

4. The income approach

4.0 GDP according to the income approach

For 2003, the calculation of income based GDP can be summarised as in table 4.1 below:

Table 4.1 GDP, income approach, 2003.

	Value, DKK million	% of GDP
Compensation of employees	763 262	54
+ Gross operating surplus and mixed income	436 509	31
+ Taxes on production and imports	243 680	17
- Subsidies	42 761	3
=GDP	1 400 690	100

All components of GDP compiled from the income side (GDP(I)) are compiled at the 130 industry level. In principle, GDP(I) can initially be derived from the target total module, which is based on business accounts. After the balancing of GDP(P) and GDP(E), output and intermediate consumption are replaced by the balanced values (as described in chapter 3), compensation of employees is replaced by values compiled on the basis of the Working time accounts (see section 4.7), and taxes and subsidies are replaced by values from government accounts (see sections 4.8 and 4.9). Hence gross operating surplus and mixed income is compiled as a residual (see section 4.10 and 4.11).

4.1 The reference framework

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

- The annual working time accounts (WTA) (compensation of employees)
- The system for compiling fixed capital in the national accounts (consumption of fixed capital)
- Administrative data used for compiling general government (other taxes on production and imports and other subsidies on production)
- Gross operating surplus and mixed income are compiled as residuals.

Below, the main source used for the compilation of compensation of employees in the national accounts, the WTA, is described. 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 WTA is compiled in Statistics Denmark's division for labour market statistics. The WTA is used almost directly and only with a few adjustments made in the national accounts. For a description of these adjustments please see section 4.7.

One of the main purposes of establishing the Working Time Account (WTA) was to compile time series on hours worked. Furthermore, it was also intended 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. At the moment, the statistics include data on sex, industry, public/private and socio-economic status (self-employed, assisting spouse or employee).

The system for the Working Time Account 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 is that there has been a considerable expansion in the number of statistics covering the labour market and the fact that the figures from different statistics are not immediately comparable. The project work was focused on developing statistical systems integrating already existing labour market statistics. The WTA is now published regularly with annual figures once a year and quarterly figures four times a year.

When deciding which data sources to apply when compiling the WTA, attention is centred on the major advantages of the individual statistics. For example, register-based data are used to ensure complete coverage in the calculation of employment and the number of jobs. Information from the wage and salary system of the business enterprises is used to obtain more specific data on the distribution of hours between the individual jobs, and personal interviews are used to obtain data on hours worked for those groups not covered by the data reported by the business enterprises to the Statistics on Earnings.

The 3 main sources used in the annual WTA are:

- 1) The Register of Employment Statistics, which is a totally covering statistic based on administrative information. This register forms the basis for the Register-Based Labour Force Statistics and the Statistics on Employment in Businesses.
- 2) The Annual Statistics on Earnings (Earnings statistics for the private sector, and Earnings statistics for central and local government employees.
- 3) The quarterly Working Time Account.

The WTA uses the *Register of Employment Statistics* for obtaining data on the total number of active jobs over the year, on the number of persons employed at end-November, and on the number of primary and secondary jobs end-November. The Register of Employment Statistics contains information on A-income (income from occupation) for all employees, and thus constitutes the main source for calculating compensation of employees in the WTA. In the Register of Employment Statistics a comprehensive integration of data on individuals from other statistical registers has been conducted. The Register of Employment Statistics also supplies the following data which are used in the WTA: persons in employment who are on labour market leave or maternity leave, reimbursements of sickness and maternity benefits, the statistics on the Danish Labour market Supplementary Pension Scheme (ATP) and pensions that are continuously paid out.

The WTA use the *Annual Statistics on Earnings* in calculating hourly data for each individual job per year. In this context, hours of work performed are of great importance, as these indicate the time worked by an employee in the process of production. On the basis of the Statistics on Earnings, figures on the average annual hours of work performed per job are calculated. In this connection, the number of jobs in the statistical data on earnings is aggregated in the WTA, so that the definition of jobs is similar to that used in the Register of Employment Statistics. From 2000, the hourly data in the Statistics on Earnings has been integrated with the data on level of jobs in the Register of Employment Statistics.

