Economic Survey

2/98

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Economic trends
- National accounts for 1 quarter 1998
- Overview of international and Norwegian economic developments
- Forecasts for the Norwegian economy for 1998 and 1999

Articles
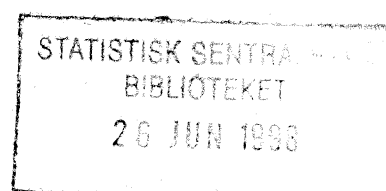- Monetary policy
- Norwegian national accounts

Economic Survey

2/98

Volume 8

Economic Survey

Economic Survey is published four times a year by the Research Department of Statistics Norway. The Research Department was established in 1950. The Department has about 90-100 employees (January 1998). The Research Department is today organized in four divisions. Head of Department is *Øystein Olsen.*

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The next edition of Economic Survey will be published at the end of September 1998.

Symbols in Tables	Symbol
Data not available	..
Not for publication	:
Nil	0
Provisional or preliminary figure	*

Economic trends*

After almost equally strong growth through 1997 as in 1996, new national accounts data indicate almost no change in GDP and demand in the mainland economy from the fourth quarter of last year to the first quarter of this year. However, figures from Statistics Norway's Labour Force Survey show continued brisk growth in employment and a quicker decline in unemployment than previously. With a solid contribution to income growth from this year's pay settlement, a continued strong rise in investment and roughly unchanged growth contributions from traditional merchandise exports, mainland GDP is set to rise at the same rate as last year on an annual basis. For 1999 an expected decline in investment and low growth in general government demand suggest a substantial reduction in growth in the mainland economy.

Whereas the trend in investment and overall consumption each made a roughly equal contribution to demand growth in 1997, a relatively speaking somewhat weaker contribution from investment is likely in the current year, primarily due to markedly slower growth in general government investment. The trend in petroleum investment on the other hand will provide a substantial impetus to growth in the current year, as last year, despite the action taken by the authorities to dampen the rise in such investment. With the prospect of roughly the same income growth as last year, the stage is also set for a continuation of last year's relatively strong rise in household consumption, even though the heralded interest rate increase will give rise to a modest increase in borrowing costs. This, together with virtually unchanged impetus from traditional exports, suggests that GDP for Mainland Norway will show growth well in excess of long-term trend growth for the fifth year running.

Developments in the labour market in the first four months of the year indicate that the current year, like last year, may bring employment growth approaching 2.5 per cent and a new marked fall in the level of unemployment. The outcome of this year's pay settlement suggests that nominal wage growth could be the highest for 10 years. Even though price growth is set to pick up slightly over the current year it is hardly likely to be higher than last year on an annual basis. Real wage growth will then be on par with the result for 1996. Low oil prices, approximately unchanged oil production and brisk growth in imports will give rise to a substantial but transient fall in the surplus on the current account of the balance of payments from 1997 to 1998.

Postponement of start-ups of a number of new North Sea investment projects until the second half of next year may intensify the expected fall in petroleum investment from 1998 to 1999, thereby dampening the growth in economic activity. A virtual levelling-off of mainland investment pulls in the same direction. While growth in mainland GDP may be more than halved from 1998 to 1999, an expected increase in oil production suggests that growth in total GDP will show little change. The rise in employment may virtually come to a halt next year, and with unchanged labour market participation rates this could be reflected in a moderate rise in unemployment over the year. Even so, an expected sizeable wage carry-over into 1999 and regional and occupational imbalances in the labour market pull in the direction of relatively strong wage growth.

The projected trend in wages presented in this report implies an average annual real wage growth in excess of 2.5 per cent for the four-year period 1996-1999, which is appreciably higher than the projected growth in productivity in the mainland economy. Given stable exchange rates, this balance between real wage growth and productivity entails a marked weakening of Norwegian commerce and industry's earnings and cost competitiveness, which will result in reduced market shares over time. This will lead to increased spending of petroleum revenues on a permanent basis, unless Norwegian costs are brought back more into line with those of foreign competitors. Previous experience shows that major adjustments of this type can be a painful process.

Main indicators for the Norwegian economy
Growth from previous year. Per cent

	1995	1996	1997	1998	1999
GDP	3.9	5.5	3.4	3.2	3.1
- mainland Norway	3.1	4.1	3.7	3.5	1.5
Consumption in households and non-profit organizations	3.4	4.7	3.4	3.5	2.9
Unemployment rate[1]	5.4	4.9	4.1	3.3	3.5
Consumer price index	2.4	1.3	2.6	2.5	2.8

[1] Level in per cent. Adjusted backwards for the statistical revision in January 1996.

International economy

Growth in activity levels among Norway's main trading partners will probably hover around 2.5 per cent both this year and next, i.e. at about the level of the past three years. Where the USA and UK are concerned, GDP seems set to grow at a somewhat slower rate this year than last, while the big continental EU countries may show a somewhat stronger rise in economic activity levels. Japan, which is the country hardest hit by the Economic crisis in Asia, will probably see a decline in GDP from 1997 to 1998. Reduced demand from several Asian countries and sharp depreciation of their currencies is contributing to a weak trend in prices of commodities and some industrial products. Partly because of this, price growth seems set to remain below 2 per cent both in the USA and in the European Monetary Union. Hence major changes in monetary policy in these two areas are unlikely. The oil price is expected to remain relatively low.

The US gross domestic product grew 3.8 per cent last year, the highest growth rate for nine years. After six years of economic expansion unemployment is now at its lowest level for 25 years. Even so, the rise in consumer prices has generally shown a downward tendency during the ongoing cyclical upturn, and was down to 2.2 per cent last year. Given the slowing rate of price increase, there has been little reason for the Federal Reserve to raise the interbank rate which has remained stable at 5.5 per cent since March 1997. The appreciation of the US dollar in the past three years has helped to dampen price inflation in the USA. Together with the economic crisis in Asia the exchange rate trend suggests reduced growth in foreign demand for American products in the current year. Increased import competition may also dampen the ongoing upturn, and we assume that GDP growth will slow down both this year and next. Consumer price growth will remain low this

year, but may quicken somewhat next year as the effects of the marked decline in unemployment feed through and the price-dampening effects of the appreciation of the dollar and the decline in commodity prices diminish.

The Japanese economy has expanded at a far slower rate so far in the 1990s than in the preceding decade. Although fiscal policy measures brought GDP growth up to 4.6 per cent in 1996, policy was realigned last year in a clearly contractionary direction. This, together with a marked decline in the supply of credit, led to a substantial slow-down in the rate of growth. Increasing unemployment and a keen focus on the precarious equity capital situation of many financial institutions have prompted many households to take a more cautious view of the future and to save a larger share of their incomes than previously. This suggests that domestic demand will be weak this year, despite the possibility of a new temporary fiscal policy boost. Moreover, the economic problems affecting a number of Japan's Asian trading partners (and competitors) suggest that export growth will be clearly lower this year than last. It now appears that GDP growth may be negative for the first time since 1974 when Japan was hard hit by the sharp rise in oil prices. The economic contraction is expected to continue next year, although growth will probably be somewhat higher than this year.

It is now clear that 11 EU countries will join the European Monetary Union at its inception on 1 June 1999, thereby transferring responsibility for monetary policy to the European Central Bank (ECB). Recent years' endeavours to qualify for EMU have left their mark on economic development in the continental EU countries. In the years 1991-95 the 11 members of the forthcoming European monetary union carried an average general government deficit equivalent to 4.9 per cent of GDP. From 1995 to 1996 the deficit was reduced from 4.8 to 4.1 per cent, while preliminary figures suggest that the deficit for 1997 was down to 2.5 per cent of GDP for these countries as a whole. Tight fiscal policy has helped to put a brake on domestic demand, and has only partially been compensated for by more expansionary monetary policy. This helps to explain why it is the trend in other countries' net demand for continental European products which has made the biggest contribution to demand growth in recent years.

**GDP-growth forecasts for Norway's main trading partners for 1996 - 1999 given on different dates**
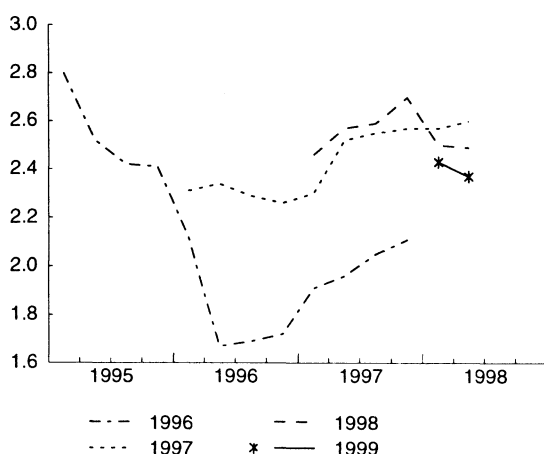
Source: Consensus Forecasts.

Economic forecasts for Norway's main trading partners
Annual per cent change

	1997	1998	1999
GDP	2.6	2.5	2.4
Consumer prices	1.7	1.6	1.8
ECU/Euro interest rate (level)	4.2	4.2	4.4

Sources: Statistics Norway and Consensus Forecasts.

GDP and consumer price growth for Norway's main trading partners, and 3 month ECU/euro rate
Per cent

—— ECU/euro rate
- - - - CPI Trading partners
– – GDP Trading partners
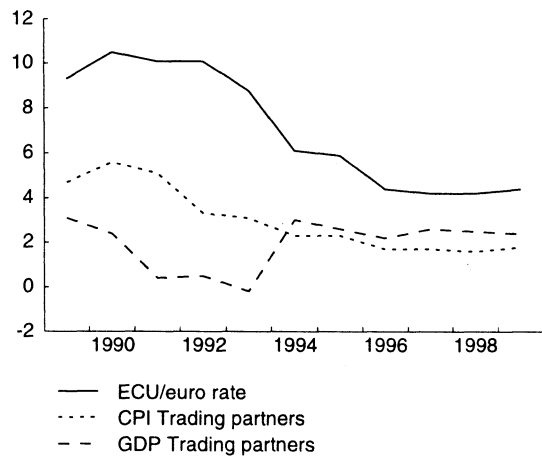
Source: Statistics Norway.

Commodity prices on the world market
Dollar based indices. 1990 = 100

—— Total, excl. energy raw materials
- - - - Industrial commodities
– – Non-ferrous metals
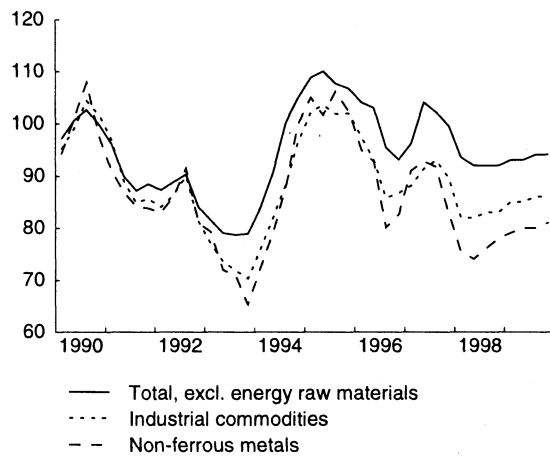
Source: HWWA-Institut fur Wirtschaftsforschung.

Spot price, Brent Blend
Dollar per barrel

—— Annual average   - - - - Spot price
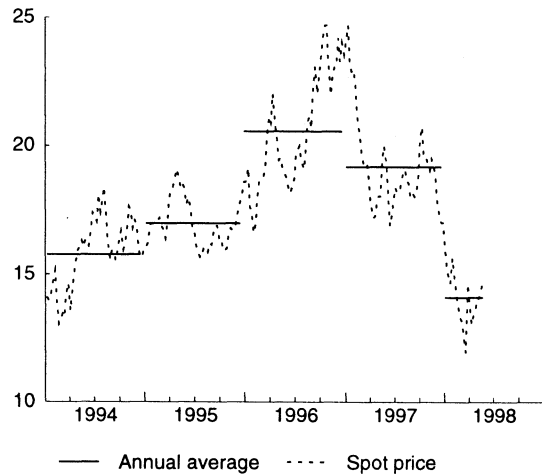
Source: Petroleum Intelligence Weekly.

Aluminium price
Dollar based index. 1979=100
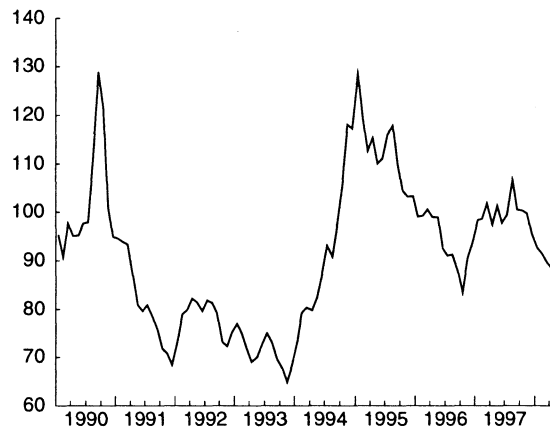
Source: World Metal Statistics.

Several factors indicate that this picture will change somewhat ahead. The crisis in Asia and diminishing growth rates in the USA, Japan and the UK will dampen growth in foreign demand for products from the euro countries. A weak trend in euro prices of imports from Asia suggests on its own that buyers in the euro countries will switch a larger portion of their demand towards such products. On the other hand the trend in import prices will serve to keep down the general growth in prices, thereby contributing to lower interest rates than would otherwise have been the case. Moreover, with monetary union in place the political motives for further fiscal policy tightening are somewhat weakened. Hence it is reasonable to assume that domestic demand will make a bigger contribution to economic development in 1998 and 1999 than we have witnessed in recent years. Developments so far in 1998 support such a view. All in all, growth in activity levels in the euro countries – estimated at 2.5 per cent for 1997 – is set to quicken somewhat this year and next.

Under the Maastricht Treaty the ECB is required to align monetary policy with a view to maintaining stable prices. However, so long as this objective is not jeopardised, monetary policy also has to support other economic policy goals for the EU, including high employment and social security. Since the euro countries currently show low price growth and high unemployment, this indicates the ECB has no immediate need to make any significant upward adjustment in short term interest rates in the European Monetary Union, which are expected to hover around 4 per cent at the turn of the year 1998/1999.

Among the four EU countries not due to join the European Monetary Union at the start are three of Norway's main trading partners: the UK, Sweden and Denmark. In the case of the UK, high interest rates and a strong pound are expected to lead to a substantial weakening of the relatively long-lasting economic boom. Where Denmark is concerned, growth in activity levels is likely to continue above the average of our main trading partners both this year and

next, while higher domestic demand points in the direction of somewhat stronger growth in Sweden this year than last.

Oil market

The spot price of Brent Blend fell from a level of $ 20 per barrel in November last year to $ 12 p/b towards the end of March this year, the lowest level since 1988. After dipping sharply in the first quarter, the price edged up to reach about $ 14 p/b at the beginning of June.

The sharp fall in the oil price in the first quarter of the current year is ascribable to several factors. First, OPEC decided in November 1997 to raise production. Second, Iraq was permitted, through the renewal of its agreement with the UN, to export about 0.7 million b/d up to the beginning of June this year. Third, demand in Asia fell as a result of the region's economic problems while a mild winter in the OECD area curbed the demand for fuel oil.

Following signals that OPEC would cut production by about 1.25 million b/d for the rest of the year, the oil price began to edge up at the end of March. Concurrently Norway, Mexico and a couple of other non-OPEC oil-producing countries resolved to reduce production by a combined total of 250,000 b/d.

The UN has now signed a new agreement with Iraq which at current oil prices enables Iraq to export more than 2 million b/d over a six-month period. However, because of poor maintenance over a period of several years it is uncertain whether Iraq is in a position to maintain such a high level of production over such a long period. Because Iraq is not encompassed by OPEC's production cuts, the UN agreement means that reduction of the cartel's aggregate production will in any case be less than originally envisaged.

Venezuela, Mexico and Saudi-Arabia recently launched plans for further production cuts totalling 450,000 b/d. However, according to IEA projections this is not enough to prevent a further increase in oil stocks in the second and third quarter of the current year, following substantial stockpiling in the first three months of the year. Hence the oil price is set to remain at today's low level until demand eventually picks up in the coming winter, unless OPEC adopts further production cuts. The next ordinary meeting of OPEC oil ministers is scheduled for 24 June in Vienna.

Commodity prices

Prices for most industrial commodities fell substantially on international markets between the fourth quarter of last year and the first quarter of this year. For non-ferrous metals the price fall was about 10 per cent and the decline continued in April. Prices of copper, nickel and zinc have shown an even weaker trend. The fall in commodity prices is clearly related to the difficult economic situation in a number of Asian countries, resulting in a temporary reduction in demand for industrial commodities. Continued growth in demand from the USA and a number of European countries suggests that commodity prices may pick up slightly ahead, but with no imminent return to last year's levels.

Norwegian economy

Developments so far in 1998

Preliminary seasonally-adjusted figures from the quarterly national accounts (QNA) suggest a marginal decline in mainland GDP and demand between the fourth quarter of last year and the first quarter of the current year. However, figures from Statistics Norway's labour force survey (LFS) show continued strong growth in employment and a further fall in unemployment.
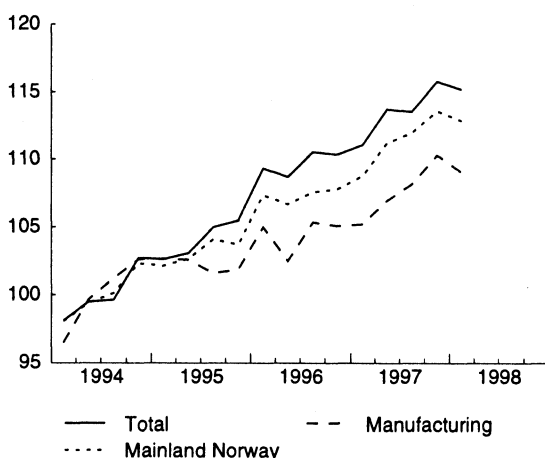
According to the preliminary QNA figures industrial production showed clear-cut signs of stagnation in the first quarter of the current year, following strong growth last year. A similar pattern appears to be in evidence for private service industries, whereas activity in the construction industry continues to grow apace. Due to transient problems of a technical nature at some fields, petroleum production in the first quarter of this year showed little change from the fourth quarter of last year. The adopted production curbs in effect from 1 May to year-end will make for a relatively weak trend in petroleum production for the rest of 1998.

The volume of traditional merchandise exports rose markedly from the fourth quarter of last year to the first quarter of this year. However, because of problems associated with fully adjusting for the fact that Easter occurred in the first quarter of last year but in the second quarter of this year, the seasonally-adjusted quarterly figures probably overestimate the underlying volume growth in the first quarter of the current year. This impression is supported by trading statistics data for the *value* of the traditional segment of merchandise exports up to and including April this year. These figures, combined with price data for the first three months of this year, suggest a *volume* growth of about 8.5 per cent for traditional merchandise exports between the period January-April last year and the same

period this year, roughly on a par with growth on an annual basis from 1996 to 1997. Trading statistics data show that the value of traditional merchandise exports to Norway's European trading partners is now growing at an appreciably faster rate than the total, whereas the value of exports to Japan and other countries in Asia is on a very weak trend. This reversal of last year's pattern partly reflects the tendencies towards some rise in activity growth among a number of Norway's European trading partners, and partly the major economic problems in many Asian economies. However, few traces of the Asian crisis are so far seen in prices for the traditional segment of merchandise exports which, excluding exports of refined petroleum products, showed little change from the fourth quarter of last year to the first quarter of the current year. This may be because some export products are being sold at contractually agreed prices. However, prices of petroleum products showed a marked decline, in keeping with the trend in the crude oil price.

Household consumption (seasonally adjusted) showed a moderate fall from the fourth quarter of last year to the first quarter of the current year, following growth of 3.4 per cent from 1996 to 1997. Excluding purchases of own cars, household consumption has shown very steady growth over the past four years. While the trend in household car purchases served to push up growth in consumption in 1994 and up to the end of the first half of the previous year, this demand component has shown a decline over the past three quarters. However, the trend in new registrations may indicate a slight increase in car purchases from the first to the second quarter of the current year. The index for the trend in retail sales up to end-April also suggests that household consumption may pick up in the second quarter of the current year.

Gross domestic product
Seasonally adjusted volume indices, 1994=100

— Total   – – Manufacturing
· · · · Mainland Norway
Source: Statistics Norway.

Exports
Seasonally adjusted volume indices, 1994=100
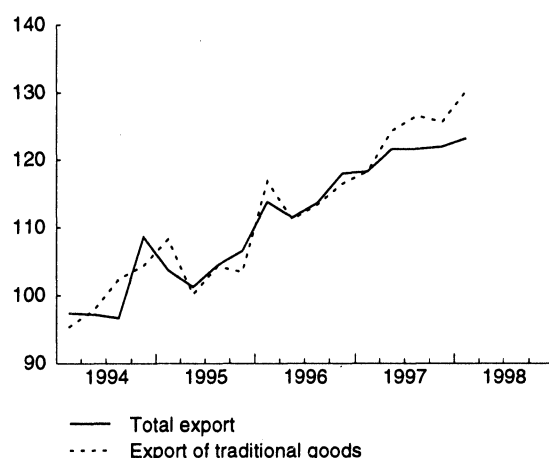
— Total export
· · · · Export of traditional goods
Source: Statistics Norway.

Macroeconomic indicators
Growth from previous period unless otherwise noted. Per cent

	1996	1997	Seasonally adjusted			
			97.2	97.3	97.4	98.1
Demand and output						
Consumption in households and non-profit organizations	4.7	3.4	2.2	0.7	0.7	-0.3
General government consumption	3.2	3.0	0.2	0.6	1.0	0.4
Gross fixed investment	9.6	12.6	5.8	-0.4	3.3	-0.7
- mainland Norway	11.0	9.7	3.2	2.2	3.5	-3.6
- petroleum activities[1]	1.5	15.5	20.6	-10.6	8.9	1.2
Final domestic demand from mainland Norway[2]	5.4	4.5	1.9	1.0	1.3	-0.8
Exports	9.8	5.8	2.8	0.0	0.3	1.1
- crude oil and natural gas	15.6	2.3	10.6	-7.3	4.0	-0.7
- traditional goods	10.0	8.0	5.1	1.8	-0.7	3.7
Imports	8.3	12.3	6.4	-0.7	3.3	3.6
- traditional goods	10.0	8.6	6.2	0.5	5.9	2.3
Gross domestic product	5.5	3.4	2.4	-0.2	2.0	-0.5
- mainland Norway	4.1	3.7	2.2	0.7	1.4	-0.6
Labour market[3]						
Man-hours worked	2.1	2.3	0.5	-0.6	2.4	0.6
Employed persons	2.5	2.9	0.8	0.7	0.5	0.9
Labour force	2.1	2.4	0.8	0.5	0.2	0.4
Unemployment rate, level[4]	4.9	4.1	4.3	4.0	3.8	3.3
Prices						
Consumer price index[5]	1.3	2.6	2.7	2.3	2.2	2.1
Export prices, traditional goods	-1.2	0.5	-0.5	4.5	0.3	-1.1
Import prices, traditional goods	0.1	-1.1	1.0	3.8	-2.3	1.0
Balance of payment						
Current balance, bill. NKr	68.6	55.8	11.3	14.4	9.8	7.0
Memorandum items (unadjusted, level)						
Eurokrone rate (3 months NIBOR)	4.8	3.6	3.4	3.9	3.8	3.8
Borrowing rate[6]	7.1	6.0	5.9	5.9	6.0	6.0
Crude oil price, NKr[7]	133.1	135.6	128.2	137.8	133.9	106.7
Importweighted krone exchange rate	100.7	100.2	100.6	102.9	100.1	102.6
Norges Bank's ECU-index	102.5	100.3	101.3	101.9	100.1	102.5

[1] Figures for petroleum activities now covers the sectors oil and gas extraction proper, transport via pipelines and service activities incidental to oil and gas extraction.
[2] Consumption in households and non-profit organizations + general government consumption + gross fixed capital formation in mainland Norway.
[3] Figures for 1996 and 1997 are from the national accounts. The quarterly figures are from Statistics Norway's Labour force survey (LFS), since the new quarterly national account series for employment are too short for seasonal adjustment.
[4] According to Statistics Norway's labour force survey (LFS). The 1995-figure is adjusted in accordance with alternation on the LFS from the beginning of 1996, and is raised by 0.5 percentage points compared to forecasts published earlier.
[5] Percentage change from previous year.
[6] Households' average borrowing rate in private financial institutions.
[7] Average spot price, Brent Blend.
Sources: Statistics Norway and Norges Bank.

The trend in prices in the resale housing market indicates that households still take a favourable view of their financial situation. Between the first quarter of last year and the first quarter of this year prices of owner-occupied dwellings rose on average more than 8 per cent, roughly on a par with the growth in the three preceding years. Prices of resale co-operative dwellings rose by an even bigger margin, possibly because a large portion of such dwellings are located in densely populated areas where the rate of price increase is generally higher than in the country as a whole. In the past two years or so prices of new housing have risen at an appreciably slower rate than prices of resale housing. This suggests that housing starts, which in the first four months of the year were about 9 per cent higher than last year's average, will remain at a high level. The trend in incoming orders and orders on hand for housing

construction over recent quarters points in the same direction.

The trend in house prices over the past five years should be viewed in light of a virtual halving of lending rates between 1991/92 and 1997, leading to a reduction of more than 3 percentage points in real after-tax borrowing costs in the same period. The interest rate fall came to a halt in the first quarter of last year, and at end-March this year average lending rates charged by private financial institutions were at about the same level as one year previously. However, a number of financial institutions have recently announced, and to some extent put into effect, upward adjustments of 1/2 - 1 percentage point in their interest rates as a result of two upward adjustments of central bank rates and higher interest rates in the money market. The rise of more than one percentage point in money market rates

Consumption in households
Seasonally adjusted volume indices, 1994=100

—— Excl. purchase of transport equipment
- - - - Purchase of transport equipment (right scale)
Source: Statistics Norway.
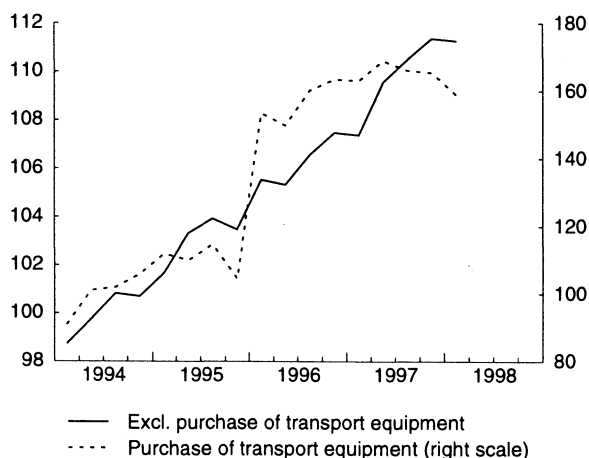
Gross fixed capital formation, mainland Norway
Seasonally adjusted volume indices, 1994=100
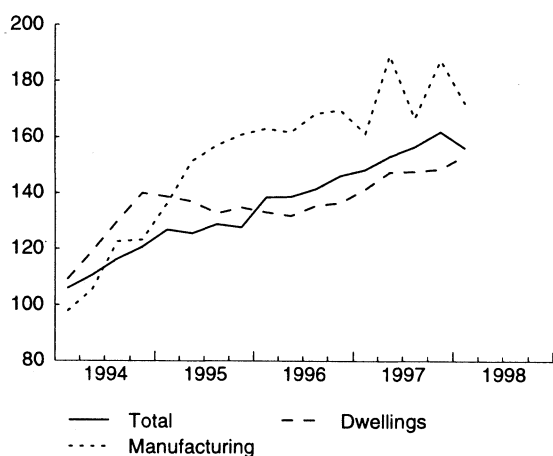
—— Total   - - Dwellings
- - - - Manufacturing
Source: Statistics Norway.

over the past year has not been sufficient to keep the exchange rate unchanged, and measured against the ECU, the Norwegian krone has depreciated by almost 2 per cent in the same period.

Gross fixed investment (seasonally adjusted) showed a moderate fall from the fourth quarter of last year to the first quarter of the current year. Investments in the mainland economy were the main factor contributing to the decline since petroleum investment showed yet a further increase from the high level of the fourth quarter of last year. Despite the authorities' plans to shift some petroleum investment projects from the current year to after 1 July next year, investment in petroleum activities is set to show further growth in the current year. Industrial investment dipped sharply from the fourth quarter of last year to the first quarter of the current year, but Statistics Norway's investment statistics for the second quarter indicate that industrial investment will increase on an annual basis in 1998, pointing to an increase over the rest of the year. Investment in private service industries apart from housing

Revision of quarterly national accounts for 1997

The quarterly national accounts are prepared by collating short-term indicators for various parts of the economy. The indicators are used to project national accounts variables from a base year, which is the latest year for which detailed annual accounts are available, currently 1995.

Preparing quarterly national accounts on an ongoing basis involves revision of preceding quarters in the current year. The previous year's quarters are normally revised just once each year until the accounts for the accounting year in question are finalised.

