4. The Income Approach

4.0 GDP according to the income approach

For 2012, the calculation of income based GDP can be summarised as in table 4.1 below:

Table 4.1 GDP, income approach, 2012

	Value	% of GDP
	DKK mill.	pct.
Compensation of employees	977 516	51.9
+ Gross operating surplus and mixed income	640 958	34.0
+ Taxes on production and imports	312 445	16.6
- Subsidies	48 293	2.6
= GDP	1 882 625	100.0

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

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

Table 4.2 Value added/GDP by the income approach. Breakdown by industry, 2012

		Value added/GDP	Compensation of employees (D.1)	Taxes on products (D.21)	Other taxes on production and imports (D.29)	Subsidies on products (D.31)	Other subsidies on production (D.39)	Gross operating surplus and mixed income
		DKK mill.						
A	Agriculture, forestry and fishing	31 356	9 048		1 322		8 201	29 188
B	Mining and quarrying	56 645	4 089		32		95	52 620
C	Manufacturing	215 309	123 977		2 424		2 238	91 148
D	Electricity, gas, steam and air conditioning supply	25 067	5 841		165		307	8 947
E	Water supply, sewerage etc.	13 622	4 483		289		96	8 947
F	Construction	74 530	56 315		1 132		1 080	18 165
G	Wholesale and retail trade	197 714	139 067		2 187		2 839	59 299
H	Transportation and storage	81 891	52 875		2 110		2 912	29 817
I	Accommodation and food service activities	23 738	17 581		428		774	6 503
J	Information and communication	73 193	46 021		445		782	27 508
K	Financial and insurance activities	102 419	49 763		4 899		598	48 356
L	Real estate activities	164 888	13 057		28 983		4 185	137 703
M	Professional, scientific and technical activities	83 007	62 650		504		1 192	21 044
N	Administration and support activities	45 289	35 013		723		842	10 393
O	Public administration	92 301	70 785		794		1 133	21 855
P	Education	105 618	87 964		663		1 358	18 351
Q	Human health	180 953	160 499		1 923		3 980	22 511
R	Arts, entertainment	25 009	14 721		499		1 500	11 288
S	Other service activities	26 536	19 145		767		268	6 894
T	Activities of households as employees	4 624	4 624		0		0	0
	Total	1 623 709	977 516		50 288		34 380	640 958
	GDP	1 882 625		272 919		14 003		

Manufacturing (Nace section C) and wholesale and retail trade (Nace section G) account for the largest part of total value added followed by human health (Nace section Q) and real estate activities (Nace section L). The largest shares of compensation of employees relative to value added are in education (Nace section P) and human health (Nace section Q), that are dominated by non-market activity. For industries dominated by market-activities the largest share of compensation of employees relative to value added are in construction (Nace section F), accommodation and food service industries (Nace section I) and professional, scientific and technical activities (Nace section M). Looking at gross operating surplus and mixed income, Real Estate Activities (Nace section L), that includes owner occupied dwellings, accounts for the by far largest share. Looking at industries other than Real estate activities, Manufacturing accounts for the largest share followed by Wholesale and retail trade, Mining and quarrying and Financial and insurance activities.

Table 4.3 Value added/GDP by the income approach. Breakdown by institutional sector, 2012

		Value added/GDP	Compensation of employees (D.1)	Taxes on products (D.21)	Other taxes on production and imports (D.29)	Subsidies on products (D.31)	Other subsidies on production (D.39)	Gross operating surplus and mixed income
		DKK mill.						
S11	Non-financial Corporations	933 171	553 514		15 976		18 081	381 761
S12	Financial Corporations	102 781	49 853		4 900		1 506	49 534
S13	General Government	366 912	314 639		2 990		6 643	55 926
S14	Households	197 033	36 660		15 472		8 061	152 962
S15	NPISH	23 813	22 850		188		0	775
S1	Total	1 623 709	977 516		39 526		34 290	640 958
	GDP	1 882 625		272 919		14 003		

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

Looking at institutional sectors, non-financial corporations (S.11) and general government (S.13) by far account for the largest share of compensation of employees while at the same time non-financial corporations (S.11) and households (S.14) account for by far the largest share of gross operating surplus and mixed income. When looking at households (S.14) it must be kept in mind, that gross operating surplus related to owner occupied dwellings (68.834 mill. DKK) is placed here.