The *quarterly system* is used for calculating annual values. 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). It is thus the quarterly system, which forms the basis for calculation of average employment and average number of jobs in the annual WTA. The basis for the calculation of average employment and average number of jobs in the WTA is information on the number of persons employed in the Register-based Labour Force Statistics (RAS) and number of primary and secondary jobs in the Statistics on Employment in Businesses (EBS) at the end of November. The development over the year is estimated quarterly by combining structural statistics at the end of November for employees and monthly data reports of A-income (MIA) for employees. For self-employed persons and assisting spouses, the development in jobs is exclusively estimated as an even development from one structural statistic to the next (persons employed in the RAS and number of jobs in the Statistics on Employment in Businesses). However, rolling annual statistics from the Labour Force Survey are applied for projection during the period after the latest structural statistics (i.e. as from the 4th quarter of 2004).

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.

Concerning self-employed, assisting spouses and employees respectively, there is an accounting, definitional relation between hours worked, jobs, compensation of employees and number of employed:

The average number of employed consist of the daily average number of persons above the age of 14 who during the year have been paid either as self- employed, assisting spouse or as employee. 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.

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

The average *numbers of jobs* are calculated as the sum of primary and secondary jobs. Similar to employment the average number of jobs is calculated for every day of the year. Employees who are temporary absent from the labour market are not included in the estimation of jobs. There is the following relationship between the number of jobs and the number of employees:

2. Number of jobs = number of primary jobs + number of secondary jobs

The number of *hours worked* 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. It is not possible to obtain detailed data on unpaid overtime hours and undeclared work. Unpaid overtime hours and undeclared work are therefore excluded from the calculation of hours of work performed in the WTA. Unpaid hours have explicitly been excluded, when quarterly statistics from the Labour Force Survey are used in estimating the provisional data on hours for the period, following the most recent structural statistics.

Hours worked include hours paid by employers, which have been carried out by persons aged over 14, including the hours in jobs that are not part of either the persons main employment or the persons largest secondary job.

3. Actual hours worked = average actual hours worked per job × number of jobs

The number of jobs refers to the total number of active jobs over a year (This concept differs from the published annual average number of jobs in the WTA).

Compensation of employees is calculated in accordance with the definitions in the National Accounts (SNA). Compensation of employees 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. For corrections made to compensation of employees when the WTA is integrated in the national accounts, please see section 4.7.

The compensation of the self-employed and assisting spouses is not included in the WTA. Furthermore, the hourly concept for the self-employed and assisting spouses differs from the hourly concept used for employees, as only hours in the primary job and most important secondary job are included for the self-employed and assisting spouses, and it is also impossible to distinguish between paid, unpaid and undeclared hours of work for these groups. The other variables are calculated in full accordance with the relational accounting equations that have been set up for employees.

An essential feature of these simple relational equations is that they can be used to link the various sources for different variables in the statistics. In this way, hours of work performed are, e.g. extracted from the Statistics of Earnings, whereas the number of jobs are extracted from the Statistics of Employment in Businesses. These identities open up to, in addition to quality checks by

comparing primary sources, the fact that the relational accounting equations lead to new variables supplementing the present statistical resources.

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 Working Time Account. Especially, the comparison of information from the primary sources in a joint system will reveal, if any, errors, and subsequently errors can be taken into account in the WTA. 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.

There is a statistical uncertainty associated with MIA representing the seasonal pattern of employment and not only the seasonal pattern of jobs. MIA represents the number of gross jobs, consequently, if the seasonal pattern in the primary employment differs from the seasonal pattern of the secondary employment the seasonal pattern of employment will be associated with some uncertainty. Furthermore, there may be differences in the seasonal patterns for average employment and average number of jobs compared to the seasonal patterns found in the primary data sources, if there are major differences in the development in the short-term statistics (MIA) over the year and the levels that apply in the 4th quarter of the year from the Register-based Labour Force Statistics and the Statistics on Employment in Businesses. There is also a statistical uncertainty associated with the fact that the structural statistics from the Register-based Labour Force Statistics and the Statistics on Employment in Businesses, which are status observations at the end of November of the year, represent the 4th quarter of the year.

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.

The lack of data comparability between sources is attributable to differences in:

- Compilation methods
- Populations
- Definitions
- Margins of statistical errors
- Time of publication.

A fundamental principle of the Working Time Accounts is to document the coherence between statistics applied in the Working Time Accounts and to document coherence between existing statistics and the Working Time Accounts.

At the international level there is also a high degree of comparability as the Danish Working Time Accounts are worked out according to international guidelines, cf. EUROSTAT 1996: European

System of Accounts (ESA 1995) and International Labour Organisation 1988: Current International Recommendations on Labour Statistics.