The monthly retail sales index is an important indicator for household consumption of goods. It determines the trend for about 80 per cent of the household sector's goods consumption. For remaining product groups such as cars, petrol, fuel oils and electricity, supplementary data are used to compute the trend in consumption. Various types of indicators are employed to determine consumption of services, in many cases linked to production in the service industry in question. Some services are very poorly covered by current information, and in such cases the method used is trend projection.

The retail sales index for 1997 and the first three months of 1998 was recently revised since it underestimated growth in the retail trade industry, especially at the end of 1997 and early 1998. This is the main reason why revised figures for the quarterly national accounts for 1997 are presented at this early stage. Moreover, updated information on production and consumption of some services, as well as investment in certain service industries, has been incorporated.

The revised figures show that consumption in households and non-profit organisations rose by 3.4 per cent in volume terms from 1996 to 1997. In the household sector alone the growth measured 3.6 per cent. Goods consumption rose 3.6 per cent, while the growth in consumption of services is put at 2.8 per cent. Compared with previously published figures, growth rates in the two consumption groups have been revised up by 0.6 and 0.4 percentage point respectively. The upward adjustment of consumption is supported by data on VAT payments for 1997.

Households' and non-profit organisations' spending on consumption in 1997 has been revised up by a total of NKr 2.2 billion. Income in the form of share dividends has concurrently been revised up by NKr 2.7 billion on the basis of share statistics. This, together with a few other adjustments has led to an upward adjustment of saving among households and non-profit organisations by NKr 1 billion to NKr 36 billion. The saving ratio is now estimated at 6.6 per cent for 1997, compared with the previous estimate of 6.4 per cent.

According to the revised accounts for 1997, net lending by households and non-profit organisations came to NKr 23.5 billion.

Consumer price indices
Measured from the same month the previous year

— Norway
· · · · Trading partners (weighted average)
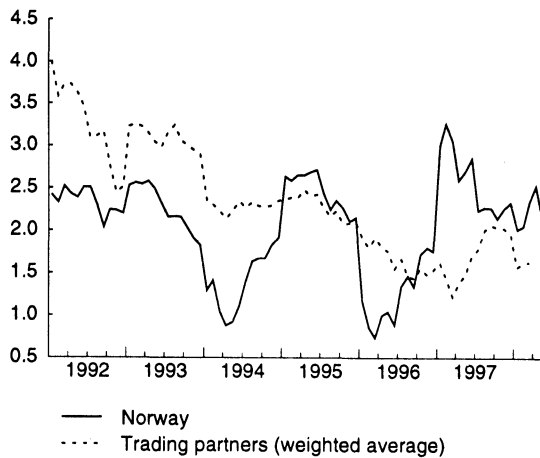
Source: Statistics Norway.

Labour force and employment
1990=100. Seasonally adjusted and smoothed

— Labour force
· · · · Employment, no. of persons
– – Hours worked
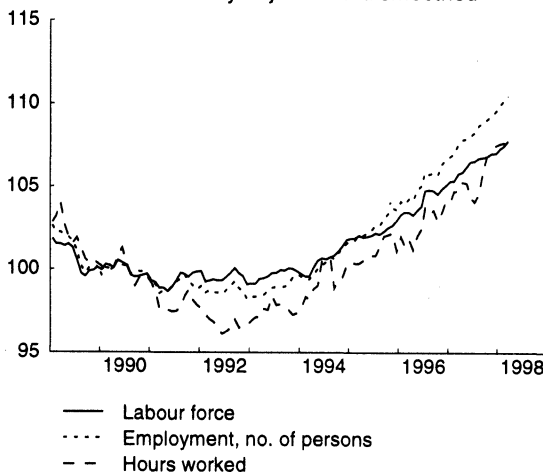
Source: Statistics Norway.

Unemployed and vacancies
Trend. Per cent of labour force

— Reg. unempl. and programme participation
· · · · Unemployed (Employment Survey)
– – Vacancies (right scale)
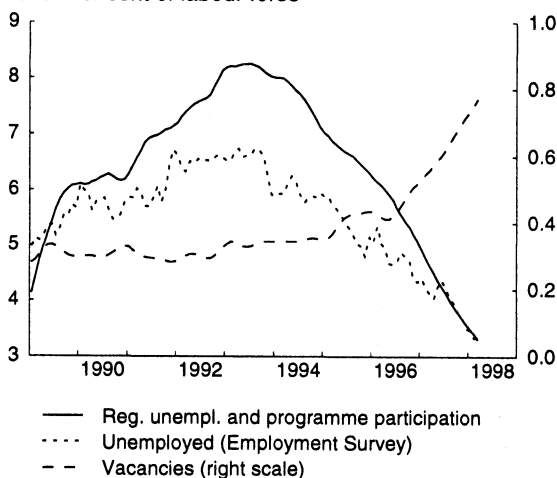
Sources:The Directorate of Labour and Statistics Norway.

also declined in the first quarter, but the information base here is relatively weak. Investment in goods-producing industries apart from manufacturing appears to have risen marginally in the first quarter, and the same was the case for housing investment.

The import volume rose substantially in the first quarter of the current year, following a steep increase from 1996 to 1997. Growth was particularly strong for engineering products, and for ships and platforms. The marked increase in imports essentially explains why the total supply of goods and services grew at a faster rate than total use of goods and services in the first quarter of this year, entailing a renewed increase in the item "inventory investment and statistical deviations".

On a 12-month basis consumer prices rose by an average of 2.2 per cent in the first five months of the current year. So far this year the rate of price increase has been moderately higher than the average for the five preceding years and more than half a percentage point above the average increase in prices among Norway's main trading partners. The results of the pay settlement on their own suggest that this difference may widen slightly ahead.

This year's wage round is a so-called main settlement and was conducted on a union-by-union basis. The results so far indicate a total contribution to growth in wages per normal person-year from the carry-over into 1998 and from agreed increments of about 3.5 per cent for workers in manufacturing industry, of about 5 per cent for workers in the construction sector and of just under 4.5 per cent for employees in wholesale and retail trade enterprises affiliated to the Federation of Norwegian Commercial and Service Enterprises. Last year wage drift through the year contributed about 1.5 percentage points to annual wage growth for workers in manufacturing and close to 2 percentage points for the other two groups. Given the same contribution from wage growth this year as last year, wage growth for these groups will therefore be appreciably higher in the current year than in 1997, and the carry-over to 1999 will be considerable. In the general government sector support has been achieved for a draft agreement benefiting large groups which may result in an annual wage growth of about 5 3/4 per cent for State employees and about 6 per cent for local government employees. The carry-over into 1990 in the general government sector may also be sizeable, especially in the case of local government employees.

While the results of this year's wage round should be seen in conjunction with the trend in relative pay over several years, they are also related to the situation on the labour market. From a peak equivalent to 6.8 per cent of the labour force (seasonally adjusted) in the third quarter of 1993, unemployment according to the Labour Force Survey was halved in the period to end-March of this year. The drop in unemployment has been especially marked in the past six quarters, a period in which the trend in other indicators also suggests growing imbalance in the labour

market. The growth in employment has been very steep during the ongoing cyclical upturn, and in the first quarter of this year about 240,000 more people were employed than in the first quarter of 1993, corresponding to an increase of 12 per cent. The bulk of the employment growth has its counterpart in an increase in the labour force, partly resulting from growth in the working population but above all from a sharp increase in labour force participation rates.

The current account of the balance of payments showed a surplus of just under NKr 7 billion in the first quarter of this year, i.e. a fall of more than NKr 14 billion compared with the same period last year. The surplus on the goods and services balance was reduced by NKr 16.6 billion, of which NKr 8.3 billion is due to a drop in the value of oil exports resulting from lower prices. The deficit on the interest and transfers balance was reduced by almost NKr 2.3 billion.

Outlook for the rest of 1998 and 1999

Asian crisis makes for low commodity prices

Economic developments among Norway's main trading partners have so far been little affected by events in Asia, except for Japan. However, slower growth in world trade has as mentioned above resulted in a clear-cut fall in the oil price and prices of industrial commodities. This has had positive terms-of-trade effects for our trading partners, and has contributed to lower inflation and continued low interest rates. The possibility that the effects of the Asian crisis on Norway's main trading partners will loom larger later this year cannot be discounted as yet.

Economic growth in the EU is expected to edge up ahead helped by low interest rates and a somewhat less contractionary fiscal policy stance than previously. However, the UK and the USA are still expected to show somewhat slower growth. While we have not, broadly speaking, changed our projections for GDP growth among our trading partners, we have revised up demand growth by about one percentage point both in 1998 and in 1999, accompanied by an upward adjustment of these countries' import growth.

Major growth impetus from petroleum activities

Our estimates for petroleum investment are approximately unchanged since the last economic survey. While our estimate of almost 15 per cent growth from 1997 to 1998 is somewhat lower than the oil companies' own estimates, it is difficult to be certain how far the latter are adjusted for the authorities' attempts to switch investments to 1999. The upswing in petroleum investment is generating considerable impetus to domestic demand, even though some investment components such as investment in pipelines, are highly import-intensive. As in our previous survey, a clear-cut fall in investment is projected in 1999 which will apply to the most import-intensive components in particular. Our projection, which entails an investment reduction

of about the same size as the increase in investment in 1998, indicates a very restrictive policy as regards opening up new fields for development in the period ahead. As demonstrated by calculations in our December report (Economic survey no. 4/97), these projections have great bearing on our assessment of the likely path of the economy.

In our last quarterly survey we wrongly assumed steep growth in oil and gas production from 1997 to 1998. We now assume approximately unchanged oil and gas production from 1997 to 1998, whereas for 1999 oil production is projected to grow 16 per cent, while gas production will show weakly positive growth. Hence the estimates for aggregate growth in GDP and in the mainland economy in 1998 are now far more comparable than in our previous economic survey, and the current-account surplus has been adjusted down by a clear margin.

The oil price has been low in recent months. This has prompted non-OPEC countries, including Norway, to state their willingness to cut production in 1998 in order to push up the oil price. While this has so far probably helped to curb the price fall, there is little likelihood of any appreciable increase in the oil price ahead without further production cuts or increased political uncertainty in the countries around the Persian Gulf.

Somewhat tighter fiscal policy in 1999?

After a period of minor changes in general government purchases of goods and services for consumption and investment purposes from 1992 to 1995, there was an appreciable quickening of consumption growth in 1996 and in general government investment in 1997. For 1998 slower consumption growth and little change in investment levels are expected. At the time of writing it is unclear which of the adjustments proposed by the government in the Revised National Budget for 1998 will be adopted by the Storting. The estimates for general government purchases of goods and services are therefore highly uncertain, but in keeping with the estimates set out in the revised budget. For 1999 we have largely employed the projections suggested in the revised budget, entailing very weak growth in general government demand compared with 1998.

As usual, our projections for 1999 are based on inflation-adjusted indirect tax rates, although in the last couple of years these rates have actually risen more quickly. We assume that direct personal tax rates will be adjusted in step with wage growth. Both higher basic pensions and the introduction of cash allowances for families with small children who do not use state-subsidised day-care centres will make an expansionary contribution to overall general government spending in 1998 and 1999, and these reforms are incorporated in our projections.

High growth in 1998, but a turnaround in 1999?

The buoyant investment growth both in petroleum activities and in the mainland economy suggest that 1998 will

Main economic indicators
Percentage change from previous year unless otherwise noted

| | 1997 | Forecasts | | | | | |
| | | 1998 | | | 1999 | | |
	Accounts	SSB	MoF[1]	NB[2]	SSB	MoF[1]	NB[2]
Demand and output							
Consumption in households and non-profit organizations	3.4	3.5	4.0	4 1/2	2.9	3.4	4 1/4
General government consumption	3.0	2.0	2.0	2	1.3	0.7	2
Gross fixed investment	12.6	6.9	6.8	7 1/2	-2.5	-7.0	-2 3/4
- mainland Norway	9.7	5.5	4.7	5	1.7	-1.4	-1/4
- petroleum activities[3]	15.5	14.6	13.5[4]	17[4]	-16.5	-22.0[4]	-10[4]
Demand from mainland Norway[5]	4.5	3.6	..	4	2.3	..	3
Stockbuilding[6]	0.6	0.6	-0.1	..	0.0	0.3	..
Exports	5.8	3.8	4.3	4 1/4	7.9	8.4	8 1/4
- crude oil and natural gas	2.3	0.2	0.7	1 1/2[7]	14.5	14.0	14 1/4[7]
- traditional goods	8.0	7.3	7.3	7 1/2	6.4	5.5	4 1/4
Imports	12.3	7.8	6.8	7 1/2	3.2	0.8	2
- traditional goods	8.6	8.8	8.6	9	3.8	2.8	3
Gross domestic product	3.4	3.2	3.2	3 1/2	3.1	3.5	4 1/4
- mainland Norway	3.7	3.5	3.5	4	1.5	2.1	2 3/4
Labour market							
Employed persons	2.9	2.4	2.4	2 3/4	0.2	1.3	1 3/4
Unemployment rate (level)	4.1	3.3	3.2	3 1/4	3.5	2.8	-2 1/2
Prices and wages							
Wages per standard man-year	4.6	5.8	5.0	6	5.0	..	6 3/4
Consumer price index	2.6	2.5	2.6	2 1/2	2.8	..	3
Export prices, traditional goods	0.5	0.3	1.3	1	1.7	0.6	2 1/4
Import prices, traditional goods	-1.1	1.1	0.0	1/2	0.4	0.4	1 1/4
Real price, dwellings	5.8	5.5	..	..	7.3	..	..
Balance of payment							
Current balance (bill. NKr)	56.8	15.2	27.8	21	43.2	68.0	54
current balance (per cent of GDP)	5.2	1.4	..	1 3/4	3.6	..	4 1/2
Memorandum items:							
Household savings ratio	6.6	7.1	6.7	6 3/4	6.8	5.9	5 3/4
Money market rate (level)	3.6	4.4	..	..	4.7	..	..
Average borrowing rate (level)[8]	6.0	6.5	..	..	7.3	..	..
Crude oil price NKr (level)[9]	134	104	110	105	108	115	108
International market growth	6.8	7.1	..	..	6.8	..	..
Importweighted krone exchange rate[10]	-0.5	2.8	..	..	0.0	..	..

[1] MoF: Ministry of Finance's forecasts. Revised national budget 1998. St.meld. nr. 2.
[2] NB: Forecasts according to Norges Bank. Penger og Kreditt 1998/2.
[3] Oil and gas extraction proper, pipeline transport and service activities incidental to oil- and gas extraction.
[4] Excl. service activities incidental to oil and gas extraction.
[5] Consumption in households and non-profit organizations + general government + gross fixed captial formation in mainland Norway.
[6] Change in stockbuilding. Per cent of GDP.
[7] Oil, gas and pipeline transport.
[8] Households' borrowing rate in private financial institutions.
[9] Average, Norwegian oil production.
[10] Increasing index implies depreciation.

be another year of substantial economic expansion. In keeping with previous projections we expect mainland GDP to increase by about 3.5 per cent in 1998, which is only slightly lower than the previous year. As in 1997, growth is expected to be broad-based with higher production recorded both in manufacturing and private services. However, we still expect growth impetus from investment to come to a halt towards the end of 1998 and investment to reach a seasonally-adjusted peak in the second half-year, and thereafter fall in 1999. Alongside the projected trend in petroleum investment and in general government investment, in-

vestment in business activity in the mainland economy is also expected to peak towards the end of 1998 and thereafter to show a flat trend. The upturn in housing investment is however expected to continue through 1999. The brisk growth in household incomes, rapidly rising resale house prices and only a weak increase in nominal interest rates over the projection period are expected to contribute to this trend. Although nominal interest rates have risen somewhat in the second quarter of this year, only a marginal rate increase on the current level is expected in the period ahead. Expectations of low interest rates in the EU

are an important factor behind this projection. Given so-
mewhat quicker growth in consumer prices in 1999 than in
1998, real interest rates will rise by a smaller margin than
nominal rates.

Consumption on the part of households and non-profit
organisations grew roughly in step with mainland GDP in
1997. We believe this trend will continue in 1998. Appre-
ciably higher-than-expected wage growth will result in
higher growth in households disposable income. For this
reason we now expect slightly quicker growth in consump-
tion in 1998 than in our previous report. However, we still
expect the household saving ratio to rise slightly from
1997 to 1998, and to fall back somewhat in 1999.

The growth in overall exports has been adjusted down by a
clear margin compared with the previous economic survey
as a result of lower estimates for oil exports, while the pro-
jected growth in traditional exports has been adjusted up
slightly to allow for an upward adjustment of about 1 per-
centage point in import growth among our trading partners
both in 1998 and 1999. The brisk wage growth in 1998
will raise export prices more than previously assumed and
will on its own dampen export growth somewhat both in
1998 and 1999. Rising cost growth in Norway will concur-
rently contribute to higher import shares, thereby dampe-
ning the effect of higher domestic demand on Norwegian
output. These effects are however counteracted by the
depreciation of the krone in 1998.

It will be seen from the table containing the detailed
growth projections and from the charts that we expect a
clear-cut cyclical turnaround from 1998 to 1999. This is in
keeping with earlier projections, and our main picture of
the cyclical trend in 1998 and 1999 has therefore not chan-
ged. A turnaround in investment and a somewhat tighter
fiscal stance are important factors behind this path. More-
over it is difficult to conceive that labour resources, either
in the form of overt or hidden unemployment, are
available to support materially higher growth in the main-
land economy than our projection without a further in-
crease in price growth in 1999.

Clear-cut fall in unemployment in 1998, but a turnaround in 1999?

The vigorous employment growth continued into 1998
virtually unabated. The expansion of the labour force on
the other hand has been checked and the drop in the unem-
ployment rate is consequently substantial. Pressures in the
labour market accordingly continued to grow at the same
pace as in 1997, i.e. somewhat more strongly than we as-
sumed. We now expect employment to expand by just
under 2.5 per cent in 1998. Seen in conjunction with the
trend in production in the mainland economy, this entails
fairly modest productivity growth, which is somewhat
surprising in view of the vigorous economic expansion and
several years of high investment.

Consumption
Percentage growth

— Consump. in househ. and non-profit org.
- - - - General government consumption
Source: Statistics Norway
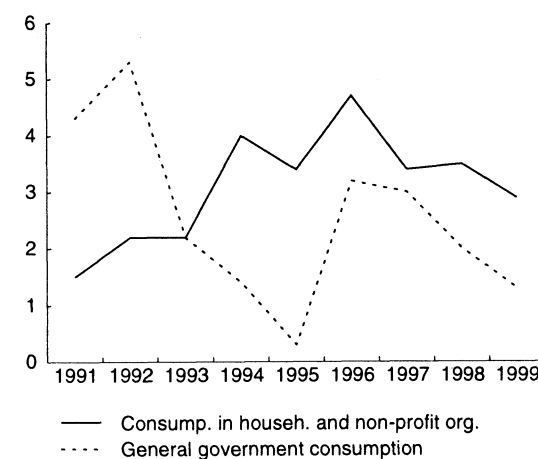
Gross fixed capital formation
Percentage growth
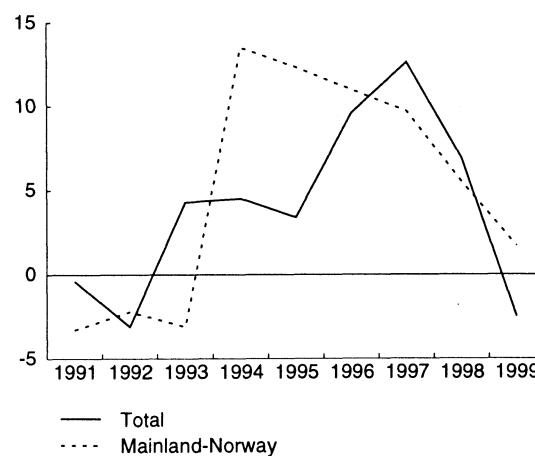
— Total
- - - - Mainland-Norway
Source: Statistics Norway

Gross domestic product
Percentage growth

— Total
- - - - Mainland-Norway
Source: Statistics Norway

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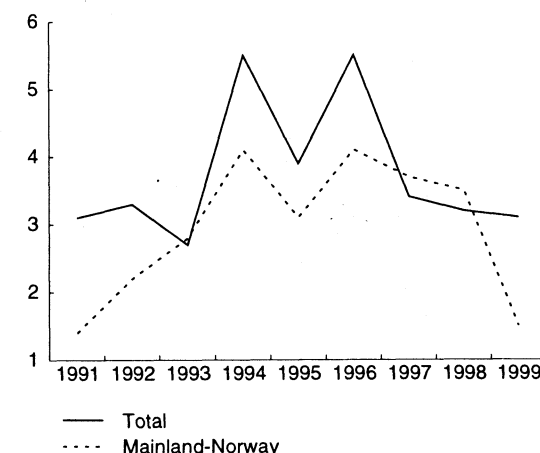
Exports
Percentage growth
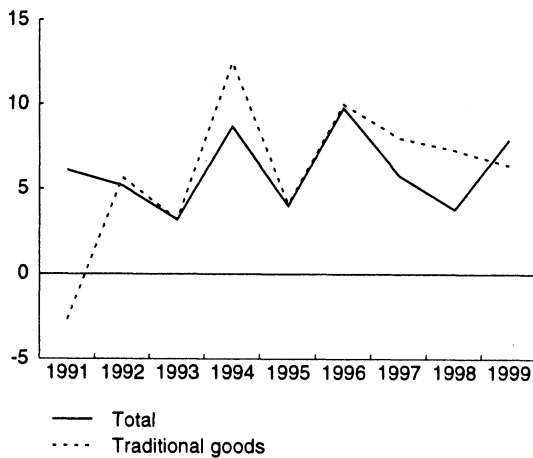
——— Total
· · · · Traditional goods
Source: Statistics Norway

Labour market
Percent

——— Employed persons
· · · · Unemploment rate(level) 1)
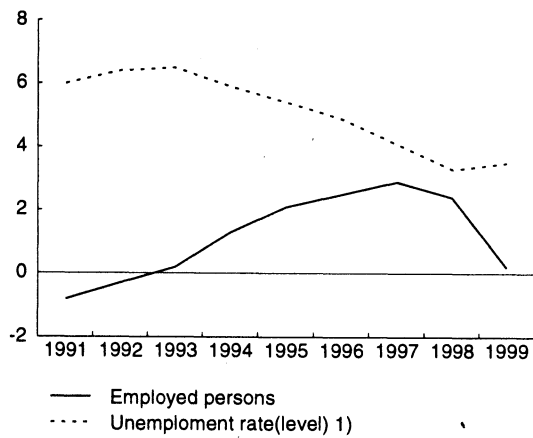
1) Adj. for stat. rev. from 1996.
Source: Statistics Norway

Consumer price indices
Percentage growth
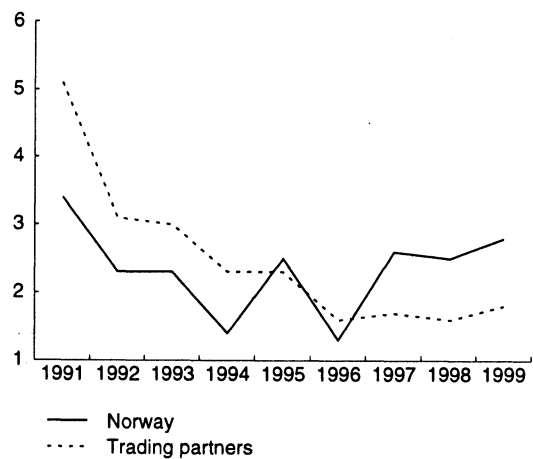
——— Norway
· · · · Trading partners
Source: Statistics Norway

Labour market participation rates are now at unpreceden-
ted levels, and what room there is for further increases is
therefore highly uncertain. For 1998 we expect the partici-
pation rate to rise by about 1 percentage point. This, to-
gether with labour force expansion ascribable to purely
demographic factors, entails an overall growth of just over
1 1/2 per cent in the labour force. The unemployment rate
will in this case fall to an average of 3.3 per cent for 1998.
Given a turnaround in the cyclical trend in 1999, we ex-
pect the decline in unemployment to come to a halt at
around the turn of the year and to edge up in 1999. The
effects on the economy of lower growth in the supply of
labour were illustrated by calculations in Economic Survey
4/97.

Higher wage and price inflation ahead

So far in 1998 the rise in import prices has been somewhat
smaller than envisaged in our previous survey. However,
we expect quickening wage inflation to raise the rate of
price increase somewhat as 1998 progresses. The import-
weighted krone exchange rate weakened by about 3 per
cent from the fourth quarter of last year to the period
March-May 1998. Should the krone exchange rate remain
at this level in 1998, as we envisage, prices can be expec-
ted to rise somewhat more strongly than previously projec-
ted. Our estimate for the rise in prices of traditional im-
ports has accordingly been revised up by 1.5 per cent com-
pared with our previous report. This will also contribute to
quicker growth in consumer prices in the period ahead. A
somewhat bigger drop in electricity prices than previously
assumed, pulls in the opposite direction. Moreover, rents
have risen more moderately so far in 1998 than we envisa-
ged earlier. While our annual estimate for the growth in
consumer prices for 1998 remains 2.5 per cent, we expect
a rising tendency towards the 3 per cent mark closer to
year-end. In its proposal for the revised budget for 1998
the government recommends certain excise duty increases
which, if adopted, will raise our price estimate by 0.1 per
cent in 1998.

This spring's wage round has entailed appreciably bigger
increments than expected earlier. The settlement seems
likely to result in high wage growth particularly for em-
ployees in private and public services. For some groups the
increments will take effect late in the year, entailing an
unusually high wage carry-over into 1999. Increased pres-
sure in the labour market appears to be the main reason for
the strong wage growth since changes in profitability on
their own should have the effect of curbing wage growth.
In our last report we also underestimated the significance
of the fact that the current settlement is a so-called main
settlement. Groups with higher education in the public
sector, such as teachers, have been awarded unusually
large increments at this year's settlement which was not an
assumption we incorporated in our previous report. Our
estimate for wage growth in 1998 is now 5.8 per cent and
entails an upward adjustment of more than one percentage
point over our previous projection.

The sizeable wage carry-over into 1999 indicates high wage growth next year too. Pressure in the labour market will remain high even though our calculations indicate a weak increase in unemployment in 1999. Moreover, the current pressure in the labour market has yet to feed through to wages to the full. Even unchanged unemployment from the current level would on its own entail high wage growth for a couple of years ahead, until the wage level was completely adjusted to the current level of unemployment. However, profitability in the business sector will weaken as a result of this year's settlement. It will put a brake on firms' chances of offering high wages ahead. Increased sickness absence and increased implicit employers' social security contributions resulting from their obligation to pay a longer period of sickness absence also weakens firms' ability and will to increase take-home pay. Hence we expect wage growth to fall slightly from 1998 to 1999 if the cyclical turnaround is in line with our assumptions.

The weak trend in productivity, high wage growth and a relatively weak krone exchange rate indicate that consumer price growth will quicken next year to just under 3 per cent, even without excise-duty increases of the type implemented in 1998. If the duty increase should be equally large in real terms at the forthcoming turn-of-the-year as at the last, consumer prices could rise at a rate in excess of 3 per cent next year.

Only a moderate current-account surplus in 1998

A downward adjustment of export earnings for oil and gas in 1998 together with a strong increase in imports entails that our estimate for the current-account surplus is now about NKr 15 billion in 1998. This measures just under 1.5 per cent of nominal GDP. The interest and transfers balance is now clearly improving thanks to the build-up of net foreign assets which took place in 1997. The steep fall in export prices (mainly due to the fall in the oil price) together with higher import prices (partially due to a weaker effective krone exchange rate) leave Norway with a large terms-of-trade loss in 1998. For 1999 our projections entail approximately unchanged terms of trade. The strong growth in oil exports together with a moderate rise in imports will in this case contribute to a marked increase in the current-account surplus. For 1999 this surplus is put at about NKr 43 billion or 3.6 per cent of nominal GDP.

Uncertain estimates

Our macroeconomic projections point in the direction of a moderate but nonetheless marked cyclical turnaround in Norway from 1998 to 1999. This development is conditioned by a number of factors discussed above, including moderate growth in general government demand and a marked decline in petroleum investment. In order to illustrate some of the uncertainty attached to the turnaround, we have devised an alternative scenario in which public sector employment is projected to increase such that growth in general government consumption in 1999 is

Some main economic indicators
Percentage change from previous year unless otherwise noted

	Forecasts		Alternative scenario
	1998	1999	1999
GDP mainland Norway	3.5	1.5	2.5
Consumption in households and non-profit organizations	3.5	2.9	3.5
General government consumption	2.0	1.3	2.2
Gross investment	6.9	-2.5	2.3
Mainland Norway	5.5	1.7	2.5
Petroleum activities	14.6	-16.5	0.0
Unemployment rate (level)	3.3	3.5	3.0
Employed persons	2.4	0.2	1.1
Wages per standard man-year	5.8	5.0	5.8
Consumer price index	2.5	2.8	2.9
Current balance (bill. NKr)	15.2	43.2	36.2

almost 1 percentage point higher than forecast. Growth in general government consumption will then be about as expected for 1998, but still appreciably lower than last year. Concurrently with this more cyclically neutral trend in general government demand we allow petroleum investment to remain at the 1998 level in the alternative scenario, and not to fall by 16.5 per cent as forecast.

