

Economic Survey

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Economic survey 1998

- Preliminary National Accounts for Norway 1998
- Overview of international and Norwegian economic development in 1998 and outlook for 1999 and 2000

Article

- Economic objectives and results of the Energy Act

Economic Survey

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Economic Survey

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Economic Survey

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Economic Survey

Prospects

1998 was a turbulent year for the Norwegian economy, with continued brisk domestic growth, growing imbalances in the labour market and an accelerating rise in costs. International financial unrest, a considerable fall in oil prices, a deterioration in the current account and reduced confidence in Norway's monetary policy, with interest rates nearly doubling, also left their mark on the year under review. Towards the end of 1998, there were also clear signs of stagnation or decline in both investment and household demand.

The cyclical upturn over the past six years has been broadly based, with a strong growth impetus from private mainland investment, traditional merchandise exports and household consumption. Gradually, public sector demand and, in particular, investment in the petroleum sector, have also influenced developments. A considerable mobilization of the labour force has been a precondition for the sustained and strong period of growth without being accompanied by accelerating wage pressures.

This situation could not persist for a very long time. The pace of growth had to moderate. At the beginning of 1998, manpower reserves came under considerable pressure in a number of labour market segments, and unemployment fell by a considerably greater margin last year than in earlier years of the upturn. Growing imbalances in the labour market have during the past two-three years contributed to progressively higher wage growth. Following the wage settlements in 1998, the picture of deteriorating competitiveness for mainland enterprises was clearly in evidence.

The fall in oil prices through 1998 came on top of this, thereby making it substantially more demanding to maintain a stable exchange rate against European currencies. With reduced petroleum revenues and cost levels out of step with our trading partners, the krone exchange rate was in reality perceived as overvalued, at least by money and exchange market participants. In this situation, either costs or the nominal exchange rate must be adjusted to the new situation. So far the exchange rate has borne the brunt even though interest rates have nearly doubled.

The involuntary tightening of monetary policy through the second half of 1998 will undoubtedly contribute to a more pronounced cyclical turnaround than would otherwise have been the case. In early 1998 there were signs of an imminent decline in mainland investment, partly due to the completion of several, major public sector construction projects. In addition, petroleum investment is expected to decline in 1999. Nor is it likely that the international economy will provide much stimulus this year. All in all, it is therefore likely that the mainland economy will record zero growth between 1998 and 1999, and a slight increase in unemployment.

With hindsight it can be said that we would have been better equipped to tackle the fall in oil prices in 1998 and the necessary cooling off of the Norwegian economy in 1999 if we had managed to moderate the growth rate of the economy in the previous two years. A tighter fiscal policy, particularly in 1997 and 1998, and a moderate tightening of the labour market could have resulted in cost inflation which was more in line with the requirements for long-term stability. The fall in oil prices would then have had a less dramatic impact on interest rates and the exchange rate than we have witnessed.

The experience of 1997 and 1998 underlines how important it is for the various components of economic policy to function effectively. In recent years the plans have called for a clear division of responsibility for the various policy components. Monetary policy should be oriented towards maintaining a stable krone exchange rate. Fiscal policy should be formulated with a view to stabilizing economic demand. Incomes policy should, through close cooperation between the social partners, attempt to keep price and wage inflation at a low level. This interplay functioned well through large parts of the 1990s. Developments in the last few years, however, have also demonstrated that the system is vulnerable, and that the burden on one policy component can quickly become excessive when pressures arise. It must also be added that the policy programme was not particularly well designed to cope with the drastic changes in the operating environment, such as a sharp fall in oil prices.

There are obviously problems in restricting stabilization policy to the use of one single instrument. Analyses indicate that if fiscal policy is to bear the entire burden for stabilizing the economy, this may require considerable budgetary changes. But fiscal policy shall also contribute to covering the demand for government-financed goods and the distribution between groups and generations. A shift in monetary policy with a view to stabilizing inflation and cyclical fluctuations may, on the other hand, require considerable interest rate changes in order to succeed. Interest rate policy can in given situations help to alleviate fiscal policy, but for a small, open economy like that of Norway, emphasis must in any case be placed on exchange rate considerations and the effects on income determination. Petroleum investment can also be influenced, but cannot be fine-tuned in a cyclical context to any great extent.

The experience of the recent period of expansion and the fall in oil prices last year indicate that in the period ahead we cannot apply a strict division of responsibility between the various instruments of economic policy. In a resource-based economy, which will be heavily influenced by fluctuating commodity prices and markets and can therefore come out of step with the situation among our main trading partners, it will be particularly difficult to have low and stable inflation at all times and, at the same time, low unemployment. We must be prepared for setbacks in the economy and the possibility that the policy being conducted will again come under pressure. In such situations, it is particularly important that the various policy elements underpin each other with a view to cyclical stability. Moreover, we should be prepared for somewhat more pronounced short-term fluctuations in the exchange rate, interest rates and inflation than the objective to date, but without relinquishing the requirements for long-term stability.

