at the same point in time, also known as the simultaneous exit assumption. In other words, service lives follow a distribution, described in a by the Weibull function. Therefore the minimum and maximum average service lives are shown in the table 4.9 below.

The age-price profile in figure 4.9 shows that the Dutch PIM largely approximates a geometric depreciation pattern as shown by the age-price percentage.

**Figure 4.9 Survival percentage, age-efficiency percentage and age-price percentage for Other Structures NACE 84 and 85 for a single vintage**



For the following asset categories, buildings, passenger cars, other road transport, ships, transfer of ownership cost of land, dwellings and buildings, and software the service lives have been adjusted in the course of the ESA 2010 revision. These changes were based on

academic research for ships<sup>15</sup>, expert information for buildings, transfer of ownership cost of existing dwellings, passenger cars and other road transport. The service lives of passenger cars and other road transport have been allowed to vary, depending on the vintage. These types of transport equipment have a service life of 7 years up till 1995, 8 years starting from 1995 and 9 years starting from 2005. The service life of software was raised by one year because software licenses are no longer included in the definition. It was assumed that service lives of licenses (under ESA 1995) were shorter than other software and databases which are included in the current definition. Due to a lack of information the service life of the transfer of ownership cost of land is assumed to be equal to the transfer of ownership cost of existing buildings. The transfer of ownership cost of existing buildings is assumed at half the service life of buildings. This assumption is based on the fact that buildings do not have the same owner for their entire service life. Information on the precise duration of ownership was lacking however.

Telecommunication equipment is separately identified under ESA 2010 and its service life is assumed to be 5 years.

**Table 4.10 Information on the service life by assets**

Asset type	Minimum average service life	Maximum Average service life
Dwellings (AN.111)	75	75
Buildings (AN.1121)	27	46
Other structures, incl land improvements (AN.1122 and AN.1123)	25	55
Passenger cars (AN.1131)	8	12
Other road transport equipment (AN.1131)	8	12
Trains and trams (AN.1131)	28	28
Ships (AN.1131)	35	50
Airplanes (AN.1131)	16	16
Computers (AN.1132)	5	14
Machinery (AN.1139)	10	43
Livestock (not estimated with the PIM) (AN.1151)	0	0
Other cultivated assets (AN.1152)	15	15
Other machinery and equipment (AN.1139)	8	12
Transfer of ownership cost of land (AN.116)	14	23
Transfer of ownership cost of existing dwellings (AN.111)	20	20
Transfer of ownership cost of existing buildings (AN.1121)	14	23
Mineral exploration (AN.1172)	20	20
Computer software and databases (AN.1173)	4	4
Entertainment, literary and artistic originals (AN.1174)	5	5
Other intellectual property products (AN.1179)	10	10
Transfer of ownership cost on non-produced non-financial assets (AN.116)	3	3
Telecommunication equipment (AN.1132)	5	5
Research & Development (AN.1171)	9	15
Weapons systems (AN.114)	10	30

<sup>15</sup> Bijwaard, G.E., Knapp, S. (2008), 'Analysis of ship life cycles-The impact of economic cycles and ship inspections', Marine Policy, 10.1016/j.marpol.2008-08-003

**Table 4.11 Parameters of the Dutch PIM for NACE 84 and 85**

SIC	Asset type	alpha	beta	average service life
84	Buildings(AN.1121)	2,16	0,75	34
84	Machinery (AN.1139)	2,5	0,5	12
84	Transfer of ownership cost of land (AN.116)	2,16	0,75	17
84	Transfer of ownership cost of existing buildings (AN.1121)	2,16	0,75	17
85	Buildings(AN.1121)	2,16	0,75	44
85	Transfer of ownership cost of land (AN.116)	2,16	0,75	22
85	Transfer of ownership cost of existing buildings (AN.1121)	2,16	0,75	22
84 and 85	Dwellings (AN.111)	2,5	0,75	75
84 and 85	Other structures, incl land improvements (AN.1122 and AN.1123)	1,5	0,75	55
84 and 85	Other road transport equipment (AN.1131)	1,31	0,5	7
84 and 85	Trains and trams (AN.1131)	1,7	0,5	28
84 and 85	Ships (AN.1131)	2,5	0,5	35
84 and 85	Airplanes (AN.1131)	1,2	0,5	16
84 and 85	Computers (AN.1132)	2,5	1	5
84 and 85	Livestock (not estimated with the PIM)(AN.1151)	NA	NA	NA
84 and 85	Other cultivated assets (AN.1152)	2,5	0,75	15
84 and 85	Other machinery and equipment (AN.1139)	2,63	0,5	8
84 and 85	Mineral exploration (AN.1172)	2,5	1	20
84 and 85	Computer software and databases (AN.1173)	2,5	1	4
84 and 85	Entertainment, literary and artistic originals (AN.1174)	2,5	0,75	5
84 and 85	Transfer of ownership cost on non-produced non-financial assets (AN.116)	2,5	1	3
84 and 85	Transfer of ownership cost of existing dwellings (AN.111)	2,5	0,75	20
84 and 85	Other intellectual property products (AN.1179)	2,5	0,75	10
84 and 85	Weapons systems, electronic and communication devices (AN.114)	2,5	0,5	10
84 and 85	Weapons systems, weapons and tanks (AN.114)	2,5	0,5	30
84 and 85	Weapons systems, vehicles (AN.114)	2,5	0,5	10
84 and 85	Weapons systems, ships (AN.114)	2,5	0,5	25
84 and 85	Weapons systems, airplanes (AN.114)	2,5	0,5	25
84 and 85	Passenger cars(AN.1131)	1,31	0,5	7
84 and 85	Telecommunication equipment (AN.1132)	2,5	0,5	5
84 and 85	Research & Development (AN.1171)	3	0,75	12

The table below shows the changes in service lives for all assets for which changes were made. In cases for which service lives vary between economic activities, the most common service life is shown.

**Table 4.12 Service life of fixed assets**

Asset type	Service life under ESA 1995	Service life under ESA 2010
Buildings (AN.1121)	41	37
Passenger cars (AN.1131)	6	7 - 9 years
Other road transport equipment (AN.1131)	6	7 - 9 years
Ships (AN.1131)	25	35
Telecommunication equipment (AN.1132)	-	5
Transfer of ownership cost of land (AN.116)	0	19
Transfer of ownership cost of existing dwellings (AN.111)	75	20
Transfer of ownership cost of existing buildings (AN.1121)	41	19
Computer software and databases (AN.1173)	3	4

## Reclassification of government assets

Reclassifying assets in or out of the government sector (S.13) is based on information of government finance statistics, or information from the media. Based on the information available, a certain percentage of existing stock of assets is taken, and transferred to or from S13 from or to another sector (and / or branch). In one example, the government obtained

ownership of the real estate portfolio of a bad performing bank. In practice, such an event is recorded in the PIM by determining a percentage of the net capital stock related to banking on the basis of which a transfer of non-financial assets (real estate) from banking to the government is being recorded. Such recordings are usually done in the PIM at the end of the reference year, however based on more precise information on the reclassification date; it could be decided to record the transfer of the assets at the start of the reference year.

## **Public infrastructure**

The government finance statistics provide information on GFCF of non-residential buildings, residential buildings and public infrastructure. Infrastructure or civil engineering works is headed under the “Other structures” asset category; Statistics Netherlands follows the required level of detail of asset types as specified by the ESA 2010 transmission programme of data. The recommended level of detail of GNIC/011 is not followed. The available data sources are insufficiently detailed to support a breakdown of other structures into roads and the remainder. Particularly business surveys cannot be separated to address roads, bridges and civil engineering.

Consumption of fixed capital is to be calculated for all fixed assets, including public service infrastructure (other structures). This is done by using the perpetual inventory method. The result is recorded as gross operating surplus with government, and is thus part of government output and government consumption. The estimate of consumption of fixed capital depends – among other things – on the service lives of assets under government ownership. In accordance with the recommendations of the GNI committee, an average service life of 55 years is used for all public infrastructure assets. The Weibull mortality function is used, so as to avoid simultaneous exit. The only exception relates to railways, where overhead wires, with an average service life of 25 years, make up a large part of the assets. In the branch of service activities incidental to railroad infrastructure (part of NACE 52.21), an average service life of 40 years is used. The assumption is made that overhead wires represent half of the net stock of the asset “other structures”, so that the service life can be calculated as  $(25 + 55) / 2 = 40$ .

The Dutch PIM maintains a distinction between market CFC and non-market CFC. This distinction is already made in GFCF statistics as maintained in the PIM. Statistics Netherlands has not recently reviewed the correct allocation of public infrastructure to the government sector. However, in relation to EDP statistics the demarcation of the government sector is continuously being reviewed. This has not led to major reclassifications in government fixed asset ownership. In the branch of service activities incidental to railroad infrastructure (part of NACE 52.21) and lower levels of government new data source (IV3) has been used for estimating infrastructure GFCF, which led to changes from the previous time series. Further information on statistical sources for government finance statistics can be found in Chapter 3, Section 21. No separate CFC estimations are available for asset types such as railways or sewage systems. In 2010 the percentage of other buildings in the total net capital stock for the sector government (S.13) amounts to 63 per cent.

## Consistency of the time series

In the GFCF time series (back to 1952) only small amounts of assets are reclassified from and to the government sector. There is sparse evidence for the recording of such reclassifications.

All changes in relation the ESA 1995-2010 conversion are processed in the time series, starting in 1952. At the same time the time series was corrected for possible level shifts. GFCF in software was introduced in the entire time series, however with zero estimates for the early years.

For the period 1995-2010 GFCF series for the government were benchmarked based on available data sources. The series prior to 1995 were scaled up accordingly.

## R&D and entertainment, literary and artistic originals

The recommendation of the final report of the second OECD/Eurostat Task Force <sup>16</sup> on the capitalisation of R&D in National Accounts to exclude CFC of R&D from the production of R&D assets is followed. This means that CFC of R&D of government is recorded as government consumption and not as a part of R&D production. Following the recommended geometric depreciation profile by the same Task Force, the Weibull function provides a suitable alternative (see Figure 4.9). Service life estimations are based on patent data and service lives vary between 9 years and 15 years, depending on the related industry. The service life of R&D assets in the government sector has been set at 12 years as described in the table “Parameters of the Dutch PIM for NACE 84 and 85” above (Table 4.11).

Concerning the treatment of CFC of entertainment, literary and artistic originals again a profile close to a geometric depreciation profile is used whereby for each vintage 80 per cent of the asset value is depreciated after 4 years. The service life of 5 years is in line with the recommendation of the GNI committee which set the lower bound service life at 5 years.

GFCF and related assets are estimated to be zero for the government (S.13). As part of the non-market sector, in 2010 NPISH hold entertainment, literary and artistic originals worth of 87 million euros.

## Resulting table CFC by sector and asset

In table 4.13 the results are summarized for the consumption of fixed capital in a breakdown by sector and asset in the AN classification.

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<sup>16</sup> OECD/Eurostat (2012), ‘Final Report Second Task Force on the capitalisation of Research and Development in National Accounts’

**Table 4.13 CFC by sector and asset, 2010**

	Sector				
	S11	S12	S13	S14	S15
Type of asset (AN classification)	<i>Million euros</i>				
Dwellings (AN.111)	2981	450	58	12938	0
Buildings (AN.1121)	9706	666	4060	2364	58
Other structures (AN.1122/AN.1123)	3149	2	6438	98	2
Passenger cars (AN.1131)	3255	292	83	360	10
Other road transport equipm. (AN.1131)	1161	12	142	238	1
Trains and trams (AN.1131)	366	0	0	0	0
Ships (AN.1131)	502	0	62	192	0
Airplanes (AN.1131)	497	0	77	1	0
Computers (AN.1132)	1657	327	805	264	30
Machinery (AN.1139), weapon (AN.114)	11418	50	1246	1739	12
Livestock (not by PIM) (AN.1151)	0	0	0	0	0
Other cult. Assets (AN.1152)	43	0	0	175	0
T. O. cost of land (AN.116)	676	378	293	312	0
T. O. cost of existing dwellings (AN.111)	738	5	0	4263	0
T. O. cost of existing buildings (AN.1121)	158	44	32	38	0
Mineral exploration (AN.1172)	376	0	0	0	0
Comp. software/databases (AN.1173)	7851	1774	2884	1101	51
Entertainm., lit. and art. orig (AN.1174)	280	0	0	121	36
Other intell. Property prod. (AN.1179)	0	34	0	0	0
T. O. cost non-pr. non-fin. Ass. (AN.116)	3	0	0	15	0
Telecomm. equipment (AN.1132)	331	67	172	67	6
Research and Development (AN.1171)	6828	121	2968	527	5
Other mach. and equipment (AN.1139)	3657	113	1268	1377	27

## CHAPTER 5 THE EXPENDITURE APPROACH

### 5.0 GDP according to the expenditure approach

Table 5.1 provides a breakdown of GDP in 2010 according to the expenditure approach by component. The total of GDP and imports of goods and services (1.033.097 million euros) gives the total of goods and services ‘Disposable for final expenditure’ and equals by definition the ‘Total final expenditure’. Table 5.1 shows that total imports of goods and services equals 63.6 per cent of GDP at market prices in 2010 while exports account for 72.0 per cent. On balance foreign trade accounts for 8.4 per cent of GDP.

National final expenditure (the summation of final consumption expenditure, fixed capital formation (gross) and changes in inventories, corresponding to 578.699 million euros) accounts for 91.6 per cent. The size of final consumption expenditure to GDP equals 71.2 per cent in 2010 of which final consumption expenditure of households (including non-profit institutions serving households) accounted for 44.7 per cent of GDP. Gross fixed capital formation (GFCF) is 19.7 per cent of GDP in 2010.

**Table 5.1 GDP according to the expenditure approach by component, 2010**

	mln €	% GDP
Final consumption expenditure	449.742	71.2
General government	167.232	26.5
Households incl. NPIs serving households	282.510	44.7
Fixed capital formation (gross)	124.649	19.7
Corporations, households and NPIs serving households	98.442	15.6
General government	26.207	4.1
Changes in inventories	4.308	0.7
Exports of goods and services	454.398	72.0
Goods	360.296	57.1
Services	94.102	14.9
Imports of goods and services (-)	401.585	63.6
Goods	300.067	47.5
Services	101.518	16.1
Domestic product (gross, market prices)	631.512	100.0

### 5.1 The reference framework

At Statistics Netherlands final expenditure is estimated within the framework of supply and use tables, in which (as far as possible) independent estimates of output, intermediate

consumption and final expenditure are confronted and balanced. The balancing process assures full correspondence of GDP according to the expenditure, production and income approach.

The main sources for the calculation of final consumption expenditure by households (including NPISH) are the SBS statistics on retail trade, the household budget survey and dedicated supplementary information on for example expenses on passenger cars. For GFCF annual surveys of Statistics Netherlands are used and for changes in inventories most information comes from SBS statistics. For imports and exports of goods international trade in goods statistics are used and for imports and exports of services international trade in services statistics are used, combined with a range of other sources such as information from the Dutch Central Bank (DNB) on financial and insurance services.

## **5.2 The borderline cases**

### **5.2.1 The borderline cases for HFCE**

For Household Final Consumption Expenditure (HFCE) the most important borderline case is the imputed value of dwelling services produced by owner-occupiers. This item is estimated by using the capital equivalent method, in which imputed rents of owner-occupied dwellings is related to the rents of comparable rental dwellings on the basis corresponding the capital values (see chapter 3 for more details). For the expenses that owner-occupiers incur on decoration, maintenance and repair of dwellings not typically carried out by tenants, an explicit adjustment is made on the initial estimates of HFCE resulting from source data, as the latter do not make this distinction (see also section 5.7.2.1 A item 2). The adjustment is based on the estimates of intermediate consumption linked to owner-occupied dwelling services.

Most business accounts, and therefore business statistics too, classify certain types of expenditure as current costs, whereas ESA2010 requires these to be recorded as wages and salaries. Examples are use of company-cars, meals at work, preferential banking and insurance interest rates and free or discounted travel for transport-company employees. As a consequence output may increase in cases where employees acquire on own account - produced goods from their employers, while intermediate consumption may be reduced in case expenses must be reclassified to wages and salaries.

Estimates are included for goods and services produced as outputs of unincorporated enterprises owned by households that are retained for consumption by members of the household, such as food or other agricultural goods. In the estimation of HFCE attention is paid to the correct recording (HFCE or intermediate consumption) of expenses on decoration, maintenance and (small) repairs of dwellings carried out by the owner-occupiers. The expenditure for these kinds of goods is obtained from retail trade statistics and the budget survey.

Purchases and sales of second-hand goods from one consumer to another, so-called C2C transactions, are not specifically addressed in the SUT as they cancel out. Trade margins related to trade in second-hand goods are recorded in a separate product group because no basic value transactions exist. For the sales and purchases of second hand lease cars a separate item is included in the estimates of HFCE and GFCF (disinvestment).

Estimates for FISIM are based on data from balance sheets in combination with various interest rates. In HFCE only FISIM linked to saving accounts and loans are included. FISIM linked to mortgages is recorded as intermediate consumption of NACE 68. Insurance services are estimated by netting the premiums paid using output of insurance companies as a fixed starting point. No explicit estimates are made in case insurers pay directly for repair services. Nevertheless repair services paid for by insurance will be allocated to HFCE because the estimate of output and allocation of, for example, car repair is based on the number and ownership (private or business) of cars. This implies that who is actually paying for the repair service is not leading its measurement. For construction a commodity flow approach is applied, so also in that case the actual purchaser of the repair service is does not influence the estimate. A relative important tax in terms of significance, the BPM, is levied on new cars. This tax is recorded as taxes on products, see section 3.28.

Specific borderline cases that are excluded from HFCE are social transfers in kind, payments by households that are to be regarded as taxes and subscriptions, contributions and dues paid by households to NPISH.

Social transfers in kind mainly concern health care expenses. Government data are used for the estimation of social transfers in kind; the main sources for HFCE do not include these types of payments. Besides for the main products composing social transfers in kind a commodity flow method is applied for estimation HFCE, assuring no double counting.

Payments by households to be regarded as e.g. taxes and subscriptions and payable to NPISH are separate items in the household budget survey and as such will be excluded from HFCE.

### **5.2.2 The borderline cases for GFCF**

The revision of the Dutch national accounts 2010 and the ESA 2010 implementation resulted in an enlarged scope of gross fixed capital formation (GFCF). In addition a number of changes in the estimation methods of GFCF are applied. Where necessary adjustments in the processing of data from business statistics were made to assure that expenditure on the following items are recorded as GFCF instead of intermediate consumption:

- R&D (with the exception of the R&D acquired to be used solely in the creation of further products of R&D);
- Structures and equipment used by the military, light weapons and armoured vehicles used by non-military units;
- Mineral exploration and evaluation;
- Intellectual property products such as computer software originals and other intellectual property rights;
- Own account output of computer software.

GFCF in livestock is based on supplementary sources, such as agricultural statistics. Estimates on improvements to existing fixed assets beyond ordinary maintenance and acquisition of fixed assets via financial leasing, are estimated using the investment survey.

Not included in GFCF but registered as intermediate consumption are items like the normal ordinary maintenance and/or repair costs and the purchase of small tools for general use. For the latter, bookkeeping practices are followed in which expenses on small tools are recorded as current costs. It is assumed that the bookkeeping practices coincide with ESA2010 in this matter. Payments of fees for the use of capital goods under operational lease are recorded as

intermediate consumption. The estimates are based on SBS in which the same way of recording is applied. Also not included in GFCF are the transactions that clearly are registered as changes in inventories, like animals bred raised for slaughter. Machinery and equipment bought by households for the use as final consumption are registered as household consumption and not as GFCF.

### **5.3 Valuation**

All use table data are valued at purchasers' prices exclusive of value added tax. This is the consequence of the net registration of value added tax in the Dutch SUT (see chapter 6 for more details). As a consequence in the columns of the use table only non-deductible value added tax as an undifferentiated total is recorded. Household final consumption expenditure provides the most striking example. In the case of gross fixed capital formation and intermediate consumption, net registration merely means that an amount will only be recorded for industries producing goods and services which are exempted from VAT like financial, government and health services.

In some cases, purchasers' price valuation exclusive of value added tax requires adjustment of source data in order to ensure the appropriate valuation in the use table. For example, budget survey data have to be converted in order to exclude value added tax. The same applies to data sources used for intermediate consumption and gross fixed capital formation linked to exempted activities.

The product classification of the Dutch SUTs supports as much as possible homogeneity in relation to the prevailing VAT rates in the Netherlands. The non-deductible VAT is determined for each relevant column in the use-table (i.e. final expenditure category or relevant industry) by applying the prevailing rates to the SUT-estimates excluding VAT for each product group in the concerning column. The total amount of non-deductible value added tax shows up as a separate (row) item in the use table.

HFCE of products produced by the employer and supplied to employees as compensation in kind amounts to 430 million. This concerns mainly (379 million) interest discounts (FISIM). The remaining 51 million concerns free transport services (see scheme 4.1 in section 4.8.2) for which no explicit assumption is made whether the amount is either in basic prices or purchasers' prices. HFCE of products purchased by employers mainly concerns the private use of company cars, untaxed benefits and meals and drinks offered by the employer (see items d, f and h of section 4.8.2). The imputed value of the use of company cars is, in conformity with tax rules, linked to the catalogue value of the company cars. Assumingly these imputed values are at purchaser' prices. The same holds for untaxed benefits derived from administrative sources. Income in kind derived from intermediate consumption, including meals and drinks, will be valued at purchasers' prices excluding VAT.

HFCE of own production concerns mainly agricultural products. The estimate is based on average amounts per product group (valued at basic price) per head, multiplied by the number of persons living in agricultural households. As the average amounts spent are valued at basic prices, own account HFCE will be valued at basic prices as well.

Own-account GFCF is valued at the basic prices, following the market output of similar fixed assets. If such prices are not available, the output will be valued at the costs of production plus a mark-up for net operating surplus or mixed income (except for non-market producers as

gross operating surplus is zero by definition). A mark-up is added for software and R&D. For all other types of assets values as reported in Structural Business Statistics prevail.

It is assumed that work in progress is valued at basic prices in correspondence with other output related variables in Structural Business Statistics.

In the use table export is valued at fob prices while in the supply table import is recorded at cif prices. The transition from cif to fob for the valuation of imports is made by applying two lump-sum adjustments. The first is the cif/fob-reclassification which entails a shift of transport and insurance services from imports of goods to imports of services. The second is the cif/fob-adjustment in which imports of goods and exports of transport and insurance services are reduced with the same amount. These adjustments have no impact on the balance of foreign trade and thus no impact on GDP.

#### **5.4 Transition from private accounting and administrative concepts to ESA 2010 national accounts concepts**

Individual accounting and administrative concepts are not always aligned with national accounts definitions. An example is gross fixed capital formation in software. Business accounting practice will usually lead to the recording of (parts of) software purchases as current costs. To ensure accurate registration pursuant to ESA 2010, software purchases have to be deducted from intermediate consumption and added to gross fixed capital formation. In addition, own-account software is not generally regarded as gross fixed capital formation, so additional estimates of this item is needed leading to upward adjustments of output. Further, special attention is paid to the delineation of intermediate consumption and GFCF for repair and maintenance of buildings.

Registration differences are also relevant when measuring consumption of e.g. health care and welfare, insurance and contributions to (sports) clubs and associations. From the household point of view, only direct expenditure on health insurance premiums and non-prescription products are regarded as health care expenditure. This approach differs from a national accounts' registration, focused on the actual 'consumption' of health-services. These differences in viewpoint are overcome by the commodity flow approach in the SUT.

For insurance the national accounts follow the recording of insurance services instead of premiums paid as typically reported in household administrations and budget surveys.

While households tend to perceive contributions to (sports) clubs and associations as consumption expenditure, the national accounts treat those transactions as income transfers.

Statistics on foreign trade (FTS) in goods are based on crossing border as the leading recording criterion. ESA2010 uses change of ownership between residents and non-residents as criterion for recording imports and exports. This leads to a wider range of discrepancies. For example goods sent abroad for processing are recorded under FTS but should not be included in national accounts imports or exports as no change of ownership takes place when these goods are shipped abroad. The required adjustments are made supported by a combination of FTS-data on processing and SBS data. In case of merchanting, a change of ownership will take place while the traded goods may not enter the merchant's country. SBS-data are used to adjust imports and exports in these cases.

Table 5.2 below shows the various conceptual adjustments made in the expenditure approach.

**Table 5.2 Expenditure approach, conceptual adjustments**

	Allocation of FISIM	Other conceptual																	Total conceptual	
		VAT	Consumption of non-residents in the Netherlands	consumption of residents abroad	Merchandising	Processing /Industrial services	Other global prod. arrangements	Affiliated establishments	Goods returned to sender	Goods procured in ports by carriers	Cit/job adjustment and reclass.	Maintenance and repair	Transport services	Agricultural, mining and other on-site processing services	Other business services nec	R&D	Revaluation	Not specified		Total
Household final consumption expenditure	1.863	21.678	11.473	-8.031															25.120	26.983
NPISH final consumption expenditure																			0	0
General government final cons. expenditure	1.039																-3.477	-3.477	-2.438	
Gross fixed capital formation																-343			-343	-343
Change in inventories																	-608		-608	-608
Acquisitions less disposals of valuables																			0	0
Export of																			0	0
Goods					5.262	-25.651	11.417	-4.889	-1.697	3.683									-11.875	-11.875
Services					-1.251	3.782					-3.272	819	-910	-81	-40				-953	-953
Import of																			0	0
Goods						-23.162	1.330	-5.054	-1.697	2.880	-10.651								-36.354	-36.354
Services						4.398					7.379	790	-659	-30	-21				11.857	11.857
Total	2.902	21.678	11.473	-8.031	4.011	-3.105	10.087	165	0	803	0	29	-251	-51	-19	-343	-608	-3.477	32.361	35.263

## 5.5 The roles of direct and indirect estimation methods and of benchmarks and extrapolations

Indirect final expenditure estimation methods are used in a limited number of cases, when no information is available from direct observation. Own-account GFCF in software is a good example in this respect. As has been pointed out before software not always appears among registered company assets and is therefore not covered by the investment survey. This item is estimated indirectly on the basis of (functional) data concerning the number, type and costs of EDP (Electronic Data Processing) staff per sector (see below for further details).

A comparable approach is adopted for estimating gross fixed capital formation in mineral exploration for which drilling costs, among other things, are taken as indicative (see below for further details).

In the case of final consumption expenditure, indirect estimation methods play a part where direct household expenditure does not correlate with the corresponding national accounts concept. Health care and insurance services have already been discussed. In these cases, the commodity flow method is used to estimate consumption, which is largely determined by output.

The imputed rent value of owner-occupied dwellings constitutes a special case which does not involve a *de facto* transaction, so that an indirect estimation method must always be applied. Consumption is equated to output in this instance.

## 5.6 The main approaches taken with respect to exhaustiveness

Chapter 7 provides a detailed description of the supplementary estimations addressing exhaustiveness. For the expenditure approach the description of the estimates for HFCE using the budget survey are of particular interest.

### *Exhaustiveness*

The estimate for exhaustiveness in table 5.3 is disaggregated to N-classes. For Household Final Consumption Expenditure (including NPISH) the total estimate of 10.757 million euro is divided into the classes N1 (underground production), N2 (illegal production, drugs,

smuggling), N3 (producer is not obliged to register), N6 (cost fraud) and N7 (income in kind). Estimates for exhaustiveness of international trade are divided in N1 (underground production), N2 (illegal transactions) and N7 (missed part of online trade, transactions of international organisations, government services and missed part of passengers air services).

**Table 5.3 Estimates for exhaustiveness for final expenditures disaggregated by N-classes.**

Type of final expenditure	Types of non-exhaustiveness							Total
	N1	N2	N3	N4	N5	N6	N7	
Household final consumption	418	1.485	1.834			746	6.274	10.757
Governm. final consumption								0
Gross fixed capital formation (*)								0
Internat. trade in goods (balance)		1.157					-23	1.134
Import		855					386	1.241
Export		2.012					363	2.375
Internat. trade in services (balance)	-188	-120					559	251
Import	188	332					689	1.209
Export		212					1.248	1.460
<b>Total</b>	<b>230</b>	<b>2.522</b>	<b>1.834</b>	<b>0</b>	<b>0</b>	<b>746</b>	<b>6.810</b>	<b>12.142</b>

(\*) Including change in stocks and acquisitions less disposals of valuables

## 5.7 Household final consumption expenditure (HFCE)

### 5.7.1 Overview

This section provides a summary of the process table for the household final consumption expenditure and a short explanation of the various entries in the process table. More detailed elaboration (on sources, estimation methods, etc.) is given in section 5.7.2 and further.

Table 5.4 provides the process table for household final consumption expenditure in 2010.

#### *(1) Surveys & censuses*

The surveys used are the Retail Trade Statistics (RTS, which are part of the SBS), the Household Budget Survey (HBS), various surveys on financial services conducted by the Dutch Central Bank (DNB) and a household survey on expenses during holidays called “Continu Vakantie Onderzoek” - CVO (Continuing Holiday Survey); see section 5.7.3.1 for further explanation.

#### *(2) Administrative Records*

These sources include figures obtained from various branch organisations and market research agencies, such as information on car sales obtained from the RAI and information on own risk health insurance contributions obtained from health insurance companies. See section 5.7.3.2 for further explanation.

**Table 5.4 Process table of final consumption expenditure of households, 2010**

	Basis for national accounts figures					
	Surv and Censuses	Admin records	Combined data	Extrapol + models	Other	Total
	(1)	(2)	(3)	(4)	(5)	(6)
	million euro					
Household final consumption expenditure	97356	39363	2557	99578	0	238854
	Basis (Total)	Adjustments				Final estimate
		Data val.	Concept.	Exhaust.	Balancing	
	(6)	(7)	(8)	(9)	(10)	(11)
	million euro					
Household final consumption expenditure	238854	0	27444	10757	139	277194

*(3) Combined data*

These sources include figures derived from research carried out by product- and branch organisations and research agencies. The figures are sometimes combined with ratios of private/corporate use obtained from other studies or combined with trend figures from another source if the information on the level of consumption was only available for another year than 2010. An example of the first method is the estimation of household expenditure on car damage repairs; an example of the second method the estimation of expenditures on hairdressers. See section 5.7.3.3 for further explanation.

*(4) Extrapolations and models*

Table 5.5 below presents a more detailed picture of column (4) of table 5.4.

**Table 5.5 Extrapolations and models 2010, details**

	Benchm Extrap.	Comm Flow method	CFC(PIM)	Capital equivalent Method	FISIM	Other extrap & models	Total extrap & models
							(4)
	million euro						
Household final consumption expenditure	0	34531	0	45631	0	19416	99578

Three kinds of extrapolations and models are used (see also section 5.7.3.4).

- The commodity-flow method is used to estimate household consumption of services in cases where no sources are available for household final consumption expenditure. This

indirect approach determines consumption as a residual item in the total sales breakdown of the goods and services concerned.

- Estimates of final consumption expenditure on imputed and actual dwelling services resulting from the capital equivalent method have been classified under “Capital equivalent Method”.
- Other extrapolations and models cover all kind of estimates based on calculation (price x quantity) of data from surveys, censuses and administrative sources. Some examples:
  - Drivers instructions: Number of exams taken, multiplied by the average number of driving lessons and the average price for a lesson;
  - School and college fees: number of students by type of education multiplied by school or college fee (average fee of two years, because the school year does not coincide with the calendar year).

#### *(8) Conceptual adjustments*

Table 5.6 below gives more detailed information on column (8) of the process table.

**Table 5.6 Conceptual adjustments 2010, details**

	Allocation of FISIM	Other conceptual	Total conceptual
			(8)
	million euro		
Household final consumption expenditure	2324	25120	27444

Consumption of households of FISIM is estimated within the FISIM calculations which are described in section 3.17 of this inventory.

The item other conceptual refers to VAT calculated by type of goods or services. See section 5.7.3.5 for further explanation. Consumption of non-residents in the Netherlands and consumption of residents abroad are also recorded in this column.

#### *(9) Exhaustiveness*

Table 5.7 provides a more detailed presentation of the estimates for exhaustiveness.

**Table 5.7 Estimates for exhaustiveness 2010, details**

	N1	N2	N3	N4	N5	N6	N7	Total exhaustiveness
								(9)
	million euros							
Household final consumption expenditure	418	1.485	1.834	0	0	746	6.274	10.757

In column N1 final consumption expenditures related to underground activities are recorded (hairdressers and landscaping); see section 7.2.3.1.

Column N2 reflects household final consumption expenditure that is related to illegal transactions. The estimates for illegal transactions are further explained in section 7.2.3.2 of this inventory.

Household final consumption expenditure of childcare and cleaning services (produced by producers with output below the level at which the producer is expected to register as an entrepreneur is recorded in column N3; see section 7.2.3.3.

In column N6 cost fraud is recorded. The estimation is explained in more detail in section 7.2.3.4.

Household final consumption expenditure related to income in kind is recorded in column N7, see section 7.2.3.5.

**Table 5.8 Household final consumption expenditure by COICOP, 2010**

	Basis for national accounts figures					
	Surv and Censuses	Admin records	Combined data	Extrapol + models	Other	Total
	(1)	(2)	(3)	(4)	(5)	(6)
	million euro					
Household final consumption expenditure by COICOP (1-digit)						
01 - Food and non-alcoholic beverages	18899	6552	0	3415	0	28866
02 - Alcoholic beverages, tobacco and narcotics	3920	2821	0	0	0	6741
03 - Clothing and footwear	12740	41	15	1	0	12797
04 - Housing, water, electricity, gas and other fuels	2614	10949	21	45288	0	58872
05 - Furnishings, household equipment and routine household maintenance	10321	1160	47	807	0	12335
06 - Health	2292	6020	0	3	0	8315
07 - Transport	8008	6005	915	13615	0	28543
08 - Communication	7630	0	0	346	0	7976
09 - Recreation and culture	14952	3393	0	9720	0	28065
10 - Education	587	0	0	1323	0	1910
11 - Restaurants and hotels	0	0	0	16201	0	16201
12 - Miscellaneous goods and services	15393	2422	1559	8859	0	28233
Transition to national concept	0	0	0	0	0	0
Household final consumption expenditure Total	97356	39363	2557	99578	0	238854

	basis (total)	Adjustments				Final estimate
		Data val.	Concept.	Exhaust.	Balancing	
	(6)	(7)	(8)	(9)	(10)	(11)
	million euro					
Household final consumption expenditure by COICOP (1-digit)						
01 - Food and non-alcoholic beverages	28866	0	1728	0	-71	30523
02 - Alcoholic beverages, tobacco and narcotics	6741	0	1271	830	-48	8794
03 - Clothing and footwear	12797	0	2413	-44	-48	15118
04 - Housing, water, electricity, gas and other fuels	58872	0	2201	-43	159	61189
05 - Furnishings, household equipment and routine household maintenance	12335	0	2381	898	343	15957
06 - Health	8315	0	311	-11	7	8622
07 - Transport	28543	0	4485	4622	-154	37496
08 - Communication	7976	0	1466	73	84	9599
09 - Recreation and culture	28065	0	3094	616	-24	31751
10 - Education	1910	0	62	0	-42	1930
11 - Restaurants and hotels	16201	0	1421	1634	-109	19147
12 - Miscellaneous goods and services	28233	0	3527	2182	503	34445
Transition to national concept	0	0	2623	0	0	2623
Household final consumption expenditure Total	238854	0	26983	10757	600	277194

#### *(10) Balancing adjustments*

The adjustments in this column result from balancing of the supply and use tables.

Table 5.8 shows the process table by COICOP items. This table is reconstructed after data compilation. It should be emphasised that HFCE data are compiled according to the good and services (CPA-type) classification in the Dutch SUT– and not according to COICOP.

### **5.7.2 Main data sources and their conversion to national accounts results**

The majority of household final consumption expenditure is accounted for by household spending on goods and services, calculations which are essentially based on the following two source statistics produced by Statistics Netherlands:

- the household budget survey (HBS);
- retail trade statistics (RTS).

Both data sources are used in close combination.

The HBS collects expenditure data from a sample of Dutch households (about 7.500 households in 2010) during a calendar year.

A large part of final consumption expenditure of households is linked to turnover of retail trade. Consumers will purchase most consumer items at retail outlets which, in turn, supply virtually all traded goods to consumers. The RTS provide turnover data by outlet type and commodity.

Nevertheless, final consumption expenditure of households is not fully covered by the above-mentioned sources due to differences in definitions and populations compared to the national accounts.

#### *Difference between spending and final consumption expenditure*

Final consumption expenditure pursuant to the ESA 2010 definitions shows a significant correspondence with perceived consumer spending and thus with the above-mentioned sources. Nevertheless, this equivalence does not hold for certain goods and services. The following four types of transactions can be distinguished:

- According to the national accounts the own-account dwelling services produced by owner-occupiers of dwellings must be added to consumption. This consumption item represents a fictitious rent value based on the price of comparable rented accommodation.
- Goods and services not directly paid for by the user but covered, for example, by government expenditure (social benefits in kind) or insurance must be included as well. In case of insurance households pay premiums but do not actually pay the real costs of e.g. the insured repair of car damage or health care;
- Only goods and services initially acquired by households in the reporting year are classified as final consumption expenditure. The purchase and sale of existing goods within the households sector cancel out and thus have no impact on household consumption at macro level, even though such purchases entail consumer expenditure. Exceptions include transactions involving commercial intermediation, since the trade margins generated must be classified as consumption. If, on balance, the household sector

purchases existing goods from another sector, the result is treated as consumption. Relevant products are imports of all sorts of second hand goods and second-hand leased vehicles originating from non-financial corporations;

- Households may conceive payments to (sports) clubs and associations as consumption expenditure, whereas according to ESA 2010 such transactions must be recorded as income transfers, mostly to NPISH.
- Services provided by financial institutions to households are only partly charged explicitly. So called FISIM (see paragraph 3.17) represents also a remuneration for the services provided by financial institutions to households.

### *Coverage of HBS*

The HBS covers only the spending by regular households. This means that the HBS does not fully cover household spending in conformity with national accounts. Missing parts are in particular:

- Spending of persons living permanently in institutions who have little or no autonomy of action or decision in economic matters (e.g. long-term patients in hospitals, prisoners serving long sentences, old persons living permanently in retirement, see ESA 2.119). In the Netherlands there are more than 200,000 residents living in institutions. The majority of these individuals live in old peoples and nursing homes. They are not registered under 'common' but under *institutional households*. The latter are not covered in the HBS sample, though purchases in retail trade are included in the RTS turnover figures;
- Spending by non-resident tourists and business visitors in the Netherlands is classified as domestic private consumption expenditure. Similarly this is not included in the HBS but, where relevant, is covered by RTS figures.

## **5.7.3 Detailed calculations by COICOP items**

In this section the calculations made for the different sources are explained in more detail. In most cases this is not done, using COICOP items, since the goods and services distinguished in the Dutch NA are based on the CPA classification and not on the COICOP classification. Transformation of HFCE into COICOP items is done after the SUT tables have been finished.

### **5.7.3.1 Detailed calculations based on surveys and censuses**

The estimated components of household final consumption requires four different methods which are explained in this section.

#### **A. Combining RTS and HBS**

RTS and HBS are the main data sources for autonomous estimates of consumption of households. Both having specific advantages and disadvantages.

RTS may not fully cover all expenditure on a particular product in retail trade. For example direct imports via internet purchases and retail trade as an ancillary activity in other industries is not covered in RTS. On the other hand RTS-turnover also includes sales to businesses (small-scale purchases) which must be assigned to intermediate consumption.

As the HBS sample is relatively small, the results are subject to a substantial margin of uncertainty. The HBS is also inevitably affected by under-reporting of certain items such as smoking, drinking, etc. because of the tendency to provide socially acceptable responses. Lastly, HBS sample does neither include residents living in institutional and care-homes nor non-residents' purchases in the Netherlands.

Consequently, neither of the two data sources is fully adequate for estimating household consumption expenditure on goods on its own. However, by combining data from the two sources an adequate level estimate of consumption expenditure can be made as the HBS respondents report not only their purchases, but also the sales channels by which their money is spent. Thus, HBS yields information on the market shares of the various sales channels (e.g. supermarkets, specialised shops, etc.) by type of good. By combining the HBS market share of retail trade sales channels with turnover of the corresponding RTS, total expenditure on particular goods can be estimated.

This estimation procedure, based on combining RTS and HBS information, has the following steps:

- **Step 1.** At 4/5 digit NACE-level turnover as reported in RTS is adjusted for sales to 'institutional' residents, non-residents and businesses (for the calculation of these figures see below). These adjustments are carried out at the level of detail of sold products available in the RTS. The observed product aggregates vary per NACE-class.

**Example for the product aggregate 'Potatoes, Vegetables and Fruit' (PVF)**

*Step 1: Calculation of adjusted RTS turnover for supermarkets (most reliable purchase channel for PVF)*

Total RTS supermarket turnover of PVF	2.768
Of which	
Residents living in institutions (1)	150
Non-residents in NL (1)	12
Business purchases	3 +
	<u>165</u>
<b>Total adjusted turnover</b>	<b>2.603 (A)</b>

*Step 2: Calculation of market share of supermarkets using HBS data:*

Purchasing channel	Good	Value
Supermarket	Apples	10
	Oranges	12
	Spinach	8
	Potatoes	114
	Etc.	156
Supermarket	Total PVF	300
Other purchasing channels	Total PVF	100
<b>Market share of supermarkets: <math>300/(300+100) =</math></b>		<b>0,75 (B)</b>

*Step 3: Grossing up the figures and adding the values for residents living in institutions and non-residents again:*

Consumption of households, raised: (A)/(B)	3.471
Residents living in institutions (2)	200
Non-residents in NL (2)	16
<b>Total final expenditure on PVF</b>	<b>3.687</b>

(1) - Purchases of residents living in institutions and non residents in supermarkets are subtracted

(2) - Total purchases of residents living in institutions and non-residents in all types of outlets are added.

- Step 2. The market share of sales channels is calculated using HBS information. To get comparable figures, the VAT included in the HBS data has to be removed first, since RTS data are exclusive of VAT.
- Step 3. For the estimation of consumption of households the sales channel with the largest market share is generally judged as being most reliable. The adjusted turnover of the corresponding RTS for the concerning product aggregate is divided by that market share. Subsequently estimates for consumption by residents living in institutional households and non-residents are added. The result is an exhaustive estimate for consumption households for the concerning product aggregate.
- Step 4. The resulting estimate of step 3 is translated to the product classification of the SUT.
- Step 5. In a final step VAT is calculated by applying the VAT-rates to the transactions at product level in the SUT.

A simple numerical example for the steps 1-3 clarifies the estimation procedure:

Calculation of the adjustment for sales to institutional households, non-residents and businesses (step 1):

- *Residents living in Institutions:* In addition to regular households, the Dutch population includes residents living in institutions (208,687 people in 2010; Statistics Netherlands, population statistics). The total expenditure of this population and the breakdown by goods categories is based on the outcome published in Statistics Netherlands' Social Accounting Matrix (SAM) for 2010. In the SAM household consumption is broken down by type of household, among which residents living in institutions. Because RTS figures had to be adjusted, only expenditures on goods were selected.
- *Non-residents.* Expenses of tourists and business visitors is based on information from the Overnight accommodation statistics (Statistics Netherlands) and information from NBTC ("Nederlands Bureau voor Toerisme en Congressen"; see section 5.14.5 for more details on the estimation procedure).
- *Retail trade sales to businesses.* Not all of the sales of retail trade represent consumption of households. A small part of sales may concern business expenses to be recorded as intermediate consumption. A separate estimate of retail trade sales to companies contains three parts:
  1. Incidental expenses made for employees (individual or collective) and small expenses that are part of the intermediate consumption of businesses. An example of the first type is flowers bought as a present for a staff member or drinks and snacks for a business party (1a). An example of the second type is the purchase of office needs like pencils, printer cartridges etc. (1b).
    - 1a. This type of expenses may exist in all sorts of companies. The estimation is based on the number of people employed. Both individual expenses (flowers, presents) as collective expenses (company party, etc.) are assumed to amount to 20 euros per employee.
    - 1b. These expenses are generally small amounts often paid in cash. It is assumed that these types of expenditures are made by companies in all NACE-classes, but only by the smallest companies with less than 30 employees. Business survey information is used on the amount spent on "other operating expenses" (i.e. expenses that do not belong to the direct costs for production activities).

2. Purchases by small unincorporated enterprises used for production. This consists of two parts:

2a. Retail purchases by small enterprises in construction, manufacturing and gardening to be used directly in production. A percentage of intermediate consumption of small companies (max. 10 employees) is assumed to be purchased in retail. This percentage may vary by the size of the company involved (number of persons):

Number of employed persons	Percentage of:	
	input of base materials	other inputs
0	25	25
1	20	20
2	10	20
3-4	5	10
5-9	5	10

2b. Purchases of goods bought in retail by owner-occupiers of dwellings linked to the output of imputed rental services must be reclassified from household consumption to intermediate consumption.

3. Purchases of goods for Intermediate consumption of hidden economic activities (3a) and conceptual estimates (3b) are based on results from measuring the hidden economy as described in section 7.2.3.

3a. Part of intermediate consumption necessary for the production illegal goods and services are purchased from retailers. Examples are clothing for prostitutes and electronic equipment for the production of cannabis. Next to that, if (part of) turnover is not reported to the tax authorities, intermediate consumption should be in line with this information. These intermediate goods may be obtained from retail trade. In other words, turnover and associated intermediate consumption will stay outside the administration of these illegal operations.

3b. According to ESA growing of crops in private gardens and own account building of dwellings by households must be added to output. The required intermediate inputs may purchased in retail shops.

All the above mentioned examples of retail turnover to be associated with intermediate consumption are classified accordingly in the SUT.

**Table 5.9 Overview of retail sales not belonging to household consumption**

1.a	Expenses for employees	345
1.b	Small incidental expenses not belonging to the direct input	54
2.a/b	Estimates for small companies in manufacturing, construction and gardening and owner occupied dwellings	1.533
3.a/b	Estimates for black economy/missing production activities	130
		<b>2.062</b>

## B. Grossing up HBS

The method described above is restricted to transactions in goods. For a limited number of services estimates are obtained from grossed up HBS data. However, when using the budget survey as the main independent source supplementary estimates for consumption by residents living in institutions and non-resident tourists are needed, see section 5.14.5.

The procedure is as follows:

- Budget survey articles are coded in relation to the national accounts product classification (see section 9.3 for the link between HBS and SUT-codes).
- Average household expenditure per service category is grossed up to national totals on the basis of multiplication by the total number of households in the Netherlands.
- Estimates for residents living in institutions and foreign visitors are added.

The value of this estimate is shown in the table below:

**Table 5.10 Services based on HBS**

Service consumption by hh based on HBS	17.173
Missing in HBS:	
Residents in institutions	150
Foreign visitors	372
	<b>17.695</b>

## C. Use of surveys on financial services

For pensions and life-insurance services, consumption is almost equivalent to domestic output, apart from small amounts of imports and exports. The production of pensions and life-insurance services is estimated using data collected by the Dutch Central Bank (DNB); exports and imports are estimated using information from respectively DNB and international trade in services. (see section 3.17). The remainder is household final consumption expenditure of these services.

## D. Use of other surveys

The estimation of purchases of airline tickets is based on a household survey called “Continu Vakantie Onderzoek” - CVO (Continuing Holiday Survey). For further information on this survey see section 5.14.5.

### 5.7.3.2 Detailed calculations based on administrative records

Various branch organisations compile annual data on the level of products or product aggregates, supported by the necessary background information. Members of these

organisations are compulsory to deliver data. Examples include household expenditure on private cars and health care.

#### *Private cars*

This category covers expenditure on both new and second-hand cars. Annual figures on new cars are based on information from the RAI (Dutch branch organisation for automobiles, motorcycles and bicycles). The results can be checked on plausibility using received taxes on passenger cars and motorcycles on private cars and motor cycles (BPM). Second hand vehicles can be acquired from private stocks or through terminated lease contracts. In the former case, only trade margins are recorded, while counter-entry disinvestment applies to formerly leased vehicles.

#### *Health care*

Health care consumption includes expenditure on behalf of clients by health insurance companies. These expenditures concern own-risk contributions and own-account contributions. The annual figures are based on information from health insurance companies.

### **5.7.3.3 Detailed calculations based on combined data**

Data on the consumption of households of several services is not directly available. Combining data from different sources can be useful in these cases. In some cases data on total expenditure is available and can be combined with consumption shares of output. This method is for example used for compiling household expenditure on car damage repairs. Data from a report by the 'Rabobank'<sup>17</sup> on the total costs of car damage repair is combined with data from the Association of Insurers on the share of households in these costs. In other cases data were available about household expenditures of services for another year than the required year 2010. Combined with available information and indices on trends of the total expenditures on these services, level estimates for 2010 were compiled. This method is for example used in compiling household expenditure on hairdressers and personal grooming services. Based on research of branch organisations data were available on consumption of households on hairdressers services for the year 2011 and household final consumption expenditure on personal grooming services in the year 2009. From pre benchmark estimates the growth rates between 2009-2010 and 2010-2011 are copied and used to calculate the consumption of households of hairdressers and personal grooming services for the year 2010.

