7. Overview of the allowances for exhaustiveness

7.0 Explicit allowances

Table 7.1 shows explicit allowances for exhaustiveness in the Danish national accounts. The explicit allowances account for 33.9 bill. DKK or 2.4 percent in 2003.

Table 7.1 Explicit allowances in the national accounts, 2003

Explicit allowances	Value, DKK mill.	% of GDP
Farmers' output for own consumption etc.	196	0.01
Own-account production of software and large databases	11 876	0.85
Output of entertainment etc. originals	1 507	0.11
Fringe benefits for employees	9 645	0.69
Hidden activity, underreporting and the corresponding VAT fraud	10 650	0.76
Total	33 874	2.42
GDP	1 400 689	100

In addition to this, an allowance for illegal activity is made to GNI for own resource purposes as described in chapter 7.0.6 and chapter 8. Illegal activity accounts for 2.7 bill. DKK in 2003.

Implicit allowances are described in chapter 7.1.

7.0.1 Allowances for farmers' output for own consumption etc.

Values for farmers' output for own consumption etc. are available from agricultural statistics and are assumed to cover farm-gate sales as well, most of which presumably come under the black economy. The values are based on agricultural selling prices for the products concerned, i.e. they are at basic prices, as required by the ESA 95. Table 7.2 shows these products and their uses by consumption groups.

Table 7.2 Allowances for farmers' consumption of own products, 2003

Product No	Text	Use	Consump. grp.	Value, DKK mill.
E020100	Cattle for own consumption	Household consumption	1120	12
E020301	Pigs for own consumption	Household consumption	1120	122
E040107	Raw milk for own consumption	Household consumption	1142	25
E040700	Eggs for own consumption	Household consumption	1141	37
Total				196

7.0.2 Own account software and large databases

The sources and methods used for this calculation were described in detail in Chapter 5.

7.0.3 Output of entertainment, literary or artistic originals

The sources and methods used to estimate the value of originals were discussed in Section 5.11.4. Statistics on culture give information on, for example, the royalties/copyrights which certain organisations such as KODA and GRAMEX demand from users and pass on to the artists who hold the copyrights. For loans from libraries, the authors receive "public lending right fee", which is also similar to royalties. The output of artistic originals is divided by product as shown in Table 7.3. Total output is allocated to gross fixed capital formation.

Table 7.3 Allowances for entertainment, literary or artistic originals, 2003.

Product No	Text	Use	Value, DKK million
U920011	Originals – "public lending right fee"	Gross fixed capital formation	134
U920012	Originals – publishing contracts	Gross fixed capital formation	344
U920013	Originals – KODA	Gross fixed capital formation	309
U920014	Originals – NCB	Gross fixed capital formation	113
U920015	Originals – COPY-DAN	Gross fixed capital formation	446
U920016	Originals – GRAMEX	Gross fixed capital formation	104
U920017	Originals – licence payments from the rest of the world	Gross fixed capital formation	57
Total			1 507

7.0.4 Fringe benefits for employees

For 2003, allowances are imputed for payments in kind to employees (fringe benefits) covering the following seven products:

8) free cars
9) free telephone
10) canteen subsidies
11) free housing
12) free travel
13) free newspaper
14) free pc

In 2003, the total amount was DKK 9 645 million. Of these seven goods, free cars and subsidies to canteens are by far the most important, accounting for DKK 3 793 million and 4 245 million respectively.

The value of *free cars* is taxable and as from income year 1994 has been reported by employers on the salary information forms, together with wages and salaries in cash. The value is estimated in terms of standard rates which reflect realistic market prices, such as the rental payments for a similar car if it was leased with a service agreement plus fuel costs etc. The tax authorities calculate the taxable value as 25 % of the price of the car. In the national accounts we use instead 23 %. One might legitimately wonder how these rates can claim to be market rates when it is generally considered to be a great financial advantage for individuals to have a company car instead of a normal private car. The answer is simple. Earnings in the form of fringe benefits are taxed on the basis of the value of consumption, whereas earnings in cash are taxed on the basis of income and not the post-tax consumption potential which corresponds to that income – i.e. a much greater amount for the same consumption potential. Even with a realistic assessment of the value of fringe benefits, this asymmetry in the tax system means that, all other things being equal, there is a great advantage in receiving wages or salaries in kind rather than in cash if the goods in question are ones which would have been acquired anyway.

In the national accounts, the tax values are used for the value of free cars, as reported on the information forms to the tax authorities.