4.2 Valuation

Both compensation of employees and gross operating surplus and mixed income are by definition estimated at factor cost. Compensation of employees is recorded according to the accrual principle except for bonuses etc., which are recorded when they are due for payment. Other taxes on production and imports and other subsidies on production are recorded according to the accrual principle. Gross operating surplus and mixed income are based on an estimate of value added at basic prices as calculated in the total module (TM), which is already adjusted to ESA95 concepts. 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.

4.3 Transition from private accounting and administrative concepts to ESA95 concepts

The main statistical source for the estimate of compensation of employees is the WTA as described in chapter 4.1. Section 4.7 further discusses the transition to national accounts concepts. Table 4.2 shows the result of the transition from primary statistics to the national accounts calculation for compensation of employees.

Table 4.2: Compensation of employees in the WTA and the national accounts, mill. DKK

	2003
Working Time Accounts	741 613
Initial adjustments	-822
Alternative sources replaces WTA	5 295
General government non-market replaces WTA	6 958
Non-declared ("black") wages	1 941
Difference between fringe benefits	
Difference between pension contributions	7 530
Basis for the national accounts	764 158
Other adjustments for consistency	-670
Final national accounts estimate	763 262

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 ESA95 are described in chapter 3.3

4.4 The roles of direct and indirect estimation methods

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.

4.5 The roles of benchmarks and extrapolations

With the exception of allowances for the hidden economy, income-based GDP is in no case estimated using projections, but is a direct estimate 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 fringe benefits 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.

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 in kind – fringe benefits – consists of products which are provided freely or to reduced price by the employer to the employee as part of the conditions of employment. Fringe benefits are not necessary in the production process. If they were, they should be treated as intermediate consumption.

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 social and private pension schemes. Imputed contributions are made in cases where there have been no payments of actual contributions, but where the benefits are paid directly by the employer to the employees or former employees. Imputed benefits mainly relate to civil servants.

Table 4.3 shows at the Nace A17 level how compensation of employees is broken down by wages and salaries in cash, wages and salaries in kind (fringe benefits), employer's actual social contributions and employers imputed social contributions.

Table 4.3: Compensation of employees 2003, mill. DKK

Nace	Text	Wages and salaries in cash	Wages and salaries in kind	Employers actual contributions	Employers imputed contributions	Compensation of employees
A	Agriculture, hunting and forestry	6 963	80	343	15	7 401
B	Fishing	833	8	40	0	880
C	Mining and quarrying	1 114	42	95	0	1 250
D	Manufacturing	116 431	2 160	8 532	0	127 123
E	Electricity, gas and water supply	4 435	76	359	0	4 871
F	Construction	43 380	460	3 033	108	46 980
G	Trade and repair services	94 958	2 354	5 801	0	103 113
H	Hotels and restaurants	11 887	127	515	0	12 529
I	Transport, storage and communication	50 423	897	3 358	12	54 690
J	Financial intermediation	32 066	503	3 489	0	36 058
K	Real estate, renting and business activities	78 705	1 423	5 542	180	85 849
L	Public adm. and defense, compuls. soc. secu.	60 418	363	2 858	3 172	66 810
M	Education	55 883	287	3 410	3 002	62 583
N	Health and social work	104 059	555	9 800	5 452	119 866
O	Other community, social and personal service activities	28 920	311	1 844	377	31 451
P	Private households with employed persons	1 779	0	29	0	1 807
Q	Treatment of extra territorial organisations and bodies					
Total		692 253	9 645	49 045	12 319	763 262

Compensation of employees is mainly based on the annual Working Time Accounts (WTA) as described in chapter 4.1. The WTA uses the Register of Employment Statistics and generally the national accounts uses this source directly.

The Register of Employment Statistics includes taxable income from the occupation (A-indkomst). In addition, contributions to capital pensions administered by the employer are included. Contributions by employer or employee to other pension schemes are not included.

In addition, the WTA includes contributions to industrial injury insurance, fringe benefits, anniversary bonuses, ATP (obligatory defined contribution scheme), pension schemes with current payments, civil servant pensions and deduction for reimbursements of maternity- and sickness benefits.

The national accounts then makes the following additional adjustments to the WTA in order to get to the national accounts version of compensation of employees:

- Alternative sources
- Non-declared wages (“black wages”)
- Pension contributions
- Other corrections

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.

In order to obtain the national accounts concept for compensation of employees, non-declared or “black wages” are also included.