### **5.7.3.4 Detailed calculations based on extrapolations and models**

#### *The commodity-flow method*

This indirect approach involves the determination of consumption as a residual item in the total sales breakdown of the services concerned. In this method firstly the supply of a product, consisting of domestic output and imports is estimated. Intermediate consumption and exports are subsequently deducted from total supply with the remainder being identified as household

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<sup>17</sup> Rabobank, Serie cijfers & trends, June 2013, special over schadeherstelbedrijven (in Dutch only)

consumption. Among others, this method is applied for the estimation of final consumption expenditure of hotel and restaurant services, government services and household expenditures on travel agencies.

#### *Capital equivalent method*

The consumption of dwelling services by owner occupiers of dwellings equals the value of production of these services. The estimation of the value of production is described in section 3.18.

#### *Other extrapolations & models*

This column covers all kinds of estimates based on calculation (price x quantity) of data from surveys, censuses and administrative sources. For example the estimation of consumption of households of motor vehicle fuel is based on statistics on private-car ownership and use, which contain information on average car mileage by type of fuel, average fuel consumption of cars by type of fuel. Average prices by type of fuel are available from price statistics.

### **5.7.3.5 Detailed calculations based on other conceptual adjustments**

This column covers the Value Added Taxes (VAT) paid on the purchases by households. Household final consumption expenditure is estimated at the level of 347 product groups. For each individual group VAT was calculated applying the corresponding VAT-rates: zero-tariff, low-tariff (6%), normal-tariff (19%). The sum of all product level VAT estimates equals the total VAT paid by households.

Consumption of non-residents in the Netherlands and consumption of residents abroad are also recorded in this column. The estimation of these figures is described in detail in section 5.14.5.

## **5.8 NPISH final consumption expenditure**

The consumption of non-profit institutions serving households (NPISH) equals by definition output minus market sales of these institutions. Output follows the sum of total costs, including wages and salaries and consumption of fixed capital.

#### *(1) Surveys and census / (3) Combined data*

NPISH consumption estimates are fully based on the commodity-flow method. NPISH are non-market producers, which implies that NPISH consumption equals by convention NPISH output. NPISH output is found in the following NACE Rev. 2 sections and divisions (between brackets the sections of chapter 3 where the estimation of the production value of these activities can be found):

J59	Motion picture, video and television programme production, sound recording and music publishing activities	(3.16)
Q88	Social work activities	(3.23.2)
R90/91	Creative, arts and entertainment activities	(3.24.1)
R93	Sports, amusement and recreational activities	(3.24.2)
R94	Activities of membership organisations	(3.25.1)

**Table 5.11 Process table of NPISH final consumption expenditure, 2010**

	<i>Basis for national accounts figures</i>					
	<i>Surv and Censuses</i>	<i>Admin records</i>	<i>Combined data</i>	<i>Extrapol + models</i>	<i>Other</i>	<i>Total</i>
	(1)	(2)	(3)	(4)	(5)	(6)
	<i>million euro</i>					
<i>NPISH final consumption expenditure</i>	792	0	4675	0	0	5467

	<i>Basis (Total)</i>	<i>Adjustments</i>				<i>Final estimate</i>
		<i>Data val.</i>	<i>Concept.</i>	<i>Exhaust.</i>	<i>Balancing</i>	
	(6)	(7)	(8)	(9)	(10)	(11)
	<i>million euro</i>					
<i>NPISH final consumption expenditure</i>	5467	0	0	0	-151	5316

**Table 5.12 Output and final consumption expenditure of NPISH**

+ P.2 - Intermediate consumption	3047	Table 3.0.2
+ D.1 - Compensation of employees	2708	
+ P.51c - Consumption of fixed capital	236	
+ D.29 - Other taxes on production	31	
- D.39 Other subsidies on production	0	
+ B2.n - Net operating surplus	0	
<b>= P.1 - Output</b>	<b>6022</b>	Table 3.0.1
Receipts from sales of products	680	
Own-account capital formation	26	
+ D.632 - Social transfers in kind	0	Table 5.11
<b>= P.3 - Final consumption expenditure</b>	<b>5316</b>	

The output of NPISH is based on either surveys and censuses (NPISH in NACE J59) or combined data (all other NPISH).

Employee and professional organisations and social bodies such as sports associations and religious and political organisations account for more than 60 per cent of NPISH final consumption expenditure.

#### *(10) Balancing adjustments*

The adjustments in this column are the result the balancing of the supply and use table. Balancing adjustments in intermediate consumption lead to balancing adjustments in the consumption of NPISHs.

Table 5.12 shows the calculation of output and final consumption expenditure of NPISH.

## 5.9 Government final consumption expenditure

### *General remarks*

Government consumption is defined in ESA 20.105-20.108. In these sections it is stated that government consumption is a result of their non-market output and the expenditure on products supplied to households via market producers (social benefits in kind). The latter are payments from private health insurance companies to care providers concerning basic health care are therefore recorded as government expenditure in the form of social benefits in kind (ESA 2010 4.108). The consumption is measured for all entities within the sector general government (S.13).

**Table 5.13 Process table of general government final consumption expenditure, 2010**

	Basis for national accounts figures					
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and models	Other	Total
	(1)	(2)	(3)	(4)	(5)	(6)
	million euros					
General government final consumption expenditure	0	144.890	0	24.780	0	169.670

	Basis (Total)	Adjustments				Final estimate
		Data validation	Conceptual	Exhaustiveness	Balancing	
	(6)	(7)	(8)	(9)	(10)	(11)
	million euros					
General government final consumption expenditure	169.670	0	-2.438	0	0	167.232

The delimitation of the general government sector is described in detail in the EDP inventory. Briefly, the delineation starts with an assessment of government control. If government control for an entity has been concluded, it is analysed whether the entity is a market producer based on the quantitative and qualitative criteria mentioned in the ESA. The quantitative test (50%)-rule) is checked for 3 consecutive years. Entities are analysed on an individual basis except for entities which are part of a group of units bearing the same features, e.g. when specific acts and regulations apply to this group.

General government consumption broken down into several subsectors of general government is shown in table 5.14.

**Table 5.14 Consumption of general government**

	Production	Consumption				
		Total	Collective	Individual		
				Total	Market	Non-market
<b>General Government</b>	124.880	167.232	56.378	110.854	64.903	45.951
<b>Central Government</b>	40.208	36.933	28.416	8.517	5.857	2.660
State	27.804	29.642	22.975	6.667	5.621	1.046
Universities	7.347	3.743	2.181	1.562	234	1.328
Public Corporate Organizations	164	115	115	0	0	0
NPIs central	4.893	3.433	3.145	288	2	286
<b>Local Government</b>	79.997	70.123	27.962	42.161	3.529	38.632
Municipalities	31.861	26.793	15.912	10.881	2.824	8.057
Local Intergovernmental Organizations	5.487	3.842	1.264	2.578	239	2.339
Provinces	2.437	2.264	2.112	152	0	152
Public Water Boards	2.568	2.354	2.354	0	0	0
Local Educational Institutions	26.224	24.263	59	24.204	0	24.204
NPIs local	11.420	10.607	6.261	4.346	466	3.880
<b>Social Security Funds</b>	4.675	60.176	0	60.176	55.517	4.659

*(2) Administrative records*

General government final consumption is taken essentially from the same sources as described for NACE O 'Public administration and defence; compulsory social insurance' and for the subsidized educational institutions in NACE P 'Education' (see sections 3.21 and 3.22):

- The State: ministries, Animal Health Fund, BES Fund, Infrastructure Fund, Municipalities Fund, Provinces Fund, VAT Compensation Fund and government agencies;
- Public corporate organisations;
- Universities;
- Municipalities;
- Provinces;
- Public water boards;
- Local intergovernmental organisations;
- Schools;
- Non-profit institutions and organisations (NPIs) such as Statistics Netherlands and police districts (until 2012, 25 units);
- Social security funds (Health Care Insurance Board (CVZ), Institute for employee benefit schemes (UWV), Social Insurance Bank (SVB), Central administration office special medical costs (CAK), and National Health Care Institute (ZIN)).

In addition, non-profit institutions and organisations controlled by government and not involved in market production that are classified in industries other than O and P are included. For some of these entities, data are extracted from financial reports.

General government consumption equals consumption of general government production plus Social benefits in kind - market production purchased by general government. The former is calculated as production minus own account investments (-/-), general government sales (-/-). The latter comprises of:

- household reimbursements for the purchase of goods or services;
- payment to producers for the supply of household goods and services.

On the other hand, household own contributions are excluded. Social benefits in kind are covered by a large number of different schemes and are mainly provided by the State, social security funds (especially health schemes) and municipalities. For the State and social security funds, social benefits can be easily discerned in the source data although the difference between benefits in kind and in cash is sometimes difficult. For municipalities, social benefits can be found in specific function, but for some schemes additional information is needed.

#### *(4) Extrapolations and models*

**Table 5.15 Extrapolations and models 2010, details**

	Benchmark Extrapolation	Commodity Flow method	CFC (PIM)	Dwellings stratification method	FISIM	Other extrapolation & models	Total extrapolation & models
							(4)
	million euros						
General government final cons. expenditure	0	0	20.588	0	0	4.192	24.780

#### *CFC (PIM)*

Consumption of fixed capital formation is calculated by applying the PIM to the gross fixed capital formation data mainly provided by the government entities.

#### *Other extrapolations and models*

For some non-profit institutions and organisations (NPIs) belonging to general government, no direct source data are available. Estimates are mainly based on data on grants provided by the State. Also part of the local intergovernmental institutions is not covered by direct sources due to non-response. They are grossed up by using data of the responding institutions.

#### *(8) Total conceptual*

**Table 5.16 Conceptual adjustments 2010, details**

	Allocation of FISIM	Other conceptual	Total conceptual
			(8)
	million euros		
General government final cons. expenditure	1.039	-3.477	-2.438

#### *Allocation of FISIM*

FISIM is based on the deposits and loans provided by the government entities and financial intermediaries.

### *Other conceptual*

The conceptual adjustments mainly relate to the purchase of software. In national accounts they should be included in gross fixed capital formation. Hence, an adjustment has to be made which is based on software estimates for GFCF for the whole economy (see section 5.10 and annex 5.5). This reduces the intermediate consumption and production by 1.3 billion euros.

Table 5.17 shows the calculation of output and final consumption expenditure of general government.

**Table 5.17 Output and final consumption expenditure of general government**

+P.2 Intermediate consumption	43908	Table 3.0.2
+D.1 Compensation of employees	60116	Process Table
+P.51c Consumption of Fixed Capital	20588	Process Table
+D.29 Other taxes on production	634	
-D.39 Other subsidies on production	-366	
+B.2n Net operating surplus	0	
<b>= P1 OUTPUT</b>	<b>124880</b>	<b>(Process Table)</b>
-P.11	-7058	
-P.12	-5205	
-P.131	-10288	
+D.632 Social transfers in kind	64903	
<b>= P3 Final Consumption Expenditure</b>	<b>167232</b>	<b>(Process Table)</b>

## **5.10 Acquisitions less disposals of produced fixed assets**

### **5.10.1 Overview**

Fixed assets are assets that are used for more than one year in a production process. In the Netherlands all non-financial assets within the asset boundary as summarized in ESA 2010, chapter 23, classification of assets, are covered, with one exception. The exception is that no separate estimates for land improvements are made (AN.1123). Major improvements to land are included in the GFCF questionnaire under civil engineering works AN.1122 Other structures. It is not possible to separate the value from the total AN.1122 Other structures. In ESA 1995 land improvements were already regarded as capital formation.

Data for acquisition of non-financial fixed assets are largely collected by means of the investment survey of Statistics Netherlands. This survey entails the purchased assets and

assets that are produced on own-account. Data are collected per type of asset and industry. The investment survey is based on a sample of ca. 60,000 kind of activity units which is stratified according to the NACE Rev. 2 and size classes based on the statistical business register (SBR). The sample includes units from all size classes. The sample size varies strongly per branch of industry, as the number of companies also varies per branch. Units with 20 or more employees (about 3 per cent of the population and 85 per cent of total investment) are all included in the survey. The adjustment for non-response and weighting to total population is done with a GFCF/employee ratio per strata. A stratum consists of a combination of a 3-digit NACE section and two size classes (less than 20 employees and 20 and more employees).

In the investment survey the ownership criterion is strictly applied. The survey does not cover all NACE Rev. 2 sections. It is confined to NACE Rev.2 sections:

- 01.6, Agricultural service activities
- 06-33, Mining and quarrying and manufacturing
- 35-39, Electricity, gas and air-conditioning supply, and water supply sewerage, waste management and remediation activities.
- 41-43, Construction
- 45-47, Wholesale and retail trade; repair of motor vehicles and motorcycles
- 49-53, Transportation and storage
- 55-56, Accommodation and food service activities
- 58-63, Information and communication
- 68-75 (excl. 70.1), Real estate activities, and professional scientific and technical activities (excl. activities of head offices)
- 77-82, Administrative and support service activities
- 95-96, Repair of computers and personal and household goods, and other personal service activities.

The following industries are not covered by the investment survey (NACE Rev.2 sections):

- 01-03 (excl. 01.6), Agriculture forestry and fishing (excl. 01.6, Agricultural service activities)
- 64-66, Financial and insurance services
- 70.1, Activities of head offices
- 84, Public administration and defence; compulsory social security
- 85, Education
- 86-88, Human health and social work activities
- 90-93, Arts, entertainment and recreation
- 94, Activities of membership organisations

Gross fixed capital formation (GFCF) for these industries is estimated by using other sources and methods.

GFCF in the industry health care (NACE Rev.2 section 86-88) is estimated by using data from the health care survey and administrative data. Examples of administrative data are a databank (DigiMV) of the ministry of Health, Welfare and Sports, digital annual reports of enterprises financed or partly financed through the health care insurance act, digital surveys among hospitals held by Prismant commissioned by the sector associations, and annual reports regarding provincially financed residential care and social work for children. The information contains financial data for health care industry, including balance sheets with the

investments per health care institution type. The growth rates of these investments are used to estimate GFCF in health care industry by extrapolation of the previous year. Benchmark levels of GFCF were determined in the former major revision and are based on an extensive research of annual reports of health care organisations. In some of the categories (e.g. general practitioners, specialists, dentist, midwives, and paramedics and physiotherapists) levels were estimated using information of the organisation that sets and monitors the fees of practitioners, specialists, and dentists (COTG). This organisation assumed standard levels of GFCF for these groups. For NACE Rev. 2 sections 87.9 (Other residential care activities) and 88.102 (Social work activities without accommodation for the elderly) ratios of GFCF per employee from the business services industry were used.

Data on GFCF for the agricultural sector (NACE Rev.2 section 01-03) are provided by the Agricultural Economic Institution (LEI). The LEI provides a detailed balance sheet with information on GFCF in almost all tangible fixed assets, land, cattle stock, plant stands and in total intangible assets.

Data on GFCF in government and subsidized education (NACE Rev.2 section 84-85) is obtained from government statistics. Estimates are based on financial administrations and public documents (e.g. budgets and annual reports). Two NACE industries rely fully on data from the government accounts. These are the NACE Rev. 2 sections 84 and 85.2 (general government and subsidized education). Some of the other industries consist of a mix of non-financial corporations (S11) and government (S13) units. In that case data from the government accounts are added to the data of the investment survey. The industries that include S13 units next to S11 units are NACE Rev. 2 sections 02, 32, 52, 72, 86, 87, 88, 90 and 94. A more detailed description of the source data is given in section 3.21 Public administration and defence; compulsory social insurance (NACE Rev. 2 Section O), and 3.22 Education (NACE Rev. 2 Section P).

For GFCF in the financial services industry (NACE Rev. 2 section 64-66) data are obtained from information collected by the Dutch Central Bank (DNB) and annual reports. The surveys of DNB consist of yearly or quarterly key figures on monetary financial institutions, pension funds, insurance companies and investment funds that are supervised by the Dutch Central bank. DNB also provides data on other financial corporations (S.124-S.127), on special purpose vehicles, and on themselves.

Other industries not (fully) covered in the investment survey are real estate activities, activities of head offices, arts, entertainment and recreation, residential care and social work activities without accommodation, and activities of membership organizations (respectively NACE Rev. 2 sections 68, 70.1, 87, 88 and 90-94). For real estate activities (NACE Rev. 2 section 68) a large part of the GFCF (95 per cent) is determined by the commodity flow method of the construction related assets (AN.1121 Buildings and AN.111 Dwellings). For a few other assets investment survey results are used. In the survey of 2010 AN.1139b Other machinery and equipment contained erroneously GFCF in dwellings of housing associations and commercial constructing companies. An adjustment was made to exclude dwellings from AN.1139b Other machinery and equipment. These dwellings are included in AN.111 Dwellings (where they belong) where GFCF in dwellings is estimated by the commodity flow method (see (5) Commodity flow method). The commodity flow method ensures that GFCF in owner occupied dwellings of households, which are not a part of the population in the investment survey, is included. For estimates in GFCF another important source is the supply of construction services related to dwellings and buildings.

In the investment survey only NACE Rev. 2 section 70.2 (management consultancy activities) of NACE section 70 is covered. NACE Rev. 2 section 70.1 (activities of head offices) is

missing. NACE Rev. 2 section 70.1 (activities of head offices) is estimated by assuming that the share in total GFCF is equal to the share of that of the production obtained from SBS of NACE 70.1 and 70.2.

NACE Rev. 2 sections 90-94 (arts, entertainment, recreation, and activities of membership organisations) are estimated by taking the growth rates of the two previous preliminary estimates of t-1 and t. This growth rate is applied to the final estimate of the previous year. Benchmark levels of GFCF were estimated in the former benchmark revision. These are based on the GFCF to output ratio of the business services industry. For religious organisations (NACE Rev. 2 section 94.911 and 94.993) an additional supplementary estimate for buildings was required. Special subsidy rules apply to religious organisations and institutions responsible for monument maintenance. The initial estimate was adjusted using information of sectoral building cost data.

Compared with commercial services, recreation centres require larger gross fixed capital formation in civil engineering works. The nature of these enterprises (museums, zoos, nature reserves, sports centres, etc.) suggests a larger share of gross fixed capital formation in buildings and engineering compared to vehicles, computers and the like. Data were derived from official statistics dating from the period when a number of these enterprises were part of the government sector.

NACE Rev. 2 section 85.5 (private education) is estimated by taking the growth rate from the subsidized education industry (NACE Rev. 2 section 85.2) and apply it to the estimate of section 85.5 of the previous year. The benchmark level of GFCF for NACE 85.5 was determined in the benchmark revision of 2001 by using three-annual business statistics (SBS) for driving schools (NACE Rev. 2 85.53). In order to estimate other parts in the private education industry the ratio of GFCF per employee in the business services industry was used as an indicator.

One of the changes in ESA 2010 is that weapon systems are recognized as fixed assets. Data on weapon systems (AN. 114) is provided on a quarterly basis by the Ministry of Defense. Statistics Netherlands distinguishes 5 types of assets in weapon systems. These are electronic or telecommunication equipment; tanks, weapons and munitions; transport equipment; warships; and warplanes. A more detailed description of the source data is given in section 3.21 Public administration and defence; compulsory social insurance.

In the transport sector (NACE Rev.2 sections 49-53) in a number cases reference is made to annual reports. This is particularly the case for major enterprises like the Dutch railways (NACE Rev.2 section 49.12), and the state rail infrastructure (section 52.12). Sometimes this leads to adjustments in data of the investment survey or Structural Business Statistics (SBS).

Foreign trade statistics are used for estimating GFCF in airplanes, airplane parts, and jet engines. Furthermore, foreign trade statistics are used to estimate the gross fixed capital formation in second-hand trucks and trailers from abroad.

The estimates of GFCF in intellectual property products are based on other data sources than the investment survey. For example GFCF in research and development (R&D) is estimated by means of data from the Frascati based R&D survey and GFCF in software is estimated using data from the ICT-expenditure survey. The asset types R&D and software were not included in the investment survey of 2010. The ICT survey is also used as a source to estimate telecommunication equipment (see box 2).

The Frascati based R&D survey covers enterprises with 10 or more employed persons. Every year a stratified sample from the units in the target population (based on the Statistical Business Register) are surveyed for statistics on R&D. The survey is conducted both via the

internet and paper questionnaires. Data are collected from approximately 1,500 units. The estimate for the target population is obtained by using a grossing up factor (stratum population / response – N/n) for business units in each stratum (NACE 2-digit /company size combination). The R&D survey includes information on the R&D related compensation of employees, other operation costs (excluding consumption of fixed assets) and capital expenditure that represent the inputs of R&D activities (buildings, machinery etc.). Gross expenditure on research and development (GERD) according to Frascati guidelines is calculated as the sum of these three expenditure categories. The survey also provides information on R&D purchases (by type of provider) and R&D sales (by type of purchaser). These sales and purchases do not yet include the intra-enterprise R&D (own-account R&D) produced by separate entities on behalf of affiliated producers.

The ICT expenditure survey was used to develop a new estimation method for software and telecommunications equipment for the year 2009. The survey asks respondents about their spending on a number of IT-related goods and services, including software. The survey covers the same population of units as the annual EU harmonized survey on ICT usage and e-commerce in enterprises. Therefore it includes only enterprises with 10 or more employed persons, in a limited range of NACE groups (roughly: C through N, and Q of NACE Rev.2). So an additional estimate / grossing-up for the units under the threshold is needed. The grossing-up is based on total turnover per stratum as obtained from business surveys. Furthermore other sources and assumptions are consulted to supplement the ICT survey. For example SBS is used to estimate payments for services related to the development of custom made software. Similarly, SBS data on labour costs of IT-specialists (NACE Rev. 2 section 62) serves to estimate own-account GFCF of software. A description of the methods for estimating GFCF per type of asset is presented in more detail in section 5.10.3.

Acquisitions are confined to newly produced assets. It is assumed that sales on the domestic second-hand market occur between enterprises within the same industry on the level of classification applied in the GFCF-estimation in the national accounts. Disposals of leased company cars represents a correction item in the GFCF estimate. The service life under lease arrangements of leased cars is set to an average of approximately 4 years (50% after 3.5 years and 50% after 4.5 years of use) after the acquisition by the industry renting and leasing activities (NACE Rev. 2 section 77). After the lease arrangement the cars are assumed to be sold to households. The disposals of lease cars are recorded as a disinvestment and as household consumption (trade margins on purchases of lease cars are recorded as output of trade industry). In case existing assets are disposed and sold to non-resident units they are recorded as a disinvestment and exports of goods. The main data source for disposals is the statistics on the international trade in goods, which contains information about exported second hand assets.

GFCF as reported in the investment survey includes own-account GFCF (not separately asked in the survey). Structural Business Statistics (SBS) is used to identify own-account part in total GFCF. It is assumed that SBS gives a reliable total for own-account investment in the asset types other buildings and structures (AN.112g), transportation equipment (AN.1131), (AN.1139a) machinery and installations and other machinery and equipment (AN.1139b). The estimate for own-account construction of dwellings is described in section 7.2. For own-account software, research and development (R&D), and other intellectual property products additional estimates are made and added to own-account GFCF. The methods to estimate own-account R&D and software investment are described in detail in annex 5.5. This annex contains the full text of the grant report “Improvement in the Measurement of Intellectual Property Products”. Own-account GFCF in mineral exploration and evaluation is determined as a balancing item ( $GFCF = \text{domestic production} + \text{imports} - \text{intermediate consumption} -$

exports). The available data sources do not give direct information on the amount of intermediate consumption of mineral exploration. It is assumed that mineral exploration executed by large companies is always intended for GFCF or export, whereas mineral exploration executed by smaller firms is subcontracting and therefore intermediate consumption.

The breakdown of own-account GFCF from the SBS into other buildings and structures (AN.112), transportation equipment (AN.1131), machinery and installations (AN.1139a), and other machinery and equipment (AN.1139b) is done by taking the previous year (balanced GFCF results) as a reference. To estimate the own-account GFCF levels per asset and per industry, the activities of corresponding industries have been considered. The (selected) associated assets are based on pre-revision information.

Before transferring GFCF-data to the supply and use tables the asset types have to be reclassified to products. This breakdown is based on the balanced results of the previous year. In case of the revision non-revised 2010 results are used. The fraction of the product group of the SUT per asset type of the previous year is taken as a reference to achieve the breakdown in the present year. From one year to another, the fractions are influenced by the balancing process in which per product group supply and use is confronted and balanced.

For non-deductible value added tax (VAT) a combination of two schemes is used. The first scheme gives per industry the part of output that is exempted from VAT. This percentage indicates what part of GFCF of the concerning industry is ultimately charged with VAT. The other scheme gives the VAT-rates by product in standard rate, low-rate or zero. Applying the rates of the corresponding year both schemes are used to produce a table with the rates per industry and per product. Subsequently, this table is applied to the GFCF estimates in order to calculate the non-deductible VAT on GFCF.

In Table 5.18 the total gross fixed capital formation is shown by NACE Rev. 2 sections and type of asset. The data are valued at purchasers' prices including non-deductible VAT. GFCF amounts up to 128 billion euros for the total economy. Cost of transfer of ownership of dwellings and buildings are included in respectively the asset types 'Dwellings' and 'Buildings other than dwellings'. GFCF in weapon systems is included in the asset type 'Machinery and installations'. The total GFCF in weapon systems amounts 876 million euro in 2010. GFCF in weapon systems consist of warplanes (139 million euros), warships (186 million euros), transport equipment (63 million euros), tanks, weapons and munitions (434 million euros), and communications equipment (54 million euros). In table 5.18 total investments does not include the sales of existing fixed assets. In table 5.19 this part is shown separately. Nonetheless, for readability of the text the term GFCF is used in the whole text.

The process table for sales of existing fixed assets is shown at the end of this section 5.10.1.

Table 5.19 shows the investments by asset type and sector. As can be seen in table 5.18 the household sector (S.14) is the main investor in dwellings. In table 5.17 owner occupied dwellings are included in the NACE Rev.2 section 68 (real estate activities).

In table 5.20 the process table is given for the revised 2010 estimates. The most important sources, methods and adjustments are described per heading (column). Furthermore, a description of the most important adjustments by asset (per AN code) is given.

**Table 5.18 Gross fixed capital formation from production and imports by NACE sections; 2010, values in current prices in million euros**

	Total	Dwellings	Buildings other than dwellings	Other structures	Costs of ownership transfer of land	Passenger cars	Other road transport equipment	Trains and trams	Ships	Aircraft	Computers	Telecommunication equipment	Machinery and installations	Other tangible fixed assets	Cultivated biological resources	Research and development	Computer software and databases	Other intellectual property products
<b>All economic activities</b>	128114	29464	19948	15249	1596	5137	1822	1141	1192	325	3613	728	14938	5672	259	10949	15053	1028
Agriculture, forestry and fishing	4527	0	2148	26	63	44	165	0	2	0	18	2	1456	112	259	167	53	12
Mining and quarrying	2347	0	4	1172	0	1	1	0	0	0	4	0	544	18	0	1	11	591
Manufacture of food and beverages	1800	0	208	9	1	37	10	0	0	0	35	1	934	98	0	257	210	0
Man. of textile-, leatherproducts	78	0	12	0	0	3	1	0	0	0	4	0	26	7	0	6	19	0
Man. wood en paperprod., printing	437	0	32	4	0	12	3	0	0	0	14	1	219	23	0	20	109	0
Manufacture of coke and petroleum	509	0	17	23	0	1	0	0	0	0	7	0	243	82	0	119	17	0
Manufacture of chemicals	1832	0	54	6	0	3	0	0	0	0	9	3	786	21	0	818	132	0
Manufacture of pharmaceuticals	789	0	48	0	0	1	0	0	0	0	4	0	99	10	0	590	37	0
Man. plastics and constructionprod	555	0	31	4	2	12	4	0	0	0	11	3	269	33	0	105	81	0
Man. of basic metals and -products	799	0	71	13	1	28	6	0	0	0	16	7	355	39	0	141	122	0
Manufacture of electronic products	713	0	13	0	0	3	0	0	0	0	8	3	42	20	0	541	83	0
Manufacture of electric equipment	660	0	4	2	0	3	1	0	0	0	5	1	79	9	0	426	130	0
Manufacture of machinery n.e.c.	1426	0	132	2	1	17	4	0	0	0	50	3	355	27	0	650	185	0
Transport equipment	428	0	20	4	0	11	2	0	0	0	6	1	74	21	0	211	78	0
Other manufacturing and repair	853	0	60	17	0	56	29	0	0	0	23	3	350	49	0	127	139	0
Electricity and gas supply	3606	0	69	772	1	9	3	0	0	0	54	4	2158	153	0	22	361	0
Water supply and waste management	1555	0	138	434	4	95	37	0	0	0	15	0	581	165	0	17	69	0
Construction	2209	94	172	24	4	194	90	0	352	0	52	74	469	186	0	116	382	0
Wholesale and retail trade	5949	0	901	48	10	498	231	0	0	0	305	69	786	1076	0	317	1708	0
Transportation and storage	7542	0	480	1423	5	126	557	1141	829	302	226	18	1271	410	0	148	606	0
Accommodation and food serving	754	0	194	14	0	21	7	0	0	0	19	8	164	215	0	16	96	0
Publishing, movie, radio and TV	599	0	34	0	0	5	0	0	0	0	41	21	63	45	0	21	247	122
Telecommunications	1859	0	63	247	0	48	0	0	0	0	151	6	644	121	0	44	535	0
IT- and information services	1413	0	34	1	0	22	5	0	0	0	245	11	119	58	0	303	615	0
Financial institutions	5287	980	1216	1	266	47	7	0	0	0	464	98	56	109	0	114	1922	7
Renting, buying, selling real estate	35743	28255	5543	71	992	37	13	0	0	0	52	11	69	547	0	8	145	0
Management, technical consultancy	2594	0	124	3	0	75	9	0	0	0	205	86	103	177	0	361	1451	0
Research and development	1901	0	85	1	1	4	3	0	5	0	19	3	83	25	0	1568	104	0
Advertising, design and other	534	0	16	0	0	17	3	0	0	0	46	8	27	33	0	61	322	1
Renting and other business support	4975	0	80	37	2	3339	448	0	0	0	65	10	243	164	0	97	490	0
Public administration and services	19640	135	3358	10701	216	53	125	0	4	20	527	182	1207	260	0	249	2603	0
Education	5424	0	968	81	1	91	15	0	0	3	384	15	89	877	0	2343	557	0
Human health activities	3451	0	1319	19	9	51	16	0	0	0	131	16	359	90	0	954	487	0
Care and social work	3530	0	2002	29	15	78	11	0	0	0	196	39	520	150	0	2	488	0
Culture, sports and recreation	1042	0	165	61	0	52	6	0	0	0	99	12	36	74	0	1	241	295
Other service activities	754	0	133	0	2	43	10	0	0	0	103	9	60	168	0	8	218	0

**Table 5.19 Gross fixed capital formation (gross) by type and by sector; 2010**

	All sectors	Non-financial corporations	Financial corporation	General government	Households	NPISHs
<b><i>Fixed assets from production and imports</i></b>						
Total	128.114	61.914	5.714	27.676	32.604	206
Dwellings	29.464	5.604	980	135	22.745	0
Buildings other than dwellings	19.948	10.667	1.216	4.596	3.441	28
Other structures	15.249	3.166	1	11.990	91	1
Costs of ownership transfer of land	1.596	793	266	217	320	0
Total transport equipment	9.617	8.016	449	298	843	11
Passenger cars	5.137	4.157	442	84	445	9
Other road transport equipment	1.822	1.344	7	185	283	2
Trains and trams	1.141	1.141	0	0	0	0
Ships	1.192	1.070	0	9	113	0
Aircraft	325	303	0	20	2	0
Computers	3.613	1.776	469	1.087	248	34
Telecommunication equipment	728	347	100	211	64	6
Machinery and installations	14.938	11.697	56	1.460	1.711	13
Other tangible fixed assets	5.672	3.271	109	1.183	1.085	24
Cultivated biological resources	259	59	0	0	200	0
Research and development	10.949	7.121	114	3.098	612	3
Computer software and databases	15.053	8.520	1.947	3.401	1.135	50
Other intellectual property products	1.028	879	7	0	107	35
<b><i>Sales of used fixed assets (-)</i></b>						
Total	3.465	2.920	198	197	150	.
Exports of used fixed assets	1.438	1.122		197	119	.
Domestic sales used fixed assets	2.027	1.798	198	.	31	.
<b><i>Gross fixed capital formation</i></b>	<b>124.649</b>	<b>58.994</b>	<b>5.516</b>	<b>27.479</b>	<b>32.454</b>	<b>206</b>

**Table 5.20 Process table of Gross fixed capital formation by AN code, 2010**

		Basis for national accounts figures						
		Survey & Censuses	Administrative records	Combined Data	Extrapolation and models	Commodity Flow Model	Other	Total
		(1)	(2)	(3)	(4)	(5)	(6)	
		million euros						
GFCF	Total	52.269	25.627	5.940	10.440	29.714	3.491	127.481
AN.111	Dwellings	0	1.115	0	3.662	24.254	0	29.031
AN.1121	Buildings	3.159	6.008	0	4.159	4.869	2.104	20.299
AN.1122	Other structures	3.007	13.623	0	640	0	84	17.354
AN.1131	Transport equipment	7.448	115	0	341	0	491	8.395
AN.1132	ICT-equipment	1.380	1.630	0	1.253	0	15	4.278
AN.1139a	Machinery and installations	11.514	881	0	318	0	1.266	13.979
AN.1139b	Other machinery and equipment*	9.090	1.344	0	-4.778	0	106	5.762
AN.114	Weapon systems	0	876	0	0	0	0	876
AN.115	Cultivated biological resources	0	0	0	0	0	259	259
AN.1171	R&D	11.934	0	0	0	0	-846	11.088
AN.1172	Mineral exploration	0	0	0	0	591	0	591
AN.1173	Software	4.737	27	5.940	4.429	0	0	15.133
AN.1174	Entertainment, literary or artistic originals	0	0	0	416	0	0	416
AN.1179	Other IPPs	0	8	0	0	0	12	20
		Basis (total)	Adjustments				Final estimate	
				Data validation	Conceptual	Exhaustiveness		Balancing
				(7)	(8)	(9)		(10)
		million euros						
GFCF	Total	127.481		1.317	-344	0	-340	128.114
AN.111	Dwellings	29.031		0	0	0	433	29.464
AN.1121	Buildings	20.299		0	0	0	-351	19.948
AN.1122	Other structures	17.354		-129	0	0	-380	16.845
AN.1131	Transport equipment	8.395		1.241	0	0	-19	9.617
AN.1132	ICT-equipment	4.278		0	0	0	63	4.341
AN.1139a	Machinery and installations	13.979		0	0	0	83	14.062
AN.1139b	Other machinery and equipment*	5.762		0	0	0	-90	5.672
AN.114	Weapon systems	876		0	0	0	0	876
AN.115	Cultivated biological resources	259		0	0	0	0	259
AN.1171	R&D	11.088		205	-344	0	0	10.949
AN.1172	Mineral exploration	591		0	0	0	0	591
AN.1173	Software	15.133		0	0	0	-80	15.053
AN.1174	Entertainment, literary or artistic originals	416		0	0	0	2	418
AN.1179	Other IPPs	20		0	0	0	-1	19

\* Other fixed assets not mentioned in AN.1139a (mainly furniture, containers, silos and pallets)

## ***The process table: the columns***

### ***(1) Surveys & censuses***

GFCF estimates in this column are obtained from the investment survey, the ICT-survey and the Frascati based R&D-survey. Some industries (NACE sections) consist of a mix General government units (S.13) and Non-financial corporations units (S.11), the GFCF-estimate for S.13 units is registered in the column administrative records (2).

Data from the ICT-survey concern data that are directly available from the survey. Note that in the case of software there are a lot of missing parts in the data. These are estimated with the help of a combination of sources, assumptions and model-like methods. This part of the estimate is registered in column (3) combined data. A comprehensive description of the GFCF estimate of software is given in annex 5.5.

For R&D gross expenditure of research and development (GERD) derived from the Frascati survey is registered in this column. Adjustments of the data to revalue GERD to national

accounts concepts of production are registered in the column conceptual changes (8). A comprehensive description on the GFCF estimate of R&D is given in annex 5.5.

### Box. 1 Research and development, repeating the revision

At the end of the revision process of year 2010, data from the R&D survey for 2011 became available which were incomparable with 2010 data, due to new Eurostat. One of the new items in the regulation was to include companies with less than 10 employees to the population of the survey. Furthermore, along with the change to new regulations, Statistics Netherlands took the opportunity to improve processing of raw data and the definition of R&D. In the past not all research was measured as R&D. An example is that improvements in the management and organisation processes were excluded and called soft-R&D. In the new method the R&D definition is expanded to include more kinds of R&D.

Initially the benchmark revision was based on the 2010 data. To take account of the above mentioned improvements, revised estimates were made based on the improved 2011 data. In this process 2011 results for R&D (production, GFCF, and own-account R&D) were extrapolated backwards to obtain comparable 2010 results. The R&D survey department provided the necessary growth rate of GERD (+2.5% from 2010 to 2011) which was applied to obtain the 2010 results. Therefore no precise translation from GERD (gross expenditure on research and development) to output and GFCF for the year 2010 exists. In annex 5.5 the translation process is given for 2011. In the table below the structures and shares of 2011 are used in order to give a rough estimate of the translation for 2010. The estimated parts are the user costs of capital, the capital expenditure, the correction for software overlap, and adjustments for the health care and government sectors. For imports, exports, intermediate use of R&D, and subsidies on production 2010 data known from other sources are used.

	2010	2011	Share of 0,98 used for	Column in process table
GERD	11934	12232		(1) Survey and Censuses
Subs. on production	-868	-814		(8) Conceptual
Adjustment for NACE 72	235	240	X	(6) Other
Capital expenditure	-955	-974	X	(8) Conceptual
UCC (CFC plus return)	1479	1509	X	(8) Conceptual
Expenditure on own-account software	-315	-320	X	(6) Other
Data validation excluding gov. & healthcare	47	-34	X	(7) Data validation
Data validation gov. sector	76	10	X	(7) Data validation
Data validation healthcare	82	84	X	(7) Data validation
Balancing	0	-1		(10) Balancing
R&D output	11715	11931	<i>Share of 2010 in 2011 = 0,98</i>	
Import	1053	1434		(6) Other
Export	-1388	-1562		(6) Other
Intermediate consumption	-461	-451		(6) Other
GFCF (excl. VAT)	10919	11352		
VAT	30	33		(6) Other
GFCF (incl. VAT)	10949	11385		

### (2) Administrative records

GFCF in this column refers to data taken from annual reports and balance sheets of banks, insurance companies and government, the POLBIS system registering investments by the police, data from the health care organisation 'Prismant', data from the tax authorities of taxes

on the transfer of ownership of existing buildings (which are registered as gross fixed capital formation).

### *(3) Combined data*

In case of software the data from the ICT-Survey are used to estimate GFCF. This also holds for the estimates for general government and financial institutions. The part of GFCF in software that is derived directly from the ICT-survey is given in column (1) surveys & censuses. However, in the case of software several additional sources are used to estimate the “missing parts” (e.g. payments for services to develop and implement custom made software and own-account software). For example, information on IT-staff and labour costs is used to estimate own-account software. This estimate includes a mark-up. A comprehensive description of the software estimate is given in annex 5.5. Because a large part of software is estimated by a combination of sources and assumptions, this additional estimate is placed in the column Combined data (3).

### *(4) Extrapolation and models*

Part of is GFCF is estimated by way of extrapolation methods, models or other calculation methods. Estimated benchmark levels are used in combination with growth rates of similar industries or growth rates indicators from other data sources. The extrapolation method is used in the industries real estate activities, head offices, private education, residential care and social work activities without accommodation, arts, entertainment and recreation, and activities of membership organizations (respectively NACE Rev. 2 sections 68, 70.1, 85.5, 87, 88 and 90-94). Both the estimate of the benchmark levels and the indicators used for the extrapolation method in the mentioned industries are already described in the beginning of this section. The extrapolation method concerns a modest part of GFCF in AN.1121 Buildings (4159 million euros), AN.1122 Other structures (640 million euros), AN.1139a Machinery and installations (318 million euros), AN.1131 Transport equipment (341 million euros), AN.1132 ICT-equipment (1253 million euros), AN.1173 Software (4429 million euros), and AN.1174 Originals (416 million euros).

This column also includes an adjustment for telecommunication equipment. The investment survey reports GFCF of telecommunication equipment under AN.1139a Machinery and installation instead of AN.1132 ICT-equipment. An adjustment of 728 million euros was made to correct for this misclassification. This amount is removed from AN.1139a Machinery and installation and placed under AN.1132 ICT-equipment. The adjustment due to the extrapolation method of (NACE Rev. 2 sections 68, 70.1, 85.5, 87, 88 and 90-94) is therefore 1046 million euros (318 million + 728 million) for AN.1139a Machinery and installation and 525 million euros (1253 million – 728 million) for AN.1132 ICT-equipment. See box 2 for more information on the estimate of GFCF in telecommunication equipment.

The large negative amount in AN.1139b Other machinery and equipment (-4.778 million euros) is explained by dwellings of housing associations and commercial construction companies that are erroneously included in AN.1139b Other machinery and equipment. Since AN.111 Dwellings is estimated with the commodity flow method (see (5) Commodity flow method) and therefore will include the GFCF in dwellings of housing associations and commercial construction companies, an adjustment to exclude GFCF in dwellings from AN.1139b is sufficient.

**Box. 2 Identifying telecommunication equipment (part of AN.1132 ICT-equipment)**

The investment survey does not include a separate question on GFCF in telecommunication equipment. Telecommunication equipment is included in AN.1139a Machinery and installations. In order to separate telecommunication GFCF and include it in AN.1132 ICT-equipment (where it belongs) the ICT-survey is used. The ICT-survey includes questions on the purchase of phones, camera's, video equipment etc. In the ICT survey the size classes 0-3 are missing. These are estimated by looking at the share of computer investments of the size classes 0-3 (In the investment survey) and apply this to the results of the ICT-survey. Hence, the method to estimate telecommunication GFCF is only useable in the NACE Rev.2 sections that are covered by the ICT-survey as well as by the investment survey. Unfortunately this is not always the case. For parts in agriculture (NACE Rev.2 sections 01.1-01.4 and 01.6), for forestry and fishing (NACE Rev.2 sections 02-03), Banking (NACE Rev.2 section 64), Activities auxiliary to financial services (NACE Rev.2 section 66), Public administration and defence (NACE Rev.2 section 84), Subsidized education (NACE Rev.2 section 85.2-85.4), Private education (NACE Rev.2 section 85.5), Arts, entertainment, recreation, and Activities of membership organisations (NACE Rev.2 sections 90-94), Repair (NACE Rev.2 section 95), and Other personal services (NACE Rev.2 section 96) other methods had to be used:

For NACE Rev.2 sections 01.1-01.4 and 01.6 the share between telecommunication equipment and computers of the whole agricultural industry is used. GFCF in computers in this sector is provided by the LEI (Agricultural Economics Institute).

For Forestry and Fishing (NACE Rev.2 sections 02 and 03) GFCF in telecommunications is assumed to be 0.

For the industries Banking, Subsidized education, Repair, and Other personal services (NACE Rev.2 sections 64, 85.2-85.4, 95 and 96) the share between telecommunication equipment and computers in the Professional, Scientific and technical activities industry (NACE Rev.2 section M) is used.

Finally for SPE's, Activities auxiliary to financial services (NACE Rev.2 section 66), Private education (NACE Rev.2 section 85.5), and Arts, entertainment, recreation, and activities of membership organisations (NACE Rev.2 sections 90-94), estimations are based on following share of GFCF in telecommunication equipment per employed person in the Professional, Scientific and technical activities industry (NACE Rev.2 section M).

Telecommunications equipment is estimated at 728 million euros. This is also the amount that is excluded from AN.1139a Machinery and installations. The inclusion in AN.1132 ICT-equipment and exclusion from AN.1139a Machinery and installation is included in column (4) Extrapolation and models of the process table.

Another large part of the adjustment in AN.1121 Buildings and AN.1122 Other structures is explained by adjustments for work in progress. Acquisition of new assets is corrected for work in progress in construction activities. In accordance with ESA 2010 guidelines, these activities are registered as GFCF to the extent that the ultimate user is deemed to have taken ownership (either because it is for own use or as evidenced by contract) instead of on the moment the assets is finished and acquired. In practice the investments are registered when

the costs occur. The information on work in progress is obtained from the investment survey. In the investment survey a separate question on work in progress is included, providing an opening and closing balance sheet.

#### *(5) Commodity flow method*

For mineral exploration gross fixed capital formation is determined as a balancing item. GFCF is equal to the domestic output (from SBS) + import of services (trade statistics) - intermediate consumption - exports of services (trade statistics). The available data sources do not give direct information on the amount of intermediate consumption of exploration. It is assumed that mineral exploration executed by large companies is always intended for GFCF or export, whereas mineral exploration executed by smaller firms is subcontracting and therefore intermediate consumption. The input from smaller firms is assumed to accumulate in the output of bigger exploration firms. The exploration services of these larger firms are recorded as GFCF. Total GFCF in mineral exploration equals 591 million euros.

The largest estimate of gross fixed capital formation mentioned under (5) commodity flow is that of AN.111 Dwellings (24254 million euros). This concerns mainly owner occupied dwellings. The estimate is based on the total production of dwellings provided by statistics on construction (SBS). Other costs such as commission, architects' fees, land register charges and construction fees, which are part of GFCF, represent a fairly fixed percentage of 8 per cent of GFCF in dwellings. This percentage is estimated by using specifications of the costs of a mortgage contract from 2010. It appeared that the mentioned other costs constituted about 8 per cent of the mortgage sum. The largest part is formed by the transfer tax (6 per cent of the sales price). The same percentage was used with the benchmark revision of 2001. These others costs are also included in AN.111 Dwellings.

The third estimate concerns an adjustment in order to match the total production of buildings (4869 million euros). For other costs such as commission, architects' fees, land register charges and construction fees, which are part of GFCF, a fixed percentage of 7 per cent of total GFCF in new buildings is used. Like in the former benchmark revision of 2001 it is assumed that this percentage is a little less than in the case of AN.111 Dwellings (see section above). These other costs are also included in AN.1121 Buildings.

#### *(6) Other*

This column includes GFCF of agriculture based on data from the Agricultural Economics Institute (LEI). Every year, the LEI provides a balance sheet (opening and closing balance sheet) with detailed information about different asset types that includes main categories of tangible fixed assets, land, cattle stock, plant stands and intangible assets. The LEI does not cover NACE Rev. 2 section 01.6 (agricultural services). Subsidiary section using the standard classifications are available for this purpose.

Other important adjustments (in column (6) Other) in order to arrive at R&D output consist of an adjustment for overlap with software (-315 million euros), and an adjustment in order to match the NACE Rev. 2 section 72 results from the SBS (+ 235 million euros). In order to estimate the GFCF (departing from R&D output) imports and exports of R&D are taken into account and intermediate use is excluded (-796 million euros). Intermediate consumption is only recorded in the R&D-industry (NACE Rev. 2 section 72) where purchases of R&D services are expected to be used and incorporated in the final R&D output. The translation from R&D output to GFCF is also given in annex 5.5 table 4. The format of this table is taken

from the Eurostat R&D taskforce. The adjustments mentioned in this section are all included in column (6) Other (-846 million euros). The translation process of Frascati based on R&D expenditure to national accounts concepts of R&D-output (and subsequently GFCF of R&D) is described above and in annex 5.5.

#### *(7) Data validation*

GFCF in this column refers to car sales data from the Dutch car association (RAI) and data taken from the annual report of the Dutch railroads company (Nederlandse Spoorwegen) on own-account investment in trains. Both sources are used to supplement GFCF derived from the investment survey. Also adjustments due to supplementary estimates of R&D in the health care and government sector are reported in this column made (+205 million euros).

#### *(8) Conceptual changes*

There are a few conceptual changes. One conceptual change concerns the transformation of gross expenditure on research and development to national accounts concepts of R&D output (-344 million euros). The adjustment comprises the inclusion of user costs of capital instead of consumption of fixed capital, a mark-up for genuine profits in case of market R&D, and the inclusion of subsidies on R&D production. The mark-up for profits is assumed to be a fixed rate of 5 per cent of the sales of market R&D as observed in the R&D survey. Subsidies on production are based on the monthly insurance policy administration database on wages and social contributions of the Institute for Implementations of Employees' Insurances (UWV). This subsidy is based on an Act (WBSO) and consists of a fixed deduction on income tax, lowering the wage costs for companies that invest in R&D.

#### *(10) Balancing*

A large part of the adjustment is a consequence of further fine tuning between supply and use, and adjustment for some errors. Total balancing adjustment is -340 million euros.

#### ***Process table: types of asset (AN-category)***

In general Survey and censuses (1) are totals that are derived from the investment survey, the ICT expenditure survey and the R&D survey. Administrative records (2) refer to data from the government sector and the financial institutions sector. Extrapolation and models (4) concern the methods that are used in order to estimate the industries NACE Rev. 2 sections 70 an 85.5-94. The column Other (6) concerns data from the agricultural economics institute (LEI) and the international trade statistics (imports of airplanes). Other important adjustments are described in the section below.

*AN. 111 Dwellings*, the estimate applying a commodity flow method based on the total production of dwellings by construction industry. It includes owner occupied dwellings which are registered in the NACE Rev. 2 section 68 (real estate activities) in table 5.18 and in the sector households in table 5.19 (S14). The balancing adjustment (433 million euros) assures the equality of supply and use of dwellings.

*AN.1121 Buildings other than dwellings*, to estimate the GFCF in construction type assets (dwellings, buildings) the commodity flow method is used. This led to an additional adjustment of 4869 million euros on buildings. Other balancing adjustments that occurred during the balancing process amount to -351 million euros and relate to adjustments in the supply of construction services related to buildings.