At the beginning of 1999 the Norwegian economy is at a turning point. The rate of growth will decline, and we must adapt the use of instruments to lower oil prices and a cost level that is out of step with that of our trading partners. However, high employment, low unemployment, moderate price inflation and a solid financial position for both the central government and for households are also part of the picture. The Norwegian economy is out of balance, but not without some bright spots. The possibilities for restoring balance should therefore be favourable.

International economy

GDP growth among Norway's main trading partners is likely to be appreciably lower in 1999 than in the previous two years. The turnaround is partly related to the Asian crisis and its reverberations, which have generated a negative demand impetus to the world economy. It must also be seen in the light of a more normal economic slowdown in the US and the UK following six-seven years of expansion. The growth outlook for Germany, France and Italy has also been revised downwards during the past year. So far it appears that the orientation of monetary policy in the euro area is not compensating for the effects of several years of fiscal tightening. In Japan, which has been severely affected by the Asian crisis and which itself has structural problems in the financial sector, GDP is expected to contract by about 1 per cent this year, following an estimated decline of more than 2 per cent last year.

Lower economic activity on a global basis contributed to a sharp fall in commodity prices in 1998, especially crude oil prices. This is one of the reasons why consumer price inflation has abated substantially among Norway's main trading partners, and the forecasts point to price inflation of less than 1 per cent in these countries again in 1999. Along with the prospect of lower economic activity, subdued inflation contributed to interest rate cuts in a number of countries through the second half of 1998. Three-month euro rates now stand at about 3 per cent, and short-term interest rates in the US have been reduced to less than 5 per cent.

The US gross domestic product probably expanded by more than 3.5 per cent last year, almost on a par with the unusually high growth rate for 1997. Negative trade effects from Asia and Latin America, which combined account for nearly half of US exports, were offset by a sharp rise in domestic demand. Private consumption was stimulated by high income growth, and a sharp rise in asset values contributed to reducing current saving. The household savings ratio has been declining throughout the ongoing upturn and is now at an historically low level. This implies that growth in consumption will not exceed income growth in the near term, and also entails that US households may react strongly should equity prices and prices of other financial assets decline. This may well occur if international investors decide that they want to increase the proportion of euro securities in their portfolios at the expense of dollar securities (see separate box). Fixed investment has expanded considerably throughout the upturn in the 1990s, but there are now indications that investment growth will slow in the period ahead. A tighter credit supply and stricter risk assessment procedures from the financial sector are expected, partly because banks have recorded sizeable losses on investments in Eastern Asia and Russia, and may experience the same in Latin America. After a prolonged period of expansion, unemployment in the US is now at its lowest level for 25 years, at about 4.5 per cent. In spite of

the tight labour market, consumer price inflation has remained subdued during this upturn. Price inflation is projected at 2 per cent in 1999, moderately higher than in 1998 when a strong dollar and low rise in import prices contributed to unusually low inflation. Low inflation in