The value of *free telephones* is likewise reported on the information forms to the tax authorities in terms of standard rates which are a realistic reflection of market prices. In recent years broadband connections have become more widespread. As these are a part of free telephones and because there is a limit (DKK 3000) on the taxable value, we introduce a mark-up of 20 % on the values reported on the information forms in order to properly reflect the value of free telephones. In 2003, the total value of free telephones was DKK 466 million.

The value of *canteen subsidies* is not taxable income provided that the employees pay a minimum price for a meal which (more or less) covers the costs of the raw materials. The value of the employer subsidy for the running of canteens is consequently not reported to the tax authorities. The source for the national accounts estimate is a benchmark based on a survey from 1994. The 1994-values are inflated with the price index for the canteen industry as well as the growth in total employment.

The value of *free housing* is reported on the information forms in terms of standard rates which are a realistic reflection of market prices. As for cars, it is the values for tax purposes which are used in the national accounts. In 2003, the total value of free housing was DKK 155 million.

The value of *free travel* includes both free travel for employees in the transport sector and the bonus points earned on business travel and missions etc. which employers generally allow their employees to use for private purposes. In principle, free travel is taxable income, but it does not need to be reported separately on the information forms. It may be assumed that this income in kind essentially avoids tax. The national accounts do not therefore use tax statistics as the source for the estimate but a price x quantity calculation. The price of free travel is based on the price of an air ticket with the same restrictions as apply to the free journeys. In 2003, the estimated value was DKK 180 million.

The value of *free newspapers* is based on a survey from 1998 indicating the number of employees who have newspapers paid for by their employer. The value of a free newspaper is calculated as the average price of a one year subscription of a major newspaper (11 newspapers are included). The total value of free newspapers was DKK 359 million in 2003.

The value of *free pc* is not reported on the information forms. Instead we use information on the rise in the number of households having access to a pc at home. We assume that half of the increase can be attributed to pc's paid for by the employer. For the year 2003 and forwards the tax authorities make their own assessment on the number of home pc's paid for by an employer. In 2003 and onward we therefore use the average of the two numbers as an estimate of the number of new home pc's paid for by an employer. The price of the pc's paid for is assumed to reflect the market price for a new pc. Furthermore we set the amortisation of a pc to three years. The total value of *free pc* in 2003 was DKK 447 million

Table 7.4 shows the breakdown of wages and salaries in kind (fringe benefits) over the national accounts' 130 industries. As might be expected, fringe benefits are particularly common within the market service industries and more particularly in wholesaling, where company cars are widely used. Only in a few cases do the many zeros in the table indicate a genuine zero in the cells in question. They usually mean that the values are under DKK 500 000.

Table 7.4 Wages and salaries in kind divided over the national accounts' 130 industries

Industry	Car	Telephone	Canteen	Housing	Travel	News-papers	Pc	Total
(130)	DKK million							
011009	5	1	6	31	0	1	2	47
011209	4	0	3	1	0	0	1	10
014001	3	1	7	1	0	0	1	12
020000	2	1	1	6	0	1	0	10
050000	3	0	1	2	0	0	1	8
110000	12	3	3	7	0	2	1	29
140009	6	0	6	0	0	0	0	13
151000	22	3	60	0	0	2	3	91
152000	4	1	17	0	0	0	0	23
153000	7	1	8	0	0	1	0	16
154000	2	0	3	0	0	0	0	6
155000	12	2	30	0	0	2	1	48
156009	35	3	25	0	0	2	1	67
158109	12	1	11	0	0	1	1	26
158120	2	0	21	1	0	0	0	24
158300	2	0	4	0	0	0	0	7
159000	18	2	18	1	0	1	1	41
160000	6	0	4	0	0	0	0	12
170000	16	1	30	1	0	1	1	50
180000	11	1	23	0	0	1	0	36
190000	2	0	5	0	0	0	0	8
200000	20	2	31	0	0	2	1	56
210000	22	2	28	0	0	2	2	56
221200	16	5	26	0	0	5	2	54
221309	30	5	23	1	1	4	3	67
222009	45	4	40	0	0	3	3	96
230000	4	1	3	1	0	1	1	10
241109	2	0	1	0	0	0	0	4
241209	6	1	11	0	0	1	1	20
241500	1	0	3	0	0	0	0	4
241617	1	0	2	0	0	0	0	3
242000	2	0	3	0	0	0	0	5
243000	9	1	8	0	0	1	1	20