For 1999 the effect of these two changes is that mainland GDP rises by 0.5 per cent and households' and non-profit organisations' consumption rises by 0.6 per cent compared with our forecast. As a result of the higher level of activity the unemployment rate falls by 0.5 percentage point and average wages rise by 1.0 per cent, while the consumer price index rises by a mere 0.1 per cent - still in relation to the level forecast. In 1999 the current-account surplus will be NKr 7 billion lower in the alternative scenario than forecast.

As will be seen from the table, the cyclical picture will change considerably if petroleum investment does not fall from 1998 to 1999 and general government consumption rises by roughly the same margin as in the current year. These apparently fairly modest changes entail that the cyclical upturn will continue in 1999. While it is true that the growth in activity levels and employment will diminish, mainland GDP will expand approximately in line with the average for the past 25 years and employment will more than double compared with the growth in the labour force resulting from purely demographic conditions. According to our calculations household consumption will increase as in the two preceding years and unemployment will continue to fall in 1999. In this case wage growth will be as in the current year, despite weaker profitability in mainland commerce and industry and the fact that the wage settlement in 1999 is an interim settlement.

National accounts: Final expenditure and gross domestic product
At fixed 1995 prices. Million kroner

	Unadjusted		Seasonally adjusted							
	1996	1997	96.2	96.3	96.4	97.1	97.2	97.3	97.4	98.1
Final consumption exp. of housh. and NPISHs[1]	479888	496319	118726	120474	121606	121466	124080	124943	125830	125450
Household final consumption expenditure . .	456574	472933	112908	114661	115790	115677	118186	119095	119974	119609
Goods	261607	270914	64300	65521	66500	65931	67500	68501	68982	68262
Services	191119	196411	47716	47988	48173	48603	49179	49119	49509	49725
Direct purchases abroad by resident househ	18844	20731	4597	4831	4717	4912	5308	5255	5256	5362
-Direct purchases by non-resident	-14996	-15124	-3705	-3679	-3600	-3770	-3801	-3779	-3774	-3739
Final consumption exp. of NPISHs	23315	23386	5818	5813	5817	5788	5893	5848	5856	5841
Final consump. exp. of general government .	200797	206781	50032	50254	50476	51320	51446	51754	52261	52453
Final consump. exp. of central government. .	80085	82027	19932	20069	20145	20494	20333	20482	20718	20667
Central government,civilian	58726	59735	14627	14692	14783	14952	14781	14928	15075	14993
Central government,defence	21358	22292	5304	5377	5362	5542	5552	5554	5643	5674
Final consump. exp. of local government . . .	120713	124754	30101	30185	30331	30826	31113	31272	31543	31786
Gross fixed capital formation	211084	237777	51344	52613	57701	56630	59889	59638	61620	61187
Petroleum activities	48667	56206	11894	11893	15012	12605	15200	13592	14809	14981
Ocean transport	6113	10124	1083	1560	2210	3006	2345	2768	2005	3014
Mainland Norway	156303	171447	38367	39160	40479	41018	42345	43278	44806	43192
Mainland Norway ex.general government. .	125301	136709	30821	31296	32327	32184	33312	34835	36377	33955
Manufacturing and mining	17175	18270	4192	4362	4396	4183	4907	4320	4860	4460
Production of other goods	12762	12995	3051	3133	3278	3213	3183	3380	3218	3335
Dwelling services	26149	28497	6423	6597	6648	6889	7177	7192	7239	7473
Other services	69215	76946	17154	17203	18004	17899	18044	19942	21061	18686
General government	31002	34738	7546	7864	8152	8833	9033	8443	8429	9237
Changes in stocks and stat. discrepancies	22054	23922	3260	7865	4039	3900	6549	4590	8883	10580
Gross capital formation	233138	261698	54604	60478	61741	60529	66438	64228	70503	71767
Final domestic use of goods and services	913823	964798	223362	231206	233823	233314	241964	240926	248594	249671
Final demand from mainland Norway[2]	836989	874546	207125	209888	212562	213803	217870	219976	222897	221095
Final demand from general government[3]	231799	241519	57578	58118	58628	60153	60479	60197	60690	61690
Total exports	388204	410697	94752	96521	100256	100514	103282	103303	103598	104717
Traditional goods	157804	170488	38318	39082	40137	40759	42838	43604	43286	44882
Crude oil and natural gas	130894	133959	32404	33445	33442	31915	35307	32719	34018	33786
Ships and oil platforms	8862	9896	2112	1294	2922	3929	1668	2237	2063	1504
Services	90644	96354	21918	22699	23755	23911	23469	24743	24231	24544
Total use of goods and services	1302027	1375495	318114	327727	334079	333829	345245	344229	352192	354387
Total imports	322470	362209	75550	81022	87746	85977	91493	90865	93874	97294
Traditional goods	223147	242355	53845	56802	58413	56897	60423	60721	64314	65816
Crude oil	1059	1235	199	204	462	446	221	317	250	459
Ships and oil platforms	17010	23179	2269	3534	7519	6502	6767	5536	4374	5850
Services	81255	95440	19238	20483	21352	22131	24082	24291	24936	25170
Gross domestic product[4]	979557	1013286	242563	246704	246333	247852	253752	253364	258318	257093
Mainland Norway (market prices)	822300	853090	204312	206005	206414	208315	212957	214362	217455	216157
Petroleum activities and ocean transport	157257	160196	38251	40699	39919	39537	40795	39002	40863	40936
Mainland Norway (basic prices)	713616	740206	177806	178719	178806	181197	184631	185825	188554	187539
Mainland Norway ex. general government . .	561604	584407	139886	140752	140623	142634	145832	146732	149209	147918
Manufacturing and mining	115478	119000	28323	29115	29031	29073	29557	29883	30487	30137
Production of other goods	76648	80611	18972	18474	18842	19249	20311	20406	20645	20648
Service industries	369478	384796	92591	93164	92750	94312	95964	96443	98077	97133
General government	152013	155799	37920	37967	38184	38563	38799	39093	39345	39622
Correction items	108684	112883	26507	27286	27608	27118	28326	28538	28902	28617

National accounts: Final expenditure and gross domestic product

At fixed 1995 prices. Percentage volume change from previous period

	Unadjusted		Seasonally adjusted							
	1996	1997	96.2	96.3	96.4	97.1	97.2	97.3	97.4	98.1
Final consumption exp. of housh. and NPISHs[1]	4.7	3.4	-0.3	1.5	0.9	-0.1	2.2	0.7	0.7	-0.3
Household final consumption expenditure....	4.9	3.6	-0.3	1.6	1.0	-0.1	2.2	0.8	0.7	-0.3
Goods..............................	6.2	3.6	-1.5	1.9	1.5	-0.9	2.4	1.5	0.7	-1.0
Services............................	2.9	2.8	1.0	0.6	0.4	0.9	1.2	-0.1	0.8	0.4
Direct purchases abroad by resident househ.	4.7	10.0	-2.2	5.1	-2.4	4.1	8.1	-1.0	0.0	2.0
-Direct purchases by non-residents	0.1	0.9	-7.6	-0.7	-2.1	4.7	0.8	-0.6	-0.1	-0.9
Final consumption exp. of NPISHs	0.3	0.3	-0.8	-0.1	0.1	-0.5	1.8	-0.8	0.1	-0.3
Final consump. exp. of general government..	3.2	3.0	-0.0	0.4	0.4	1.7	0.2	0.6	1.0	0.4
Final consump. exp. of central government ...	3.2	2.4	-0.0	0.7	0.4	1.7	-0.8	0.7	1.2	-0.2
Central government, civilian	3.3	1.7	0.0	0.4	0.6	1.1	-1.1	1.0	1.0	-0.5
Central government, defence	3.0	4.4	-0.2	1.4	-0.3	3.4	0.2	0.0	1.6	0.6
Final consump. exp. of local government....	3.2	3.3	0.0	0.3	0.5	1.6	0.9	0.5	0.9	0.8
Gross fixed capital formation...............	9.6	12.6	3.9	2.5	9.7	-1.9	5.8	-0.4	3.3	-0.7
Petroleum activities	1.5	15.5	20.5	-0.0	26.2	-16.0	20.6	-10.6	8.9	1.2
Ocean transport	63.8	65.6	-14.1	44.0	41.7	36.1	-22.0	18.1	-27.6	50.3
Mainland Norway	11.0	9.7	0.2	2.1	3.4	1.3	3.2	2.2	3.5	-3.6
Mainland Norway ex.general government ...	12.9	9.1	-0.1	1.5	3.3	-0.4	3.5	4.6	4.4	-6.7
Manufacturing and mining	9.4	6.4	-0.7	4.1	0.8	-4.8	17.3	-11.9	12.5	-8.2
Production of other goods.............	-3.9	1.8	-7.5	2.7	4.6	-2.0	-0.9	6.2	-4.8	3.6
Dwelling services....................	-1.2	9.0	-0.9	2.7	0.8	3.6	4.2	0.2	0.6	3.2
Other services	24.7	11.2	1.8	0.3	4.7	-0.6	0.8	10.5	5.6	-11.3
General government	3.7	12.1	1.4	4.2	3.7	8.4	2.3	-6.5	-0.2	9.6
Changes in stocks and stat. discrepancies	-19.6	8.5	-52.7	141.3	-48.6	-3.5	67.9	-29.9	93.5	19.1
Gross capital formation	6.0	12.3	-3.0	10.8	2.1	-2.0	9.8	-3.3	9.8	1.8
Final domestic use of goods and services	4.7	5.6	-0.9	3.5	1.1	-0.2	3.7	-0.4	3.2	0.4
Final demand from mainland Norway[2].......	5.4	4.5	-0.1	1.3	1.3	0.6	1.9	1.0	1.3	-0.8
Final demand from general government[3].....	3.3	4.2	0.2	0.9	0.9	2.6	0.5	-0.5	0.8	1.6
Total exports..........................	9.8	5.8	-2.0	1.9	3.9	0.3	2.8	0.0	0.3	1.1
Traditional goods......................	10.0	8.0	-4.8	2.0	2.7	1.6	5.1	1.8	-0.7	3.7
Crude oil and natural gas	15.6	2.3	2.5	3.2	-0.0	-4.6	10.6	-7.3	4.0	-0.7
Ships and oil platforms	-16.2	11.7	-16.6	-38.7	125.8	34.4	-57.5	34.1	-7.8	-27.1
Services.............................	5.2	6.3	-1.6	3.6	4.7	0.7	-1.8	5.4	-2.1	1.3
Total use of goods and services	6.2	5.6	-1.2	3.0	1.9	-0.1	3.4	-0.3	2.3	0.6
Total imports..........................	8.3	12.3	-3.3	7.2	8.3	-2.0	6.4	-0.7	3.3	3.6
Traditional goods......................	10.0	8.6	-0.4	5.5	2.8	-2.6	6.2	0.5	5.9	2.3
Crude oil..............................	-5.5	16.6	1.9	2.6	126.5	-3.3	-50.5	43.6	-21.1	83.4
Ships and oil platforms	31.7	36.3	-38.5	55.8	112.8	-13.5	4.1	-18.2	-21.0	33.7
Services..............................	0.6	17.5	-4.7	6.5	4.2	3.7	8.8	0.9	2.7	0.9
Gross domestic product[4]..................	5.5	3.4	-0.6	1.7	-0.2	0.6	2.4	-0.2	2.0	-0.5
Mainland Norway (market prices)	4.1	3.7	-0.6	0.8	0.2	0.9	2.2	0.7	1.4	-0.6
Petroleum activities and ocean transport	13.4	1.9	-0.4	6.4	-1.9	-1.0	3.2	-4.4	4.8	0.2
Mainland Norway (basic prices)	3.1	3.7	-0.3	0.5	0.0	1.3	1.9	0.6	1.5	-0.5
Mainland Norway ex. general government...	2.9	4.1	-0.3	0.6	-0.1	1.4	2.2	0.6	1.7	-0.9
Manufacturing and mining	2.3	3.1	-2.4	2.8	-0.3	0.1	1.7	1.1	2.0	-1.1
Production of other goods..............	-1.5	5.2	-6.8	-2.6	2.0	2.2	5.5	0.5	1.2	0.0
Service industries.....................	4.1	4.1	1.8	0.6	-0.4	1.7	1.8	0.5	1.7	-1.0
General government	3.7	2.5	-0.1	0.1	0.6	1.0	0.6	0.8	0.6	0.7
Correction items	11.3	3.9	-2.8	2.9	1.2	-1.8	4.5	0.7	1.3	-1.0

National accounts: Selected price indices
1995=100

	Unadjusted		Seasonally adjusted							
	1996	1997	96.2	96.3	96.4	97.1	97.2	97.3	97.4	98.1
Final consumption exp. of househ. and NPISHs[1]	101.4	103.9	101.2	101.8	102.5	103.2	103.9	104.0	104.6	105.8
Final consumption exp. of general government	103.0	105.8	102.4	103.7	104.7	104.4	105.1	106.7	107.0	108.0
Gross fixed capital formation	102.6	105.1	102.2	102.5	103.7	101.4	106.1	106.4	106.3	106.7
Mainland Norway.	102.4	103.5	102.1	102.3	103.4	101.7	103.2	104.3	104.5	105.0
Final domestic use of goods and services	102.0	104.5	101.9	103.6	101.9	103.9	104.6	104.9	104.6	106.7
Final demand from mainland Norway[2]	102.0	104.3	101.7	102.4	103.2	103.2	104.0	104.7	105.2	106.2
Total exports	106.7	109.0	105.1	107.3	111.9	108.3	106.5	111.2	110.0	102.6
Traditional goods	98.8	99.3	99.1	97.9	100.0	97.3	96.9	101.3	101.5	100.4
Total use of goods and services	103.4	105.8	102.8	104.7	104.9	105.2	105.2	106.8	106.2	105.5
Total imports	101.2	102.4	100.6	104.2	100.6	99.7	101.8	105.1	103.1	104.1
Traditional goods	100.1	99.0	99.2	104.7	98.1	97.0	97.9	101.6	99.3	100.2
Gross domestic product	104.1	107.1	103.5	104.8	106.4	107.1	106.4	107.4	107.3	106.0
Mainland Norway	101.5	104.4	101.3	101.8	102.8	103.5	104.0	104.5	105.7	106.9

National accounts: Selected price indices
Percentage change from the previous period

	Unadjusted		Seasonally adjusted							
	1996	1997	96.2	96.3	96.4	97.1	97.2	97.3	97.4	98.1
Final consumption exp. of househ. and NPISHs[1]	1.4	2.5	1.1	0.6	0.7	0.6	0.7	0.1	0.6	1.2
Final consumption exp. of general government	3.0	2.7	1.2	1.2	1.0	-0.3	0.7	1.5	0.2	1.0
Gross fixed capital formation	2.6	2.5	0.5	0.3	1.2	-2.2	4.6	0.2	-0.1	0.4
Mainland Norway.	2.4	1.1	0.4	0.2	1.1	-1.7	1.5	1.1	0.2	0.5
Final domestic use of goods and services	2.0	2.4	1.2	1.7	-1.6	2.0	0.7	0.3	-0.3	2.1
Final demand from mainland Norway[2]	2.0	2.3	1.0	0.7	0.8	-0.0	0.8	0.7	0.4	1.0
Total exports	6.7	2.1	2.7	2.1	4.3	-3.2	-1.6	4.4	-1.1	-6.7
Traditional goods	-1.2	0.5	1.0	-1.2	2.2	-2.7	-0.5	4.5	0.3	-1.1
Total use of goods and services	3.4	2.3	1.6	1.8	0.2	0.3	-0.0	1.5	-0.6	-0.6
Total imports	1.2	1.2	1.1	3.6	-3.5	-0.9	2.1	3.3	-1.9	1.0
Traditional goods	0.1	-1.1	0.8	5.5	-6.3	-1.1	1.0	3.8	-2.3	1.0
Gross domestic product	4.1	2.8	1.8	1.3	1.5	0.7	-0.7	1.0	-0.1	-1.2
Mainland Norway	1.5	2.8	1.1	0.5	0.9	0.7	0.5	0.4	1.2	1.2

Technical comments on the quarterly figures

Footnotes:
[1] NPISHs: Non-profit inistitutions serving households.
[2] Defined as total final consumption expenditure plus gross fixed capital formation in mainland Norway.
[3] Defined as general government final consumption expenditure plus gross fixed capital formation.
[4] Gross domestic product is measured at market prices, while value added by industry is measured at basic prices.

Quarterly calculations: The calculations are made on a less detailed level than the calculations for the annual national accounts, and are based on more simplified procedures.

Monetary policy as an instrument in the current economic situation in Norway

Torbjørn Eika and Knut Moum

It has been argued that the Norwegian authorities should use monetary policy as an instrument in order to dampen the ongoing upturn in the Norwegian economy. This article looks at some potential effects of monetary policy tightening and compares them with the effects of a corresponding tightening of fiscal policy. With the help of calculations on a macroeconometric model, we illustrate that monetary policy can be a more effective instrument than fiscal policy if the primary concern is to reduce inflation, because a given inflation effect may be achieved with a smaller contraction in the level of activity. However, this tightening will have a greater short term negative impact on exposed industries than a comparable fiscal contraction. If the tightening is based on the desire to shield exposed sectors from an accelerating rise in wages and costs, this may seem paradoxical.

1. Introduction

The Norwegian economy is now experiencing the strongest cyclical upturn since the first half of the 1970s. Between 1992 and 1997 mainland GDP expanded by nearly 19 per cent, the same growth as during the previous ten years. The number of persons employed increased by more than 9 per cent in the same period, and unemployment has fallen from more than 6 per cent to below 4 per cent of the labour force. As a result of the sharp rise in employment during the past four years, a record-high proportion of the working-age population is now in employment. A further increase in the demand for labour may thereby result in larger geographical, sectoral and skills imbalances in the labour market than we have witnessed so far during this upturn.

There are several reasons why this may be perceived as a problem:

1. Increased pressures in the labour market may result in a period of considerably higher wage and price inflation than we have recorded in recent years. This may impair the market's role as a disseminator of information and thus the basis for sound economic planning at the company and personal level.
2. With a fixed exchange rate, higher wage and price inflation will probably entail a sharper rise in costs in Norway than among our main trading partners. If this trend is not quickly reversed, it will contribute to a loss of market shares for Norwegian industries exposed to competition, which in the longer run will make us more dependent on uncertain petroleum revenues.
3. Temporary imbalances in the labour market may also result in restructuring costs for companies and individuals. In addition, fluctuations in production and employment may have negative consequences in the longer term; it is easy to close down existing enterprises but difficult to establish new ones.[1]

The first point relates to some direct costs of inflation. The second point refers to a potential structural problem, which is related to the question of how great a difference between domestic consumption and domestic production can be sustained in the long run without resulting in substantial imbalances in our economic relations with other countries.[2] The last point indicates a potential cyclical problem related to short-term fluctuations in the economy. Whereas long-term problems linked to the relationship between domestic consumption and domestic production cannot be resolved by monetary policy alone, cyclical imbalances may be remedied using both fiscal and monetary policy measures.

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1 Statistics Norway's macroeconometric models contain a similar effect: Since, according to these models, a given change in unemployment has a greater effect on the level of real wages the lower the level of unemployment at the start, the level of average real wages will over time be higher when unemployment fluctuates around a given level than when unemployment remains stable at this level. Conversely, this means that average unemployment over time may remain at a lower level for a given level of real wages ("competitiveness") if unemployment is stable than if it fluctuates.
2 When evaluating this question, it must be taken into account that the projected, large current-account surpluses over the last and next few years partly reflect the conversion of petroleum wealth to foreign assets. In the long term it is the return on these assets which must finance the difference between domestic consumption and domestic production. It is thus not possible to use the size of these surpluses to gauge the performance of the Norwegian economy.

A number of economists have recently argued that monetary policy should be explicitly aimed at price stability, thereby permitting monetary policy tightening.[3] Norges Bank (1997) has also presented arguments for a shift to an inflation target. The central bank nevertheless recommends that a stable krone exchange rate should be maintained as the objective of monetary policy, but that the guidelines should be adjusted to permit greater flexibility in the conduct of monetary policy.

Based on the growing interest in monetary policy as an instrument for stabilizing the economy, we discuss in this article potential consequences of a tightening of monetary policy using calculations from Statistics Norway's macro-econometric model KVARTS. In section 2 we argue that monetary policy tightening will probably represent a breach with our current fixed exchange-rate policy, and we discuss how this can be dealt with in the model-based calculations. There is, however, considerable uncertainty associated with how market participants in Norway will respond to a change in regime.

In section 3 we point out that monetary policy tightening will have an effect through two channels, i.e. an interest-rate channel and an exchange-rate channel. While the effects of an interest-rate change on the real economy will primarily operate through the effects on household demand, changes in the exchange rate have a direct impact on profitability and production in exposed sectors of the economy. Furthermore, changes in the exchange rate have an effect on consumer prices through the prices of imported consumer goods. The magnitude of the effect of monetary policy tightening on inflation and the real economy will thus depend on the relative strength of the two channels. This is illustrated through sensitivity analyses.

In section 4 we outline a possible fiscal policy tightening. The fiscal contraction is scaled in such a way that the effect on mainland GDP during the period of tightening is about the same as with the monetary policy tightening described earlier. A comparison of the two measures shows that monetary policy tightening has a greater effect on prices, wages and manufacturing output than a comparable fiscal contraction.

Monetary policy tightening may thereby be appropriate if price inflation is perceived as the main problem. The situation may, however, be different if the primary concern is that higher wage growth in the long run may undermine profitability in sectors exposed to competition. In this case it may appear paradoxical to tighten policy using the interest rate because a stronger krone may squeeze companies' profits on the revenue side.

Section 5 presents a summary and points to a possible continuation of the analysis.

2. Relationship between the interest rate and exchange rate as a result of monetary policy tightening

It is common to assume that a country's central bank can control the level of interest rates in the money market. The objective of a stable exchange rate, however, places constraints on Norway's interest-rate policy, and there is reason to believe that Norges Bank in the current situation cannot raise interest rates on its own initiative without this having an effect on the exchange rate.

With unrestricted cross-border capital movements, participants in the foreign exchange market may freely choose between investments in Norwegian kroner and foreign currencies. For a Norwegian participant, the return on a krone investment is given by the Norwegian interest rate. The return on a corresponding investment in a foreign currency consists of two components: the interest rate abroad and any gains or losses resulting from a change in the exchange rate during the investment period. If the interest rate in Norway is the same as the interest rate abroad plus the expected change in the exchange rate, the two investments will in terms of *expectations* be equal. Since the return on foreign currency investments will be uncertain for Norwegian investors, it is likely that the projected return on foreign currency investments must be higher than the secure return on equivalent investments in Norway if Norwegian participants are to consider them equal *as a whole*. For the sake of conveniency, we can call this excess return a risk premium.[4]

If the return on foreign investments is greater than the level necessary to compensate for the risk of such investments, exchange-market participants are likely to borrow in Norway, buy foreign currency from Norges Bank and invest this capital abroad. This situation cannot persist over time because Norges Bank's foreign exchange reserves would gradually be depleted. Alternatively, Norges Bank would incur interest losses equal to the private participants' interest gains if they were to succeed in satisfying the private sector's demand for foreign currency by borrowing abroad. The situation is slightly different if high Norwegian interest rates result in foreign currency inflows to Norway because Norges Bank can always offer Norwegian kroner in exchange. In this case as well, however, the central bank would incur interest costs, now equal to the difference between the interest rate on investments in kroner and in foreign currencies.

Based on the reasoning above, a reasonable balance between supply and demand in the foreign exchange market requires that the *return* on foreign currency investments cannot deviate (too) much from the return on equivalent krone investments. With a credible fixed exchange-rate policy against ECU on the part of Norges Bank, the likelihood of a (substantial) change in the exchange rate appears

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3 See, for example, Frøyland and Leitemo (1997), Svenson (1997) and an interview with Erling Steigum jr. and Jan Tore Klovland in Aftenposten on 10 December 1997.

4 The situation will be the reverse for foreign participants. They will want a risk premium for investing funds in Norway.

to be very limited. In this case, Norwegian money market *rates* cannot deviate too much from equivalent ECU rates. This was clearly illustrated in 1996 when Norges Bank attempted to maintain Norwegian money market rates at a higher level than interest rates in ECU countries. As a result of sizeable current-account surpluses, a depreciation of the krone must have been considered very unlikely, and the krone must have been perceived as a favourable investment alternative for financial investors. The Norwegian krone as an attractive investment alternative is actually confirmed by Norges Bank's considerable net sales of kroner through 1996 and up to early January 1997 when interest rates were reduced and interventions were halted.

In line with the experience and views indicated above, we will assume that the Norwegian krone will immediately appreciate if Norges Bank were to increase interest rates in order to curb the domestic cyclical upturn. This appreciation of the krone, however, cannot be a lasting phenomenon. Assume, for example, that Norwegian money market rates are approximately on a par with equivalent ECU rates, and that the foreign exchange market is in balance at this interest-rate level. Assume then that the 3-month Norwegian money market rate is raised by, say, 2 percentage points. With an appreciating krone, it will be possible to reap currency gains in addition to interest gains by placing funds in Norway, and both factors point to currency inflows and continued appreciation. According to the KVARTS model, prices and wages adjust only gradually to a change in the exchange rate. Persistent appreciation will thereby contribute to a deterioration in the business sector's competitiveness, increase imports and reduce exports and the current-account balance. This is not compatible with a reasonable balance in the economy in the long run.

If the exchange rate level is initially regarded as compatible with such a balance, the views expressed above imply that with an increase in interest rates the krone must first appreciate and then gradually depreciate towards an "equilibrium" level, which in the long run results in approximately the same balance in the external account as in a situation with no interest-rate increase.[5] A gradual depreciation of the krone will entail that market participants who have invested in the krone market will incur currency losses. A higher interest rate in Norway compared with the level abroad may compensate for this, and the expected return will be the same for the two types of investments if investors believe that the krone will appreciate by 2 per cent per year. If this perception is to be well-founded, the process must in fact bring the exchange rate to a level which results in a reasonable balance in the external account in the long run.

How much the krone must initially appreciate in order to provide scope for a subsequent depreciation of 2 per cent

per year also depends, however, on how long Norwegian interest rates are expected to remain higher than foreign rates. If the interest-rate differential is expected to persist for one year, the krone must initially appreciate by 2 per cent. If the period of tightening is expected to last for two years, the krone must appreciate by 4 per cent, etc. In practice, exchange-market participants will not know this with certainty. In order to form a tenable opinion, they must have some knowledge of how interest and exchange rate changes affect the economy and of the objective the authorities want to achieve by raising interest rates. It is only under such conditions that they, with any degree of certainty, can estimate the exchange-rate change which, combined with the observed interest-rate change, will resolve the authorities' policy problem. On the assumption that the exchange rate moves in such a way that the expected return on foreign currency investments is equal to the return on krone investments, i.e. that the uncovered interest parity condition is fulfilled, the duration of the interest-rate increase is then determined.[6]

The views expressed above illustrate both that the formation of expectations figures prominently in an analysis of the effects of monetary policy changes and why it is important that private sector participants are aware of and have faith in the objective of monetary policy. If the objective of monetary policy lacks credibility or is not known, the formation of expectations will lack a sufficient anchor, and all parties will have problems in estimating the exchange-rate movements resulting from an interest-rate change. In this situation, it will also be difficult for the authorities to decide on the magnitude of the interest-rate change.

A known and credible monetary policy objective nevertheless provides no gurantee for a predictable exchange-rate path with monetary policy tightening. The various market participants may be uncertain or have differing opinions as to how the economy functions, and this can contribute to exchange-rate movements which clearly depart from that outlined above. The same may be the case if market participants demand compensation for risk, and the size of the risk premium is changed as a result of a revision of monetary policy.

In practice, it can therefore not be ruled out that monetary policy tightening may lead the Norwegian economy into a period of more unstable exchange rates. This means that it is difficult to estimate the consequences of this policy revision and indicates that several possible paths should be studied. As a first step, however, we have decided to disregard this problem and assume that the exchange rate moves in such a way that the uncovered interest parity condition is fulfilled *ex post*. A breakdown of the results into interest-rate and exchange-rate effects and some sensitivity calculations nevertheless allow us to draw some conclusions concerning the importance of alternative assumptions.[7]

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5 Since temporary exchange rate changes also influence the path of exports and imports, they may have consequences for the foreign debt and thereby interest flows. This entails that the new "equilibrium" exchange rate is not necessarily identical to the old one.
6 This reasoning also requires that there are no systematic deviations between expected and actual exchange-rate movements.