Economic forecasts for Norway's main trading partners. 1997-2000

Annual per cent change

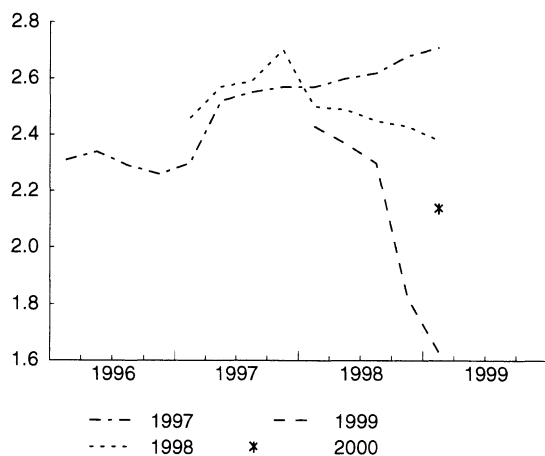
	1997	1998	1999	2000
USA				
GDP	3.9	3.7	2.4	2.2
Consumer price	2.3	1.6	2.0	2.3
Unemployment rate ¹ (level)	5.0	4.5	4.8	5.0
Japan				
GDP	0.8	-2.8	-1.1	0.1
Consumer price	1.8	0.6	-0.4	-0.3
Unemployment rate ¹ (level)	3.4	4.1	4.8	4.9
Germany				
GDP	2.2	2.7	1.8	2.5
Consumer price	1.8	0.9	1.0	1.6
Unemployment rate ¹ (level)	11.4	11.1	10.8	10.5
France				
GDP	2.3	3.0	2.2	2.7
Consumer price	1.2	0.7	0.7	1.2
Unemployment rate ¹ (level)	12.5	11.8	11.4	11.1
United Kingdom				
GDP	3.5	2.5	0.5	1.9
Consumer price ²	2.8	2.6	2.3	2.2
Unemployment rate ¹ (level)	5.5	4.7	5.3	6.0
Italy				
GDP	1.5	1.5	1.9	2.4
Consumer price	1.7	1.8	1.4	1.6
Unemployment rate ¹ (level)	12.3	12.2	12.0	11.8
Sweden				
GDP	1.8	2.8	2.1	2.6
Consumer price	0.5	0.4	0.5	1.3
Unemployment rate ¹ (level)	8.0	6.5	6.3	6.0
Denmark				
GDP	3.3	2.6	1.7	2.0
Consumer price	2.1	1.8	2.1	2.2
Unemployment rate ¹ (level)	7.7	6.5	6.0	5.9
The Netherlands				
GDP	3.6	3.7	2.4	2.4
Consumer price	2.2	2.0	1.7	1.9
Unemployment rate ¹ (level)	5.5	4.1	4.2	4.4
Memorandum items:				
GDP trading partners	2.7	2.4	1.6	2.1
CPI trading partners	1.7	1.3	1.2	1.6
ECU interest rate	4.2	4.2	3.0	3.4

¹ Per cent of labour force.

² Exclusive interest rates.

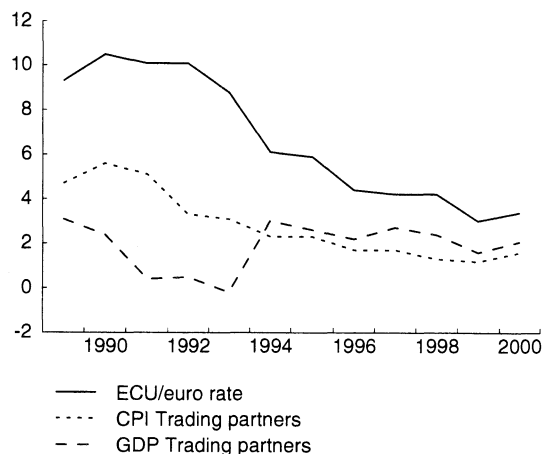
Sources: Consensus forecasts. Unemployment rates for Sweden, Denmark and The Netherlands and from OECD.

GDP-growth forecasts for Norway's main trading partners for 1997 - 2000 given on different dates



Source: Consensus Forecasts.

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



Source: Statistics Norway.

1998 and expectations of slower growth in economic activity in the period ahead prompted the Federal Reserve to lower interest rates several times last autumn. In view of the brisk growth in GDP at the end of 1998, further interest rate cuts are not likely in the near term. The forecasts indicate a GDP growth in 1999 which is close to trend growth, i.e. a little less than 2.5 per cent.

The economic situation in Japan worsened substantially in 1998. GDP growth slowed through 1997 and 1998, and preliminary estimates indicate that Japan's GDP contracted by a good 2 per cent (annual rate) in 1998. The economic problems among some of Japan's Asian trading partners have had an adverse impact on both exports and financial institutions. Domestic demand has also moved on a sluggish trend despite the increase in households' real after-tax income and a decline in interest rates (particularly long-term). This must probably be seen in connection with the problems in the banking sector and the weak trend in the labour market. In an attempt to restore confidence in the financial system, the authorities have supplied considerable liquidity to financial institutions. The recession has

also contributed to a substantial rise in unemployment, which towards the end of 1998 stood at about 4.5 per cent. Employment, particularly in manufacturing, has declined considerably, and the ratio of vacancies to job-seekers has fallen to its lowest level since the index was established 1963.

Developments in the period ahead will partly depend on the effects of the large fiscal stimulus packages launched through 1998. Previously announced measures have only been implemented in part and temporary tax cuts seem to be having little effect on demand, probably because market participants know that they will later be countered by a tightening of policy. With money market rates close to zero, there is little scope for further monetary policy stimulus. In addition, the appreciation of the yen over the past few months may contribute to making Japanese products less competitive in relation to foreign competitors, thereby curbing growth further in the period ahead. In other words, there is little prospect of a positive turnaround in the Japanese economy, and the forecasts point to a continued decline in GDP this year. Consumer prices are expected to fall in 1999 after rising by per cent from 1997 to 1998.

