

# Revised national accounts figures: Stronger growth in the 1990s<sup>\*1</sup>

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*Revised figures from the national accounts show stronger volume growth in Gross Domestic Product (GDP) than previously estimated for the period of 1995-1999. Growth rate estimates for these years are on average increased by 0.6 percentage points. The revisions were largest for 1999, for which year the growth rate has been increased by 1 percentage point due to the incorporation of structural statistics for the service industries. New preliminary growth figures for 2000 and 2001 do not deviate much from previous figures. Revised figures for GDP and final consumption expenditures of households are 1 to 3 per cent higher than previously published for the years 1991-2001. The current external balance has been adjusted upwards due to new information on exports of services. Incorporation of new structural statistics has also led to changes in the distribution of GDP and employment figures by industry.*

## The background for the revision

In 1995, Statistics Norway published results from an extensive revision of the national accounts (the main revision). With this revision, Norway became the first country in Europe to institute the new international guidelines for national accounts published in the System of National Accounts (SNA) 1993 and the European System of National Accounts (ESA) 1995. The main revision led to changes in definitions and classifications and integrated new statistics and new calculation methods. The revision was finished in 2000 with the publication of revised time series back to 1970. Large effects in the national accounts figures were inevitable considering it had been 20 years since the previous main revision.

Statistics Norway has in the last few years prepared new structural statistics for many industries, see box. For manufacturing, the structural statistics have been incorporated on a continual basis in the final national accounts figures. For construction, wholesale and retail trade, business services and transport, the changes, in relation to earlier statistics, were so extensive that the information could not be incorporated on a continual basis. Therefore in 1999, Statistics Norway

decided to endeavour a new revision of the national accounts on a more limited scale than the main revision of 1995. The purpose being to utilise the new structural statistics and other new statistics in a coordinated and concentrated effort to improve the quality of the national accounts time series. Many divisions within Statistics Norway have contributed to the work involved in this project.

Excepting some individual new price indices, no new statistics are available for the years before 1995 that were not included in the main revision of 1995. The figures for the period 1991 to 1995 are however revised to prevent a break in the national accounts time series around 1995. For 1991-1995, the figures are affected in part by the new price indices and in part by new methods and some changes in definitions that were extended back to 1991.

The most important contributions within the revision have been:

- Incorporation of new level figures for production, intermediate consumption, compensation of employees and investments from structural statistics for service and construction industries in 1998 and 1999 and accompanying revisions for previous years
- Revision of figures for employed persons, full-time equivalent persons, and hours worked that are consistent with the revisions mentioned above
- Incorporation of new price indices; including, among others, new indices for exports and imports and quality adjusted indices for individual capital goods

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<sup>1</sup> Revised figures for the years 1991-2001 can be found at [www.ssb.no/english/subjects/09/01/nr-en/](http://www.ssb.no/english/subjects/09/01/nr-en/).

### Structural statistics

The structural statistics are adapted to the EU regulation on structural statistics. The statistics are based upon information from a specific tax questionnaire with the statistical unit being an enterprise and producing figures for both establishments and enterprises. Routines have been set up for converting and redefining individual variables in the structural statistics according to the national accounts industry divisions and concepts.

Statistics Norway publishes annual structural statistics 1.5 to 2 years after the end of the statistical year in the following areas (some beginning in 1995, and some beginning in later years):

- Manufacturing and mining and quarrying
- Construction
- Wholesale and retail trade
- Hotels and restaurants
- Transport (not including ocean transport)
- Post and telecommunications
- Real estate, renting and business activities
- Personal services

- Utilisation of trade margins surveys in retail trade (1996) and wholesale trade (1998) to revise gross trade margins rates in wholesale and retail trade
- Revision of figures for dwelling services based on survey data regarding rents in 1998, 1999, 2000
- Revision of figures for exports of services on the basis of new information for the years after 1995
- Incorporation of new international standards of classifications for household final consumption expenditure, for non-profit institutions serving households, and for general government
- Revision of capital and consumption of fixed capital estimates, with the introduction of new estimates of lifetime and new depreciation methods for general government
- Incorporation of new accounting statistics for private non-financial corporations in 1999 in the institutional sector accounts.

### Stronger GDP growth in the 1990s

Gross Domestic Product measured in current prices has been increased for all of the years back to 1991 due to the revisions. The increase consists of approximately NOK 15 billion or 1.4 per cent for 1997. For 1999 GDP was nearly 36 billion or 3 per cent higher than earlier estimates. The most important contributors to higher GDP levels are new calculation models for consumption of fixed capital by general government, new incorporated information for the construction and service industries, and a new definition of production in the forestry and logging industry. These changes, among others, in the national accounts structural figures will be described in more detail later in the article.

The new national account figures show stronger volume growth in the Gross Domestic Product for all of

### Revised national accounts figures

#### 1991-1999: new final figures

For the years 1998 and 1999 only preliminary figures, based upon the quarterly national accounts, have been previously published. These figures were prepared by projections from the base year 1997 coordinated with the developments described by various economic short-term indicators. These estimates were calculated on a more aggregated and summarized level than in the final national accounts. Final national account figures for the years 1991-1999 are now available. In this article, we have mainly used 1997 as the reference year for comparisons of level figures before and after the revision, as 1997 was the last year with final accounts before the revision.