Figure 1: Monetary policy tightening scenario A:
Effect on mainland GDP in per cent

— Isolated effect of higher interest rate
···· Isolated effect of stronger krone
– – Combined effect (scenario A)

Figure 2: Monetary policy tightening scenario A:
Effect on man. industry's value added in per cent

— Isolated effect of higher interest rate
···· Isolated effect of stronger krone
– – Combined effect (scenario A)

3. Effects of monetary policy tightening

Based on calculations on the quarterly macroeconomic model KVARTS, this section looks at the effects of a temporary interest-rate increase when the exchange rate is assumed to adapt in such a way that the uncovered interest parity condition is fulfilled *ex post*. This monetary policy tightening influences the economy through two channels, an interest-rate channel and an exchange-rate channel. As a means of clairifying the effects, we carry out the analysis in three steps:

1. *The interest-rate channel* is illustrated by a calculation in which the money market rate is increased by 2 percent-

Figure 3: Monetary policy tightening scenario A:
Effect on unemployment rate in percentage points

— Isolated effect of higher interest rate
···· Isolated effect of stronger krone
– – Combined effect (scenario A)

age points for a period of two years, while the exchange rate is kept unchanged.

2. *The exchange-rate channel* is illustrated by a calculation in which the Norwegian krone immediately appreciates by 4 per cent and then depreciates by about 0.5 per cent per quarter over a period of two years, while the interest-rate level is kept unchanged.

3. The effect of *monetary policy tightening* (later described as scenario A) is illustrated by combining the first two calculations.

The effect of changes in the interest-rate level and/or the exchange rate is estimated as the difference between two paths for the Norwegian economy: a baseline scenario where the measure is not implemented and another scenario where it is implemented. Our baseline scenario, which extends to the year 2010, is characterized by approximate trend growth in most real aggregates and relatively moderate price and wage inflation. In 1998 and 1999, the baseline scenario is fairly close to the forecasts presented in *Economic Survey 1/98*. Labour force participation rates, however, have been adjusted, entailing that the unemployment rate is generally 3.5 per cent.[8]

3.1. Interest-rate channel

In this calculation, we look at the effects when the Norwegian money market rate for a period of two years is 2 percentage points higher than the level in the baseline scenario. As noted earlier, this may be interpreted as the isolated interest-rate effect of monetary policy tightening in a new monetary policy regime, but the calculation also illustrates the effect of a corresponding increase in

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7 Our solution may be considered a technical approximation to a situation which is new for the Norwegian economy. The approximation, however, has some support in the experience of other countries. For example, in an evaluation of British macroeconomic models, Fisher et al. (1990) argues that the hypothesis of forward-looking uncovered interest parity provides the best description of exchange-rate determination in the market for pound sterling.

8 It may seem paradoxical that the baseline scenario is characterized by this stability - there should then be no reason to introduce contractionary measures. The baseline scenario, however, is not intended to be a forecast of future developments. Stability is incorporated in order to make it easier to interpret the results of the calculations of effects.

ECU/EURO rates within the current regime.[9] We assume that changes in the money market rate fully feed through to financial institutions' deposit and lending rates after two quarters. This is slightly faster than that derived from the relationships in KVARTS, but seems to be in reasonable accord with the pattern of recent years.

As will be seen in table 1 and figures 1 to 5, an interest-rate increase has a contractionary effect on the level of activity in the mainland economy. In the first three years following the interest-rate increase mainland GDP is lower than in the baseline scenario, while the effects after this time gradually peter out. It is also seen in table 1 that mainland GDP *growth* in the first year is reduced by 0.1 percentage point as a result of this interest-rate increase, while *growth* in the second year is reduced by 0.7 percentage point. In the following two years growth is higher than in the baseline scenario. Manufacturing activity is also reduced compared with the level in the baseline scenario, but the reduction is in relative terms slightly less than for other goods-producing and service industries. Inasmuch as the interest-rate increase reduces domestic demand, the more the sectors produce for the domestic market the more they are affected.

The interest-rate increase translates into higher house rents and thus moderately higher price inflation the first two years. Over the next two years inflation is reduced slightly compared with the baseline scenario, and in the fourth year the *level* of consumer prices is slightly lower than in the baseline scenario. Inflation is thereafter moderately higher than in the baseline scenario, so that the effect on the price level is gradually eliminated. In the first two years following the interest-rate increase the effect on wages is negligible. In the third and fourth years hourly wage growth is reduced slightly until wage levels gradually return to the level in the baseline scenario.

According to KVARTS, it is primarily households which directly respond to an interest-rate increase. Four effects are in evidence: Because household assets are greater than household liabilities, higher interest rates result in higher income.[10] In isolation, this points to higher consumer demand. Second, the interest-rate increase entails that current consumption is more expensive relative to future consumption, which points to lower demand. Third, the interest-rate increase entails that housing costs rise. The demand for housing is reduced, and prices in the market for existing dwellings decline. Households' housing wealth falls compared to the level in the baseline scenario, and this also points to lower purchases of goods and services for consumption. Fourth, higher house rents point in isolation to a reduction in household real disposable income. All in all, household consumption is reduced by 0.3 and 1.3 per cent, respectively, compared with the level in the baseline scenario in the first two years following the interest-rate

Table 1. Effects on the Norwegian economy of a 2.0 percentage point increase in the money market rate in 1998 and 1999. Percentage deviation from the baseline scenario unless otherwise indicated

	1998	1999	2000
Private consumption	-0.3	-1.3	-1.0
Mainland investment	-0.4	-2.6	-3.1
Exports	0.0	0.0	0.0
Imports	-0.2	-1.2	-1.1
Mainland GDP	-0.1	-0.8	-0.7
Manufacturing	-0.1	-0.6	-0.5
Unemployment rate (difference in p.p.)	0.0	0.1	0.2
Average hourly wages	0.0	0.0	-0.1
Consumer price index	0.2	0.4	0.1
Current-account balance (diff. in bill. NKr)	0.7	4.7	4.9

Figure 4: Monetary policy tightening scenario A: Effect on consumer price index in per cent

——— Isolated effect of higher interest rate
- - - - Isolated effect of stronger krone
– – Combined effect (scenario A)
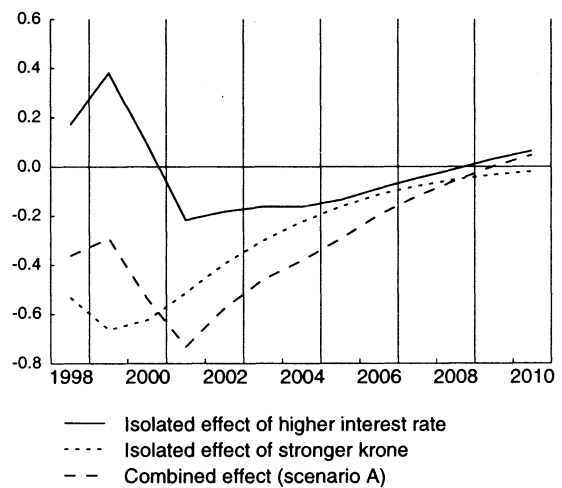
Figure 5: Monetary policy tightening scenario A: Effect on average hourly wages in per cent

——— Isolated effect of higher interest rate
- - - - Isolated effect of stronger krone
– – Combined effect (scenario A)

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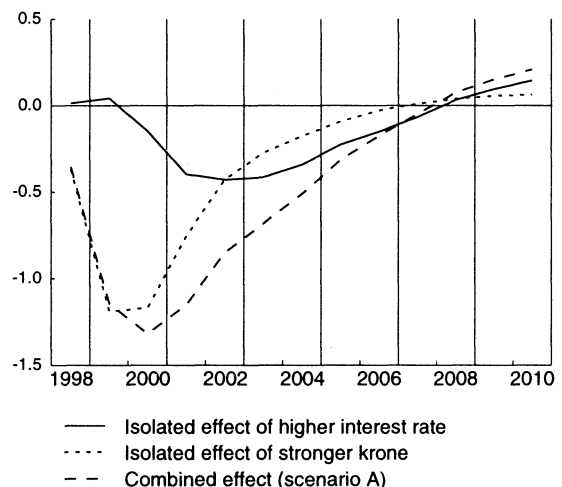
9   This interpretation presupposes, however, that foreign rates have an immediate impact on Norwegian money market rates. In the standard version of KVARTS this adaptation does not take place quite as rapidly. This interpretation elso presupposes – somewhat unreasonably – that a European monetary contraction has no effects on Norwegian export market growth.
10 In the next section we look further at the importance of this effect.

The KVARTS model as a tool for analyzing macroeconomic policy

The KVARTS model belongs to a Keynesian inspired modelling tradition. With the exception of resource-based industries[1], the level of activity in the short term is determined by changes in aggregate demand. In the longer term, supply-side factors, such as changes in factor productivity, capital stock and the labour force, play an important role for economic developments. The model, however, does not contain mechanisms which ensure full resource utilization or balance in the external account. According to the KVARTS model, both supply and demand shocks can thus have lasting effects on the level of activity in the economy.

According to KVARTS, total demand for Norwegian-produced goods and services increases with the magnitude of the public sector's purchases of goods and services, with household wealth and disposable income (where real wage income is an important component) and with the level of activity abroad. An increase in Norwegian prices relative to foreign prices will result in a shift in demand from Norwegian to foreign producers. Higher interest rates have a dampening effect on demand in the short and medium term, even in the current situation where households' interest-bearing assets exceed their interest-bearing liabilities.

Firms are assumed to set the prices of their goods for the export and domesic market on the basis of their own variable unit costs and the import price measured in kroner, which in the standard version of the model (with a fixed exchange rate) functions as an indicator of the price of competing foreign products. In the long term an increase of 1 per cent in both unit costs and import prices also results in an increase of 1 per cent in Norwegian product prices.

Wages are assumed to be determined in the negotiations between trade unions and employers (see Bowitz and Cappelen 1997 for a further discussion). The model has some of the same features as the Scandinavian inflation model in that manufacturing industry has a leading role in wage determination as a whole. Manufacturing wages are dependent on consumer prices and producer prices (equal weights). The effect of employers' social security contributions and indirect taxes on wages is based on the same weights as producer and consumer prices. In the long run an increase of 1 per cent in both consumer and producer prices will result in a correseponding rise in nominal wages, while changes in labour productivity will have a full impact on the level of real wages. According to KVARTS, lower unemployment results in higher real wages, but it takes some years before the effect is exhausted. Furthermore, the effect of a given change in unemployment on wages is less the higher the level of unemployment at the outset. Changes in unemployment are determined by the demand for and supply of labour. Whereas demand depends on production and the relative price of labour, supply is primarily determined by demographic factors and the level of unemployment.

According to the KVARTS model, a change in import prices will in the long run fully feed through to Norwegian prices and wages (on the assumption that administratively determined prices are changed in step with other Norwegian prices). In this time horizon the real exchange rate (i.e. the relationship beween foreign and Norwegian prices measured in a common currency) is independent of the nominal rate. In the short and medium term, however, this is not the case, a factor which permits monetary policy in this time horizon to have real economic consequences through the exchange rate.

Developments in import prices must be determined by the model user, who must then decide how quickly an exchange-rate change will feed through to import prices measured in kroner. We assume that some forward contracts are drawn up in kroner and that foreign exporters take account of the competitive situation in the Norwegian market when setting prices. Both factors contribute to lags between a change in the exchange rate and its impact on import prices (measured in kroner). Such lags are incorporated in the model version applied, and are discussed further later in this article. For export industries, however, there are no such lags; cost competitiveness deteriorates immediately when the Norwegian krone appreciates. We have therefore included a separate competitive price indicator in the export relationships, with a full and immediate impact as a result of exchange-rate changes. Based on more recent analyses of annual data, we have also made some adjustments to the parameters in the export relationships.[2]

In the KVARTS model, domestic interest rates are linked to interest rates in the money market. With a stable current-account balance these shadow corresponding ECU rates so that the differential between short-term real interest rates in Norway and in the ECU area is constant in the long run. This description of interest-rate formation is based on the experience of a period in which monetary policy has generally been aimed at maintaining a stable rate of exchange between the Norwegian krone and a basket of foreign currencies, in recent years with the ECU as the operational target. Our interpretation is that it indicates the level of Norwegian interest rates which is compatible with a reasonably stable exchange rate over time.

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[1] Along with petroleum activities, primary industries, the electricity supply sector and refinery activities are important examples of such industries. Production in these industries is assumed to be given from the supply side and are exogenous in KVARTS.

[2] The empirical quantification of the export model in KVARTS is still based on the old national accounting system. As the effects from exports are an important element in the analysis of monetary policy tightening, we have chosen to anticipate an ongoing reestimation of the export model by including long-term relationships estimated on the basis of new annual data from Statistics Norway's MODAG model. The empirically based dynamic specification has, however, for some goods resulted in fairly unreliable short-term reactions. We have chosen a solution whereby the speed of adjustment to changes in cost competitiveness in the export volumes of all goods that are determined in the model is the same as the speed of adjustment in MODAG for the relatively large commodity group miscellaneous manufactured goods.

Table 2. Effects of a 4 per cent appreciation at the beginning of 1998. followed by a gradual return of the exchange rate through 1998 and 1999. Percentage deviation from the baseline scenario unless otherwise indicated

	1998	1999	2000
Private consumption	0.0	-0.5	-0.4
Mainland investment	-0.4	-1.4	-0.7
Exports	-0.9	-0.1	0.6
Imports	-0.1	-0.6	-0.1
Mainland GDP	-0.5	-0.4	0.0
Manufacturing	-1.8	-0.4	0.6
Unemployment rate (difference in p.p.)	0.2	0.1	0.0
Average hourly wages	-0.4	-1.2	-1.2
Consumer price index	-0.5	-0.7	-0.6
Deflator traditional imports	-1.9	-1.4	-0.5
Deflator traditional exports	-1.4	-1.7	-0.6
Current-account balance (diff. in bill. NKr)	-4.2	0.2	3.0

Figure 6. Monetary policy tightening: Scenario A
Change from baseline scenario for exchange rate[1] and import prices in per cent and for money market rate[2] in percentage points

[1] Negative figures denote stronger krone in relation to the baseline scenario.
[2] Annual interest rate.

increase. In the third and following years, when nominal interest rates have returned to the level in the baseline scenario, the effects on private consumption taper off.

Lower demand compared with the baseline scenario will also result in reduced production, particularly in industries which supply a considerable share of their production for consumption purposes. This curbs investment in these industries, and thus also production in manufacturing and construction. Lower production results in lower employment, which makes a negative contribution to household income. Unemployment rises marginally compared with the level in the baseline scenario. The current-account balance improves by nearly NKr 5 billion in the second and third year, but in the long term shows little deviation from the level in the baseline scenario.

3.2. Exchange-rate channel

In the second calculation we look at the effects of a 4 per cent appreciation of the Nowegian krone at the beginning of 1998, which is reversed during the subsequent eight quarters. For most goods, we have assumed that 30 per cent of the exchange-rate change will feed through to import prices in the first quarter and 65 per cent in the second quarter, thereafter rising by 5 per cent per quarter with a full impact in the ninth quarter.[11] Inasmuch as the exchange rate in this calculation deviates from the level in the baseline scenario for two years, import prices are reduced compared with the baseline scenario until the end of the first quarter of 2002. The effect on average import prices is shown in figure 6, and we see that the greatest impact is felt in the second quarter when import prices are 2.5 per cent lower than in the baseline scenario.
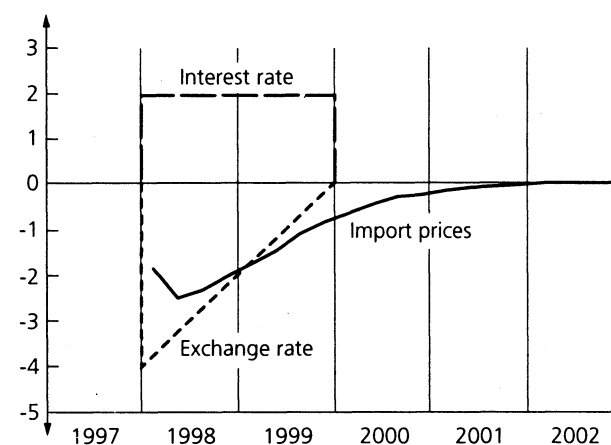
Initially, the appreciation entails that the price of foreign products falls relative to the price of Norwegian products, measured in a common currency. Norwegian producers lose market shares in the export and domestic market. Export growth is lower than in the baseline scenario for a few years, while import shares rise in relation to the levels in the baseline scenario. In isolation, this contributes to reducing growth in Norwegian production, and thus employment and income. Unemployment rises and productivity in manufacturing industry is reduced. If we look at the two "years of tightening" combined, household demand is reduced by 0.4 per cent compared with the level in the baseline scenario, while exports are reduced by 0.5 per cent and mainland business fixed investment by 0.9 per cent. As a result, manufacturing output is reduced by 1.1 percentage points, while production in other mainland-based industries falls by 0.6 per cent.

In the third year the initial exchange-rate impetus is eliminated, but as a result of lags in the economy, prices in Norway (including import prices) will for a period still be slightly lower than in the baseline scenario. The competitive prices of export-oriented enterprises, however, will be back to the level in the baseline scenario. For a period this results in some improvement in the competitive position of this sector and higher Norwegian exports than in the baseline scenario. The level of activity in the Norwegian economy is thus also moderately higher than in the baseline scenario for a period.

A lower rise in import prices contributes to lower consumer price *inflation* in the first two years. In the following years inflation is higher than in the baseline scenario, while the *level* of consumer prices gradually returns to the level

11 This is the same impact profile which was assumed in the projections based on various exchange-rate assumptions in *Economic Survey 1/97* and it applies to most import prices. The exceptions primarily refer to the import price of crude oil, the shipping sector's operating expenditure and direct consumption abroad by resident households where the impact comes immediately, as well as the import price of refined petroleum products, which in the standard model is also determined as a function of the crude oil price.

Table 3. Effects of monetary policy tightening in 1998 and 1999 (scenario A). 2 percentage point increase in money market rate and 4 per cent appreciation at the beginning of 1998 followed by a gradual return of the exchange rate through 1998 and 1999. Percentage deviation from baseline scenario unless otherwise indicated

	1998	1999	2000
Private consumption	-0.3	-1.8	-1.4
Mainland investment	-0.8	-4.1	-3.8
Exports	-0.9	-0.2	0.6
Imports	-0.3	-1.7	-1.2
Mainland GDP	-0.7	-1.2	-0.7
Manufacturing	-1.9	-1.0	0.1
Unemployment rate (difference in p.p.)	0.2	0.3	0.2
Average hourly wages	-0.4	-1.1	-1.3
Consumer price index	-0.4	-0.3	-0.5
Deflator import trad.varer	-2.0	-1.4	-0.6
Deflator eksport trad.varer	-1.9	-1.3	-0.4
Current-account balance (diff. in bill. NKr)	-3.5	4.7	7.8

Table 4. Effects of monetary policy tightening in 1998 and 1999 (scenario A) when the return on household insurance claims is not considered to have a stimulating effect on consumption. Percentage deviation from the baseline scenario unless otherwise indicated

	1998	1999	2000
Private consumption	-0.8	-2.7	-1.7
Mainland investment	-0.8	-1.6	-0.9
Manufacturing	-2.1	-1.2	0.0
Unemployment rate (difference in p.p.)	0.2	0.3	0.2
Consumer price index	-0.4	-0.3	-0.6

in the baseline scenario. Towards the end of the period the effect on levels may be considered exhausted.

In the first year slower price inflation results in higher real wage growth. Gradually (second and third year) higher unemployment, reduced productivity and lower profitability in manufacturing industry contribute to real wage growth (and level) which is lower than in the baseline scenario. In the fourth and fifth year this situation is reversed, and real wage growth is higher than in the baseline scenario. In the fifth and subsequent years the effects on the real wage *level* are in reality exhausted. The current-account balance deteriorates in this scenario by a good NKr 1 billion when the first three years are considered as a whole.

The estimates in this section are based on the experience of a period in which Norway has attached importance to maintaining a stable exchange rate. It may be argued that an active use of monetary policy for stabilization purposes will result in a greater degree of currency hedging. This may dampen the effects of short-term exchange-rate fluctuations, not only on profitability and the level of activity, but also on import and consumer prices.

3.3. Overall effects of monetary policy tightening in 1998 and 1999

The effects of one (possible) tightening of monetary policy may now be illustrated by combining the two calculations discussed above.[12] We thus assume that the interest rate is increased by 2 percentage points for two years, while the Norwegian krone immediately appreciates by 4 per cent, gradually falling back to the level along the baseline scenario over the next two years (see figure 6). The effects of this policy change are shown in table 3 and in figures 1 to 6.

The tightening of monetary policy results in a lower level of activity in the two actual "years of tightening" (i.e. the years with a higher interest rate), as well as in the following year. During the remainder of the period the effects on the real economy are small. In the first year it is particularly exposed sectors which record a reduction in the level of activity, while in the following two years other industries are most affected by the tightening. This is related to the appreciation of the krone, which results in an immediate deterioration in cost competitiveness, while the reduction in domestic demand is more gradual. During the second year the negative export effects are eliminated, while the negative domestic demand impulses, primarily from the household sector, are markedly amplified. In the third year household demand continues to remain at a substantially lower level than in the baseline scenario, while exports are moderately higher.

If the two years of tightening are considered as a whole, household demand is reduced by 1.5 per cent, while exports are reduced by 0.5 per cent. Value added in manufacturing industry is reduced by 1.5 per cent, while value added in other mainland-based industries is reduced by 1.2 per cent. The unemployment rate in this period is 0.2 percentage point higher than in the baseline scenario.

The interest-rate increase and the appreciation of the krone have the opposite effect on consumer prices the first few years. However, the exchange-rate effects dominate, entailing that consumer price *inflation* in the first year is 0.4 per cent lower than in the baseline scenario. In the second year, on the other hand, the rise in the consumer price index is slightly stronger than in the baseline scenario. The overall effect on inflation is therefore negative for two years. In 2001, the consumer price index in this scenario is 0.7 per cent lower than in the baseline scenario, after which inflation is again marginally higher than in the baseline scenario, with the effect on the price level exhausted in 2009.

Wage growth is reduced in the first year in line with the effect on inflation. In the second and third year wage growth is reduced further. In the third year the tightening of monetary policy has reduced average hourly wages by

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12 As a result of level dependence in the model (and rounding), the results may deviate slightly from a pure summing of the effects of the two individual calculations.

Table 5. Effects of monetary policy tightening in 1998, scenario B. Percentage deviation from the baseline scenario unless otherwise indicated

	1998	1999	2000
Mainland GDP	-0.3	-0.7	0.0
Manufacturing	-0.8	-0.3	0.1
Unemployment rate (difference in p.p.)	0.1	0.1	0.0
Consumer price index	0.0	0.0	-0.3

Table 6. Effects of monetary policy tightening in 1998, scenario C. Percentage deviation from the baseline scenario unless otherwise indicated

	1998	1999	2000
Mainland GDP	-1.0	-1.7	-1.2
Manufacturing	-3.2	-2.2	-0.5
Unemployment rate (difference in p.p.)	0.3	0.4	0.3
Consumer price index	-0.7	-1.0	-1.3

Figure 7: Monetary policy tightening:
Effect on mainland GDP in per cent

— Alternative A
···· Alternative B
– – Alternative C

Figure 8: Monetary policy tightening
Effect on consumer price index in per cent

— Alternative A
···· Alternative B
– – Alternative C

1.3 per cent. During the remainder of the period wage growth is slightly higher than in the baseline scenario, and towards the end of the period the level is also marginally higher than in the baseline scenario.

The current-account balance deteriorates by NKr 3.5 billion in the first year of tightening and then shows an improvement of NKr 12.5 billion over the next two years combined. Towards the end of the period net foreign assets are moderately higher than in the baseline scenario, but are moving downward. The projected path for the exchange rate is thus in reasonable accord with the requirement of an unchanged balance in the external account in the long run.

As will be seen from the discussion above, the effects of monetary policy tightening depend on the relative strength of the interest-rate channel and the exchange-rate channel. In our calculations, an assumption that the return on all household interest-bearing assets has a stimulating effect on consumption contributes to weakening the effects through the interest-rate channel because an interest-rate increase based on this assumptions means that income which stimulates consumption also increases. However, about half of the household sector's interest-bearing assets consists of claims on insurance companies, and it may be argued that the return on this portion of household assets in the short run does not stimulate consumption to the same extent as the return on bank deposits, etc. In the quantification of KVARTS, however, little evidence has been found to support this, and return on insurance claims is therefore considered to have a stimulating effect on consumption on a par with other interest income and expenditure. In the light of the uncertainty associated with the quantification of macroeconomic models, we present below the results of
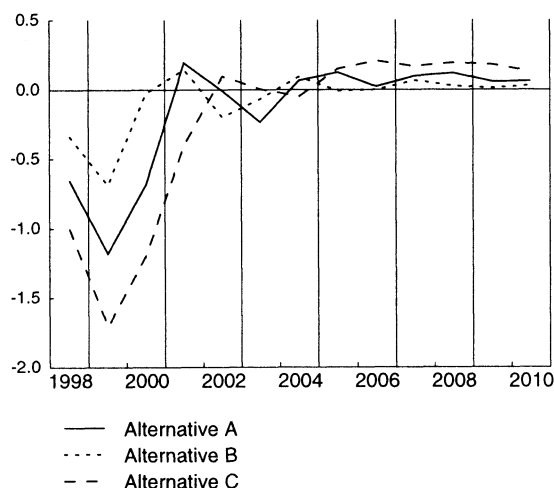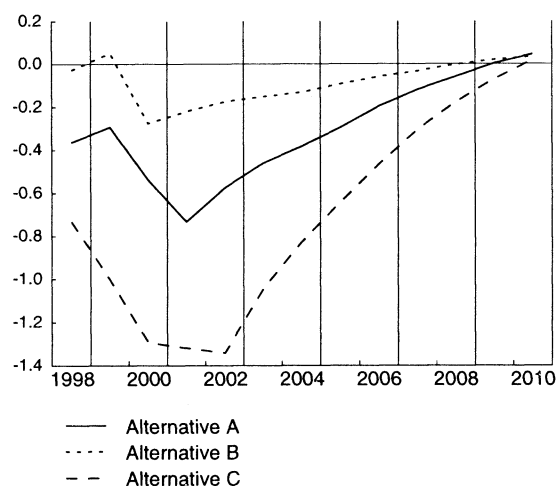
a sensitivity analysis in which we have assumed that the return on insurance claims does not have the effect of stimulating demand.[13]

Table 4 presents the result for some of the main aggregates. Seen as a whole, the effect on private consumption in the first three years is 50 per cent stronger than when the return on insurance claims is assumed to stimulate consumption. As a result, the effects on mainland GDP are also noticeably stronger. Manufacturing output is also more severely affected than when the return on all interest-bearing assets is considered to have a stimulating effect on consumption, and unemployment rises slightly more. The effect on the consumer price index, however, is the same in the two calculations. This is because it is the change in the exchange rate which generates the strongest price impetus, and this change is assumed to be independent of whether or not the

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13 As an hypothesis about behaviour in the long term, however, this assumption seems unreasonable. Sooner or later the return must be paid, and it is difficult to understand why it should not then stimulate demand. The assumption may, however, be of interest as a basis for short-term sensitivity analysis.

Figure 9: Effect on mainland GDP in per cent

— Monetary policy tightening
- - - - Fiscal policy tightening
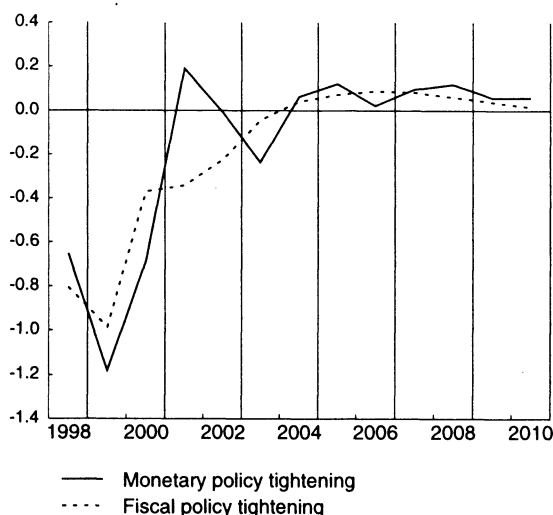
Figure 10: Effect on manufacturing industry's value added in per cent

— Monetary policy tightening
- - - - Fiscal policy tightening
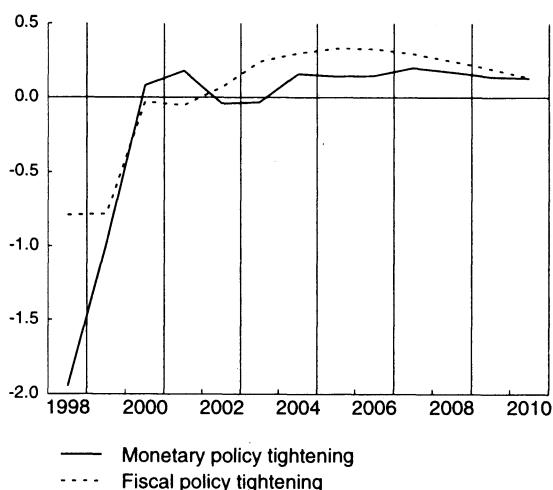
Figure 11: Effect on unemployment rate in percentage point

— Monetary policy tightening
- - - - Fiscal policy tightening
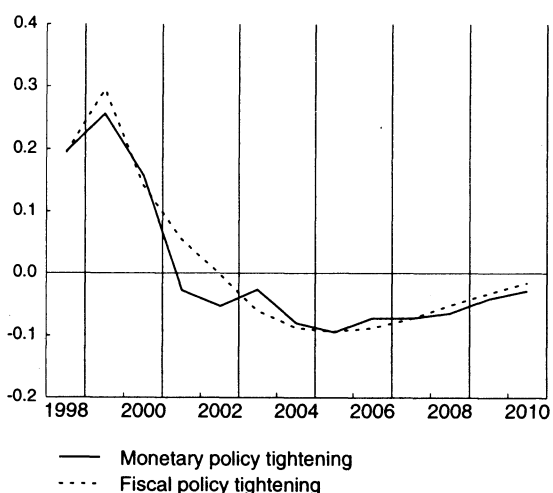
return on households' insurance claims is considered a demand-stimulating factor.