4.1 The reference framework

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

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

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

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

The Working Time Accounts

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

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

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

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

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

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

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

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

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

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

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

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

- Employment Statistics for Employees (BfL)

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

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

2. The Structural Earning Statistics

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

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

3. The Labour Force Survey (LFS)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4.2 Borderline cases

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

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

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

4.3 Valuation

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

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

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

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

4.4 Transition from private accounting and administrative concepts to ESA2010 concepts

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

Table 4.4 Estimation method used for components of GDP according to the income approach, 2012

	Component/institutional sector	Adm. Records	Combined data	Dwellings stratification	Other	Total sources	Conceptual adjustments	Exhaustiv. adjustments	Balancing	Total adjustments	Final estimate
		DKK mill.									
	Compensation of employees		954 386			954 386	9 482	14 622	-975	23 262	977 516
S.11	Non-Financial Corporations		543 027			543 027	3 954	7 508	-975	10 487	553 514
S.12	Financial Corporations		49 989			49 989	-1 355	1 218		-137	49 853
S.13	General government		303 602			303 602	9 278	1 759		11 037	314 639
S.14	Households		33 332			33 332	-728	4 056		3 328	36 660
S.15	NPISH		24 302			24 302	-1 534	82		-145	22 850
	Gross operating surplus			68 834	480 892	549 726		7 104		7 104	556 830
S.11	Non-financial corporations				374 657	374 657		7 104		7 104	381 761
S.12	Financial corporations				49 534	49 534					49 534
S.13	General government				55 926	55 926					55 926
S.14	Households			68 834		68 834					68 834
S.15	NPISH				775	775					775
	Mixed income				73 541	73 541		10 587		10 587	84 128
S.14	Households				73 541	73 541		10 587		10 587	84 128
	Other taxes on production	39 526				39 526					39 526
	Other subsidies on production	34 290				34 290					34 290
	Taxes on products	272 919				272 919					272 919
	Subsidies on products	14 003				14 003					14 003
	GDP										1 882 626

As gross operating surplus and mixed income are based on the estimate of value added from the production side, the adjustments made to ensure compliance with ESA 2010 are described in chapter 3.3.

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

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

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

4.6 The main approaches taken with respect to exhaustiveness

The most important explicit allowances for exhaustiveness related to GDP according to the expenditure approach are wages and salaries in kind and the black economy. For a detailed description please see chapter 7.

4.7 Compensation of employees

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

Table 4.3 shows by Nace group how compensation of employees is broken down by wages and salaries in cash, wages and salaries in kind (fringe benefits), employers' actual social contributions and employers' imputed social contributions.

Total compensation of employees amounts to 977.516 mill. DKK. Wages and salaries in cash accounts for the largest part by far. Employers' imputed social contributions relate to civil servants in general government (S.13) and they are estimated using the so-called Freiburg Model.

Table 4.5 Compensation of employees, 2012

Nace		Wages and salaries in cash	Wages and salaries in kind	Employers' actual social contributions	Employers' imputed social contributions	Compensation of employees
		DKK mill.				
A	Agriculture, forestry and fishing	8 409	145	493	0	9 047
B	Mining and quarrying	3 770	127	192	0	4 089
C	Manufacturing	113 986	3 301	6 687	0	123 973
D	Electricity, gas, steam and air cond. supply	5 038	129	675	0	5 842
E	Water supply, sewerage etc.	4 074	83	325	0	4 482
F	Construction	52 634	844	2 833	3	56 314
G	Wholesale and retail trade	128 539	4 049	6 479	0	139 067
H	Transportation and storage	48 840	950	2 990	95	52 875
I	Accommodation and food service activities	16 710	297	574	0	17 582
J	Information and communication	42 293	1 496	2 232	0	46 021
K	Financial and insurance activities	40 603	1 215	7 944	0	49 762
L	Real estate activities	12 017	411	629	1	13 058
M	Professional, scientific and technical activities	58 001	1 628	3 006	14	62 650
N	Administration and support activities	32 517	573	1 868	56	35 014
O	Public administration	61 105	485	6 381	2 813	70 785
P	Education	76 924	492	9 720	787	87 964
Q	Human health	143 258	821	15 702	718	160 499
R	Arts, entertainment	13 412	157	1 093	60	14 722
S	Other service activities	17 187	237	1 440	281	19 145
T	Activities of households as employees	4 398	0	226	0	4 624
	Total	883 758	17 440	71 488	4 829	977 516

Table 4.6 Compensation of employees, 2012

Sector		Wages and salaries in cash	Wages and salaries in kind	Employers' actual social contributions	Employers' imputed social contributions	Compensation of employees
		DKK mill.				
S11	Non-financial corporations	511 856	13 804	24 854	0	553 514
S12	Financial corporations	40 687	1 218	7 947	0	49 853
S13	General government	276 045	1 759	32 006	4 829	314 639
S14	Households	34 686	578	1 396	0	36 660
S15	Non-profit institutions serving househ.	20 483	82	2 285	0	22 850
S1	Total domestic economy	883 757	17 441	71 488	4 829	977 516

4.7.1 Wages and salaries and employers' social contributions

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

Wages and salaries in kind – fringe benefits – consist of products which are provided freely or to reduced price by the employer to the employee as part of the conditions of employment. Wages and salaries in kind are not

necessary in the production process. If they were, they should be treated as intermediate consumption. They are described in more detail in chapter 7.