#### 2000-2001: new preliminary figures

The figures for 2000 and 2001 have been released with estimates from both before and after the revision, using data from the quarterly national accounts as the basis. The revisions to previously published figures in Economic Survey 1/2002 can be attributed to two main adaptations. Firstly in this revision, the level estimates have shifted because the projection base year has been shifted from 1997 to 1999. This also effects volume and price developments for the aggregated figures because relative prices are used as weights in the aggregation from component variables. Secondly, new information in some areas has been considered in the development of 2000 and 2001. In the previous publication, data on the development at the end of the previous year were insufficient.

the years from 1995 to 1999 than previously estimated, see table 1. The growth rate estimates for these five years are on average increased by 0.6 percentage points. The revision is particularly substantial for 1999, in which year earlier calculations were built upon quarterly national accounts and less detailed databases. The growth rate in GDP for Mainland-Norway was increased from 1.0 to 2.7 per cent for 1999. The growth rate for value added in the business service industry was increased from 4 per cent to nearly 13 per cent in 1999. Incorporation of figures from the structural statistics for other service industries has also led to stronger growth estimates for these industries.

The volume growth in GDP varied little for the years from 1991 to 1994 compared to previous estimates. New growth rates have not yet been calculated for the development from 1990 to 1991.

The revised national accounts figures for growth in total number of employed persons and hours worked vary insignificantly from previously published figures for the 1990s. The volume growth in GDP per total hours worked can be interpreted as an indicator of the development in labour productivity in the Norwegian economy, and therefore has had stronger growth than previously estimated for the period 1995-1999.

The growth rate for household consumption expenditure and non-profit institutions consumption expendi-

**Table 1. Main economic indicators. Revision results 1992-2001. Annual percentage change in volume**

	1992		1993		1994		1995		1996		1997		1998		1999		2000		2001	
	New fig.	Old fig.	New fig.	Old fig.	New fig.	Old fig.	New fig.	Old fig.	New fig.	Old fig.	New fig.	Old fig.	New fig.	Old fig. <sup>1</sup>	New fig.	Old fig. <sup>1</sup>	New fig. <sup>1</sup>	Old fig. <sup>1</sup>	New fig. <sup>1</sup>	Old fig. <sup>1</sup>
Gross domestic product (GDP)	3.3	3.3	2.8	2.7	5.3	5.5	4.6	3.8	5.3	4.9	5.2	4.7	2.6	2.4	2.1	1.1	2.4	2.3	1.4	1.4
GDP Mainland-Norway	2.3	2.2	2.8	2.8	3.8	4.1	3.8	2.9	4.2	3.8	4.9	4.2	4.1	3.6	2.7	1.0	1.9	1.8	1.2	1.0
Petroleum activities and ocean transport	8.5	9.0	2.4	2.5	13.4	13.0	9.0	9.3	11.3	11.0	6.4	7.1	-3.8	-2.6	-1.7	1.4	4.9	4.4	2.5	3.7
Consumption exp. of households and NPISHs	2.2	2.2	2.4	2.2	3.3	4.0	3.7	3.4	6.5	5.3	3.2	3.6	2.7	3.4	3.3	2.2	3.5	2.4	2.5	2.2
Consumption exp. of general government	5.6	5.3	2.7	2.2	1.5	1.4	1.5	0.3	3.1	2.8	2.5	1.9	3.3	3.8	3.2	3.3	1.2	1.4	2.0	1.5
Gross fixed capital formation	-1.1	-3.1	6.5	4.3	5.3	4.5	3.9	3.4	10.3	9.9	15.5	13.9	13.1	10.6	-5.6	-8.2	-1.5	-1.1	-4.6	-5.9
Exports	4.7	5.2	3.2	3.2	8.4	8.7	4.9	4.3	10.2	9.3	7.7	6.1	0.6	0.3	2.8	2.8	2.9	2.7	4.2	5.3
Imports	1.6	0.7	4.9	4.4	5.8	4.9	5.7	5.6	8.8	8.0	12.4	11.3	8.5	8.0	-1.8	-1.6	3.2	2.5	0.0	0.3
Employed persons	-0.2	-0.3	0.5	0.2	1.4	1.3	2.1	2.1	2.0	2.1	2.9	2.9	2.5	2.5	0.8	0.6	0.4	0.5	0.5	0.4
Total hours worked	0.3	0.4	0.3	0.0	1.2	1.0	0.9	0.8	1.6	1.6	2.6	2.5	2.4	2.4	0.7	0.4	-1.1	-0.8	-1.0	-0.8

<sup>1</sup> Estimated by the quarterly national accounts

Source: Statistics Norway.

ture has been adjusted with an increase of more than 1 percentage point for the years 1996 and 1999. For 1996 the increase in the new estimates is primarily due to new calculations of household purchases of automobiles. The new final consumption figures for 1999 are based on more detailed and extensive source data than in the previously published preliminary figures.

The volume growth for gross fixed capital formation was revised upwards for all years from 1991 to 1999. The revised figures show strong volume growth (over 10 per cent) for the years 1996-1998, with a diminishing of negative volume growth in 1999. For 1999, the negative growth displayed in previous preliminary figures has been somewhat subdued by the revision. The significant decrease in investments in manufacturing, at 24 per cent in the earlier figures, has been reduced to a decrease of only half as much, or 12 per cent, for 1999.

The revised figures show higher growth rates for exports and imports in 1997 than previously published. The growth of exports was adjusted upwards by 1.6 percentage points while the growth of imports was adjusted upwards by 1.1 percentage points for the year 1997. In the other years, the difference between the new and former growth rates was under 1 percentage point.

### New price indices

In the revision, new, improved price indices for many products within the market industries have been introduced affecting the volume estimates. The methodological basis for the constant price calculations has not, however, been changed.

New price indices on goods have been established for manufacturing beginning in 1995, replacing earlier figures from the producer price index. In addition, there are new quality adjusted indices for the goods price index for PC equipment and software, tractors, trailers and washing machines. New Norwegian price indices, as calculated by Statistics Norway (from 2001 for PC equipment and software, from 1998 for tractors and trailers, from 2000 for washing machines), are linked back each year with quality adjusted indices for USA from the Bureau of Labor Statistics. These indices from the Bureau of Labor Statistics were also used in calculating special indices related to foreign trade.