3.4. Alternative monetary policy tightening

Under our assumption of uncovered interest parity (*ex post*), the relative strength of the interest-rate channel and the exchange-rate channel depends not only on how the interest rate (and for that matter the exchange rate) affects the economy, but also on the duration of the tightening. In order to illustrate this, we have made two additional calculations. In the first (scenario B) we consider a situation in which the interest rate is 2 percentage points higher than the level in the baseline scenario for one year, and the immediate appreciation is 2 per cent. In the second (scenario C) we assume that the interest rate is 2 percentage points higher than in the baseline scenario for three years, and that the immediate appreciation is 6 per cent. In these two calculations we also assume that the exchange rate returns to the level in the baseline scenario at the end of the period of tightening. The effect on some main aggregates is illustrated in tables 5 and 6.

As we see in tables 3, 5 and 6 and figures 7 and 8, the effects of a 2 percentage point interest-rate increase are very different depending on whether the expected duration is one, two or three years. A tripling of the length of the period from one to three years results in a threefold increase in the contractionary first-year effect on activity in mainland Norway, while the effect on manufacturing industry is quadrupled. With a one-year period of tightening the effects on the consumer price index are not seen until the third year. On the other hand, a period of tightening which lasts three years has strong effects on the consumer price index as early as the first year.

If the effects of a tightening of monetary policy on the economy are so dependent on the duration of the tightening as our calculations indicate, they also illustrate the importance of a clear (and understood) monetary policy objective. The authorities can increase the interest rate, but they cannot in advance commit themselves to maintaining a high interest rate for a specific period. The immediate impact on the exchange rate will thus depend on exchange-market participants' expectations concerning the duration of the policy, irrespective of whether such perceptions later prove to be correct or not. As an extreme, let us consider a situation where the interest-rate increase is expected to be short-lived. In this case the exchange rate within our framework will for practical purposes not change. As the opposite extreme, expectations that an interest-rate increase will extend over a longer period will result in an immediate and strong strengthening of the exchange rate. A number of other variants can be constructed between these two extremes. Moreover, it is quite possible that market participants' expectations change over time, for example if after a period they are seen as incorrect. Such changes may – but not necessarily – translate into repeated changes in the exchange rate. Lacking well confirmed alternatives, however, it may appear most productive to discuss the effects of a

tightening of monetary policy based on the assumption that market participants are not mistaken as we have assumed in this analysis.

4. Contractionary fiscal policy as an alternative to monetary policy tightening

In the above we have looked at some possible effects of a tightening of monetary policy. The evaluation of a policy measure, however, depends not only on the effects of the measure but also on what the authorities can achieve in other ways. A relevant alternative may be a tightening of fiscal policy. This tightening, however, can also be designed in many ways, and the effect will largely depend on the precise formulation of the measure. If the primary aim is to reduce pressures in the labour market, this can be done by reducing public sector demand in areas where the shortages are greatest. If the aim is to improve public sector balances and the current-account balance, one can cut back on the use of material inputs and capital goods that are primarily produced abroad (for example, cars, aircraft and PCs). If the aim is to influence the composition of consumption, the authorities can change excise duties, taxes and transfers. The composition of production can also be influenced through the composition of public sector investment and material input demand. In practice, however, this is not always so simple inasmuch as the use of instruments cannot be solely based on stabilization policy considerations.

Even though the effects of fiscal policy tightening depend on how this is implemented, there are some clear, shared features. Within a fixed exchange-rate regime there will by definition be no effects from a change in the exchange rate, and the interest-rate change which is necessary to maintain a stable exchange rate will probably be marginal for relevant measures. This implies that a comparison of monetary policy tightening and fiscal policy tightening may be of interest, even though the exact design of the alternatives compared may always be considered somewhat arbitrary.

4.1. Effects of fiscal policy tightening in 1998 and 1999

In the following we present the model-estimated effects of one possible fiscal policy tightening, notably a reduction in public sector construction investment of NKr 8 billion (1993 prices) in 1998 and 1999, which corresponds to about 1.0 per cent of mainland GDP. In 2000, this investment returns to the level in the baseline scenario. The calculations are scaled in such a way that the tightening in the first two years has about the same effect on the level of activity in the economy as the tightening of monetary policy described as scenario A. Some of the results from these calculations are shown in table 7 and in figures 9 to 13.

The first-order effects of this fiscal policy tightening is that pressure in the construction sector is reduced. Employment and wages decline compared with the level in the baseline scenario, and household income and demand are thereby

Table 7. Effects of fiscal policy tightening in the form of a reduction of NKr 8 billion (1993 prices) in the level of public sector construction investment in 1998 and 1999. Percentage deviation from the baseline scenario unless otherwise indicated

	1998	1999	2000
Private consumption	-0.3	-0.6	-0.7
Mainland investment	-5.4	-6.5	-1.8
Exports	0.0	0.1	0.2
Imports	-1.0	-1.4	-0.7
Mainland GDP	-0.8	-1.0	-0.4
Manufacturing	-0.8	-0.8	0.0
Unemployment rate (difference in p.p.)	0.2	0.3	0.1
Average hourly wages	-0.2	-0.6	-0.9
Consumer price index	0.0	-0.2	-0.4
Current-account balance (diff. in bill. NKr)	3.7	5.8	4.0

Figure 12: Effect on consumer price index in per cent

— Monetary policy tightening
---- Fiscal policy tightening
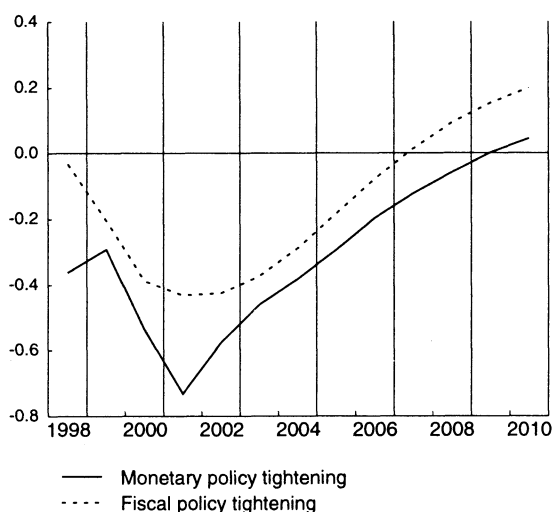
Figure 13: Effect on average hourly wages in percent

— Monetary policy tightening
---- Fiscal policy tightening
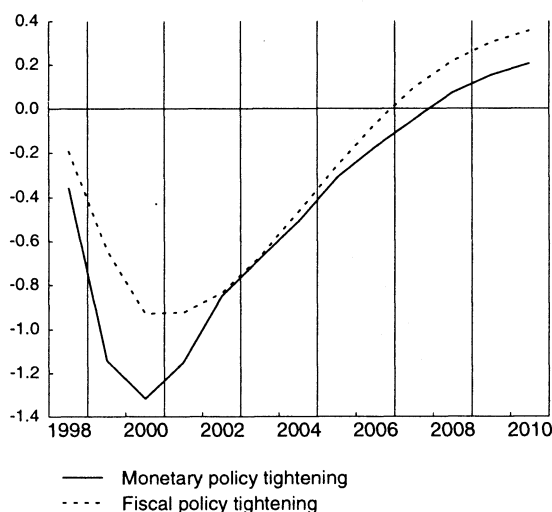
Figure 14. Nominal effective exch. rates 1963-97 1)
Indices 1963=100

— - — US   — — United Kingdom
- - - - Germany   —— Norway
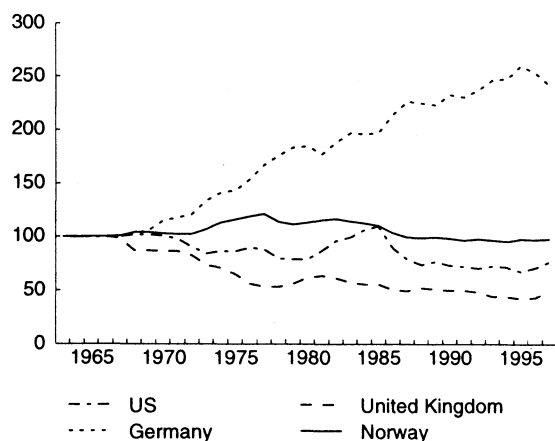
1) The Bretton-Woods system finally collapsed in 1973.
Source: IMF and Norges Bank.

Figure 15. Nominal effective exch. rates 1991-98 1)
Indices 1991=100

—— United Kingdom   — — Norway
- - - - Sweden
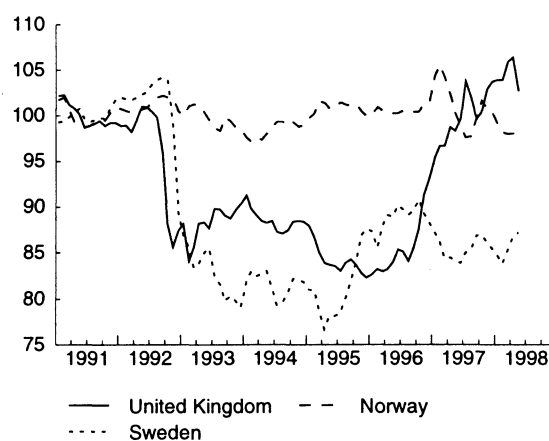
1) Both £ and S.kr. were floated in the autumn of 1992.
Source: IMF and Norges Bank.

reduced. A slight improvement in cost competitiveness results in a moderate rise in production in some export industries, while the reduction in domestic demand also leads to an overall decline in the business sector's investment demand.

Growth in private consumption is reduced in the first three years by an average 0.3 percentage point per year. This trend is then reversed, and towards the end of the period private consumption is 0.2 per cent higher than the level in the baseline scenario. As a result of the immediate impact on construction activity, mainland GDP is as much as 0.8 per cent lower than in the baseline scenario as early as the first year. In line with a gradually stronger effect on household demand, as well as business fixed investment, the effect on mainland GDP in the second year reaches 1.0 per cent. From the third year there is no direct impetus from economic policy and the reduction in the level of activity gradually slows. In the last six years mainland GDP is slightly higher than in the baseline scenario.

Wage growth is reduced by about 0.3 percentage point per year in the first three years, and hourly wages then remain approximately unchanged the next two years. Inflation declines at a slower pace and by a smaller margin, with a reduced rise in the consumer price index of 0.2 percentage point in the second and third years. The consumer price index remains 0.4 per cent lower than in the baseline scenario in the following three years before the effects gradually peter out.

4.2. Comparison of monetary policy - fiscal policy

As noted, the calculations showing fiscal policy effects are scaled in such a way that the effect on mainland GDP in the first two years combined is approximately the same as in scenario A with monetary policy tightening. In the following we look more closely at similarities and differences between the results of these two calculations.

Fiscal policy tightening has a slightly faster impact on the level of activity than monetary policy tightening. The first-year effect on mainland GDP of the stipulated reduction in public sector investment demand is 82 per cent of the effect in the second year, while in the case of monetary policy tightening the corresponding figure is 55 per cent. With monetary policy tightening the interest-rate increase entails that the effect on the level of activity in the third year is greater than the effect of a reduction in public sector investment. Based on these aspects fiscal policy may be considered a more precise cyclical regulator as it has a faster impact and the impact is of a more limited duration. This conclusion will apply to all three monetary policy tightening scenarios.

Using unemployment as a starting point, the results above can to some extent be turned around. The first-year effect on unemployment is 66 per cent of the second-year effect for fiscal policy tightening, but as much as 77 per cent for monetary policy tightening. With regard to the relationship between the first- and second-year effects on unemployment, the monetary policy alternative being studied plays an important role; the situation for scenario B is identical to that of fiscal policy tightening.

Whereas monetary policy has an effect on inflation the very first year, the consumer price index is not affected until the second year in the case of fiscal policy tightening. Even though the interest-rate effect on house rents entails that with monetary policy tightening inflation in the second year is slightly higher than in the baseline scenario, the combined effect on inflation is greater than with fiscal policy tightening both in the first two and first three years combined.

The effect on wages of the two tightening methods has the same profile the first two years, but the effects of monetary policy tightening are approximately twice as great. In the third year the effect on wage growth with the shift in monetary policy is virtually exhausted, while it continues with

fiscal policy tightening. In subsequent years the effect of the shift in fiscal policy is definitely the most lasting.

Tightening with the help of fiscal and monetary policy has different consequences for the composition of industries. The appreciation of the krone in the case of monetary policy tightening reduces activity in sectors exposed to competition. The cutbacks in public sector investment, on the other hand, primarily affect construction activity and other sheltered industries. As an indication of this, the reduction in value added in manufacturing industry[14] in the two years of tightening is 80 per cent greater with a tightening of monetary policy than with a reduction in public sector investment.

5. Concluding remarks

Monetary policy tightening has an effect on the economy through two channels, an interest-rate channel and an exchange-rate channel. If the exchange rate moves in line with the theory of uncovered interest parity, the relative strength of the two channels will depend on the duration of monetary policy tightening. The longer the interest rate is kept high, the stronger the effect on the exchange rate will be, and thus also the effect on prices, wages and the level of activity.

Fiscal policy tightening, on the other hand, can normally be implemented without having an effect on the exchange rate, and this has an influence on the relative effects of comparable monetary and fiscal policy tightening.

Our illustration of fiscal policy tightening is constructed in such a way that the effect on mainland GDP is approximately the same as with the monetary policy tightening being compared. Without an impact on the exchange rate, the effects on prices, wages and manufacturing output will be less than with monetary policy tightening, while the effects on unemployment are moderately stronger. If the primary concern is price inflation, it may thus appear that monetary policy is a more effective instrument than fiscal policy because a given inflation effect can be achieved with a smaller reduction in mainland GDP. However, the tightening will have a greater adverse effect on industries exposed to competition compared with the use of fiscal policy instruments. If the tighter policy is based on a desire to shield exposed sectors from an accelerating rise in wages and costs, this may appear paradoxical.

In the calculations in this article, we have assumed that an interest-rate increase will represent a breach with the fixed exchange-rate policy. We have argued that this tightening should be accompanied by a new monetary policy objective because this can contribute to influencing the formation of expectations. There are a number of countries among Norway's main trading partners that have established an inflation target for the conduct of monetary poli-

cy. Such a reorientation of monetary policy raises a number of questions which have not been answered here.

First, there is reason to believe that a shift from a "fixed" to floating exchange rate will result in greater fluctuations in nominal exchange rates. The experiences of other countries suggest this, as illustrated in figures 14 and 15. It is not obvious that the description of the behaviour in other parts of the Norwegian economy will be autonomous to such a change. The question is probably particularly relevant for the description of investment behaviour and for the link between the exchange rate and import prices. It is also conceivable, however, that a more active use of the interest rate for stabilization purposes will result in a greater proportion of fixed-rate loans, thereby weakening the relationship between household demand and money market rates. Moreover, it should be borne in mind that a revision of the monetary policy framework can result in changes in wage determination, and perhaps also contribute to weaker government budget discipline. It is only by finding answers to these questions that it will be possible to carry out a thorough quantitative analysis of the consequences of a change in the monetary policy regime. Such an analysis should, on an empirical basis, attempt to estimate how the Norwegian economy might react to different "shocks" with alternative monetary policy targets, as an extension of Rødseth (1996) and other theoretical analyses in this area.

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14 Manufacturing industry as a whole has substantial deliveries to the domestic market. Tightening measures which entail reduced cost competitiveness may therefore affect "pure" export industries far more severely than manufacturing industry on average.

Norwegian national accounts

Status in terms of quality and contents after the introduction of new international standards and the latest general revision

Erling Joar Fløttum

Following the introduction of the new international standards of national accounts and the completion of the general revision of national accounts in 1995 - 1997, the quality as well as the contents of the Norwegian national accounts have been increased and extended. The EU Commission recently concluded that the Norwegian national accounts are of a high quality, soundly based on reliable and exhaustive sources, integrated in a system with a detailed product breakdown. A study by the United Nations on national accounts of nearly 200 countries, suggests that we are among the better-off countries. The EEA treaty sets specific requirements to the Norwegian national accounts, i.e. all EEA-countries are committed to adopt the international standard of ESA 1995 in the context of reporting such figures from 1999 onwards. Norway was the first country to implement ESA 1995; for us the challenges in the years to come are rather to improve the underlying basic statistics than to eliminate further gaps in the national accounts as such.

Introduction

This article evaluates the Norwegian national accounts following the publication of revised national accounts by Statistics Norway for the 20 year period of 1978-1997. It has been initiated from the evaluation of the Norwegian national accounts recently carried out by Eurostat (the Statistical Office of the European Communities) / EU Commission. This is part of a project - included in the statistical co-operation work laid down in the EEA treaty - to secure a high quality to the ESA-based national accounts estimates. In addition, a United Nations study of nearly 200 countries is referred to, trying to categorize separate levels in the development of the national accounts. The last part of the article gives a structured summary on the status of the various parts of the Norwegian national accounts, with the latest accomplishments and plans for further improvements in the years to come.

Basically, the principles adopted in the present Norwegian national accounts are those reflected in the new international standards of national accounts – SNA (System of National Accounts) 1993 and ESA (European System of Accounts) 1995. SNA 1993 has the widest scope of the two, including also satellite accounts, while ESA 1995 on the other hand is designed more precisely towards the explicit uses of the developed countries. The two standards have common definitions, but differences in presentation means that they complement each other as guidance to national accounting.

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Evaluation of the Norwegian national accounts by EU/Eurostat

Reporting, documentation and evaluation

EU Commission and Eurostat aim at securing the quality of the national accounts estimates that are regularly reported by the National Statistical Institutes (Statistics Norway among them). One effort has been to demand strong requirements for the documentation of gross domestic product (GDP) and gross national income (GNI), the latter also named GNP after the old terminology. Member States already at the end of the 1980s were asked to initiate this kind of work. In a socalled «Inventory» for the GDP-/GNI-calculations, each country was supposed to document and illustrate their calculations in a detailed way.

For Norway, the Inventory documentation was completed in the Spring 1996. Shortly after having submitted the final report to Eurostat, it was published by Statistics Norway in the series Documents, see Fløttum (1996a) og 1996b).

The procedure for treatment of the country Inventory reports has been through the presentation and discussion of summary evaluation reports - written by Eurostat (EU Commission) - for the GNP Management Committee in Eurostat. In these reports, the compilation and methods used for the calculation of GDP and GNI at current prices of the respective countries are evaluated. Normally, EU Commission as a consequence of the evaluation stipulates certain reservations to the estimates, in areas that are not sufficiently satisfactory and need improvements. Bilaterally, a plan for improving the present calculations is drawn up for each country involved so as to make it possible to lift the reservations as soon as warranted. The reservations are three-

fold: some are specific to the country, some are transversal, and some are aimed at improving exhaustiveness. There are also specific proposals made for a better and more standardized treatment in particular and difficult areas, such as the treatment of production in construction and wholesale and retail trade.

Evaluation of the quality of the Norwegian national accounts made by Eurostat

Eurostat completed the evaluation report on the Norwegian GDP and GNI calculations in November 1997, and the report was discussed one month later. The evaluation report is relatively short, while at the same time highly positive, see Eurostat (1997). The Commission did not find it appropriate to stipulate any specific reservations for Norway. The transversal cases and the efforts for improved exhaustiveness are however relevant also for Norway, committed as we are to the EEA treaty.

The report starts with a general description of the national accounts in Norway, on the use of the different approaches - the production or output method, the expenditure method and the income method - which are all used to determine

GDP, integrated in detailed supply and use tables (input-output framework). Then the transition from GDP to GNI is described, and the transversal cases, as well as a presentation of the main results from our general revision and implementation of ESA 1995, as the first country in Europe. Throughout the report, Eurostat refers to strong as well as weak parts of the calculations, although the evaluation is mainly summarized in the concluding remarks at the end.

The conclusions start with reference to our strong traditions in production statistics and use of the input-output framework (see box, note 1). Our recent attention in improving on the service activities has been appreciated (note 2). Although estimates related to services can still be regarded as weaker than those related to goods, Eurostat finds that many adjustments have been made to improve exhaustiveness (note 3). Adjustments for hidden activities are however pending on two reports still in progress (note 4). The report mentions some minor issues where Norway could improve (note 5). One such area is changes in inventories. We have ourselves considered this to be a vulnerable area, in calculations which we find hard to verify from just fragmentary information at our disposal. Issues concerning specific features have been introduced, but need more atten-

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Conclusions on quality evaluation of the Norwegian national accounts made by EU/Eurostat

1) "The Norwegian National Accounts have always been very much focused on the real economy, i.e. the flows of goods. This is evidenced by the high quality of manufacturing statistics, oil and gas activity statistics and transport statistics. Also, the importance of the commodity flow method (and the early introduction of supply and use tables) can be explained from this background."

2) "Of course, the focus now had to change in the direction of services. This changing attention can be seen from the increasing coverage of service activities in the Register and the development of new sources such as business service statistics and surveys on trade margins. Also, it is shown clearly in the large increases in output, value added and gross fixed capital formation of services industries in the general revision of 1995."

3) "Nevertheless, the estimates related to services can still be regarded as weaker than those related to goods, in particuar regarding exhaustiveness. This does not mean that GNP of Norway will be grossly underestimated. On the contrary, many adjustments to improve exhaustiveness in all parts of the system are made, and the detailed balancing procedure provides a valuable check on the estimates."

4) "Although no explicit adjustments for hidden activities are made, it cannot be expected that this would affect GNP to a large extent. A definitive view on the exhaustiveness of Norwegian GNP can only be given after study of the yet to be received reports on the validation of employment underlying GNP and the use of fiscal audit data."

5) "This report mentions some minor issues where Norway could improve. This concerns a few estimates, such as intermediate consumption of the trade industry, changes in inventories and tips."

6) "Other issues concern specific features of ESA95 which are yet to be developed, such as valuables and intangible assets."

7) "Furthermore, in the section on transversal themes some issues are mentioned where either Eurostat does not yet have full information or the treatment can possibly be improved. This concerns for example the treatment of undertakings for collective investment, the treshold for durable goods of small value, some issues on financial institutions, the treatment of government and private non-profit institutions and the calculation of imputed rents on owner-occupied dwellings."

8) "As far as the sytem of accounts is concerned, the use of the income approach can be improved. A full integration of the institutional sector accounts would strengthen the system."

9) "As said, these are all minor issues of which only a small impact on GNP can be expected. Overall, the Norwegian National Accounts are of a high quality, soundly based on reliable and exhaustive sources, integrated in a system with a detailed product breakdown."

tion in further steps (note 6), a strategy to which we also agree. There are minor points in the transversal themes that claim attention as well (note 7). Although all three approaches are utilized to calculate GDP, the production approach and the expenditure approach are the ones which mainly set the tone. On the third approach – the income approach – the reports says it can be improved and that a full integration of the institutional accounts would strengthen the system (note 8), with which we fully agree.

In the last paragraph, the main conclusion is given (note 9), already referred to in the beginning.

Evaluation of the national accounts by United Nations

United Nations' scheme for evaluating status

United Nations Statistics Division (UNSD) has prepared an appropriate tool for monitoring progress in the implementation of SNA 1993. This is presented in a background document for the UN Statistical Commission on milestone assessment of Member States. It includes a scheme or description on the methodology to arrive at a country milestone assessment, based on the UNSD (and OECD) database of national accounts. From this database, 26 key tables with data for the period 1990-1995 have been selected as relevant for the milestones. All 184 Member States are analysed and assigned a level from 1 to 6 depending on which milstone level a country has passed; or level 0 if no data are available, see United Nations (1997).

One problem with this approach has been under-reporting of national accounts information to UNSD. Some countries have elaborated more tables for their own publications than they report in the UNSD questionnaire. This even affected Norway. In the Norwegian case, the international questionnaire used for reporting was not yet adapted to a new situation that involved publishing national accounts estimates according to the new system. During an interim period until a revised questionnaire for the new system is developed and adopted, Statistics Norway did not put high priority to preparing revised detailed data of the new system to be reported in the format of the former questionnaire. As a consequence, a lower milestone level was assigned for Norway, than otherwise would have been in accordance with the actual situation.

Traditionally, we have considered the national accounts to consist of two main parts: the central framework on the real economy, and the institutional sector accounts. Experiences in Norway and other countries have shown that the institutional sector accounts need more time to be developed and implemented than is the case with the key figures of the central framework on the real economy. This fact is also reflected in the milestone assessment of the UN analytical scheme.

Milestone assessment in national accounts by countries

Globally, as many as 56 countries have not yet reached milestone level 1. These countries represent however just 7 per cent of the world population and contribute with 1.5 per cent to estimated world GDP. Approximately half of these countries are African, but also lilliputian States in Europe belong to this group and some of the Balkan States.

A requirement for milestone 1 are two sets of GDP tables, one by industry and one by final use, both at current and constant prices. Milestone 2 requires, in addition, main aggregates of the total economy and balance of payments data (both current and capital account). In the combined group of milestones 1 and 2 there are 101 countries, i.e. more than half of all countries. Nonetheless, they represent only one sixth of estimated world GDP. In a majority of the 9 UN Regions - when measured by GDP - this is the most typical milestone assessment found to characterize the status of national accounts today, i.e. in the 5 regions of Africa, Caribbean and Latin America, Western Asia, Eastern Europe and the Former USSR. Without Japan, the list would also have included Eastern, Southeastern and Southern Asia.

Above this level, there are only 27 countries remaining, but they represent one third of world population and as much as 82 per cent of estimated world GDP. Milestones 3 and 4 include 16 countries, while 11 countries are specially well-off at milestones 5 and 6. Additional requirements for milestone 3 are tables on general government and some tables on corporations and households. The borderline to milestone 4 is somewhat vague, but may involve more tables on corporations and households.

Norway is assessed for milestone 3 together with - inter alia - Austria, Iceland and Ireland, while countries like Belgium, Denmark, Italy, Spain and United Kingdom are at milestone 4.

Milestones 5 and 6 also require financial accounts and balance sheets for the institutional sectors. Norway has obtained balance sheets that cover both non-financial assets and financial assets, but lacks financial accounts (recording transactions) for a complete set of sectors. Further sectoral analysis on changes in asssets and liabilities in the national accounts and in the financial sectoral balance sheets, respectively, is needed first. United States and Canada are the only countries assigned milestone 6 in the UN scheme, while 9 countries have passed milestone 5; these are Finland, France, Germany, Netherlands, Portugal and Sweden, plus Australia, Ecuador and Japan outside Europe. In fact, Norway should have been listed among these.

United Nations admits their analysis is a simplified one which does not involve subjective judgements on the status of national accounts. Aspects of data quality are not taken into account, and other limitations to the procedure are pointed out. The quality aspect is however important in the

analysis and assessment of the GDP/GNI-calculations made by Eurostat, as already noted above.

A main point to be learned from the UN scheme is the big span between top and low among the countries' national accounts on global basis. If adjusting for the underreporting of detailed data in the period of analysis, we most probably would have found Norway in a position among the «top 10» as regards coverage of national accounts tables. This along with the Eurostat assessment might be regarded as a most outstanding sign of quality to the Norwegian GDP/GNI-calculations. It supports the favourable position that the Norwegian national accounts possess internationally today.

Further evaluations of the Norwegian national accounts

When lines for the future work on national accounts beyond the ordinary current tasks were drawn up in the early 1990s, two major tasks were put on the agenda: a general revision and the implementation of Revised SNA. These two development projects have been the important ones in the area of national accounts during the first half of the 1990s. A combined solution was sought, i.e. implementing the new international standards of national accounts (SNA 1993 and ESA 1995) within the framework of a general revision. It meant changes to concepts, nomenclatures and classifications as well. The quality of the estimates was improved by utilizing new and better primary statistics. Another sign of quality is the detailed approach, which continues to be one of the main attributes of the Norwegian national accounts.

ESA 1995, see Eurostat (1996), consists of 13 chapters that might also serve as a basis and framework for a short description and assessment of the Norwegian national accounts of today.

Chapter I General features

In the Norwegian national accounts, the distinction between the central framework for the real economy and the institutional sector accounts has been emphasized more than before, inter alia, through two separate annual NOS-publications, see Statistics Norway (1998a og 1998b). Recently, Statistics Norway has put higher priorities to labour accounts, quarterly accounts and regional accounts. Employment estimates as part of quarterly national accounts and annual summary national accounts by county are examples of this kind. Statistics Norway has always stressed the importance of harmonizing and standardizing concepts and classifications in the national accounts and balance of payments. This is now viewed in a wider perspective with the compilation of statistical standards for use in various fields, e.g. aggregated groupings of activities. In Norway, considerable experience has been gained on satellite accounts (e.g. on tourism) and more is expected to come.