*AN.1122 Other structures*, confronting the results of the investment survey with the annual report of the Dutch Railway Company led to an adjustment of -129 million for double counting. This is registered in the column Data validation (7). The balancing adjustment of (-380 million euros) assures the equality of supply and use construction activities.

*AN.1131 Transport equipment (broken down into different transport vehicles)*, there are two data sources used for estimating GFCF in passenger cars. Investment survey results (part of column (1) Survey and censuses) for passenger cars are adjusted data on car sales from the Dutch car association (RAI). This adjustment is registered in the column data validation (7). Another important source is the international trade statistics and concerns the imports of airplanes. The adjustment of GFCF to this source (300 million euros) is included in column Other (6).

*AN.1132 ICT equipment*, includes computers and communication equipment. The investment survey is the main source for computers while the ICT survey is used to estimate communication equipment. There are no substantial adjustments made for ICT-equipment. Column (4) Extrapolation and models includes an adjustment for telecommunications equipment. See box 2 for more information on the estimate of GFCF in telecommunications equipment.

*AN.1139a Machinery and installations*, the investment survey is the main source for this type of asset. The balancing adjustment is 63 million euros. The most substantial adjustment is due to LEI data for GFCF in agriculture and can be found in the column (6) Other.

*AN.1139b Other machinery and equipment*, the investment survey is the main source for this type of asset. In the survey of 2010 AN.1139b Other machinery and equipment contained GFCF in dwellings of housing associations and commercial constructing companies. An adjustment was made to exclude dwellings from AN.1139b Other machinery and equipment. These dwellings are included in AN.111 Dwellings (where they belong), since GFCF in dwellings is estimated with the commodity flow method (see (5) Commodity flow method).

*AN.114 Weapon systems*, the estimate for weapon systems is based on administrative sources from the government.

*AN.115 Cultivated biological resources*, estimates are based on data from the Agricultural Economics Institute (LEI). Every year, the LEI provides a balance sheet (opening and closing balance sheet) with detailed information about different asset types that includes main

categories of tangible fixed assets, land, cattle stock, plant stands and intangible assets. There are no balancing adjustments made.

*AN.1171 Research and development*, the R&D survey is taken as a source for domestic R&D supply and use. The translation process of Frascati based on R&D expenditure to national accounts concepts of R&D-output (and subsequently GFCF of R&D) is discussed above.

*AN.1172 Mineral exploration and evaluation*, for mineral exploration gross fixed capital formation is determined as a balancing item. GFCF is equal to the domestic output (from the SBS) + import of services (trade statistics) - intermediate consumption - exports of services (trade statistics). No balancing adjustments are made.

*AN.1173 Computer Software and Databases*, in the case of software a lot of other sources are used to estimate the “missing parts” (e.g. payments for services to develop and implement custom made software, and own-account software). For example information on IT-staff and labour costs is used to estimate own-account software. A comprehensive description of the software estimate is given in annex 5.5. Because the missing part of software is estimated by a combination of sources and assumptions, they are placed in the column Combined data (3).

*AN. 1174 Entertainment, literary and artistic originals*, estimates for movies, documentaries and drama series are based on Information from annual reports of different organisations such as the film fund (Filmfonds). GFCF in other originals (music, designs, photos, sheet music, books, television formulas) are estimated with the help of the flow of royalties they are related to. These flows are obtained from nine collective management organisations that collect the royalties. A detailed description of the estimate can be found in annex 5.5. There are no substantial adjustments made.

### ***Sales of existing fixed assets***

Acquisitions are confined to new assets. It is assumed that domestic sales on the second-hand market occur between enterprises within the same industry on the level of classification applied in the GFCF-estimation in the national accounts. Exception is the sale of leased cars. In case existing assets are disposed and sold to non-resident units these are recorded as a disinvestment and exports of goods. The main data source for disposals is the statistics on the international trade in goods, which contains information about exported second hand assets. The total amount estimated for the sales of second-hand fixed assets in 2010 (disposals) is 3465 million euros. For 1438 million euros these fixed assets are sold abroad (exports) and the other 2027 million euros concerns the disposed lease-cars. The service life under lease arrangements of leased cars is set to an average of approximately 4 years (50 per cent after 3.5 years and 50 per cent after 4.5 years of use) after the acquisition by the industry renting and leasing activities (NACE Rev. 2 section 77). After the lease arrangement the cars are assumed to be sold to households. The disposals of lease cars are recorded as a disinvestment and as final consumption expenditure of households.

**Table 5.21 Sales of existing fixed assets, 2010**

	Basis for national accounts figures							Adjustments				Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and models	Commodity Flow Model	Other	Total	Data validation	Conceptual	Exhaustiveness	Balancing	
	(1)	(2)	(3)	(4)	(5)	(6)		(7)	(8)	(9)	(10)	
	million euros											
Sales of existing fixed assets	3.465	0	0	0	0	0	3.465	0	0	0	0	3.465
Exports	1.438	0	0	0	0	0	1.438	0	0	0	0	1.438
Domestic sales	2.027	0	0	0	0	0	2.027	0	0	0	0	2.027

### 5.10.2 Main data sources and their conversion to national accounts results

Surveys and other types of data sources are used to estimate gross fixed capital formation. Most of the surveys use the statistical business register (SBR) as a reference for selecting the units to be observed.

The most important data sources are the investment survey, government data, data on financial institutes, the R&D-survey, the ICT-expenditure survey, data from the Agricultural Economics Institute (LEI), car registry data from the Dutch car association (RAI), international trade statistics, and Structural Business Statistics (SBS).

Data on GFCF in government and subsidized education is obtained from government statistics. Estimates are based on financial administrations and public documents (e.g. budgets and annual reports). Two NACE industries rely fully on data from the government accounts. These are the NACE Rev. 2 sections 84 and 85.2 (general government and subsidized education). Some of the other industries consist of mix of non-financial corporations (S11) and government (S13) units. In that case data from the government accounts are added to the data of the investment survey. The industries that include S.13 units next to S.11 units are NACE Rev. 2 sections 02, 32, 52, 72, 86, 87, 88, 90 and 94. A more detailed description of the source data is given in section 3.21 Public administration and defence; compulsory social insurance (NACE Rev. 2 Section O), and 3.22 Education (NACE Rev. 2 Section P).

For GFCF in the financial services industry (NACE Rev. 2 sections 64 to 66) data are obtained from information collected by the Dutch Central Bank (DNB) and annual reports. The surveys of DNB consist of yearly or quarterly key figures on monetary financial institutions, pension funds, insurance companies and investment funds that are supervised by the Dutch Central Bank. DNB also provides data on other financial corporations (S.124-S.127), on special purpose vehicles, and the Central Bank.

It should be noticed that GFCF as reported in the investment survey includes own-account GFCF. The Structural Business Statistics (SBS) is used to identify own-account GFCF in total GFCF. Expectedly the SBS gives a reliable total for own-account investment in the asset types other buildings and structures (AN.112), transportation equipment (AN.1131), machinery and installations (AN.1139a), and other machinery (AN.1139b). The breakdown of own-account GFCF from the SBS into types of assets is done by taking the balanced results of the previous year as a distribution key. The estimate for own-account construction of dwellings is described in section 7.2. For own-account software, research and development (R&D), and other intangible investments additional estimates are made and added to own-account GFCF. The methods to estimate own-account R&D and software investment are described in the annex 5.5. Own-account GFCF in mineral exploration and evaluation is determined as a balancing item.

Data on GFCF includes large-scale maintenance. The guidance supplementing the survey explicitly requests to report on large-scale maintenance that lengthens an asset's service life.

No separate estimates for land improvements are made. Major improvements to land are included in the GFCF questionnaire under civil engineering works AN.1122 Other structures. It is not possible to separate the value from the total AN.1122 Other structures. In ESA 1995 land improvements were also regarded as capital formation.

In the case of financial lease a transfer of ownership of the asset takes place between the lessor to the lessee. Since the ownership principle is followed in measuring GFCF, financial lease of for example planes, machinery or other transport equipment is included as GFCF in the accounts of the lessee. This is contrary to the case of operational lease where GFCF is recorded in the accounts of the lessor.

Acquisition of new assets is adjusted for work in progress in construction activities. In accordance with ESA 2010 guidelines, these activities are registered as GFCF to the extent that the ultimate user is deemed to have taken ownership (either because it is for own use or as evidenced by contract) instead of on the moment the assets is finished and acquired. In practice the investments are registered when the costs occur. The information on work in progress is obtained from the investment survey. In the investment survey a separate question on work in progress is included, providing an opening and closing balance sheet.

The R&D survey is taken as a source for domestic R&D supply and use. The translation process of Frascati based R&D expenditure to national accounts concepts of R&D-output (and subsequently GFCF of R&D) is already given in section 5.10.1 and annex 5.5 (Table 4).

Separate calculations are made with regard to the cost of transfer of ownership of land, dwellings and buildings and subsequently included in GFCF. Other costs such as commission, architects' fees, land register charges and construction fees which are part of GFCF represent a fairly fixed percentage of total acquisition of land, dwellings and buildings. Therefore a reliable estimate for these additional costs can be made. In general transfer costs were calculated as the typical 7 or 8 per cent of transaction values, which were taken from the various sources such as the investment survey, annual accounts, expert information, the LEI etc. Transfer costs other than transfer taxes (e.g. payment for notary services) were calculated using a fixed ratio between transfer taxes and these other transfer costs.

Transfer costs on intangible non-produced fixed assets will generally involve only small-scale items, since this gross fixed capital formation relate exclusively to asset ownership transfer costs. These mainly relate to fertilizers and milk quotas, which are transferable and even, to some extent, negotiable. The concomitant costs (e.g. for registration) are attributed to gross fixed capital formation. The LEI reports (Agricultural Economic Report - LEB) describe major intangible fixed-asset investments by agriculture.

For use in the Supply and use tables the asset types are broken down into product groups. This breakdown is based on the balanced results of the previous year. The fraction of the product group per asset type of the previous year is taken as a reference to achieve the breakdown in the current year. From one year to another, the balancing process influences the fractions that are used for the next year.

For non-deductible value added tax (VAT) a combination of two schemes is used. The first scheme gives per industry the part of output that is exempted from VAT. This percentage indicates what part of GFCF of the concerning industry is ultimately charged with VAT. The other scheme gives the VAT-rates by product in standard rate, low-rate or zero. Applying the rates of the corresponding year both schemes are used to produce a table with the rates per industry and per product. Subsequently, this table is applied to the GFCF estimates in order to

calculate the non-deductible VAT on GFCF.

### **5.10.3 Detailed estimation methods used by AN code**

#### *AN. 111 Dwellings*

Estimates for GFCF in dwellings are based on the total production of dwellings resulting from the SBS on construction. Other costs such as commission, architects' fees, land register charges and construction fees which are part of GFCF represent a fairly fixed percentage of 8 per euros cent of total GFCF in new dwellings. Therefore a reliable estimate for these additional costs can be made. The estimate of this percentage is already discussed in section 5.10.1. Two other sources for gross fixed capital formation in dwellings are Institutional investors (NACE 64-65) and NACE 84 (local authorities). These parts are deducted from the estimated production total, so that the result of the commodity flow method represents GFCF in the industry NACE Rev. 2 section 68 (real estate activities) and includes owner occupied dwellings and own account construction (see section 7.2).

*AN.1121 Buildings other than dwellings, AN.1122 Other structures, AN.1131 Transport equipment (broken down into different transport vehicles), AN.1132 ICT equipment, AN.1139a Machinery and installations, and AN.1139b Other machinery and equipment*

Data are mainly obtained from the investment survey. In box 2 a more detailed description is given of the estimate of GFCF in telecommunication equipment which is a part of AN.1132 ICT equipment. The methods used for the industries that are not covered by this survey vary. For a part of these industries benchmark levels are used in combination with growth rates of similar industries or growth rates indicators from other data sources. The extrapolation method is used in the industries real estate activities, head offices, private education, residential care and social work activities without accommodation, arts, entertainment and recreation, and activities of membership organizations (respectively NACE Rev. 2 sections 68, 70.1, 85.5, 87, 88 and 90-94). Both the estimate of the benchmark levels and the use of the extrapolation method in the mentioned industries are already described in detail in the beginning of section 5.10.1. GFCF in agriculture is estimated with data of the Agricultural Economic Institution (LEI). Data on GFCF in government and subsidized education is obtained from government statistics. Estimates are based on financial administrations and public documents (e.g. budgets and annual reports). A more detailed description of the source data is given in section 3.21 and 3.22. In the financial services industry (NACE Rev. 2 sections 64 to 66) data is obtained from information collected by the Dutch Central Bank (DNB) and annual reports (see section 5.10.1).

Since the investment survey also contains information about work in progress, GFCF estimates are adjusted for work in progress of construction activities. In line with the ESA 2010 rules these activities are registered as GFCF to the extent that the ultimate user is deemed to have taken ownership (either because it is for own use or as evidenced by contract). As mentioned before, in practice the investments are registered when the costs occur. The information on work in progress is obtained from the investment survey. In the investment survey a separate question on work in progress is included, providing an opening and closing balance sheet.

In case of AN.1131 Transport equipment (passenger cars) car registry information of the RAI (Dutch car association) is used in combination with the investment survey. In addition

international trade data is used for GFCF in airplanes, airplane parts, and jet engines. The breakdown into different types of vehicles (the asset types passenger cars, ships, other vehicles, airplanes, trains and trams) is done with reference to the previous year (t-1).

#### *AN.114 Weapon systems*

Data on weapon Systems (AN. 114) are provided on a quarterly basis by the ministry of defence. Statistics Netherlands distinguishes 5 types of assets in weapon systems. These are electronic or telecommunication equipment; tanks, weapons and munitions; transport equipment; warships, and warplanes. A more detailed description of the source data is given in section 3.21.

#### *AN.115 Cultivated biological resources*

The Agricultural Census is used to determine changes in the numbers of livestock for various categories. The over the year change in numbers of livestock is valued by the average prices of the corresponding categories. The total value is registered as GFCF under AN.1151.

For GFCF in *Tree, crop and plant resources yielding repeat products* (AN.1152) data of the Agricultural Economics Institute (LEI) are used. Annually the LEI provides a balance sheet (opening and closing balance sheet) with detailed information on different types of assets that includes the main categories of tangible fixed assets, land, cattle stock and plant stands and total intangible assets. The LEI does not cover NACE Rev. 2 section 01.6 (agricultural services). Subsidiary section using the standard classifications are available for this industry.

#### *AN.1171 Research and development*

GFCF in research and development is compiled by means of the Frascati-based R&D-survey on R&D-producers such as enterprises, research institutes and universities. Besides the R&D survey, the SBS of NACE Rev. 2 section 72 (Research and development industry) and the international trade in services statistics are used for the estimation of GFCF.

The Frascati based survey includes information on the R&D related compensation of employees, other operation costs (excluding consumption of fixed assets) and capital expenditure (buildings, machinery etc.). Gross expenditure on research and development (GERD) according to Frascati guidelines is calculated as the sum of these three expenditure categories. The survey also provides information on R&D purchases (by type of provider) and R&D sales (by type of purchaser) in a sort of supply and use framework. These sales and purchases do not include the intra-enterprise R&D (own-account R&D) produced by separate entities on behalf of affiliated producers.

Some of the recording principles of the R&D survey are not in accordance with the System of National Accounts. For example the Frascati based R&D surveys considers certain parts of software development as part of R&D. Supplementary adjustments are necessary to estimate R&D-output and related assets in consistency with other intangible assets covered in the system of national accounts.

Frascati-based R&D statistics are translated to comply with ESA2010-guidelines. Gross expenditure on R&D (GERD), by producer and by funder, as observed in the R&D surveys is translated to R&D-output and R&D-use (R&D-expenditure) according to National accounts

conventions. On the macro-level the step from R&D-output to R&D-use (GFCF) is quite easy. However identifying the investing industries is not straightforward. It requires that the buyers of market-R&D are identified. At Statistics Netherlands this is done with the help of the R&D-survey in which the R&D-sales (by type of purchaser), and R&D-purchases (by type of provider) can be identified.

A more detailed description of the method to estimate GFCF of research and development is given in annex 5.5.

#### *AN.1172 Mineral exploration and evaluation*

Mineral exploration is partially treated as GFCF. GFCF is based on the following formula representing the commodity flow method:

GFCF = domestic output (section) + import of services (trade statistics) - intermediate consumption - exports of services (trade statistics). Intermediate consumption of mineral exploration is recorded because of the existence of subcontracting.

#### **Mineral exploration 2010 in current prices, million euros \***

Total supply at basic prices	2.946	A
Domestic output	2.363	
Imports of services	583	
Total use at purchaser's prices	2.946	A
Intermediate consumption	251	B
Exports of services	2.104	C
GFCF	591	GFCF=A-B-C

\* balanced results

#### *AN.1173 Computer Software and Databases*

The OECD-handbook on Intellectual Property Products (IPPs) distinguishes a number of different categories of software investments: A) Purchases of software packages; B) Payments of royalties and licenses on software (when the license payment involves a contract for more than one year); C) Payment for services related to the development own-account custom made software. This includes the hiring of IT-specialists and IT-consultants that have the task to advise on new software systems and to implement new software systems and packages; D) Investments in own-account software.

A large part of the necessary information can be obtained from the ICT expenditure survey conducted by Statistics Netherlands. This survey is used to develop a revised estimation method first applied for the year 2009. The survey asks respondents about their spending on a number of IT-related goods and services, including software. The survey covers the same population of enterprises as the annual EU harmonized survey on ICT usage and e-commerce in enterprises. Therefore it includes only enterprises with 10 or more employed persons, in a limited range of NACE groups (roughly: C through N, and Q of NACE Rev.2). So an additional estimate / mark-up for the units under the threshold is needed. The mark-up is based on total turnover per stratum. Furthermore other sources and assumptions are made in cases the ICT survey proved to be insufficient. Examples are the use of SBS in order to

estimate payments for services related to the development of custom made software, or the use of labour costs of IT-specialists (NACE Rev. 2 section 62) to estimate own-account GFCF of software.

A more detailed description of the method to estimate GFCF in software is given in annex 5.5.

#### *AN.1174 Entertainment, literary or artistic originals*

In the case of Entertainment, literary or artistic originals all the criteria of the GNI Committee on Entertainment, Literary and Artistic Originals (GNIC/010 and GNIC/022) are met. Items concerning copyrights, the (enforceable) ownerships rights are specifically considered. Only originals as an end product are taken into account; items (e.g. drawings and prototypes) with no artistic intent are excluded. The one-year rule is also considered. See annex 5.5 section 3.1.

To estimate GFCF in originals two methods are used. First, specific originals are obtained from information on movies and documentaries, and drama series. Investment in movies is estimated with the sum of the costs, which is obtained from the reports of the film fund (Filmfonds). Investment in drama series is estimated using a report from 2002. In this report the expenditure on Dutch TV drama by the *public* broadcaster for the period 1995-2001 is given (by television season, not per year). The expenses in those years were around 50 million per year. However, not all television drama series are capitalized. Several television drama series have a service life shorter than one year. Only the popular series will repeatedly be broadcasted. For this reason an adjustment should be made. On the other hand, a supplementary estimate is needed for the television drama series of *commercial* broadcasters.

There is no information available to make the above mentioned two adjustments. It is expected Dutch television drama series are rarely repeated in later years (or broadcasted abroad). It is assumed that the investment in television drama of public and commercial channels over the period 1995-2001 was equal to  $\frac{1}{4}$  of the spending on television dramas of the public broadcasters. From 2002 on, the investment in originals are estimated with the help of the share of originals in the joint production of public and commercial broadcasters in 2001. In practice this means that the investment is 1 per cent of their total production value.

In the second method, the flows of royalties are considered. These are related to different kind of originals (e.g. music, writings, designs, photographs). For the flows of royalties information from nine collective management organisations that collect the royalties are taken into account. These are Buma/Stemra, Sena, Reprorecht Leenrecht, Thuis kopie, Musicopy, PRO, Picto and Lira. Royalties of an organisation are determined as follows:

- Revenues of royalties or of royalties that have become available for distribution (the second is preferred if available).
- Minus revenues of royalties that were collected by another management organisation.
- Minus the amount that is intended for foreign originals.
- Minus royalties on originals that are not regarded as an asset (newspaper articles, magazines).

The table below provides a list of collective management organisations and the corresponding originals. The table includes those originals generating royalty flows on a structural basis. Information on royalty flows refer to the year 2008.

Organisation	Focus on	Royalties (million euro)
Buma	Music – authors' rights	80,7
Stemra	Music – reproduction rights	33,4
Sena	Music – performers' rights	34,5
Reprorecht	Copies of writings	24,7
Leenrecht	Right of lending (Libraries)	15,6
Musicopy	Sheet music	0,6
Thuiskopie	Consumers' right to copy	17,0
PRO	Readers	3,9
Picto	Designers, photographers	1,1
Lira	Authors – authors' rights	5,0
<b>Total</b>		<b>217,4</b>

Double counting of for example music that is produced and used in a movie is avoided by looking at the flow of royalties. Royalties occur only in the case the music is used also for other productions, making the music an original. Music used only once (without royalty flows) in a movie is part of the movie (original).

No mark-up is applied for the operating surplus in case of films and radio stock programs, since production of Dutch films and TV-programs are not profitable and are mostly subsidized.

In determining the value of originals with the flows of royalties the EU task force recommended the formula that is used by several countries in Europe. The formula is recommended and explained in the Handbook on Deriving Capital Measures of Intellectual Property Products of the OECD (2010). See Chapter 5, section 35 and page 159 for the specific recommendation:

$$W_j = H_j * (1 + g_j - i_j)$$

Where  $W_j$  is the present value of originals produced in year  $j$ ,  $H_j$  is the sum of royalties paid in the total economy during the year  $j$ ,  $g_j$  is the nominal growth rate of royalties compared with the previous year and  $i_j$  is the nominal interest rate used for discounting (inflation rate). The estimates of  $g_j$  and  $i_j$  are estimated for a single year.

There is no explicit theoretical model behind this calculation. This formula proved to fit the available data in the best way. For inflation, the deflator of household consumption expenditure is used. A more detailed description of the method to estimate GFCF of Entertainment, literary or artistic originals is given in annex 5.5.

## 5.11 Changes in inventories

### 5.11.1 Main categories

In the Dutch national accounts changes in inventories are dominated by three categories:

- Finished products and work in progress;
- Basic and ancillary materials;
- Goods for resale.

In monetary terms, these categories make up for the largest part of the total annual change in inventories. In addition changes in inventories will also include changes in livestock and inventory changes related to large investment projects. Compared to the aforementioned categories, the changes in livestock and inventory changes related to large investment projects are small. For 2010 a one-off estimation was made for vaccines purchased and held by the Dutch government in order to limit the impact of a potential outbreak of the Mexican flu. The inventories of vaccines were held in 2009 and 2010.

Table 5.22 below shows the changes in inventories for the aforementioned categories for 2010. The total change in inventories in the Netherlands amounted to approximately 3.9 billion euros. Table 5.23 provides an overview of the opening and closing balances of the same categories.

**Table 5.22 Changes in inventories, 2010, million euros**

	<b>Changes in inventories</b>
Finished products and work in progress	1.174
Basic and ancillary materials	-36
Wholesale and retail inventories	2.636
Inventories related to large investment projects	-58
Livestock	16
Government inventories	135
<b>Total</b>	<b>3.867</b>

**Table 5.23 opening and closing balance sheet by type of inventory, 2010, million euros**

	Opening balance	Closing balance
Finished products and work in progress	17146	19481
Basic and ancillary materials	14589	15700
Wholesale and retail inventories	48328	52688
Inventories related to large investment projects	305	250
Livestock	1533	1527
Government inventories	32	0
<b>Total</b>	<b>81933</b>	<b>89646</b>

### 5.11.2 Data sources

Business statistics are the main data source for estimating changes in inventories for finished products and work in progress, basic and ancillary materials and goods for resale. Data on inventories are part of Structural Business Statistics covering a wide array of industries such as manufacturing, retail and wholesale trade, construction, transport and commercial services. The inventory-related questions concern the value of the opening and the closing stocks, however without any detail on products. The number of questions on inventories varies depending on the NACE-class of the industry the survey is sent to. For instance, the survey for the wholesale trade does not contain questions about inventories of finished products but only about goods for resale. Work-in-progress is covered in SBS, but reported under the heading of finished products.

Next to the business survey, information is drawn from the survey on investment outlook and statistics from the Agricultural Economic Institute (LEI). These data are used for the estimation of inventories linked to large investment projects and livestock respectively.

### 5.11.3 Estimation methods

#### *Finished products and work in progress, basic and ancillary materials, goods for resale in wholesale and retail trade*

The methods to estimate changes in inventories of finished products and work in progress, basic and ancillary materials and goods for resale in wholesale and retail trade are based on data from the business surveys and are by and large similar. Firstly, the business statistics are aggregated to the industry classification used in the Dutch supply and use table. Then, by subtracting the opening stock from the closing stock a nominal estimate for changes in inventories is determined. Based on research carried out by Statistics Netherlands, it is judged that enterprises report the opening balance sheet in prices of year  $t-1$  and that, if applicable, revaluation takes place in the course of the report year (see annex 5.1).

Business statistics provide information on the total amount by type of inventory but lack product details as required for the supply and use table. Therefore, additional data sources are used to attain a breakdown into the product groups used in the SUT. The so-called Prodcom statistics are used for inventories of finished products and work in progress and goods for resale in manufacturing. Prodcom statistics provide sales-data by product (CPA) that can be linked to product groups of the SUT. It is assumed that the composition of inventories is similar to the composition of sales as reflected in Prodcom statistics. Some goods are excluded since it is unlikely that they are held in inventories, for example newspapers or flowers. For the breakdown into product groups of inventories of basic and ancillary materials information on intermediate consumption is used, which is derived from business statistics. In a similar vein as finished products and goods for resale, the underlying assumption is that the composition of inventories is similar to the composition of intermediate consumption. Combining the data on inventories from business statistics with Prodcom data and data on intermediate consumption thus allows estimating changes in inventories by industry and product group.

It is assumed that the difference between the closing and opening stock from the business survey consists of the ‘real’ change in inventories plus the revaluation of the commodities that

are held in stock for a certain time period during the year. Losses due to physical deterioration have no value for the enterprise and are thus no part of the closing stock. Changes in inventories are therefore automatically adjusted for losses using SBS-data. To split the initial estimate of the changes in inventories into revaluation and 'ESA2010'-inventories, the revaluation is estimated by multiplying the opening stock with an appropriate price index. Subsequently, the change in inventories is determined by subtracting the revaluation from the difference between the opening and closing stock. The applied product price indices depend on the type of inventory. For revaluation of finished products and goods for resale producers' prices are used. For basic and ancillary materials revaluation is computed with a combination of producers' and import prices as an approximation because dedicated price indices for intermediate consumption are not available.

Tables 5.24, 5.25 and 5.26 below show for different industries and product groups how the stock data obtained from the SBS is transformed into changes in inventories excluding holding gains and losses. The SBS provides on industry level data for the opening and closing stock from which the change in inventories including holding gains and losses is derived. For the manufacturing industry this amounts to 693 million for the change in inventories in machines including revaluation. Taking the opening stock as a starting point and using producers' price indices, the revaluation part of the change in inventories is computed. Subtracting this from the change in inventories from the SBS data results in the 'real' change in inventories. In the balancing process in the SUT the change in inventories of machinery in the manufacturing was not adjusted, therefore its final estimation is  $693 - 67 = 626$  million.

**5.24 Estimation change in inventories of machines in manufacturing industry 2010, million euros**

	Structural Business Statistics	Revaluation	Change in inventories	Balancing	Final estimation
Manufacturing	693	67	626	0	626

**5.25 Estimation change in inventories of textiles in wholesale and retail trade 2010, million euros**

	Structural Business Statistics	Revaluation	Change in inventories	Balancing	Final estimation
Wholesale and retail trade	107	5	102	-14	88

**5.26 Estimation change in inventories of crude oil in manufacturing industry, 2010, million euros**

	Structural Business Statistics	Revaluation	Change in inventories	Balancing	Final estimation
Manufacturing	286	873	-587	308	-279

Since the business survey only contains information on the value of the opening and closing stock, individual additions to and the withdrawals from inventories cannot be computed from the survey data. For the estimation of the changes in inventories the assumption is made that enterprises record individual flows appropriately with correct *volumes and prices* and that this

is reflected in their reported values in the business survey. With respect to pricing it entails that 1) for a particular product entry and withdrawal are valued with the price valid at the time when the change in inventories occurs and that 2) finished products and work-in-progress is valued at basic prices and materials and supplies with purchasers' prices. It is assumed that the same holds for losses.

In practice the use of business survey gives rise to discrepancies. These occur due to the fact that the reported opening balances may deviate from the reported closing balance of the previous year. Also statistical procedures may lead to discrepancies, for instance due to a change in sample. In the table below discrepancies are represented for the different industries for the year 2010.

**Table 5.27 statistical discrepancies by industry, 2010, million euros**

Industry	2009 closing balance	2010 opening balance	Discrepancy mln
Business services	284,8	365,6	80,8
Construction	526,7	804,6	277,8
Culture, recreation, other services	2,3	3,3	1,0
Electricity and gas supply	4,4	4,0	-0,3
Information and communication	162,2	235,9	73,7
Manufacturing	3201,2	3146,1	-55,1
Mining and quarrying	160,1	0,0	-160,1
Trade, transport, hotels, catering	49405,1	43767,8	-5637,3
Water supply and waste management	0,0	0,8	0,8
Total	53746,9	48328,1	-5418,8

The table shows that discrepancies can be relatively large, for instance in the construction industry. In 2010 the total value of the discrepancy amounted to minus 5.4 billion euros. The differences between opening stock  $t$  and closing stock  $t-1$  are among others due to (among others) sampling and grossing up. Such differences are treated as statistical discrepancies within the balance sheets for inventories. By doing, changes in inventories remain unaffected.

#### *Inventories linked to large investment projects*

For the estimation of inventories linked to large investment projects the data source is the annual business survey on investments outlook. From this survey data on investments projects expected to be finished in year  $t+1$  and amounting to 100 million or more are selected. The largest investment projects are conducted in manufacturing of food, manufacturing of cokes and petroleum products, and the manufacturing of chemicals. For these industries it is assumed that machines are a considerable part of multi-annual investment projects. Since the survey does not specify type of investment, the expected investments in machines are computed by using the share of realized investments in machinery in total investments in year  $t$ . Having derived the expected investment in machinery in year  $t+1$ , it is assumed that 20 per cent of it concerns a multi-annual investment project and are not directly taken into production but should be regarded as a kind of work in progress in year  $t$ . It is assumed that a multi-annual investment project in machines spans a two-year period on average. The change in the stock of this type of inventory of machines is then computed as the stock of year  $t$  – the stock of in year  $t-1$ .

### *Livestock*

The estimation of the changes in inventories in livestock is based on annual data from the Agricultural Economic Institute and the agricultural census. Livestock comprises cattle raised for food consumption such as cows, pigs and poultry. Changes in inventories are estimated by a volume times price method in which the change in inventory in volume terms relies on the data from the agricultural census. Price data is provided by the Agricultural Economic Institute.

### *Government inventories*

For 2010 a one-off estimation is made for vaccines held by the Dutch government that were purchased to limit the impact of a potential outbreak of the Mexican flu. The inventories of vaccines were held in 2009 and 2010. The estimate is based on information of the Ministry of Health, Welfare and Sport.

### *Uncompleted structures*

In the Dutch national accounts uncompleted structures such as dwellings and non-residential buildings are not treated as work-in-progress but as gross fixed capital formation. The underlying assumption is that uncompleted structures are pre-sold.

### *Other items*

For business services it is assumed that work in progress is zero or negligible. For example, the total production of originals of films in the Netherlands amounts to around 60 million euros. As no information of cross calendar year productions is available, a speculative guestimate could be made, which will not exceed 5 million euros.

For large automation projects it is assumed that parts of the computer programs can already be used before the total project is finished. Linked to the contractual periodical payments these parts are recorded as GFCF in the Dutch national accounts. As a consequence no estimate for work in progress is made for IT-services. Although this assumption can be questioned, it must be remarked that a shift from GFCF to work in progress would not influence the estimates of GDP and GNI.

## **5.11.4 Balancing in the supply and use table**

After the estimation of the changes in inventories, the results are balanced in the supply and use table with production, import, consumption, investment and export. Table 5.28 provides an overview of the estimation process for 2010 starting with source data and the adjustments applied thereafter. The column conceptual depicts the estimated amount of revaluation that is included in the difference between the opening and closing stock from the business survey. In basic and ancillary materials the positive revaluation is caused by the increasing energy prices. Furthermore, basic and ancillary materials show a relatively large balancing

adjustment. These adjustments primarily concern crude oil and gas condensate partly as a consequence of adjusting of intermediate consumption.

**Table 5.28 Process table changes in inventories, 2010**

	Basis for national accounts figures					
	Surv and censuses	Admin records	Combined data	Extrapol + models	Other	Total
	(1)	(2)	(3)	(4)	(5)	(6)
	million euro					
Finished products	2500					2500
Basic and ancillary materials	-2847					-2847
Wholesale and retail inventories	4465					4465
Work in progress (investment goods)	-58					-58
Change in livestock	16					16
Government inventories	135					135
Total	4211	0	0	0	0	4211
	Adjustments					
	Basis (Total)	Data val.	Concept.	Exhaust.	Balancing	Final estimate
	(6)	(7)	(8)	(9)	(10)	(11)
	million euro					
Finished products	2500		-1225		-101	1174
Basic and ancillary materials	-2847		2227		584	-36
Wholesale and retail inventories	4465		-1610		-219	2636
Work in progress (investment goods)	-58					-58
Change in livestock	16					16
Government inventories	135					135
Total	4211	0	-608	0	264	3867

## 5.12 Acquisitions less disposals of valuables

The European Union task force on intangibles limited the number of goods (assets) to be classified as valuables to AN.131 Precious metals and stones, AN.132 Antiques and other art objects, and AN.133 Other valuables. The different goods that are distinguished at Statistics Netherlands are, pearls (AN.131), diamonds (AN.131), works of art (AN.132), antiques (AN.132), jewellery (AN.133), coins (not legal tender) (AN.131), non-monetary gold (AN.131), stamps, museum exhibits, securities (all three concern antiques) (AN.133).

The acquisitions less disposals of valuables are estimated by using international trade statistics that provides information about the imports and exports of valuables. Furthermore, an estimate of domestic production and intermediate use is made with the help of expert information. In the balancing process estimates are adjusted by confronting supply and use.

The values estimated for each type of valuables are, 2010 (million euros):

pearls (AN.131)	-
diamonds (AN.131)	-
works of art (AN.132)	158
antiques (AN.132)	-
jewellery (AN.133)	14
coins (not legal tender) (AN.131)	20
non-monetary gold (AN.131)	125
stamps, museum exhibits, securities (all three concern antiques) (AN.132)	124

**Table 5.29 Process table acquisition less disposals of valuables, 2010**

	AN. 131	AN.132	AN.133
<b>Supply</b>	<b>1.322</b>	<b>236</b>	<b>22</b>
Production NACE 3211	13	0	0
Production NACE 9003	0	28	0
Imports (cif)	1.227	203	20
Margins	82	5	2
<b>Use</b>	<b>1.177</b>	<b>54</b>	<b>8</b>
Intermediate use	11	0	1
Inventories (change)	0	0	1
consumption	0	0	0
Exports (fob)	1.166	54	6
<b>Aquisitions less disposals of valuables</b>	<b>145</b>	<b>182</b>	<b>14</b>
Balancing	0	100	0
<b>Aquisitions less disposals of valuables (balanced)</b>	<b>145</b>	<b>282</b>	<b>14</b>

In the balancing process of 2010 it appeared that there was a discrepancy between supply and use of works of arts (AN.132). The balancing adjustment of acquisition less disposals for these types of valuables amounted 100 million euros.

## 5.13 Exports and imports of goods

### 5.13.1 Summary and process table

This section gives a summary of the process table for the exports and imports of goods and a short explanation of the different parts of the process table. More detailed elaboration (on sources, estimation methods, etc.) is given in sections 5.13.2 and further. Tables 5.30 and 5.31 present respectively the process tables for the exports and imports of goods.

#### *(1) Surveys & censuses*

All figures are obtained from the Foreign Trade Statistics (FTS), see sections 5.13.2 and further for more details.

(7) *Data validation*

This column contains adjustments on the source data of specific companies made by the national accounts department. Because information from several statistical sources is

**Table 5.30 Process table of exports of goods, 2010**

	Basis for national accounts figures					
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and models	Other	Total
	(1)	(2)	(3)	(4)	(5)	(6)
	million euros					
Exports of goods	371.549	0	0	0	0	371.549
Of which:						
Intra-EU	275.666	0	0	0	0	275.666
Extra-EU	95.883	0	0	0	0	95.883

	Basis (Total)	Adjustments				Final estimate
		Data validation	Conceptual	Exhaustiveness	Balancing	
	(6)	(7)	(8)	(9)	(10)	(11)
	million euros					
Exports of goods	371.549	-1.522	-11.875	2.375	-231	360.296
Of which:						
Intra-EU	275.666	2.124	-11.887	2.195	122	268.220
Extra-EU	95.883	-3.646	12	180	-353	92.076

**Table 5.31 Process table of imports of goods, 2010**

	Basis for national accounts figures					
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and models	Other	Total
	(1)	(2)	(3)	(4)	(5)	(6)
	million euros					
Imports of goods	331.913	0	0	0	0	331.913
Of which:						
Intra-EU	176.669	0	0	0	0	176.669
Extra-EU	155.244	0	0	0	0	155.244

	Basis (Total)	Adjustments				Final estimate
		Data validation	Conceptual	Exhaustiveness	Balancing	
	(6)	(7)	(8)	(9)	(10)	(11)
	million euros					
Imports of goods	331.913	1.896	-36.354	1.241	1.371	300.067
Of which:						
Intra-EU	176.669	1.085	-21.569	386	1.351	157.922
Extra-EU	155.244	811	-14.785	855	20	142.145

combined at the NA-department, inconsistencies that did not become apparent in an earlier stage become visible. Adjustments recorded in this column may, for example, be adjustments made for transfer pricing or re-exports that are mistakenly registered as quasi-transit trade.

For more detailed treatment see section 5.13.4 A.

#### (8) Conceptual adjustments

Table 5.32 below shows the type of conceptual adjustment of column (8) of the process table.

**Table 5.32 Conceptual adjustments 2010, details**

	Allocation of FISIM	Other conceptual	Total conceptual		Allocation of FISIM	Other conceptual	Total conceptual
			(8)				(8)
	million euros				million euros		
Exports of goods	0	-11.875	-11.875	Imports of goods	0	-36.354	-36.354
Of which:				Of which:			
Intra-EU	0	-11.887	-11.887	Intra-EU	0	-21.569	-21.569
Extra-EU	0	12	12	Extra-EU	0	-14.785	-14.785

An important change in ESA 2010 compared with ESA 1995 is the strict application of the change of ownership registration of goods when determining imports and exports. This means that imports and exports of goods only occur when economic ownership is transferred between residents and non-residents. This applies irrespective of physical movements of

transacted goods across frontiers (ESA 2010 par. 3.162). However, source statistics (FTS) records international trade in goods based on a goods crossing border principle. Although in most cases crossing the border of goods will coincide with change of ownership, this is not always the case. For such exceptional cases adjustments have to be made on FTS-data. The FTS figures have been adjusted for:

- Merchanting
- Goods sent /received from abroad for processing or repair
- Other global production arrangements.
- Goods returned to sender
- Flows between affiliated enterprises
- Goods procured in ports by carriers

The last conceptual adjustment refers to the cif/fob-adjustment and – reclassification (only imports). These adjustments are further explained in section 5.13.4 B.

#### *(9) Exhaustiveness*

Table 5.33 gives a more detailed presentation of the estimates for exhaustiveness.

**Table 5.33 Estimates for exhaustiveness 2010, details**

	N1	N2	N3	N4	N5	N6	N7	<b>Total exhaustive ness</b>
								(9)
	million euros							
Exports of goods	0	2.012	0	0	0	0	363	2.375
Of which:								
Intra-EU	0	2.012	0	0	0	0	183	2.195
Extra-EU	0	0	0	0	0	0	180	180

	N1	N2	N3	N4	N5	N6	N7	<b>Total exhaustive ness</b>
								(9)
	million euros							
Imports of goods	0	855	0	0	0	0	386	1.241
Of which:								
Intra-EU	0	0	0	0	0	0	386	386
Extra-EU	0	855	0	0	0	0	0	855

Column N2 include exports and imports of goods related to illegal transactions. This concerns international trade in drugs (Cannabis, Heroin, Cocaine and XTC) and smuggling of cigarettes. The estimates for illegal transactions are further explained in section 7.2.3.2 of this inventory.

The exports recorded in column N7 consists of two parts: an estimate for online trade (internet sales by Dutch web shops to non-residents) and purchases of goods by international organisations (embassies, consulates, military bases and intergovernmental organisations) in the Netherlands. The imports concern online trade (internet purchases by Dutch residents in foreign web shops).

These estimates are further explained in section 5.13.4 C.

#### *(10) Balancing adjustments*

The adjustments in this column are the result of the balancing of the supply and use table.

### **5.13.2 Supply and use table**

In an open economy like the Netherlands imports and exports of goods and services play a significant role. Exports of goods are a major demand category in the use table amounting to 21 per cent of the total demand. Imports of goods represent 24 per cent of total supply. Many product groups in the Dutch SUT have high import and export shares.

For exports the following ‘demand columns’ are distinguished in the supply and use table:

- 311100 - exports of domestic production to the European Union;
- 311200 - exports of domestic production products to third countries;
- 311511 – (re-)exports of imports to the European Union (re-exports);
- 311512 – (re-)exports of imports to third countries (re-exports).

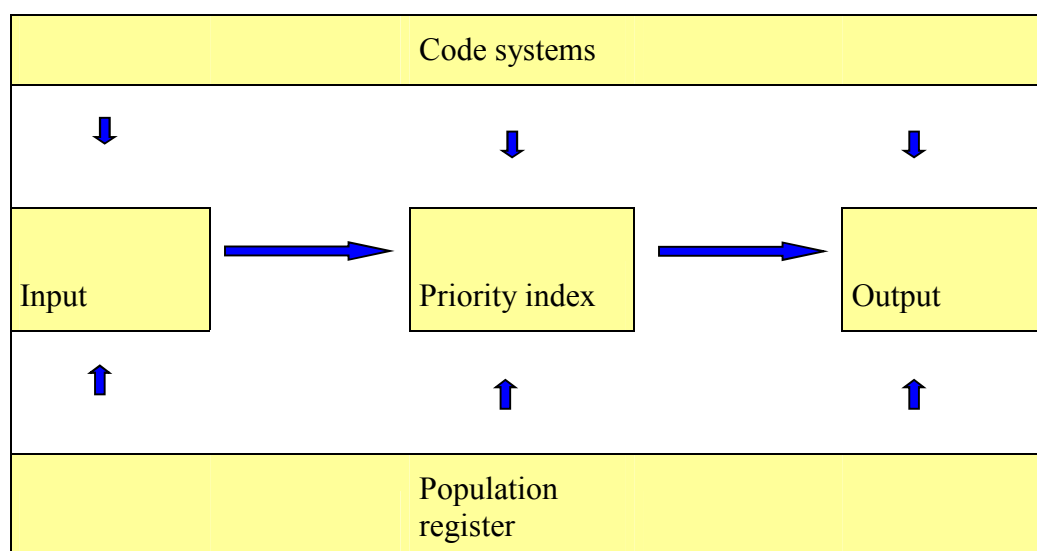
For imports two ‘supply columns’ are distinguished:

- 411100 – imports from the European Union;
- 411200 – imports from third countries.

Foreign trade statistics are the major source for data on imports and exports of goods in the national accounts. They are compiled by the foreign trade statistics department at Statistics Netherlands. Before these data can be incorporated in the national accounts they have to be adjusted to meet national accounts definitions. Section 5.13.3 describes the production process at the foreign trade statistics department. Section 5.13.4 describes the adjustments made at the national accounts department (data validation, conceptual adjustments and estimates for exhaustiveness).

### **5.13.3 Production process of foreign trade statistics**

The production process consists of three sub processes: input, priority index and output. The code systems and the population register support the production process.



### *The population register*

The register comprises around 340,000 units of observation. For the foreign trade statistics the VAT-unit is used as the unit of observation. In the data collection eight types of trade flows are distinguished:

- imports from European Union countries (1A);
- exports to European Union countries (1B);
- imports from non-European Union countries (1C);
- exports to non-European Union countries (1D);
- Imports for transit from European Union countries (1E);
- Transit exports to European Union countries (1F);
- Imports for transit from non-European-Union countries (1G);
- Transit exports to non-European-Union countries (1H).

Enterprises whose intra EU imports or intra EU exports exceeds 900,000 euros per year are obliged to submit data to Statistics Netherlands. Over 25,000 enterprises meet this criterion. Estimates of the remaining units importing and/or exporting goods are based on individual Value Added Tax declarations provided to Statistics Netherlands by tax authorities on a monthly basis.

### *Code systems*

The code system is a set of tables in which the codes and classifications applied in FTS are centrally maintained. Each code system describes a specific component such as countries, commodities and schemes for various ways of aggregating on the data. Each code system is made up of several codes, and exhaustively indicates which aspects it is composed of. For instance the ‘aggregation types’ code system: this system has four well-defined codes (1A to 1D; the other four codes refer to transit trade which is not published in the national statistics). Code 1A is ‘imports from European Union countries’ etc. (see above). The key code systems, ‘countries’ and ‘commodities’ are determined by Eurostat regulations.

## *Input*

The directly observed units supply about 20 million records per month to Statistics Netherlands. These are mostly data on trade within the European Union. The data can be supplied in a number of different ways (electronic questionnaire (IRIS), on paper, via e-mail etc.). Data on trade with non-European Union countries come mainly from the customs authorities.

When all the data have been gathered, they enter a fully automated control and editing process. This process concentrates on identifying the control variables such as type of good and country code and the statistical system (is the company obliged to report). The subsequent process may proceed in one of the following three ways:

1. For units of observation under obligation to report whose data are processed without problems, the data are ready for further processing in the next step, the Priority Index.
2. For units of observation under obligation to report whose data contain incorrect codes (for example wrong country- or commodity-codes) the data are entered into an editing system (KORE). During the verification of codes errors are made visible and are interactively rectified. The verification process is partly manually (for large companies) and partly automatic (small companies).
3. For units of observation not under obligation to report, it is checked why data were reported (this may happen for instance in case of mergers of companies or in case a company with only exports until now also starts importing goods) and whether the unit should be added to the 'obligatory' response or ignored (i.e. to be covered by VAT-data). If the observation unit is added to 'obligatory' response, the routing starts once again at 2.

All data coming in until the last day of the month following the reporting period, are included as response in the month concerned. Large companies who fail to supply data to Statistics Netherlands on the eighth working day following the month on which returns must be filed, receive a reminder.

## *Priority index*

In the priority index process, input data are checked once again before they are published, but at a higher level of aggregation. In this matrix 75 country groups and 1,250 product groups are distinguished. The priority index system is actually a very large table in which the columns contain values and quantities by country group and product group. In the rows of the table are trade flows by companies. In the matrix cells values and quantities by country and product group can be found for each company. The priority index system consists of the following eight main tables:

- imports from the European Union
- exports to the European Union
- imports from non-European Union countries
- exports to non-European Union countries
- Imports for transit from European Union
- Transit export to European Union
- Imports for transit from non-European Union
- Transit exports to European Union.

The *monthly priority index process* is run about four weeks after the closing of a report month. In this process initial estimates of the expected values on the enterprise level are made

for all cells of the matrix. These estimates are made on the basis of the data of previous periods. The *daily priority index* process follows the monthly process. In this process the data supplied by the enterprises are placed in the matrix and compared with the initially estimated expected values. The results are scored with a priority index, which is an indication for the plausibility of each cell in the matrix. A high priority index may lead to further investigation of or enquiries about the supplied data. For enterprises that did not submit data to Statistics Netherlands imputed values from the initial matrix cells are used. These processes take place at various times between the end of the report period and six months after the end of the reporting year, when the final annual figures become available. Each time the process is run the estimates are assessed by the analysts from the department of foreign trade statistics.

In the final step estimates for units below the threshold are made. This is achieved with the aid of the Value Added Tax data supplied by tax authorities. These data are also used as a final check in the results of the priority index process discussed above.

### *Output*

The published results are an extract from the foreign trade statistics database. In the period after the first publication, responses will still be received by CBS. As a consequence data are revised on a regular basis:

- s – (national accounts transcript) 25 days after reference month;
- d – 40 days after reference month;
- n – 55 days after reference month;
- h – 85 days after reference month
- k – 115 days after reference month;
- j – definitive data, 7 months after reference year.

In the collection of data for FTS quasi transit trade is recognized and flagged. For the national accounts estimates for quasi transit trade are excluded from FTS-data.

### **5.13.4 Adjustments made by the national accounts department.**

The procedure described in section 5.13.3 results in the figures that form the basis for national accounts (column 6 of the process tables 5.24 and 5.25). These figures still have to be completed and adapted in order to meet the national accounts requirements by the national accounts department.