New price indices for exports and imports of goods from the External Trade Statistics (ETS) have been incorporated in all years after 1991. For most goods in the ETS, the prices are either directly observed or calculated with the help of representative goods. The grouping of the representative goods are now set up according to the national accounts product standard instead of, as previously, according to the UN's statistic nomenclature for foreign trade (SITC Rev.3). This alteration led to a selection of representative goods within a more price homogeneous product group. The calculation models were supplemented with special indices for goods that have weak coverage in the traditionally chosen representative goods.

A new assessment and revision of the national accounts' use of data from the consumer price index was undertaken. For many product groups, new representative goods were chosen. These affect many service industries and the constant price calculations for household consumption expenditure.

The price indices for bank services were revised back to 1991, both for paid bank services and financial intermediation services indirectly measured (FISIM).

### Revised figures for 2000 and 2001

New preliminary figures were calculated for 2000 and 2001 with revised level figures for 1999 as the projection's base year. The new figures show only small revisions in the GDP growth rates, at constant prices, for 2000 and 2001. For Mainland-Norway, the growth rate has now been estimated at respectively 1.9 and 1.2 per cent. This was a minor adjustment of only 0.1 and 0.2 percentage points increases from the previous figures. Household consumption expenditure was also increased both years, while the general government consumption growth was decreased in 2000 and increased in 2001.

Gross fixed capital formation shows a volume decrease in both years before and after the revision, though, for 2001 the decrease was less than previously released figures. Both exports and imports growth were adjusted upwards in 2000, while both were adjusted downwards in 2001. Particularly, the growth in service exports and service imports from 2000 to 2001 was adjusted downwards. The foremost reasons being that the level in 2000 was increased and that new information was included for 2001.

The production activity in Mainland-Norway, defined as value added at constant prices measured in basic value, now shows a growth of 2.0 per cent in 2000 and 1.6 per cent in 2001. The growth estimates were decreased by 0.1 percentage points in 2000 and 0.3 percentage points in 2001. In 2000, the goods-producing industries and general government estimates have been decreased, while the growth estimates in the service industries have been upwardly adjusted. In 2001, the goods-producing industries figures changed insignificantly, while the service industry estimates grew somewhat faster than previously calculated.

Total employment development has been adjusted very little for 2000 and 2001. Total employed persons growth figures are now estimated at 0.4 per cent in 2000 and 0.5 per cent in 2001. Change in total hours worked was decreased from -0.8 per cent to -1.1 per cent for 2000, mainly due to more complete absence statistics.

### New structural figures for the industries

The incorporation of figures from the new structural statistics, and particularly new methods for collecting data for structural statistics, have led to many changes in the national accounts figures. The Central Register of Establishments and Enterprises has implemented extensive revisions over the last years, forming the basis for the data collection. Changes have particularly influenced the figures for transport, business services and construction. Figures from the structural statis-

tics for manufacturing had already been incorporated into 1996 and 1997 national accounts.

For the transport and communications industries, the new statistics have contributed to increase the value added for post and telecommunications by approximately 6 per cent in 1997. In the 1997 figures for other transport industries, value added has been decreased by approximately 16 per cent in 1997, and operating surplus has been decreased by more than 8 billion, considerably lower than previously estimated. Mainly, it is the incorporation of figures from the structural statistics for land transport and services connected to transport which led to the new estimates within the transport industries. No structural statistics have been published for the ocean transport industry, however, new calculations for export services have contributed to a minor increase in value added for this industry.

In the hotels and restaurants industry, value added is increased by 20 per cent in 1997, due to both the incorporation of structural statistics and the addition of unregistered output. About 10 per cent of value added in this industry is attributed to unregistered output in 1997.

Value added for the business service industry, including the activity within the central government, has been increased by approx. 7 per cent from the previously published figures for 1997. Output and intermediate consumption have had greater increases of respectively 15 and 25 per cent. The new calculations have increased output for the real estate industry, where there has been a large increase in the numbers of units registered in the Central Register of Establishments and Enterprises (due to outsourcing, etc). Furthermore, after the incorporation of structural statistics, the figures for computer and related activities and research and development are significantly higher. The revisions within the business service industry back to 1991 were executed, utilising different sources of data for the different sub-industries within the business services industry, such as tax statistics, employment statistics, etc.

In the construction industry, including the activity within the central and local government, the revisions have increased value added by 10 per cent in 1997. Operating surplus for this industry is also higher than previously published. Construction work connected to road building and maintenance in the governmental sector has, from 1991, been transferred from market producers to the central government.

In wholesale and retail trade, including repair of motor vehicles, output has been increased by approximately 4 per cent. This is mainly due to the incorporation of information from the structural statistics and information from trade margins surveys. The relative-