Chapter II Units amd groupings of units

In Norway, enterprises and establishments (local kind of activity units) for a long time have been considered the most important statistical units. The new structural statistics which are based on enterprises will be supplemented by establishment-based data in order to satisfy the needs of the national accounts. The integration between the national accounts and the balance of payments has lately been even more strengthened. Statistics Norway has long emphasized strongly the distinction between the dual economies of Mainland-Norway and that of Norwegian oil and shipping activities, and will continue to do so.

When it comes to groupings of units which are aggregated to institutional sectors and to industries, Statistics Norway has applied as basis the institutional sector classification in SNA 1993 / ESA 1995 and the activity classification NACE Rev.1 in ESA 1995 (the latter coincides with ISIC Rev.3 at the aggregated level presented in SNA 1993). Certain aggregated versions of these basic classifications are used in the national accounts. The development of more sub-sectors are foreseen, in particular within the corporation sectors (distinction between national private and foreign-controlled corporations) and within the household sector (more variants of sub-groups for socio-economic groups, households by region, etc.).

Chapter III Transactions in products

This chapter describes the transactions of variables forming a dominating part of the central framework of the real economy, i.e. output, intermediate consumption, final consumption expenditure, gross capital formation, exports and imports. Despite long good traditions in Statistics Norway in this central part, there are some new features that need some time for implementation and to become visible. One such feature is the extended definition of gross capital formation to include a category of valuables. More important is the new treatment of computer software as gross fixed capital formation. Another main feature of the new SNA/ESA is the introduction of two main concepts of final consumption, i.e. actual final consumption as the new one besides the traditional concept of final consumption expenditure. Revised purpose classifications are to be published in 1998, to be implemented at a later stage. For the treatment of financial intermediation services indirectly measured (FISIM), the present method might still be prolonged for several years, although allocation of FISIM to the various uses - causing higher GDP - will emerge in due time.

Improved primary statistics are necessary before exhaustive data on gross capital formation for national accounts purposes according to new definitions could be included. The new principles are already implemented in the field of final consumption, inviting to a diversified and interesting supplementary picture of the structure of consumption. Distinction between market and non-market production has been given a prominent role in national accounts tables, while the former grouping into sheltered and export-oriented and import-competing industries has been downgraded

in search for other alternatives that could be interesting for analytical use.

Chapter IV Distributive transactions

This chapter include the various income accounts. Statistics Norway has made strong efforts to follow all principles in this wide area, both in terms of definitions, identifying proper accounts and further development. Challenges have been many: examples are investment grants no longer to be treated as subsidies (but capital transfers), and payments to household groups from general government now treated as government consumption expenditure while formerly private consumption expenditure. Figures on subsidies and social benefits are clearly affected form these definitional changes. Further large-scale development in this area of national accounts is not expected to take place, but smaller improvements might be needed.

Chapters V-VII Financial transactions, other flows and balance sheets

These chapters join the institutional sector accounts together through the balance sheets and changes in the balances sheets and deal with both non-financial and financial assets and liabilities. The non-financial assets part of the calculations is connected with the calculation of consumption of fixed capital as in the computing programme of Statistics Norway called BERKAP. In 1997, revised estimates for consumption of fixed capital and non-financial assets were published mainly following the same principal BERKAP approach as before, see Todsen (1997). In other non-financial assets, such as oil and natural gas reserves (as part of non-produced assets) and inventories, more independent calculations have been made, while regarded as kind of satellite accounting work in enlarged national accounts. To obtain a full picture of balance sheets and changes in balance sheets is a very ambitious and difficult task in the way it is defined in SNA/ESA. Hardly any country may be able to find good empirical solutions to this demanding pattern. Problematic for Norway is to obtain estimates on financial transactions, since the present approach used must involve indirect calculations (for the domestic sectors, not for the rest-of-the world sector) and would imply inter alia that revaluations must be determined. Much is still undone in this field. Sectoral financial balance sheets are however made according to long traditions in Statistics Norway.

Chapter VIII Sequence of accounts and balancing items

The chapter presents all the accounts in the central framework and shows how they connect all through the system of national accounts, from the production and income generation accounts through income distribution and use of income accounts, the accumulation accounts and to the balance sheets and changes in the balance sheet accounts. SAMs (Social Accounting Matrices) are also included in this framework. The notion of a total scheme has always been

considered important in the compilation work with national accounts in Statistics Norway, e.g. when in practice the national accounting scheme is drawn up in advance of the actual compilation work.

Chapter IX Input-output framework

The input-output framework in SNA 1993 og ESA 1995 consists of three types of tables, i.e. supply and use tables, tables linking the supply and use tables to the sector accounts, and symmetric input-output tables. The distinction between the first type as statistical tables and the third type as analytical or derived tables is made clear and direct in the new international standards of national accounts, influenced by countries like Norway from long traditions and successful experiences.

The supply and use tables are at the same time a central framework for the Norwegian calculations, particularly in annual national accounts, but also to in quarterly national accounts and national accounts by county. The table of links to the sector accounts should be developed during the next few years. There will always be a challenge for the Norwegian national accounts to retain the present profile of detailed supply and use tables. Detailed input-output framework is viewed as providing comprehensive statistical advantages, like in the estimations at constant prices, taxes on products on accruals basis, and for increased exhaustiveness, to mention some areas. More and more countries put supply and use tables higher on the agenda in order to improve on the quality aspects of national accounts. A complementary condition for such an improvement to take place surely is that primary statistics as such do not deteriorate. Methodically, the framework of product-oriented supply and use tables in Norway is a very suitable one, not least when also the CPA product classification – which is also used in ESA 1995 – has been introduced.

Chapter X Price and volume measures

The compilation of constant-price estimates is a very important part of national accounts. Price and volume measures including growth rates are obtained, and in order to ensure sufficient quality for these measures, several conditions should be fulfilled. These involve good estimates at current prices, good framework for the deflation procedure, good price or volume indicators, and furthermore, relevant methods for the treatment of new products. A central consideration has been to use weights that are fairly recent, i.e. introducing annual chaining technique by calculating estimates at previous year's prices. Two more issues have been more focussed on in the new international standards, the publication of real income estimates, and price and volume measures for inter-country comparisons.

In Norway, we have had a positive attitude towards these considerations on constant-price estimation. The detailed framework used for the current-price estimates compilation also has been the one used for the deflation into constant-price estimates. The annual chaining principle was intro-

duced already in 1990. To find most relevant indicators for the deflation procedure is still a demanding task, especially in the services area and for capital goods. Developing price statistics in these areas are considered a long-term task, not just for Norway but for virtually all countries. The same is true for the introduction of direct volume measures for government services. Statistics Norway has long experience in presenting real income estimates, and has participated in PPP (Purchasing Power Parities)-based calculations for improving the comparisons on GDP and other main aggregates between countries.

Chapter XI Population and labour inputs

Employment has been an area for which the ILO has taken the lead internationally. With SNA 1993 and ESA 1995, the ILO principles have been explicitly introduced into the national accounts. Not only is the variable employed persons entered into the national accounts tables, so have also full-time equivalent persons, number of jobs and total hours worked. In Norway, most of this is covered in the labour accounts developed some 10 years ago. We are therefore among very few countries that could analyse labour productivity based on national accounts data on total hours worked, which is the most relevant concept for labour inputs. To get a better grip on subsidiary jobs is a challenge for Statistics Norway in future, so as to estimate number of jobs properly. It has been considered important to start publishing quarterly labour accounts estimates.

Chapter XII Quarterly national accounts

A separate chapter on quarterly national accounts has been introduced in the ESA, to be supplemented by a handbook scheduled for publication in 1998. That handbook will give more detailed guidelines for such calculations. Statistics Norway has compiled quarterly national accouts data over several time periods, and since mid-1980s in close cooperation with the economic modelling work in Statistics Norway. Use of quarterly national accounts data has increased over the years, essential for analysing and forecasting current business cycle trends. Further development is envisaged in the fields of employment and compensation of employees, and more comprehensive income accounts should be developed, including household income and saving.

Chapter XIII Regional national accounts

ESA has also introduced a separate chapter on regional national accounts. It is essential for treating the regional aspects involved in political issues and sizeable measures allocated through the regional structural funds of the EU. Annual summary calculations have been initiated as well, and with a breakdown on different regional groupings. In Statistics Norway, traditions have been more closely directed at detailed input-output estimates by county for the purpose of providing relevant data for the preparation of regional plans by the county authorities. Such accounting data have normally been published by Statistics Norway

every 3 or 4 years, most recently for 1993. Summary accounts according to the ESA Directive are to be published for the years 1995 and 1996. Final consumption estimates are expected to be improved in quality, as more resources are put on providing regional household income estimates.

Other areas of development

Satellite accounting work on the Norwegian economic and environment accounts (NOREEA) project was initiated in 1997, also incorporating calculations on the size of oil and gas reserves as an integrated part, see Hass og Sørensen (1997). Another important satellite is tourism, an area into which Statistics Norway has played a role internationally and also published a report on the economic importance of tourism in Norway. Still another area is health.

Revised national accounts series according to the new standards were published in 1997 back to 1978 and will be carried further back to 1962. In addition, work on historical national accounts is planned and connected to a Nordic project on harmonizing the methods used to compile such accounts. The plan involve revised series for the national accounts as far back as 1830.

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New titles

Social and Economic Studies

Knut Einar Rosendahl (ed.):
Social Costs of Air Pollution and Fossil Fuel Use – A Macroeconomic Approach
SES 99, 1998. pp 147.
ISBN 82-537-4542-7
Economic activity and environmental conditions are related to each other in several ways. Production and consumption may pollute the environment, and at the same time the state of the environment may affect the production capacity of the economy. Thus, it follows that studying social costs of air pollution should be handled within an integrated model. Moreover, air pollution mostly stems from the use of fossil fuels, which also brings about other non-environmental externalities, particularly in the transport sector. It is therefore topical to include these externalities in a full social costs evaluation.

In this book we are concerned with social costs on a national level, although the environmental effects are evaluated on a more local level. We apply a general equilibrium model of the Norwegian economy, which is extended to integrate environmental and non-environmental effects of fossil fuel use. Moreover, the model includes feedback effects from the environment to the economy. In four independent studies, selected environmental and non-environmental externalities are analysed within this model. These are material damages, crop damages and health damages from air pollution, and finally health damages from traffic accidents.

Discussion Papers

Tor Jakob Klette and Jarle Møen:
From Growth Theory to Technology Policy - Coordination Problems in Theory and Practice
DP no. 219, 1998. pp 48.

Economists, in particular Bresnahan and Trajtenberg (1995), have recently drawn attention to the importance of generic or general purpose technologies (GPTs) and their significance for economic growth. An interesting part of this research identifies coordination problems in the introduc-

tion of GPTs, and the potentially large benefits in coordination research and product development. Thinking about information technology as a GPT, with the associated coordination problems, seems to fit well with the motivation behind governmental support schemes to IT and related high-tech industries in Norway. The first part of our study focuses on a series of such IT-programs that have been implemented in Norway from the early 1980s, with the objective of coordinating the development of information technology and its application throughout the economy. We examine in some detail the largest of these IT-programs through its planning and implementation stages and emphasize how closely it is connected to recent economic analysis of GPTs. The second part of our study examines to what extent these governmental plans and subsidy schemes have been successful in creating economic results in terms of growth and profits in the IT and IT-related industries. In the final part of the paper we discuss some of the lessons about the problems with technology policy at a practical level.

Rolf Aaberge and Yu Zhu:
The Pattern of Household Savings during a Hyperinflation. The Case of Urban China in the Late 1980s
DP no. 217, 1998. pp 30.

This paper presents evidence on household savings in urban regions of the Chinese provinces Sichuan and Liaoning based on data from the State Statistical Bureau's Urban Household Survey for the late 1980s. In this period the Chinese economy was subject to extensive reforms that resulted in rapid economic growth followed by extremely high inflation rates in 1988 and 1989. The high inflation rates gave the households strong motives to switch from financial savings to purchase of consumer durables, which also appear to be consistent with the structure of the observed data. By providing empirical evidence on the relative importance of savings by lower, middle and upper income groups for single-child families and for all households, this study also demonstrates that the savings decisions depend heavily on the level of household income. Single-child families are focused, not only because of its growing dominance in the current

Chinese society, but also to control for the effect of demographic disparities.

Hilde Christiane Bjørnland:
Economic Fluctuations in a Small Open Economy - Real versus Nominal Shocks
DP no. 215, 1998. pp 44.

This paper analyses the role of real and nominal shocks in explaining business cycles in a small open economy like that of Norway. In particular, we study the sources behind real exchange rate fluctuations since the collapse of the Bretton Woods agreement. Imposing long run restrictions implied by economic theory on a structural vector autoregression (VAR) model containing GDP, unemployment (or price), real wage and the real exchange rate, four structural shocks are identified; Velocity (or monetary), fiscal, productivity and labour supply shocks. The model is also augmented to allow for oil price shocks. The identified shocks and their impulse responses are consistent with an open economy (Keynesian) model of economic fluctuations, and highlights the exchange rate as a transmission mechanism in a small open and energy based economy. Especially, I have found a plausible sequence of shocks (productivity shocks in the 1970s, velocity shocks in the mid-1980s, productivity and labour supply shocks in the late 1980s, and velocity and fiscal shocks in the early 1990s), which help to explain the evolution of GDP, unemployment, price, real wage and the real exchange rate. The results are robust to alternative specifications of the model and are stable over the sample.

Torbjørn Eika and Knut A. Magnussen:
Did Norway Gain from the 1979-85 Oil Price Shock?
DP no. 210, 1998. pp 40.

Macroeconomic effects of the high oil prices in the period 1979-85 for the Norwegian economy are considered. An alternative low oil price scenario is developed and effects of the oil shock are calculated as the deviation between actual history and the counterfactual base. International effects based on a world model are fed into a domestic model to analyse consequences for the Norwegian economy. Without imposing any changes in fiscal policies, negative effects from lower foreign demand and higher interest rates are domina-

ting. However, as a major oil exporting country, we argue that the high oil prices spurred a substantial increase in Norwegian public spending. Effects of a more expansionary fiscal policy, based on a relatively conservative spending strategy, are shown to more than outweigh the negative initial impact on GDP. Possible outcomes for the business cycle development are also studied.

Documents

Ådne Cappelen, Robin Choudhury, Per Richard Johansen and Knut A. Magnussen:
The Selection Model of Saudi Arabia. Revised Version 1998
Documents 98/6, 1998. pp 73.

The Selection Model was developed by the Research Department of Statistics Norway for the Ministry of Planning of Saudi Arabia under a contract with United Nations. This report gives a documentation of a revised version of the model, which is part of a system of macroeconomic models, designed to be used in the preparation and monitoring of Development Plans. The Selection Model belongs to the class of computable general equilibrium models, and includes an input-output core. The report gives a complete documentation of the equations of the model. Main elements of the model is illuminated in commented graphs. The report also comprises an application of the model in the study of consequences of Saudi Arabian membership in WTO.

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Reprints no. 116, 1998. pp 7.

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Appendix

List of tables

NATIONAL ACCOUNTS FOR NORWAY

Table A1. Final expenditure and gross domestic product. At current prices. Million kroner

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Final consumption exp. of househ. and NPISHs	458 492	486 677	515 747	118 095	125 509	131 995	140 149	125 740
Household final consumption expenditure . . .	435 247	462 620	490 949	112 011	119 372	125 730	133 836	119 469
Goods.	246 431	262 815	279 573	62 460	67 225	69 282	80 607	66 166
Services	185 786	195 547	205 819	48 970	51 125	54 743	50 981	52 293
Direct purchases abroad by resident househ.	18 004	19 479	21 359	3 758	4 948	7 479	5 174	4 227
- Direct purchases by non-residents.	-14 974	-15 221	-15 802	-3 177	-3 926	-5 774	-2 925	-3 216
Final consumption exp. of NPISHs 4).	23 245	24 058	24 798	6 083	6 137	6 265	6 313	6 271
Final consumption exp. of general government .	194 525	206 871	218 811	53 437	54 199	55 370	55 804	56 798
Final consumption exp. of central government.	77 598	82 432	86 585	21 179	21 425	21 874	22 108	22 288
Central government, civilian	56 863	60 364	63 039	15 424	15 599	15 926	16 091	16 194
Central government, defence	20 735	22 068	23 546	5 755	5 826	5 948	6 017	6 094
Final consumption exp. of local government. . .	116 927	124 439	132 225	32 258	32 775	33 496	33 696	34 510
Gross fixed capital formation	192 518	216 502	249 931	54 414	62 134	62 632	70 750	61 892
Petroleum activities.	47 940	50 291	61 382	12 798	16 794	15 112	16 678	16 485
Ocean transport.	3 733	6 222	11 168	3 172	2 583	3 220	2 193	3 404
Mainland-Norway	140 845	159 990	177 380	38 445	42 757	44 300	51 879	42 002
Mainland-Norway excl. general government .	110 962	128 252	141 327	29 980	34 213	35 792	41 342	33 058
Manufacturing and mining.	15 695	17 431	18 582	3 341	4 828	4 442	5 971	3 748
Production of other goods.	13 282	12 938	13 146	2 266	3 645	3 702	3 533	2 428
Dwelling services.	26 461	26 921	30 151	6 922	7 331	7 742	8 156	7 792
Other services	55 524	70 962	79 448	17 450	18 410	19 906	23 681	19 090
General government	29 883	31 738	36 053	8 465	8 544	8 508	10 537	8 945
Changes in stocks and stat. discrepancies . . .	27 438	22 221	23 741	7 696	7 189	4 219	4 637	15 015
Gross capital formation	219 956	238 724	273 672	62 111	69 324	66 850	75 387	76 906
Final domestic use of goods and services	872 973	932 272	1 008 230	233 643	249 032	254 215	271 340	259 444
Final demand from Mainland-Norway 2)	793 862	853 539	911 938	209 977	222 465	231 664	247 832	224 540
Final demand from general government 3) . . .	224 408	238 609	254 864	61 902	62 743	63 878	66 341	65 742
Total exports	353 426	414 266	447 582	108 757	109 975	114 189	114 660	108 260
Traditional goods	143 424	155 854	169 280	39 355	42 386	42 324	45 214	46 227
Crude oil and natural gas.	113 231	156 688	163 674	42 598	38 947	40 220	41 909	34 287
Ships and oil platforms	10 579	9 163	10 761	3 207	2 735	2 482	2 337	1 609
Services	86 192	92 561	103 867	23 597	25 907	29 163	25 200	26 137
Total use of goods and services	1 226 399	1 346 538	1 455 812	342 400	359 007	368 404	386 000	367 704
Total imports	297 654	326 487	371 024	82 019	93 518	96 268	99 219	98 142
Traditional goods	202 858	223 411	239 895	53 371	60 482	59 328	66 714	65 706
Crude oil	1 121	1 445	1 517	436	322	413	346	455
Ships and oil platforms	12 920	17 656	26 011	7 405	7 146	6 458	5 002	6 626
Services	80 755	83 975	103 601	20 807	25 568	30 069	27 157	25 355
Gross domestic product 1).	928 745	1 020 051	1 084 788	260 381	265 489	272 136	286 781	269 562
Mainland-Norway (market prices).	790 070	834 998	890 883	210 132	218 799	224 977	236 975	228 828
Petroleum activities and ocean transport	138 675	185 053	193 904	50 249	46 690	47 159	49 806	40 734
Mainland-Norway (basic prices)	692 392	726 316	776 750	186 285	190 842	194 484	205 139	201 063
Mainland-Norway excl. general government. .	545 789	569 150	609 937	145 518	149 616	152 306	162 498	157 598
Manufacturing and mining	112 928	115 414	122 689	29 238	31 812	28 575	33 064	33 384
Production of other goods	77 813	78 993	85 938	21 170	17 527	22 682	24 560	22 786
Service industries	355 048	374 743	401 309	95 110	100 277	101 049	104 874	101 428
General government	146 603	157 165	166 813	40 767	41 226	42 178	42 641	43 465
Correction items	97 678	108 683	114 134	23 847	27 957	30 493	31 836	27 765

1) Gross domestic product is measured at market prices, while value added by industry is measured at basic prices
2) Defined as total final consumption expenditure plus gross fixed capital formation in Mainland-Norway
3) Defined as final consumption expenditure plus gross fixed capital formation
4) NPISH: Non-profit institutions serving housholds

NATIONAL ACCOUNTS FOR NORWAY

Table A2. Final expenditure and gross domestic product. At constant 1995-prices. Million kroner

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Final consumption exp. of househ. and NPISHs	458 492	479 888	496 319	114 458	120 756	127 024	134 080	118 784
Household final consumption expenditure . . .	435 247	456 574	472 933	108 618	114 938	121 172	128 204	112 975
Goods.	246 431	261 607	270 914	60 310	65 220	67 310	78 074	63 213
Services	185 786	191 119	196 411	47 576	48 631	52 318	47 887	48 766
Direct purchases abroad by resident househ.	18 004	18 844	20 731	3 806	4 810	7 131	4 984	3 986
- Direct purchases by non-residents.	-14 974	-14 996	-15 124	-3 073	-3 723	-5 587	-2 741	-2 989
Final consumption exp. of NPISHs 4).	23 245	23 315	23 386	5 840	5 818	5 851	5 876	5 808
Final consumption exp. of general government .	194 525	200 797	206 781	51 440	51 475	51 700	52 166	52 688
Final consumption exp. of central government.	77 598	80 085	82 027	20 429	20 377	20 501	20 720	20 681
Central government, civilian	56 863	58 726	59 735	14 871	14 841	14 947	15 077	15 007
Central government, defence	20 735	21 358	22 292	5 558	5 536	5 554	5 643	5 674
Final consumption exp. of local government . .	116 927	120 713	124 754	31 011	31 097	31 199	31 447	32 007
Gross fixed capital formation	192 518	211 084	237 777	52 858	59 244	59 060	66 614	58 040
Petroleum activities	47 940	48 667	56 206	12 078	15 442	13 593	15 093	15 056
Ocean transport	3 733	6 113	10 124	2 946	2 405	2 768	2 005	3 014
Mainland-Norway	140 845	156 303	171 447	37 834	41 396	42 699	49 517	39 971
Mainland-Norway excl. general government .	110 962	125 301	136 709	29 555	33 117	34 533	39 504	31 469
Manufacturing and mining.	15 695	17 175	18 270	3 334	4 776	4 369	5 791	3 647
Production of other goods.	13 282	12 762	12 995	2 265	3 609	3 641	3 481	2 369
Dwelling services.	26 461	26 149	28 497	6 663	6 952	7 278	7 603	7 264
Other services	55 524	69 215	76 946	17 293	17 780	19 245	22 629	18 189
General government	29 883	31 002	34 738	8 280	8 280	8 166	10 013	8 502
Changes in stocks and stat. discrepancies . . .	27 438	22 049	23 917	7 759	6 895	4 494	4 769	14 365
Gross capital formation	219 956	233 133	261 693	60 617	66 139	63 554	71 383	72 406
Final domestic use of goods and services	872 973	913 818	964 793	226 516	238 370	242 277	257 630	243 877
Final demand from Mainland-Norway 2)	793 862	836 989	874 546	203 733	213 627	221 423	235 763	211 442
Final demand from general government 3) . . .	224 408	231 799	241 519	59 720	59 754	59 866	62 179	61 189
Total exports	353 426	388 209	410 702	100 313	103 108	102 850	104 431	105 704
Traditional goods	143 424	157 809	170 493	40 468	43 582	41 824	44 618	45 982
Crude oil and natural gas.	113 231	130 894	133 959	33 861	33 300	32 113	34 686	34 298
Ships and oil platforms	10 579	8 862	9 896	3 015	2 575	2 240	2 066	1 507
Services	86 192	90 644	96 354	22 969	23 651	26 673	23 061	23 917
Total use of goods and services	1 226 399	1 302 028	1 375 495	326 829	341 478	345 127	362 061	349 582
Total imports	297 654	322 470	362 209	82 235	92 259	91 594	96 121	94 509
Traditional goods	202 858	223 147	242 355	54 958	61 896	58 549	66 952	65 636
Crude oil	1 121	1 059	1 235	354	285	331	265	474
Ships and oil platforms	12 920	17 010	23 179	6 846	6 397	5 549	4 388	5 863
Services	80 755	81 255	95 440	20 077	23 682	27 165	24 517	22 536
Gross domestic product 1).	928 745	979 557	1 013 286	244 594	249 218	253 533	265 940	255 073
Mainland-Norway (market prices).	790 070	822 300	853 090	204 011	209 373	215 502	224 204	214 220
Petroleum activities and ocean transport	138 675	157 257	160 196	40 584	39 845	38 031·	41 736	40 852
Mainland-Norway (basic prices)	692 392	713 616	740 206	178 612	181 689	186 821	193 085	187 386
Mainland-Norway excl. general government . .	545 789	561 604	584 407	139 923	142 932	147 756	153 796	147 598
Manufacturing and mining	112 928	115 478	119 000	28 974	30 574	28 092	31 360	31 069
Production of other goods	77 813	76 648	80 611	19 375	16 570	22 445	22 221	21 044
Service industries	355 048	369 478	384 796	91 573	95 789	97 219	100 215	95 485
General government	146 603	152 013	155 799	38 689	38 757	39 064	39 289	39 787
Correction items	97 678	108 684	112 883	25 399	27 684	28 681	31 119	26 835

1) Gross domestic product is measured at market prices, while value added by industry is measured at basic prices
2) Defined as total final consumption expenditure plus gross fixed capital formation in Mainland-Norway
3) Defined as final consumption expenditure plus gross fixed capital formation
4) NPISH: Non-profit institutions serving housholds

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Table A3. Final expenditure and gross domestic product.
Percentage change in volume from the same period in the previous year

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Final consumption exp. of househ. and NPISHs	3,4	4,7	3,4	0,8	5,3	3,8	3,7	3,8
Household final consumption expenditure . . .	3,6	4,9	3,6	0,9	5,5	4,0	3,8	4,0
Goods.	3,3	6,2	3,6	-1,0	6,3	4,5	4,1	4,8
Services	3,3	2,9	2,8	2,5	3,5	2,5	2,6	2,5
Direct purchases abroad by resident househ.	0,7	4,7	10,0	8,4	12,5	8,3	11,4	4,7
- Direct purchases by non-residents.	-6,9	0,1	0,9	-3,0	1,0	1,2	4,6	-2,7
Final consumption exp. of NPISHs 4).	0,0	0,3	0,3	-0,5	0,4	0,6	0,7	-0,5
Final consumption exp. of general government .	0,3	3,2	3,0	2,5	3,0	2,9	3,5	2,4
Final consumption exp. of central government.	-1,7	3,2	2,4	2,4	2,4	2,1	2,9	1,2
Central government, civilian	0,1	3,3	1,7	1,6	1,6	1,6	2,0	0,9
Central government, defence	-6,4	3,0	4,4	4,6	4,4	3,3	5,2	2,1
Final consumption exp. of local government. .	1,7	3,2	3,3	2,6	3,4	3,5	3,9	3,2
Gross fixed capital formation	3,4	9,6	12,6	13,6	18,5	12,8	7,0	9,8
Petroleum activities	-13,8	1,5	15,5	23,9	30,3	14,6	-0,7	24,7
Ocean transport	-26,2	63,8	65,6	135,0	120,6	77,5	-9,3	2,3
Mainland-Norway	12,3	11,0	9,7	6,5	11,8	9,7	10,4	5,6
Mainland-Norway excl. general government .	14,9	12,9	9,1	2,5	9,5	10,7	12,8	6,5
Manufacturing and mining.	34,8	9,4	6,4	-2,2	17,7	-1,8	10,2	9,4
Production of other goods.	13,8	-3,9	1,8	-3,8	5,3	6,2	-2,1	4,6
Dwelling services.	9,1	-1,2	9,0	6,0	12,5	9,1	8,5	9,0
Other services	13,3	24,7	11,2	3,0	7,3	15,7	17,8	5,2
General government	3,5	3,7	12,1	24,1	21,9	5,6	2,1	2,7
Changes in stocks and stat. discrepancies . . .	101,1	-19,6	8,5	-28,5	83,4	-35,7	965,5	85,1
Gross capital formation	10,1	6,0	12,3	5,6	23,1	7,1	13,9	19,4
Final domestic use of goods and services	4,3	4,7	5,6	2,5	9,1	4,5	6,3	7,7
Final demand from Mainland-Norway 2)	4,1	5,4	4,5	2,3	5,9	4,7	5,0	3,8
Final demand from general government 3) . . .	0,7	3,3	4,2	5,0	5,2	3,3	3,3	2,5
Total exports	4,0	9,8	5,8	3,3	9,9	6,8	3,4	5,4
Traditional goods	4,1	10,0	8,0	-1,4	15,5	11,2	7,7	13,6
Crude oil and natural gas.	9,2	15,6	2,3	5,8	3,9	-2,0	1,9	1,3
Ships and oil platforms	-0,7	-16,2	11,7	19,0	21,9	73,1	-29,3	-50,0
Services	-1,6	5,2	6,3	6,7	7,9	8,4	2,1	4,1
Total use of goods and services	4,2	6,2	5,6	2,7	9,4	5,2	5,4	7,0
Total imports	5,6	8,3	12,3	8,4	22,4	12,5	7,0	14,9
Traditional goods	8,8	10,0	8,6	2,2	14,9	7,3	9,9	19,4
Crude oil	31,8	-5,5	16,6	83,3	44,6	62,2	-43,0	33,9
Ships and oil platforms	8,6	31,7	36,3	85,7	182,1	57,0	-41,7	-14,4
Services	-2,3	0,6	17,5	10,6	24,3	17,5	17,1	12,2
Gross domestic product 1).	3,9	5,5	3,4	0,9	5,2	2,8	4,9	4,3
Mainland-Norway (market prices).	3,1	4,1	3,7	0,0	5,4	4,1	5,4	5,0
Petroleum activities and ocean transport	9,2	13,4	1,9	5,6	4,0	-4,1	2,1	0,7
Mainland-Norway (basic prices)	2,4	3,1	3,7	0,2	5,2	3,9	5,6	4,9
Mainland-Norway excl. general government. .	2,9	2,9	4,1	-0,2	6,0	4,2	6,3	5,5
Manufacturing and mining	1,6	2,3	3,1	-3,4	7,8	2,9	5,1	7,2
Production of other goods	6,4	-1,5	5,2	-6,7	9,1	8,7	10,9	8,6
Service industries	2,5	4,1	4,1	2,3	4,9	3,6	5,6	4,3
General government	0,7	3,7	2,5	1,6	2,4	2,9	3,0	2,8
Correction items	8,2	11,3	3,9	-0,8	6,9	4,9	4,3	5,7