244000	33	5	22	2	4	4	6	77
245070	16	2	15	0	0	1	2	37
251122	23	2	29	0	0	2	1	57
252300	4	0	4	0	0	0	0	9
252400	22	2	17	0	0	2	1	44
261126	6	0	12	0	0	0	0	19
263053	4	0	5	0	0	0	0	10
266080	22	3	28	0	0	2	1	57
271000	0	0	6	0	0	0	0	6
272030	5	1	11	0	0	0	0	17
274000	3	0	8	0	0	0	0	13
275000	2	0	1	0	0	0	0	4
281009	46	4	48	1	1	3	2	103
286009	37	3	42	0	0	2	1	86
291000	18	3	47	0	1	2	3	75
292000	41	5	51	1	1	4	3	105
293000	7	1	17	0	0	1	1	27
294009	34	4	45	0	1	3	3	89
297000	5	0	19	0	0	0	1	26
300000	4	1	9	0	0	0	0	14
310000	34	6	34	0	0	4	5	85
320000	13	2	29	0	1	1	2	47
330000	36	4	37	1	1	3	4	86
340000	6	0	19	0	0	0	1	27
351000	4	1	35	0	1	1	2	42
352050	3	0	6	0	0	0	1	11
361000	34	3	57	1	1	2	3	101
362060	14	1	20	0	0	1	1	37
370000	1	0	1	0	0	0	0	3
401000	12	1	33	0	0	1	2	49
402000	6	1	5	0	0	0	0	12
403000	1	1	6	0	0	0	1	9
410000	0	0	4	0	0	0	1	6
450001	82	8	51	2	1	6	3	153
450002	124	12	70	3	1	9	5	224
450003	29	3	41	1	4	2	3	83
450004	0	0	0	0	0	0	0	0
501009	123	8	20	1	1	6	2	163
502000	22	2	42	1	2	2	2	72
505000	0	0	1	0	0	0	0	1
510000	1.142	90	351	11	21	69	23	1.708
521090	40	2	78	1	1	2	4	128
522990	17	1	26	0	1	0	1	46
523000	5	0	8	0	0	0	0	14
524190	24	1	20	0	0	1	1	49
524490	88	9	61	2	3	7	4	173
551009	9	1	23	1	0	1	0	36
553009	22	3	59	2	0	2	2	91
601000	1	0	51	0	0	0	1	54
602100	3	1	45	0	0	1	1	51
602223	1	0	13	0	0	0	1	15
602409	30	3	67	1	1	3	2	107
610000	25	4	37	3	4	3	1	77
620000	7	2	30	0	26	2	2	70
631130	22	4	35	0	25	3	10	99

634000	65	9	24	1	13	7	7	126
640000	85	36	101	1	11	28	38	299
651000	45	7	96	7	0	6	42	203
652000	51	5	31	2	0	4	10	103
660102	4	1	15	0	0	1	2	23
660300	40	7	30	3	0	5	12	97
670000	21	3	33	1	0	2	18	77
701109	29	3	13	2	1	2	2	53
702009	15	5	25	6	0	4	3	58
702040	24	1	17	2	0	1	1	47
710000	32	2	36	0	4	2	9	85
721009	32	5	18	0	3	4	10	72
722000	139	21	29	3	4	16	47	258
730001	6	2	5	0	0	1	2	17
730002	0	2	13	0	0	1	2	18
741100	20	3	18	1	1	2	2	46
741200	63	10	29	1	1	8	5	116
742009	91	14	64	1	9	11	12	201
744000	49	5	40	0	1	4	3	102
747000	36	1	15	1	0	1	5	60
748009	179	18	45	11	8	14	13	289
751100	0	4	89	0	0	3	9	106
751209	0	4	77	0	0	3	4	88
751300	0	0	38	0	0	0	2	40
752000	0	0	113	0	7	0	8	129
752001								
801000	0	1	142	0	0	1	7	151
802000	0	2	58	1	0	2	3	66
803000	0	1	39	0	0	0	2	42
804001	1	0	2	0	0	0	0	3
804002	0	1	20	0	0	1	1	25
851100	0	1	151	0	1	0	3	156
851209	36	4	56	1	0	3	1	101
853109	0	1	108	0	0	0	0	109
853209	1	2	180	3	0	1	1	189
900010	1	0	15	0	0	0	1	17
900020	3	1	13	0	0	0	2	19
900030	2	0	3	0	0	0	1	7
910000	24	18	58	5	1	14	3	123
920001	30	5	37	4	2	4	4	86
920002	0	2	20	1	0	2	2	27
930009	14	1	14	1	0	1	2	32
950000	0	0	0	0	0	0	0	0
Total	**3.793**	**466**	**4.245**	**155**	**180**	**359**	**447**	**9.645**

7.0.5 Work in the "black" economy, underreporting and the associated VAT fraud

In the Danish national accounts, there are two types of allowance for the black economy. First of all, there are estimates for the *work that is hidden* to the public authorities in order to avoid taxes. In these cases, both the seller and the buyer of a product will typically know that the production is not reported to the tax authorities, and the price will be below market price. Secondly, there are allowances for the *under-reporting and the associated VAT fraud* that companies take advantage of. In these cases, buyers do not necessarily know that the production is not declared. In any industry, there is only one type of allowance in order to avoid the risk of double counting. This would probably be the case if both types of allowance were introduced in a given industry since a significant part of the extra profits made by taking advantage of under-reporting will be spent on hiring black labour. The allowances for the black economy are additions to output and value added. There are no corrections to intermediate consumption.