First the classification of FTS has to be adapted to the national accounts classification. FTS uses the Combined Nomenclature (GN code), a compulsory European Union classification. For both the imputations and the estimates the department of foreign trade statistics uses an own aggregated classification of commodities. The classification of supply and use is based on the CPA/CPC. Because the Combined Nomenclature changes over time the linking scheme between GN code and the classifications of national accounts product groups is updated yearly. The linking scheme between GN codes and SUT codes can be found in section 9.3.

Subsequently the imports and exports are categorised according to the specifications required for the supply and use table. The following columns are generated for the imports

- 411100 – imports from the European Union;
- 411200 – imports from third countries.

The exports columns are the following:

- 311100 – exports of Dutch products to the European Union;
- 311200 – exports of Dutch products to third countries;
- 311511 – exports of imports (re-exports) to the European Union;
- 311512 – exports of imports to third countries.

Subsequently additional estimates are made for imports of second-hand goods and unspecified items in FTS. Imports of second-hand goods in FTS are specified by type, but more aggregated than the rest of the FTS data and are allocated to corresponding product groups in the SUT. Total import is not adjusted.

The unspecified items of FTS are allocated to products in the SUT; again total of imports and exports are not adjusted by this allocation.

After these transformations of FTS data several additional adjustments are made:

- A. Data validation
- B. Conceptual adjustments
- C. Exhaustiveness

#### A. Data validation (column 7 of the process tables)

Data validation relates to inconsistencies that become apparent in the SUT compilation process.

#### *Exports of goods*

Most of the adjustments made, relate to trade mistakenly categorized as quasi-transit trade instead of re-exports (Table 5.34 below, nr 1) and vice versa (nr 4 and 5). In one case of processing, transfer pricing between affiliates was detected, meaning that the registered export value did not correctly reflect the market value of the goods (nr 3). The market price of the export was estimated by increasing the import value with the processing fee paid to the Dutch processor.

**Table 5.34 Data validation on exports 2010, details**

Nr	P38 code	Description	million euros	Reason corrections
1	P09	Mining and quarrying	5.587	From quasi-transit trade to re-exports
2	P09	Mining and quarrying	-733	Figures adapted to the energy balance sheet
3	P10-12	Food products, beverages and tobacco products	-1.382	Transfer pricing
4	P19	Coke and refined petroleum products	-4.654	From re-exports to quasi-transit trade
5	P20	Chemicals and chemical products	-468	From re-exports to quasi-transit trade
		Various productgroup	128	Several reasons
Total, data validation			<b>-1.522</b>	

### *Import of goods*

Again, after closer examination in a number of cases imported goods were wrongly categorized as quasi-transit trade instead of re-exports (table 5.35 below, nr 1) and vice versa (nr 3 and 4). This has of course implications for the registration of imports of goods.

In one case an inward processor was not recognized as such, implying that the import and export flows of this unit were removed from the FTS data all together (see below under conceptual adjustments). However, because part of processed goods remain in the Netherlands for final consumption, an import flow of these goods had to be imputed (nr 2).

**Table 5.35 Data validation on imports 2010, details**

Nr	P38 code	Description	million euros	Reason corrections
1	P09	Mining and quarrying	5.436	From quasi-transit trade to re-exports
2	P10-12	Food products, beverages and tobacco products	509	Processing
3	P19	Coke and refined petroleum products	-4.214	From re-exports to quasi-transit trade
4	P20	Chemicals and chemical products	-311	From re-exports to quasi-transit trade
5		Various productgroups	476	Several reasons
Total, data validation			<b>1.896</b>	

### B. Conceptual adjustments

The main part of these adjustments refer to bridging the differences between the ESA 2010 change of ownership recording and the (FTS) cross border registration (irrespective of changes in ownership). The FTS figures have been adjusted for:

#### *Merchanting*

In the case of merchanting a resident merchant purchases goods from a non-resident and subsequently resells it to another non-resident, without the goods entering and leaving the economy of the merchant. Merchanting should be recorded as trade in goods according to ESA 2010, but since these goods do not actually cross the border they are not included in the FTS data.

Statistics Netherlands researched the best possible source for estimating merchanting activities (see annex 5.2, 5.3 and 5.4). Structural Business Statistics (SBS) for wholesale trade (see annex 5.2) contain data on merchanting. Merchanting activities by other industries are not covered in SBS. However, by using data from wholesale trade, an estimate of merchanting in the other industries was made. To clarify the method used, an example for the shoe manufacturing industry is given. According to the SBS data in the shoe manufacturing shoes were purchased for resale (wholesale trade) for a value of 70 and sold to customers for 100. In the wholesale trade in shoes, 50 per cent of the sales of wholesale trade pertain to merchanting. We assume that this ratio also applies to the shoe manufacturing industry. Thus, half of the wholesale trade of 100 is assumed to be the sale of merchanted shoes. To estimate the merchanting margin and thereby the purchase value of the merchanted shoes, it is assumed that the merchanting margin is equal to the total wholesale trade margin of the shoe manufacturing industry, which results in a merchanting trade margin and purchase value of 15 (30% of 50) and 35 (70% of 50) respectively. The method applied and the results are described in annex 5.4.

### *Goods sent abroad for processing*

Goods sent from the Netherlands to be processed abroad and goods sent abroad to be repaired are no longer regarded as foreign trade in goods, since there is no change in ownership. Because these flows are included in the FTS data, they have to be removed. In principle this should be possible, using the information in FTS. The Nature of Transaction (NoT) codes 4 and 5 give information on goods sent abroad for processing. However, analysis of the data showed that it not possible to rely solely on the information from the NoT codes. In annex 5.2 the available sources were examined. It was found that the best way to estimate the processing fees was to combine SBS and Prodcom information. Of course estimating the processing fee is only the first step; to make the required adjustments to the FTS-data the flow of goods involved also has to be estimated, since these flows have to be deducted for the FTS data. The method applied is described in detail in annex 5.4. Here only a brief description of the applied method is given:

#### Step one: estimating the processing fees.

SBS contains values for the import and export of industrial services by enterprises in the manufacturing industry. Industrial services consist not only of manufacturing services but also of repair, maintenance and installation services. To separate the manufacturing services from the other services, SBS data and Prodcom data were combined.

Prodcom contains a separate estimate of the sales of manufacturing services and of repair, maintenance and installation services. Using this information the share of manufacturing services in total sales of industrial services for each manufacturing industry was determined. Note that Prodcom only contains the value of total sales with no breakdown to domestic sales and exports. Therefore the shares could not be calculated for the export of manufacturing services separately. Furthermore, Prodcom only contains the value of the sales of manufacturing services. There is no information on the purchases of industrial services.

Because of these limitations, the shares of the sales of manufacturing services in total industrial services from Prodcom were used to calculate the value of import and export of manufacturing services in the SBS. This was done for each manufacturing industry, by multiplying the shares from the Prodcom with the value of imports and exports of industrial services in the SBS.

Since the wholesale trade industry is also involved in (outward) processing, the processing fee for this industry also needs to be estimated. In SBS the import of industrial services for wholesale trade (exports are not explicitly surveyed) can be found. Prodcom however, only covers the manufacturing industry. Therefore, the Prodcom shares of the manufacturing industry are applied to wholesale trade taking into account the type of goods traded in the wholesale at the NACE 5-digit level. The share from the manufacturing industry whose main activity corresponds to the type of goods traded by the wholesale trade industry was then used as a proxy. For instance, the share from the manufacturing of metal products was used as a proxy in the wholesale trade in metal products.

#### Step two: estimating flows of goods involved in processing

Different estimation methods for large enterprises (in terms of the values of processing fees) and small and medium enterprises (SME) were applied.

### *Large enterprises*

For large enterprises the flows of goods involved were estimated by looking at the FTS data reported by the individual enterprises. Most of the enterprises that were identified as inward or outward processors in the SBS, did not report trade in the ITGS under NoT codes 4 and/or 5. Therefore, the NoT codes could not simply be used to estimate the values for the goods sent abroad for processing for these enterprises. Instead the values of the goods for processing are estimated as follows:

**Inward processors:** The value of goods sent to the country of the owner after processing is assumed to be equal to the value of the outflow of goods reported in FTS. The value of the goods received from the owner before processing is then estimated by reducing the value of the outflow of goods in FTS with the value of the processing fee from the SBS

**Outward processors:** The value of the goods received from the country of the processor after processing is assumed to be equal to the value of the inflow of goods reported in FTS. The value of the goods sent abroad for processing is then estimated as the difference between the value of the inflow of goods in ITGS and the value of the processing fee derived from the SBS

### *Small and medium enterprises*

For SME adjustments are determined at industry level (at the NACE-level of the SUT, 4 digit NACE). The fees derived in step one are combined with FTS data.

The total adjustments on import and export of goods are determined by assuming that the value of the fee reported in SBS is more or less 10 per cent of the value of the gross flow of goods involved. To establish the commodities involved, all NoT 4 and 5 transactions reported as import or export of goods, excluding transactions reported by the individual large enterprises were derived.

For each industry, relevant product groups were identified, related to processing in FTS by determining the principal activity of the NACE industry. The adjustments were made in such way that the trade balance in goods for that block of commodities was decreased (inward processing) or increased (outward processing) by the same amount as the processing fee. The adjustments to imports and exports were made on the same product group.

### *Other global production arrangements*

In a number of cases Dutch companies outsource the manufacture of goods abroad, but they remain owner of the produced goods and the production process. These companies are regarded as domestic producers of goods (production abroad). The company abroad that manufactures the goods is regarded as a provider of industrial services. This company will receive a payment for services rendered and is judged not to be the economic owner of the goods produced. Since the goods are not physically produced in the Netherlands, flows of goods have to be imputed (imports of raw materials and exports of finished goods) on FTS-data. The method applied is described in annexes 5.3 and 5.4, chapter 3.

### *Goods returned to sender*

These goods are included in FTS but have to be removed (no change in ownership). Information is available in FTS on basis of which these flows are removed.

### *Flows between affiliated establishments*

International flows of goods between establishments belonging to the same multinational enterprise group (affiliated establishments) will not automatically be regarded as international trade in goods as was the case under ESA'95; this depends on whether a change in ownership takes place. Statistics Netherlands maintains a list of companies that exports goods to or imports goods from foreign affiliates. These cases were investigated (in most cases by visiting and interviewing the companies) to decide whether exchange of ownership took place in these cases.

### *Goods procured in ports by carriers*

These goods are only partially recorded in FTS (only part of the exports), but do belong to international trade according to ESA 2010. The biggest part of these goods concerns fuel. A smaller part is catering for passengers flights and victualing supplies for ships, etc. Several sources are used and combined for this estimate:

- Dutch energy balance sheet (NEH)
- SBS for transport (shipping industry, aviation, road transport)
- International trade in goods
- Aviation, passengers transport on Dutch airports
- Amsterdam Schiphol Airport-Aviation Statistics and forecasts.

The last conceptual adjustment refers to the cif/fob-adjustment and -reclassification (only imports).

**Table 5.36 Conceptual adjustments by type, 2010**

	<b>Imports</b>	<b>Exports</b>
Merchanting	--	5.262
Goods sent abroad for processing	-23.162	-25.651
Other global production	1.330	11.417
Affiliated establishments	-5.054	-4.889
Goods returned to senders	-1.697	-1.697
Goods procured in ports by carriers	2.880	3.683
Cif/Fob adjustment and reclassification	-10.651	--
<b>Total value</b>	<b>-36.354</b>	<b>-11.875</b>

### C. Exhaustiveness

Estimates for exhaustiveness have been made for three subjects:

- Illegal transactions
- Online (internet) sales
- Purchases by international organisations (only exports)

### *Illegal transactions*

The import and export connected with illegal transactions concerns production of and trade in cannabis and XTC, trade in heroin and cocaine and smuggling of cigarettes.

All estimates made for illegal transactions (not only imports and exports) are further explained in section 7.2.3.2.

### *Internet sales*

An estimate for online trade (internet sales by Dutch web shops to non-resident purchasers and internet purchases by Dutch residents in foreign web shops) is made. A large part of *online trade* is included in FTS, but not all. Business-to-business sales are fully included, both inside and outside the EU. Business-to-consumer sales outside the EU are fully included, but inside the EU it is only partially included in FTS. The estimated values of the missing parts are 178 (export) and 386 million (import).

For the estimation of the missing part of the internet sales of Dutch companies to non-resident consumers in the EU two sources are used:

- The value added tax declaration (VAT). In this tax declaration a specific question about internet sales to consumers is included. However, since there are also some other sales included in this question (for example sales to companies that are exempted from charging VAT over their products and turnover from repair and installation activities), adjustments have to be made. Based on examining of NACE codes and their specific activities, those companies are selected which are not involved in repair/installation activities and sell to consumers and not to other companies.
- FTS. The value of exports of those companies that have been selected from their VAT-declaration is compared with their FTS declaration. If the FTS-value is lower than the value from the tax declaration, it is assumed that part of the internet sales is missing from FTS, and an additional estimate is made.

The estimation of missed internet purchases of Dutch consumers abroad, is based on two sources:

The 2011 results of the survey by Statistics Netherlands “Use of ICT by private persons” includes questions on online purchases. This survey assists in estimating the number of people buying goods on the internet and the value of these purchases.

A survey on internet sales of Dutch consumers in the Netherlands was conducted by a private research institute (Blauw Research) on the request of Thuiswinkel.org (a branch organisation for Dutch internet sale companies). This survey was used:

- to split the value of purchases in those from Dutch internet shops and those from non-resident internet shops.
- to calculate the value for 2010 (the ICT-use survey started in 2011).
- to allocate the total value of the purchases to the product classification of the SUT.

### *Purchases by international organisations*

An estimate was made for the purchases of goods by international organisations (embassies, consulates military bases and intergovernmental organisations) in the Netherlands (exports of goods). The import of goods does not contain an estimate for the purchases of goods by Dutch international organisations (embassies, consulates military bases and intergovernmental

organisations) abroad, since these purchases (goods as well as services) are all recorded under imports of services (see section 5.14.5).

The estimated value of exports connected with the purchases of international organisations is mainly based on a survey from the municipality of The Hague on the economic impact of international organisations on the region of The Hague<sup>18</sup>. By far, most of the international organisations in the Netherlands are located in The Hague. However, there are also intergovernmental organisations outside the region of The Hague the Netherlands. Therefore, the figures obtained for the region of The Hague are grossed up, using expenditures figures per employee of the international organisations included in the survey and the total number of employees of international organisations in the Netherlands. This resulted in an estimated export of goods of 185 million euros.

**Table 5.37 Estimates for exhaustiveness, 2010**

	Import	Export
Illegal transactions	855	2.012
Missed online trade	386	178
Sales/purchases by int.organisations	0	185
<b>Total</b>	<b>1.241</b>	<b>2.375</b>

## 5.14 Exports and import of services

### 5.14.1 Summary and process table

This section gives a summary of the process table for the exports and imports of services and a short explanation of the different parts of the process table. A more detailed elaboration (on sources, estimation methods, etc.) is given in section 5.14.2 and further.

#### *(1) Surveys & censuses*

This figure is mainly based on the International Trade in Services Survey (ITS) conducted by Statistics Netherlands (see section 10.3 for the questionnaire of the ITS survey). This survey does not fully meet the requirements of ESA 2010. Therefore several adaptations on the ITS-source data had to be made.

A second source statistic used, concerns the exports of services by SPE's. These data are obtained from the Dutch Central Bank (DNB).

The Split between Intra- and extra-EU trade is available in the ITS. However this distinction is not made in the supply- and use tables. Therefore the intra/extra EU distribution from the ITS is also applied to the final estimates in column 11.

<sup>18</sup> Den Haag internationale stad van vrede en recht-Economische impact internationale organisaties, Decisio, 2011 (only available in Dutch).

**Table 5.38 Process table of exports of services, 2010**

	Basis for national accounts figures					
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and models	Other	Total
	(1)	(2)	(3)	(4)	(5)	(6)
	million euros					
Exports of Services	79.294	0	11.441	2.818	0	93.553
Of which:						
Intra-EU	47.793					
Extra-EU	31.501					

	Basis (Total)	Adjustments				Final estimate
		Data validation	Conceptual	Exhaustiveness	Balancing	
	(6)	(7)	(8)	(9)	(10)	(11)
	million euros					
Exports of Services	93.553	-78	-953	1.460	120	94.102
Of which:						
Intra-EU						54.713
Extra-EU						39.389

**Table 5.39 Process table of imports of services, 2010**

	Basis for national accounts figures					
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and models	Other	Total
	(1)	(2)	(3)	(4)	(5)	(6)
	million euros					
Imports of Services	56.113	0	16.746	1.535	0	74.394
Of which:						
Intra-EU	28.397					
Extra-EU	27.716					

	Basis (Total)	Adjustments				Final estimate
		Data validation	Conceptual	Exhaustiveness	Balancing	
	(6)	(7)	(8)	(9)	(10)	(11)
	million euros					
Imports of Services	74.394	10.417	11.857	1.209	3.641	101.518
Of which:						
Intra-EU						52.530
Extra-EU						48.988

### *(3) Combined data*

Combined data are used for travel, insurance services and financial services. For the different parts of travel (health and education related, seasonal and border workers) several statistics from Statistics Netherlands were combined with information from other organisations; for insurance and financial services information from Statistics Netherlands was combined with information from DNB; see section 5.14.5.

### *(4) Extrapolations and models*

**Table 5.40 Extrapolations and models 2010, details**

	Benchmark Extrapolation	Commodity Flow method	CFC (PIM)	Dwellings stratification method	FISIM	Other extrapolation & models	Total extrapolation & models
							(4)
	million euros						
Exports of Services	0	0	0	0	2.818	0	2.818

	Benchmark Extrapolation	Commodity Flow method	CFC (PIM)	Dwellings stratification method	FISIM	Other extrapolation & models	Total extrapolation & models
							(4)
	million euros						
Imports of Services	0	0	0	0	1.535	0	1.535

The exports and import of FISIM is calculated with a model, using information from statistics Netherlands and the Dutch Central Bank (DNB); see section 3.17 for detailed information on the calculation of exports of FISIM.

### *(7) Data validation*

This column contains a number of adjustments for specific companies made by the national accounts department. Because information from several statistical sources is combined at the NA-department, inconsistencies that did not become apparent in an earlier stage become visible. Adjustments in this column are, for example, related to conceptual changes in ESA 2010, like goods sent abroad for processing or goods sent abroad for repair services. See section 5.14.5 for more details.

### *(8) Conceptual adjustments*

The main part of these adjustment has been made because the 2010-ITS was based on BPM5. This means that several changes, moving from BPM5 to BPM6 concepts, and thus ESA1995 to ESA2010 are not included in the source data. This is for example the case for manufacturing and repair services and merchanting. The cif/fob adjustment is also recorded under this item.

**Table 5.41 Conceptual adjustments 2010, details**

	Allocation of FISIM	Other conceptual	Total conceptual
			(8)
	million euros		
Exports of Services	0	-953	-953

	Allocation of FISIM	Other conceptual	Total conceptual
			(8)
	million euros		
Imports of Services	0	11.857	11.857

*(9) Exhaustiveness***Table 5.42 Estimates for exhaustiveness 2010, details**

	N1	N2	N3	N4	N5	N6	N7	Total exhaustiveness
								(9)
	million euros							
Exports of Services	0	212	0	0	0	0	1.248	1.460

	N1	N2	N3	N4	N5	N6	N7	Total exhaustiveness
								(9)
	million euros							
Imports of Services	188	332	0	0	0	0	689	1.209

In column N1 underground import of services of employment agencies are recorded. The estimate for exports and imports of services in column N2 is due to the inclusion of illegal activities. The export figure in column N7 consists of several parts: Online trade (internet), purchases made by international organisations and the export of government services; the import figure concerns online trade, government services and passengers air services.

*(10) Balancing*

The adjustments in this column are the result of balancing the supply and use table.

**5.14.2 Supply and use table**

Imports and exports of services both comprise about 6 per cent of total supply and use respectively. In contrast to the international trade in goods no distinction is made in the supply and use tables between imports and exports from/to countries of the European Union and imports/exports from/to third countries.

International trade services statistics (ITS) are the major source for data on imports and exports of services in the national accounts. ITS is compiled by the international trade statistics department of Statistics Netherlands. Section 5.14.3 describes the compilation

process of ITS in more detail. ITS is mainly based on a survey by Statistics Netherlands. Besides that survey a number of supplementary sources are used. In section 5.14.3 also the adaptations needed to transform the (BPM5-based) ITS results for 2010 in usable input for the NA are discussed.

### **5.14.3 Source data for the supply and use data**

The main source for the imports and exports of services in the SUT is the quarterly ITS-survey conducted by Statistics Netherlands. This survey started in the year 2003. In previous years the Dutch Central Bank was responsible for compiling ITS data. Some characteristics of the current ITS-survey are:

#### *Sample size*

The survey consists of two parts: a census for the 350 largest enterprise groups and a sample survey of 5000 units for small and medium sized enterprises. The large enterprise groups provide the most detailed information. This part of the survey comprises 55 service categories, imports and exports, and a geographical breakdown to 250 countries. The small and medium sized enterprises receive a questionnaire with a less detailed breakdown of about 25 services categories. Plausibility checks are based on time-series data comparisons. In case of non-response the enterprise gets an imputed value based on figures from earlier quarters.

#### *Weighting*

The stratification of the small and medium sized enterprises sample is based on economic activity of the enterprise (Nace-class), size class labour and the propensity being involved in import or export of services. Using these characteristics, response is grossed up to total population estimates.

#### *Population*

The population for the statistics on international trade in services consists of two parts: large enterprises which are all in observation and small and medium enterprises (SME's) of which a sample is drawn. The population of large enterprises is based on the SBR in combination with information from the department responsible for consistent observation of large and complex enterprises and SBS. The register of SME-units is based on a variety of sources. Starting point is the register of the Dutch Central Bank (DNB) in 2003 when CBS took over the observation of ITS. Since then the register is annually updated using the response of the previous year, data on international payments from DNB, (a selection of) units involved in international trade in goods, units which respond positively on questions on international transactions in SBS.

#### *Accuracy*

The statistics on international trade in services describes the imports - and exports of services in the Netherlands.

Although ITS-survey for 2010 was primarily based on BPM5-concepts, additions were made to facilitate the ESA 2010 revision of the national accounts. For a number of service categories that were new or changed significantly under BPM6/ESA2010, additional questions were included in the ITS survey for 2012 in conformity with BPM6/ESA2010 concepts: manufacturing services, maintenance and repair, research and development (several questions). This information is used in the NA-estimates as will be described in section 5.14.5.

The main inputs in the ITS-statistics are the following:

- Reports from 350 large enterprise groups;
- Reports from a sample of 5000 small and medium-sized enterprises;
- Household surveys and surveys with tourist accommodation providers;
- Data from the Dutch Ministry of Foreign Affairs and from the Dutch Ministry of Defence.
- Information on imports and exports of MFI's provided by the Dutch Central Bank (DNB)
- Information on imports and exports of services of SPE's is based on the survey conducted by DNB among SPE's.

The survey (sources 1 and 2) covers all types of services except travel and government services.

The household surveys are used to cover imports of travel. Exports of travel are based on surveys among tourist accommodation providers.

Because for several service categories the results of the survey were not satisfactory. For the purpose of ITS-publication historical data from the Dutch Central Bank were extrapolated using an X-12-Arima model. These services were:

- A. Government services (code 291)
- B. Financial services of MFI's and non-financial corporations (code 260); financial services by SPE's were not removed since the survey results for SPE's are directly used
- C. Insurance services (code 253)
- D. Merchanting (code 270)
- E. Other trade related services (code 271)

In the estimates in the NA-revision 2010 these extrapolations are deleted from the source data and replaced by new estimates. All kinds of other information is used for these estimation (studies, government reports, etc.). This will be discussed in the relevant parts of par 15.14.5

#### **5.14.4 Processing for national accounts**

Different statistics use different classifications. The supply and use table classification is based on the CPA/CPC-classifications. The classification of the ITS-survey is EBOPS (Extended Balance of Payments Services Classification) based. The link between both classifications can be found in the MSITS-manual, see:

[http://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/docs/MSITS%202010%20M86%20\(E\)%20web.pdf](http://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/docs/MSITS%202010%20M86%20(E)%20web.pdf)

The EBOPS based service classification used in ITS had to be linked to the goods and services classification used in the supply use table. As the SUT-classification is more detailed

than the ITS-classification, the latter has to be split in most cases (sometimes there is a one-to-one link between an ITS and an SUT category). The NACE-code of the individual responding companies was used to decide to which SUT-services an ITS-service should be allocated. In cases this was not possible, the allocation used in previous years was maintained. Section 9.3 shows the link between ITS and NA categories in detail.

#### **5.14.5 Adjustments made by the national accounts department**

In this section the estimation methods are discussed in more detail, following the ordering in the process table.

The main source statistic used is the ITS for 2010. As explained in section 5.14.3 the 2010 ITS results have some drawbacks; the results are still based on BPM5 concepts and some of the figures are extrapolations of historic DNB data that are not suitable for the benchmark estimates in the NA.

##### *(1) Surveys and censuses*

A first step is to remove the services based on extrapolations of historic DNB-data from the ITS-data in this column, see (1) in the table below. These figures will be replaced by new estimates. These new estimates will be added in various columns of the process table (depending on the nature of the estimation method).

A second step is removing the data on travel expenses which are replaced by a new estimate, together with new elements for 'health related travel' and 'education related travel'. The estimates for health and education related travel are based on the combination of several sources; hence this will be discussed under 'combined data' below.

A third step is the inclusion of 'Other trade related services'. The extrapolation based estimate was removed in step 1; in this step the new data are inserted. These new data are based on the ITS survey data. Data on this service category was collected from the start of the ITS survey, but never used in the compilation of ITS. At the start of the survey the data differed much from the figures collected by DNB until that moment. A longer time series was necessary to establish the quality of the data.

The last step is the change from fob/fob to cif/fob, which is the valuation used in the supply and use tables.

**Table 5.43 Adaptions of the main source statistics**

	<b>Export</b>	<b>Import</b>
<b>ITS results 2010 (Fob/Fob-base)</b>	<b>72.260</b>	<b>64.296</b>
(1) Minus former X-12 Arima extrapolations for which new estimates were made (*):		
– Government services	-1.847	-554
– Financial services	-1.005	-1.043
– Insurance services	-472	-805
– Other trade related services	-1.945	-4.578
(2) Minus other new estimates:		
– Travel	-9.718	-14.807
(3) Plus: new survey-based result for 'Other trade related services'	2.021	1.584
(4) Change from Fob/fob to Cif/fob base	1.757	-4.042
	<b>-11.209</b>	<b>-24.245</b>
<b>SPE results (from DNB)</b>	<b>18.243</b>	<b>16.062</b>
<b>Starting point Surveys and censuses</b>	<b>79.294</b>	<b>56.113</b>

(\*) Merchanting was also estimated using a X-12 Arima extrapolation but does not belong to services according to ESA 2010 and the removal is elsewhere classified in the process tabe (conceptual change)

*(2) Combined data*

In this column some service categories are added that have been removed in the first step:

- A. Travel
- B. Insurance services
- C. Financial services
- D. Imports of services by tour operators reported by households

A. Travel

Inbound/outbound travel (exports/imports) consists of:

- A.1 Expenditures of non-residents/residents during holidays and business trips in the Netherlands/abroad
- A.2 Expenditures of non-residents/residents during one-day trips in the Netherlands/abroad
- A.3 Expenditures of non-resident/resident students during their study in the Netherlands / abroad
- A.4 Expenditures of non-residents/residents during a medical stay in the Netherlands / abroad
- A.5 Expenditures of non-resident/resident seasonal or border workers during their stay in the Netherlands / abroad

A.6 Purchases by non-residents/residents (shopping) in the Netherlands/abroad (including private purchases of staff of territorial enclaves like embassies, consulates and the like.

*A.1 en A.2 Holidays, business trips and one-day trips*

**Inbound**

Sources used:

- Overnight accommodation statistics (Statistic Netherlands): Provides figures on the number of overnight stays in all hotels, motels, boarding houses, apartments with hotel services, youth accommodation and bed & breakfasts with at least 5 sleeping places, campsites with at least 4 pitches and holiday parks and group accommodation with at least 10 sleeping places.
- Report “Onderzoek inkomend toerisme 2009” (research report on incoming tourism 2009) made by the “Nederlands Bureau voor Toerisme en Congressen” (NBTC). This report contains information on: Spending by day per person, as well on touristic as on business trips. It covers spending on accommodations, drinks and food, shopping and souvenirs, excursions, tickets and other expenses.

Because of the nature of the overnight accommodation statistics some travel expenses are missing. This concerns:

- Visits to family and friends
- Couch surfing (supply of very simple sleeping places by households to foreign travellers)
- Bed & Breakfasts with less than 5 beds
- Visits from foreigners to their own accommodations
- Water sports

An estimate has been made for this missing part using the expertise of NBTC (number of stays) and information from the report “Onderzoek inkomend toerisme 2009” (amount spent per night). NBTC estimated the number of stays at 20 per cent of the number of stays recorded in the ‘Overnight accommodation statistics’. The amount spent by tourists was €102.- for 2009; for 2010 the value would be €102.- \* 1,013 (inflation rate 1,3%) = € 103. It is assumed that the amount paid for this kind of accommodations is 10% lower than in official accommodations.

For one-day trips information from NBTC is used for day trips made from Germany and Belgium. An additional estimate is made for one-day visits by foreigners from counties other than Germany and Belgium.

Calculation:

Holidays/business trips:

Number of overnight stays (2010): 26,8 million

Spending/day per person (2009; tourist and business travellers): € 146.-

Spending/day per person (2010): € 146,- \* 1,013 (inflation rate 1,3%) = € 148.-

Total value for stays covered by the Overnight accommodation statistic: 26,8 \* €148.- = €3966 million

The missing part is estimated as follows:

Number of visits 20% \* 26,8 million = 5,36 million

Spending/day of tourists: 90% \* €103.- = € 93.-

Estimate for the missing part: €498 million

Total value for holidays and business trips: 498 million + 3966 million = 4464 million

**Table 5.44 Estimate for one-day trips**

Visitors from Belgium	420
Visits from Germany	3.140
Other one day visits	50
<b>Total value one-day trips</b>	<b>3.610</b>

## **Outbound**

Sources used:

- Spending of Dutch residents during holidays and one-day trips are measured through a household survey called “Continu Vakantie Onderzoek” - CVO (Continuing Holiday Survey). This is a quarterly survey among a panel of 6500 households. The survey is conducted by TNS-NIPO (a private research institute) on the request of Statistics Netherlands. The survey not only measures expenditure by resident travellers abroad, but also purchases by residents in the Netherlands at Dutch tour operators. The purchases (for example hotel bookings) are part of the intermediate consumption of tour operators.
- Spending of Dutch business travellers abroad are estimated using a household survey called “Continu Zakelijk Onderzoek” – CZO (Continuing Business Survey). This is a bi-annual survey conducted by TNS-NIPO. The survey started in 2011; business travel of Q4 2010 and Q1-Q3 2011 were surveyed. Because figures for 2010 were needed for the NA-revision, the CVO results were used (volume changes over time) to estimate CZO figures to the year 2010. Although CVO does contain information on the level of business travel, these estimates are not considered reliable, because the sample is not representative. Therefore, we only used the volume changes from CVO and the levels from CZO to estimate 2010. Because we used volume changes of CVO, we also needed to account for price changes to estimate expenditures. This was done by using the average inflation rate in the EU-countries of this period.

Calculation:

Holidays and one-day trips: The total value for 2010 derived from CVO was 10.513 million euros. A part of this amount was transferred from travel to the import of specific services (1.218 million euros) to be included in intermediate consumption of tour operators (see above). The remaining value for A.1 and A.2 is: 9295 million euros (10.513 – 1.218).

**Table 5.45 Estimate for business travel**

	2010				2011		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Spending on business travel abroad	733	854	526	709	750	885	631
Number of foreign business travels (CVO; j-o-j change)					99,4	100,5	116,5
Inflation EU 27 (J-o-j index) source: Eurostat					102,9	103,2	103,1

Source: CZO 2011

The total value for business travel for 2010 amounts to 2821 million euros.

### *A.3 Expenditures during study*

#### **Inbound**

Sources used:

- Number of foreign students in the Netherlands 2009-2010 (Statistics Netherlands) was 50455.
- Average spending by foreign students in the Netherlands (Website Nuffic: Study in Holland: Nuffic is a non-profit organisation promoting the internationalisation of higher education) was 965 euros per month.

Calculation:

If we assume that the academic year is 10 months long the estimation would be:

$50455 * 965 * 10 = 487$  million euros.

#### **Outbound**

Sources used:

- Number of students following an education abroad by country divided in students following a complete education program abroad and students that follow a part of their education abroad (Source: Nuffic). At the moment the calculations for the NA revision were made numbers for the year 2007-2008 were available: 42000 students studied abroad of which 21500 followed their complete education abroad. For these students a geographical distribution is known.
- Nuffic also publishes estimates by country of expenses/year per student on tuition fees and cost of living. These estimates are based on information of former students. Estimates are available for 2011.

Calculation:

For students following a complete education abroad an estimate was made by multiplying the numbers of students per year with the estimated expenses/year.

For students following part of their education abroad two assumptions are made:

- 1- They have the same geographical distribution as the students following their complete education abroad
- 2- They are on average 6 month's abroad and their expenses are therefore half the amount of the students following a complete education.

This calculation results a total value of 558 million euros.

**Table 5.46 Expenditures abroad by resident students**

Country	Students following a complete education			Students following part of a program			All students
	Number of students	Expenses 12 months <i>euros</i>	Total expenditure <i>mln euros</i>	Number of students	Expenses 6 months <i>euros</i>	Total expenditure <i>mln euros</i>	Total expenditure <i>mln euros</i>
UK	5.800	20.700	120	5.492	10.350	57	177
Belgium	4.450	11.000	49	4.214	5.500	23	72
Germany	2.100	13.500	28	1.988	6.750	13	42
US	1.700	40.500	69	1.610	20.250	33	101
Spain	1.350	17.500	24	1.278	8.750	11	35
France	1.250	16.500	21	1.184	8.250	10	30
Sweden	850	11.000	9	805	5.500	4	14
Denmark	450	11.000	5	426	5.500	2	7
Italy	450	13.000	6	426	6.500	3	9
Canada	400	19.500	8	379	9.750	4	11
Finland	400	12.000	5	379	6.000	2	7
New Zealand	400	17.500	7	379	8.750	3	10
Norway	400	9.000	4	379	4.500	2	5
Austria	350	12.500	4	331	6.250	2	6
Switzerland	350	18.500	6	331	9.250	3	10
Australia	250	27.000	7	237	13.500	3	10
Turkey	250	6.250	2	237	3.125	1	2
Ireland	200	19.000	4	189	9.500	2	6
Portugal	150	9.000	1	142	4.500	1	2
Hungary	100	7.200	1	95	3.600	0	1
Total	21.650		379	20.500		179	558

*A.4. Expenditures during medical treatment.***Inbound**

Sources used:

In de ‘Zorgrekeningen’ (Health Care Accounts) of Statistics Netherlands information is available on healthcare services provided to non-residents. This covers both insured and non-insured health care.

**Outbound**

Sources used:

Information from the “College voor Zorgverzekeringen” - CVZ (an independent administrative body that supervises to correct execution of the compulsory health care insurance in the Netherlands ). CVZ registers all health care consumption of Dutch residents abroad that is covered by the compulsory health care insurance. Health care costs covered by other types of insurance (for example travel insurance) or not covered by insurance is missing. It is estimated (by CVZ) that about 80 per cent of the health care consumption abroad is covered by the compulsory health care insurance.

Calculation:

In 2010 303 million was paid by the compulsory insurance for health care services abroad. This would mean that the amount of health care services consumed by households abroad would amount to 379 million euros (= 303/0,8).

**Table 5.47 import and export of health care services**

	<b>Export</b>	<b>Import</b>
Hospital care	47	
General practitioners	10	
Dental care	11	
Other types of health care	14	
<b>Total value 2010</b>	<b>82</b>	<b>379</b>

*A.5 Expenditures by seasonal or border workers.*

**Inbound**

The estimation of expenses by seasonal and border workers exits of several parts:

A.5.1 Seasonal workers from Middle and Eastern European countries (so-called MOE-countries)

A.5.2. Workers from Belgium and Germany, consisting of:

- Seasonal workers from Belgium and Germany
- Cross border workers from Belgium and Germany

Sources used:

A.5.1

- Report SEO: Economische impact van arbeidsmigratie uit MOE-landen, 2008 (economic impact of labour migration from MOE-countries). MOE-countries are: Poland, Czech Republic, Slovakia, Hungary, Bulgaria, Romania, Slovenia, Estonia, Latvia, Lithuania. SEO is a private economic research institute.  
Information used from this report:
  - Number of temporary labour migrants from MOE countries (2008, extrapolated to 2010 with information from Statistics Netherlands): 107.000
  - Consumption quote of these labourers: 89 per cent.
- Ministry of Social affairs and employment: minimum wage level July 2010 (gross/net): 1.416 / 944 euros.

A.5.2.

In March 2009 there were 91000 people from Germany and Belgium working in the Netherlands (Statistics Netherlands, Sociaaleconomische trends, 4e kwartaal 2009). It is assumed that 9500 are temporarily living in the Netherlands. For these people the same

assumptions are made as in A.5.1 (average stay of 3 months, minimum wage, 89 per cent consumption quote).

The remaining part of the workers (81500) are commuting. Since the Dutch employment figures changed hardly between 2009 and 2010, these figures are also used for 2010.

Calculation:

A.5.1

(Number of MOE-workers 2008) 107000 \* (extrapolation factor to July 2010) \* 1,25 = 133.750. It is assumed that the workers stay on average for three months in the Netherlands and that they are paid according to the Dutch minimum wages:

133.750 (number of workers) \* (3\*944) (net wages during three months) \* 89% (consumption quote) = 337 million euros

A.5.2.

Seasonal workers: 9.500 (number) \* 3 (average length of stay) \* 944 (minimum wage) \* 0,89 (consumption rate) = 24 million euros.

Border workers: 81.500 (number) \* 5 (estimated daily expenditure) \* 200 (number of working days in 2010) = 81,5 million euros.

## Outbound

Sources used:

- In an EU-report<sup>19</sup> is mentioned that in 2007 there were 17.766 Dutch cross border workers in Germany and Belgium.
- A report from Statistics Netherlands says that the growth rate of German and Belgium workers in the Netherlands<sup>20</sup> was 12 per cent between 2007 and 2008. This gives us a number of 19.959 (=17.766 \*1,12). For the same reason as mentioned above, these figures are also used for 2010.
- There is no information available on expenditures of Dutch border workers, so assumptions had to be made:
- The expenditure is 5 euros a day on food and drinks.
- Border workers fill their fuel tank abroad, since fuel prices are generally lower abroad than in the Netherlands. Border workers spend on average 300 euros per month on fuel.
- 20 per cent of the border workers drive together to work (car-pooling). This assumption is based information from several publications of Statistic Netherlands.
- Number of working days/year: 200.

Calculation:

$19959 * (5*200) + (12*300*0,8) = 77$  million euros.

## A.6 Border shopping

<sup>19</sup> EU-rapport: Scientific report on the mobility of cross-border workers within the EU-27/EEA/EFTA-countries (January 2009); table 2: Number of commuters by country of origin 2006/2007.

<sup>20</sup> Pendelen naar Nederland: oude en nieuwe grensarbeiders, CBS, André Corpeleijn (2009), pag. 140, table 1.

## Inbound

Sources used:

Border shopping in the Netherlands is already included in the figures of one-day visits, family visits, etc. (see A.1 and A.2 above). An additional estimate has been made for private purchases of staff of foreign embassies in the Netherlands. The source for this estimate is a survey from the municipality of The Hague on the economic impact of international organisations on the region of The Hague (see section 5.13.4). The estimated value in this report is 94 million euros.

## Outbound

Sources used:

- For the estimation of shopping by Dutch households abroad: General information from statistics made by Statistics Netherlands (number of households living in border provinces, average household spending)
- For the estimation of private purchases of embassy personnel abroad: Information from the Ministry of Foreign Affairs of the remuneration of Dutch embassy personnel working abroad.

Calculation:

Number of households living in border provinces: 3,5 million It is assumed that 10 per cent of these households shop abroad 2 times a month for 70 euros groceries and 60 euros fuel. Total expenditure of border shopping abroad:  $3,5 * 10\% * 2 * (60+70) * 12 = 1.092$  million euros.

For the purchases of Dutch embassy personnel (and their families) abroad it is assumed that they will spend 50 per cent of their wages in the country where they are stationed. This results in an amount of 72 million euros.

Total expenditures on outbound shopping:  $1.092 + 72 = 1.164$  million euros.

**Table 5.48 Overview of import and export of travel, 2010**

Type of travel expense	Inbound Export	Outbound import
A.1 en A.2 Holidays, business trips and one-day trips	8.074	12.116
A.3 Expenditures during study	487	558
A.4 Expenditures during medical treatment	82	379
A.5 Expenditures by seasonal or border workers	442	77
A.6 Border shopping	94	1.164
<b>Total value</b>	<b>9.179</b>	<b>14.294</b>

B. Insurance services

For the calculation of imports and exports the following types of insurance services are distinguished:

- Life insurance services
- Pension insurance services
- Freight and other non-life insurances
- reinsurance services
- Standard guaranties
- Insurance supporting services

Sources used:

- Production of insurance services. For a detailed description of the calculation of the production value of the different types of insurance services: see section 3.17.
- Data from The Dutch Central Bank about the ratio of Insurance premiums received by Dutch insurance companies from resident versus non-resident policy holders (export of services). DNB collects this information by surveying, but also has direct access to this information because Insurance companies and pension funds are under supervision of DNB.
- Information from the ITS-survey about the payments by Dutch enterprises to foreign insurance companies (imports).

Calculation:

Export:

The calculation of the production value of the insurance service for each type of insurance is explained in section 3.17. The export share of this service is calculated with the help of the residents/non-resident ratio from DNB.

Imports:

For import of insurance services no information from DNB is available. Alternatively information is available from the ITS-survey on the premiums paid by Dutch companies to foreign insurance companies. Under the assumption that the ratio service/premium as calculated for Dutch insurance companies is also valid for foreign insurance companies, it is possible to estimate the import of insurance services from the ITS-data.

The total value of export of insurance services is 1.363 million euros.

The total value of imports of services is 531 million euros.

### C. Financial services

Available data sources are:

- Data on imports and exports of financial services by monetary financial institutions (MFI's). These data are obtained from a survey conducted by DNB.
- Data from the ITS-survey on the imports and exports of financial services by non-financial corporations and financial auxiliaries.

**Table 5.49 Estimation of trade in financial services**

	<b>Import</b>	<b>Export</b>
ITS-survey (non-financial corp/financial auxiliaries)	119	312
DNB (MFI's)	584	587
<b>Total value of financial services</b>	<b>703</b>	<b>899</b>

#### D. Imports of services by tour operators reported by households

The estimate of 1.218 million of intermediate consumption of tour operators reported by households in the CVO has to be added to imports of services, however not classified as travel.

#### *(4) Extrapolations and models*

The only relevant item in this respect is FISIM. The value of FISIM and the allocation over sectors is estimated with use of data from DNB and Statistics Netherlands (balance sheet stocks, interest rates and reference interest rate). Since, according to ESA par. 14.11 no interbank FISIM have to be calculated between resident FI's and non-resident FI's, sector S.2 has been divided in FI and non-FI. This is done with micro data of the Dutch FI's, that was provided by DNB.

A detailed explanation of the calculation of FISIM is found in section 3.17.

The value of imports and exports of FISIM is respectively 2.818 million euros and 1.535 million euros.

#### *(7) Data validation*

This column contains a few adjustments addressing specific companies which are made by the national accounts department. Because information from several statistical sources is combined at the NA-department, inconsistencies that did not become apparent in an earlier stage become visible.

Export (-78 million euros), imports (10.417 million euros) The large value for imports is mainly due to adjustments made for one large enterprise. Specific knowledge of this company has led to closer investigation (comparison of all survey results for this company and visits to the company) and judgement of the values that had to be included in international trade.

#### *(8) Conceptual adjustments*

As explained earlier, the ITS-data for 2010 are based on BPM5 (ESA 95) concepts. This means that several conceptual adjustments were needed to comply to ESA 2010.

Adjustments to ESA2010/BPM standards have been made in conjunction with the ITS for the following service categories:

#### *Manufacturing services/maintenance and repair*

As mentioned before, precluding on a full implementation of BPM6 in ITS, a number of changes were already made in the ITS survey of 2012 to facilitate the NA benchmark revision. This concerns data collection on manufacturing services and maintenance and repair

services as already explained in section 5.14.3. The ITS information collected was used in the revision process to check the results of the methods used for 2010 for the foreign trade in goods (see section 5.13.4, goods sent abroad for processing). That method is also applied to trade in services, since the changes for trade in goods have their counterparts in trade in services.

*Transport: supporting and auxiliary services and Other business services n.e.c.*

It turned out that in ITS survey some maintenance and repair services are reported under these items. These have been transferred to the ‘Maintenance and repair services’.

*Transport by pipeline*

The figures for transport by pipeline have been removed, because the foreign part of the pipeline construction is not considered as a resident unit (see ESA 2.29 and 18.17).

*Merchanting*

The values for merchanting services have been removed from ITS; according to ESA 2010 merchanting belong to the international trade in goods (see also par 5.13.4).

*Agricultural, mining and other on-site processing services*

It turned out that in the old (BPM5) ITS survey some manufacturing services were reported here; these have been transferred to manufacturing services. The cif/fob adjustment and reclassification is also recorded here. The table 5.50 below shows the values for these conceptual changes.

*(9) Exhaustiveness*

The estimates for exhaustiveness consist of two parts:

- Column N2: Estimates for illegal and concealed activities
- Column N7: Here the estimates for online trade, purchases made by international organisations and government services are recorded. Also an additional estimate for passengers air transport has been made (only imports).

**Table 5.50 Conceptual adjustments of trade in services**

	<b>Import</b>	<b>Export</b>
Industrial services	4.398	3.782
Maintenance and repair	790	819
Transport: supporting and auxiliary services	-512	-186
Transport by pipeline	-147	-724
Merchanting	---	-1.251
Agricultural, mining and other on-site processing services	-30	-81
Other business services n.e.c.	-21	-40
CIF/FOB adjustment and reclassification	7.379	-3.272
<b>Total value of conceptual adjustments</b>	<b>11.857</b>	<b>-953</b>

*Illegal and concealed estimates.*

The estimation of illegal and concealed transactions is described in chapter 7.

The table below shows the estimates for import and export of services.

**Table 5.51 Exhaustiveness: illegal/concealed transactions**

	<b>Import</b>	<b>Export</b>
Illegal gambling	137	
Fencing		212
Prostitution/human trafficking	195	
Employment agencies	188	
<b>Total value of illegal / concealed activities</b>	<b>520</b>	<b>212</b>

*Online trade, international organisations and government services**Online trade*

Export of electronic services is not covered by the ITS-survey as companies that deliver e-services are not included in the target population. Therefore information from the survey 'Use of ICT by companies' was used. This survey gives (at NACE 2 digit) the percentage of the turnover that is generated abroad by means of internet.

Import of electronic services by companies is reported in the ITS survey. Because the ITS survey is a business survey, import of services by consumers is not covered. This part is estimated in the same way as the internet intra EU-purchases of goods by consumers (see section 5.13.4), i.e. with the use of the survey 'Use of ICT by persons' and the report of Blauw Research.

**Table 5.52 Exhaustiveness: electronic services**

	<b>Import</b>	<b>Export</b>
Online trade of electronic services	40	44

*International organisations/Government services*

This estimation consists of several parts:

**Export:**

Purchases of services by foreign embassies in the Netherlands:

This estimate is made in the same way as the estimate of the purchases of goods by foreign embassies (see section 5.13.4 C).

Sales of passports and visa by Dutch embassies.

These figures are supplied by the Ministry of foreign affairs.

EU remuneration for perception costs:

This remuneration is 25% of the total value of import duties and agricultural duties.

**Imports:**

Purchases of goods and services by Dutch embassies and military missions abroad:

This is based on figures supplied by the Ministry of Foreign Affairs and the Ministry of Defence.

Sales of passports and visa by foreign embassies to residents.

This is based on the CVO survey. From the CVO the number of visitors by country is estimated (touristic and business visits). Combined with information on visa obligation and the prices of visa an estimate of the total sales of visa is made. The sale of new passports (to people with a double nationality) is also estimated.

Total estimate for international organisation/government services:

**Table 5.53 Exhaustiveness: international/government services**

	<b>Import</b>	<b>Export</b>
Purchases of services by foreign embassies		594
Sales of passports/visa by Dutch embassies		34
Sales of passports/visa by foreign embassies	30	
EU remuneration of perception costs		576
Purchases goods & services by Dutch embassies and military missions	171	
<b>Total value of int organ./government services</b>	<b>201</b>	<b>1.204</b>

### *Passengers air transport*

Because the ITS-survey is a business survey, private households using foreign airlines are not detected. Therefore an additional estimate of 448 million is made for this missing part. This is done by combining information on air tickets bought by private persons (source: Continuing Holiday Survey - CVO) with percentage of airplanes owned by foreign airliners landing on Schiphol airport (source: Air Transport Movements (Main Airlines), Traffic Review 2012).

### *(10) Balancing*

The adjustments in this column are the result of balancing the supply and use table.