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

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

In order to arrive at compensation of employees according to the national accounts, adjustments to the WTA are made. Table 4.4 shows at the aggregate level the relation between compensation of employees in the WTA and the national accounts.

Table 4.4 Compensation of employees in the WTA and the national accounts, 2012

	DKK mill.
Working Time Accounts	954 386
Alternative or additional sources	24 104
of this, national accounts population	-133
of this, employers' imputed pension contributions	4 829
of this, employers' actual non-pension contributions	2 018
of this, supplement for black wages	3 552
of this, supplements for wages and salaries in kind	11 071
Final harmonisation	-975
Final national accounts estimate	977 515

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

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

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

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

In addition to employers' actual, social contributions included in the WTA, *actual non-pension contributions* that are not a part of the WTA are accounted for in the national accounts. These adjustments regard industrial injury insurance and shipping company contributions to merchant marines' welfare on board.

In order to obtain the national accounts concept for compensation of employees, non-declared or "*black wages*" are also included. The estimate of black wages is described in chapter 7.

The national accounts estimate partly includes *wages and salaries in kind* (fringe benefits) via the WTA. However, fringe benefits in the WTA are not at valued at market prices as they are based on tax information. Also, certain fringe benefits are not included in the WTA. Therefore a supplement is made to arrive at the national accounts estimate, which is described in chapter 7.

Finally, occasional adjustments ("*final harmonisation*") between industries are made when considering the consistency between output, value added and compensation of employees.

When comparing compensation of employees in the national accounts with compensation of employees in the WTA (and also employment and hours worked) for specific industries, it is important to be aware of the fact that the national accounts uses *activity defined industries* for trade, agriculture, construction, restaurants and auto repair. This means that all production, value added etc. and also compensation of employees and employment consequently are transferred to these industries. The transfers are based on accounting and product statistics.

4.7.2 Employment and actual hours worked

The employment figures in the Danish national accounts comprises number of persons employed and number of actual hours worked. Both the number of employed persons and number of hours worked are - like compensation of employees - based on the WTA.

The employment concept described is the domestic concept, i.e. persons employed by resident producers. This population is almost coherent with the WTA; nevertheless, the WTA includes a few extraterritorial organizations and bodies, which are not considered resident producers in the Danish national accounts (however, so few that rounded off they only show in table 4.4 and not in table 4.5 and 4.6).

Since the WTA only include lawful activity, a correction is made for "black" and "illegal" labour.

The number of employed persons (employees and self-employed) includes persons on maternity leave and other forms of labour market leave as defined in ESA2010. The number of hours worked in the WTA is compiled as the number of paid hours worked. In the national accounts, a supplement for unpaid overtime is made, so that the national accounts encompass all actual hours worked described in ESA2010.

Tables 4.5 and 4.6 shows the relation between employment and hours worked in the WTA and the national accounts.

When *alternative sources* on compensation of employees are used (please see section 4.7.1) the corresponding adjustments on employment and hours worked are made to ensure comparability to the WTA with regards to average earnings and working time per employee.

Final harmonization is national accounts adjustments related to the economic part of the national accounts and correspond to adjustments made to compensation of employees.

Table 4.5 Employment in the WTA and the national accounts, 2012

	1 000 persons
Working Time Accounts	2 695
Alternative or additional sources[1]	46
Of this, supplement for black and illegal activity	40
Final harmonisation[2]	-2
Final national accounts estimate	2 740

[1] WTA includes some non-resident units (primarily extraterritorial entities and bodies)
[2] Final harmonization with regards to production and value added in the remaining NA-system

Table 4.6 Hours worked in the WTA and the national accounts, 2012

	mill. hours worked
Working Time Accounts	3 727
Alternative or additional sources[1]	214
Of this, supplement for black and illegal activity	55
Of this, supplement for unpaid, actual hours worked	151
Final harmonization[2]	-3
Final national accounts estimate	3 939

[1] WTA includes some non-resident units (primarily extraterritorial entities and bodies)
[2] Final harmonization with regards to production and value added in the remaining NA-system

4.8 Taxes on production and imports

Table 4.7 summarises other taxes on production (ESA D.29) in the national accounts for 2012.

Table 4.7 Other taxes on production, 2012

Type of tax	DKK mill.
Employer contributions to *Arbejdsgivernes Elevrefusion* (AER)	5 547
Road charges for heavy trucks	378
Weight duty on vehicles used in production	2 651
Property taxes	24 821
Payroll taxes	5 831
Taxes on pollution	193
Duties paid to the working environment fund	106
Other taxes on production, total	39 526

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

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

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

Property taxes are not linked to products.