Economic activity in EU countries increased by an estimated 2.8 per cent last year, or approximately the same as in 1997. Several factors point to slightly lower growth this year. The reverberations of the Asian crisis and the outlook for slightly lower growth in the US indicate a relatively weak external growth impetus this year. Confidence indicators in Germany and France show that firms have become more pessimistic about future prospects. At the same time, it appears that the decline in interest rates so far has not fully compensated for the tight fiscal policy that was conducted in the period up to the establishment of EMU. While the level of activity in Italy may show slightly stronger growth this year than in 1998, GDP growth in Germany and France is likely to edge down. The UK, which has experienced a sustained period of expansion, is now set to record markedly weaker growth in 1999 than in 1998. Denmark, the Netherlands and Sweden, which account for a relatively high share of Norwegian exports, will probably also record lower GDP growth in 1999 than last year.

Consumer price inflation has slowed year after year in the EU area over the past eight years, and was reduced to 1 per cent last year. In Germany, France and Sweden, inflation is now clearly below this average. Developments in consumer prices must be viewed in connection with the slower rise in import prices in many countries as a result of the Asian crisis and the fall in crude oil prices. In addition, the domestic inflationary impetus is fairly weak. Despite a slight decline, the unemployment rate remains at a high level and wage growth is moderate in most EU countries. Against this background, consumer price inflation is expected to remain subdued both in 1999 and next year.

On 1 January 1999, 11 EU countries joined European Monetary Union (see separate box). This means that these countries will have the same interest rate level, controlled by the European Central Bank (ECB). In preparation for

EMU a number of euro countries lowered their interest rates considerably through 1998. Since the beginning of the year the common interest rate in EMU has been about 3 per cent, i.e. slightly below the German level at the end of last year. The European Central Bank has announced that the objective of monetary policy will be to keep inflation (measured by the harmonized index of consumer prices) at below 2 per cent. With the prospect of price growth well below this in 1999, a further cut in the euro rate cannot be ruled out.

Recent years' endeavours to qualify for participation in EMU have left a clear mark on economic developments in continental EU countries. The 11 members of EMU recorded an average general government budget deficit equivalent to nearly 5 per cent of GDP in the period 1991-1995. In 1997, the deficit was reduced to about 2 per cent of GDP, and this figure was probably further reduced in 1998. With EMU in place, the economic and political motives for further fiscal tightening are somewhat reduced, but not eliminated. Several countries are now planning to maintain a relatively tight fiscal stance, and it is not likely that the general government sector in euro countries will generate a strong growth impetus in the period ahead.

Developments in the oil market

The spot price of Brent Blend averaged a little less than \$13 a barrel in 1998, compared with about \$19 in 1997. The oil price fell from a level of \$20 in November 1997 to around \$11 a barrel in mid-June 1998.

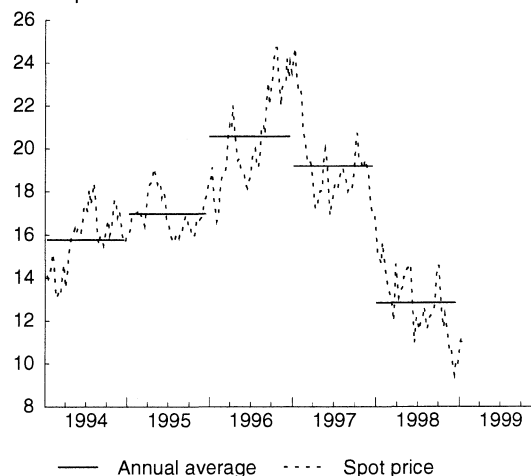
There are several reasons for the sharp decline in the oil price. First, OPEC increased its quotas in November 1997. Furthermore, Iraq concluded a new and expanded agreement with the UN, entailing that Iraq increased its exports under the oil-for-food agreement by a little more than 1 million b/d in 1998. In addition, demand in Asia was reduced as a result of the substantial economic problems in the region, while a mild winter in 1997-1998 contributed to low demand for heating oil in the OECD area. This resulted in an increase in oil stocks of as much as 2.3 million b/d during the first six months of 1998.

OPEC decided to reduce oil production by altogether 2.6 million b/d in March and June 1998. However, because the cartel had previously raised quotas and the production cuts did not include Iraq, OPEC's production was actually 0.8 million barrels higher per day in 1998 than in the previous year. Even though Norway, Mexico, Russia and a few other non-OPEC countries decided to reduce production by 450 000 b/d, the rise in production in OPEC countries and the sizeable oil stocks entailed that these production cuts had little effect on the oil price.

Oil prices drifted up to \$15 in September 1998, but this was ascribable to temporary factors such as high demand for petrol in the US and a halt in production in Nigeria, Colombia and the Gulf of Mexico. The spot price was about \$11 a barrel at the end of January 1999.