## CHAPTER 6 THE BALANCING OR BALANCING PROCEDURE, AND VALIDATING THE ESTIMATES

### 6.1 GDP balancing procedure

#### 6.1.1 Introduction

In the Netherlands, the compilation of industry-by-industry input-output (I/O) tables as part of regular national accounts data goes back to the fifties. From 1980 onwards, the compilation of I/O tables in previous years' prices, simultaneously with tables in current prices, became standard procedure. In the early eighties, it was decided to set up a new balancing system, based upon supply and use tables in both current prices and volume terms. Reasons for this change were, among others, the SNA and ESA propagating the supply use system as standard for estimating GDP and the increasing heterogeneity of industry output. Unlike I/O tables, supply and use table tables (SUTs) allow for the optimal use of available sources. Business statistics, foreign trade statistics and investment statistics all contain product information. Besides numerous data improvements the 1987 benchmark revision of the Dutch national accounts therefore led to introducing , the SUT as the core framework for estimating GDP and its components both from an expenditure and production point of view. At that time the SUTs were compiled at the level of detail of 250 industries and 800 products.

The introduction of SUT's can be said to have improved the quality of the national accounts, particularly by establishing a closer link between the macro data (SUT), business and price statistics.

#### 6.1.2 Supply and use tables

In the Netherlands the SUT is balanced at purchasers' prices excluding value added tax (VAT). Output in the supply table is valued at basic prices, imports at c.i.f. prices. The use table is valued at purchasers' prices excluding VAT with a separate row for non-deductible VAT. On the product level the gap between the basic prices of the supply table and purchasers' prices excluding VAT of the use table is bridged by adding columns for taxes and subsidies on products and trade and transport margins to the supply table. See figure 6.1 for a schematic overview.

Figure 6.1 Schematic overview of the supply and use table in the Netherlands

Supply table				Use table		
Domestic production basic prices	Imports cif	Valuation Taxes/ subsidies on products  trade and transport margins	Total supply	Intermediate consumption purchasers prices excl. VAT	Final expenditure	Total use
Total output				Non deductible VAT		
				Value added		
				Total output		

Tables 6.2 and 6.3 show an aggregated version of the SUT for 2010:

**Table 6.2. Supply table, 2010**

		A	B	C	D	E	F	GI	J	K	L	M-N	O-Q	R-U	A-U	Imports of goods and services	Supply at basic prices	Trade and transport margins	Taxes on products (excl. VAT)	Subsidies on products (-)	Supply at purchasers' prices	
		basic prices (rln euros)																				
A	Agriculture, forestry and fishing	25 299	—	153	—	—	—	—	—	—	—	—	23	18	—	25 493	13 900	39 393	10 799	179	97	50 274
B	Mining and quarrying	—	19 900	223	—	157	118	2	—	—	—	—	410	38	—	20 908	38 703	59 611	2 426	2 732	—	64 769
C	Manufacturing	472	83	223 500	—	856	1 530	6 417	211	—	—	—	1 419	119	3	234 610	252 952	487 562	103 897	15 253	81	606 121
D	Electricity, gas, steam and air conditioning supply	532	69	243	13 351	210	—	7	—	—	—	—	—	—	—	14 412	801	15 213	899	1 522	725	16 869
E	Water supply and waste management	—	1	451	21	7 221	74	2 229	5	—	—	—	—	—	—	4 752	99	14 813	3 401	18 214	3	18 600
F	Construction	70	—	18	813	15	84 076	186	60	—	—	1 639	2 289	502	—	89 668	1 521	91 189	—	—	27	91 162
GI	Trade, transport, hotels and catering	528	—	228	—	—	82	76 420	9	—	511	1 408	1 496	1 118	81 800	8 924	90 724	—	—	1 510	89 214	
J	Information and communication	—	—	48 76	14	—	2 469	45 299	—	—	6	2 774	377	235	56 050	8 118	64 168	2 182	1	—	66 351	
K	Financial and insurance activities	—	—	—	—	—	—	—	—	68 061	286	95	—	—	5	68 447	3 809	72 256	—	861	—	73 117
L	Real estate activities	102	14	484	—	32	338	1 496	49	2 305	65 709	1 066	1 415	136	73 146	15	73 161	—	—	18	73 143	
M-N	Business services	375	95	5 409	590	100	741	8 668	2 722	5 277	258	115 280	3 083	1 091	143 689	47 084	190 773	—	2 786	190	193 369	
O-Q	Government, education and care	162	—	2 512	—	—	1 645	353	1	—	—	805	168 227	486	174 191	95	174 286	—	—	481	173 805	
R-U	Culture, recreation, other services	3	357	10 478	428	2	—	9 830	262	—	—	699	831	22 181	45 071	23 251	68 322	112	221	419	68 236	
	Not imputed goods and services	225	2	2 507	864	108	217	2 502	1 133	637	57	2 902	5 721	2 148	19 023	—	19 023	—	—	—	19 023	
	Trade and transport margins	185	265	7 302	1 691	113	345	104 075	1 199	—	194	2 083	—	151	117 603	2 283	119 886	-119 886	—	—	—	
	Supply at basic prices	27 953	20 846	258 384	17 772	8 814	87 521	215 946	51 302	76 281	68 660	131 253	186 579	27 613	1 178 924	404 857	1 583 781	—	23 913	3 551	1 604 143	

**Table 6.3. Use table, 2010**

		A	B	C	D	E	F	GH	J	K	L	M-N	OQ	R-U	A-U	Exports of goods and services	Final consump tion house holds	Final consump tion general government	GCF incl changes in invento ries	Consump tion residents in rest of the world	Difference imputed and paid VAT	Total columns
		purchasers prices (rln euros)																				
A	Agriculture, forestry and fishing	5 108	1	15 171	3	—	93	671	—	—	—	2	234	509	185	21 977	22 313	5 630	—	354	—	50 274
B	Mining and quarrying	1 125	417	28 140	4 110	31	1 051	1 086	37	95	224	239	925	341	37 821	21 519	4 909	19	501	—	64 769	
C	Manufacturing	6 890	249	92 506	1 033	765	23 497	20 547	3 941	488	1 380	4 542	11 126	3 616	170 580	305 362	90 277	6 067	33 835	—	606 121	
D	Electricity, gas, steam and air conditioning supply	535	1 037	3 384	1 599	125	133	2 080	193	132	321	334	1 029	454	11 356	493	4 891	7	122	—	16 869	
E	Water supply and waste management	339	14	1 691	122	2 552	274	407	60	45	54	150	2 210	96	8 014	5 556	2 665	2 452	3	—	18 600	
F	Construction	292	68	490	686	79	22 347	1 250	272	16	7 759	2 142	5 704	218	41 223	2 346	399	522	46 772	—	91 162	
GH	Trade, transport, hotels and catering	283	36	3 075	78	500	498	25 533	640	630	209	5 077	2 836	449	39 944	21 340	27 426	504	—	—	89 214	
J	Information and communication	180	87	2 913	271	172	1 172	6 334	9 077	1 934	540	6 699	4 851	787	35 017	10 554	13 246	—	7 534	—	66 351	
K	Financial and insurance activities	344	242	3 230	242	131	1 240	4 483	820	12 336	20 108	2 033	2 325	561	48 085	7 510	17 378	—	144	—	73 117	
L	Real estate activities	232	35	2 165	90	119	803	9 419	881	1 219	2 425	3 075	3 119	675	24 257	15	45 166	2 379	1 326	—	73 143	
M-N	Business services	1 486	1 008	24 719	1 742	661	4 785	25 583	6 240	9 358	2 250	29 120	15 713	2 596	125 261	39 138	13 099	1 165	14 746	—	193 369	
OQ	Government, education and care	68	15	632	71	38	284	822	190	387	81	766	4 155	145	7 654	671	13 038	151 981	461	—	173 805	
R-U	Culture, recreation, other services	128	353	12 887	409	86	258	6 839	1 008	415	157	1 502	1 669	2 231	27 942	10 665	16 346	1 525	285	11 473	68 236	
	Not imputed goods and services	15	1	307	15	14	655	118	13	16	195	106	105	78	1 638	—	933	—	16 452	—	19 023	
	Non-deductible VAT	—	—	50	—	—	—	302	87	1 498	1 356	—	6 557	548	10 398	—	22 497	611	9 887	—	-739	42 654
	Total intermediate consumption	17 125	3 563	191 360	10 471	5 273	56 990	105 474	23 459	28 539	37 061	56 019	62 833	12 980	611 167	447 382	277 860	167 232	132 422	11 473	-739	1 646 797
	Other taxes on production	402	21	690	27	81	181	1 075	86	299	2 080	706	1 005	109	6 762	—	—	—	—	—	—	6 762
	Other subsidies on production (-)	999	5	810	7	84	200	913	244	66	41	1 936	2 364	133	7 742	—	—	—	—	—	—	7 742
	Wages and salaries	2 114	604	29 589	1 287	1 335	14 881	49 270	11 230	15 138	2 831	39 800	71 619	6 844	246 542	—	—	—	—	—	—	246 542
	Employers' social contributions	489	205	7 323	322	377	3 884	11 454	2 538	3 849	904	9 679	21 333	1 572	63 929	—	—	—	—	—	—	63 929
	Consumption of fixed capital	3 660	1 638	12 972	2 292	1 071	2 213	14 093	4 763	4 088	26 104	9 278	23 001	1 809	106 982	—	—	—	—	—	—	106 982
	Operating surplus (net)	5 102	14 820	17 260	3 380	761	9 572	35 493	9 470	24 414	-279	17 707	9 152	4 432	151 284	—	—	—	—	—	739	152 023
	Value added at basic prices	10 828	17 283	67 024	7 301	3 541	30 531	110 472	27 843	47 722	31 599	75 234	123 746	14 633	567 757	—	—	—	—	—	739	568 496
	Sales of existing fixed assets	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 438	2 027	—	-3 465	—	—	
	Consumption by non-residents in the Netherlands	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8 890	-8 890	—	—	—	—	
	Consumption by residents in the rest of the world	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11 473	—	-11 473	—	—	
	Use at purchaser prices	27 953	20 846	258 384	17 772	8 814	87 521	215 946	51 302	76 281	68 660	131 253	186 579	27 613	1 178 924	457 670	282 510	167 232	128 957	—	-2 215 293	

In the Dutch national accounts the SUT's are balanced simultaneously in current prices and volume terms.

### 6.1.2.1 Classification of industries and products in the SUT

The industry and product classifications currently applied in the Dutch SUTs are a compromise between detail and overview. Nowadays the classification of the Dutch SUT for the final annual estimate amounts to 635 rows (615 products and 20 value added components) and 175 columns (128 industries, 20 expenditure categories, 22 types of taxes and subsidies on products and 5 types of trade and transport margins).

The number of products is based on the following criteria:

- a link with international product classifications (HN for international trade data and CPA for European data dissemination);
- homogeneity of Value Added Tax rates and other taxes and subsidies on products;
- availability of sufficiently reliable data;
- sufficient ‘magnitude’;
- homogeneity of price changes;
- homogeneity of destination (intermediate consumption or final expenditure).

The reasoning behind these criteria is mostly self-evident. The European Union is an important user of NA-data. Data have to be transmitted in conformity with the transmission program based on standardised classifications of the European Union. In addition, national accounts data are used for determining the member state contributions to the own resources of the European Union. This explains for example the relevance of sufficiently detail in products in relation to VAT.

The need of good quality data and sufficient detail with respect to products is self-evident. However, the issue of data needs and requirements is in fact more ‘subtle’. Like in most countries, also in the Netherlands, the level of detail in data sources divert when looking at the various components of supply and use. For example, information on output and foreign trade in goods is available at much higher level of detail than most use-side data. The ‘Other costs’ item in company’s profit and loss accounts and business surveys is a typical example of insufficient detail for estimating intermediate consumption at the required product breakdown of the SUT. This higher level of detail in the SUT is necessary to facilitate the balancing process in order to get high quality GDP-estimates.

The total number of industries is based on the following criteria:

- link to international classifications (NACE.rev.2);
- homogeneous output and input structure;
- availability of sufficiently reliable data;
- sufficient ‘magnitude’; data availability;
- homogeneous with respect to market – non-market output
- homogeneous with respect to VAT rates.

#### **6.1.2.2 Sources and units**

The source data for the SUT-estimates are mainly so called ‘institutional statistics’ meaning that the data on production and intermediate consumption of goods and services are strictly linked to the units of observation as defined in the general business register. Contrary to the institutional approach are so called ‘functional’ data, which are linked to products, irrespective of their producers or users.

The units of observation are kind-of-activity units (KAU’s) or as close as possible approximations to the KAU. Large enterprises are split up into KAU’s. This implies that from the point of view of production, the units of observation are as homogenous as possible. However, there are still a considerable number of secondary products next to the main output, as is shown by the ‘off-diagonal’ entries in the supply table.

### 6.1.2.3 Working procedures

Statistics Netherlands' working procedures for the compilation of supply and use tables can be summed up chronologically in a column - row - column process. At the end the estimates are approved in a final check in which the results are discussed in a small forum of experts.

#### A. Columns: specialists' input

Source statistics data are made complete and consistent with the level of detail required in the SUT. This is done by national accounts experts in specific fields (in the Dutch department of NA known as branch and expenditure specialists). Each specialist is responsible for the estimates of a particular group of industries or specific selection of final expenditure categories. They are responsible for making adjustments in order to assure the estimates to comply with national accounts definitions and for adding estimates with respect to exhaustiveness. Specialists are also responsible for supplementary estimates in cases when source statistics are not available at required levels of detail. An example is the breakdown of items such 'Other products' and 'Other costs' found in business surveys.

The main source for estimates of output of manufacturing, energy, construction, trade and transport, business services and part of personal services are annual business statistics (see chapter 3). In combination with the Prodcom statistics detailed product information on turnover can be derived for manufacturing. The level of detail of intermediate consumption varies considerably between activities, with manufacturing being covered in much greater detail than most other industries.

Those parts of the economy not covered by annual statistics are estimated by alternative sources and methods - for example based on data on employment and the compensation of employees or information from professional associations (see chapter 3).

Estimates for agriculture are based on quantity and price data. As a consequence of European agricultural policy, quantity and price data are available in great detail.

Imports and exports of goods have to be transformed from the observed cross border registration to the change of ownership as criterion in conformity with ESA 2010. This implies that alternative estimates are needed e.g. for goods sent abroad for processing (to be excluded), merchanting (to be included) and production abroad (to be included). International trade in services data must be brought in line with the data on trade in goods.

Data on gross fixed capital formation can be derived from the survey on gross fixed capital formation. The delineation with intermediate consumption is a point of attention when making the estimates for the SUT. Estimates for changes in inventories are derived from business surveys.

The household budget surveys and retail trade statistics are important sources for estimates of final consumption of households.

As the SUT is balanced simultaneously in current prices and volume terms, production intermediate consumption and final expenditure output and input have to be deflated separately by applying producers prices for output and export (PPI's), consumer price indices (CPI's), and prices indices for services. In a number of cases where price indices are not available, volume indicators are used; examples are FISIM, health and education.

In the annual production process of SUT's volume term estimates are made and simultaneously balanced with current price data. For a benchmark year only current price estimates are made as no comparable T-1-data are available and thus no meaningful volume changes can be compiled.

This first step (A) leads to ESA 2010 compliant estimates for all column entries of the SUT at the required product level. At the end of this 'column-process' the data are transferred to the balancing system (iAGT).

#### B. Rows: balancing process

At the start of the balancing process, the balancing system contains a full product and industry-level description of the year to be estimated both in prices of the current and previous year. The dataset also includes balanced current price estimates of the previous year. When entering the balancing system the identity total output equals total input is already fulfilled as gross operating surplus is calculated as a residual item.

In this stage the balancing process therefore implies the balancing of the rows (products) of the supply and use tables simultaneously in current prices and volume terms. The balancing is partly done manually and partly automatically by a "balancing machine".

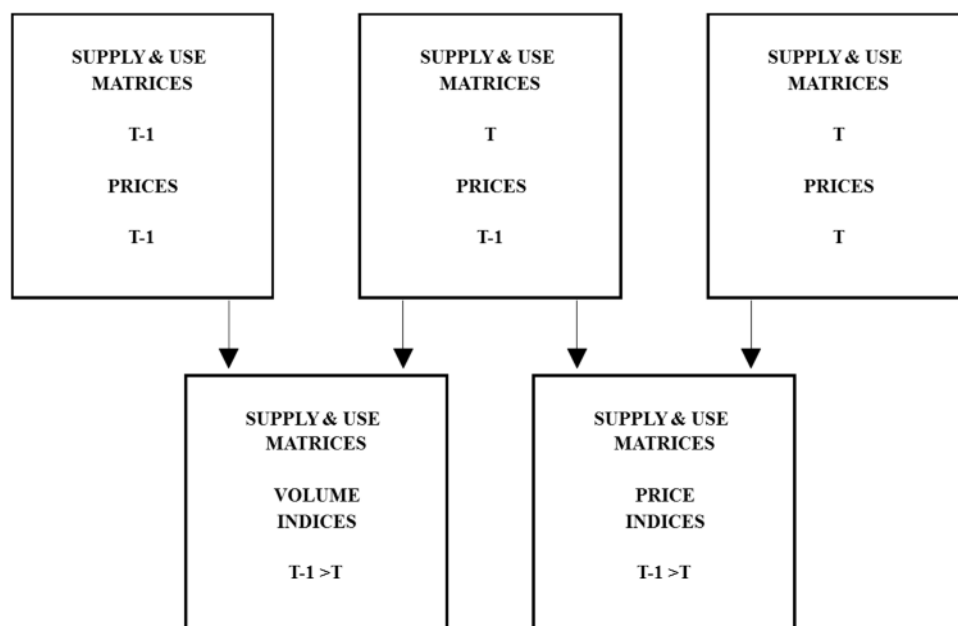
The first step in the process is determining which products should be balanced manually. These products are assigned to a staff member, who has (apart from process managers) the sole authority to alter the data relating to these product groups. The main criteria for balancing a product manually are:

- Large relative discrepancy between demand and supply either in current or constant prices
- Large absolute discrepancy between demand and supply either in current or constant prices
- Large price differences between supply and demand
- Excess of demand (supply) of a product and an excess of supply (demand) in strongly related products.

Whether a difference is considered "large" depends on the type of product, the quality of the data sources and the number of supplying and using industries and expenditure categories. For example supply and demand of manufactured products are much more volatile than supply and demand of most services. For services, a discrepancy will therefore sooner be considered "large" than for manufactured products. Also, for some products, like paper or postal services, the intermediate use is derived from survey questions concerning aggregates of expenses like "office costs" and "other expenses", which cover many products. Therefore, discrepancies can be caused by the fact that the breakdown of such aggregates into sets of products with a similar, general use may initially be wrong and differ from year to year. With this knowledge these sets of products can be balanced automatically more easily than singular products inside these sets.

Subsequently the selected products are balanced manually. Discrepancies between estimates of the supply and use of products are resolved by adjusting elements in either the use or supply table. If a current price figure is adjusted, the consequences for the corresponding values in prices of the previous year and the volume and price indices are examined. A similar procedure takes place in the event of adjustment of volume estimates. This enables the possibility to judge proposed adjustments on plausibility.

**Figure 6.4 Simultaneous balancing of a supply and use table**



The simultaneous balancing of current and volume term data makes it possible to analyse consequences of adjustments on operating surplus and volume change of output in relation to intermediate consumption and value added at the same time; the same holds for adjustments in final demand. If, according to the ‘specialists’, adjustments on value added or final demand in either current prices or volume give implausible results, it will be rejected and alternative resolutions for the discrepancy have to be found. Simultaneous current and constant price balancing may result in different balancing adjustments and thus in different GDP and GNI estimates compared to those resulting from balancing only a current price SUT.

Products that are balanced manually do not necessarily have to be balanced completely. The errors and large problems should be solved, until a minor discrepancy remains which can be resolved using automated balancing. For instance, when an exceptional price change is encountered for a specific user (industry or final expenditure) it is often sufficient to solve only this problem. The remaining inconsistencies in current and constant prices can be resolved automatically.

For the final annual estimate, generally about one third of all products is (partly) balanced manually. The other two thirds and the remaining differences for products that are partly balanced manually, are resolved automatically with the balancing machine.

The balancing machine allows automatic balancing of rows of the SUT. This facility is mainly used to balance minor discrepancies, since the large discrepancies are already solved manually. The balancing machine uses a quadratic optimisation procedure. Apart from the data to be balanced, the program includes:

- A weight per variable: The weights are based on the quality of the used data sources and determine how much each variable can be altered relatively to others. It is also possible to make a variable “exogenous”, meaning that it cannot be altered in the balancing process at all.

- The balancing method assures that general constraints like supply equals demand for each product, or output of an industry equals intermediate consumption plus value added are fulfilled. A further example is a constraint whether variable is allowed to have negative (or positive) values. These types of constraints have to be fulfilled exactly and are called “hard constraints”.
- Specific hard constraints: Examples are constraints that for some (non-market) industries the gross operating surplus must be zero or that the supply of a product by a specific industry must equal the demand by another specific industry. The latter constraints are often derived from information on the input-output structure.
- General “soft” constraints: Soft constraints are constraints that do not have to be fulfilled exactly, but “as good as possible”. Therefore these constraints also have weights, just like the variables. Examples are constraints that prices should be kept intact as much as possible and the volume change of the trade margin on a product should be equal to the volume change of the underlying transactions. A last example is the constraint that the ratio between output and intermediate consumption in volume terms should not be changed too much.
- Specific soft constraints: For some industries, there may be a relation between the output of a product and the input of another product, or there may be “soft” input-output relationships between the output of one industry and the inputs of another.

After the automated balancing machine is finished, GDP according to the production and the expenditure method are equated.

Contrary to what has been discussed above, for the benchmark revision of 2010, all products were balanced manually. The reason for this is that the weights and constraints of the balancing machine are partly the result of experiences of preceding years. With the benchmark revision, all weights and constraints have to be re-examined and revised, based on the state of the art experience of the balancing of the benchmark year. Furthermore, the balancing of 2010 was only done in current prices. Since no corresponding data for 2009 existed, constant prices analysis was pointless.

A consequence of the column-row-column approach is that value added per industry, total imports, exports and other final expenditure categories will be changed in the balancing process. In a number of cases an accumulation of balancing adjustments in one industry or final expenditure category may, for example, lead to ‘unacceptable’ results in terms of large (unaccountable) differences in volume changes of output compared with the volume changes of input for certain industries. Therefore a third step in the balancing process is necessary.

After balancing for each product a small input output table is compiled using the assumption of fixed sales per commodity. This process of constructing IO-tables (IOT) may lead to the detection of inconsistent or implausible results. In such case, data in the supply and use table have to be altered in order to get plausible IO-tables. The most common adjustments made on the supply and use tables in this stage are shifts between the exports from domestic production and re-exports.

### C. Columns: check and ‘repairs’

Since value added and the input structure of industries may be changed in the second step, the plausibility of the balanced results is checked by the branch and final expenditure specialists

If the results are unsatisfactory, the data have to be rebalanced and adjusted (manually). The changes in this stage are generally of minor significance.

#### D. Final Check

When the balancing is completed, the SUT and IOT produce a set of consistent and coherent data of supply and use of goods and services on a detailed level in current prices and in volume terms (including price and volume changes). These results are discussed in a small group process managers and experts that were not directly involved in the compilation of the supply and use tables and IO-tables. Inputs for this discussion are among others:

- Macro-economic results;
- Production, intermediate consumption and value added by industry;
- Expenditures by product (on an aggregated level);
- Revisions in relation to previous estimates;
- Explanations of the most remarkable results;
- Data from the labour accounts: the final check of the SUT is combined with the final check of the labour accounts to ensure optimal plausibility between both sets of accounts.

This discussion may lead to some final adjustments in the SUT, IOT and labour accounts, which bring the SUT compilation process to an end.

#### **6.1.2.4 Specifics of the balancing process**

##### *Three approaches to GDP*

All three methods of estimating GDP (income, production, expenditure) are simultaneously applied in the SUT compilation and balancing process. However, only two out of the three approaches are independent. The production and the income approach are closely interrelated as gross operating surplus is calculated as a residual item. However, important income components such as compensation of employees and mixed income are covered by high quality register data.

For non-market producers, an income approach is followed by convention as output equals sum of costs with a net operating surplus equalling zero. For market producers the production and income method rely on the same data sources such as SBS. As mentioned before, in the balancing process, operating surplus/mixed income is calculated as a residual item, which implies the production income approaches are consistent by definition. Nevertheless when operating surplus /mixed income is considered implausible, adjustments are made either in production, intermediate consumption or in some of the value added components in order to obtain plausible results.

As stated above in fact only two truly independent approaches for GDP estimation are applied in the Dutch SUT: the production (simultaneously with the income approach) and the expenditure approach. In the balancing process, none of the approaches is given

predominance. However, data on production are often considered more reliable than data on intermediate consumption and final expenditure. There are several reasons for this, among which:

- For several industries, total turnover is aligned to administrative VAT data (see chapter 3). Figures on turnover are therefore considered more reliable than other, sample based, data sources.
- Output of industries usually refers to a limited set of products, whereas intermediate consumption consists of a wide range of product groups. It is therefore easier to obtain detailed data on output via surveys (which requires only a few questions) than on intermediate consumption (which requires many questions). Detailed data on intermediate consumption are therefore often derived from more generic cost categories, like “cost of sales” or “cost of services” using assumptions and thus will be of lesser quality.
- With respect to gross fixed capital formation in buildings and dwellings, data obtained from the real estate industry are often not exhaustive. Data on construction industry data are therefore leading.
- For the report (and revision) year 2010 international trade in services statistics were still based on BPM5. Given the sometimes substantive adjustments in relation to strict application of the principle of transfer of ownership in the definition of foreign trade definition this created significant uncertainties.
- Similarly, the international trade in goods statistics follow a cross border registration. Concomitant corrections (moving from a cross-border to an ownership transfer based recording) based on sparse data sources imply that these estimates are more uncertain than those related output estimates.

All arguments basically imply output estimates are generally judged to be more reliable than expenditure data. This does however not mean that no adjustments are made on output, only that they are less frequent and relatively smaller in size. In the balancing process none of the expenditure categories (intermediate and final consumption) is given predominance.

### *Subsequent estimates*

In the Dutch practice three really independent estimates of the SUT are made: the quarterly flash (published at T+45 days), the regular quarterly estimate (published at T+85 days) and the final annual estimate (published at T+30 months). The preliminary annual estimates (T+6 months) strongly relies on the results of the sum of the four the regular quarterly estimates. Likewise, the revised preliminary annual estimate (T+18 months) heavily relies on the preliminary annual estimate. The final annual estimate however, starts from scratch and uses different data sources which were previously not available.

### *Exhaustiveness*

The initial, unbalanced data of SUT whose estimation methods are described in chapters 3, 4, 5 and 7 are already adjusted for exhaustiveness. For illegal activities supply pre-balanced data are directly included in the SUT-estimates. Therefore in the balancing process no further adjustments for exhaustiveness are needed.

### *Revising specific variables*

A number of estimates of the SUT are excluded from adjustment and are treated as exogenous:

- Total taxes and subsidies on products and production by type of tax / subsidy in current prices. This is done because the data from the government administration are judged as highly reliable and to ensure consistency between data from the SUT and EDP. Nevertheless if a tax or subsidy is linked to more than one product the breakdown by product can still be adjusted. This holds both for taxes and subsidies on products and other taxes and subsidies on production. For instance, the distribution of energy taxes over gas and electricity can be revised, as long as total energy tax remains unchanged.
- Government production in current prices. This is done because the data from the government administration are judged as highly reliable and to ensure consistency between data from the SUT and EDP. The breakdown of output into market and non-market will be unadjusted. However, the breakdown of market production by products and of total costs (= total output) by cost components i.e. intermediate consumption (by products) and of value added components can be adjusted. For example, if in the balancing process, other taxes on production are adjusted, intermediate consumption have to be adjusted with a similar amount with the opposite sign in order to ensure a zero net operating surplus and consistency with total production.
- Total government consumption in current prices. This is done because the data from the government administration are judged as highly reliable and to ensure consistency between data from the SUT and EDP. However, government consumption by products may be adjusted in the balancing process.
- Total compensation of employees in current and constant prices. Data are provided by the labour accounts and are based on administrative tax data. In addition some data adjustments are carried out for exhaustiveness (see chapter 4 and 7 for details). Compensation of employees at the industry level as obtained from the labour accounts may however be changed if inconsistencies with other data sources like business statistics are encountered.
- Consumption of fixed capital by industry in current and constant prices. These data are estimated using the Perpetual Inventory Method (PIM, see chapter 4). Since there are conceptual differences with depreciation from the business records, the latter cannot be used. Therefore, no competing data source for consumption of fixed capital exist. However, during the balancing process there is a feedback loop as the inputs for the PIM may change when estimates gross fixed capital formation are adjusted.
- FISIM by industry in current and constant prices. Since FISIM is estimated with a model providing balanced results, there is no reason to adjust these model estimates.
- Pension and insurance services by main category in current and constant prices. These data are estimated within the framework of the sector accounts. A complete data set is available for output, imports, exports, household consumption and intermediate consumption. These data are not modified as no alternative data sources are available. Intermediate consumption by industry may however be changed when implausible estimates emerge.

In a number of cases, there are conceptual relationships between variables which require attention in the balancing process:

- As stated above, supplementary estimates for illegal activities are already balanced before entering the SUT. Any further adjustments in supply cannot be made independently from demand. For example, if household consumption of heroin is adjusted upwards, export must be adjusted downwards (or imports must be adjusted upwards) with the same amount. However in a number of cases illegal output is combined in one product of the SUT with other, legal, output. Adjustments of entries in this product are allowed as long as it is ensured this affects only the legal fragments of these entries.
- In case of non-market production there is a direct relationship between output and final use. For government output no problem will emerge as neither output nor consumption need adjustment. For other non-market produces (mostly of NPISH) this relation must be maintained and thus requires attention. This is especially the case when non-market and market output are combined in the same product of the SUT. Likewise balancing adjustments of entries in this product are possible as long as it is ensured that it concerns the market output only.
- Changes in inventories are directly related to output and intermediate consumption. For example output is often estimated as sales plus changes in inventories of finished goods as these are the variables obtained from the source data. As such, adjustments of changes in inventories are linked to adjustment of output or intermediate consumption. For this reason, adjustments on changes in inventories of finished goods, work in progress and supplies are made rarely and with great caution. Adjustments in inventories could either address errors in output or errors in sales.

#### *Details on manual balancing*

There is a wide variety of causes why discrepancies between supply and demand in the SUT may occur. An exhaustive list of investigations needed to resolve these discrepancies is therefore not possible. Generally speaking, there are four types of investigations:

- Micro-analysis of a single company. Large inconsistencies may relate to shocks in the data as reported by a single company. It will be checked whether all data sources for this company provide a consistent picture, both at the level of total output, exports, GFCG, etc. as at the level of specific products. In this context, the dedicated unit on consistent observation of large and complex enterprises (ConGO) at Statistics Netherlands plays a crucial role in achieving data consistency in relation to the largest and most complex enterprises. The ConGO unit is responsible for data consistency of wide area of statistics addressing the 300 largest Dutch enterprises. Despite the work carried out by the ConGO unit, micro analysis will still be necessary in the process of supply-use balancing because of conceptual differences and differences of ESA 2010 with bookkeeping conventions.
- Investigation of sampling methods. When comparing the results of two or more statistics differences in the population of the underlying samples may on occasion lead to incomparable results after grossing up. If necessary it is investigated whether sampling methods are truly causing this data incomparability. Such problems may particularly occur when examining the data sources of rather heterogeneous industries like “other mining and quarrying”, “other manufacturing” and “other services”.
- Use of external data sources. Most estimates for the SUT are based on data sources by industry or expenditure category. For some products, independent data on a product level are available. Examples are fuel and energy for which data on (volumes of) supply and use

are available. Confrontation of the data in the supply and use tables with this information may lead to balancing adjustments.

- Comparing discrepancies between related products. When an excess of supply (demand) exists for a product and an excess of demand (supply) exists for a strongly related product, this may give reason to transfers of supply or demand between these products. This may for example occur for the intermediate consumption in construction, where in business statistics large parts are reported as “supplies”. The ratio between products can vary substantially from one year to another.

### 6.1.2.5 Results of the balancing process

At the start of the balancing process on the macro level there was a surplus of the use of goods and services over supply. The surplus of demand was concentrated in services and building materials. As generally output is considered more reliable than intermediate consumption, balancing adjustments are made mainly on the use side. In manufacturing and trade the negative balancing adjustments in services are partly compensated because of a surplus of supply in freight brokerage and industrial services. In case of building materials not only intermediate consumption is adjusted, also output is (upwardly) adjusted but to a much lesser extent.

**Table 6.5 Impact of balancing on intermediate consumption**

	%
Agriculture	0,9
Mining and quarrying	2,1
Manufacturing	0,8
Energy	-1,0
Construction	-2,6
Trade	-0,8
Transport	0,4
Accommodation and food services	-1,4
IT and communication	-4,1
Financial services	-1,1
Real estate	-0,2
Business services	-3,3
Government	0,0
Health	-2,6
Other services	-6,2

It is impossible to present exact figures on the impact of the balancing process on GDP estimates because it is impossible to separate adjustments of errors from truly balancing adjustments. A simple approach is to take the values at the start of the balancing process as the data before balancing, and record all adjustments in the balancing process as balancing adjustments. This however leads to an overestimation of balancing adjustments. There are several reasons for this:

- During the balancing process new or improved data sources may become available. This new information may lead to adjustments of the figures.
- During the balancing process, errors in the processing of the source data may be found. These errors are corrected.
- During the balancing process, errors may be found in data sources.

To record the above mentioned corrections as balancing adjustments provides a distorted figure of the latter.

In relation to the process tables, these first two types of corrections mentioned are preferably not to be recorded as balancing adjustments, but instead record the data as if no new data became available or no error was made. Otherwise, the process tables would show an inconsistency in the processing of the data source, combined with a countering balancing adjustment. Although this description is correct when factually observing the process step-by-step, it is no use when explaining the relation between data sources and the final estimates.

In case of errors in data sources it is preferred not to record such corrections as balancing adjustments. Instead, it should be recorded as a data validation in order to distinguish this type of corrections from real balancing adjustments.

As a consequence balancing adjustments as presented in the process tables may contain elements of adjustments from another heading.

In the process tables, the deciding factor for the recording of adjustments is whether, *considering the state of art of the data sources after balancing, it would lead (without using any information from other data sources) to a different initial estimate of the concerning industry or expenditure category*. If so the adjustment is recorded under data validation, if not it is recorded under balancing adjustments.

The results in Table 6.6 to 6.8 are based on this criterion. Only the result from the production and expenditure approaches are shown as the income approach cannot be independently applied from the production approach. Table 6.8 shows the adjustments in to the production approach by industry.

**Table 6.6. Balancing adjustments in the production approach**

	Initial estimate	Balancing	Final estimate
Output of goods and services (at basic prices)	1.177.398	-112	1.177.286
Intermediate consumption (at purchasers' prices )	614.541	-5.012	609.529
Gross value added (at basic prices)	562.857	4.900	567.757
Taxes on products	67.306	0	67.306
Subsidies on products	3.551	0	3.551
<b>Gross domestic product</b>	<b>626.612</b>	<b>4.900</b>	<b>631.512</b>

**Table 6.7. Balancing adjustments in the expenditure approach**

	Initial estimate	Balancing	Final estimate
<b>Total final consumption expenditure</b>	449.754	-12	449.742
Household final consumption expenditure	277.055	139	277.194
NPISH final consumption expenditure	5.467	-151	5.316
General government final consumption expenditure	167.232	0	167.232
<b>Gross capital formation</b>	128.933	24	128.957
Gross fixed capital formation	124.989	-340	124.649
Changes in inventories	3.603	264	3.867
Acquisitions less disposals of valuables	341	100	441
<b>Exports of goods and services</b>	454.509	-111	454.398
goods	360.527	-231	360.296
services	93.982	120	94.102
<b>Imports of goods and services</b>	396.573	5.012	401.585
goods	298.696	1.371	300.067
services	97.877	3.641	101.518
<b>Gross domestic product</b>	636.623	-5.111	631.512

**Table 6.8. Balancing adjustments on value added and GDP, million euros**

		Initial estimate	Balancing	Final estimate
A	Agriculture, forestry and fishing	10.971	-143	10.828
B	Mining and quarrying	16.953	330	17.283
C	Manufacturing	68.202	-1.178	67.024
D	Electricity, gas, steam and air conditioning supply	7.326	-25	7.301
E	Water supply, sewerage, waste management and remediation activities	3.698	-157	3.541
F	Construction	29.280	1.251	30.531
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	74.000	663	74.663
H	Transportation and storage	27.306	-316	26.990
I	Accommodation and food service activities	8.736	83	8.819
J	Information and communication	26.830	1.013	27.843
K	Financial and insurance activities	47.097	625	47.722
L	Real estate activities	31.574	25	31.599
M	Professional, scientific and technical activities	43.968	655	44.623
N	Administrative and support service activities	30.275	336	30.611
O	Public administration and defence; compulsory social security	43.404	0	43.404
P	Education	29.518	53	29.571
Q	Human health and social work activities	49.802	969	50.771
R	Arts, entertainment and recreation	6.938	405	7.343
S	Other service activities	6.554	311	6.865
T	Activities of households as employers	425	0	425
	<b>Total industries</b>	<b>562.857</b>	<b>4.900</b>	<b>567.757</b>
	Taxes on products	67.306	0	67.306
	Subsidies on products	3.551	0	3.551
	<b>Gross domestic product</b>	<b>626.612</b>	<b>4.900</b>	<b>631.512</b>

Providing accurate data on the GDP balancing adjustments over a longer time series is not possible and not meaningful because of at least two reasons:

First, outside of the benchmark revisions, the main goal of GDP estimates is to provide the best possible estimates of volume growth of GDP and its components. As a consequence, balancing adjustments in one year will strongly affect pre-balanced estimates in the subsequent year. Balancing adjustments other than those related to a benchmark revision year would therefore be artificially low.

Second, in order to construct such data for previous years a distinction must be made between corrections addressing errors and corrections addressing “real” balancing. This type information is not available in the databases of the SUT-process and is very hard if not impossible to reconstruct. The background for (large) adjustments is recorded, but on the product level a direct link to the source statistics is not maintained. When looking at a particular reporting year it is possible to explain the backgrounds of an adjustment at the level of a particular product. However, due to the cumulated balancing adjustments in preceding years it is very difficult to obtain an overview of all adjustments in the estimates of a particular industry. Currently, a new (IT) automation system is being developed. This system will support the information provision on whether adjustments are caused by error or are truly related to balancing.

Nevertheless the following general information on the largest balancing adjustments encountered in the past can be presented:

- Generally larger inconsistencies occur rather in goods than in services. The main reason is that supply and use of goods are usually more volatile than that of services. Since balancing adjustments of previous years are often already included in the pre-balancing data, this implies products with small volatility will usually lead to smaller inconsistencies and thus smaller balancing adjustments.
- Within services, the largest balancing differences occur for royalties and licences and intra-company services. These products are large and also quite volatile.
- Within goods, agricultural products, fuel and ships show large inconsistencies. The price volatility of agricultural products is an important cause. In relation to fuel, change in ownership of production sites is a determining factor. A (daughter) company refining crude oil on own account may shift from one year to another to crude oil processing where crude oil and oil products remain under ownership of a (foreign) principal, i.e. mother company. Manufacturing of ships is often arranged via foreign ship yards however under ownership and management of Dutch manufacturers (production abroad). At the same time import and export of ships is sometimes missed in the foreign trade statistics. The ship simply sails out without being recorded in custom's records.
- There are no specific industries for which structurally more balancing adjustments are found than others. If adjustments on output or intermediate consumption are too substantive, the ratio between the volume change of output and intermediate consumption will become implausible. A correction in product is often counterbalanced by an opposite correction in another so that output / intermediate consumption ratios are not disturbed too much. For the benchmark revision however, there were larger differences between industries. The largest adjustments were made for the industries "Construction" and "IT services".
- When looking at final expenditure, the largest adjustments are observed in gross fixed capital formation of construction products and in international trade in goods and services. As explained before, government consumption is not adjusted unless an explicit error is found. And for most products, changes in household consumption are often limited, so that large adjustments there are not regular. Balancing adjustments in inventories are relatively small although larger corrections may be found at the product level.

## **6.2 Other approaches used to validate GDP**

The statistical unit used to compile the institutional sector accounts (ISA) is the institutional unit (enterprise group). This is the unit in which decisions are taken on incurring debt and economic issues and which can independently own goods and other assets. In practice, it is not suitable to provide a detailed description of the production processes of this type of units, as it may be involved in a large number of different activities. For this reason, reference is made to another statistical unit for the description of the production process in the supply and use tables, the (local) kind-of-activity unit (KAU). An institutional unit can therefore comprise several KAU's. Nevertheless production, intermediate consumption are reflected in the ISA on an aggregated level leaving out the product dimension. While the KAU's are grouped by activity in the supply and use tables, institutional units are classified by sector in

the sector accounts.

### *Compilation procedures*

In 2012 a redesign of the production process of the Dutch sector accounts was implemented, after several years of preparation, design, development and testing. A substantial part of the ‘manual work’ is now automated. In the previous process the computer already played an important role but changing figures, during the integration process for example, was executed by hand. In the redesigned process only a limited number of (large) adjustments are executed manually.

A short outline of the production process:

### *Sector data*

Subject matter experts compile a complete dataset (including all required transactions and balance sheet entries) for each (sub)sector of the ISA. This goes for non-financial accounts, financial accounts, other changes in volume and prices of assets and balance sheets. For a number of transactions the datasets also include information on the counterpart. The compilation process consists of the collection of source data, transformation to ESA2010 requirements and codes, analyses and quality assessment of the source data. If necessary the expert contacts the internal or external producer of source data. Subsequently the data are transferred to a database environment (Integration System Sector accounts, ISR) in which the balancing will take place. The number of (sub)sectors distinguished in the balancing system is 25: S.11 (1), S.12 (10), S.13 (11), S.14 (1), S.15 (1) and S.2 (See chapter 9) For each sector a short report on this dataset is placed in a central folder. The report describes the economic situation of the sector concerned (developments, outliers, etc.), and explains changes compared to earlier and previous estimates.

### *Standard adjustments*

With the tool ‘Standard Adjustment Machine’ (SIM) a large number of standard adjustments are executed within the ISR, combined with a comment on the justification/explanation for the adjustment. The adjustments concern choices between sector and counterpart sector information in whom-to-whom matrices. In principle these standard adjustments are executed every reporting period in exactly the same way. Only in case of changes in the source data used, the standard adjustments should be changed. Normally such kinds of changes are carried out during a benchmark revision when newly available source data are implemented in the national accounts.

### *Analysis of large differences*

With the help of a number of standard reports, brought together in the so-called Dashboard, the remaining differences between uses and resources on the transaction level above 500 million euro are judged by a small group of experts. The selected transactions are discussed with the concerning expert(s) and further analysed. The result of additional research is a manual adjustment in ISR, combined with a short comment with the justification/explanation for this specific correction.

### *Remaining differences*

The remaining smaller differences between uses and resources are solved by a tool called 'Balancing Machine', reporting its corrections in ISR. According to a set of rules and weights the sector accounts are made consistent, introducing checks and balances for horizontal budget-identities, whom-to-whom consistencies, and technical relations such as for employer's social contributions.

There is one exception: the budget-identity is not yet met. The vertical statistical discrepancies for each S.12 sector above 500 million euros is analysed and specific adjustments for the budget-identity are made combined with a comment in the ISR. An iterative process is started in which the 'Balancing Machine' solves all differences, including restoring the budget-identity for S.12 and plausibility analyses which may lead to additional modifications for instance reducing discrepancies between the current accounts and the financial accounts for other sectors.

Before each run of the Balancing Machine, the data of SUT transactions (P1 output, P2 intermediate consumption, D11 wages and salaries, D12 employers' social contributions, D29 Other taxes on production, D39 other subsidies on production) are copied from the supply and use database to the Integration System sector accounts. According to dual classification distribution keys these transactions are reallocated from industries to the (sub)sectors.

Also, other SUT transactions (some of them including more detailed categories) are transferred from the supply and use database to the iSR without the dual classification procedure: D21 taxes on products, D31 subsidies on products, P3 final consumption expenditure, P5 gross capital formation, P.51c consumption of fixed capital, P6 exports of goods and services, P7 imports of goods and services, B.1g gross domestic product. The supply-use data are not adjusted in the production process of the sector accounts.

After the Balancing Machine has produced a consistent data set, all (sector and transaction) experts are asked to evaluate the results. For this analysis a set of standard reports are available. If implausibility's are detected, the Balancing Machine is run again, after the inclusion of corrections. After 3 to 4 runs of the Balancing Machine a final, consistent, dataset is available.

### *Evaluation of the figures*

At the start and at the end of the production process a session with all experts is organised to evaluate and discuss the data. The figures of each (sub)sector are displayed on a big screen and plenary examined. For each (sub)sector an expert of another (sub)sector is invited to discuss/examine the figures. At the start the focus is on missing figures and outliers. At the end of the process the focus is on consistency, completeness, plausibility and of course economic interpretation and meaningfulness.

In a special meeting of the project managers of the ISA-process and the product team manager sector accounts, the final results are again evaluated. Any errors or implausibility's encountered in this phase will be followed up by corrections and another run of the Balancing Machine. For this meeting for each sector a short document is prepared. If the figures are accepted, the topics for dissemination in the form of articles are discussed.

The production processes for the quarterly and the provisional annual estimates are practically similar to the description of the final estimates above. However, the following issues are worth mentioning:

#### *No complete new dataset*

The quarterly estimates are the base for the first annual estimate. Between the estimate of the fourth quarter (end of March year  $t+1$ ) and the first (independent) estimate for the provisional year (June  $t+1$ ) only a limited number of new source data become available. So, for this provisional estimate, as well as the following ones in June  $t+2$  and June  $t+3$ , new sector data are only compiled when new information is available. If there is no new information, the previously processed data are used excluding the adjustments made by the Balancing Machine in those previous estimates.

#### *Consistency years and quarters*

After each annual estimate the quarterly figures concerning year rebalanced so they are consistent with the annual figures. For this process an optimization model named 'Quarter Machine' is developed. Actually this model operates just like the Balancing Machine but processes more than one period simultaneously. The Quarter Machine produces consistent quarterly figures both with respect the quarters and the annual estimates. In this process the annual data are leading and remain unadjusted.

#### *Revisions (regular)*

The annual estimates are evaluated in the same way as the quarterly ones. What is different is that the revisions compared to earlier estimates are judged. The first estimate (June year  $t+1$ ) is compared to the sum of the quarterly estimates (March  $t+1$ ). The second and the third annual estimate are compared with the preceding ones.



## CHAPTER 7 OVERVIEW OF THE ALLOWANCES FOR EXHAUSTIVENESS

### 7.0 Introduction

#### 7.0.1 Geographical coverage

The delineation of the Dutch economic territory and the designation of residents are in conformity with the definitions given in ESA 2010, sections 2.04 to 2.11 inclusive.

The territory of the Netherlands has changed in 2010. From 10 October 2010 (10-10-10) onward the Islands Curaçao and St. Maarten are separate countries within the Kingdom of the Netherlands. The other islands of the former Netherlands Antilles, Bonaire, St. Eustatius and Saba, became special municipalities (“Openbare Lichamen”) within the Netherlands. The Netherlands Antilles do not exist anymore from 10-10-10 onward.

From 10-10-10 onwards the Kingdom of the Netherlands consists of four parts:

- The Netherlands, that is the territory of the Kingdom in Europe plus Bonaire, St. Eustatius and Saba as special municipalities;
- Curaçao;
- St. Maarten;
- Aruba.

While a number of matters subject to royal authority, such as defence and foreign relations, are regulated jointly, the four parts enjoy complete autonomy with regard to other ‘national’ matters.

The Dutch economic territory however does not encompass Aruba, Bonaire, Curaçao, St. Maarten, St. Eustatius and Saba, because:

- Under the protocol of 25 March 1957, the Treaty of Rome applies only to the Kingdom in Europe and Netherlands New Guinea;
- By a convention of 13 November 1962, the Netherlands Antilles were incorporated in Annex IV (associated countries and areas) of the Treaty of Rome;
- The European Community is based on a customs union (Article 9 of the Treaty of Rome); ESA 95, section 2.05, refers to the territory benefiting from the free movement of goods;
- Only that part of the territory of the Kingdom lying within Europe forms part of the Community customs area (Directive 2151/84/EC of 23 July 1984).

The above-mentioned is confirmed in Commission Regulation (EC) No 109/2005 of 24 January 2005 on the definition of the economic territory of Member States for the purpose of Council Regulation (EC, Euratom) No 1287/2003 on the harmonisation of gross national income at market prices. In this regulation it is stated that the territory of the Netherlands encompasses ‘the territory of the Kingdom of the Netherlands, with the exception of overseas countries and territories over which it exercises sovereignty, as defined in Annex II of the Treaty establishing the European Community’. In this Annex II Aruba and the Netherlands Antilles are stated.

There are no free trade areas within the Dutch territory. The value added generated in bonded warehouses, as a result of, for instance, storage and duty-free sales at airports, is included in GDP.

The Dutch section of the continental shelf is regarded as part of the economic area of the Netherlands. The extraction of oil and gas that takes place in this area is thus included in Dutch GDP. Inclusion in the statistics is based on the grant of an operating licence.