1) Gross domestic product is measured at market prices, while value added by industry is measured at basic prices
2) Defined as total final consumption expenditure plus gross fixed capital formation in Mainland-Norway
3) Defined as final consumption expenditure plus gross fixed capital formation
4) NPISH: Non-profit institutions serving housholds

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Table A4. Final expenditure and gross domestic product.
Percentage change in prices from the same period in the previous year

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Final consumption exp. of househ. and NPISHs	2,4	1,4	2,5	3,2	2,8	2,2	1,8	2,6
Household final consumption expenditure . . .	2,4	1,3	2,5	3,2	2,8	2,2	1,8	2,5
Goods.	2,3	0,5	2,7	4,4	3,0	2,2	1,6	1,1
Services	2,7	2,3	2,4	2,1	2,8	2,5	2,3	4,2
Direct purchases abroad by resident househ.	0,9	3,4	-0,3	-4,1	-0,0	0,7	0,9	7,4
- Direct purchases by non-residents.	2,2	1,5	2,9	2,5	3,0	2,9	3,3	4,1
Final consumption exp. of NPISHs 4).	3,0	3,2	2,8	3,1	3,0	2,7	2,3	3,6
Final consumption exp. of general government .	3,9	3,0	2,7	2,9	2,8	3,0	2,2	3,8
Final consumption exp. of central government.	3,8	2,9	2,6	2,5	2,6	3,0	2,1	4,0
Central government, civilian	4,4	2,8	2,7	2,7	2,7	2,8	2,4	4,0
Central government, defence	2,5	3,3	2,2	1,9	2,3	3,5	1,3	3,7
Final consumption exp. of local government. .	4,0	3,1	2,8	3,2	3,0	3,0	2,2	3,7
Gross fixed capital formation	3,8	2,6	2,5	1,3	2,4	3,8	2,4	3,6
Petroleum activities.	3,7	3,3	5,7	3,9	5,5	7,3	6,1	3,3
Ocean transport.	-3,2	1,8	8,4	8,5	6,7	14,2	5,5	4,9
Mainland-Norway	4,1	2,4	1,1	0,0	1,1	2,0	1,1	3,4
Mainland-Norway excl. general government .	4,2	2,4	1,0	-0,1	1,0	2,0	0,9	3,6
Manufacturing and mining.	3,6	1,5	0,2	-1,3	0,7	0,2	0,7	2,6
Production of other goods.	4,0	1,4	-0,2	-1,2	0,4	0,2	-0,6	2,4
Dwelling services.	7,0	3,0	2,8	1,8	2,3	3,1	3,7	3,2
Other services	3,1	2,5	0,7	-0,5	0,7	2,3	0,1	4,0
General government	3,7	2,4	1,4	0,4	1,2	1,8	2,1	2,9
Changes in stocks and stat. discrepancies . . .	-5,9	0,8	-1,5	-2,5	0,1	-5,8	43,9	5,4
Gross capital formation	3,0	2,4	2,1	0,8	2,3	3,2	2,1	3,7
Final domestic use of goods and services	2,9	2,0	2,4	2,5	2,7	2,6	2,0	3,1
Final demand from Mainland-Norway 2)	3,1	2,0	2,3	2,5	2,5	2,3	1,7	3,0
Final demand from general government 3) . . .	3,9	2,9	2,5	2,6	2,6	2,8	2,1	3,7
Total exports	2,0	6,7	2,1	6,0	1,2	3,6	-1,7	-5,5
Traditional goods	7,2	-1,2	0,5	-1,2	-1,8	3,4	1,6	3,4
Crude oil and natural gas.	-2,6	19,7	2,1	16,4	2,1	2,6	-9,3	-20,5
Ships and oil platforms	0,6	3,4	5,2	3,5	3,2	5,9	9,1	0,4
Services	-0,0	2,1	5,6	1,8	6,0	7,3	6,9	6,4
Total use of goods and services	2,6	3,4	2,3	3,6	2,2	2,9	0,8	0,4
Total imports	1,0	1,2	1,2	-1,0	0,7	4,3	0,6	4,1
Traditional goods	1,2	0,1	-1,1	-3,4	-1,8	2,0	-1,3	3,1
Crude oil	-1,9	36,4	-9,9	9,1	-12,7	-2,4	-14,6	-22,1
Ships and oil platforms	-4,7	3,8	8,1	5,6	8,2	10,7	9,6	4,5
Services	1,4	3,3	5,0	2,7	4,4	7,2	5,0	8,6
Gross domestic product 1).	3,0	4,1	2,8	5,1	2,9	2,6	0,9	-0,7
Mainland-Norway (market prices).	4,1	1,5	2,8	3,0	2,8	2,6	2,8	3,7
Petroleum activities and ocean transport	-3,2	17,7	2,9	14,6	3,2	3,4	-7,1	-19,5
Mainland-Norway (basic prices)	3,7	1,8	3,1	3,9	3,3	2,2	3,1	2,9
Mainland-Norway excl. general government. .	3,5	1,3	3,0	3,8	3,2	1,9	3,1	2,7
Manufacturing and mining	8,8	-0,1	3,2	1,3	2,8	0,6	7,6	6,5
Production of other goods	3,4	3,1	3,4	6,9	3,7	1,1	2,4	-0,9
Service industries	1,9	1,4	2,8	3,9	3,3	2,4	1,8	2,3
General government	4,5	3,4	3,6	4,2	3,5	3,3	3,2	3,7
Correction items	7,2	-0,0	1,1	-3,3	-0,1	5,6	1,3	10,2

1) Gross domestic product is measured at market prices, while value added by industry is measured at basic prices
2) Defined as total final consumption expenditure plus gross fixed capital formation in Mainland-Norway
3) Defined as final consumption expenditure plus gross fixed capital formation
4) NPISH: Non-profit institutions serving housholds

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Table A5. Gross domestic product and value added by industry.
At current prices. Million kroner

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Gross domestic product 1)	928 745	1 020 051	1 084 788	260 381	265 489	272 136	286 781	269 562
Agriculture and hunting	11 794	11 930	11 462	2 327	25	6 122	2 987	2 190
Forestry and logging	3 370	2 634	2 303	901	570	197	635	910
Fishing and fish farming	7 944	7 588	7 896	1 851	1 705	2 074	2 266	2 161
Oil and gas extraction incl. services	109 647	154 431	161 280	42 354	38 063	39 134	41 729	32 576
Oil and gas extraction	106 617	150 145	155 420	40 918	36 528	37 924	40 049	31 153
Service act. incidental to oil and gas ext.	3 030	4 286	5 860	1 436	1 534	1 210	1 680	1 423
Mining and quarrying	1 856	1 886	2 052	426	540	532	555	518
Manufacturing	111 072	113 528	120 638	28 812	31 272	28 044	32 509	32 866
Food products, beverages and tobacco	18 218	19 536	20 499	5 001	5 321	4 947	5 231	5 107
Textiles, wearing apparel, leather	2 035	2 090	1 959	503	573	407	476	481
Wood and wood products	4 242	4 408	5 578	1 255	1 378	1 360	1 585	1 525
Pulp, paper and paper products	7 223	5 263	4 184	1 008	1 007	979	1 191	1 171
Publishing, printing, reproduction	11 898	13 420	14 211	3 499	3 468	3 433	3 811	3 711
Refined petroleum products	839	200	883	184	272	210	217	548
Basic chemicals	7 267	6 445	6 743	1 554	1 729	1 721	1 739	1 830
Chemical and mineral products	9 703	10 243	10 340	2 498	2 893	2 421	2 527	2 456
Basic metals	9 858	7 907	7 482	1 559	2 122	1 607	2 193	2 329
Machinery and other equipment n.e.c.	25 430	28 568	31 916	7 817	8 175	6 981	8 942	8 916
Building of ships, oil platforms and moduls. . .	10 804	11 731	12 735	2 997	3 259	3 060	3 418	3 636
Furniture and other manufacturing n.e.c.	3 555	3 717	4 108	937	1 074	917	1 180	1 159
Electricity and gas supply	22 905	21 048	23 384	6 779	5 315	4 036	7 254	6 944
Construction	31 800	35 794	40 893	9 311	9 912	10 252	11 418	10 581
Service industries excluded general government	384 076	405 365	433 934	103 006	108 904	109 074	112 951	109 585
Wholesale and retail trade	87 947	91 553	98 556	22 836	23 984	24 036	27 700	23 694
Hotels and restaurants	11 263	11 876	12 918	2 806	3 389	3 463	3 260	3 045
Transport via pipelines	11 955	14 269	14 823	3 835	3 603	3 422	3 962	3 744
Water transport	19 072	18 379	20 119	4 553	5 649	5 245	4 672	4 964
Ocean transport	17 073	16 353	17 801	4 061	5 024	4 602	4 115	4 414
Inland water and costal transport	1 999	2 025	2 318	493	626	643	557	550
Other transport industries	38 335	41 774	45 315	10 432	12 151	11 998	10 733	10 551
Post and telecommunications	17 675	18 464	19 318	4 600	4 787	4 541	5 390	4 821
Financial intermediation	36 823	37 530	37 375	8 484	10 045	8 892	9 954	9 615
Dwelling services	63 033	64 827	67 078	16 469	16 679	16 884	17 047	17 146
Business services etc.	50 624	56 686	64 251	15 226	15 847	16 378	16 800	17 067
Personal services	47 349	50 007	54 181	13 765	12 768	14 215	13 433	14 937
General government	146 603	157 165	166 813	40 767	41 226	42 178	42 641	43 465
Central government	43 376	46 062	48 567	11 864	12 016	12 274	12 414	12 571
Civilian central government	32 331	34 454	36 447	8 907	9 017	9 211	9 311	9 432
Defence	11 045	11 608	12 121	2 957	2 998	3 063	3 103	3 139
Local government	103 227	111 103	118 245	28 903	29 211	29 904	30 227	30 894
FISIM 2)	-29 432	-30 277	-30 190	-7 419	-7 740	-7 731	-7 300	-7 788
Value added tax and investment levy	89 309	96 474	102 878	23 168	25 094	26 340	28 277	25 135
Other taxes on products, net	37 801	42 562	45 159	8 973	11 632	12 630	11 924	10 785
Statistical discrepancy	0	-76	-3 713	-875	-1 029	-745	-1 065	-366
Mainland-Norway (basic prices)	692 392	726 316	776 750	186 285	190 842	194 484	205 139	201 063
Market producers	607 985	675 306	721 985	175 765	176 084	178 660	191 477	177 493
Non-market producers	223 082	236 063	248 669	60 769	61 448	62 983	63 469	64 304
Education	39 323	41 897	44 216	10 793	10 863	11 173	11 388	11 573
Health and social work	70 182	76 197	81 591	19 954	20 182	20 628	20 827	21 514

1) Gross domestic product is measured at market prices, while value added by industry is measured at basic prices
2) Financial intermediation services indirectly measured

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Table A6. Gross domestic product and value added by industy.
Percentage change in volume from the same period in the previous year

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Gross domestic product 1).	3,9	5,5	3,4	0,9	5,2	2,8	4,9	4,3
Agriculture and hunting	4,8	4,8	-4,3	-4,5	35,4	-3,3	-7,1	1,4
Forestry and logging	10,6	-14,3	-	-	-	-	-	-
Fishing and fish farming	9,8	4,8	4,4	-12,1	17,4	7,1	9,6	4,2
Oil and gas extraction incl. services	9,1	14,6	1,1	4,8	3,0	-5,3	2,2	0,5
Oil and gas extraction	9,0	14,2	0,9	3,8	2,2	-4,8	2,6	0,7
Service act. incidental to oil and gas ext.	12,6	28,4	7,7	45,1	31,3	-20,3	-9,1	-6,1
Mining and quarrying.	4,1	1,8	2,5	-4,5	5,8	9,8	-0,8	5,4
Manufacturing.	1,6	2,3	3,1	-3,3	7,8	2,8	5,2	7,3
Food products, beverages and tobacco	5,3	2,0	0,4	0,1	-0,8	1,0	1,3	0,7
Textiles, wearing apparel, leather	-7,6	1,4	-1,7	-4,6	14,3	-7,2	-8,5	2,8
Wood and wood products	0,9	1,4	7,4	-2,5	3,7	14,7	14,0	18,1
Pulp, paper and paper products	3,5	-6,9	4,2	-4,7	9,1	4,7	8,5	6,8
Publishing, printing, reproduction	1,9	2,1	-0,1	-4,8	-0,6	2,5	2,5	4,1
Refined petroleum products	-48,1	10,5	2,8	8,7	6,6	-1,4	-1,7	-5,3
Basic chemicals	-3,5	-0,3	2,7	-2,8	15,6	-3,5	3,1	7,8
Chemical and mineral products	7,4	3,1	3,0	-3,2	13,8	2,5	-0,6	-0,1
Basic metals	-11,8	3,5	3,3	1,4	6,7	0,2	4,7	2,7
Machinery and other equipment n.e.c.	6,3	4,8	5,4	-2,7	12,8	4,6	7,3	11,4
Building of ships, oil platforms and moduls.	5,9	2,6	1,2	-13,0	6,0	2,0	12,3	15,4
Furniture and other manufacturing n.e.c.	2,6	2,5	11,5	-3,7	26,1	14,7	11,7	22,1
Electricity and gas supply	9,5	-14,9	6,6	-24,9	9,4	37,8	27,4	17,6
Construction.	3,7	5,6	8,5	9,3	7,7	7,1	9,8	7,4
Service industries excluded general government	3,0	4,4	4,2	2,8	5,2	3,4	5,3	4,0
Wholesale and retail trade	2,0	6,8	4,8	-0,8	8,0	6,5	5,5	8,7
Hotels and restaurants	-0,2	4,3	5,6	3,5	6,1	7,2	5,3	3,5
Transport via pipelines	16,2	19,4	5,3	12,2	6,7	-2,5	5,3	0,8
Water transport	4,9	1,9	4,5	5,9	8,8	3,6	0,1	2,3
Ocean transport	5,1	1,7	4,2	5,8	8,9	3,2	-0,7	1,9
Inland water and costal transport	2,5	3,8	7,1	6,6	7,9	6,7	7,0	5,7
Other transport industries	9,0	8,0	6,5	5,6	12,0	3,6	4,8	1,4
Post and telecommunications	-1,2	2,3	5,6	2,9	6,6	5,9	6,9	5,9
Financial intermediation	-2,3	-3,0	-2,3	-1,4	-6,6	-9,2	9,2	-2,8
Dwelling services	1,5	1,0	1,0	0,9	1,0	1,0	1,1	1,0
Business services etc.	5,3	7,7	9,0	8,9	7,4	8,8	10,7	7,9
Personal services	2,8	2,2	3,3	2,4	3,5	3,5	3,9	3,4
General government	0,7	3,7	2,5	1,6	2,4	2,9	3,0	2,8
Central government.	-0,1	2,8	1,9	1,3	1,9	2,1	2,3	2,1
Civilian central government.	0,5	3,3	2,4	1,8	2,4	2,6	2,8	2,0
Defence.	-2,0	1,2	0,4	-0,2	0,4	0,5	0,7	2,4
Local government.	1,0	4,1	2,7	1,8	2,6	3,3	3,3	3,1
FISIM 2)	0,5	-0,6	-2,1	-0,9	-2,1	-2,8	-2,5	-2,4
Value added tax and investment levy	4,4	5,8	4,9	2,4	7,1	5,3	4,8	4,6
Other taxes on products, net	11,7	9,5	2,3	-3,2	5,3	3,6	3,5	2,2
Statistical discrepancy	-100,0	.	-97,1	-97,2	-96,9	-97,1	-97,0	-7,5
Mainland-Norway (basic prices)	2,4	3,1	3,7	0,2	5,2	3,9	5,6	4,9
Market producers.	4,4	5,5	3,8	1,0	6,1	2,5	5,8	4,8
Non-market producers	0,9	2,9	2,1	1,5	2,1	2,4	2,5	2,3
Education	0,8	3,2	2,1	1,1	1,7	2,6	2,8	4,1
Health and social work.	2,0	5,0	3,4	2,6	3,5	3,7	3,7	3,0

1) Gross domestic product is measured at market prices, while value added by industry is measured at basic prices
2) Financial intermediation services indirectly measured

Table A7. Household final consumption expenditure. At current prices. Million kroner

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Household final consumption expenditure. . . .	435 247	462 620	490 949	112 011	119 372	125 730	133 836	119 469
Food, beverages and tobacco.	91 327	94 770	99 652	21 884	24 288	26 071	27 410	22 732
Clothing and footwear	26 995	27 757	28 987	5 744	7 223	6 735	9 285	6 049
Housing, water, electr., gas and other fuels . . .	100 183	104 232	108 396	28 493	26 057	25 095	28 752	29 340
Furnishings, household equipment etc.	28 143	29 383	31 696	6 795	6 908	7 777	10 216	7 706
Health	11 155	12 075	13 101	3 067	3 266	3 301	3 465	3 492
Transport	69 068	79 053	84 230	18 622	22 534	22 719	20 355	19 788
Leisure, entertainment and culture	41 565	43 689	47 107	10 892	10 083	12 838	13 294	12 155
Education	2 018	2 107	2 290	528	492	620	650	562
Hotels, cafes and restaurants	25 134	26 765	28 973	6 047	7 309	8 647	6 969	6 430
Miscellaneous goods and services	36 629	38 531	40 960	9 358	10 189	10 222	11 191	10 204
Direct purchases abroad by resident househ. . .	18 004	19 479	21 359	3 758	4 948	7 479	5 174	4 227
- Direct purchases by non-residents	-14 974	-15 221	-15 802	-3 177	-3 926	-5 774	-2 925	-3 216
Goods	246 431	262 815	279 573	62 460	67 225	69 282	80 607	66 166
Services	185 786	195 547	205 819	48 970	51 125	54 743	50 981	52 293
Services, dwellings	81 528	83 896	86 966	21 244	21 685	21 851	22 187	22 195
Other services	104 258	111 650	118 853	27 727	29 441	32 892	28 794	30 098

Table A8. Household final consumption expenditure.
Percentage change in volume from the same period in the previous year

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Household final consumption expenditure	3,6	4,9	3,6	0,9	5,5	4,0	3,8	4,0
Food, beverages and tobacco.	1,5	1,9	0,9	-1,0	-0,6	3,1	1,6	-1,6
Clothing and footwear	0,8	6,4	4,7	-1,0	9,3	4,3	5,5	9,4
Housing, water, electr., gas and other fuels . . .	1,2	1,4	0,9	-0,8	1,3	0,5	2,6	2,7
Furnishings, household equipment etc.	5,0	3,3	7,2	0,5	13,5	7,7	7,6	13,1
Health	2,3	4,2	6,3	3,9	8,0	6,4	6,7	6,2
Transport	3,7	14,5	3,1	1,3	9,6	1,5	-0,2	2,8
Leisure, entertainment and culture	7,1	5,0	6,1	-0,2	10,4	6,9	7,9	10,3
Education	2,2	-0,2	5,2	1,9	5,8	5,7	6,9	2,7
Hotels, cafes and restaurants	7,8	4,3	5,6	5,7	4,0	6,9	5,2	1,0
Miscellaneous goods and services	6,6	3,1	5,4	4,0	6,1	5,9	5,5	4,4
Direct purchases abroad by resident househ. . .	0,7	4,7	10,0	8,4	12,5	8,3	11,4	4,7
- Direct purchases by non-residents	-6,9	0,1	0,9	-3,0	1,0	1,2	4,6	-2,7
Goods	3,3	6,2	3,6	-1,0	6,3	4,5	4,1	4,8
Services	3,3	2,9	2,8	2,5	3,5	2,5	2,6	2,5
Services, dwellings	1,6	0,8	0,9	0,9	0,9	0,6	1,1	1,0
Other services	4,7	4,5	4,2	3,7	5,5	3,7	3,9	3,6

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Table A9. Gross fixed capital formation by type of capital goods and by industry. At current prices. Million kroner

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Gross fixed capital formation	192 518	216 502	249 931	54 414	62 134	62 632	70 750	61 892
Buildings and structures	78 385	87 705	98 595	21 715	23 318	24 661	28 902	23 909
Oil exploration, drilling, pipelines	17 816	20 354	28 045	5 372	7 079	7 593	8 001	7 580
Oil platforms etc.	26 029	27 456	31 783	7 218	9 438	7 194	7 933	8 114
Ships and boats.	5 342	7 518	12 808	3 640	2 938	3 639	2 591	3 841
Other transport equipment.	17 283	22 738	23 691	5 066	6 013	5 885	6 727	5 098
Machinery and equipment	47 663	50 732	55 009	11 404	13 349	13 659	16 597	13 350
Agriculture and hunting	5 590	5 852	5 917	982	1 805	1 714	1 416	997
Forestry and logging	550	559	564	140	140	140	143	144
Fishing and fish farming	1 099	715	853	258	195	231	169	166
Oil and gas extraction, incl. services	41 853	44 299	53 214	11 700	14 666	12 524	14 324	14 477
Oil and gas extraction	41 804	41 431	53 777	11 527	15 139	12 842	14 269	14 391
Service act. incidental to oil and gas ext.	49	2 868	-563	173	-473	-318	55	86
Mining and quarrying.	379	353	261	31	69	68	92	37
Manufacturing.	15 316	17 078	18 321	3 310	4 759	4 374	5 879	3 710
Food products, beverages and tobacco	2 713	2 663	3 162	600	788	805	970	647
Textiles, wearing apparel, leather	222	237	276	66	61	63	85	35
Wood and wood products	756	1 161	833	247	196	207	184	85
Pulp, paper and paper products	1 482	1 152	1 473	179	381	366	547	307
Publishing, printing, reproduction	1 267	1 409	2 009	309	630	395	674	575
Refined petroleum products	477	351	455	30	69	220	136	101
Basic chemicals.	2 538	2 090	1 273	342	319	257	354	173
Chemical and mineral products	1 431	1 964	2 185	366	537	548	733	517
Basic metals	1 125	2 493	2 866	559	910	576	821	406
Machinery and other equipment n.e.c.	2 257	2 362	2 513	421	545	622	926	562
Building of ships, oil platforms and moduls.	687	742	839	131	209	187	313	208
Furniture and other manufacturing n.e.c.	361	454	437	60	114	127	136	94
Electricity and gas supply	5 106	4 817	4 682	630	1 216	1 336	1 501	830
Construction.	937	995	1 129	256	288	281	305	291
Service industries excl.general government.	91 805	110 096	128 936	28 643	30 452	33 456	36 385	32 294
Wholesale and retail trade	18 388	21 344	22 887	5 135	5 613	5 580	6 559	5 961
Hotels and restaurants	1 792	1 895	2 344	465	493	687	699	614
Transport via pipelines	6 087	5 992	8 168	1 098	2 128	2 588	2 354	2 008
Water transtort.	4 406	6 929	12 257	3 515	2 829	3 504	2 409	3 759
Ocean transport	3 733	6 222	11 168	3 172	2 583	3 220	2 193	3 404
Inland water and costal transport	673	707	1 088	343	246	284	216	355
Other transport industries	10 223	18 568	21 794	4 562	4 858	5 452	6 923	4 269
Post and telecommunications	6 626	7 202	7 955	1 326	1 463	2 086	3 081	1 461
Financial intermediation	4 510	5 609	6 312	1 476	1 518	1 582	1 736	1 735
Dwelling services	26 461	26 921	30 151	6 922	7 331	7 742	8 156	7 792
Business services etc.	7 159	8 927	9 819	2 302	2 480	2 442	2 595	2 588
Personal services	6 153	6 710	7 249	1 841	1 740	1 794	1 874	2 106
General government	29 883	31 738	36 053	8 465	8 544	8 508	10 537	8 945
Central government.	13 982	14 934	15 104	3 350	3 274	3 661	4 820	3 672
Civilian central government.	10 228	10 710	10 983	2 429	2 391	2 750	3 414	2 694
Defence.	3 754	4 224	4 121	921	883	911	1 406	978
Local government.	15 901	16 804	20 949	5 115	5 270	4 847	5 717	5 273
Mainland-Norway.	140 845	159 990	177 380	38 445	42 757	44 300	51 879	42 002
Education	5 269	5 884	8 562	2 670	2 705	1 557	1 630	2 502
Health and social work.	6 626	7 471	8 587	1 923	1 923	2 125	2 615	2 191

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Table A10. Gross fixed capital formation by type of capital goods and by industry.
Percentage change in volume from the same period in the previous year

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Gross fixed capital formation	3,4	9,6	12,6	13,6	18,5	12,8	7,0	9,8
Buildings and structures	13,1	8,6	9,2	3,5	9,0	10,6	13,1	6,6
Oil exploration, drilling, pipelines	-20,4	10,0	27,5	23,5	34,0	18,2	34,7	37,1
Oil platforms etc.	-4,9	2,3	11,5	40,6	40,3	9,2	-21,6	8,2
Ships and boats.	-17,7	38,2	57,3	111,3	108,7	66,1	-8,5	0,8
Other transport equipment.	6,9	25,5	3,4	-2,6	1,6	8,0	6,5	-8,7
Machinery and equipment	7,4	6,3	10,7	9,8	15,1	10,1	8,4	15,5
Agriculture and hunting	16,2	3,2	1,0	2,4	0,2	0,6	1,4	-1,0
Forestry and logging	5,2	-0,3	-	-	-	-	-	-
Fishing and fish farming	44,6	-34,9	21,5	43,5	68,1	6,3	-8,7	-34,7
Oil and gas extraction, incl. services	-10,0	2,3	13,4	29,0	30,4	11,6	-7,4	19,8
Oil and gas extraction	-11,1	-4,2	22,6	23,7	33,2	15,0	18,7	20,9
Service act. incidental to oil and gas ext.	.	.	.	.	242,4	.	-98,3	-52,0
Mining and quarrying.	38,2	-9,0	-25,9	-54,4	8,1	-42,7	-7,1	13,5
Manufacturing.	34,7	9,9	7,0	-1,1	17,8	-0,7	10,5	9,3
Food products, beverages and tobacco	-3,2	-3,6	18,1	13,1	35,8	27,3	3,6	4,9
Textiles, wearing apparel, leather	8,0	5,6	17,3	39,2	26,1	-4,8	17,0	-47,0
Wood and wood products	-4,0	52,5	-27,5	56,7	-25,5	-56,6	-28,0	-66,9
Pulp, paper and paper products	129,4	-23,6	26,2	-38,6	40,1	66,1	44,9	64,9
Publishing, printing, reproduction	24,2	9,7	41,4	5,3	92,7	18,7	44,8	80,9
Refined petroleum products	76,0	-28,8	31,0	-64,6	42,2	137,9	13,5	230,8
Basic chemicals	220,2	-18,6	-38,4	-33,8	-39,8	-52,0	-26,3	-49,3
Chemical and mineral products	14,7	34,9	10,8	-7,2	24,8	10,9	12,6	36,7
Basic metals	20,2	117,2	14,2	76,5	53,2	-9,7	-15,1	-28,9
Machinery and other equipment n.e.c.	36,4	3,9	6,9	-13,4	-3,4	0,1	37,0	30,8
Building of ships, oil platforms and moduls. . .	-4,2	6,4	13,3	-13,4	-10,7	16,7	62,0	54,6
Furniture and other manufacturing n.e.c.	25,2	24,4	-3,0	-19,5	-13,9	5,8	10,6	53,6
Electricity and gas supply	6,0	-6,7	-2,3	-25,7	6,3	12,9	-7,2	29,2
Construction.	23,4	3,3	13,7	11,9	10,9	16,2	15,7	8,1
Service industries excl.general government . . .	5,0	16,9	14,8	9,4	14,8	18,7	15,9	8,5
Wholesale and retail trade	13,4	13,2	7,2	1,9	10,7	8,0	8,2	11,5
Hotels and restaurants	11,0	3,1	22,3	-6,0	1,6	41,4	56,7	26,7
Transport via pipelines	-33,3	-3,5	30,6	-12,5	29,6	31,3	72,5	75,2
Water transtort.	-24,2	54,2	63,1	124,7	116,1	75,3	-9,2	2,0
Ocean transport	-26,2	63,8	65,6	135,0	120,6	77,5	-9,3	2,3
Inland water and costal transport	-10,1	1,4	41,2	59,2	77,2	53,5	-7,7	-0,5
Other transport industries	21,2	76,1	15,7	-4,9	-1,9	33,0	39,9	-10,8
Post and telecommunications	6,1	7,6	11,6	12,7	10,2	11,4	12,0	8,1
Financial intermediation	30,4	21,2	10,6	8,8	12,2	10,7	10,8	13,0
Dwelling services	9,1	-1,2	9,0	6,0	12,5	9,1	8,5	9,0
Business services etc.	14,4	21,3	9,4	8,1	10,9	8,2	10,4	8,0
Personal services	1,8	6,9	7,3	6,4	8,4	6,4	8,2	11,0
General government	3,5	3,7	12,1	24,1	21,9	5,6	2,1	2,7
Central government.	0,6	4,4	-0,3	-0,3	-0,9	-0,0	-0,2	6,4
Civilian central government.	-0,2	2,3	0,6	-0,3	0,3	0,1	1,9	7,9
Defence.	2,8	10,2	-2,6	-0,3	-3,8	-0,4	-4,8	2,7
Local government	6,2	3,2	23,1	47,8	42,1	10,3	4,1	0,2
Mainland-Norway	12,3	11,0	9,7	6,5	11,8	9,7	10,4	5,6
Education	4,6	9,3	45,3	111,1	102,0	10,0	-13,8	-8,7
Health and social work	7,9	10,8	13,8	14,6	13,5	13,6	13,5	11,0