The values for the black economy in 2003 are based on a benchmark study in 2004, which was partly financed by the EU[27]. The results from this benchmark study and the benchmark study before that from 1992 are then interpolated using various methods. In some cases results from the Rockwool Foundation[28] are used for the interpolation. The results from the Rockwool Foundation can not be used for the levels, mainly because the valuation is at "white" prices. For the national accounts the actual transaction prices must be used, that is "black" prices. In other cases the development in the previous values at product level are used. In the remaining cases the two benchmarks are interpolated under the assumption that growth is evenly distributed over the period.

For the benchmark study, the value of the *hidden work* is estimated using telephone interviews while the estimates for the value of *under-reporting and associated VAT fraud* are found using the discrepancy method and other indicators. Table 7.5 shows which method is used in industries with "black" economy.

[27] The study is described in detail in the report "Underground production in Denmark" by Statistics Denmark from 2004.

[28] The Rockwool Foundation is a Danish Research institution that among other things undertakes research in tax evasion and the black economy.

Table 7.5: Allowance for black economy.
Method used for benchmark estimates 2004 by industry

Industry	Method
050000 Fishing	Telephone interviews
18xxxx-36xxxx Manufacturing	Telephone interviews
450002 Repair and maintenance of buildings	Telephone interviews
502000 Repair and maintenance of motor vehicles	Telephone interviews
521090 Retail trade of food etc.	Indicator method
524490 Other retail sale, repair work	Telephone interviews
553009 Restaurants etc.	Indicator method
602223 Taxi operation and coach services	Telephone interviews
602409 Freight transport by road and via pipelines	Telephone interviews
722000 Software consultancy and supply	Telephone interviews
741200 Accounting, book-keeping, auditing etc.	Telephone interviews
747000 Industrial cleaning	Telephone interviews
804001 Adult and other education (market)	Telephone interviews
851209 Medical, dental, veterinary activities etc.	Telephone interviews
920001 Recreational, cultural, sporting activities (market)	Telephone interviews
930009 Other service activities	Discrepancy method
950000 Private households with employed persons	Telephone interviews/ discrepancy method

The following describes the three different methods used for the benchmark year 2004.

Telephone surveys
The main source behind the estimates of the *hidden work* is more than 10,000 telephone interviews, which have been carried out in connection with the Danish Labour Force Survey (LFS) in the first two quarters of 2004. As mentioned, the estimates stemming from the telephone interviews are primarily used in industries, where *hidden work* is believed to be the dominant underground activity.

The information from the telephone interviews is valued at “black” prices, which are the actual transaction prices and therefore the market values. The respondents were asked about the value of the black work. In cases when they did not give this information, the value has been imputed.

Telephone interviews have been used as the basis in the following industries:

050000 Fishing
158120 Bakers' shops
180000 Manufacture of wearing apparel etc.
200000 Manufacture of wood and wood products
222009 Manufacturing, Printing activities
361000 Manufacture of furniture
362060 Manufacture of toys, gold and silver articles, etc.
450002 Repair and maintenance of buildings
502000 Repair and maintenance of motor vehicles
524490 Other retail sale, repair work
602223 Taxi operation and coach services
602409 Freight transport by road and via pipelines
741200 Accounting, bookkeeping, auditing, etc.
747000 Industrial cleaning

804001 Adult and other education (market)
851209 Medical, dental and veterinary activities
920001 Recreational, cultural, sporting activities (market)
930009 Other service activities
950000 Private household with employed persons (part of).

Discrepancy method
The idea behind the discrepancy methods is to confront an economic quantity from the supply side with a ditto from the demand side. It is assumed that income/production is not always registered whereas expenditure would usually be registered. When the figures on the demand side are higher than on the supply side, the discrepancy must be the production that is not registered on the supply side.

A well-known discrepancy method used for national accounts purposes is to confront registered production in a given industry with the expenditure estimates from the consumer surveys. Since the Danish consumer survey is very detailed, information on the expenditure on specific products is available. This makes a direct comparison between supply and demand of a given product possible. The method has been used to estimate the allowance for under-reporting and the associated VAT fraud in *hairdressing salons and beauty parlours* and part of the *hidden production of cleaning services for private household*s.