Territorial enclaves as defined in ESA 2010, section 2.05, relate in particular to Dutch embassies and some barrack areas in NATO partner countries or other countries. Extra-territorial enclaves as defined in ESA 2010, section 2.06, include foreign embassies and consulates and establishments of organisations such as the International Court of Justice, the Permanent Court of Arbitration, the Dutch Reactor Centre, ESTEC, EUROCONTROL, the Organisation for the Prohibition of Chemical Weapons, the International Criminal Court and the NATO.

The Netherlands does not have any deposits situated in international waters outside the Dutch part of the continental shelf that are exploited by resident units.

A point worth mentioning is that, in the province of Noord-Brabant, there are about 30 small Belgian areas that together form the municipality of Baarle-Hertog. These areas in turn enclose two small enclaves, which form part of the Dutch municipality of Baarle-Nassau.

## **7.0.2 General approach to exhaustiveness**

There are various approaches towards generating estimates for the non-observed economy (NOE) (OECD, 2002; Kazemier 2006, Annex 7.3). Macro model methods often draw a lot of attention due to the big numbers they generate, however it is obvious that these estimates have serious shortcomings (Kazemier 2012, annex 7.4). Most notably, their modular approach risks double counting of activities that are already included in national accounts and GDP/GNI-estimates and they are often based on very crude assumptions. Finally, their macro approach makes them less suitable for national accounts usage as detailed information is needed at the industry and product level as found in the Dutch supply use tables (SUT).

The second type of approach is based on discrepancy methods. There various examples of this approach. On the macro level, for instance, one could compare the production, income and/or expenditure approach with each other, and identify possible differences as due to non-observed economy. Similar to macro model methods the lack of detail is a serious drawback of this example. Applied on a more detailed level discrepancy methods might be appropriate.

A third approach is to run surveys. Statistics Netherlands has experimented for several years with conducting surveys on underground activities (Kazemier 2014, annex 7.1). Unfortunately, the survey results appeared to be unreliable due to low response rates and unwillingness of respondents to admit engaging in hidden work (for instance as shown by a specific drop-out pattern). Nevertheless, surveys provided useful information for identification of the scope of non-observed economy i.e. in which sectors do hidden activities occur and for obtaining information on e.g. average remuneration, regarding NOE-activities.

The general approach to exhaustiveness that is followed at Statistics Netherlands can be said to be an activity specific approach. As a first step, a list of activities is compiled which are thought to be (to a certain extent) non-observed. The above mentioned surveys played a role in compiling this list. Secondly, for each activity an estimate of output and intermediate consumption is made, using the most suitable method given available data sources. In the case of illegal activities, supplementary to production side estimates, expenditure side estimates are made, usually by applying commodity flow methods. Examples of used data sources are research reports, administrative data, newspaper articles and internet information. Sometimes,

due to a lack of information, we have to resort to expert judgement. The last step is to translate the estimated non-observed activities into labour inputs. Hereto we use information about average remuneration for specific activities which are derived mostly from the earlier mentioned survey on underground activities. Sometimes proxy wages are used from the industry in which the NOE-activity is occurring. In a second step, the number of hours worked are translated into man-years and the number of man-years is translated into number of jobs (distinguishing self-employed and employees) taking into account the expected average number of hours worked per worker (part-time factor). As a result, consistency is achieved between the production accounts, the institutional sector accounts and the labour accounts.

The estimates of exhaustiveness are in principle annually updated. The precise estimation process depends on the specific activity in question. In most cases the 2010 benchmark estimate is extrapolated based on the development of indicators such as population, prices, or growth rates in specific NACE activities. Parameters used in the activity specific methods such as seizure rates for drugs are usually not revised, due to the absence of reliable and comparable annual data. Methodological revisions as well as the addition of new NOE-activities in principle only occur during benchmark revisions. The production approach is generally considered most exhaustive. In the last 5 years, changes in legislation led to improvements in the exhaustiveness of the general business register. This leads not only to better coverage of business statistics. The improved register also provides a better picture of parts of the economy not covered by (business) statistics, for example in terms of newly available information on the number of units and employees. For a number of industries the initial production data from business statistics are overruled by expenditure side data. For instance, in the case of hairdressers, the consumption estimate of hairdressing services is based upon population data and information from the branch organisation on the number of visits by customers by and prices charged. The reported value in business statistics is adjusted in order to include underground production (see section 7.2.3.1 for more details).

Technically speaking, the estimates for NOE-activities are added to estimates of production and (final) use in the processing stage prior to balancing (see chapter 6 for more details on the compilation processes in the national accounts). An additional mark-up is added or an adjustment to observed data for certain activities is made. This requires that the estimates for non-observed output and intermediate consumption are translated into the required product and industry detail of the Dutch national accounts. It needs to be mentioned that due to the issue of double counting value added of non-observed activities are not necessarily equal to the impact of their inclusion on GDP. Some revenues will already be included in national accounts, for instance, coffee shops (sales of cannabis) are included as statistical units in the general business register and therefore will have (at least) imputed production as a consequence of grossing up samples. Also some expenditures may already be recorded in the accounts under final consumption. Some of these expenses need to be relocated or adjusted for double counting.

## **7.1 Allowances for exhaustiveness in the production approach**

### **7.1.1 Identification of types of non-exhaustiveness (for which adjustments are needed)**

Logically, those NOE estimates already included before the 2010 benchmark revision served as the point of departure of identifying all areas of non-exhaustiveness. This list of already

covered items was supplemented by those activities identified in the surveys (for instance hidden activities in the area of ICT-repair and business services). Finally, several activities were added based on information from newspapers and other background articles. An example of the latter is the increasing use of unregistered taxis (in Dutch: “snorders”) for which an estimate was made. Estimates for exhaustiveness are as much as possible classified tot the N-classes as defined by Eurostat in the tabular approach to exhaustiveness:

- N1: types of non-exhaustiveness for absence because of producers that should have registered but did not (underground producer), for example producers that fail to register in order to avoid tax and social security obligations (often small producers with turnover which exceed the thresholds above which they should register their income);
- N2: types of non-exhaustiveness identified for absence because of illegal producers that fail to register (N2), for example prostitution, drugs and smuggling;
- N3: types of non-exhaustiveness identified for exemption because producers are not obliged to register (N3), for example if they have no market output, these could be non-market household producers involved in a. production of goods for own consumption or for own fixed capital formation, and b. construction of and repairs to dwellings or producers has some market output but it is below the level at which the producer is expected to register as an entrepreneur;
- N4: types of non-exhaustiveness identified for absence because registered legal persons are not included in statistics, for example if business register is out of date or updating procedures are inadequate, the classification (activity, size or geographic codes) are incorrect, the legal person is excluded from survey frame because its size is below a certain threshold;
- N5: types of non-exhaustiveness identified for absence because registered entrepreneurs are not included in statistics, for example the administrative source with lists of registered entrepreneurs may not always pass on complete or up to a date lists to the statistical office or could also be excluded from survey frame because of size threshold or incorrect business register;
- N6: types of non-exhaustiveness identified for evasion because of mis-reporting by producers, for example gross output under-reported, intermediate consumption over-reported in order to evade or reduce income tax, VAT or social security contributions. This often involves the maintenance of two sets of books, payments of envelope salaries which are recorded as intermediate consumption, payments in cash without receipts and VAT fraud. Describe any pattern identified in the area of mis-reporting (for example possible links to company size or to certain activities or a dominance of certain type of misreporting). Explain whether information from fiscal audits and/or information used for employment data has been used to identify potential non-exhaustiveness types;
- N7: types of non-exhaustiveness identified because of statistical deficiencies in data, this could be: i. data that is incomplete, not collected or not directly collectable; ii. data that is incorrectly handled, processed or compiled by statisticians. Examples are handling of non-response, production for own final use by market producers, tips, wages and salaries in kind and secondary activities.

## 7.1.2 Adjustments made for the different types of non-exhaustiveness

Table 7.1 provides an overview of the various kinds of exhaustiveness that were identified and provided with supplementary estimates in the 2010 ESA revision. Their classification into the above mentioned N-classes proved not straightforward as some of the N-classes seemingly overlap and may be subject to interpretation. As a general rule in this inventory, under N1 allowances due to turnover fraud are reported for example in the cases of car repair and hairdressers. Also adjustments for double counting of units in certain areas are recorded

**Table 7.1 Overview of estimates made for exhaustiveness (by activity, type, industry and transaction)**

Activity	Type	ISIC	Production	Int. Cons.	Value added
			mln	mln	mln
House renovations and maintenance	N1	41, 43	1.535	563	972
Car repair and maintenance	N1	45	151	75	76
Food/beverage service activities	N1	56	204	105	99
Temporary employment mediation	N1	78	565	125	440
Hairdressers and landscaping	N1	81, 96	418	111	307
Double counting units	N1	85, 94	-1.667	-891	-776
Missing units in GBR	N1	63, 64	355	-850	1.205
Other	N1	multiple	264	19	245
<b>Subtotal</b>	<b>N1</b>		1.825	-743	2.568
Cannabis	N2	12, 56	1.417	378	1.039
Drugs (e.g. XTC, heroin/cocaine)	N2	21, 47	474	54	420
Smuggling cigarettes and fencing	N2	47	399	4	395
Illegal copying and gambling	N2	59, 92	267	23	244
Prostitution	N2	96	861	321	540
Adjustment double counting			-365	-127	-238
<b>Subtotal</b>	<b>N2</b>		3.053	653	2.400
Own account construction	N3	41	403	172	231
Cleaning houses and buildings	N3	81	1.437	0	1.437
Babysitters and childcare	N3	88	751	0	751
Other	N3		93	10	83
<b>Subtotal</b>	<b>N3</b>		2.684	182	2.502
Costfraud	N6	multiple	0	-746	746
<b>Subtotal</b>	<b>N6</b>		0	-746	746
Tips	N7	49, 55, 56, 96	470	0	470
Income in kind	N7	multiple	196	-5.890	6.086
<b>Subtotal</b>	<b>N7</b>		666	-5.890	6.556
<b>Total</b>			<b>8.228</b>	<b>-6.544</b>	<b>14.772</b>

under this heading. N2 concerns illegal activities while N3 covers production by non-registered producers like baby sitters and house cleaners. N6 concerns mainly allowances for cost fraud i.e. using goods and services paid by the enterprise for private purposes, for instance the use of cell phones. Estimates for tips and income in kind are reported under N7.

Other items classed under N7 are production for own final use by market producers and correction for partial non-response and secondary activities are already included in the source data and are therefore not reported under N7. The classes N4 and N5 are not applicable for the Netherlands as the SBR is up to date and SBS and other statistics concerning SBS-type variables are always grossed up in order to fully cover the entire population. Grossing up is either done using administrative data (VAT, wage tax) or using population data in combination with stratified sampling.

Total estimates for exhaustiveness amount to 14.8 billion euro in GVA which is equivalent to an upward adjustment of 2.6 per cent of GVA of the Dutch economy (2.3 per cent of GDP).

Table 7.1 shows that the largest adjustments are for N7, followed by N1 and N3. Within N1, the largest estimates are for house renovations and maintenance, employment agencies, hairdressing and landscaping. Double inclusion of units in source data accounts for a large negative entry in N1. The total estimate for value added due to underground activities

**Table 7.2 Exhaustiveness method per activity**

Activity	Type
House renovations and maintenance	N1 research reports
Car repair and maintenance	N1 research reports and expert judgement
Food/beverage service activities	N1 research reports and expert judgement
Temporary employment mediation	N1 research reports
Hairdressers and landscaping	N1 discrepancy analysis
Double counting units	N1 administrative data
Missing units in GBR	N1 administrative data
Other	N1 various, mostly research reports and expert judgement
Cannabis	N2 supply-use method
Drugs (e.g. XTC, heroin/cocaine)	N2 commodity flow method
Smuggling cigarettes and fencing	N2 supply based method
Illegal copying and gambling	N2 demand based method
Prostitution	N2 supply use method
Adjustment double counting	expert judgement
Own account construction	N3 administrative data and research reports
Cleaning houses and buildings	N3 research reports
Babysitters and childcare	N3 research reports
Other	N3 various, mostly research reports and expert judgement
Costfraud	N6 expert judgement
Tips	N7 various, mostly research reports and expert judgement
Income in kind	N7 administrative data and expert judgement

amounts to 2.6 billion euros in 2010. Concerning illegal activities – N2 – cannabis production and trade are the largest components, followed by heroin/cocaine trafficking. The total

upward adjustment to value added due to illegal activities is 2.6 billion euros (2.4 billion euros after corrections for double counting). Within N3, the largest adjustment is for the cleaning of houses.

The revision had significant implications for the labor accounts. Before the benchmark revision of 2010, estimates for underground activities and white spots were not fully harmonized with the Dutch labor accounts. The harmonization led to an increase of the number of self-employed workers by 95 thousand man-years. Another 155 thousand jobs are due to the inclusion of babysitters and child-minders and an additional 24 thousand jobs are the result of the inclusion of a job estimate for construction on own account. The inclusion of illegal activities caused another 29 thousand additional jobs (21 thousand man-years).

As a result, the number of jobs for self-employed workers rises due to the revision by 598 thousand, or 45 per cent. Converted to working years, the increase is smaller, but still substantial at 273 thousand full time equivalents or an increase of 33 per cent. The total number of hours worked by self-employed workers has been adjusted upwardly by 25 per cent.

Table 7.2 gives an overview of sources and methods applied in estimating missing parts of the economy per activity and type.

Finally table 7.3 gives the absolute value of each source and method for estimating NOE, together with the contribution to the total estimate for exhaustiveness.

**Table 7.3 Share of the method in total value of exhaustiveness method**

	million	%
research reports	3.600	24
research reports and expert judgement	175	1
discrepancy analysis	307	2
Administrative data	429	3
various, mostly research reports and expert judgement	798	5
supply-use method	1.579	11
commodity flow method	420	3
demand based method	639	4
Expert judgement	508	3
administrative data and research reports	231	2
administrative data and expert judgement	6.086	41
Total	14.772	100

### 7.1.3 Exhaustiveness methods

This section provides brief information about the methods used for estimating the various elements based on the report provided as annex 7.2.

### 7.1.3.1 Methodological description of adjustments for N1 elements

#### *House renovations (large-scale maintenance), small-scale maintenance*

According to a Dutch research report (SEOR 2004)<sup>21</sup> on informal activities in house renovations commissioned by households, 30 per cent of jobs are organized outside the regular market. The Dutch branch organization of dwelling owners (Vereniging Eigen Huis (VEH) 2011) provides information on average costs on major maintenance for 2010. Based on this information an estimate is made for the value of output.

Regarding small-scale maintenance, information was used from the most recent Dutch household budget survey on expenses on minor maintenance (painting etc.) from 2007. Information is extrapolated based on the development of the number of households and a price index.

The estimate for exhaustiveness of 1535 million euro in construction (see table 7.1) consists of two parts: (1) House renovations and maintenance excluding painting and decoration 1292 million euro and (2) Painting and decoration 244 million euro. (Due to rounding the figures do not add up to 1535)

#### *(i) Estimation method for house renovations and maintenance excluding painting and decoration*

It is assumed that informal renovation and maintenance excluding painting and decoration only takes place in owner occupied dwellings. From the a report by the branch organisation of dwelling owners (Vereniging eigen huis, 2011) data are available on the average amount per dwelling spent on maintenance (1700 euro) and renovations (996 euro). Together with 4.185 thousand owner occupied dwelling results a total amount 11.283 billion euros for renovation and maintenance of owner occupied dwellings. However not all renovation and maintenance will be carried out in the informal economy or is not part of construction. To be deducted:

- Central heating

400.000 systems per year with a price of 2380 euro: 952 million euros

Remains: 10.331 million euros

- Collective expenses on renovation and maintenance by owner occupiers of (blocks of) apartments:

14.7 per cent of owner occupied dwellings are apartments:  $0.147 \times 10,331 = 1519$  million euros

- maintenance of the garden:

5.7 per cent of owner occupiers spend on the average 750 euros per year on maintenance of the garden (by a gardener):  $0.057 \times 4,185,000 \times 750 = 179$  million euros

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<sup>21</sup> SEOR 2004, De markt voor persoonlijke dienstverlening (in opdracht van het Ministerie van SZW) (Market for personal services, on assignment of the Ministry of social affairs), Vereniging Eigen Huis (2011) Woonpeil, augustus 2011.

- raw material and supplies for renovation of kitchens:

243,000 kitchen renovations per year with a price (of materials) of 10,610 results in: 2578 million euros

- raw material and supplies for renovation of bathrooms: 1750 million euros

Remains:  $10.0331 - 1519 - 179 - 2578 - 1700 = 4305$

Based on the report by SEO 30 per cent of this output concerns informal activities, i.e. 1292 million euros.

#### *(ii) Estimation method for painting and decoration*

Based on HBS data of 2007 the average expenses on painting and decoration were 140 euro per household per year. If this amount 25 per cent concerns materials and supplies leaving 105 euro for 'labour costs'. Based on the SEO-report 30 per cent of the expenses will be informal, i.e. 31.50 euro. Inflating this amount with the CPI results in an estimate for 2010 of 33.10 euro.

The number of households in 2010 amounted: 7.386 million. Combined with the average expenses per household a total estimate of 244 million euro results for informal painting and decoration.

Estimates for intermediate consumption are made assuming that the ratio of intermediate consumption to production is identical to that found in the (official) construction sector.

#### *Repair and maintenance of person cars and motorbikes*

Point of departure is the motor vehicle fleet (person cars and motorcycles ) in the Netherlands. It is assumed that lease cars or company owned cars are not subject to repair and-or maintenance in the hidden economy. Moreover, we assume that motor vehicles under 5 years old will in all likelihood also not be repaired in the hidden economy due to for instance factory warranties and the durability of today's new cars. For 2010, approximately 5.3 million person cars and 0.6 million motorbikes may be subject to informal maintenance. The assumption is made that the price of annual maintenance and/or repair in the hidden circuit amounts to 65 per cent of the price in official car repair.

Regarding maintenance costs, the estimate is based on an assumption on the percentage of car and motorcycle fleet that are treated in the hidden economy broken down by age of the car (ranging between 4 and 8 per cent). Also a correction is made for the fact that not every owner will do proper annual maintenance. Depending on the age of the car the frequency ranges from a bit less than 1.5 year for most recent cars to once per ten years for the old timers. For motorbikes the estimate for hidden repair amounts to 2 million euros. For person cars the estimate is 87 million euros

Likewise, an estimate for repairs is made based on the number of insurance claims per year and the average damage, based on the annual report of the branch organization (FOCWA), in combination with an assumed percentage of cars and motorbikes (which may differ between years) that is repaired in the hidden economy ranging from 6 to 10 per cent. With a number of damages of 64 thousand for motorbikes and 705 thousand for person cars the estimates for hidden repairs amount to 4 respectively 5.8 per cent for 2010. The total estimate for hidden

output in repair and maintenance of person cars and motorbikes amounts to 151 million euros for 2010.

Estimates for intermediate consumption are obtained assuming the same ratio of intermediate consumption to production as found in the official sector.

### *Hairdressers*

For hairdressers a discrepancy analysis is used, comparing the reported revenues from the business survey with an estimated theoretical revenue. The latter is based on a number of assumptions: it is assumed that 10 per cent of the population does not frequent a hairdresser. Furthermore, information from the branch organization on the number of visits by gender and age category and average prices is used. The theoretical value was used as the output estimate. Intermediate consumption was estimated using its share in output from business statistics.

### *Food and beverage service activities*

Essentially the method consists of using a mark-up of 3 per cent of legal production for selected activities. This is a continuation of the method as introduced at the 2001 benchmark revision (Statistics Netherlands 2008). The main difference is that no longer estimates are made for restaurants as we assume that most payments occurs electronically and there is less possibility for hidden transactions.

### *Landscaping*

Before the 2010 benchmark revision, no estimate for underground activity in landscaping was included in the national accounts, however based on the results from the survey on hidden activities it was decided that an estimate was warranted. The approach is to add a mark-up of 5 per cent to the output reported in the business survey of landscaping services (i.e. excluding by-products from this sector). The 5 per cent is based on the assumption that 50 per cent of landscapers engage in hidden activities for one day a week, during half a year. Intermediate consumption was estimated based on business survey data, taking into account that some of the (maintenance) costs will be borne by the employer as equipment is likely to be borrowed.

### *Illegal temporary employment through employment agencies*

For this activity the demarcation underground / illegal proves to be difficult. Kazemier et al. (2012) include this estimate in the illegal sector, but given that an estimate for this activity was already included in the 2001 benchmark revision, it is subsumed here under the underground sector. The estimate is based on the number of mediated illegal man-years and an average margin (going back to Smekens and Verbruggen (2005), the information is obtained from various research reports e.g. Zuidam and Grijpstra -2004). It is assumed that these mediated workers are employed by these agencies and the height of their salaries is assumed to be equal to the average of observed agencies. It seems likely that companies do not know who they are hiring. They prefer paying a fee to the intermediary who subsequently pays wages to the employees.

### *Double counting units*

When calculating the output of (private) education and social organisations it became apparent that data for a number of units were already included in the estimates of government. Double counting is avoided by making a (negative) adjustment.

### *Missing units in SBR*

In estimating IT-services and the output of special purpose entities it became apparent that units were missing as they appeared in the administrative data from wage tax declarations. Based on the wages and additional estimate for production, intermediate consumption and value added was made. Intermediate consumption of NACE 65 is substantively adjusted as (supporting) business units are not included in the main source DRA, while at the same time the source data include a substantial amount of intermediate consumption of services provided by these supporting entities. As these supporting business units are part of the unit of observation, intra unit deliveries should not be recorded and transactions should be consolidated within NACE 65. As a consequence intermediate consumption is decreased by 890 million and value added (compensation of employees) is increased by the same amount.

### *Other*

There is a range of other activities for which estimates concerning underground activities were included in the 2010 revision but whose impact on value added is relatively small textiles; wholesale; collection and sale of metal waste; unregistered taxis; ICT-repair, business support activities and activities in the entertainment sector (e.g. music bands and guides).

## **7.1.3.2 Methodological description of adjustments for N2 elements**

Activities are qualified as illegal when related output, sales or possession of related inventories of goods is forbidden by law. Mostly these activities are also not declared to the tax authorities. Those illegal activities included in estimations of Statistics Netherlands are (i) the production and sales of drugs (further specified into cannabis, heroin/cocaine and XTC), (ii) prostitution, (iii) smuggling of cigarettes, (iv) fencing, (v) illegal copying of software, movies or films, (vi) illegal gambling and (vii) illegal employment by employment agencies (see section 7.2.3.1 for details on this particular item) .

In the Netherlands not all of these activities are entirely illegal. Prostitution is under certain conditions legal and may to some extent already be included in the National Accounts. In the approach followed the entire prostitution sector is estimated and adjusted for those parts that are assumingly covered in the national accounts via regular sources. Also for cannabis the rules are less obvious as the possession and use of the drug is tolerated. Coffee shops can sell cannabis up to certain amounts a day, but the production and the purchase of cannabis by coffee shops is still illegal. Also for this activity initially the entire sector is estimated. The method distinguishes between the production of cannabis and its subsequent sale.

Each of the illegal estimates require a specific methodology to estimate value added. Because of the nature of these activities, information is hard to obtain and very circumstantial.

### *Prostitution*

For the estimation of prostitution services a supply side approach is being used described in detail in Kazemier et al. (annex 7.4). Domestic turnover of prostitution services is estimated as the number of prostitutes times the number of clients per week, the price per visit and the number of working weeks in a year. Estimates on the average number of contacts per prostitute per week and average prices are based on several research studies, with the latest available data stemming from 2008.

Due to data limitations no annual breakdown for different types of prostitution is made. The data also do not allow to exclude prostitution services performed without mutual agreement, for instance in case of forced prostitution. A one-time exercise applying a stratification method provided similar results as is shown in table 7.4.

**Table 7.4. Estimates for prostitution applying the stratification method**

	Number	Price	Number of clients per week	Number of weeks	Production (million euros)
<b>Street</b>	1.250	25	20	40	25
<b>Window</b>	5.000	50	20	40	200
<b>Clubs</b>	11.250	125	15	35	738
<b>Home</b>	1.250	50	10	30	19
<b>escort</b>	3.750	500	2	20	75
<b>Other</b>	2.500	20	20	40	40
<b>Total</b>	25.000				1.097

The stratification is based on data of the number of prostitutes in 1999. The exercise results in an average price in case of 20 clients per week for 40 weeks a year for 55 euros per client. The figure includes both domestic production and ‘imports of services’ The present estimate of the prostitution market’s output for the benchmark 2010 amounts to 1056 million euros (861 domestic production, 195 imports of services). The impact on the estimate of value added of applying an average price of 55 euros would be around 30 million euros. However, because of the limited and incidental availability of data and the level of detail needed, the method described in the paper on illegal activities is preferred over the stratification method in order to have a simple, transparent and robust method for extrapolating benchmark estimates to time series.

Estimates on the share of intermediate consumption stem from earlier work by Statistics Netherlands and were based on expert estimates. The intermediate costs of prostitutes cover the use of condoms and clothing and transportation costs in case of escorts. Adjustments on consumption of households are made by reallocating a part to intermediate consumption. Half of the turnover of the prostitutes is assumed to be paid to the managers of which half is assumed to consist of intermediate consumption.

Many prostitutes in the Netherlands are non-residents. Increased international mobility has led

to an increase in non-resident prostitutes, especially after the recent accessions of new countries to the European Union. Based on various studies (see annex 7.4) it was assumed that one-third of total turnover in 1999 could be considered as imports. Because of the expansions of the EU in 2004 and 2007, this share is assumed to be 35 per cent since 2004 and 37 per cent since 2007.

The share of prostitution services consumed by non-residents is estimated based on several research studies and treated as export. The calculations differentiate between Amsterdam (50%) and the rest of the Netherlands (10%) which receives a far smaller share of tourists consuming prostitution services. The consumption of prostitution services by Dutch residents abroad is assumed to be negligible.

No corrections are made for the share of income generated and transferred abroad as most prostitutes from abroad are classified as non-residents in the national accounts working less than one year at a stretch in the Netherlands.

Extrapolations are made based on the development of the male population aged 15-65. Prices are assumed to increase with the consumer price index, except for 2002, for which due to the introduction of the euro an additional price increase of about 10 per cent is assumed.

### *Drugs*

The applied method in the Netherlands makes separate estimates for the production of drugs (cannabis and XTC/amphetamines) and the trafficking of drugs for which no production in the Netherlands takes place (heroin and cocaine) – more details can be found in annex 7.4. In the estimation methods a combination of demand and supply side based approaches is used. Domestic consumption is estimated by combining the number of users, the average quantity used and street price. The method distinguishes between type of drug (heroin/cocaine, cannabis, XTC/amphetamine), and in case of heroin/cocaine type of user (distinction between heavy addicts that have a known long addiction (in case of heroin) and other (recreational) users). For imports, exports and domestic consumption of hard drugs (heroin/cocaine), the price information is gathered from the World Drug Report (UNODC). In case of cannabis, price information is obtained from Trimbos Institute, using a weighted average for the different kinds of weed (and hash) that are being sold. Prices for XTC are obtained from a monitoring report published by the Dutch police.

Production is estimated using (assumed) seizure rates on XTC-laboratories and cannabis plantations. Data on seizures comes from the European Monitoring Centre for Drugs and Drug Addiction. For the estimation of seizure rates a 5 year moving average is used. The seizure rate in these estimates is however quite influential and the sparse information that exist is often not very up-to-date. For heroin/cocaine the domestic consumption has to be covered entirely by imports and the remainder is considered re-exports. It is assumed that the share of non-residents active in the trafficking of drugs is negligible.

The share of intermediate consumption is mostly based on expert estimates as no data sources are available. For cannabis a distinction is made between production of cannabis and retail trade of cannabis through coffee shops.

Estimates are calculated annually, based on a range of data sources. For instance, the number of users, by types of drugs, is taken from the Trimbos Institute, which is a center of expertise on mental health and addiction in the Netherlands. Extrapolation occurs in case of cannabis based on the development of the population age 15-45, whereas in case of other drugs this is based on extrapolation of age 15-65.

### *Smuggling of alcohol and tobacco*

Differences in excise duties between countries are a major cause of smuggling of tobacco products. Duties in the Netherlands are comparatively low so cigarette smuggling is not all that prevalent (see annex 7.4). In estimating smuggling a supply side approach is being used in which imports are estimated based on information about total seizure, the detection or seizure rate, and price information. The street price is assumed to be a fixed percentage (50%) of the legal sale price of cigarettes. Data about seizures are obtained from the Ministry of Finance. To smooth incidental fluctuations a 3-years moving average is being used. An expert assumption is made concerning the detection rate. Data availability does not allow compilation of an independent demand estimate. As the domestic production of illicit cigarettes is negligible, exports are estimated as imports minus domestic consumption.

Based on data from Dutch customs about the share of illicit cigarettes destined for the Dutch market in combination with information from various research studies, it is assumed that the domestic consumption of illicit cigarettes is a certain percentage of total consumption of cigarettes. This percentage varies depending on changing circumstances. The total consumption of cigarettes is the product of the consumption of cigarettes per capita and the size of the Dutch population. The estimated smuggling figures do not take direct imports by households into account, only organised transport. The former will partly be covered in import of services in the item consumption residents abroad (for example tax free shopping in airports).

Based on several research reports, the import price is assumed to be a certain percentage (15%) of the street price of illicit cigarettes. A similar assumption holds for export prices which are assumed to be 50 per cent of street prices. The percentages are allowed to fluctuate between the years taking specific information into account. For instance, most of the illegal imports originated from China and the former Warsaw Pact countries where cigarettes cost about 70 per cent less than in the Netherlands. After 2000 the smuggling from China fell sharply due to increased investigations by the Chinese authorities. These illegal imports were replaced by imports from a wide variety of other countries and the import of imitation cigarettes.

**Table 7.5 product balances for illegal activities**

	Supply					Use			
	Domestic output	Imports	Trade margins	Total supply		Intermediate consumption	Consumption of households	Exports	Total use
	million euros								
Cannabis	1.178	140	239	1.557		20	504	1.033	1.557
Drugs (e.g. XTC, herion, cocaine)	128	694	346	1.168			241	927	1.168
Smuggling cigarettes and fencing	282	21	117	420			156	264	420
Illegal copying and gambling	267	137		404			404		404
Prostitution	861	195		1.056			1.056		1.056
Total	2.716	1.187	702	4.605		20	2.361	2.224	4.605

Note: Production in table 7.1 equals the sum domestic output and trade margins in table 7.5

As no information is available on the costs of transport and storage these costs are assumed to be 10 per cent of trade margins similar to illicit drugs.

For annually updating the estimation of smuggling of cigarettes the main variables (i.e. the number of households, the consumption of cigarettes, the consumer price index of cigarettes and the seizures of cigarettes) are annually available.

Estimates on illegal activities from the production point of view are summarized in table 7.1. In table 7.5 the product balances are given.

Part of the purchases of households are actually used for the production of illegal goods and services and therefore have to be transferred to intermediate consumption. This mainly concerns (parts of) intermediate consumption linked to cannabis and prostitution. As a consequence consumption of households adjusted downward by 876 million euros.

### **7.1.3.3 Methodological description of adjustments for N3 elements**

#### *Own account construction*

The estimate for own-account construction is based on a report of the Economic Institute for Construction industry (EIB)<sup>22</sup> dating from September 2004. This report presents the results of a research project concerning own-account construction. For a large number of construction projects for which a building permit was given the EIB investigated whether the project was carried out in own-account or by a construction enterprise. Of all construction projects in which a non-government unit is the principal, 27 per cent was carried out on own account. Combining this percentage with the total production of dwellings derived from statistics on permits for construction, a total amount for own account construction is estimated. Because the underlying population consists of enterprises and private persons (households) an additional step is necessary to make split between these two. The EIB-reports states that 86 per cent of own accounts construction is carried out by households. This results in an estimate of 403 million euros for own account construction. Intermediate consumption is estimates using the existing ratio of intermediate consumption and output.

#### *Home renovations and maintenance*

The SEOR report of 2004 shows that 30 per cent of renovations and maintenance of owner occupied dwellings is carried out in the informal economy. Based on the latest available household budget survey containing data on (large) maintenance of owner occupied dwellings an estimate can be made of (large) maintenance (average per dwelling). A similar estimate is made based on data of the Vereniging Eigen Huis (VEH 2011). Keeping account of price changes the two estimates were in line. For the estimate of 2010 the average amount spent on (large) maintenance of owner occupied dwellings resulting from the budget survey of 2004 was extrapolated using the consumer price index and multiplied by the number of households owning a dwelling. A total estimate of 1.535 million resulted. Intermediate consumption is estimates using the existing ratio of intermediate consumption and output.

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<sup>22</sup> EIB, Drs. E Lourens September 2004, Bouwen in eigen beheer en onrechtmatige bedrijfsuitoefening in 2003 (Own-account Construction en illegal/black Construction in 2003)

### *Cleaning (buildings and houses)*

The estimates for cleaning houses are based on the approach followed by SEOR (2004). Based on this report the number of households consuming cleaning services is assumed to be 17 per cent of total. The average number of hours worked is 3.4 and average wage rate is about 8.30 euros. A distinction is made between formal (30 per cent) and informal activities (70 per cent), where the latter are defined as cleaning not undertaken by companies or institutes. The 2004 estimate is extrapolated to 2010 based on the developments of the number of households and a price index.

For the annual extrapolation of the 2004 estimate a volume and price indicator is applied:

$$X_t = X_{t-1} * V_t * P_t$$

Where:

$X_t$  = estimate for year t

$V_t$  = volume indicator for year t

$P_t$  = price indicator for year t

In this extrapolation method the number of households in the Netherlands is used as volume indicator. The consumer price index is used as price indicator.

The labor inputs are estimated based on the assumption that a cleaning person on average has 3 clients, resulting in 288 thousand jobs.

Likewise an estimate is made for informal cleaning of buildings of companies. Here we assume that only small companies make use of 'underground' cleaning. This corresponds to about 790 thousand units. We use the same tariff as for house cleaning and assume this requires on average 1 day labour a week.

### *Babysitters and childcare*

For estimating childcare distinction is made between children aged 0-3 and aged 4-12 as in the Netherlands children enroll in elementary school when they turn 4. Starting point is the number of children in those age categories. Statistics on the use of childcare by households published by CBS provide the percentage of households that use childcare in mentioned age categories with which the relevant population for childcare is estimated. The average number of hours per week and hourly rates are derived from a research report of SEOR 2004. The number of hours is kept fixed over time. The hourly rates are inflated using the consumer price index.

It is assumed that childcare is used 52 weeks per year. The CBS-data childcare also provides a breakdown into formal, informal and unpaid child care. The SEOR-reports shows that unpaid childcare is mainly done by relatives (e.g. grandparents) and seen as a voluntary activity and thus not taken into account in the estimates for exhaustiveness. The informal paid childcare accounts for 16 per cent of total childcare in the age category 0-3 and 13 per cent in the age category 4-12. For 2010 an estimate of 711 million euro resulted for informal paid childcare.

Next to child care an estimate has to be made for paid babysitting. According the research by the national institute for family finance information (NIBUD) among pupils and students 5 per cent in the age of 12, 10 per cent in the age of 13-14, 15 per cent in the age of 15-16 and 13 per cent in the age of 17-18 has a job as a babysitter. This results in round about 80.000

pupils and students babysitting. On the average the hourly rates amount 3,25 euros. Assuming babysitting for 3 hours per week and 52 weeks per year results in an estimate of 40 million euros.

Regarding the corresponding labour inputs, in 2010 about 75 thousand parents were using host parents', and according to Nibud (National Institute for Family Finance Information), about 80 thousands high school students sometimes work as a babysitter.

In addition, there is a range of other activities for which additional estimates have been included in the 2010 revision but whose effect on value added is relatively small among others kitchen gardens, the delivery of newspapers or (advertisement) leaflets, music lessons and tutoring

#### **7.1.3.4 Methodological description of adjustments for N6 elements**

##### *Cost fraud*

Cost fraud is assumed only to occur in small enterprises having less than 10 employees. Further it is assumed that a certain percentage of the cost items mentioned here can be attributed to cost fraud: costs of transport: 2 per cent, sales costs: 2 per cent, costs of communication: 5 per cent, other general costs: 5 per cent. Applying these assumptions lead to an estimate for cost fraud of 746 million euros.

From a production perspective cost fraud is visible as an adjustment on intermediate consumption (see item N6 in the process table of chapter 3). From an expenditure perspective an additional estimate for consumption of households of 746 is made (see item N6 in the process table chapter 5).

#### **7.1.3.5 Methodological description of adjustments for N7 elements**

Dutch estimates for N7-elements concern income in kind and tips. Other items of exhaustiveness headed under N7 such as production for own final use and partial nonresponse and secondary activities are already covered in the source data e.g. business surveys and are therefore not reported under N7.

There is in general a lack of data on tips and so it is necessary to rely to a large extent on expert guesses.

Research showed that about 75 per cent of taxi services concern pre-arranged trips, for which it is unlikely that a significant amount of tips is being received. For the remaining 25 per cent we assume an average tipping rate of 5 per cent. The resulting value is augmented with 10 per cent to take into account tips for pre-arranged trips.

Tips for hairdressers are estimated as 2 per cent of the production value reported in the business survey. This is in fact a continuation of the assumptions made during the previous revision (Statistics Netherlands 2008).

Tips restaurants, bars and hotels are estimated as 4 per cent of the production value reported in the business survey, while for hotels 1 per cent is used reflecting the fact that more frequent use is made of electronic payment. This is in fact a continuation of the assumptions made during the previous revision (Statistics Netherlands 2008). A confrontation was however

made by comparing the resulting value with the reported value for a fundraising event in which all tips obtained during one evening were donated (in Dutch: “Nacht van de Fooi”), showing the estimates were in line.

### *Income in kind*

Compensation of employees includes wages and salaries in kind resulting both from (additional) output and intermediate consumption. Wages and salaries in kind exclude expenditure that benefits the employer because it is necessary for the production process, such as business travel expenses. However, the meals enjoyed during the business travel are not part of this exclusion. The reason is that the corresponding meal at home is saved by the employee. The exclusions, besides the business travel expenses the expenditure for clothing used mainly at work is another example, are not treated as wages and salaries in kind, but are part of the intermediate consumption in the production process concerned. For more details on the estimates of income in kind reference is made to chapter 4.

The impact of income in kind on production and intermediate consumption presented in table 7.1 differ from the estimates in chapter 4. In case of production only estimates for free traveling and interest discounts with insurance are included, because in the compilation of FISIM implicitly includes income in kind for banking, tips already included. Neither do all items concerning wages in kind from chapter 4 (company car: 4.135, untaxed benefits: 301, wages in kind: 1.393) need to be adjusted on intermediate consumption. Part of the not taxed benefits are not within the production boundary and thus do not have a counterpart in the supply use table (111 million euros).

From a production perspective total income in kind is estimated at 6.086 million euros of which 196 million due to imputed production. The remaining 5.890 million euros is adjusted on intermediate consumption allocated to wages in kind (5.718 million) and ‘income in kind’ of own account workers as part of mixed income (172 million).

From an expenditure perspective an additional estimate for consumption of households is made of 6274 million euros (see item N7 in the process table in chapter 5). This amount consists of the adjustment in intermediate consumption of 5.890 million, the adjustment of output of 196 million and the implicitly included wages in kind of government of 188 million.

### **7.1.3.6. Double counting and plausibility checks**

#### *Double counting*

Value added estimated for non-observed activities may not be equal to their impact on GDP due to the issue of double counting. Some revenues may already be included in the national accounts. For instance, coffee shops (sales of cannabis) are included as statistical units in the general business register and therefore will have (at least) an imputed production as a consequence of grossing up samples. Also some expenditures may already be recorded in the accounts for instance as final consumption of households. There is therefore a need to reallocate some of these expenses. This reallocation has been done primarily for illegal activities. In a number of cases, depending on the data sources, additional estimates were included in the consumption of households. For instance, in case of hairdressers, the estimate was initially based upon information from the branch organization, which was close to the production value we obtained from the production survey, and hence it was decided to include

the underground estimate for production also on the demand side.

A large change during the ESA revision concerned the reallocation of several activities from ISIC category 97 “Activities of households as employers of domestic personnel” towards the principal type of activity (e.g. ISIC 81 in case of house cleaning), which was caused by a reinterpretation of the scope of ISIC 97.

Several plausibility checks of our estimates for non-observed activities are undertaken such as a comparison with results from the Eurobarometer survey. The comparison is made for checking the distribution across economic activities. Within each element of exhaustiveness a confrontation is made with other data whenever suitable data are available. The difference between theoretical VAT and actual VAT when negative could point at underestimating parts of the economy. The result of the benchmark revision shows a positive gap between theoretical en actual VAT receipts of 739 million euros.

## **7.2 Allowance for exhaustiveness in the expenditure approach**

As described in the section on the production approach, for many elements of exhaustiveness a demand and supply based approach is being combined. For instance, for the estimation of drugs and smuggling, independent supply and consumption based estimates are being combined, the residual providing an estimate for exports. It must be mentioned that not all estimates for exhaustiveness of output will lead to similar adjustments in expenditure. Consumers may not always be informed whether or not a transaction is hidden. It is expected that such purchases will be included in the source data for estimating consumption of households. Similar reasoning holds for other items of final expenditure. Taking the coverage of the source data as a starting point various adjustments for exhaustiveness are made.

For N1-type exhaustiveness of consumption of households additional estimates are made for hairdressers and landscaping (418 million). In the import of services an estimate is made for hidden activities of employment agencies (188 million).

For illegal activities (N2) it is assumed that they are not covered by source data. The estimates for final expenditure shown in table 7.6. are included in the N2-column of the process table in chapter 5. The process table also accounts for the transfer of consumption of households to intermediate consumption linked to (certain) illegal activities. Also adjustments are made to imports and exports of goods and services in conformity with table 7.5.

N3-type exhaustiveness concerns additional estimates for cleaning of dwellings (1083 million) and babysitting (751 million).

The adjustment of consumption estimates due to cost fraud and wages in kind are recorded under N6 respectively N7.

For imports and exports of goods and services additional estimates for exhaustiveness recorded under N7 are made for online trade, expenses by embassies and international organisations, purchases of air tickets abroad, etc. Reference is made to chapter 5 for more details on these estimates.

## **7.3 Allowances for exhaustiveness for the income approach**

Although in the Netherlands no independent estimate of GPD using the income approach is

made, additional estimates for exhaustiveness can be attributed to compensation of employees and mixed income based on data on production such as business surveys. For compensation of employees additional estimates are made for free travel and interest discounts (488 million), wages in kind (excl. company car, 1393 million) and concealed payments to regular staff (262 million). This amount differs from the results on wages in the process table of the productions approach in chapter 3 because parts of wages in kind are covered by source data or estimating procedures. Examples are the use of the company car and interest discounts with banks.

The impact of exhaustiveness estimates on mixed income amounts to 7204. The main part of this amount is linked to illegal activities (N2, 2400 million), cleaning services and babysitting (N3, million 2502). Hidden economy (N1) and cost fraud (N6) are partly allocated to own account workers. The remainder recorded as operating surplus of (small) incorporate enterprises.

## CHAPTER 8 THE TRANSITION FROM GDP TO GNI

### 8.0 Introduction

This chapter describes the transition from Gross Domestic Product (GDP) to Gross National Income (GNI). Table 8.1 provides an overview of transition items from GDP to GNI, showing figures for compensation of employees received from and paid to the rest of the world, taxes on production and imports paid to the Institutions of the EU and subsidies granted by the Institutions of the EU, property income received from and paid to the rest of the world. Within the property income received and paid the table provides figures for interest, distributed income of corporations, reinvested earnings on Foreign Direct Investment (FDI) and other investment income.

**Table 8.1 From GDP to GNI 2010**

Transaction	2010 (mln euros)
Production	1.178.924
Intermediate consumption	611.167
Taxes on products	67.306
Subsidies on products	3.551
<b>Gross Domestic Product (GDP)</b>	<b>631.512</b>
<b>Received from the rest of the world</b>	<b>223.825</b>
Compensation of employees	1.099
Taxes on production and import	0
Subsidies	0
Property income	222.726
Interest	65.562
Distributed income of corporations	152.152
Reinvested earnings on foreign direct investment	2.311
Other investment income	2.701
<b>Paid to the rest of the world</b>	<b>218.711</b>
Compensation of employees	5.532
Taxes on production and import	1.968
Subsidies	-895
Property income	212.106
Interest	75.074
Distributed income of corporations	101.431
Reinvested earnings on foreign direct investment	34.669
Other investment income	932
<b>Gross National Income (GNI)</b>	<b>636.626</b>

The Dutch Central Bank (DNB) is responsible for compiling the Balance of Payments (BoP), which is an important source for the transition items from GDP to GNI in National Accounts. At the time of finishing the ESA 2010 revision, DNB had not yet implemented BPM6. The

first BoP results according to BPM6 were published by DNB on 25 November 2015. The first estimate of 2010 done by Statistics Netherlands based on the new ESA was therefore done by using data from BPM5 combined with adjustments to link the data to ESA 2010. After DNB had completed and published its own revised data Statistics Netherlands performed an analyses of the differences and made some additional adjustments to have a better fit with the new BoP. In BPM6 the directional principle presentation appears as supplementary item; it is no longer applied to the 2010 investment income.

In the past, the cooperation between Statistics Netherlands and DNB focussed, among other things, on aligning as much as possible the reporting of cross border property income flows of the most significant non-financial corporations and captive financial institutions to Statistics Netherlands and DNB. Nevertheless substantial differences between the national accounts and the BoP could still occur. Recently this cooperation between Statistics Netherlands and DNB was intensified with the purpose of further diminishing the differences between both statistics. The ultimate goal is to fully align the Dutch national accounts and BoP.

One of the main sources for the BoP is a dedicated survey of DNB called “Directe RAapportage” (DRA). The direct reporting system (in Dutch: Directe RAapportage, DRA) of DNB is the data source for several sectors: S.124, S.127, S.128, S.129 and S.2 (see section 9.2 for the sector classification), that report both on a quarterly and yearly basis to DNB. DNB compiles quarterly data on transactions and positions in domestic assets and liabilities and on the profit and loss account. On an annual basis, DNB collects data on positions and movements in the value of equity investments. Besides, on behalf of the balance of payments, DNB collects monthly data on foreign assets and liabilities and issued shares. The DRA-source contains the reporting units of special purpose entities, investment funds, custodians, clearing members, treasury centres, pension funds, insurance companies, health insurance companies and for the rest-of-the-world accounts the reporting units of the Dutch central bank, monetary financial institutions, non-financial corporations and government organisations.

Another major source is “Statistiek Financiële Ondernemingen” (SFO), which consists of a survey for large non-financial corporations (SFGO) and is based on tax data for small non-financial corporations (SFKO).

The most important source for the annual S.11 accounts is the Statistics of finances of large non-financial corporations (SFGO). This survey is based on a questionnaire sent to all non-financial corporations with a minimum balance sheet total of € 40 million. The questionnaire contains the profit and loss account, as well as the complete balance sheet and an extensive breakdown of the mutations in some balance items. In this way, the SFGO gives a consistent view of the current and financial transactions of the corporations involved. In other words it draws a coherent picture of the current and financial accounts. The population consists of about 1800 corporations. Together these corporations cover about 56 per cent of the production value of S.11. With 80 per cent the response to the questionnaire is quite good. The survey is available in February of the year T+2.

The Statistics of finances of small non-financial corporations (SFKO) is based on fiscal data from the corporate taxes information system (VIS), which is supplied by the Tax office. This secondary source contains corporate tax declarations and relates to legal entities. The SFKO covers non-financial corporations with a balance sheet total of maximum 40 million euros. In principle VIS information is used to compile the SFKO. However, corporations can postpone their tax declaration for a number of months or even years, so the reports have to be grossed up to cover the whole population. The SFKO consists of around 200.000 corporations that together represent around 37 per cent of the production value of S.11.

The SFKO, and SFGO give information on balance sheets as well as the profit and loss account. However, the SFKO is less detailed than the SFGO. The SFGO and SFKO together make up the statistics of finances of non-financial enterprises (SFO). As SFO asks for consolidated figures, annual corporate reports are used to deconsolidate head offices of non-financial corporations in order to be ESA2010 compliant. The SFO does not cover housing corporations. Therefore, an additional source is used from the ‘Authority Housing Corporations’. This source provides annual information on the financial situation of housing corporations. This is a survey and covers all housing corporations. The survey is available in year T+2.

Also, not all health care institutions are obliged to pay corporate tax, therefore an additional source called the DigiMV is used for the health care institutions. This additional source is a survey conducted by the department Health and Care of Statistics Netherlands. This source includes national statistics on income statements, balance sheet figures and staff of enterprises and groups of enterprises with main activity hospital care, mental healthcare, care for the disabled, nursing home care, home care, residential care for other persons and youth care.

Both sources DRA and SFO are further described in section 8.5. In addition to BoP, supplementary data sources, referring to non-financial corporations, financial institutions, government, households, non-profit institutions serving households (NPISH), are used to compile the GDP-GNI transition items.

## 8.1 Compensation of employees

**Table 8.2. Process table of Compensation of employees (D1), 2010 (million euros)**

Compilation of GNI	Basis for NA Figures						Adjustments		Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Extrapolation and models		Total (sources)	Balancing	Total (adjustments)	
				Benchmark extrapolations	Total extrap. and models				
Compensation of employees received from the rest of the world				1,099	1,099	1,099		0	1,099
Compensation of employees paid to the rest of the world		5,532				5,532		0	5,532

### *Administrative records*

Since 2006 the most important source for employment statistics (compensation of employees and related labour volume data) in the Netherlands is the Tax Register of Dutch Employees as maintained by the Employees’ Social Insurance Agency. The measurement of the compensation of employees is explained in detail in section 4.8.