**Table 2. Value added by kind of main activity at basic values. Revision results 1997. Million NOK**

	New figures	Old figures	Difference in million NOK	Difference in per cent
Gross domestic product <sup>1</sup>	1 111 349	1 096 170	15 179	1.4
Agriculture, hunting and forestry	16 216	14 134	2 082	14.7
Fishing and fish farming	7 644	7 568	76	1.0
Oil and gas extraction incl. services	170 022	170 355	-333	-0.2
Oil and gas extraction	163 566	163 899	-333	-0.2
Service activities incidental to oil and gas	6 456	6 456	0	0.0
Mining and quarrying	2 188	2 163	25	1.2
Manufacturing	121 906	120 782	1 124	0.9
Food products, beverages and tobacco	17 951	17 752	199	1.1
Textiles, wearing apparel, leather	2 300	2 280	20	0.9
Wood and wood products	4 854	4 806	48	1.0
Pulp, paper and paper products	5 086	5 004	82	1.6
Publishing, printing, reproduction	13 642	13 569	73	0.5
Refined petroleum, chemical and mineral products	12 917	13 198	-281	-2.1
Basic chemicals	7 119	6 755	364	5.4
Basic metals	9 037	8 921	116	1.3
Machinery and other equipment n.e.c	31 472	31 144	328	1.1
Building of ships, oil platforms and moduls	12 754	12 623	131	1.0
Furniture and other manufacturing n.e.c	4 774	4 730	44	0.9
Electricity and gas supply	24 410	24 092	318	1.3
Water supply	1 654	1 930	-276	-14.3
Construction	45 906	41 715	4 191	10.0
Wholesale and retail trade, repair of motor vehicles	100 712	104 305	-3 593	-3.4
Hotels and restaurants	16 019	13 298	2 721	20.5
Transport via pipelines	13 107	13 107	0	0.0
Ocean transport	20 030	19 094	936	4.9
Other transport industries	40 026	47 680	-7 654	-16.1
Post and telecommunications	21 887	20 601	1 286	6.2
Financial intermediation	39 864	37 857	2 007	5.3
Dwellings (households)	60 239	65 236	-4 997	-7.7
Business services	72 987	68 166	4 821	7.1
Public administration and defence	54 328	50 729	3 599	7.1
Education	45 312	44 176	1 136	2.6
Health and social work	81 407	81 701	-294	-0.4
Other social and personal services	31 590	28 394	3 196	11.3
Total industries (basic values)	987 454	977 083	10 371	1.1
Mainland-Norway (basic values)	784 295	774 527	9 768	1.3
FISIM <sup>2</sup>	-30 689	-30 012	-677	2.3
Value added tax and investment levy	108 239	104 800	3 439	3.3
Other taxes on products, net	46 345	44 299	2 046	4.6
Mainland-Norway (market values)	908 190	893 614	14 576	1.6
General government	174 314	166 019	8 295	5.0
Central government	54 037	48 603	5 434	11.2
Civilian central government	41 887	36 508	5 379	14.7
Defence	12 150	12 095	55	0.5
Local government	120 277	117 416	2 861	2.4

<sup>1</sup> Gross domestic product is measured at market values, while value added by industry is measured at basic values

<sup>2</sup> Financial Intermediation Services Indirectly Measured

Source: Statistics Norway.

ly strong increase in intermediate consumption, contributed to a lower value added than previously published in the national accounts. However, operating surplus in retail and wholesale trade is considerably higher than previously published (approx. 6 billion in 1997) because of a decrease in the consumption of fixed capital.

In 1997, value added in financial intermediation has been increased by 2 billion, or 5 per cent in 1997. This is due to the introduction of revised accounting statistics in service activities for financial intermediation (insurance arbitration, securities brokers etc.).

**Table 3. Compensation of employees by kind of main activity. Revision results 1997. Million NOK**

	New figures	Old figures	Difference in million NOK	Difference in per cent
Compensation of employees	516 523	509 605	6 918	1.4
Agriculture, hunting and forestry	3 534	3 533	1	0.0
Fishing and fish farming	2 773	2 782	-9	-0.3
Oil and gas extraction incl. services	13 979	13 510	469	3.5
Oil and gas extraction	10 223	10 299	-76	-0.7
Service activities incidental to oil and gas	3 756	3 211	545	17.0
Mining and quarrying	1 262	1 262	0	0.0
Manufacturing	86 884	86 884	0	0.0
Food products, beverages and tobacco	13 651	13 651	0	0.0
Textiles, wearing apparel, leather	1 808	1 808	0	0.0
Wood and wood products	3 757	3 757	0	0.0
Pulp, paper and paper products	3 174	3 174	0	0.0
Publishing, printing, reproduction	10 255	10 255	0	0.0
Refined petroleum, chemical and mineral products	7 567	7 567	0	0.0
Basic chemicals	3 096	3 096	0	0.0
Basic metals	5 192	5 192	0	0.0
Machinery and other equipment n.e.c	24 022	24 022	0	0.0
Building of ships, oil platforms and moduls	10 782	10 782	0	0.0
Furniture and other manufacturing n.e.c	3 580	3 580	0	0.0
Electricity and gas supply	6 029	5 991	38	0.6
Water supply	246	346	-100	-28.9
Construction	31 913	30 639	1 274	4.2
Wholesale and retail trade, repair of motor vehicles	69 554	71 459	-1 905	-2.7
Hotels and restaurants	12 776	11 882	894	7.5
Transport via pipelines	178	178	0	0.0
Ocean transport	8 125	8 125	0	0.0
Other transport industries	27 477	26 004	1 473	5.7
Post and telecommunications	12 173	13 052	-879	-6.7
Financial intermediation	17 015	17 223	-208	-1.2
Dwellings (households)	303	303	0	0.0
Business services	48 057	41 861	6 196	14.8
Public administration and defence	42 643	41 657	986	2.4
Education	41 407	41 105	302	0.7
Health and social work	71 773	73 017	-1 244	-1.7
Other social and personal services	18 422	18 792	-370	-2.0
Mainland-Norway	494 241	487 792	6 449	1.3
General government	149 521	146 069	3 452	2.4
Central government	43 644	40 211	3 433	8.5
Civilian central government	34 346	31 313	3 033	9.7
Defence	9 298	8 898	400	4.5
Local government	105 877	105 858	19	0.0

Source: Statistics Norway.