Pension contributions from the WTA are replaced by pension contributions compiled in the national accounts as part of the compilation for pension funds (only contributions to private pension schemes).

Finally, occasional adjustments between industries are made when considering the consistency between output, value added and compensation of employees.

The national accounts includes fringe benefits via the WTA. Fringe benefits included are those that, based on available sources, are considered important measured by their market value. This includes i.e. the market value of free cars, canteen subsidies, free telephone and free computers.

When comparing compensation of employees in the national accounts with compensation of employees in the register based statistics (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 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.

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, mill. DKK

	2003
Working Time Accounts	741 613
Initial adjustments	-822
Alternative sources replaces WTA	5 295
General government non-market replaces WTA	6 958
Non-declared (“black”) wages	1 941
Difference between fringe benefits	
Difference between pension contributions	7 530
Basis for the national accounts	764 158
Other adjustments for consistency	-670
Final national accounts estimate	763 262

The employment figures in the Danish national accounts comprises number of persons employed and number of 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 used is the domestic concept, i.e. persons employed by domestic producers. Because the WTA does not use the domestic concept, a correction is made to adjust for foreigners employed in domestic companies and foreign seamen employed on Danish ships. In addition, a correction is made for “black 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 ESA95. The number of hours worked is compiled as the number of hours *actually* worked. This is done using the number of hours worked per employee and self-employed respectively in the WTA multiplied by number of employed persons in the national accounts at the 130 industry level.

Tables 4.5 and 4.6 shows the relation between employment and hours worked in the WTA and the national accounts. *Other adjustments* are 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, 1000 persons

	2003
Working Time Accounts	2 685
Initial adjustments	2
Alternative sources	-1
Non-declared (“black”) wages and domestic concept	48
Other adjustments	19
Final national accounts estimate	2 748

Table 4.6: Hours worked in the WTA and the national accounts, mill. hours worked

	2003
Working Time Accounts	4 194
Initial adjustments	-2
Alternative sources	-5
Non-declared (“black”) wages and domestic concept	51
Other adjustments	29
Final national accounts estimate	4 266

4.8 Other taxes on production and imports

Table 4.7 summarises other taxes on production in the national accounts for 2003.

Table 4.7 Other taxes on production, 2003

Type of tax	DKK million
Employer contributions to <i>Arbejdsgivernes Elevrefusion</i> (AER)	2 898
Road fund licence on vehicles used in production	2 218
Property taxes	16 510
Payroll taxes	3 631
Taxes linked with checking, supervision, licences, etc.	145
Other taxes on production, total	25 401

It shows that there are only a few types of tax which are classified as other taxes on production. The AER contribution, which finances apprenticeships and traineeships, does not give the individual employer or employee any rights and is therefore a tax and not, for example, a contribution to social security schemes. The share of total road fund licenses which relates to vehicles used in production is calculated from a breakdown by owner of the total number of vehicles registered. In the national accounts, road fund licences on consumers' vehicles are "direct taxes", i.e. taxes on income and wealth etc. Obviously, property taxes are not linked to products. Payroll taxes are, as their name indicates, a tax on the wages and salaries paid by financial institutions, to offset the fact that most financial services are exempt from VAT. It can be seen that only taxes for checking etc. amounting to DKK 145 million are counted as taxes under paragraph 4.23 e) in the ESA 95. All other payments by producers in connection with government checks and licences are considered to be purchases of services.

Taxes on *checking and supervision* comprise the:

- tax on payment cards;
- tax to *Arbejds miljøfonden* [Work Environment Fund].

Taxes connected with *licences* include:

- tax on pharmacies;
- taxes under the cultural fund, and the
- tax for the operation of the school ship "*Danmark*".

All the above taxes are clearly other taxes on production. There is no borderline case of any importance in quantity terms. All the taxes are purely national and not EU schemes. The total tax revenue is assigned to the domestic general government sector.

4.9 Other subsidies on production

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, 2003.