The Tax Register of Dutch Employees provides the information on the compensation of non-resident employees which are employed by resident entities. Non-residential workers are being identified by matching all employees in the Tax Register with the Government Resident Administration. Those employees not found in the Resident Administration are considered as non-resident. Cross border employees include seasonal and short-term workers. Data on cross-border workers are not exchanged with neighbouring countries.

The outward cross border flows of compensation of employees are including social contributions (actual and imputed) payable by employers (ESA 2010 section. 4.09 – 4.10) and social contributions, income taxes and other payments payable by employees (ESA 2010

section 4.03). Regarding the inward cross border flows it is assumed social contributions are included.

Compensation of employees payable by Dutch embassies and military bases are related only to Dutch residents and is therefore excluded from cross border compensation of employees. Employees from foreign embassies and military bases located in the Netherlands are similarly not considered to be Dutch residents. Wages paid to residents working for foreign embassies and military basis (cleaning, security, administrative functions) and non-residents working for Dutch embassies and military basis are likely to be of minor significance and no adjustments to data sources are made for these employees. With regard to received compensation of employees by Dutch residents such an assumption is only implicitly covered by the extrapolation method as no direct data are available. On average is assumed that expenses of Dutch and foreign embassies are close to equal which implies a balance with rest-of-the world close to zero.

### *Extrapolation and models*

The source statistics that are used do not contain information on residents employed abroad. The applied administrative data source (Employees' Insurance Agency, cf. §4.8) is confined to resident and non-resident employees employed by residential units (in the Netherlands). The compensation of employees of residents employed by non-resident entities is extrapolated from balance of payments statistics as compiled by the Dutch Central Bank (DNB). The last reporting year is 2003. Up to 2006 the extrapolation was based on statistics on cross border woekrs. From 2006 onwards extrapolations are based on indices derived from the changes in the compensation of employees of non-residents employed by residential units.

## **8.2 Taxes on production and imports paid to the Institutions of the EU**

**Table 8.3 Process table of taxes on production and imports paid to the Institutions of the EU (D2), 2010**

Compilation of GNI	Basis for NA Figures				Adjustments					Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Total (sources)	Conceptual			Balancing	Total (adjustments)	
					Allocation of FISIM	Other conceptual	Total conceptual			
Taxes on production and imports paid to the Institutions of the EU		1.968		1.968			0		0	1.968

### *Administrative records*

National accounts treat taxes on production and imports paid to Institutions of the EU as primary income transactions. Taxes on production and imports paid to the Institutions of the EU are registered by the Dutch government in its role as cashier. This role is identified with reference to the "ultimate beneficiary" principle that excludes the cashier function in the registration of transactions to the Dutch government. If the Dutch government acts exclusively as a cashier, the taxes in question are directly registered as primary income transactions between the payer and the ultimate recipient i.e. the Institutions of the EU. This recording applies to import duties paid to the EU, EU food levies and other EU levies on sugar production.

Information on EU import duties are derived from the Ministry of Finance taxation data. EU levies on foodstuffs and sugar inventories are based on Ministry of Agriculture reports.

Statistics Netherlands receives an overview of the transferred amounts of import duties on a quarterly basis. This overview is provided by the Ministry of Finance. Since the Ministry of Finance makes no distinction between import duties paid by residents and non-residents, data from the Foreign Trade Statistics and the EU tariff rates are used to estimate the ratio between the value of import duties paid by residents and non-residents. This ratio, about 79 per cent resident and 21 per cent non-residents, is then applied to the value of import duties reported by the Ministry of Finance to estimate the value of import duties paid by residents. The time of recording corresponds to the reference period of the payment. The cash-based amounts of taxes are converted to accrual based transactions by a one month time-adjustment of the cash revenues.

### 8.3 Subsidies granted by the Institutions of the EU

**Table 8.4. Process table of subsidies granted by the Institutions of the EU (D3), 2010**

Compilation of GNI	Basis for NA Figures				Adjustments					Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Total (sources)	Conceptual			Balancing	Total (adjustments)	
					Allocation of FISIM	Other conceptual	Total conceptual			
Subsidies granted by the institutions of the EU		895		895			0		0	895

#### *Administrative records*

Subsidies granted by the Institutions of the EU relate to subsidies on products and other subsidies on food production received by Dutch units from the EU. The subsidies granted by the Institutions of the EU remain unrecorded in the non-financial accounts of the subsector general government as the Dutch government is not the actual beneficiary of the subsidy. It only acts as a cashier. The payments are recorded in an extra-budgetary account and hence do not affect government revenues.

The subsidies on products and other subsidies on food are calculated from monthly reports supplied by the Ministry of Agriculture and the Agricultural Equalisation Fund (LEF). Each year Statistics Netherlands receives an overview of the outstanding amounts on the extra-budgetary account. Time of recording in the data sources of subsidies is on an accrual basis so no adjustments are needed. EU grants for operation aid of agriculture are registered on transaction basis in the period the aid is needed.

The subsidies which are transferred from the EU to the Dutch government, but which are not yet transferred by the Dutch government to the actual beneficiary, are recorded as accounts payable. At the moment that the EU subsidies are transferred by the Dutch government to the actual beneficiaries, the subsidies are recorded as revenues in the accounts of the actual beneficiaries. The Dutch State is the only actual beneficiary of a small part of these subsidies.

### 8.4 Cross-border property income

Information on property income received from and paid to the rest of the world is principally obtained from DNB via a dedicated survey: the DRA (BoP statistics). About 2000 reporting units provide on a monthly basis information on transactions and ownership relations with foreign entities. These reporting units include corporations (financial and non-financial) and

government institutions. The DRA covers the top 300 non-financial corporations, monetary financial corporations, pension funds, insurance companies, investment funds, and other financial corporations including captive financial institutions. For the reporting on financial instruments DRA uses a reconciliation model in which all components from the balance sheet at the beginning of the period to the end of the period are specified, including both accrued and cash interest payments or receipts, dividends and reinvested earnings on direct foreign investment depending on the financial instrument involved. For the DRA a population benchmark is carried out yearly.

For non-financial corporations, an important second source are the Statistics of finances of large non-financial corporations (SFGO) and the Statistics of finances of small non-financial corporations (SFKO). The SFGO is an annual survey based on a questionnaire sent to all non-financial corporations with a minimum balance sheet total of 40 million euros. The questionnaire contains the profit and loss account, as well as the complete balance sheet. Entities not covered by the SFGO are covered by the SFKO. The SFKO is based on fiscal data from the corporate taxes information system (VIS), which is supplied by the Tax and Customs Administration. This secondary source contains corporation income tax declarations and relates to legal entities. Some non-financial corporations are not covered by either the SFGO and the SFKO, primarily real estate companies and hospitals.

Table 8.5 shows the process table of D.4 Property income broken down by underlying transactions: D.41 Interest, D.42 Distributed income of corporations, D.43 Reinvested earnings on foreign direct investment, and D.44 Other investment income.

**Table 8.5 Process table of Property income (D4), 2010 (million euros)**

Compilation of GNI	Basis for NA Figures				Adjustments					Final estimate
	Surveys & Censuses	Administrative Records	Combined Data	Total (sources)	Conceptual			Balancing	Total (adjustments)	
					Allocation of FISIM	Other conceptual	Total conceptual			
Property income received from the rest of the world	0	0	223.972	223.972	-2.905	0	-2.905	1.659	-1.246	222.726
interest			69.652	69.652	-2.905		-2.905	-1.185	-4.090	65.562
distributed income of corporations			156.271	156.271			0	-4.119	-4.119	152.152
reinvested earnings on FDI			-4.576	-4.576			0	6.887	6.887	2.311
other investment income			2.625	2.625			0	76	76	2.701
Property income paid to the rest of the world	0	0	211.728	211.728	-1.622	0	-1.622	2.000	378	212.106
interest			75.322	75.322	-1.622		-1.622	1.374	-248	75.074
distributed income of corporations			104.023	104.023			0	-2.592	-2.592	101.431
reinvested earnings on FDI			31.887	31.887			0	2.782	2.782	34.669
other investment income			496	496			0	436	436	932

The following paragraphs describe the sources used, compilation methods applied and explain the balancing corrections of all the different types of property incomes. Combined data is a mixture of surveys (DRA, SFGO) and administrative data (SFKO, annual accounts). For a detailed description of conceptual corrections for FISIM, see paragraph 3.17.2.2.

#### 8.4.1 Interest

*Insurance corporations, pension funds, national foundations, waterboards and social security funds*

For insurance corporations and pension funds DRA figures are used. Imputations are made for the non-DRA population (based on annual reports), as DRA does not have a complete population of insurers and pension funds.

Some other funds which are not part of the population of DRA are early retirement funds (VUT-funds), guarantee funds en SAIP (Stichting Administratie Indonesische Pensioenen). The figures on interest are taken from their annual accounts.

Small adjustments are made on the figures in DRA for insurers and pension funds because of 'other income' (part of the profit and loss account). These other income flows contain interest, so a fixed part of the other income is added to the total interest. This rate is specified by insurer.

The rate for other income by insurer:

Indemnity insurance corporations: 16%  
Live insurance corporations: 52%  
Cure insurance corporations: 16%  
Reinsurance corporations: 16%  
Pension funds: 6%

The rate for other expenses by insurer:

Indemnity insurance corporations: 8%  
Live insurance corporations: 9%  
Cure insurance corporations: 8%  
Reinsurance corporations: 8%  
Pension funds: 9%

For the national foundation "Nederlandse Investeringsbank voor Ontwikkelingslanden" (NIO) the interest is registered in annual reports.

The waterboards use information from annual reports. Loans and deposits because of cross-border lease are known, as well as some weighted rates of interest mentioned in the annual reports. The social security funds payment of rents to non-financial corporations (institutions of care) is taken from the annual report of "Zorginstituut Nederland".

### *Municipalities*

For municipalities the interest is registered in administrative records, "Informatie voor derden".

### *Non-financial corporations, financial institutions and government*

DRA covers the cross-border flows of interest with respect to almost all (sub-)sectors of the economy: non-financial corporations, financial institutions and government (ministries and some budget funds like the Municipal Budget Fund, the Province Budget Fund and the Infrastructure Fund). DRA covers the cross-border flows of interest with respect to all relevant financial asset categories: deposits, loans; bills and similar short-term instruments; bonds and debentures; swaps and forward rate agreements; financial leases; bank overdrafts, as described in ESA 2010 par. 4.43 – 4.49. DRA registers the index-linked debt securities. The extra interest which is generated by indexation of the capital sum or market price, however is not part of this interest registered. Interest received and paid is not corrected for taxes levied on interest or grants to interest relief. Interest on index-linked debt securities is part of total interest estimates. Cross-border interest on loans and deposits is corrected for FISIM (see par 3.17).

### *Households and non-profit institutions serving households*

For households and non-profit institutions serving households the interest received by the rest of the world comes from DRA, interest paid to the Rest of the World is calculated based on different sources.

Interest on consumer credits (AF.41 and AF.42) are taken from CBS-statistics “Consumptief krediet”. These figures are administrative records gathered by Statistics Netherlands by asking financial institutions lending to households. This is part of the CBS-statistics on financial markets. Figures of loans and rates are gathered monthly. The financial institutions consist of institutions that are authorized to lend to households by “Autoriteit Financiële Markten” (AFM) and the municipal financial corporations (“Gemeentelijke kredietbank”).

For mortgages (F.42), short-term loans (F.41) and long-term loans (F.42) cross-border interest is calculated by market interest rate multiplied with the average balance sheet ((opening balance sheet + closing balance sheet) / 2). The market interest rates are taken from DNB statistics. The rate used by DNB on deposits and loans is the “annualised agreed rate” This is the rate that is agreed by financial institutions and households or non-profit institutions serving households for a deposit or a loan. This rate is based on all interests paid, other expenses are not included. The rates on new contracts are computed by weighting (by amount of new contracts) of the rates of the financial institutions. The source for balance sheets of households and non-profit institutions serving households is DRA.

For all subsectors, the time of recording is on an accrual basis. The debtor approach is used to calculate cross border flows of accrued interest on debt securities. “Under the debtor approach, the stream of interest payments is considered to be fixed at the time the security is issued – in other words, the future interest payments, both coupon and in the form of the ‘unwinding’ of any discount, are known with certainty. It is known as the debtor approach because it views the accrual of interest from the perspective of the issuer of the debt”. (<http://unstats.un.org/unsd/nationalaccount/rissue.asp?rID=7>).

In 2010 the Netherlands had an Intra-Eurosystem (“technical”) financial claim related to the issuance of euro bank notes. The associated interest flow is recorded as D.41 interest received from the rest of the world, and modelled based on the stock of the Intra-Eurosystem (“technical”) assets and liabilities. The reference rate used is the Main Refinancing Operations (MRO) rate.

Statistics Netherlands uses the Dutch Central Bank’s profit and loss account, where the Dutch Central Bank uses a model to calculate the interest flows associated with Intra-Eurosystem assets/liabilities. The results of the Dutch Central Bank are in accordance with the decision of the European Central Bank of 25 November 2010 on the allocation of monetary income of the national central banks of Member States whose currency is the euro (ECB/2010/23)

The Dutch central bank has a claim on the Eurosystem, because bank notes issued by the Dutch Central Bank are relatively small vis-à-vis other Central banks in the Eurosystem. The intra-eurosystem assets of the Dutch Central Bank are the result of the difference between the Capital key \* 92 percent of the total bank notes issued by the Eurosystem minus bank notes issued by the Dutch central bank.

The Dutch Central Bank follows the decision of the European Central Bank of 25 November 2010 (ECB/2010/23). In this decision it is stated that the net balance of the intra-Eurosystem claims and liabilities on euro banknotes in circulation should be remunerated by applying an objective criterion defining the cost of money. In this context, the Main Refinancing Operations (MRO) rate used by the Eurosystem in its tenders for main refinancing operations is regarded as appropriate.

### *Conceptual*

Finally, a correction to interest received from and paid to the rest of the world is made to offset the FISIM effect on trade. Cross-border interest on loans and deposits is corrected for FISIM, for a detailed description see par. 3.17.

### *Balancing*

There is no balancing after the sources mentioned above are applied.

## **8.4.2 Distributed income of corporations**

### **8.4.2.1 Dividends**

DRA is the main source for covering cross-border dividend flows and covers both dividends from direct investment as well as from portfolio investment. Cross-border flows of dividends include shares issued to shareholders in payment of the dividend.

#### *Dividends from portfolio investment*

The data on portfolio investment assets is collected via the DRA survey, except for households which are collected from custodians. Data on portfolio-investment liabilities, on the other hand, are collected from: (a) custodians, (b) the local central securities depository, (c) resident issuers and (d) resident holders. This method is referred to as the “mixed approach for portfolio liabilities” in Chapter IV of the Task Force on Portfolio Investment Collection Systems’ Final Report of June 2002.

#### *Dividends from foreign direct investment*

The data on dividends from foreign direct investment are collected via the DRA survey of DNB. Information is collected on equity investments, equity-related investments and various types of inter-company assets and liabilities. Reporting agents included in the sample population have to submit annual reports on the stocks of equity participations and the changes during the period including dividend and reinvested earnings within four months after the end of their financial year. For most reporters the financial year coincides with the calendar year, but not for all. 35% of the reporters have a financial year, which differs from the calendar year. The reported annual data for profits (on investments) are then divided equally over the underlying (usually 12) months of the financial year.

Direct equity investment and other investments of Monetary Financial Institutions (MFI’s) are integrated in monthly money and banking statistics. Additionally, MFI’s have to report foreign direct investment dividends paid and profits retained as an integral part of their annual reports on foreign affiliates, collected for prudential purposes.

For non-financial corporations, next to the BoP, an important second source are the Statistics of finances of large non-financial corporations (SFGO) and the Statistics of finances of small non-financial corporations (SFKO). In general, there is very little grossing up in the SFGO, as the response is very high. A gross up factor is calculated for each company on the basis of the total balance and business group of the company. For SFKO imputations for non-response are made by using data from the previous year.

DRA covers about 90 per cent of the non-financial sector and uses a simple assumption to gross up the data. For the financial sectors DNB has a higher coverage (around 95 per cent). In the SFO (total of SFGO and SFKO) the dividend received requested for reporting is split into domestic and foreign intragroup dividends and domestic and foreign other dividends. For the

paid dividends in the SFO only the total dividends are known. The cross-border flows of paid dividends are determined on the basis of the percentage of foreign ownership (“Buitenlandse Participatie index”; BPI) reported by the Dutch reporter.

### *Super-dividends*

Super-dividends are dividends that are large relative to the recently observed level of dividends and earnings. According to ESA 2010 (par. 4.55) and BPM 6 exceptional payments by corporations to their shareholders that are made out of accumulated reserves or sales of assets should not be treated as dividends. Such exceptional payments are treated as withdrawals of equity, and therefore only recorded in the financial account (usually F.512).

Super-dividends are sometimes difficult to identify. Therefore, DNB made the following approach in DRA in order to identify super-dividends. Every quarter dividend payments on direct investments above 500 million euros are selected for further investigation. Amounts below 500 million euros are considered to be normal dividends. This threshold is used because it among others is time consuming to check all the amounts individually. After selecting all payments higher than 500 million euros each dividend payment is analysed individually to see whether the payment is higher than usual and whether it is in line with the net operating profit from preceding periods (the European Central Bank (ECB) sets a period of five years, if the company has a short history, then as long as possible). The criteria of 'substantially higher' is twice the average result of the previous five years.

If the dividend is not in line with previous periods or operating profit, extra inquiries are sent to the reporting agent. If the dividends are not related to the operating profit, the reporting agent must send a new report. The dividend which is not related to operating activities (the surplus) should be recorded as equity disposals for the same amount of dividends minus the dividend tax. Experience shows that usually there is a clear reason (restructuring or something similar) for reporting exceptionally large dividends.

Ahead of the comparison between DRA and the SFO for the data on non-financial corporations Statistics Netherlands also corrects for super-dividends in the surveys of non-financial corporations (SFO). This is done in collaboration with DNB. The same criteria as applied by DNB are used for detecting super-dividends.

According to ESA 2010 (section 4.57) and BPM6 dividends are recorded at the time the share goes ex-dividend. This date is usually between the date that the dividend is declared and paid. This is close but not exactly the same as how it is reported in DRA and SFO. The DRA and SFO guidelines state the following: “Reported as 'dividend declared' should be gross dividend (before any dividend tax) that is declared by the non-resident shareholder(s). If the declared dividend is not actually paid in the same reporting period, a (short-term) obligation to the parent company must be reported during the period between the declaration and the actual payment. For direct investment the declaration date is used and for securities the settlement date of payment is used.” This causes some timing differences between months, but rarely between quarters.

### *Balancing*

In the balancing procedure a comparison of DRA and SFO results is carried out in collaboration with DNB. This data comparison is done at enterprise level. For the largest discrepancies additional enquiries are made, for example through annual reports or by contacting corporation representatives.

#### **8.4.2.2 Withdrawals from the income of quasi-corporations**

ESA 2010 “4.58 Definition: withdrawals from the income of quasi-corporations (D.422) are the amounts which entrepreneurs withdraw for their own use from the profits earned by the quasi-corporations which belong to them. Such withdrawals are recorded before the deduction of current taxes on income, wealth, etc., which are deemed always to be paid by the owners of the businesses.”

Statistics Netherlands mainly uses data from DNB to identify and cover cross-border flows of withdrawals from the income of quasi-corporations. Income flow estimates from quasi-corporations (rents) to and from the Rest of the World (RoW) are compiled by DNB as part of the BoP. The item is an estimate for net revenue from cross-border real estate holdings. It comprises the net operating surplus for owners of land and buildings, but not for equipment.

Real estate abroad is part of the DRA-survey, which is on an accrual basis, and is in the Balance of Payments part of the foreign direct investments. Foreign ownership of real estate in the Netherlands is measured indirectly via the Dutch Land Registry (Kadaster). Based on this data monthly estimates are added. The levels of real estate are based on financial transactions (purchase values). These levels are re-valued accordingly with the real estate index (RoZ/IPD). Also income flows estimates are model based. The real estate index is used for this. The index measures returns on direct investment property, based on net open market values and without taking funding into account.

In addition to the information obtained from the DNB, the estimated household income from holiday homes is based on information on foreign owned dwellings from the Tax office. The information is collected as part of the income tax assessment forms from 2007 onwards.

#### **8.4.3 Reinvested earnings (RIE) of foreign direct investment (FDI)**

##### *Combined data*

According to ESA 2010 section “4.65 Definition: A foreign direct investment enterprise is an incorporated or unincorporated enterprise in which an investor resident in another economy owns 10 per cent or more of the ordinary shares or voting power in an incorporated enterprise, or the equivalent for an unincorporated enterprise. Foreign direct investment enterprises comprise those entities that are identified as subsidiaries, associates and branches. A subsidiary is where the investor owns more than 50 %, an associate is where the investor owns 50 per cent or less, and a branch is a wholly or jointly owned unincorporated enterprise. The foreign direct investment relationship may be direct or indirect as a result of a chain of ownership. 'Foreign direct investment enterprises' is a broader concept than 'foreign controlled corporations'.” DNB defines a foreign direct investment enterprise as an entity subject to control or a significant degree of influence (ownership of more than 10 per cent) by a direct investor that is resident in another country.

According to ESA 2010 paragraph “4.64 Definition: reinvested earnings on foreign direct investment (D.43) are equal to: the operating surplus of the foreign direct investment enterprise plus any property incomes or current transfers receivable, minus any property incomes or current transfers payable, including actual remittances to foreign direct investors

and any current taxes payable on the income, wealth, etc., of the foreign direct investment enterprise.”

DNB is responsible for collecting and publishing Balance of Payments and International Investment Position (IIP) data, as well as FDI-data (including RIE). For this purpose it uses the DRA-surveys as well as data from other sources, like from Statistics Netherlands.

In practice DNB uses the Direct Influence/Indirect Control Method to capture indirect links within large company groups (multinationals). The Direct Influence/Indirect Control Method is described in the OECD Benchmark Definition of Foreign Direct Investment (fourth definition 2008).

Paragraph 496: “The Direct Influence/Indirect Control Method (DIIC) includes in direct investment all enterprises of which the voting power is 10 per cent or more directly owned, plus all enterprises that are controlled by them (ownership of more than 50 per cent of the voting power), plus all other enterprises in a continuous chain of majority ownership.”

For foreign direct links, there is a direct investment relationship if the ownership is higher than 10 per cent. For foreign indirect links, there is an indirect relationship if the ownership is higher than 50 per cent. Companies report in DRA profits and dividends receivable or payable by (direct) investment enterprises. Companies are instructed to include indirect profits in the profit estimate. The largest multinationals are asked to provide an up-to-date company structure. For most of the non-financial companies the data for the Dutch entities that are part of the same group are reported on a consolidated basis if the ownership is 50 per cent or more. If the ownership is less than 50 per cent, the reinvested earnings are not consolidated. Reinvested earnings (according to the ESA 2010 definition) can be derived from the DRA by subtracting distributed dividends from operational profits.

DNB instructs both financial as well as non-financial corporations to report operational income, excluding exceptional gains and losses like impairments or gains from the sale of a group company. If profits or losses are exceptionally high, verification is done through annual reports or by contacting corporations.

The second source for data on inward and outward direct investment flows of non-financial corporations is the SFO survey of Statistics Netherlands. From the SFO for outward investment the total direct investment income is known for both domestic and foreign subsidiaries, as well as a split in dividends and reinvested earnings. The inward direct foreign investment flows are determined on the basis of the percentage of foreign participation (“Buitenlandse Participatie index”; BPI) reported by the Dutch respondent. The results and dividends paid are multiplied by this factor to determine payments to foreign investors.

DNB covers about 90 per cent of the non-financial sector (DRA) and uses a simple assumption to gross up the data (based on the grossing up of 2003 figures). For the National Accounts Statistics Netherlands replaces this grossing up adjustment by data from the SFO on entities covered in the SFO but not the DRA plus imputations and sampling corrections made by the SFO covered by neither the SFO or DRA. For the financial sectors DNB has a higher coverage (around 95 per cent).

Surveying of the financial corporations is coordinated via registers maintained by DNB. For the non-financial sector, the Statistical Business Register (SBR) of Statistics Netherlands is used as a means of coordination. This register is strongly linked to the Chamber of commerce register. The Chamber of commerce has a very high coverage of all the companies active in the Netherlands. For Special Purpose Entities (SPEs) DNB uses information from trust companies as an additional source. A small part of the SPE population is recognised by Statistics Netherlands as ‘SPE-top’. Those entities are special cases: their domestic

subsidiaries are large (balance >40 million euro) non-financial corporations (NFC). The RIE of the NFC subsidiaries are shifted to SPE-top (domestic parent). This shift is GNI neutral in the sense that the RIE totals are not adjusted.

The method used to compile RIE is method 1: Profits and distributed earnings of direct investment enterprises are from the same source(s), typically FDI surveys or administrative information.

Concerning the time of recording, reinvested earnings on foreign direct investment are recorded when they are earned. Reporting agents included in the sample population have to submit annual reports on the stocks of equity participations and the changes during the period including dividend and reinvested earnings within four months after the end of their financial year. For most reporters the financial year coincides with the calendar year, but not for all. 35% of the reporters have a broken financial year, which differs from the calendar year. The reported annual data for profits (on investments) are then divided equally over the underlying (usually 12) months of the financial year.

### *Balancing*

In the course of the balancing procedure of the institutional sector accounts, a data comparison at enterprise level, DRA versus SFO, is carried out in close collaboration with DNB. For the largest data source discrepancies additional analysis is done, for example through annual reports or by contacting corporation representatives.

## **8.4.4 Other investment income**

### **8.4.4.1 Investment income attributable to insurance policy holders**

Property income attributed to insurance policyholders (D.441) is derived from the DRA survey for insurance companies and pension funds and the supervisory reports – both from DNB. To calculate cross border flows, a distinction is made between different kinds of insurance: individual life insurance, health insurance, non-life insurance and reinsurance. This is necessary because all these types of insurance have different counterparts and different ratios for calculating the RoW parts.

### *Property income paid by the Netherlands and attributed to policyholders*

#### General

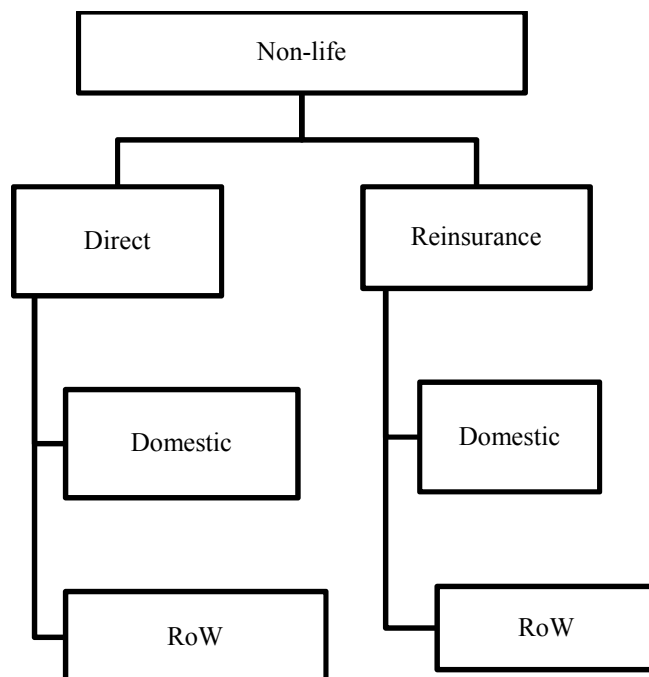
The basis for the RoW estimates is the calculated investment income for all kinds of insurance for Dutch insurance companies. For all kinds of insurance companies the value of D.441 is based on the sum of investment returns on total (actuarial) reserves minus paid interest. In practice this means all D.4 resources plus received net rentals minus paid interest D.41. DRA contains for all kinds of insurance companies figures for all these transactions, but they are revenues on the total invested funds, including own funds. Revenues on own funds are not attributed to policyholders, so the total investment income is divided using the ratio between investment income on the non-technical account and the total investment income, based on supervisory data. Except for professional reinsurance companies, which are based on DRA data.

After this split the calculation of the investment income attributed to policyholders is generally analogous, but slight differences appear for each kind of insurance companies.

#### Non-life insurance companies

Non-life insurance companies, except health insurers, offer two kinds of insurance: direct insurance and reinsurance. Both kinds of services, and thus the associated investment income, have a RoW part which is calculated in different ways. Figure 8.6 shows an organogram of non-life insurance companies and their relation to the Rest of the World.

**Figure 8.6. Non-life insurance**



As a first step, the investment income attributed to policyholders is split in parts associated with direct insurance and reinsurance, based on the ratio of premiums received from direct insurance and reinsurance.

As a second step, the ratio between premiums received from abroad and total received premiums is used to derive the estimate of the flows crossing the border; for direct non-life insurance this ratio is derived from supervisory data and for indirect insurance (reinsurance) this is derived from DRA data.

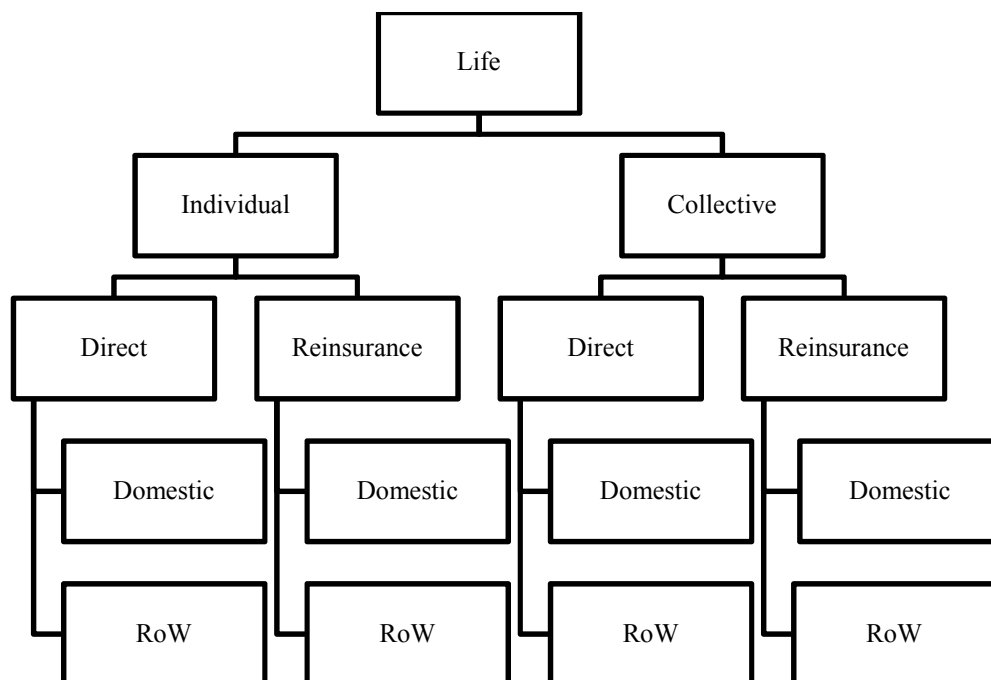
Health insurance companies do attribute investment income to their policy holders, but they are all domestic, so there's no RoW part. We therefore do not describe this kind of insurance here any further.

#### Life insurance companies

For life insurance companies the calculation is a bit more complex, because life insurance companies provide both individual life insurance policies and collective life insurance policies. The latter have to be registered as pension schemes, so the associated investment income is registered as D.442. Besides, life insurance companies can act as direct insurer, but

also as reinsurer; all investment income on reinsurance policies is registered as D.441. Figure 8.7 provides a comprehensive organogram of different kinds of life-insurance services.

**Figure 8.7 Life insurance**



To estimate the D.441 belonging to direct individual life insurance we use the total investment income attributed to policyholders as a starting point and then multiply this first with a ratio between individual life insurance premiums and total life insurance premiums (based on supervisory data) and then with a ratio between direct life insurance premiums received and total premiums received (based on DRA data). The RoW part is subsequently calculated by multiplying with the ratio between life insurance premiums received from abroad and total life insurance premiums (based on supervisory data).

To estimate the D.441 belonging to reinsurance of life policies (reinsurance of both individual and collective life insurance risks) we also use the total investment income attributed to policyholders as our starting point and then multiply this with the ratio between life reinsurance premiums received and total premiums received (based on DRA data). The RoW part then is calculated by multiplying with the ratio between life reinsurance premiums received from abroad and total indirect life insurance premiums (based on DRA data).

Finally the rest of the investment income attributed to policyholders (associated with the direct collective life insurance premiums) is registered as D.442.

### Reinsurance companies

Professional reinsurance companies also attribute investment income to their policyholders, being other insurance companies and pension funds. They reinsure both life and non-life risks, but this distinction is not necessary for the calculation of D.441.

The investment income attributed to the policyholders must be registered as transaction D.441 completely. The RoW part is calculated by multiplying with a ratio between reinsurance premiums received from abroad and total reinsurance premiums received (based on DRA data).

*Property income paid to the Netherlands and attributed to policyholders*

For life insurance policies we assume that there are no claims/entitlements of domestic households on insurance companies abroad. There is no evidence of the collective insurance of Dutch employees under foreign pension funds. For non-life insurance and reinsurance there exist (re)insurance policies between domestic policyholders and insurance companies abroad.

Property income paid to Dutch policyholders (financial and non-financial enterprises by foreign non-life insurance companies is estimated as 5 per cent of the value of domestic (non-life) property income, based on figures of the International Trade Statistics about cross border premiums and claims. Property income received on foreign reinsurance is estimated around 50 per cent of the value of domestic (reinsurance) property income, based on the figures about reinsurance premiums abroad from main source DRA.

	Paid to the rest of the world	Received from the rest of the world
Life insurance	151	0
Non-life insurance	26	5
Reinsurance	52	80
<b>Total</b>	<b>229</b>	<b>85</b>

#### 8.4.4.2. Investment income payable on pension entitlements

*Property income paid by the Netherlands and attributed to policyholders*

Investment income payable on pension entitlements (D.442) is attributed to participants in pension schemes and collective life insurance schemes.

The calculation of D.442 for collective life insurance policies is already described in the previous paragraph under the heading 'Life insurance companies'. The RoW part is thus calculated by multiplying with the ratio between life insurance premiums received from abroad and total life insurance premiums (based on supervisory data).

The calculation of D.442 with pension funds is calculated analogous to the method in the previous paragraph. The RoW part is calculated by multiplying with the ratio between pension premiums received from abroad and total pension premiums (based on supervisory data).

	Paid to the rest of the world	Received from the rest of the world
(Collective) Life insurance	80	0
Pension funds	343	0
<b>Total</b>	<b>423</b>	<b>0</b>

### *Property income paid to the Netherlands and attributed to policyholders*

For pension entitlements there's also no evidence that there are claims/entitlements of domestic households on insurance companies abroad.

#### **8.4.4.3. Investment income attributable to collective investment fund shareholders**

##### *Cross-border flows of investment income attributable to domestic shareholders of foreign collective investment funds*

Foreign investment funds pay dividends (D.4431) to Dutch shareholders. The cross-border dividends received by subsectors S.124, S.127, S.128 and S.129 are reported in the DRA. This source also covers the cross-border dividends of investment funds paid to subsectors S.11, S.14 and S.125.

Foreign investment funds' retained earnings (D.4432) are allocated to Dutch shareholders. In relation to the BoP (BPM6) revision DNB developed a method to estimate the retained earnings of foreign investment funds. About 35 per cent of total cross-border positions in foreign investment funds are reported to the Dutch Central Bank, using an ISIN code. This ISIN code contains additive information on the category of investment (money market, bond, equity, real estate, hedge, mixed, other). The 65 per cent of total cross-border positions in foreign investment funds that report without ISIN code is classified as investments in other funds. Per investment category the yields are estimated. The average weighted yield is calculated per sector, per country. Subtracting paid dividends results in the retained earnings per sector and country.

##### *Cross-border flows of investment income attributable to foreign shareholders of domestic collective investment funds*

Dividends (D.4431) from Dutch investment funds receivable by foreign policy holders are reported in DRA results obtained from Dutch investment funds. The DRA obtains data on dividends from Dutch investment funds of which foreign beneficiaries are explicitly reported.

Part of the retained earnings (D.4432) from Dutch investment funds must be allocated to foreign investors. Total retained earnings of Dutch investment funds are calculated as follows:

$$\begin{aligned} & \text{Resources D.41 (excl. FISIM)} + \text{Resources D.42} + \text{Resources D.43} + \text{Resources D.4431} \\ & + \text{Resources D.4432} + \text{domestic rent} - \text{Uses D.41} - \text{Uses D.42} - \text{Uses D.43} - \text{Uses D.4431} \\ & = \text{Uses D.4432} \end{aligned}$$

All resources and uses of D.4 are available from the DRA reporting obtained from investment funds. Attributable investment income (D.4432) is divided between domestic and foreign shareholders based on balance sheet information (of F.522). The share of S.2 in the total balance sheet position (F.522) determines the foreign attributable investment income (D.4432).

#### **8.4.4.4. Rent on land and sub-soil assets**

Cross-border flows of rent on land receivable by the landowner, including owners of inland waters and rivers (ESA 2010 par. 4.72), and cross-border flows of royalties receivable by the units for granting the right to exploit sub-soil assets (ESA 2010 par. 4.74) are not applicable in the case of the RoW. This follows from the general accounting rule that resident/non-resident transactions in land and sub-soil assets is deemed to occur between resident units, in which case the non-resident acquires a financial claim on a notional resident unit (ESA 2010 par. 3.182).

### **8.5 Recent development in the measurement of property income flows**

Publication of the revised balance of payments according to BPM6 by DNB followed five months (on 25 November 2014) after publication of the revised national accounts (25 June 2014). Despite attempts to anticipate on expected changes in the balance of payments, unfortunately substantive changes between the sector accounts and balance of payments were being encountered in the balance of property income, particularly for the years following 2010.

By the end of 2014 Statistics Netherlands and DNB launched together a rather intensive research with the aim of solving these differences as much as possible. Initially this research focussed on the reference years 2011 and 2012 but is being continued for later reporting years as well. As differences in previous years were not considered very large, these years were not examined nor adjusted as result of this research. This implies that the benchmark year 2010, remained unaffected.

Data and method comparisons focussed on two main issues. Firstly, there appeared to be a lack of understanding on how property income transactions in relation to certain captive financial institutions should be recorded in the balance of payments and the national accounts. Secondly, data discrepancies between two main data sources underlying the property income flows in relation to the non-financial corporations sector were examined: The Corporations' Finance Statistics (SFO) by Statistics Netherlands and the Balance of Payments Statistics in the domain of the non-financial corporations sector (S.11) (DRA).

Both issues are further explained in a Eurostat 2015 Grant Report 04.1 Provide macroeconomic accounts and aggregates supplemented by satellite accounts and measures of social performance Action 1: Development and implementation of quality framework for National accounts Project 1: GNI inventories. This report is added as an annex to this chapter.

## CHAPTER 9    MAIN CLASSIFICATIONS USED

### 9.1    Classifications used for the production approach

In the production approach, the Supply and use table (SUT) is the central tool to combine and balance the statistical information on branches of industry and goods and services. For the distinction of branches the classification of the columns of the SUT plays an important role. The relationship between the classification of the Dutch SUT and NACE, rev. 2 is shown in this Excel-sheet. Also the classification of the goods and services (the rows) are shown.



## 9.2 Classifications used for the income approach

**Table 9.1 Sector-classification in sector accounts**

Jaar	Period	Status	Rekent	Sector	Ouder	Tellen	Omschrijving
2010	Y	D	FR	S.1	S	0	Totale economie
2010	Y	D	FR	S.11	S.1	1	Niet-financiële vennootschappen
2010	Y	D	FR	S.12	S.1	0	Financiële instellingen
2010	Y	D	FR	S.121	S.12A	1	Centrale bank
2010	Y	D	FR	S.122	S.12AA	1	Overige monetaire financiële instellingen
2010	Y	D	FR	S.123	S.12AA	1	Geldmarktfondsen
2010	Y	D	FR	S.124	S.12B	1	Beleggingsinstellingen
2010	Y	D	FR	S.125	S.12B	1	Overige financiële intermediars, exclusief verzekeringsmaatschappijen en pensioenfondsen
2010	Y	D	FR	S.126	S.12BA	1	Financiële hulpbedrijven
2010	Y	D	FR	S.127	S.12BA	1	Financiële instellingen en kredietverstrekkers binnen concernverband
2010	Y	D	FR	S.128	S.12C	1	Verzekeringsmaatschappijen
2010	Y	D	FR	S.129	S.12C	1	Pensioenfondsen
2010	Y	D	FR	S.12A	S.12	0	Monetaire financiële instellingen
2010	Y	D	FR	S.12AA	S.12A	0	Deposito instellingen
2010	Y	D	FR	S.12B	S.12	0	Overige financiële instellingen
2010	Y	D	FR	S.12BA	S.12B	0	Financiële hulpbedrijven en financiële instellingen in concernverband
2010	Y	D	FR	S.12C	S.12	0	Verzekeringsmaatschappijen en pensioenfondsen
2010	Y	D	FR	S.13	S.1	0	Overheid
2010	Y	D	FR	S.1311	S.13	0	Centrale overheid
2010	Y	D	FR	S.1311A	S.1311	1	Rijk
2010	Y	D	FR	S.1311B	S.1311	1	Wetenschappelijk onderwijs
2010	Y	D	FR	S.1311C	S.1311	1	PBO's
2010	Y	D	FR	S.1311D	S.1311	1	Instellingen zonder winstoogmerk (Centraal)
2010	Y	D	FR	S.1313	S.13	0	Lagere overheid
2010	Y	D	FR	S.1313A	S.1313	1	Gemeenten
2010	Y	D	FR	S.1313B	S.1313	1	Gemeenschappelijke regelingen
2010	Y	D	FR	S.1313C	S.1313	1	Provincies
2010	Y	D	FR	S.1313D	S.1313	1	Waterschappen
2010	Y	D	FR	S.1313E	S.1313	1	Bijzonder onderwijs
2010	Y	D	FR	S.1313F	S.1313	1	Instellingen zonder winstoogmerk (Lokaal)
2010	Y	D	FR	S.1314	S.13	1	Sociale Zekerheidsfondsen
2010	Y	D	FR	S.14	S.1A	2	Huishoudens
2010	Y	D	FR	S.15	S.1A	2	Instellingen zonder winstoogmerk t.b.v. huishoudens
2010	Y	D	FR	S.1A	S.1	1	Huishoudens en instellingen zonder winstoogmerk t.b.v. huishoudens
2010	Y	D	FR	S.1N	S.1	1	Onverdeelde transacties
2010	Y	D	FR	S.2	S	1	Buitenland
2010	Y	D	LR	S.1	S	0	Totale economie
2010	Y	D	LR	S.11	S.1	1	Niet-financiële vennootschappen
2010	Y	D	LR	S.12	S.1	0	Financiële instellingen
2010	Y	D	LR	S.121	S.12A	1	Centrale bank
2010	Y	D	LR	S.122	S.12AA	1	Overige monetaire financiële instellingen
2010	Y	D	LR	S.123	S.12AA	1	Geldmarktfondsen
2010	Y	D	LR	S.124	S.12B	1	Beleggingsinstellingen
2010	Y	D	LR	S.125	S.12B	1	Overige financiële intermediars, exclusief verzekeringsmaatschappijen en pensioenfondsen
2010	Y	D	LR	S.126	S.12BA	1	Financiële hulpbedrijven
2010	Y	D	LR	S.127	S.12BA	1	Financiële instellingen en kredietverstrekkers binnen concernverband
2010	Y	D	LR	S.128	S.12C	1	Verzekeringsmaatschappijen
2010	Y	D	LR	S.129	S.12C	1	Pensioenfondsen
2010	Y	D	LR	S.12A	S.12	0	Monetaire financiële instellingen
2010	Y	D	LR	S.12AA	S.12A	0	Deposito instellingen
2010	Y	D	LR	S.12B	S.12	0	Overige financiële instellingen
2010	Y	D	LR	S.12BA	S.12B	0	Financiële hulpbedrijven en financiële instellingen in concernverband
2010	Y	D	LR	S.12C	S.12	0	Verzekeringsmaatschappijen en pensioenfondsen
2010	Y	D	LR	S.13	S.1	0	Overheid
2010	Y	D	LR	S.1311	S.13	0	Centrale overheid
2010	Y	D	LR	S.1311A	S.1311	1	Rijk
2010	Y	D	LR	S.1311B	S.1311	1	Wetenschappelijk onderwijs
2010	Y	D	LR	S.1311C	S.1311	1	PBO's
2010	Y	D	LR	S.1311D	S.1311	1	Instellingen zonder winstoogmerk (Centraal)
2010	Y	D	LR	S.1313	S.13	0	Lagere overheid
2010	Y	D	LR	S.1313A	S.1313	1	Gemeenten
2010	Y	D	LR	S.1313B	S.1313	1	Gemeenschappelijke regelingen
2010	Y	D	LR	S.1313C	S.1313	1	Provincies
2010	Y	D	LR	S.1313D	S.1313	1	Waterschappen
2010	Y	D	LR	S.1313E	S.1313	1	Bijzonder onderwijs
2010	Y	D	LR	S.1313F	S.1313	1	Instellingen zonder winstoogmerk (Lokaal)
2010	Y	D	LR	S.1314	S.13	1	Sociale Zekerheidsfondsen
2010	Y	D	LR	S.14	S.1A	1	Huishoudens
2010	Y	D	LR	S.15	S.1A	1	Instellingen zonder winstoogmerk t.b.v. huishoudens
2010	Y	D	LR	S.1A	S.1	0	Huishoudens en instellingen zonder winstoogmerk t.b.v. huishoudens
2010	Y	D	LR	S.1N	S.1	1	Onverdeelde transacties
2010	Y	D	LR	S.2	S	1	Buitenland