Table A11. Exports of goods and services. At current prices. Million kroner

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Total exports	353 426	414 266	447 582	108 757	109 975	114 189	114 660	108 260
Goods	267 234	321 705	343 715	85 160	84 068	85 026	89 460	82 123
Crude oil and natural gas	113 231	156 688	163 674	42 598	38 947	40 220	41 909	34 287
Ships, new	4 138	4 257	5 267	1 513	1 307	1 121	1 326	1 201
Ships, second-hand	5 791	3 765	4 126	1 627	831	723	945	336
Oil platforms and modules, new	63	59	231	22	5	195	9	18
Oil platforms, second-hand	491	956	1 005	9	558	412	26	25
Direct exports related to petroleum act	96	126	132	36	34	31	31	29
Other goods	143 424	155 854	169 280	39 355	42 386	42 324	45 214	46 227
Agriculture, forestry and fishing	6 767	7 035	7 711	1 863	1 888	1 779	2 181	2 222
Mining and quarrying	2 271	2 342	2 284	479	617	595	593	561
Manufacturing products	133 142	145 489	158 673	36 965	39 791	39 698	42 218	43 370
Food products, beverages and tobacco	17 164	19 528	21 437	4 989	4 771	5 008	6 669	6 205
Textiles, wearing apparel, leather	2 138	2 207	2 351	550	594	575	632	599
Wood products	3 003	2 864	2 923	717	795	699	712	659
Pulp, paper and paper products	12 864	11 593	10 811	2 556	2 683	2 748	2 824	3 036
Printing and publishing	378	559	493	118	121	119	135	148
Refined petroleum products	12 996	17 147	20 637	5 474	4 888	5 385	4 890	4 606
Basic chemicals	12 019	12 107	12 963	2 939	3 450	3 336	3 238	3 761
Chemical and mineral products	8 923	9 597	10 627	2 392	2 709	2 789	2 737	2 694
Basic metals	29 798	30 756	33 792	7 591	8 626	8 808	8 767	9 660
Machinery and other equipment n.e.c.	31 065	35 975	39 121	8 823	10 295	9 402	10 600	11 098
Furniture and other manufacturing products	2 794	3 156	3 518	816	859	829	1 014	904
Electricity	1 244	988	612	48	90	252	222	74
Services	86 192	92 561	103 867	23 597	25 907	29 163	25 200	26 137
Gross receipts, shipping	45 204	46 641	52 787	12 165	13 759	13 688	13 175	13 521
Petroleum activities, various services	576	714	752	186	188	185	193	192
Oil drilling etc.	1 405	1 543	1 925	429	451	534	511	518
Pipeline transport	2 245	3 424	3 987	1 076	890	848	1 173	1 076
Travel	14 974	15 221	15 802	3 177	3 926	5 774	2 925	3 216
Other services	21 788	25 018	28 614	6 564	6 693	8 134	7 223	7 614
Transport, post and telecommunication	7 714	8 675	8 781	1 895	2 063	2 940	1 883	2 369
Financial and business services	10 590	12 836	15 694	3 693	3 550	4 237	4 214	4 242
Services n.e.c.	3 484	3 507	4 139	976	1 080	957	1 126	1 003

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Table A12. Exports of goods and services.
Percentage change in volume from the same period in the previous year

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Total exports	4,0	9,8	5,8	3,3	9,9	6,8	3,4	5,4
Goods	6,0	11,3	5,6	2,3	10,5	6,3	3,8	5,7
Crude oil and natural gas.	9,2	15,6	2,3	5,8	3,9	-2,0	1,9	1,3
Ships, new . . . . . :	-10,5	2,0	22,8	136,7	4,5	82,0	-26,1	-22,9
Ships, second-hand.	14,0	-39,5	-3,7	-5,0	3,1	-10,0	-1,8	-81,0
Oil platforms and modules, new	448,7	-9,0	275,4	93,6	-59,8	650,1	-21,0	-21,6
Oil platforms, second-hand	-44,0	94,7	5,1	-97,4	224,4	776,6	-93,4	177,8
Direct exports related to petroleum act..	52,5	25,7	-4,4	41,3	28,8	-9,5	-41,4	-21,8
Other goods	4,1	10,0	8,0	-1,4	15,5	11,2	7,7	13,6
Agriculture, forestry and fishing	13,5	14,2	7,0	10,4	7,9	-4,9	14,6	19,2
Mining and quarrying	-2,3	2,3	-2,1	-20,1	6,6	4,7	2,7	1,6
Manufacturing products.	3,4	10,5	8,4	-0,8	16,2	12,1	7,0	13,5
Food products, beverages and tobacco . . .	2,6	11,8	6,7	-4,0	13,0	1,9	16,7	13,3
Textiles, wearing apparel, leather	-3,9	1,9	10,6	1,4	15,2	12,3	13,8	12,2
Wood products	-4,3	1,0	-3,2	3,5	3,4	-8,5	-10,8	-10,4
Pulp, paper and paper products	4,6	3,6	6,4	-1,9	10,6	5,9	11,5	13,0
Printing and publishing	-15,9	56,6	-18,4	-24,0	-25,4	-14,5	-6,5	-1,4
Refined petroleum products.	0,2	9,9	12,5	9,3	19,8	17,3	4,4	2,9
Basic chemicals	0,0	6,5	4,8	-9,0	24,5	1,9	5,5	22,8
Chemical and mineral products.	8,6	8,6	14,7	9,1	25,3	10,8	14,4	5,6
Basic metals	-4,7	13,2	9,8	4,5	15,6	17,2	3,0	12,8
Machinery and other equipment n.e.c.. . . .	15,3	13,3	8,0	-7,5	15,8	21,1	5,1	21,9
Furniture and other manufacturing products	8,1	11,0	8,1	6,2	16,8	4,2	6,1	2,7
Electricity	80,6	-49,9	-24,8	-88,6	-49,6	90,0	272,9	12,3
Services	-1,6	5,2	6,3	6,7	7,9	8,4	2,1	4,1
Gross receipts, shipping	3,9	1,7	4,2	5,8	8,9	3,2	-0,7	1,9
Petroleum activities, various services.	-12,2	20,6	1,6	1,7	2,5	-1,2	3,5	-1,0
Oil drilling etc.	-23,3	2,4	7,4	9,7	11,6	6,8	2,6	15,3
Pipeline transport	20,1	49,1	19,1	43,3	24,9	2,4	11,8	6,9
Travel.	-6,9	0,1	0,9	-3,0	1,0	1,2	4,6	-2,7
Other services	-8,0	11,1	11,9	9,1	8,1	26,1	4,5	10,5
Transport, post and telecommunication. . . .	4,7	8,4	0,0	-0,3	-8,6	26,4	-17,8	23,1
Financial and business services	-7,0	16,8	19,0	19,2	13,3	29,5	13,9	6,6
Services n.e.c.	-29,3	-0,1	15,3	-5,0	34,4	12,3	24,1	1,7

NATIONAL ACCOUNTS FOR NORWAY

Table A13. Imports of goods and services. At current prices. Million kroner

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Total imports	297 654	326 487	371 024	82 019	93 518	96 268	99 219	98 142
Goods	216 899	242 512	267 423	61 212	67 950	66 199	72 062	72 787
Ships	6 324	6 325	14 041	5 388	2 818	3 784	2 051	3 080
Oil platforms and modules	359	3 648	2 241	36	1 846	305	54	984
Direct imports related to petroleum activities. .	6 237	7 683	9 729	1 981	2 482	2 369	2 897	2 562
Other goods	203 979	224 856	241 412	53 807	60 804	59 741	67 060	66 161
Agriculture, forestry and fishing	7 890	8 088	8 323	1 935	2 321	1 828	2 239	2 882
Crude oil	1 121	1 445	1 517	436	322	413	346	455
Mining and quarrying	2 802	2 906	3 397	728	881	923	865	970
Manufacturing products	191 918	209 072	226 855	49 921	57 032	56 514	63 388	61 523
Food products, beverages and tobacco . . .	8 928	9 493	10 669	2 228	2 596	2 966	2 879	2 745
Textiles, wearing apparel, leather	15 201	15 344	16 738	4 159	3 473	5 129	3 977	4 835
Wood products	3 883	4 104	4 869	1 007	1 286	1 225	1 351	1 304
Pulp, paper and paper products	6 469	6 370	6 487	1 532	1 614	1 588	1 753	1 697
Printing and publishing	2 799	3 386	3 706	823	842	966	1 075	984
Refined petroleum products.	8 750	10 160	11 743	2 681	2 824	2 969	3 269	2 565
Basic chemicals	9 449	9 070	9 621	2 166	2 556	2 425	2 474	2 490
Chemical and mineral products.	20 551	21 757	23 529	5 171	6 167	5 875	6 316	6 267
Basic metals	21 043	22 701	23 925	5 439	5 641	5 656	7 189	6 628
Machinery and other equipment n.e.c.. . . .	77 813	83 343	91 570	19 591	23 435	22 095	26 449	25 961
Furniture and other manufacturing products	6 587	7 049	8 169	1 771	1 979	1 964	2 455	2 261
Non-competitive imports.	10 445	16 295	15 829	3 353	4 619	3 656	4 201	3 786
Electricity	248	3 345	1 320	787	248	63	222	331
Services	80 755	83 975	103 601	20 807	25 568	30 069	27 157	25 355
Operating costs shipping, excl. bunkers	18 905	19 957	24 085	5 441	5 987	6 388	6 269	6 499
Operating costs oil drilling, excl bunkers	643	1 228	1 602	215	394	512	481	544
Petroleum activities, various services.	3 963	4 140	5 685	799	2 235	1 613	1 038	944
Travel.	26 923	29 129	31 940	5 620	7 399	11 184	7 737	6 321
Other services	30 321	29 521	40 289	8 732	9 553	10 372	11 632	11 047
Transport, post and telecommunication. . . .	3 437	2 862	3 427	862	799	841	925	952
Financial and business services	15 125	14 220	19 386	4 391	4 645	4 749	5 601	5 687
Services n.e.c.	11 759	12 439	17 476	3 479	4 109	4 782	5 106	4 408

Table A14. Imports of goods and services.
Percentage change in volume from the same period in the previous year

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Total imports	5,6	8,3	12,3	8,4	22,4	12,5	7,0	14,9
Goods	8,8	11,2	10,6	7,8	21,7	10,5	4,0	15,8
Ships	-13,2	-5,5	101,7	184,5	290,7	122,5	-25,7	-46,3
Oil platforms and modules	58,9	892,2	-43,8	10,6	.	38,3	-98,5	.
Direct imports related to petroleum activities	42,1	19,8	22,1	-1,3	44,7	12,3	36,1	24,0
Other goods	8,9	9,9	8,6	2,5	15,0	7,5	9,5	19,5
Agriculture, forestry and fishing	7,0	3,3	-2,8	-14,4	15,1	-7,6	-2,6	33,3
Crude oil	31,8	-5,5	16,6	83,3	44,6	62,2	-43,0	33,9
Mining and quarrying	2,1	0,6	8,6	-16,0	27,5	17,6	11,1	44,2
Manufacturing products	9,1	9,1	9,8	1,6	15,7	9,8	11,7	20,1
Food products, beverages and tobacco	4,1	4,5	9,2	6,5	12,5	9,7	7,9	9,0
Textiles, wearing apparel, leather	1,6	-1,3	5,7	2,1	14,2	6,9	0,9	10,0
Wood products	3,2	8,2	18,3	6,6	28,5	19,4	18,2	25,2
Pulp, paper and paper products	5,9	1,5	9,5	2,2	14,0	12,1	9,9	9,9
Printing and publishing	7,6	12,6	17,0	5,8	26,1	17,8	19,0	18,9
Refined petroleum products	12,7	0,9	14,3	10,7	25,9	3,7	18,3	11,1
Basic chemicals	8,1	2,5	6,6	-9,1	9,1	8,5	18,7	17,4
Chemical and mineral products	9,8	9,6	7,2	-2,5	11,9	11,2	8,1	16,5
Basic metals	0,8	13,9	3,3	1,4	1,6	-4,8	13,9	14,1
Machinery and other equipment n.e.c.	16,5	7,8	14,8	1,3	20,5	17,9	18,8	30,8
Furniture and other manufacturing products	6,8	3,4	15,5	6,5	25,8	16,0	14,6	20,3
Non-competitive imports	-3,4	48,1	-6,1	4,4	10,7	-13,1	-20,2	1,4
Electricity	-54,5	.	-45,1	489,7	-66,0	-95,1	-69,2	-59,7
Services	-2,3	0,6	17,5	10,6	24,3	17,5	17,1	12,2
Operating costs shipping, excl. bunkers	8,1	1,7	4,2	5,8	8,9	3,2	-0,7	1,9
Operating costs oil drilling, excl bunkers	-30,2	85,8	26,9	-41,6	33,1	63,0	72,6	143,7
Petroleum activities, various services	-41,7	1,5	32,7	-2,7	97,5	41,7	-13,5	13,3
Travel	1,8	4,7	10,0	8,4	12,5	8,3	11,4	4,7
Other services	-2,1	-5,5	31,1	19,4	34,5	34,6	35,6	20,1
Transport, post and telecommunication	-11,8	-19,3	17,3	23,9	10,1	3,6	33,9	7,6
Financial and business services	-8,3	-9,4	32,7	29,0	38,6	34,1	30,0	20,3
Services n.e.c.	11,0	3,4	32,5	7,9	35,9	43,3	42,7	22,7

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Table A15. Balance of payments. At current prices. Million kroner

	1996	1997	97:1	97:2	97:3	97:4	98:1
Goods and services							
Exports, total	**414 265**	**447 580**	**108 757**	**109 975**	**114 188**	**114 660**	**108 260**
Goods	321 704	343 713	85 160	84 068	85 025	89 460	82 124
Crude oil and natural gas	156 688	163 673	42 598	38 947	40 219	41 909	34 286
Ships	8 022	9 393	3 140	2 138	1 844	2 271	1 537
Petroleum activities, various goods	1 141	1 368	67	597	638	66	72
Other goods	155 853	169 279	39 355	42 386	42 324	45 214	46 229
Services	92 561	103 867	23 597	25 907	29 163	25 200	26 136
Gross receipts, shipping	46 641	52 787	12 165	13 759	13 688	13 175	13 521
Petroleum activities, various services	714	752	186	188	185	193	192
Oil drilling etc.	1 543	1 925	429	451	534	511	518
Pipeline transport	3 424	3 987	1 076	890	848	1 173	1 076
Travel	15 221	15 802	3 177	3 926	5 774	2 925	3 216
Transport and communication	8 675	8 781	1 895	2 063	2 940	1 883	2 369
Financial and business services	12 836	15 694	3 693	3 550	4 237	4 214	4 242
Other services	3 507	4 139	976	1 080	957	1 126	1 002
Imports, total	**326 487**	**371 024**	**82 019**	**93 518**	**96 268**	**99 219**	**98 142**
Goods	242 512	267 423	61 212	67 950	66 199	72 062	72 788
Ships	6 325	14 041	5 388	2 818	3 784	2 051	3 080
Petroleum activities, various goods	11 331	11 970	2 017	4 328	2 674	2 951	3 546
Other goods	224 856	241 412	53 807	60 804	59 741	67 060	66 162
Services	83 975	103 601	20 807	25 568	30 069	27 157	25 354
Operating costs shipping, excl. bunkers	19 957	24 085	5 441	5 987	6 388	6 269	6 499
Petroleum activities, various services	4 140	5 685	799	2 235	1 613	1 038	944
Operating costs oil drilling, excl. bunkers	1 228	1 602	215	394	512	481	544
Travel	29 129	31 940	5 620	7 399	11 184	7 737	6 321
Transport and communication	2 862	3 427	862	799	841	925	952
Financial and business services	14 220	19 386	4 391	4 645	4 749	5 601	5 686
Other services	12 439	17 476	3 479	4 109	4 782	5 106	4 408
Balance of goods and services	**87 778**	**76 556**	**26 738**	**16 457**	**17 920**	**15 441**	**10 118**
Interest and transfers etc.							
From the rest of the world	**39 967**	**45 636**	**10 599**	**12 215**	**10 962**	**11 860**	**14 442**
Compensation of employees	1 200	1 200	300	300	300	300	300
Interest received	23 113	28 775	6 254	7 977	6 797	7 747	9 987
Dividends etc.	2 052	3 377	241	1 126	1 060	950	735
Reinvested earnings	4 478	2 984	1 377	454	511	642	870
Current transfers	9 124	9 300	2 427	2 358	2 294	2 221	2 550
To the rest of the world	**59 179**	**65 418**	**15 997**	**17 337**	**14 522**	**17 562**	**17 567**
Compensation of employees	3 443	3 910	893	976	1 040	1 001	1 044
Interest paid	22 927	28 324	7 436	7 946	5 646	7 296	8 239
Dividends etc.	11 063	10 183	2 984	4 859	954	1 386	4 553
Reinvested earnings	2 931	3 606	340	-932	2 300	1 898	-1 043
Current transfers from general government	7 200	7 474	1 318	1 569	1 635	2 952	1 450
Other current transfers	11 615	11 921	3 026	2 919	2 947	3 029	3 324
Balance of interest and transfers[1]	**-19 212**	**-19 782**	**-5 398**	**-5 122**	**-3 560**	**-5 702**	**-3 125**
Current external balance	**68 566**	**56 774**	**21 340**	**11 335**	**14 360**	**9 739**	**6 993**
Capital transfers from the rest of the world	415	198	87	40	43	28	74
Capital transfers to the rest of the world	1 235	1 475	503	319	341	312	320
Net lending	**67 746**	**55 497**	**20 924**	**11 056**	**14 062**	**9 455**	**6 747**
Revaluations, net	-5 056	-15 080	-6 927	-1 533	-5 786	-834	-4 779
Increase in Norway's net assets	**62 690**	**40 417**	**13 997**	**9 523**	**8 276**	**8 621**	**1 968**

[1] Positive figures mean surplus, negative figures mean deficit.

Table A16. Employed persons, employees by industry and total. 1000

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Total employees	1 914,0	1 970,4	2 036,2	2 007,8	2 034,0	2 053,0	2 049,3	2 064,0
Agriculture and hunting	16,7	17,1	16,4	16,5	16,3	16,5	16,2	15,7
Forestry and logging	3,6	3,5	3,5	3,5	3,5	3,4	3,7	3,4
Fishing and fish farming	8,1	7,9	8,3	8,2	8,4	8,3	8,3	8,2
Oil and gas extraction incl. services	21,2	21,6	22,3	22,0	22,3	22,4	22,3	22,9
Oil and gas extraction	17,2	16,5	16,4	16,4	16,3	16,5	16,3	16,5
Service act. incidental to oil and gas ext.	4,0	5,1	5,9	5,7	6,0	5,9	6,0	6,5
Mining and quarrying	4,5	4,4	4,3	4,2	4,3	4,3	4,2	4,1
Manufacturing	291,3	297,4	306,0	302,5	306,1	309,4	305,9	307,8
Food products, beverages and tobacco	53,4	54,5	55,9	55,6	55,4	56,6	56,1	54,7
Textiles, wearing apparel, leather	8,4	8,3	7,8	7,8	7,8	7,8	7,8	7,8
Wood and wood products	15,3	15,4	16,2	15,9	16,4	16,3	16,1	16,9
Pulp, paper and paper products	11,3	11,1	11,5	11,4	11,0	11,8	11,6	11,9
Publishing, printing, reproduction	38,5	39,1	40,9	40,6	40,8	41,2	40,8	40,1
Refined petroleum products	1,9	1,9	2,1	1,9	2,2	2,3	2,1	1,8
Basic chemicals	9,3	9,6	9,5	9,3	9,5	9,6	9,4	9,6
Chemical and mineral products	20,3	21,1	21,5	21,0	21,8	22,1	21,1	21,6
Basic metals	16,6	17,0	17,2	16,7	17,3	17,7	16,9	16,6
Machinery and other equipment n.e.c.	70,8	72,6	75,1	74,4	75,1	75,5	75,5	77,0
Building of ships, oil platforms and moduls.	33,0	33,9	34,5	34,3	34,9	34,7	34,3	35,4
Furniture and other manufacturing n.e.c.	12,4	12,9	13,8	13,6	13,9	13,8	14,1	14,4
Electricity and gas supply	19,9	18,8	18,8	19,9	20,1	19,9	19,4	19,0
Construction	83,8	86,9	95,9	92,9	94,8	97,2	98,6	102,2
Service industries excluded general government	815,2	844,3	878,7	862,0	878,6	888,5	885,2	888,9
Wholesale and retail trade	269,4	284,8	301,5	294,3	302,6	304,9	304,3	307,7
Hotels and restaurants	54,0	56,4	58,6	56,8	58,2	60,2	59,0	58,7
Transport via pipelines	0,4	0,2	0,2	0,1	0,2	0,2	0,2	0,1
Water transport	49,0	48,6	48,7	47,8	48,1	49,8	49,0	47,5
Ocean transport	40,9	40,2	40,2	39,5	39,6	41,0	40,7	39,5
Inland water and costal transport	8,1	8,4	8,5	8,3	8,5	8,8	8,3	8,0
Other transport industries	72,5	74,3	77,1	76,6	77,0	77,2	77,5	78,0
Post and telecommunications	50,9	50,4	49,2	50,2	50,1	49,3	47,2	47,4
Financial intermediation	50,8	50,3	49,5	49,7	49,4	49,5	49,2	48,5
Dwelling services	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2
Business services etc.	112,1	120,3	131,3	125,5	131,4	134,0	134,3	136,0
Personal services	154,8	157,8	161,4	159,7	160,4	162,2	163,3	163,8
General government	649,9	667,3	681,0	676,0	679,4	683,1	685,4	691,7
Central government	149,9	152,1	152,5	152,6	152,2	152,0	153,1	154,2
Civilian central government	104,6	106,7	108,8	108,9	108,7	108,4	109,2	110,2
Defence	45,3	45,4	43,7	43,7	43,5	43,6	43,9	44,0
Local government	500,0	515,2	528,5	523,4	527,2	531,1	532,4	537,6
Mainland-Norway	1 851,5	1 908,3	1 973,5	1 946,1	1 971,9	1 989,5	1 986,0	2 001,5
Total employees and self-employed	2 105,7	2 158,3	2 220,6	2 186,8	2 221,2	2 242,2	2 231,2	2 253,4

Table A17. Employed persons, employees by industry and total.
Percentage change from the same period in the previous year

	1995	1996	1997	97:1	97:2	97:3	97:4	98:1
Total employees	2,5	2,9	3,3	4,0	3,5	3,0	2,8	2,8
Agriculture and hunting	0,8	3,0	-4,5	-3,1	-6,0	-4,6	-4,3	-4,8
Forestry and logging	1,1	-0,6	-0,0	4,8	-2,5	-7,2	5,3	-2,6
Fishing and fish farming	2,7	-1,7	4,9	9,2	8,7	2,8	-0,4	-0,6
Oil and gas extraction incl. services	-1,1	2,1	3,0	5,3	3,2	1,9	1,7	4,1
Oil and gas extraction	-1,2	-3,6	-1,0	-1,6	-0,9	-0,7	-0,9	0,7
Service act. incidental to oil and gas ext.	-0,5	26,2	16,2	32,3	16,2	10,0	9,6	13,9
Mining and quarrying	-0,2	-0,5	-4,3	-5,4	-5,6	-5,0	-0,8	-2,9
Manufacturing	2,7	2,1	2,9	4,2	3,3	2,6	1,5	1,7
Food products, beverages and tobacco	1,3	2,1	2,6	5,5	3,2	2,1	0,0	-1,7
Textiles, wearing apparel, leather	-2,4	-1,1	-5,9	-4,5	-8,7	-7,3	-2,8	0,2
Wood and wood products	2,5	0,5	5,2	7,3	7,1	3,0	3,6	6,3
Pulp, paper and paper products	3,8	-2,1	3,5	0,6	-0,8	4,1	10,6	4,4
Publishing, printing, reproduction	0,9	1,7	4,4	3,1	4,6	5,4	4,6	-1,2
Refined petroleum products	-4,0	-0,0	9,4	10,4	9,8	8,6	8,9	-2,5
Basic chemicals	2,5	3,0	-1,2	-1,5	-1,8	-1,5	-0,2	2,8
Chemical and mineral products	2,5	3,9	1,9	3,2	5,2	2,8	-3,3	2,5
Basic metals	1,4	2,0	1,3	9,2	-1,1	-1,2	-0,7	-0,7
Machinery and other equipment n.e.c.	4,6	2,5	3,5	3,8	3,2	3,5	3,5	3,6
Building of ships, oil platforms and moduls.	3,8	2,8	1,8	3,8	4,4	1,2	-1,9	3,4
Furniture and other manufacturing n.e.c.	6,4	4,1	6,9	9,8	10,6	6,6	1,2	5,9
Electricity and gas supply	0,6	-0,1	-0,0	2,5	1,0	-1,7	-1,6	-4,2
Construction	6,2	3,6	10,4	12,0	9,9	9,0	10,8	10,0
Service industries excluded general government	2,9	3,6	4,1	5,2	4,3	3,5	3,3	3,1
Wholesale and retail trade	5,3	5,7	5,9	7,4	6,4	5,0	4,8	4,6
Hotels and restaurants	1,2	4,4	3,9	6,6	3,9	2,5	2,9	3,2
Transport via pipelines	-2,0	-41,7	-16,5	-48,7	2,6	-23,1	2,6	-8,3
Water transport	-1,3	-1,0	0,2	1,8	-0,3	0,3	-0,9	-0,6
Ocean transport	-1,9	-1,8	-0,0	0,7	-0,8	0,6	-0,6	0,0
Inland water and costal transport	1,7	2,9	1,4	7,5	2,0	-0,8	-2,3	-3,6
Other transport industries	0,5	2,6	3,7	7,4	4,4	1,1	2,2	1,8
Post and telecommunications	1,8	-1,1	-2,3	-0,6	-1,6	-2,7	-4,3	-5,5
Financial intermediation	0,1	-1,0	-1,6	-0,4	-1,7	-2,3	-2,0	-2,4
Dwelling services	2,6	2,5	0,0	0,4	-4,6	-6,9	13,0	-0,0
Business services etc.	5,2	7,3	9,1	7,9	8,7	9,8	9,9	8,3
Personal services	1,7	1,9	2,3	2,8	2,7	2,4	1,3	2,6
General government	1,6	2,7	2,1	1,6	2,1	2,4	2,2	2,3
Central government	-0,7	1,5	0,2	0,2	0,2	0,0	0,5	1,0
Civilian central government	0,7	2,0	1,9	2,0	1,9	1,6	2,2	1,2
Defence	-3,7	0,1	-3,8	-4,2	-3,7	-3,7	-3,4	0,6
Local government	2,3	3,0	2,6	2,0	2,6	3,1	2,7	2,7
Mainland-Norway	2,6	3,1	3,4	4,1	3,6	3,1	2,9	2,8
Total employees and self-employed	2,1	2,5	2,9	2,8	3,0	2,8	2,8	3,0

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