Spot price, Brent Blend. 1994-1999

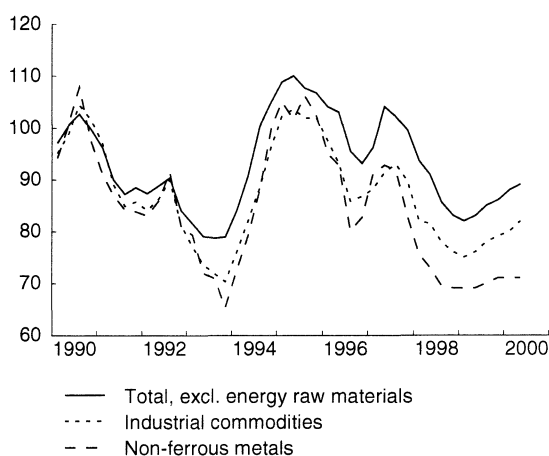
Dollar per barrel



Source: Petroleum Intelligence Weekly.

Commodity prices on the world market. 1990 - 2000

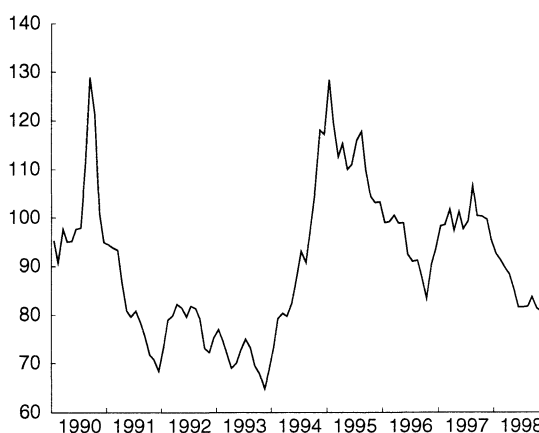
Dollar based indices. 1990 = 100



Source: HWWA-Institut für Wirtschaftsforschung.

Aluminium price. 1990 - 1998

Dollar based index. 1979=100



Source: World Metal Statistics.

Will the introduction of the euro lead to an improved global balance?

With effect from 1 January 1999, eleven European currencies were replaced by the euro. The French franc, Deutsche mark, Italian lira, etc. are now various denominations of the euro, with a conversion rate that is now permanently locked in. This last phase in the preparations for the EU's monetary union will be completed when the euro has replaced existing national currencies in all respects in the year 2002.

In economic terms, the euro area is comparable to the US, i.e. the size of the labour force, the value of total production, trade as a share of GDP, etc. are of comparable magnitude. The establishment of EMU has thereby given us a new, large currency area, and the US dollar may experience increased competition as an international reserve and investment currency. This may at first have consequences for interest and exchange rates and in turn for production and trade.

It is likely that the capital market for securities denominated in euros will be efficient and liquid. This means that the spread between bid and offer prices for the various securities will be marginal, and that those who want to trade swiftly and safely will find a counterparty. In such an event the euro market may become just as attractive as the dollar market, and more attractive than the market for those currencies being replaced by the euro. This entails that managers of substantial financial assets may want to shift their dollar assets to euro assets.

Total outstanding financial claims, however, change slowly over time. Changes in the desired composition of global

securities portfolios may thus only be satisfied through a change in the prices of financial variables, such as exchange rates and share prices. It may thus be said that the desired volume of securities must at any given time be equal to the given volume. If market participants attempt to sell off US government securities because they perceive their holdings as too high, prices for such securities will fall and the interest rate will immediately rise. If attempts are made to replace US securities with claims denominated in e.g. the euro, the US dollar will also depreciate against the euro.

A shift in the composition of international investors' portfolios, as indicated above, will have real economic consequences both for the US and for the rest of the world. The US has an annual trade deficit of close to \$300 billion, equivalent to two years' GDP for Norway. Compared with the situation in the 1980s, the private sector now saves less than it invests, while previously it was the public sector which had financial imbalances. Higher interest rates will probably stimulate higher household saving in the US. The household saving ratio in 1999 is likely to be close to zero. Higher interest rates will also contribute to curbing fixed investment in the private sector. The combination of higher saving and lower investment means that the current account deficit will be reduced. A slightly weaker dollar, which will improve the competitive position of US enterprises, will have the same effect. Changes in behaviour, as indicated, may thereby contribute to reducing the imbalance in trade between the US and other countries.

If some parts of the world continue to experience a relatively cold winter, stocks may be reduced by about 1 million b/d in the six-month period to end-March 1999. This reduction in stocks, however, only corresponds to about half the increase in stocks which took place through the first half of 1998.