**Table 9.2 Transaction classification used in sector accounts**

Jaar	Period	Status	Transac	Transac	Display	Ouder	Tellen	FISIM	Omsch	ing				
2010	Y	D	D.1	B	21 D		0	0	Beloning van werknemers					
2010	Y	D	D.11	B	211 D.1		1	0	Lonen					
2010	Y	D	D.12	B	212 D.1		0	0	Sociale premies t.l.v. werkgevers					
2010	Y	D	D.121	B	2121 D.12		0	0	Werkelijke sociale premies t.l.v. werkgevers					
2010	Y	D	D.1211	B	21211 D.121		1	0	Werkelijke pensioenpremies t.l.v. werkgevers					
2010	Y	D	D.1212	B	21212 D.121		1	0	Werkelijke niet-pensioenpremies t.l.v. werkgevers					
2010	Y	D	D.122	B	2122 D.12		0	0	Toegerekende sociale premies t.l.v. werkgevers					
2010	Y	D	D.1221	B	21221 D.122		1	0	Toegerekende pensioenpremies t.l.v. werkgevers					
2010	Y	D	D.1222	B	21222 D.122		1	0	Toegerekende niet-pensioenpremies t.l.v. werkgevers					
2010	Y	D	D.2	B	22 D		0	0	Belastingen op productie en invoer					
2010	Y	D	D.21	B	221 D.2		0	0	Productgebonden belastingen					
2010	Y	D	D.211	B	2211 D.21		1	0	Belasting over de toegevoegde waarde (BTW)					
2010	Y	D	D.211A	B	22111 D.2131		1	0	Toegerekende BTW					
2010	Y	D	D.211B	B	23 D		1	0	Verschil toegerekende en afgedragen BTW					
2010	Y	D	D.212	B	2212 D.21		0	0	Belastingen op invoer (exclusief BTW)					
2010	Y	D	D.2121	B	22121 D.212		1	0	Invoerrechten					
2010	Y	D	D.2122	B	22122 D.212		1	0	Overige belastingen op invoer					
2010	Y	D	D.2131	B	24 D		0	0	Saldo productgebonden belastingen en subsidies					
2010	Y	D	D.2131A	B	241 D.2131		1	0	Saldo productgebonden belastingen en subsidies excl. BTW					
2010	Y	D	D.214	B	2213 D.21		1	0	Overige productgebonden belastingen					
2010	Y	D	D.29	B	222 D.2		1	0	Niet-productgebonden belastingen op productie					
2010	Y	D	D.3	B	23 D		0	0	Subsidies					
2010	Y	D	D.31	B	231 D.3		1	0	Productgebonden subsidies					
2010	Y	D	D.39	B	232 D.3		1	0	Niet-productgebonden subsidies					
2010	Y	D	D.4	B	24 D		0	0	Inkomen uit vermogen					
2010	Y	D	D.41	B	241 D.4		0	0	Rente					
2010	Y	D	D.41A	B	2411 D.41		1	0	Rente voor correctie IGDFI					
2010	Y	D	D.42	B	242 D.4		0	0	Winstuitkeringen					
2010	Y	D	D.421	B	2421 D.42		1	0	Dividenden					
2010	Y	D	D.422	B	2422 D.42		1	0	Inkomen onttrokken aan quasi-vennootschappen					
2010	Y	D	D.43	B	243 D.4		1	0	Ingehouden winsten op directe buitenlandse investeringen					
2010	Y	D	D.44	B	244 D.4		0	0	Overig inkomen uit investeringen					
2010	Y	D	D.441	B	2441 D.44		1	0	Inkomen uit investeringen toegerekend aan polishouders					
2010	Y	D	D.442	B	2442 D.44		1	0	Inkomen uit investeringen te betalen i.v.m. pensioenrechten					
2010	Y	D	D.443	B	4223 D.44		0	0	Inkomen uit investeringen toegerekend aan aandeelhouders					
2010	Y	D	D.4431	B	24431 D.443		1	0	Dividenden toegerekend aan aandeelhouders van collectieve					
2010	Y	D	D.4432	B	24432 D.443		1	0	Ingehouden winsten toegerekend aan aandeelhouders van co					
2010	Y	D	D.45	B	245 D.4		1	0	Inkomen uit grond en minerale reserves					
2010	Y	D	D.5	B	25 D		0	0	Belastingen op inkomen, vermogen enz.					
2010	Y	D	D.51	B	251 D.5		1	0	Belastingen op inkomen					
2010	Y	D	D.59	B	252 D.5		1	0	Belastingen op vermogen enz.					
2010	Y	D	D.6	B	26 D		0	0	Sociale premies en uitkeringen					
2010	Y	D	D.61	B	261 D.6		0	0	Sociale premies					
2010	Y	D	D.611	B	2611 D.61		0	0	Werkelijke sociale premies t.l.v. werkgevers					
2010	Y	D	D.6111	B	26111 D.611		1	0	Werkelijke pensioenpremies t.l.v. werkgevers					
2010	Y	D	D.6112	B	26112 D.611		1	0	Werkelijke niet-pensioenpremies t.l.v. werkgevers					
2010	Y	D	D.612	B	2612 D.61		0	0	Toegerekende sociale premies t.l.v. werkgevers					
2010	Y	D	D.6121	B	26121 D.612		1	0	Toegerekende pensioenpremies t.l.v. werkgevers					
2010	Y	D	D.6122	B	26122 D.612		1	0	Toegerekende niet-pensioenpremies t.l.v. werkgevers					
2010	Y	D	D.613	B	2613 D.61		0	0	Werkelijke sociale premies t.l.v. huishoudens					
2010	Y	D	D.6131	B	26131 D.613		1	0	Werkelijke pensioenpremies t.l.v. huishoudens					
2010	Y	D	D.6132	B	26132 D.613		1	0	Werkelijke niet-pensioenpremies t.l.v. huishoudens					
2010	Y	D	D.614	B	2614 D.61		0	0	Aanvullende sociale premies t.l.v. huishoudens					
2010	Y	D	D.6141	B	26141 D.614		1	0	Aanvullende pensioenpremies t.l.v. huishoudens					
2010	Y	D	D.6142	B	26142 D.614		1	0	Aanvullende niet-pensioenpremies t.l.v. huishoudens					
2010	Y	D	D.615C	B	2615 D.61		1	0	Vergoeding voor de sociale verzekeringsregeling					
2010	Y	D	D.62	B	262 D.6		0	0	Sociale uitkeringen (exclusief sociale overdrachten in natura)					
2010	Y	D	D.621	B	2621 D.62		0	0	Wettelijke uitkeringen sociale verzekering in geld					
2010	Y	D	D.6211	B	26211 D.621		1	0	Pensioenuitkeringen sociale zekerheid in geld					
2010	Y	D	D.6212	B	26212 D.621		1	0	Niet-pensioenuitkeringen sociale zekerheid in geld					
2010	Y	D	D.622	B	2622 D.62		0	0	Uitkeringen overige sociale verzekering					
2010	Y	D	D.6221	B	26221 D.622		1	0	Pensioenuitkeringen overige sociale verzekering					
2010	Y	D	D.6222	B	26222 D.622		1	0	Niet-pensioenuitkeringen overige sociale verzekering					
2010	Y	D	D.623	B	2623 D.62		1	0	Uitkeringen sociale voorziening in geld					
2010	Y	D	D.63	B	263 P.31		0	0	Sociale overdrachten in natura					
2010	Y	D	D.631	B	2631 D.63		1	0	Sociale overdrachten in natura – niet-marktproducten van ove					
2010	Y	D	D.632	B	2632 D.63		0	0	Sociale overdrachten in natura – aangekochte marktproducten					
2010	Y	D	D.6323	B	26321 D.632		1	0	Uitkeringen sociale voorziening in natura					
2010	Y	D	D.632A	B	26322 D.632		1	0	Wettelijke uitkeringen sociale verzekering in natura					

2010 Y	D	D.7	B	27 D	0	0 Overige inkomensoverdrachten			
2010 Y	D	D.71	B	271 D.7	0	0 Premies schadeverzekering (netto)			
2010 Y	D	D.711	B	2711 D.71	1	0 Premies directe schadeverzekering (netto)			
2010 Y	D	D.712	B	2712 D.71	1	0 Premies schadeherverzekering (netto)			
2010 Y	D	D.72	B	272 D.7	0	0 Uitkeringen schadeverzekeringen			
2010 Y	D	D.721	B	2721 D.72	1	0 Uitkeringen directe schadeverzekering			
2010 Y	D	D.722	B	2722 D.72	1	0 Uitkeringen schadeherverzekering			
2010 Y	D	D.73	B	273 D.7	1	0 Inkomensoverdrachten binnen de overheid			
2010 Y	D	D.74	B	274 D.7	1	0 Inkomensoverdrachten i.v.m. internationale samenwerking			
2010 Y	D	D.75	B	275 D.7	1	0 Overige inkomensoverdrachten n.e.g.			
2010 Y	D	D.76	B	276 D.7	0	0 Eigen middelen van de EU op basis van BTW en BNI			
2010 Y	D	D.761	B	2761 D.76	1	0 Eigen middelen BTW			
2010 Y	D	D.762	B	2762 D.76	1	0 Eigen middelen BNI			
2010 Y	D	D.763	B	2763 D.76	1	0 Diverse niet-belastingbijdragen van de overheid aan de instel			
2010 Y	D	D.8	B	28 D	1	0 Correctie voor mutaties in voorzieningen pensioenverzekering			
2010 Y	D	D.9	B	29 D	0	0 Kapitaaloverdrachten			
2010 Y	D	D.91	B	291 D.9	1	0 Vermogensheffingen			
2010 Y	D	D.92	B	2921 D.9A	1	0 Investeringsbijdragen			
2010 Y	D	D.99	B	2922 D.9A	1	0 Overige kapitaaloverdrachten			
2010 Y	D	D.9A	B	292 D.9	0	0 Kapitaaloverdrachten exclusief vermogensheffingen			
2010 Y	D	NP	B	41 N	1	0 Saldo aan- en verkopen van niet-geproduceerde niet-financiële			
2010 Y	D	P.119C	B	2412 D.41	1	0 Correctie voor IGDFI			
2010 Y	D	P.2	B	12 P	0	0 Intermediair verbruik			
2010 Y	D	P.2A	B	121 P.2	1	0 Intermediair verbruik exclusief IGDFI			
2010 Y	D	P.2B	B	122 P.2	1	1 Intermediair verbruik van IGDFI			
2010 Y	D	P.3	B	13 P	0	0 Consumptieve bestedingen			
2010 Y	D	P.31	B	131 P.3	0	0 Individuele consumptieve bestedingen			
2010 Y	D	P.31A	B	1311 P.31	0	0 Overige individuele consumptie huishoudens			
2010 Y	D	P.31AA	B	13111 P.31A	1	0 Overige individuele consumptie huishoudens exclusief IGDFI			
2010 Y	D	P.31AB	B	31112 P.31A	1	0 Consumptie huishoudens van IGDFI			
2010 Y	D	P.32	B	132 P.3	1	0 Collectieve consumptieve bestedingen			
2010 Y	D	P.4	B	14 P	0	0 Werkelijke consumptie			
2010 Y	D	P.5	B	15 P	0	0 Investerings			
2010 Y	D	P.51c	B	1512 P.51g	1	0 Verbruik van vaste activa			
2010 Y	D	P.51g	B	151 P.5	0	0 Investerings in vaste activa (bruto)			
2010 Y	D	P.51n	B	1511 P.51g	1	0 Investerings in vaste activa (netto)			
2010 Y	D	P.52	B	1521 P.5A	1	0 Veranderingen in voorraden			
2010 Y	D	P.53	B	1522 P.5A	1	0 Saldo aan- en verkopen van kostbaarheden			
2010 Y	D	P.5A	B	152 P.5	0	0 Veranderingen in voorraden (ind. kostbaarheden)			
2010 Y	D	P.6	B	16 P	0	0 Uitvoer van goederen en diensten			
2010 Y	D	P.61	B	161 P.6	1	0 Uitvoer van goederen			
2010 Y	D	P.62	B	162 P.6	0	0 Uitvoer van diensten			
2010 Y	D	P.62A	B	1621 P.62	0	0 Uitvoer van diensten exclusief IGDFI			
2010 Y	D	P.62AA	B	16211 P.62A	1	0 Uitvoer van diensten exclusief IGDFI en cif-fob correctie			
2010 Y	D	P.62AC	B	16212 P.62A	1	0 Cif-fob correctie			
2010 Y	D	P.62B	B	1622 P.62	1	0 Uitvoer van IGDFI			
2010 Y	D	D.1	M	21 D	0	0 Beloning van werknemers			
2010 Y	D	D.11	M	211 D.1	1	0 Lonen			
2010 Y	D	D.12	M	212 D.1	0	0 Sociale premies t.l.v. werkgevers			
2010 Y	D	D.121	M	2121 D.12	0	0 Werkelijke sociale premies t.l.v. werkgevers			
2010 Y	D	D.1211	M	21211 D.121	1	0 Werkelijke pensioenpremiën t.l.v. werkgevers			
2010 Y	D	D.1212	M	21212 D.121	1	0 Werkelijke niet-pensioenpremiën t.l.v. werkgevers			
2010 Y	D	D.122	M	2122 D.12	0	0 Toegerekende sociale premies t.l.v. werkgevers			
2010 Y	D	D.1221	M	21221 D.122	1	0 Toegerekende pensioenpremiën t.l.v. werkgevers			
2010 Y	D	D.1222	M	21222 D.122	1	0 Toegerekende niet-pensioenpremiën t.l.v. werkgevers			
2010 Y	D	D.2	M	22 D	0	0 Belastingen op productie en invoer			
2010 Y	D	D.21	M	221 D.2	0	0 Productgebonden belastingen			
2010 Y	D	D.211	M	2211 D.21	1	0 Belasting over de toegevoegde waarde (BTW)			
2010 Y	D	D.211A	M	22111 D.2131	1	0 Toegerekende BTW			
2010 Y	D	D.211B	M	23 D	1	0 Verschil toegerekende en afgedragen BTW			
2010 Y	D	D.212	M	2212 D.21	0	0 Belastingen op invoer (exclusief BTW)			
2010 Y	D	D.2121	M	22121 D.212	1	0 Invoerrechten			
2010 Y	D	D.2122	M	22122 D.212	1	0 Overige belastingen op invoer			
2010 Y	D	D.2131	M	24 D	0	0 Saldo productgebonden belastingen en subsidies			
2010 Y	D	D.2131A	M	241 D.2131	1	0 Saldo productgebonden belastingen en subsidies excl. BTW			
2010 Y	D	D.214	M	2213 D.21	1	0 Overige productgebonden belastingen			
2010 Y	D	D.29	M	222 D.2	1	0 Niet-productgebonden belastingen op productie			

2010 Y	D	D.3	M	23 D	0	0 Subsidies				
2010 Y	D	D.31	M	231 D.3	1	0 Productgebonden subsidies				
2010 Y	D	D.39	M	232 D.3	1	0 Niet-productgebonden subsidies				
2010 Y	D	D.4	M	24 D	0	0 Inkomen uit vermogen				
2010 Y	D	D.41	M	241 D.4	0	0 Rente				
2010 Y	D	D.41A	M	2411 D.41	1	0 Rente voor correctie IGDFI				
2010 Y	D	D.42	M	242 D.4	0	0 Winstuitkeringen				
2010 Y	D	D.421	M	2421 D.42	1	0 Dividenden				
2010 Y	D	D.422	M	2422 D.42	1	0 Inkomen onttrokken aan quasi-vennootschappen				
2010 Y	D	D.43	M	243 D.4	1	0 Ingehouden winsten op directe buitenlandse investeringen				
2010 Y	D	D.44	M	244 D.4	0	0 Overig inkomen uit investeringen				
2010 Y	D	D.441	M	2441 D.44	1	0 Inkomen uit investeringen toegerekend aan polishouders				
2010 Y	D	D.442	M	2442 D.44	1	0 Inkomen uit investeringen te betalen i.v.m. pensioenrechten				
2010 Y	D	D.443	M	2443 D.44	0	0 Inkomen uit investeringen toegerekend aan aandeelhouders				
2010 Y	D	D.4431	M	24431 D.443	1	0 Dividenden toegerekend aan aandeelhouders van collectieve				
2010 Y	D	D.4432	M	24432 D.443	1	0 Ingehouden winsten toegerekend aan aandeelhouders van co				
2010 Y	D	D.45	M	245 D.4	1	0 Inkomen uit grond en minerale reserves				
2010 Y	D	D.5	M	25 D	0	0 Belastingen op inkomen, vermogen enz.				
2010 Y	D	D.51	M	251 D.5	1	0 Belastingen op inkomen				
2010 Y	D	D.59	M	252 D.5	1	0 Belastingen op vermogen enz.				
2010 Y	D	D.6	M	26 D	0	0 Sociale premies en uitkeringen				
2010 Y	D	D.61	M	261 D.6	0	0 Sociale premies				
2010 Y	D	D.611	M	2611 D.61	0	0 Werkelijke sociale premies t.l.v. werkgevers				
2010 Y	D	D.6111	M	26111 D.611	1	0 Werkelijke pensioenpremies t.l.v. werkgevers				
2010 Y	D	D.6112	M	26112 D.611	1	0 Werkelijke niet-pensioenpremies t.l.v. werkgevers				
2010 Y	D	D.612	M	2612 D.61	0	0 Toegerekende sociale premies t.l.v. werkgevers				
2010 Y	D	D.6121	M	26121 D.612	1	0 Toegerekende pensioenpremies t.l.v. werkgevers				
2010 Y	D	D.6122	M	26122 D.612	1	0 Toegerekende niet-pensioenpremies t.l.v. werkgevers				
2010 Y	D	D.613	M	2613 D.61	0	0 Werkelijke sociale premies t.l.v. huishoudens				
2010 Y	D	D.6131	M	26131 D.613	1	0 Werkelijke pensioenpremies t.l.v. huishoudens				
2010 Y	D	D.6132	M	26132 D.613	1	0 Werkelijke niet-pensioenpremies t.l.v. huishoudens				
2010 Y	D	D.614	M	2614 D.61	0	0 Aanvullende sociale premies t.l.v. huishoudens				
2010 Y	D	D.6141	M	26141 D.614	1	0 Aanvullende pensioenpremies t.l.v. huishoudens				
2010 Y	D	D.6142	M	26142 D.614	1	0 Aanvullende niet-pensioenpremies t.l.v. huishoudens				
2010 Y	D	D.615C	M	2615 D.61	1	0 Vergoeding voor de sociale verzekeringsregeling				
2010 Y	D	D.62	M	262 D.6	0	0 Sociale uitkeringen (exclusief sociale overdrachten in natura)				
2010 Y	D	D.621	M	2621 D.62	0	0 Wettelijke uitkeringen sociale verzekering in geld				
2010 Y	D	D.6211	M	26211 D.621	1	0 Pensioenuitkeringen sociale zekerheid in geld				
2010 Y	D	D.6212	M	26212 D.621	1	0 Niet-pensioenuitkeringen sociale zekerheid in geld				
2010 Y	D	D.622	M	2622 D.62	0	0 Uitkeringen overige sociale verzekering				
2010 Y	D	D.6221	M	26221 D.622	1	0 Pensioenuitkeringen overige sociale verzekering				
2010 Y	D	D.6222	M	26222 D.622	1	0 Niet-pensioenuitkeringen overige sociale verzekering				
2010 Y	D	D.623	M	2623 D.62	1	0 Uitkeringen sociale voorziening in geld				
2010 Y	D	D.63	M	263 P.31	0	0 Sociale overdrachten in natura				
2010 Y	D	D.631	M	2631 D.63	1	0 Sociale overdrachten in natura – niet-marktproducten van ove				
2010 Y	D	D.632	M	2632 D.63	0	0 Sociale overdrachten in natura – aangekochte marktproducten				
2010 Y	D	D.6323	M	26321 D.632	1	0 Uitkeringen sociale voorziening in natura				
2010 Y	D	D.632A	M	26322 D.632	1	0 Wettelijke uitkeringen sociale verzekering in natura				
2010 Y	D	D.7	M	27 D	0	0 Overige inkomensoverdrachten				
2010 Y	D	D.71	M	271 D.7	0	0 Premies schadeverzekering (netto)				
2010 Y	D	D.711	M	2711 D.71	1	0 Premies directe schadeverzekering (netto)				
2010 Y	D	D.712	M	2712 D.71	1	0 Premies schadeherverzekering (netto)				
2010 Y	D	D.72	M	272 D.7	0	0 Uitkeringen schadeverzekeringen				
2010 Y	D	D.721	M	2721 D.72	1	0 Uitkeringen directe schadeverzekering				
2010 Y	D	D.722	M	2722 D.72	1	0 Uitkeringen schadeherverzekering				
2010 Y	D	D.73	M	273 D.7	1	0 Inkomensoverdrachten binnen de overheid				
2010 Y	D	D.74	M	274 D.7	1	0 Inkomensoverdrachten i.v.m. internationale samenwerking				
2010 Y	D	D.75	M	275 D.7	1	0 Overige inkomensoverdrachten n.e.g.				
2010 Y	D	D.76	M	276 D.7	0	0 Eigen middelen van de EU op basis van BTW en BNI				
2010 Y	D	D.761	M	2761 D.76	1	0 Eigen middelen BTW				
2010 Y	D	D.762	M	2762 D.76	1	0 Eigen middelen BNI				
2010 Y	D	D.763	M	2763 D.76	1	0 Diverse niet-belastingbijdragen van de overheid aan de instel				
2010 Y	D	D.8	M	28 D	1	0 Correctie voor mutaties in voorzieningen pensioenverzekering				
2010 Y	D	D.9	M	29 D	0	0 Kapitaaloverdrachten				
2010 Y	D	D.91	M	291 D.9	1	0 Vermogensheffingen				
2010 Y	D	D.92	M	2921 D.9A	1	0 Investeringsbijdragen				
2010 Y	D	D.99	M	2922 D.9A	1	0 Overige kapitaaloverdrachten				
2010 Y	D	D.9A	M	292 D.9	0	0 Kapitaaloverdrachten exclusief vermogensheffingen				
2010 Y	D	NP	M	41 N	1	0 Saldo aan- en verkopen van niet-geproduceerde niet-financiële				

2010 Y	D	P.1	M	11 P	0	0 Output					
2010 Y	D	P.11	M	111 P.1	0	0 Marktoutput					
2010 Y	D	P.119	M	1112 P.11	1	0 Indirect gemeten diensten van financiële intermediairs (IGDFI)					
2010 Y	D	P.119C	M	2412 D.41	1	0 Correctie voor IGDFI					
2010 Y	D	P.11A	M	1111 P.11	1	0 Overige marktoutput					
2010 Y	D	P.12	M	112 P.1	0	0 Output voor eigen finaal gebruik					
2010 Y	D	P.12A	M	1121 P.12	1	0 Investerings in eigen beheer					
2010 Y	D	P.12B	M	1122 P.12	1	0 Output voor eigen consumptie					
2010 Y	D	P.13	M	113 P.1	0	0 Niet-marktoutput					
2010 Y	D	P.131	M	1131 P.13	1	0 Betalingen voor niet-marktoutput					
2010 Y	D	P.132	M	1132 P.13	1	0 Niet-marktoutput, overig					
2010 Y	D	P.3	M	13 P	0	0 Consumptieve bestedingen					
2010 Y	D	P.31	M	131 P.3	0	0 Individuele consumptieve bestedingen					
2010 Y	D	P.31A	M	1311 P.31	0	0 Overige individuele consumptie huishoudens					
2010 Y	D	P.31AA	M	13111 P.31A	1	0 Overige individuele consumptie huishoudens exclusief IGDFI					
2010 Y	D	P.31AB	M	31112 P.31A	1	0 Consumptie huishoudens van IGDFI					
2010 Y	D	P.32	M	132 P.3	1	0 Collectieve consumptieve bestedingen					
2010 Y	D	P.4	M	14 P	0	0 Werkelijke consumptie					
2010 Y	D	P.5	M	15 P	0	0 Investerings					
2010 Y	D	P.51c	M	1512 P.51g	1	0 Verbruik van vaste activa					
2010 Y	D	P.51g	M	151 P.5	0	0 Investerings in vaste activa (bruto)					
2010 Y	D	P.51n	M	1511 P.51g	1	0 Investerings in vaste activa (netto)					
2010 Y	D	P.52	M	1521 P.5A	1	0 Veranderingen in voorraden					
2010 Y	D	P.53	M	1522 P.5A	1	0 Saldo aan- en verkopen van kostbaarheden					
2010 Y	D	P.5A	M	152 P.5	0	0 Veranderingen in voorraden (ind. kostbaarheden)					
2010 Y	D	P.7	M	17 P	0	0 Invoer van goederen en diensten					
2010 Y	D	P.71	M	171 P.7	0	0 Invoer van goederen					
2010 Y	D	P.71A	M	1711 P.71	1	0 Invoer van goederen exclusief cif-fob correctie en herdassific					
2010 Y	D	P.71AC	M	1712 P.71	1	0 Cif-fob correctie					
2010 Y	D	P.71H	M	1713 P.71	1	0 Cif-fob herdassificatie					
2010 Y	D	P.72	M	172 P.7	0	0 Invoer van diensten					
2010 Y	D	P.72A	M	1721 P.72	0	0 Invoer van diensten exclusief IGDFI					
2010 Y	D	P.72AA	M	17211 P.72A	1	0 Invoer van diensten exclusief IGDFI en cif-fob correctie en her					
2010 Y	D	P.72AH	M	17212 P.72A	1	0 Cif-fob herdassificatie					
2010 Y	D	P.72B	M	1722 P.72	1	0 Invoer van IGDFI					

### 9.3 Classifications used for the expenditure approach

Table 9.3 COICOP Classification for household final consumption expenditure

COICOP code	Description
CP01	Food and non-alcoholic beverages
CP011	Food
CP012	Non-alcoholic beverages
CP02	Alcoholic beverages, tobacco and narcotics
CP021	Alcoholic beverages
CP022	Tobacco
CP023	Narcotics
CP03	Clothing and footwear
CP031	Clothing
CP032	Footwear incl. repair

COICOP code		Description
CP04		Housing, water, electricity, gas and other fuels
	CP041	Actual rentals for housing
	CP042	Imputed rentals for housing
	CP043	Maintenance and repair of the dwelling
	CP044	Water supply and miscellaneous services relating to the dwelling
	CP045	Electricity, gas and other fuels
CP05		Furnishings, household equipment and routine maintenance of the house
	CP051	Furniture and furnishings, carpets and other floor coverings
	CP052	Household textiles
	CP053	Household appliances
	CP054	Glassware, tableware and household utensils
	CP055	Tools and equipment for house and garden
	CP056	Goods and services for routine household maintenance
CP06		Health
	CP061	Medical products, appliances and equipment
	CP062	Out-patient services
	CP063	Hospital services
CP07		Transport
	CP071	Purchase of vehicles
	CP072	Operation of personal transport equipment
	CP073	Transport services
CP08		Communication
	CP081	Postal services
	CP082	Telephone and telefax equipment
	CP083	Telephone and telefax services
CP09		Recreation and culture
	CP091	Audio'-visual, photographic and information processing equipment
	CP092	Other major durables for recreation and culture
	CP093	Other recreational items and equipment, gardens and pets
	CP094	Recreational and cultural services
	CP095	Newspapers, books and stationery
	CP096	Package holidays
CP10		Education
	CP101	Pre'-primary and primary education
	CP102	Secondary education
	CP103	Post'-secondary non'-tertiary education
	CP104	Tertiary education
	CP105	Education not definable by leve
CP11		Restaurants and hotels
	CP111	Catering services
	CP112	Accommodation services
CP12		Miscellaneous goods and services
	CP121	Personal care
	CP122_127	Prostitution; other services n.e.c.
	CP122	Prostitution
	CP123	Personal effects n.e.c.
	CP124	Social protection
	CP125	Insurance
	CP126	Financial services n.e.c.
	CP127	Other services n.e.c.

The relationship between the household Budget Survey (HBS) and the Supply and use table (SUT) is given in the following Excel-sheet.



[Link HBS-SUT.xlsx](#)

The link between classifications of goods and services in the trade statistics and the SUT is given below in these Excel-sheets



[Schakelschema\\_GN2  
010\\_NRgoederengro](#)



[Link ITS-SUT.xlsx](#)

**Table 9.4 GFCF breakdown into type of asset used**

<b>GFCF breakdown</b>	
AN. 111	Dwellings
AN.111b	Transfer costs of dwellings
AN.1121	Buildings other than dwellings
AN.1121b	Transfer costs of buildings
AN.1122	Other structures
AN.1122b	Transfer costs of land
AN.1131	Transport equipment
	passenger cars
	airplanes
	ships
	other transport vehicles
	trains and trams
AN.1132	Equipment
AN.11321	Computer hardware
AN.11322	Telecommunications equipment
	telecommunication
	other IT equipment
AN.1139a	Machinery and installations
AN.1139b	Other machinery and equipment
AN.114	Weapon systems
	warplanes
	warships
	transport equipment
	tanks, weapons and munitions
	communications equipment
AN.115	Cultivated biological resources
AN.1151	Animal resources yielding repeat products
AN.1152	Tree, crop and plant resources yielding repeat products
AN.1171	Research and development
AN.1172	Mineral exploration and evaluation
AN.1173	Computer software and databases
	purchases of software packages
	payment of royalties and licenses on software
	payment for services related to the development own-account custom made software
AN. 1174	Entertainment, literary and artistic originals

Own-account GFCF is distinguished in the following asset types		
AN.1121		Buildings other than dwellings
AN.1122		Other structures
AN.1131		Transport equipment (other transport vehicles, trains and trams)
AN.1139a		Machinery and installations
AN.1152		Tree, crop and plant resources yielding repeat products
AN.1171		Research and development
AN.1173		Computer software and databases
AN. 1174		Entertainment, literary and artistic originals

#### 9.4 Classifications used in the transition from GDP to GNI

In the transition from GDP to GNI no other classifications are used than already mentioned in the paragraphs 9.1 – 9.3.



## **CHAPTER 10   MAIN DATA SOURCES USED**

### **10.1   Statistical surveys and other data sources used for the production approach**

#### **10.1.1   Business Statistics (SBS-statistics)**

In the Netherlands the Business Statistics are held in a lot of branches of industry. More than 100 different forms are used. A detailed description of this annual survey is found in chapter 3, section 3.1.2.

An example for the Manufacturing industry:



VL0023 PS Industrie  
met CPA\_425.pdf

Name of survey:	Business Statistics
Link to surveys undertaken at the European level:	
Reporting units:	Enterprise
Periodicity:	Annual
Time of availability of results:	18 months after the end of the survey period
Sampling frame:	Statistical Business Register of Statistics Netherlands
Survey is compulsory or voluntary?	Compulsory
Main features of survey methodology:	<ul style="list-style-type: none"> <li>- PPS-sampling (stratification on NACE and size class employment).</li> <li>- Census approach for largest enterprises (100 persons employment and more).</li> <li>- Threshold applied (<math>\geq 10</math> persons employed) for part of the NACE activities. See annex 3.1.</li> <li>- Electronic and postal questionnaires depending on the preference of the respondent.</li> </ul>
Population size:	Circa 870 thousand enterprises in the domain of production statistics.
Sample size:	74 thousand
Survey response rate:	74 per cent (unweighted)
Method used to impute for missing data:	<ul style="list-style-type: none"> <li>- Weighting/grossing up for PPs part of the sample.</li> <li>- Several imputation techniques for census part (use of Tmin1 data, STS data, VAT-data, average of stratum).</li> </ul>
Variable used for grossing-up to the population:	Both turnover and employment are used in the grossing-up procedure.
Sample coverage, as % in terms of variable used for grossing-up:	Sample covers 67 per cent of the employment in the sampling frame.
Main variables collected:	Operating surplus, turnover, operating costs, purchase value of sales, personnel costs, other costs, Operating returns. Also derived variables like production value and value added
Further adjustments made to the survey data:	--

### 10.1.2 Finance of enterprises (SFO)



Name of survey:	Statistics of finances of enterprises
Link to surveys undertaken at the European level:	-
Reporting units:	Enterprise group
Periodicity:	Annual and quarterly
Time of availability of results:	Annual: 14 months after the end of the survey period, Quarterly: 90 days after the end of the survey period.
Sampling frame:	Statistical Business Register
Survey is compulsory or voluntary?	Compulsory
Main features of survey methodology:	Annual: use of a size threshold for sampling. Quarterly: panel of respondents
Population size:	About 300.000 enterprise groups
Sample size:	Annual: about 2300, Quarterly: about 350
Survey response rate:	Annual 80 per cent response, Quarterly 85 to 90 per cent response
Method used to impute for missing data:	Last available survey of the enterprise
Variable used for grossing-up to the population:	Population totals are not determined by grossing up. For the not sampled part of the population, annual statistics are register based, based on tax data. Quarterly statistics are based on model-based estimation; extrapolation of annual statistics.
Sample coverage, as % in terms of variable used for grossing-up:	Annual about 75 per cent of total assets, quarterly about 60 per cent of total assets.
Main variables collected:	Full balance sheets and profit and loss account
Further adjustments made to the survey data:	-

### 10.1.3 ICT-usage and ICT-expenditure, 2010

 ICT-gebruik  
vragenlijst 2010 RZ3;

 ICT\_UTTG\_10.pdf

Name of survey:	ICT usage of enterprises 2010.
Link to surveys undertaken at the European level:	This survey is the Dutch version of the Community Survey on ICT Usage and E-commerce in enterprises 2011.
Reporting units:	Business enterprise
Periodicity:	Annual
Time of availability of results:	Approximately 10 months after the end of the reference period.
Sampling frame:	Statistical Business Register.
Survey is compulsory or voluntary?	Voluntary for enterprises.
Main features of survey methodology:	The survey methodology is described in the quality report (see annex).
Population size:	49.546
Sample size:	Gross sample: 9.871 Net sample: 6.963
Survey response rate:	71 per cent
Method used to impute for missing data:	See quality report in annex.
Variable used for grossing-up to the population:	Depending on the variable either the number of employed persons, or the ratio of the population size and the number of respondents in the stratum (N/n).
Sample coverage, as % in terms of variable used for grossing-up:	Not available.
Main variables collected:	See questionnaire, which is attached as an annex.
Further adjustments made to the survey data:	See editing methods described in the quality report (annex).

Name of survey:	ICT expenditure 2010.
Link to surveys undertaken at the European level:	This survey is the Dutch version of the Community Survey on ICT Investment and expenditure in Enterprises for 2010.
Reporting units:	Business enterprise.
Periodicity:	Annual. (The survey was ended in 2011.)
Time of availability of results:	Approximately 18 months after the end of the reference period.
Sampling frame:	Statistical Business Register.
Survey is compulsory or voluntary?	Voluntary for enterprises.
Main features of survey methodology:	In principle the same sample was used as in the survey 'ICT usage in enterprises 2010'. This sample was drawn at random from the frame population, with full coverage of enterprises employing 250 or more persons. The size threshold was 10 or more employed persons. Approximately 90 per cent of respondents used a web questionnaire, the remaining part used paper questionnaires.
Population size:	49.354
Sample size:	Gross sample: 9.684 Net sample: 6.606
Survey response rate:	Survey response rate: 68 per cent
Method used to impute for missing data:	No specific imputing method was applied.
Variable used for grossing-up to the population:	Turnover.
Sample coverage, as % in terms of variable used for grossing-up:	Not available.
Main variables collected:	See questionnaire, which is attached as an annex.
Further adjustments made to the survey data:	No specific adjustments were made other than ad hoc logical data editing rules.

For the ICT-usage questionnaire a Quality Report is available as an annex:



NL - Quality report  
ICT usage enterprise

### 10.1.4 R&D survey



Name of survey:	R&D survey
Link to surveys undertaken at the European level:	Science and Technology Indicators
Reporting units:	Enterprise
Periodicity:	Annual
Time of availability of results:	Preliminary results 10 months after the end of the survey period, final results 18 months after the end of the survey period
Sampling frame:	Statistical Business Register of Statistics Netherlands
Survey is compulsory or voluntary?	Compulsory
Main features of survey methodology:	For enterprises with 10 or more persons employed sampling is used. Stratification is based on NACE and size of the enterprise. For enterprises with less than 10 persons employed we make an estimate based on R&D tax incentive data provided by the Dutch government.
Population size:	for sampling 60.542 with 10 or more persons employed. Number of firms with less than 10 persons employed about 950.000.
Sample size:	4.988
Survey response rate:	74 per cent
Method used to impute for missing data:	First step t-1 data of the same enterprise, subsequently imputation based on average for NACE/Size combination
Variable used for grossing-up to the population:	Number of enterprises
Sample coverage, as % in terms of variable used for grossing-up:	$4.988/60.542=8,2$ per cent
Main variables collected:	R&D personnel (HC and FTE), R&D expenditure
Further adjustments made to the survey data:	none

### 10.1.5 Netherlands' Housing Survey (WoON)

Name of survey: Netherlands' Housing Survey (WoON)
Link to surveys undertaken at the European level (e.g. Structural Business Statistics): -
Reporting units (e.g. enterprise/ local KAU/ household): Persons aged 18 years or older living in private households
Periodicity (e.g. annual/quarterly/other- to be specified): Three-yearly
Time of availability of results (e.g. 18 months after the end of the survey period): 12 months after the end of the survey period.
Sampling frame: (e.g. name of business register used/ population census): The sample is taken from all non-institutionalised Dutch residents who are 18 years or older and registered with their local municipality. From this group a stratified sample is taken according to the design of the survey, with nationwide coverage of municipalities.
Survey is compulsory or voluntary? Voluntary
Main features of survey methodology (e.g. PPS sampling/ panel of respondents/ use of a size threshold for sampling/ postal questionnaire/ telephone interview): The housing Survey is conducted according to a 'mixed mode' design. Sample units (persons) are asked to participate via the internet (CAWI – Computer Assisted Web Interviewing). Non-respondents are re-approached using Computer Assisted Telephone Interviewing (CATI) if their telephone number is known, and otherwise by way of Computer Assisted Personal Interviewing (CAPI).
Population size: The population of WoON consist of approximately 12 million persons.
Sample size: A minimum of 60,000 respondents have to be complete the questionnaire, as the survey should also provide reliable information on small geographical subareas.
Survey response rate: Approximately 59%
Method used to impute for missing data: Missing values are imputed with a 'hot-deck' method.
Variable used for grossing-up to the population (e.g. turnover/ employment): A correction is applied to control differences between the sample and the population. For this purpose a weighting factor is used based on sex, age, ethnic background, region (municipality, COROP, province and some on request- oversampled municipalities), household income, Value Immovable Property and survey period.
Sample coverage, as % in terms of variable used for grossing-up (e.g. sample covers 60% of employment recorded on the sampling frame):
Main variables collected: Housing costs, Living conditions, Prediction of relocation and moving house intention

Further adjustments made to the survey data: None
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### 10.1.6 Rent increase for dwellings

Name of survey: Rent increase for dwellings.
Link to surveys undertaken at the European level (e.g. Structural Business Statistics): -
Reporting units (e.g. enterprise/ local KAU/ household): Housing corporations, businesses, municipal housing institutions, corporations, private landlord and corporate investors.
Periodicity (e.g. annual/quarterly/other- to be specified): Annual.
Time of availability of results (e.g. 18 months after the end of the survey period): Approximately 1 month after the end of the reference period (July).
Sampling frame: (e.g. name of business register used/ population census): BAG register (Basis Administratie Gebouwen/ Basic Administration of Buildings).
Survey is compulsory or voluntary? Compulsory for all, only voluntary for private landlords.
Main features of survey methodology (e.g. PPS sampling/ panel of respondents/ use of a size threshold for sampling/ postal questionnaire/ telephone interview): The survey methodology is described in the methodology report (see annex).
Population size: 3.321.397 dwellings (July 2016)
Sample size: Integral: 390.262 (July 2016) Sample: 16.189 (July 2016)
Survey response rate: 97% (July 2016)
Method used to impute for missing data: No specific imputing method was applied.
Variable used for grossing-up to the population (e.g. turnover/ employment): Number of dwellings
Sample coverage, as % in terms of variable used for grossing-up (e.g. sample covers 60% of employment recorded on the sampling frame): The sample part covers 0,6% of total dwellings (July 2016). $=16.189/(3.321.397-390.262)$
Main variables collected: Rents and other costs, specifications of the dwelling
Further adjustments made to the survey data: None

- **Methodology**



#### 10.1.7 Home ownership (bewoonde en niet-bewoonde woningen en woningvoorraad)

Name of survey: Home ownership (Eigendom)
Link to surveys undertaken at the European level (e.g. Structural Business Statistics): -
Reporting units (e.g. enterprise/ local KAU/ household): dwelling
Periodicity (e.g. annual/quarterly/other- to be specified): annual
Time of availability of results (e.g. 18 months after the end of the survey period): 6-9 months
Sampling frame: (e.g. name of business register used/ population census): Basisregistratie Adressen en Gebouwen (BAG)
Survey is compulsory or voluntary? -
Main features of survey methodology (e.g. PPS sampling/ panel of respondents/ use of a size threshold for sampling/ postal questionnaire/ telephone interview): -
Population size: approximately 7 million dwellings.
Sample size: -
Survey response rate: -
Method used to impute for missing data: -
Variable used for grossing-up to the population (e.g. turnover/ employment): -
Sample coverage, as % in terms of variable used for grossing-up (e.g. sample covers 60% of employment recorded on the sampling frame): -
Main variables collected: Ownership (rented or owner-occupied property); Type of owner (if ownership is rented:social or not); (un)occupied.
Further adjustments made to the survey data:-

## 10.2 Statistical surveys and other data sources used for the income approach

### 10.2.1 Administrative records employment and social insurance

Name of survey:	Polisadministration
Link to surveys undertaken at the European level:	Not applicable
Reporting units:	Enterprises reporting jobs to the National Tax Office and Workers Insurance Agency
Periodicity:	Time frames of the listings are four weeks, monthly, half year or year. We report monthly.
Time of availability of results:	2 months after data load
Sampling frame:	Not applicable, we use the full Administration
Survey is compulsory or voluntary?	Tax filing is compulsory within due date
Main features of survey methodology:	Use of a Administration, information of all jobs and other income transfers in the Netherlands
Population size:	Not applicable, not a sample
Sample size:	Not applicable, not a sample
Survey response rate:	Not applicable, not a sample
Method used to impute for missing data:	Nearest Neighbourhood Method
Variable used for grossing-up to the population:	Not applicable, not a sample
Sample coverage, as % in terms of variable used for grossing-up:	Full coverage, no sample
Main variables collected:	Job status, wage, hours worked
Further adjustments made to the survey data:	Inconsistencies will be imputed or removed

### 10.2.2 Direct Reporting Scheme (Directe rapportages, DRA)

The Central Bank (DNB) distinguishes the following reporting profiles for the Dutch balance of payments:

- BFI Benchmark (BEB)
- Special financial institution (BFI)
- Special Financial Institutions, SPVs (BFS)
- Investment funds, limited (BIB)
- Investment funds, complete (BIC)
- Investment funds, minimal (BIM)
- Investment funds, full (BIV)
- Custodians (BWB)
- Clearing Members (CLM)
- Central securities depository (CSD)
- The Central Bank (DNB)
- Other monetary financial institutions (MFI)
- Other monetary financial institutions - international trade in services (MFI trade)
- Non-financial corporations (NFV)
- Other financial institutions (OFI)
- Governmental institutions (OVH)
- Pension funds, quarterly reporters (PNK)
- Pension funds, monthly reporters (PNM)
- Syndicated loans abroad (SLB)
- Syndicated loans Netherlands (SLN)
- Insurance corporations, quarterly reporters (VRK)
- Insurance corporations, monthly reporters (VRM)
- Health insurance companies (ZVK)

Two examples of questionnaires are the following.

  
Monthly\_reporting\_f  
orms\_profile\_BFI\_(ve

  
Monthly\_reporting\_f  
orms\_profiles\_NFV\_ai

Name of survey:	Direct Reporting Scheme of the Central Bank
Link to surveys undertaken at the European level:	Balance of payments, sector accounts
Reporting units:	Enterprise or legal entity
Periodicity:	Depends on profile: monthly, quarterly or annual
Time of availability of results:	<p>Monthly reports must be received by DNB by the 15th working day after the reporting month at the latest. Quarterly reports must be received by DNB by the 30th working day after the reporting quarter at the latest. Exception are the quarterly reports by institutions with profiles BIC, BIV and BIB. Their reports must be received by DNB by the 15th working day after the reporting quarter at the latest.</p> <p>Yearly reports must be received within 4 months after the end of the reporting fiscal year. Exception are the yearly reports by institutions with profiles BIB and BIM. Their reports must be received by DNB within 30 working days after the end of the calendar year.</p>
Sampling frame:	Depends on profile; mostly supervision register of DNB. DNB maintains and updates the population of reporting entities, partly through intensive monitoring of media reports.
Survey is compulsory or voluntary?	Compulsory
Main features of survey methodology:	DNB has an online application. The application itself may be launched only by reporters that have received an authorisation from DNB.
Population size:	Depends on profile.
Sample size:	Depends on profile.
Survey response rate:	Depends on profile.
Method used to impute for missing data:	Different methods; for instance using averages of reported data of the last 12 months or using data of t-1
Variable used for grossing-up to the population:	Different methods, for instance additive methods, or grossing up with help of reference data
Sample coverage, as % in terms of variable used for grossing-up:	Depends on profile.
Main variables collected:	Balance sheet information, property income variables
Further adjustments made to the survey data:	none

## 10.3 Statistical surveys and other data sources used for the expenditure approach

### 10.3.1 International trade in services



Vragenlijst IHD.pdf

Name of survey:	Statistics of the international trade in services
Link to surveys undertaken at the European level:	
Reporting units:	Enterprises and individuals registered in the Netherlands active in imports or exports of services. Data for international services, except travel, are based on survey of enterprises. Data for travel are based on individual information from household surveys and the survey on overnight stays in Dutch accommodation.
Periodicity:	Quarterly.  Annual data become available at the same time as the fourth quarter figures.
Time of availability of results:	As a rule, provisional quarterly figures become available three months after the period under review. The figures may be adjusted six months after the quarter under review as a result of improvements and increases in response. This means that during this time the figures remain provisional. Definite quarterly figures become available in the last quarter of the statistical year. The annual, more detailed figures become available at the same time.
Sampling frame:	Data for international trade in services are compiled from a combination of information sources:  - Each quarter, Statistics Netherlands requests enterprises to supply data on imports and exports of services. The large enterprises (i.e. those with high values of imports or exports of services) in the international trade in services are all observed, while for the smaller enterprises (i.e. those with lower values of imports or exports of services), the results are based on a sample.  - Statistics Netherlands receives quarterly figures from the DNB on international trade of services by monetary financial institutions and special financial Institutions.  - For information on travel services, the import value of travel (= expenditure of Dutch residents abroad) is based on the results of the Continuous Holiday Survey conducted by NBTC-NIPO Research. The estimation of export value of travel (= spending by foreigners in the Netherlands) is based on sample data from survey of overnight stays in Dutch accommodation and the price index figures for

	<p>consumption by foreigners in the Netherlands.</p> <ul style="list-style-type: none"> <li>- Data from the international goods trade statistics are used to adjust figures for transport services for exports and imports, and for insurance services for exports only.</li> <li>- For a number of services, the estimation of import and export values is based on a time series model. These are financial services, insurance services, government services, transit trade and other trade related services.</li> </ul>
Survey is compulsory or voluntary?	Compulsory
Main features of survey methodology:	Data from enterprises are collected mostly through electronic questionnaires.
Population size:	The population for the statistics on international trade in services consists of two parts: large enterprises which are all in observation and small and medium enterprises (SME's) of which a sample is drawn. The population of large enterprises is based on the SBR in combination with information from the department responsible for consistent observation of large and complex enterprises and SBS. The register of SME-units is based on a variety of sources. Starting point is the register of the Dutch Central Bank (DNB) in 2003 when CBS took over the observation of ITS. Since then the register is annually updated using the response of the previous year, data on international payments from DNB, (a selection of) units involved in international trade in goods, units which respond positively on questions on international transactions in SBS.
Sample size:	<p>Enterprises directly questioned by Statistics Netherlands can be divided in two groups : an exhaustive survey of large enterprises (i.e. those with high values of imports or exports of services) and a sample survey of the remaining enterprises (i.e. those with lower values of imports or exports of services). The 350 large enterprises provide the most detailed information. This comprises 55 services categories, imports and exports, and a geographical breakdown for 250 countries.</p> <p>The size of the sample comprises about 5,000 units. They receive a questionnaire with a less detailed breakdown covering some 25 services</p>
Survey response rate:	--
Method used to impute for missing data:	In the case of non-response, values are imputed on the basis of figures from earlier quarters. If these figures are missing the extra weight method is applied.
Variable used for grossing-up to the population:	The stratification of the sample enterprises is based on economic activity, employee size class and the expected chance that the enterprise imports or exports services. Using these characteristics, data are subsequently weighted by the frame from which the sample is drawn. Imports of travel are based on characteristics of travelers abroad (sex, age, region, urbanization and education) weighted by the

	total Dutch population. For exports of travel, samples from Dutch accommodation providers are weighted using a regression estimator for the total population of accommodation providers. Data from other sources are included in the results without weights
Sample coverage, as % in terms of variable used for grossing-up:	--
Main variables collected:	--
Further adjustments made to the survey data:	--

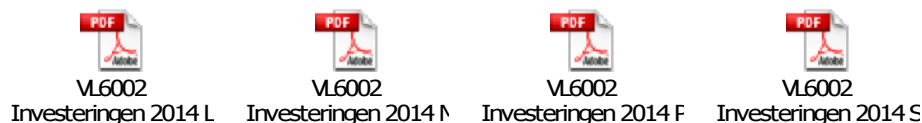
### 10.3.2 International trade in goods

Name of survey:	International trade in goods
Link to surveys undertaken at the European level:	--
Reporting units:	All enterprises in the Netherlands active in imports and / or exports of goods
Periodicity:	Monthly
Time of availability of results:	For final results 8 months after the reporting month
Sampling frame:	For enterprises Active in trade with third countries the information is surveyed at the customs, via the Sagitta system.
Survey is compulsory or voluntary?	Compulsory
Main features of survey methodology:	All enterprises with amount of trade above the threshold have to report Statistics Netherlands
Population size:	
Sample size:	
Survey response rate:	
Method used to impute for missing data:	For non-respondents missing values are imputed based on historical data. Furthermore data are grossed up for enterprises below the threshold of € 1.500.000.
Variable used for grossing-up to the population:	
Sample coverage, as % in terms of variable used for grossing-up:	
Main variables collected:	
Further adjustments made to the survey data:	

### 10.3.3 The household budget survey

Name of survey:	Budget Survey
Link to surveys undertaken at the European level:	--
Reporting units:	Households
Periodicity:	Annual
Time of availability of results:	Provisional figures 12 – 18 months after the end of the survey period; final estimates one year later.
Sampling frame:	All private households; occupants of institutional homes are not surveyed.
Survey is compulsory or voluntary?	Voluntary
Main features of survey methodology:	Households are selected randomly; written questionnaires are used and – if the telephone number is known – also by telephone. Participants receive an code to fill in the several questionnaires and the household expenses.
Population size:	All households in the Netherlands (10 million).
Sample size:	Sample size: 5.000 – 6.000
Survey response rate:	
Method used to impute for missing data:	Imputations and corrections based on additional information.
Variable used for grossing-up to the population:	Grossing up procedure has two steps. (1) Household gets an initial weight, based on the chance to fall into the sample and (2) the definite weight is calculated taking into account the possible bias as a consequence of non-respons.
Sample coverage, as % in terms of variable used for grossing-up:	
Main variables collected:	Characteristics of the households and their expenditure
Further adjustments made to the survey data:	

### 10.3.4. Gross Fixed Capital Formation (GFCF)



Name of survey:	Investment survey
Link to surveys undertaken at the European level:	none
Reporting units:	Enterprise
Periodicity:	Annual
Time of availability of results:	16 months after the end of the survey period
Sampling frame:	General Business Register ABR
Survey is compulsory or voluntary?	Compulsory
Main features of survey methodology:	PPS Sampling
Population size:	± 1.100.000
Sample size:	± 45.000
Survey response rate:	± 82%
Method used to impute for missing data:	Weighing
Variable used for grossing-up to the population:	Employment
Sample coverage, as % in terms of variable used for grossing-up:	Sample covers 40% of employment recorded on the sampling frame
Main variables collected:	Non-residential buildings, other structures, transport equipment, computers, machinery and installations, other tangible fixed assets
Further adjustments made to the survey data:	none

### 10.4 Statistical surveys and other data sources used for the transition from GDP to GNI.

No specific surveys, other than explained in the other sections of this chapter, are carried out for the transition from GDP to GNI.

## ANNEX A Process tables



## LIST OF ANNEXES

### Chapter 1

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