Type of subsidy	DKK million
Total EU schemes	2 358
Interest rate subsidies	159
Aid per hectare and set-aside	554
Other EU schemes	1 645
Danish schemes, total	21 747
Subsidies to pharmacies	62
Interest subsidies and contributions, housing	5 668
Municipal subsidies to private sports halls	354
Municipal subsidies to theatres, orchestras, cinemas, etc.	556
Central government subsidies to regional orchestras	90
<i>Danmarks Erhvervsfond</i> [Trade and Industry Fund], export-promoting arrangements	42
Subsidies for product development	225
<i>Arbejdsgivernes Elevrefusion</i> (AER)	2 074
Compensation for employers' contributions to the ATP	134
Municipal grants for the employment of the unemployed	123
Expenditure under the County Land Tax Act	259
Central government subsidies to private railways	1
Municipal subsidies for the running of buses and other transport activities	995
Home helps	221
Other subsidies on production to private enterprises	10 944
Other subsidies on production, total	24 105

The subsidy known as "*Arbejdsgivernes Elevrefusion*" is the counterpart to the other tax on production known as the AER, which was shown in Table 104. 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

The income component "gross operating surplus and mixed income" is based on business accounts and the sources and methods are the same as for the output-based estimate. For further details, therefore, reference should be made to Chapter 3, in particular sections 3.1.2, 3.2 and 3.3.

The initial estimate for gross operating surplus and mixed income is derived from the functional target total module as follows:

Output (1015) – intermediate consumption (2010) – other taxes on production (3110) + other subsidies on production (3210) – compensation of employees (4010).

The periodisation of the accounting statistics used for the functional target total module was described in Section 3.1.2.3.6

The final balanced value of gross operating surplus and mixed income is obtained when the initial estimates based on accounting statistics are replaced by other information:

Output (1015) and intermediate consumption (2010) are replaced by the corresponding figures in the balanced supply and use tables

Other taxes and subsidies on production are replaced by final estimates based on information from general government (see sections 4.8 and 4.9)

Compensation of employees is replaced by the values based on the WTA as described in section 4.7

4.11 Mixed income

There is no split of “gross operating surplus and mixed income” into the parts “gross operating surplus” and “mixed income”. Mixed income is part of “gross operating surplus and mixed income” as described in section 4.10.

4.12 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, as stated in Section 3.1.2.4.3, calculated at 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.

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 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. Buildings constitute by far the largest share of government capital stock and capital formation. For 1993 and onwards, the consumption of fixed capital was obtained - as required by the ESA 95 - via an estimate of the gross stock of the individual types of capital and use of the straight line depreciation method. Whereas the ESA 95 is to a certain extent flexible, the ESA 79 demanded the linear method. 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 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 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

Type	Method	Survival curve	Assumed average lifetime	Number of products
Machinery	PIM 1947→	Winfrey S3	Varying	Approx. 350
Transport equip.	Direct estimate of stocks	Not relevant	Varying – 15 years for cars	6
Buildings	Direct estimate of stocks for 1995		Constructed 1960 onwards, 65 years Constructed prior to 1960, gradually increasing lifetimes back in time	2
Roads and bridges	PIM 1850 →	Winfrey L3	50 years	1
Software	PIM		4-6 years	2

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 make a separate PIM-estimation for the general government sector, GFCF are not mixed in the estimations. 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 5.10 (and 5.11).
- 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 4 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.

Data revision of the national accounts, capital stocks and s.13

The Danish national accounts was subject to a data revision in 2004-2005. This revision included a change of base-year, which is particularly important for capital stock estimations, since capital stock estimations have it's heaviness in constant prices. However, no methods used were changed.

Since consumption of fixed capital for the general government is an input into the estimation of government output, it was decided – in order the make the compiling of the revised national account smoother – to determine the level of consumption of fixed capital in the start of the revision process. This implies that no new information could be taking into account, only knowledge already available. Further, it was decided that the level of consumption of fixed capital should be

unchanged before 1993 but not afterwards. Later in the process, some small changes were made for the years 1990-1992 as well.

Estimation of CFC for the period 1971 to 1998 was before the revision based on a simplified method. From 1999 and onwards the estimation is based on the described method. The changes for 1999 and onwards can be attributed to the compiling procedure which require estimation of CFC one year in advance. Table 4.10 shows consumption of fixed capital before and after the major revision.

Table 4.10: Consumption of fixed capital in General Government before and after data revision in 2005

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Before revision	19.864	20.839	21.887	22.777	24.513	24.705	25.279	25.797	25.940	25.301	25.598	26.293	26.706	...
After revision	19.852	20.825	21.873	21.392	22.195	21.861	22.519	23.915	24.524	24.620	25.284	25.566	26.398	26.707
Revision	-12	-14	-14	-1.385	-2.318	-2.844	-2.760	-1.882	-1.416	-681	-314	-727	-308	...