The IEA projects that total world oil demand will increase by 1.1 million b/d in 1999 compared with 1998. North America is expected to account for most of this increase, while it is assumed that the economic problems in Asia do not worsen and thereby reduce demand further. In contrast to recent years, only a marginal increase in production in non-OPEC countries is expected in 1999, primarily in the North Sea and Latin America. The low oil price, which has prevailed for almost one year, entails that fewer new projects are profitable and initiated. If OPEC extends its cuts through the last half of 1999 and continues to fulfil about 80 per cent of the approved reductions, global production may remain approximately constant this year. This development is contingent on Iraq maintaining its current level of exports. In such an event, this will mean that oil stocks, which were increased by 1 million b/d in 1998, will not increase further in 1999. It is possible, however, that both global demand and production in non-OPEC countries will be lower than the level now projected by the IEA. In its publications, the IEA has for some time scaled back its forecasts for both oil demand and non-OPEC production. A reduction of the same magnitude in these two variables will result in stable stocks.

The low oil price has resulted in a considerable reduction in revenues in a number of OPEC countries. One reason that production has nevertheless not been reduced by a greater margin may be that some member countries now perceive this as an opportunity to increase their market share in the long term, at the expense of high-cost countries outside the cartel. In any case, it appears that the oil price will remain low throughout 1999 if OPEC does not adopt new and extensive production cuts. OPEC's first ordinary ministerial meeting will take place on 23 March in Vienna.

Commodity prices

Commodity prices, excluding energy, peaked in May 1997 and by autumn 1998 had fallen by about 25 per cent. The decline must be viewed in connection with the Asian crisis and its spread to other regions, resulting in reduced demand for commodities in the global market. Prices for food and beverages and metals showed the steepest drop, falling by around 30 per cent, while prices for agricultural raw materials plummeted by 20 per cent in the same period. Timber prices also moved on a weak trend through 1998, probably as a result of the sluggish construction market in Western Europe, particularly in Germany. Developments in the period ahead will partly depend on to what extent the reduction in interest rates will offset the negative demand impetus from the housing market in a number of countries. In its October 1998 report, the AIECE projected that commodity prices would level off and gradually rebound in 1999. This estimate is based on the assumption that GDP growth in the OECD area will remain approximately unchanged from 1998 to 1999, an assumption which now seems optimistic.

Norwegian economy

Developments in 1998

According to preliminary national accounts figures, mainland GDP expanded by a little less than 3 per cent last year. 1998 was thus the sixth consecutive year of expansion in the mainland economy. Employment rose by 52 000 in 1998, with nearly 71 per cent of the population in the age group 16-74 years gainfully employed. Unemployment was reduced to 3.2 per cent of the labour force, a good half a percentage point above the level at the cyclical peak in the mid-1980s.

Growing imbalances in the labour market during the past few years have contributed to strong competition for labour and accelerating wage growth. Preliminary figures show a rise in wages per normal man-year of 6.3 per cent last year. With a rise in consumer prices of 2.3 per cent, this means that real wages increased by 4 per cent. As a result of the decline in the oil price from Nkr 136 a barrel as an average for 1997 to a good Nkr 96 in 1998, the current account showed a deficit for the first time in the 1990s.

Over the past six years of expansion, mainland GDP has risen by about 3.5 per cent a year. This is about one percentage point higher than the average of the previous 25 years, and approximately on a par with growth during the cyclical upturn in the mid-1980s. The upturn has been more broadly based than during the previous period of expansion, with persistently strong growth impulses from household consumption, private mainland investment and traditional merchandise exports. In the past two-three years, general government demand, but especially petroleum investment, have made a considerable contribution to total demand growth.

Developments through 1998, however, indicate that Norway has now passed a cyclical peak. Traditional merchandise exports showed far slower growth than earlier, and mainland investment has exhibited a falling trend since the beginning of 1998. Household consumption also declined towards the end of last year, probably as a result of the pronounced rise in interest rates in the third quarter. There were also some signs of a levelling off in employment and stabilization of unemployment, while the percentage of manufacturing enterprises reporting that output was being limited by the supply of labour appeared to be declining.

Monetary policy generally had an expansionary effect in the period from the beginning of 1993 until the end of the first quarter of 1998. In order to counteract growing depreciation pressures on the Norwegian krone, Norges Bank doubled its key rates for banks between the end of March and mid-August 1998. This orientation of monetary policy thereby contributed to curbing growth in the Norwegian economy. Money market rates rose to a level which was nearly 4 percentage points higher than corresponding ECU

rates, and financial institutions' lending and deposit rates shadowed movements in the money market rate with a slight lag. The average lending rate in private financial institutions rose from about 6 per cent to nearly 9.5 per cent between the second and third quarter of 1998, and this level was maintained until the end of the year. This interest rate level will, with price inflation in the range 2.5-3 per cent, result in a real after-tax interest rate of about 3.5-4 per cent, i.e. about the same as in the period 1994-1996, but double the level in 1997 and first half of 1998.