Indicator method
The basic idea behind the method is that information collected in the economy can be used directly to estimate the value of under-reporting. Naturally, the tax authorities get valuable pieces of information when carrying out their unannounced raids. In addition to this, personal interviews carried out by Rezaei (2003, 2004)[29] is used to identify in which industries the under-reporting takes place, and what the value of the under-reporting is. Rezaei's study focuses solely on immigrants who own a firm or who are employed. His sample is not representative for the whole population and must be used with caution. Based on these sources of information, a set of indicators that reveal the hidden share of turnover in different industries can be constructed.

The indicator method is used to estimate the value of under-reporting in the national accounts industries *retail trade of food* and *restaurants* because under-reporting is thought to be the dominant black activity in these industries. In addition, an allowance is made for *tips in restaurants* that are not declared to the tax authorities.

Table 7.6 shows all allowances for the black economy, i.e. underreporting and associated VAT-fraud and hidden economy divided by industry and product. The basic price equals the purchasing price and the allowances for production equals the allowances for value added because it is assumed that intermediate consumption is already accounted for.

[29] Rezaei, Shahamak (2003). Det dual arbejdsmarked i et velfærdsstatsligt perspektiv – et studie af dilemmaet mellem uformel økonomisk praksis og indvandreres socio-økonomiske integration.Delrapport 1. RUC, Roskilde.
Rezaei, Shahamak (2004). Det duale arbejdsmarked i et velfærdsstatsligt perspektiv – et studie af dilemmaet mellem uformel økonomisk praksis og indvandreres socioøkonomiske integration. Delrapport 2. RUC, Roskilde.

Table 7.6 Explicit allowances for underreporting and work in the black economy

Industry	Text	Product No	Text	Value, DKK mill.
050000	Fishing	H050000	Black-economy, fishing	14
158120	Bakers' shops	H158120	Black-economy, manufacturing, bakeries	34
180000	Manuf., wearing apparel	H180000	Black-economy, manufacturing, wearing apparal	13
200000	Manuf. wood and –prod.	H200000	Black-economy, manuf., wood and wood products	54
222009	Manuf., printing active.	H222009	Black-economy, manufacturing, printing activities	13
361000	Manuf. of furniture	H361000	Black-economy, manufacturing of furniture	13
362060	Manuf. toys, gold articl.	H362060	Black-economy, manuf., toys, gold and silver articles	7
454002	Rep. and maint. of build.	H454001	Black-economy; repair and maintenance, buildings	2 842
		H454010	Black-economy; repair and maintenance, dwellings	671
502000	Repair and maintenance of motorvehicles	H502000	Black-economy; repair and maintenance, motor vehicles	384
521090	Retail trade of food	H521090	Underreporting, retail trade with food products	855
		H521091	VAT fraud connect. with underrep., retail trade with food prod.	214
524490	Other retail sale, repair work	H527210	Black-economy, Repair and maintenance, household machines	1 108
553009	Restaurants	H553000	Underreporting in restaurants	950
		H553001	VAT fraud connected with underreporting in restaurants	237
		H553002	Underreporting, tips and gratuities	207
		H553003	VAT fraud connected with underreporting, tips and gratuities	52
602223	Taxi operation and coach services	H602223	Black economy; taxi and coach services	18
602409	Freight transport by road and via pipelines	H602409	Black economy; freight transport	181
722000	Software consultants	H722000	Black economy, software services	335
741200	Accounting, bookkeeping etc.	H741200	Black economy, accounting, bookkeeping etc.	35
747000	Industrial cleaning	H747010	Black economy, industrial cleaning	21
804001	Adult and other education (market)	H804001	Black economy, teaching	51
851209	Medical, dental and vet. activities	H851400	Black economy, health care	64
920001	Recreational, cultural, sporting activities (market)	H923110	Black economy, theatres and concerts etc.	398
930009	Other service activities	H930210	Underreporting, hairdressing salons	555
		H930211	VAT fraud connected with underreporting, hairdressing salons	139
950000	Private households with employed persons	H950000	Black economy, private households with employed persons	1 187
			Total	**10 650**

7.0.6 Illegal activity

Statistics Denmark includes illegal activity in GDP and GNI for own resource purposes only. It is not included in our national publications. An inclusion in the national publication will be considered in connection with the next major revision.

According to ESA95, illegal activity is included in the production boundary. Illegal activity differs from the black economy in that the activity is illegal in itself. The black economy is illegal in the sense that the evasion of taxes etc. makes it illegal, but the activity is not illegal as such.