The primary industries have been only modestly revised, excepting forestry, where value added has been substantially increased. A change in definition of forestry production is the primary cause for this change. Production is no longer measured as only the felling of timber; now the net growth in cultivated forests has been added to the calculation of production. The situation in Norway from 1991 is that the increment is almost twice the felling of forest. The change in definition in forestry, in accordance with international guidelines, was established as part of an international attempt to enhance the treatment of natural resources and the environment in the national accounts, see Sørensen et al. (2001).

A result of the revision has been an increase in total output and total intermediate consumption, which, in general, has increased more than total value added. In 1997, total output increased by 3 per cent and total intermediate consumption increased by more than 5 per cent, while total value added has only increased by 1 per cent. This structural change was mainly due to the new calculations of business services and other service activities.

#### **New dwelling calculations**

The production of dwelling service estimates has been decreased by approximately 7 per cent in 1997. The production of rental services has been distributed

among production of paid rent (market output) and imputed rent by owner-occupiers (production for own use). Part owners in housing cooperatives are, as established previously, considered owner-occupiers. New calculations of imputed rent (based on average rent per square meter) by owner-occupiers have been carried out based on survey data on actual rents for 1998, 1999 and 2000.

It has been decided, for the future, that the consumer price index and the consumer expenditure survey should classify part owners in housing cooperatives with owner-occupiers in one line with the national accounts. Thus enabling a more coordinated treatment of part owners in housing cooperatives in Statistics Norway's statistics.

### **Employment and compensation of employees**

Total compensation of employees revision was approximately NOK 7 billion or 1.4 per cent in 1997. The incorporation of structural statistics has produced new figures for many industries. The compensation of employees for business services has had the largest revision at approximately 15 per cent. Construction, hotels and restaurants, and other transport industries (specifically land transport) have higher compensation of employee figures than previously estimated. Compensation of employees in central government has been revised because construction connected to road building and maintenance has been reclassified from market producers to a new government construction industry introduced into the national accounts. In addition, the deficit in the Public Service Pension Fund has been redefined from transfers to compensation of employees.

Employee compensation in wholesale and retail trade, including repair of motor vehicles, is lower than previously estimated. Information other than the structural statistics has also been incorporated into the new compensation calculations for wholesale and retail trade (for example, employment statistics and data from wage surveys). Estimates for the compensation of employees in health and social work were decreased according to new accounting statistics within the non-profit institutions group.

Average wage and salary levels, measured as wages and salaries per full-time equivalent employee, had minor changes in the revision. This means that the national accounts figures for the annual wage and salary increase, for individual industries and in total, were generally consistent with previously published figures for the period of 1991-1999.

New estimated industry figures for employed persons, full-time equivalent persons, and hours worked were consistent with the revised figures for compensation of employees and wages and salaries. In general, there has been redistribution within service industries

and construction employment, while the primary industries, oil industries and manufacturing have approximately the same employment figures as before. The employment estimates have been reduced for wholesale and retail goods and for health and social services. Business services received the largest adjusting increase, with approximately 23 000 more employees in 1997. Since employment in 1990 was not changed, average yearly employment growth in business services increased by approximately 6 per cent in the period 1990-1997, instead of 4 per cent as previously calculated. In 1998 and 1999, employment in business services increased respectively 11 and 10 per cent.

As a result of the national accounts revision, total number of employed persons and hours worked increased slightly (0.1 to 0.6 for the years 1991-1999). Employees accounted for the increase, while the number of self-employed (approx. 8 per cent of the total employment in 1997) decreased slightly. The total number of employed persons in the national accounts is approximately equal to the Labour Force Surveys (LFS), and below the sampling error of the LFS.

### **Increased tax figures**

In the national accounts, figures for investment taxes and accrued value added tax, on the basis of tax rates and relevant transactions (output, intermediate consumption, gross investments and consumption), have been calculated. Increased figures for production, household consumption expenditures and intermediate consumption have resulted in higher figures for investment and accrued value added taxes. In 1997, the adjustment increased figures by approximately NOK 3.4 billion or 3.3 per cent. Accrued value added tax and investments levies also include estimations of taxes that are not paid (because of bankruptcy, unregistered production, etc.), and therefore, would, in general, be larger than official account registered values. Accrued value added tax and investments levies are on average more than 3 per cent higher than time-adjusted taxes paid, for the period 1990-2000.

Some methodological improvements in the calculation of other product taxes have been implemented (among others, stamp duties paid on transfer of ownership of used dwellings are redefined as taxes on products instead of other taxes on production). New product groupings for petroleum products have been introduced corresponding to energy account classifications (see Statistics Norway (2002)), which result in better quality estimates of energy taxes in the national accounts.

### **Household consumption expenditure**

Household consumption expenditure estimates as a whole were increased by 1-2 per cent in the revised years. A new classification based on a new interna-

**Table 4. Household final consumption expenditure. Revision results 1997. Million NOK**

	New figures	Old figures	Difference in million NOK	Difference in per cent
<b>Household consumption expenditure</b>	504 795	495 077	9 718	2.0
Food and non-alcoholic beverages	76 521	76 031	490	0.6
Alcoholic beverages and tobacco	24 718	24 923	-205	-0.8
Clothing and footwear	30 020	30 094	-74	-0.2
Housing, water, electricity, fuels	104 277	108 487	-4 210	-3.9
Furniture, household equipment	31 765	31 363	402	1.3
Health	13 239	13 358	-119	-0.9
Transport	77 654	73 258	4 396	6.0
Communication	9 478	10 015	-537	-5.4
Recreation and culture	60 935	54 657	6 278	11.5
Education	2 401	2 289	112	4.9
Hotels and restaurants	33 262	29 413	3 849	13.1
Miscellaneous goods and services	35 016	35 882	-866	-2.4
Direct purchases abroad by resident households	21 742	21 283	459	2.2
Direct purchase in Norway by non-resident households	16 233	15 976	257	1.6

Source: Statistics Norway.

tional standard COICOP (Classification Of Individual Consumption by Purpose) has also been implemented. In Table 4, new 1997 consumption figures are compared with previously calculated 1997 figures, which had been organised for international reporting before the revision of figures. The main categories - now 12 categories as opposed to the previous 10 - are only minorly adjusted. Food, beverages and tobacco products have, however, been divided into two main categories: food and non-alcoholic beverages and alcoholic beverages and tobacco products. Another change is in the growth of information and communication technology: communication services have been established as its own main category separated from miscellaneous goods and services.