The sharp increase in Norges Bank's key rates has not yet been sufficient to bring the krone exchange rate back to its initial range as defined in the Exchange Rate Regulation. However, from a very weak level at the beginning of the year, the krone appreciated slightly against the ECU/euro through January, without substantial interventions by Norges Bank. Against this background and the generally weaker growth prospects for the Norwegian economy, Norges Bank reduced its key rates by half a percentage point on 28 January this year. Money market rates fell to just above 7 per cent, resulting in an interest rate differential against the euro of about 4 percentage points.

The fall in oil prices has been cited as an important factor behind the depreciation pressure on the Norwegian krone last year. From a level of nearly \$18 a barrel in the fourth quarter of 1997, the spot price of Brent Blend fell to about \$14 in the first quarter of 1998, declining further to \$11 as an average for the fourth quarter. For 1998 as a whole, the price was about \$13, in real terms the lowest level for 25 years, and more than 30 per cent below the level in 1997 and 1996. Combined with falling exports of crude and natural gas through 1998, the decline in crude oil prices contributed to a sharp deterioration in the current-account balance, from a surplus of nearly Nkr 57 billion in 1997 to a deficit of close to Nkr 9 billion last year.

The exchange rate may also have been influenced by the relatively sharp rise in labour costs over the past few years because, in isolation, this contributes to a deterioration in Norwegian producers' cost competitiveness and thereby lower current-account surpluses than would otherwise have been the case. While hourly wage costs generally rose at a slower pace in Norwegian manufacturing than among trading partners in the period 1989-1994, the situation in recent years has been the reverse. In 1998, the difference appears to have been close to 2 per cent.

In contrast to monetary policy, fiscal policy has to some extent contributed to curbing growth in the economy the past few years. According to the Ministry of Finance's fiscal policy indicator, however, the tightening effect has been steadily reduced during the upturn. The pattern is reflected in changes in general government consumption, which during the first three years of the upturn expanded at

Macroeconomic indicators. 1997-1998

Growth from previous period unless otherwise noted. Per cent

	1997	1998	Seasonally adjusted			
			98.1	98.2	98.3	98.4
Demand and output						
Consumption in households and non-profit organizations	3.4	3.2	0.2	1.5	0.9	-1.5
General government consumption	3.0	2.8	0.9	0.3	0.6	0.4
Gross fixed investment	12.6	6.6	1.1	0.9	1.8	-0.8
- mainland Norway	9.7	2.0	-1.6	-0.3	-1.8	0.9
- petroleum activities ¹	15.5	22.3	-0.0	18.4	5.3	-5.4
Final domestic demand from mainland Norway ²	4.5	2.9	-0.0	0.9	0.3	-0.6
Exports	5.8	0.5	2.4	-2.5	-2.5	1.2
- crude oil and natural gas	2.3	-3.2	-0.7	-1.6	-7.8	5.0
- traditional goods	8.0	3.7	3.6	-4.3	2.7	0.9
Imports	12.3	6.9	4.0	-2.2	0.5	2.0
- traditional goods	8.6	9.5	1.8	1.0	0.4	1.7
Gross domestic product	3.4	2.0	-0.3	0.4	-0.0	0.2
- mainland Norway	3.7	2.9	-0.2	1.0	0.6	-0.2
Labour market³						
Man-hours worked	2.3	2.4	0.4	0.3	-0.9	1.2
Employed persons	2.9	2.3	1.0	0.0	0.5	0.2
Labour force	2.4	1.4	0.6	0.0	0.2	0.2
Unemployment rate, level ⁴	4.1	3.2	3.4	3.4	3.1	3.1
Prices						
Consumer price index ⁵	2.6	2.3	2.1	2.2	2.3	2.3
Export prices, traditional goods	0.5	0.7	-0.6	-0.3	-0.4	-1.3
Import prices, traditional goods	-1.1	1.3	0.5	0.8	0.2	-1.2
Balance of payment						
Current balance, bill. Nkr	56.8	-8.7	7.7	0.1	-5.1	-11.5
Memorandum items (unadjusted, level)						
Money market rate (3 month NIBOR)	3.6	5.7	3.8	4.4	6.5	7.9
Average borrowing rate ⁶	6.0	7.1	6.0	6.1	7.6	9.0
Crude oil price Nkr ⁷	135.6	96.3	106.5	100.0	95.2	84.1
Importweighted krone exchange rate	100.3	104.8	102.8	103.4	105.2	107.6
Norges Bank's ECU-index	100.3	105.9	102.5	103.5	106.7	110.3

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).