For practical purposes, illegal activity includes smuggling, prostitution and drugs. Table 7.7 shows total value added related to illegal activity.

Table 7.7: Illegal activity, value added. Mill DKK.

			2002	2003	2004	2005
Value added:						
	Smuggling		335	281	241	255
+	Prostitution		1.169	1.161	1.155	1.224
+	narcotics		1.477	1.228	900	953
=	Illegal aktivitet, total		2.981	2.670	2.296	2.432

No corrections have been made for *double counting*. First of all only trade margins are included. This means, that there is no risk that values already included in imports are included again. Secondly, there is not sufficient information for corrections due to for example money laundering. It is not unlikely, that part of the income generated by illegal activities is laundered in other industries by routing the income to these industries and hereby increasing turnover. Thirdly, it is not unlikely that some expenses on prostitution are already included as expenses in bars and clubs. No corrections have been made for that, however the estimates for prostitution are expected to be on the lower side.

The three types of illegal activity will be described below.

Smuggling is defined as: *Imports of goods for reselling not subject to payment of Danish taxes and duties. The goods may have been imported subject to or not subject to duties paid abroad.* Smuggling includes smuggling of alcohol, tobacco, soft drinks and sweets, and the estimates are made as quantities times prices. A benchmark estimate is made for 2001 based on estimates of quantities from the Ministry of Taxation. In a report from 2006, the Ministry of taxation prints similar information for 2006[30]. It is assumed that any intermediate consumption or gross fixed capital formation related to the smuggling activity is already accounted for. Therefore, the trade margins, as described below, account for total value added related to smuggling.

Smuggling of alcohol includes beer and wine. The smuggled beer and wine is mainly sold at small groceries because it is difficult for them to obtain favourable prices at the whole-saler because they only purchase small amounts.

For *beer* it is assumed that the smuggled quantity in 2006 makes up 2-3% of the quantities subject to duties. This is based on estimates from the Ministry of Taxation. For the national accounts estimates 2,5 % is used. A benchmark price for a bargain box of beer south of the Danish border (Germany) in 2001 is used. This price is used for the import value. For the illegal sales price in Denmark, the price of a bargain box of beer in Denmark is used. The difference between the two is

[30] Status over grænsehandel 2006. Can be downloaded from www.skm.dk.

the trade margin. Both prices are extrapolated using the German and Danish consumer price index, respectively, for beer.

For *wine* it is assumed that the smuggled quantity in 2001 makes up 1 % of the quantities subject to duties. This is based on estimates from the Ministry of Taxation. For the national accounts estimates 1 % is used. A benchmark price for a bargain box of 6 bottles of wine of standard quality south of the Danish border (Germany) in 2001 is used for the import value. For the illegal sales price in Denmark, the price of a bargain box of 6 bottles of wine in Denmark is used. The difference between the two is the trade margin. Both prices are extrapolated using the German and Danish consumer price index, respectively, for wine.

For *tobacco* only very limited information is available. The Danish Ministry of Taxation estimated that in 2001 about 300 mill. cigarettes are sold illegally every year in Denmark. The majority of smuggled cigarettes come from Eastern Europe and are mainly sold at pubs and large workplaces. The import price is based on prices in Poland and the illegal sales price in Denmark is assumed to be well below the Danish legal price. It must be underlined that for tobacco the market is declining, as the Danish duty rates are declining.

In Denmark there is an illegal market for *soft drinks*, as soft drinks are subject to duties and prices therefore a higher than in fx. Poland. Smuggled soft drinks are sold in small kiosks in particular in Copenhagen. The quantities are based on information from the Danish Brewers association. This information is also used by the Ministry of Taxation. In 2003 illegal sales were estimated to have reached at least 25 mill. litres (for comparison, 427,4 mill. litres were sold legally). As it is assumed that the major part of smuggled soft drinks come from Poland, the Polish retail price is used for the import price. For the illegal sales price in Denmark, observed prices in small "kiosks" in Copenhagen are used.

Sweets and chocolates are also subject to duty in Denmark. It is estimated by the Danish Ministry of taxation that the smuggled amounts in 2001 are a little less than 2 percent of total consumption. Smuggled sweets and chocolates are mainly from Germany. Therefore, import prices are based on prices in Germany and the illegal sales prices are based on bargain prices in Danish Supermarkets. Smuggled sweets and chocolates are sold in small kiosks or groceries.