There are three main categories where the consumption figures have been significantly increased, when measured in absolute figures: recreation and culture increased by NOK 6.3 billion, transport by 4.4 billion and hotels and restaurants by 3.8 billion. A decrease of 4.2 billion for housing, water and electricity was the main negative deduction from the consumption figures. The revisions in service consumption were for the most part a consequence of revisions incorporated into the production of these services. The decrease in housing, water and electricity consumption figures was due to lower estimates of imputed rents.

The use of the consumer expenditure survey has been improved and thereby provided a smoother time series for the estimation of annual changes and an improved estimate of the level of goods consumption expenditure for individual groups. There has also been an assessment of the household consumption level based upon the structural statistics for wholesale and retail trade with the use of industry information on goods content in the trade margins survey of 1996. In addition, the level for purchase of own motor vehicles has been increased as a result of better methods

for estimating the price developments on motor vehicles.

#### **Lower production by non-profit institutions**

For non-profit institutions' output, employment and total consumption, the estimates were decreased by approximately 15 per cent in 1997. The decrease was largest for health services, where accounting statistics for private institutions connected to patient care were introduced. The social service production estimate has been decreased due to the incorporation of information from new accounting statistics for aid organisations.

#### **General government consumption expenditures**

General government consumption expenditure estimates have been, as a whole, increased by 4 per cent in 1997. The composition of consumption by function has been revised according to the new international standard for general government outlays - COFOG (Classification Of Functions Of the Government). The total of main categories in COFOG was reduced from 14 to 10, notably economic affairs have now been gathered into one main category. Environmental protection has now been established as its own category. The function group of social protection consists of the earlier health and social work groups. Research and development has been distributed among the main categories.

Central government consumption was increased by more than 7 per cent in 1997 estimates. This is in part due to definitional changes and in part to a large increase in the calculated consumption of fixed capital. Social benefits in kind estimates were increased caused by, among other things, medical rehabilitation being regrouped from social benefits to purchase of goods. In addition, the deficit in the Public Service Pension Fund has been redefined from transfers to

**Table 5. Gross capital formation. Revision results 1997. Million NOK**

	New figures	Old figures	Difference in million NOK	Difference in per cent
Total gross capital formation	264 561	275 049	-10 488	-3.8
<b>By main category</b>				
Gross fixed capital formation	245 695	252 094	-6 399	-2.5
Changes in inventories	18 866	22 955	-4 089	-17.8
<b>By industry</b>				
Oil activity	62 249	62 249	0	0
Ocean transport	13 461	13 016	445	3.4
Manufacturing and mining and quarrying	18 966	17 910	1 056	5.9
Other goods production	17 039	16 603	436	2.6
Housing services (households)	37 008	30 394	6 614	21.8
General government activity	37 254	37 952	-698	-1.8
Other service industries	59 718	73 970	-14 252	-19.3
<b>By type of assets</b>				
Oil platforms etc.	32 135	32 135	0	0
Oil exploration, drilling, pipelines for oil and gas	27 939	27 939	0	0
Building and construction	100 409	95 027	5 382	5.7
Ships and boats	15 973	16 266	-293	-1.8
Other transport equipment	14 302	24 289	-9 987	-41.1
Machinery and equipment	54 937	56 438	-1 501	-2.7

Source: Statistics Norway.

compensation of employees, and a revision of boundary between central government and market construction within the communications and transport industries has modified the figures. New consumption of fixed capital within the local government estimates has contributed to an increase in consumption figures approximating 2 per cent in 1997.

### Investments

Gross fixed capital formation has been in total decreased by more than NOK 6 billion, or 2.5 per cent for the reference year 1997. For Mainland-Norway, the downward adjustment was 7 billion (4 per cent). Investments in general government had only small revisions. Dwelling investments were increased by nearly NOK 7 billion, or 22 per cent, because of new information on renovation of housing and transaction costs related to the purchase or sale of dwellings.

Another industry with significant increases in investments was business services (including central government activities) with 6.5 billion higher investments for 1997, as well as an increase of 1 billion for investments in manufacturing and construction. The increases in manufacturing investments are linked to the purchase of PCs and other office equipment that are now included in gross fixed capital formation. Previously, a portion of these purchases was attributed to intermediate consumption. Two industries have had substantial decreases in investments in 1997: miscellaneous transport, with a decrease of 3 billion and wholesale and retail trade, including repair of motor vehicles, with a decrease of NOK 18 billion (for a total of less than half of the previous estimate). The intro-

duction of figures from the new structural statistics has been the main contributor to these changes.

The new 1997 figures for gross fixed capital formation by type of assets show an increase of more than 5 billion (nearly 6 per cent) in estimates for constructions excepting oil activity. The investments in oil activity have not been revised. The investment figures for other transport equipment have been decreased by 10 billion. Structural statistics showing significantly lower figures have been the foremost reason for the decrease in motor vehicle investment figures, which is related to the upward adjustment of motor vehicle consumption.