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

Taxes on pollution is tax on waste water (from 2013 and forward also tax on CO_2 emissions).

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

4.9 Subsidies

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

Table 4.8 Other subsidies on production, 2012

Type of subsidy	DKK mill.
Other subsidies on production, total	34 290
EU-schemes, total	7 406
Single farm payment	6 635
Environmental subsidies	132
Subsidies for different agricultural products	69
Subsidies for agricultural arrangements	230
Subsidies for ecological production	78
Development and demonstration projects in farms	107
Subsidies related to forestry	47
Other EU-schemes, other subsidies on production	107
Danish schemes, total	26 885
Subsidies for pharmacists	49
Interest-guarentee and -contribution concerning housing conditions	2 477
Municipal subsidies for private sportscentres	361
Municipal subsidies for theatres, orchestras, cinemas etc.	228
Public subsidies for regional orchestras	144
Employers reimbursement system	4 960
Spending according to law on the counties land tax	214
Other municipal busservice and transport	1 486
Small service business support scheme	66
Subsidies for canteens	139
Subsidies for cultural purposes	445
Subsidy for replanting	217
Subsidy related to CO2	49
Flex and sheltered jobs	9 975
Activated recipients of social assistance benefits	801
Regional development	501
The fund for better working environment and labour retention	218
The inclusive labour market	52
Municipal grant for running costs for social housing estates	795
Municipal urban renewal	219
Business development	283
Development of competence and technology	1 162
Innovationsfonden	208
Wage subsidy for hiring insured unemployed	473
Other subsidies related to PSO	188
Other subsidies on production n.e.c	1 173
Other subsidies on production, total	34 290

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

4.10 Gross operating surplus and 4.11 Mixed income

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

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

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

4.11 Consumption of fixed capital

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

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

As regards the minor share of output from non-market units in S.15, the consumption of fixed capital is calculated as 49.4% of total wages and salaries. This percentage is based on an estimate of capital stock in the sector carried out in 1995, where the latest final figures referred to 1992. This capital stock estimate consisted of a mixture of direct estimates of stocks and PIM (perpetual inventory method) calculations. Since the link between the consumption of fixed capital and total wages and salaries may be assumed to be relatively stable in this field, it was decided to project the 1992 total wages and salaries benchmark in the current calculations of this relatively modest amount.

The description below therefore refers solely to the consumption of fixed capital in S.13, general government.

The description below refers solely to the consumption of fixed capital in S.13, general government and S.15 Non-profit institutions severing households.

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

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

One important strong point in Denmark's estimate is that for buildings and transport equipment the calculations are based on a *direct estimate of stocks* which in turn was based on register information for a benchmark year - in this case 1995 - for non-residential buildings, and every year for transport equipment. In contrast to PIM calculations, there is therefore absolutely no uncertainty as to how many square metres of buildings there actually were in S.13 in 1995. The only uncertainty concerns their lifetimes. For non-residential buildings, the PIM was used to project the 1995 benchmark back to 1966 and forward.

Table 4.9 shows the methods used for each type of capital formation:

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

Type	Period	Method	Assumed average service life	Products
Machinery	1966-2007	PIM, Winfrey curves and linaer depreciation	Varying	Approx. 350
Machinery	2008+	PIM, Geometric depreciation	Varying	Approx. 350
Transport equipment	1966-2007	Direct estimate of stocks, Winfrey curves and linaer depreciation	Varying	4
Transport equipment	2008+	Direct estimate of stocks, Geometric depreciation	Varying	4
Non-residential buildings	1966-1995	Direct estimate of stocks for 1995	Varying	2
Non-residential buildings	1995+	PIM, Geometric depreciation	Varying	2
Roads and bridges	1966-2007	PIM, Winfrey curves and linaer depreciation	40 years / 50 years	1
Roads and bridges	2008+	PIM, Geometric depreciation	50 years	1
Software	1966-2007	PIM, Winfrey curves and linaer depreciation	4-6 years	2
Software	2008+	PIM, Geometric depreciation	4-6 years	2
R&D	1966+	PIM, Geometric depreciation	8-12 years	6
Military weapons systems	1966+	PIM, Geometric depreciation	Varying	5

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

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

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

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

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

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

- Recommendation 6: Lifetime assumptions should be investigated at least every 5 to 10 years.
    - About 14 years ago Statistics Denmark has for a period of years compared the development in the gross stock on roads and the size of total road network. This investigation has resulted in an

increase in the service life for roads from 40 years to 50 years because the size of the total road network was increasing and but the gross stock was declining.

- Recommendation 7: A bell-shaped retirement function should be used.
    - Statistics Denmark uses a bell-shaped Winfrey L3 retirement function for roads until 2008. With the introduction of ESA2010 and geometric depreciation approach, no retirement function is applied in the calculation of CFC after 2008.