Table 7.8 shows value added by type of smuggled goods. The values shown for the different products are at retail prices and the value shown for tourist expenditure (part of private consumption expenditure) is the total value at import prices. As the foreign trade in services for the period in question is based on the settlement statistics, the import values will be captured by this item.

Table 7.8 Value added by type of smuggled good. Mill. DKK

		2002	2003	2004
Total Value added:		335	281	241
+	Sweets and chocolate	165	202	250
+	Soft drinks	288	231	220
+	Wine	71	71	70
+	Beer	132	123	111
+	Tobacco	309	252	231
-	Tourist expenditures	629	598	640

Prostitution has been compiled from both the supply and the demand side. The supply side estimate is based on number of prostitutes, divided into 5 types of prostitution and multiplied by prices. The number of prostitutes is based on a report from the Danish Centre for research on social vulnerability. The number of prostitutes are divided between resident prostitutes (prostitutes that stay in the country for one year or more), who produce services as domestic production and prostitutes that stay less than one year on tourist visas, who produce imported services. Prices are based on adds from newspapers and the internet. The demand side estimate is based on a study also from the Danish Centre for Research on Social Vulnerability, which has asked a number of men on the number of visits to prostitutes. The number of visits is then multiplied by an average price per visit estimated on the basis of adds. Comparing the supply and the demand side estimates reveals that the demand side estimates are about 500 mill. DKK higher than the supply side estimate. However, all sources indicate, that the supply side information is more reliable than the demand side information. But we also know, that it is most likely that the supply side is underestimated. As a sort of balancing, we therefore add 10 % to the supply side estimate. It I assumed that expenses on intermediate consumption are already accounted for. Partly as intermediate consumption but also partly as private consumption expenditure. It is, however, not possible on a reasonable basis to move expenses from private consumption to intermediate consumption.

Table 7.9 shows value added by the 5 types of prostitution. The difference between total value added and total private consumption is import of prostitution services. Contrary to smuggling and trade in drugs, it is not likely that the import of prostitution services is captured by tourist expenditures.

Table 7.9: Value added by type of prostitution. Mill. DKK

		2002	2003	2004
Total value added:		1.169	1.161	1.155
+	Street prostitution	70	66	62
+	Clininc prostitution	838	849	861
+	Individuals working from home	20	25	30
+	Escort service	183	162	141
+	Club prostitution	58	59	59
Total private consumption		1.469	1.459	1.452
+	Street prostitution	88	83	78
+	Clininc prostitution	1.054	1.067	1.083
+	Individuals working from home	25	32	38
+	Escort service	230	204	178
+	Club prostitution	73	74	75

It is assumed that there is no production of *drugs* in Denmark, only trade in drugs. Value added from the sale of drugs is estimated from the demand side. Estimates from the supply side based on seizured amounts have also been made but are not used because they are too fluctuating. The demand side is estimated as the average quantities consumed per drug user multiplied by the number of drug users and again multiplied by import- and retail prices respectively. The difference

between consumption valued by import and retail prices then makes the trade margin which is equal to value added. The total number of drug users are made up by the number of "hard" users and the number of recreational users. Information on the number of hard users is taken from a report from the National Board of Health and information on the number of recreational users is based on assumptions on seizures from a report by the police on organised crime in Denmark and assumptions on average consumption by recreational users. Prices are based on information from the above mentioned report from the police on organised crime in Denmark. For import prices (=basic prices), so called" whole-sale prices" are used and for retail-prices, so-called "street prices" are used. It is assumed that any intermediate consumption and gross fixed capital formation related to the trade of drugs is already accounted for elsewhere in the national accounts.

Table 7.10 shows value added by type of drug. The values shown for the different drugs are at retail prices and the value shown for tourist expenditure (part of private consumption expenditure) is the total value at import prices. As the foreign trade in services for the period in question is based on the settlement statistics, the import values will be captured by this item.

Table 7.10 Value added by type of drug. Mill. DKK

		2002	2003	2004
Total Value added:		1.477	1.228	900
+	White heroin	1.046	872	612
+	Brown heroin	483	402	340
+	Cocaine	533	481	516
+	Amphetamine	152	183	163
+	Ecstasy	28	23	20
+	Cannabis	159	162	146
-	Tourist expenditures	923	896	898

7.1 Implicit allowances

No explicit allowances for underreporting are made in agriculture etc, mining and quarrying, dwellings, letting of non-residential premises, industries where public corporations predominate or general government. In mining and quarrying, financial activity and general government, the black economy is assumed not to exist, since these activities are carried out either by public authorities or by very large entities which are closely monitored by public authorities.