### Capital stocks and consumption of fixed capital

Consumption of fixed capital for all industries has now been calculated by a geometric method, that is to say that the capital consumption is calculated as a fixed per cent of the remaining net capital stock. The capital stock has been re-estimated based on this new assumption and on new information on gross fixed capital formation. The change has led to a larger revision in the consumption of fixed capital for general government than for other industries. The estimate on the consumption of fixed capital for the general government increased by approx. 4.8 billion, or more than 30 per cent, in 1997. As output in general government is calculated as the sum of costs including the consumption of fixed capital, the new estimates have correspondingly increased within output and consumption as well.

**Table 6. Production and income. Main aggregates. Revision results 1997. Million NOK**

	New figures	Old figures	Difference in million NOK	Difference in per cent
Gross domestic product	1 111 349	1 096 170	15 179	1.4
Primary incomes payable to non-residents, net	11 831	10 950	881	8.0
Gross national income	1 099 518	1 085 220	14 298	1.3
Consumption of fixed capital	164 112	167 146	-3 034	-1.8
National income	935 406	918 074	17 332	1.9
Current transfers payable to non-residents, net	9 868	9 796	72	0.7
Disposable income for Norway	925 538	908 278	17 260	1.9
Final consumption expenditure	754 625	739 189	15 436	2.1
Saving for Norway	170 913	169 089	1 824	1.1
Capital transfers, net	1 291	1 256	35	2.8
Acquisitions of patents, licences, etc, net	558	558	0	0.0
Net acquisitions of non-financial assets	100 449	107 903	-7 454	-6.9
Net lending	68 615	59 372	9 243	15.6

Source: Statistics Norway.

The service lives (or useful lives) of capital have been reassessed in light of recently published statistics from other countries. The service life for hardware, office equipment, etc. has been revised, and is now 8 years up to and including 1990 and 5 years from 1991. Based on information from NOR Energi (an association of Norwegian energy producers), the service life for construction in the power supply industry has been reduced from 90 to 70 years. Furthermore, the service life of buildings in the fish farming industry has been reduced from 50 to 20 years. And finally, the service life of software etc. (except oil drilling) has been increased from 3 to 4 years. This is in line with service lives for this type of asset in other countries.

### External balance

The most important change affecting external balance estimates is the increase in figures for exports of services beginning in 1995. The revisions are based on an analysis of statistics from Norges Bank (Central Bank of Norway), which is the main source for information regarding international trade in services. The foreign exchange statistics are based on registration of payments between residents and non-residents, and specify what the payments concern. More in-depth surveys have detected a biased relationship between payments for goods and payments for services in the foreign exchange statistics, especially regarding exports after 1995. This bias has been adjusted for in the new figures for exports of services.

For 1997, total value of exports of services has been increased by more than 12 billion, or 12 per cent, of which finance and business services comprise 7.5 billion. Imports of goods and services have been increased by 2.5 billion. Hence, Norway's total export surplus toward foreign countries has increased by 10.5 billions for 1997.

Wages to foreign countries and from foreign countries have been moderately revised with an addition of, respectively, 1 and 0.5 billion in 1997. Other items on

the balance of income and current transfers have been less affected by the new calculations. The current external balance has been increased by 10 billion in 1997.

### Institutional sector accounts

Figures back to 1991 have also been estimated for institutional sector accounts. Institutional sector accounts describe all economic transactions involving the institutional sectors: production, income generation, income distribution, use of disposable income, saving and net lending.

Total gross domestic product (GDP) for 1997 has been revised and increased by NOK 15.2 billion, or 1.4 per cent. Sectors of corporations and general government have been estimated with higher value added, while the figures for households and non-profit organizations have been revised downwards.

1997 disposable income for Norway has been adjusted by a 17.3 billion (1.9 per cent) increase over earlier calculations. This revision resulted in a positive adjustment for disposable income in non-financial corporations and in general government of respectively 17.7 and 6.1 billion. Disposable income in financial corporations and in the household sector have been decreased by respectively 2 and 4.6 billion. Total saving was revised upwards by 1.8 billion or 1.1 per cent in 1997. Net acquisitions of non-financial capital have been decreased by 7.4 billion or 6.9 percent, and net lending has been revised upwards by 9.2 billion or 15.6 per cent.

### General government

The figures for general government have generally been increased in the revision. Disposable income estimates in 1997 have been increased by NOK 6.1 billion. Government final consumption expenditure has, however, been revised with an increase of 9.1 billion, which has led to lower saving in this sector. Net acquisitions of non-financial capital have been

decreased by 6.4 billion. This was partly counteracted by increased capital transfer to other sectors, so that net lending is approximately the same as in old figures.

The upward adjustment in the tax income, especially taxes on production including value added tax, has been a bit stronger than the increase in GDP estimates, but, nevertheless, has only led to a slightly higher total tax per cent of GDP (still approx. 43 per cent in 1999).

### Financial corporations

The revisions for this sector are relatively small, though for the sub-sectors new data material and new calculations have been incorporated, covering this sector much better than before.

### Non-financial corporations

The revised business accounting statistics for non-financial corporations are based upon important changes in the business and corporation tax questionnaire introduced in 1999. Tax statistics for non-personal taxpayers have also improved the quality of the figures for this sector. Incorporation of these new statistical sources has provided access to more details, leading to quality improvements in the national accounts figures for years before 1999.

The incorporation of accounting statistics from 1999 has led to a better foundation on which to base revisions in the national accounts. Value added in 1997 has been adjusted by 12 billion up to 662.3 billion. Disposable income, which is equal to saving in this sector, has been increased by 17.7 billion with a result of 40.9 billion. Net acquisition of non-financial capital has been revised by 6.8 billion down to 67 billion, and therefore this sector still has a negative net lending.