For agriculture etc. and dwellings, output is estimated, as described in Chapter 3, using a price times quantity calculation. This captures the value of underreporting and work in the black economy implicitly, since the method ensures that all output in these areas is covered. But it is not possible to estimate concealed activity explicitly. The same goes for letting of non-residential premises, where the output value is estimated from the expenditure side.

7.2 Validation: comparisons with employment data from demographic sources

The latest comparison between employment data and national accounts data was undertaken in 1994 with 1991 as reference year. The comparison was made in relation to the implementation of the Commission Decision (94/168/EC, Euratom) of 22 February 1994 on measures to be taken for the implementation of Council Directive 89/130/EEC, Euratom on the harmonization of the compilation of gross national product at market prices ("exhaustiveness decision").

Demand-side employment (point of view of the enterprises) is the employment underlying the estimate of GDP using the output approach, i.e. employment in those producer units which are covered by the estimate of the industries' gross value added. For 1991 the employment underlying the estimate of the industries' value added before the allowances for activity in the black economy was employment according to the ERE [establishment-related employment] statistics.

Supply-side employment is demographic employment figures reported by households in the form of population censuses and labour force surveys. Since Denmark has not carried out traditional population censuses since 1970 but has switched to register-based estimates, only one demographic source was available, namely the EU-harmonised Labour Force Survey (LFS).

Denmark validated the GNI estimate with the help of employment data by comparing the ERE and the LFS statistics. The report entitled "*Validering af den beskæftigelse, som ligger til grund for nuværende BNI-beregninger*", ["Validation of employment underlying the current GNP calculations"], which Denmark sent to the Commission in 1994 as required by the exhaustiveness decision, discusses the methods used, including conceptual corrections, for the comparison of the statistical sources in question.

Table 7.11 gives the main results of this comparison.

Table 7.11 Comparison of employment data from the demand side and from the supply side

	Self-employed etc.	Employees	Total
ERE			
Calculated man-years (annual FTEs)	239 000	1 946 000	2 185 000
+ employment< 10 hours	0	25 000	25 000
+ certain primary self-employment	30 000	0	30 000
+ secondary VAT payers	30 000	0	30 000
Corrected FTEs	299 000	1 971 000	2 270 000
LFS			
Calculated FTEs	288 000	2 038 000	2 326 000
LFS – ERE	-11 000	67 000	56 000
% of LFS	-3.8	3.3	2.4

The conceptually-corrected ERE statistics show that the volume of labour in Denmark in 1991 can be put at 2 270 000 FTEs, 299 000 of which were self-employed etc. and 1 971 000 of which were employees. The LFS-based estimate, however, gives 2 326 000 FTEs divided into 288 000 self-employed and 2 038 000 employees. There is thus a difference of 56 000 FTEs in the two estimates, or 2.4%. For the self-employed, the ERE figures are higher than the LFS, probably due to uncertainty in the ERE statistics corrections and the LFS sampling uncertainty. There remains a difference for employees, only some 20 000 of which can be explained by the statistical uncertainty in the LFS.

If we first look at the whole economy apart from general government, we see that the LFS has recorded 14 000 more FTEs than the register estimate. Almost the whole of this difference, 11 000, can be explained by the industry "Private households with employed persons". Employment connected with private help in the home is in the vast majority of cases work in the black economy, and this would therefore be a reasonable explanation of the difference. The national accounts employment estimate for the industry is close to the LFS estimate. In general, hidden activity is unlikely to be captured by the LFS (without specific extra questions), since in many cases it is equivalent to a second job for employees who are otherwise legally employed. The remaining difference of 3 000 excluding general government is considered to be due to the fact that the LFS captures a certain amount of work in the black economy by students, pensioners, etc.

There remains sector S.13, general government, where the difference is 53 000 FTEs. Since 10 000 at the most can be explained by sampling uncertainty in the LFS estimate, it would seem that the LFS indicates slightly higher employment than the register estimate.

A substantial share of this difference may be attributed to the calculation of FTEs based on the contribution to the *Arbejdsmarkedets Tillægspension* (ATP) social insurance scheme, which is used in the ERE statistics. Since the general government sector has a relatively large share of part-time employees, the ATP-calculated FTEs are more uncertain in this sector, in particular. In addition, there is the widespread uncertainty about the allocation to industries. The calculated difference in the two estimates of employment in general government cannot therefore be taken as evidence of the fact that there are some units missing from the register-based statistics. All producer units belonging to institutional units in S.13 are included in the business register. The possibility that there is work in the black economy in producer units owned and controlled by general government must, of course, also be ruled out.

Finally, in the individual industries there are relatively large differences in the two FTE calculations. These virtually cancel out, however, and must be ascribed to different industry allocations in the two estimates.