### Households and non-profit institutions

Calculations of income and expenditure figures for this main sector are more strongly based on data from registers than before. The statistics from tax returns, which give total data for several figures, has been incorporated since 1993.

In general, this sector has experienced a reduction in overall income and an increase in expenditures for the year of 1997. This has led to a downward revision of the household savings rate.

Value added in the household sector proper has been reduced by NOK 9.8 billion to 142.3 billion in 1997. The sources for these revisions were a decrease in value added within the housing industry and a decrease in value added for the self-employed. A decrease in compensation of employees in this sector has, however, moderated the negative effect on operating surplus, adjusted by 5.4 billion down to 89.3 billion in 1997.

The primary income, which indicates the household remuneration of work effort and capital, has been decreased by almost 1 billion with a revised figure of 606.8 billion in 1997. This decrease was the result of reduced operating surplus, the increase in the wages by 6 billion and the decrease in income from capital plus the increase of capital expenditure.

Disposable income, which appear after transfers (as, for instance, pensions and benefits from the government) have been added to primary income and taxes, and levies and transfers to other sectors have been subtracted, have been decreased by 4.6 billion to 537.3 billion in 1997. Behind this revision lies a downward adjustment of the benefits from the general government by 2.5 billion and an upwards adjustment of employers' social security contributions and members fee by almost 1 billion. Saving, which appear after final consumption expenditure has been subtracted from disposable income, and corrected for savings in funds, has been downwards adjusted by 10.9 billion to 15.4 billion in 1997. The underlying components for this revision were the decrease in disposable income and the increase in household and non-profit institutions consumption expenditure of 6.3 billion.

The revision in disposable income and in saving has reduced the saving share from 4.8 to 2.8 per cent in 1997.

Net lending, which is saving minus net acquisition of non-financial capital and capital transfers, has been decreased by 15.9 billion resulting in -3.5 billion in 1997. These revisions were mainly the result of the decrease in saving, the increase in net acquisitions of non-financial capital at 5.9 billion, and the small decrease in capital transfer to other sectors.

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**Table 7. Institutional sectors. 1997. Million NOK**

	General government	Financial corporations	Non-financial corporations	Households and NPISHs	Resident sectors, total	Rest of the world
<b>Production</b>						
Output, producers' prices	253 989	60 596	1 365 975	234 256	1 914 816	-
Imports	-	-	-	-	-	368 701
- Intermediate consumption	79 675	20 726	703 635	91 986	896 022	-
- Exports	-	-	-	-	-	460 864
= Gross value added	174 314	39 870	662 340	142 270	1 018 794	-
= Imports surplus	-	-	-	-	-	-92 163
- Consumption of fixed capital	22 269	2 771	106 133	32 939	164 112	-
- Compensation of employees	149 521	17 071	320 191	29 740	516 523	2 040
- Taxes on production and imports	7	104	54 812	1 692	56 615	-
+ Subsidies	-	1 085	20 461	11 442	32 988	-
= Operating surplus	2 517	21 009	201 665	89 341	314 532	-94 203
<b>Allocation of primary income</b>						
Operating surplus	2 517	21 009	201 665	89 341	314 532	-94 203
+ Wages and salaries	-	-	-	513 589	513 589	4 974
+ Taxes on production and imports	179 859	-	-	-	179 859	-
+ Property income received	47 343	107 540	33 430	42 369	230 682	46 367
- Subsidies	32 988	-	-	-	32 988	-
+ Adjustment for FISIM	-	-30 689	-	-	-30 689	-
- Property income paid	23 916	79 901	97 229	38 533	239 579	37 470
= Primary income	172 815	17 959	137 866	606 766	935 406	-80 332
<b>Secondary distribution of income</b>						
Primary income	172 815	17 959	137 866	606 766	935 406	-80 332
+ Employer's social contributions	63 800	17 084	2 854	118	83 856	-
+ Current taxes on income and wealth, oil activities	29 205	-	-	-	29 205	-
+ Current taxes on income and wealth, except on oil activities	201 476	-	-	-	201 476	207
+ Social benefits	-	-	-	173 579	173 579	26
+ Current transfers to NPISHs	-	-	-	27 407	27 407	-
+ Other current transfers	204 080	18 241	9 885	11 305	243 511	19 993
- Employer's social contributions	-	-	-	83 856	83 856	-
- Current taxes on income and wealth, oil activities	-	-	29 205	-	29 205	-
- Current taxes on income and wealth, except on oil activities	-	2 834	24 114	174 393	201 341	342
- Social benefits	158 809	11 763	2 854	118	173 544	61
- Current transfers to NPISHs	14 872	-	2 485	10 050	27 407	-
- Other current transfers	164 591	24 449	51 010	13 499	253 549	9 955
= Disposable income	333 104	14 238	40 937	537 259	925 538	-70 464
<b>Use of disposable income</b>						
Disposable income	333 104	14 238	40 937	537 259	925 538	-70 464
+ Adjustment, households pension funds	-	-	-	5 320	5 320	-
- Adjustment, households pension funds	-	5 320	-	-	5 320	-
- Consumption expenditure, households and NPISHs	-	-	-	527 135	527 135	-
- Consumption expenditure, central government	92 947	-	-	-	92 947	-
- Consumption expenditure, local government	134 543	-	-	-	134 543	-
= Saving	105 614	8 918	40 937	15 444	170 913	-70 464
<b>Capital account</b>						
Saving	105 614	8 918	40 937	15 444	170 913	-70 464
+ Capital transfers, net	-4 765	-6	3 662	-182	-1 291	1 291
- Net acquisitions of non-financial assets	14 543	676	66 985	18 803	101 007	-558
= Net lending / Net borrowing	86 306	8 236	-22 386	-3 541	68 615	-68 615

Source: Statistics Norway.