⁵ Percentage change from previous year.

⁶ Households' borrowing rate in private financial institutions.

⁷ Average spot price. Brent Blend.

Sources: Statistics Norway and Norges Bank.

a markedly slower rate than mainland GDP, but which only expanded by about half a percentage point less as an average for the years 1996-1997. Last year the difference was even less, but general government investment increased far more slowly in 1998 than in 1997 when investment related to the primary school reform resulted in a sharp rise in this demand component.

As a result of the cyclical turnaround in 1993 and vigorous growth in the central government's net cash flow from petroleum activities, general government net lending rose from a negative Nkr 12 billion in 1993 to Nkr 79 billion in 1997. Net lending in 1998 is estimated at nearly Nkr 50 billion, equivalent to 4.5 per cent of GDP. The decline in net lending compared with the level the previous year is ascribable to a reduction of about Nkr 35 billion in the cen-

tral government's net cash flow from petroleum activities, partly as a result of higher investment expenditure for the central government, but primarily due to the sharp fall in oil prices.

The central government's non-oil deficit is provisionally estimated at Nkr 17 billion, Nkr 3 billion less than in 1997 and an improvement of as much as Nkr 55 billion compared with the record deficit in 1993. Measured at constant 1998-prices, the central government's non-oil deficit has averaged about Nkr 35 billion the last 20 years. By way of comparison, the central government's share of permanent income from petroleum activities was estimated at about Nkr 70 billion in the National Budget for 1999. This estimate is based on the assumption that oil prices rise to Nkr 120 a barrel in 2001.

Household consumption continued to generate a considerable impetus to growth in total demand in 1998. However, this demand component exhibited a noticeably weaker trend towards the end of last year. Car purchases, in particular, declined markedly, but purchases of furniture and other consumer durables also fell towards the end of 1998. It is natural to view this development in connection with the rise in interest rates, which makes it considerably more expensive to debt-finance purchases of cars and other consumer durables.

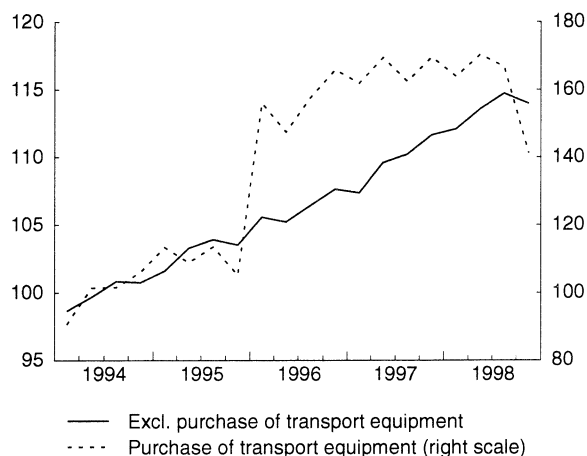
In isolation, the rise in interest rates contributes to reducing the growth in household real disposable income because Norwegian households as a whole have far higher debt than financial assets with a floating interest rate. However, as a result of the very sharp rise in wages and employment and higher transfers to social security recipients and families with small children, the growth in household real disposable income was just as high in 1998 as in 1997, close to 4 per cent. The household saving ratio increased by about half a percentage point, i.e. almost to the level at the start of the recovery in 1993.

The increase in interest rates in the second half of 1998 also appears to have curbed the rise in house prices. For 1998 as a whole, however, the rise in house prices was approximately on a par with the level in the previous three years. Despite the rise in house prices, housing investment declined from 1997 to 1998. This may have been influenced by delays in municipal processing of applications following the introduction of the new Planning and Building Act.

The sharp rise in house prices from the trough in early 1993 has substantially improved the household sector's ability to furnish collateral for loans. According to figures from Norges Bank, household liabilities only rose in real terms by 2 per cent from 1992 to 1996, whereas real disposable income grew by more than 14 per cent in the same period. In 1997, however, household liabilities increased at about the same pace as income, and the same appears to be the case in 1998. Towards the end of last year, it appeared that there was some levelling off in debt levels. Household net lending is estimated at Nkr 25 billion in 1998, slightly higher than the estimates for the previous two years. The sharp drop in equity prices in 1998 may nevertheless have contributed to a slight reduction in household net financial assets at the end of 1998 compared with one year earlier, after having risen continuously over the previous 9 years. This notwithstanding, the household sector's financial position is on average far more favourable than at the end of the cyclical upturn in the 1980s.

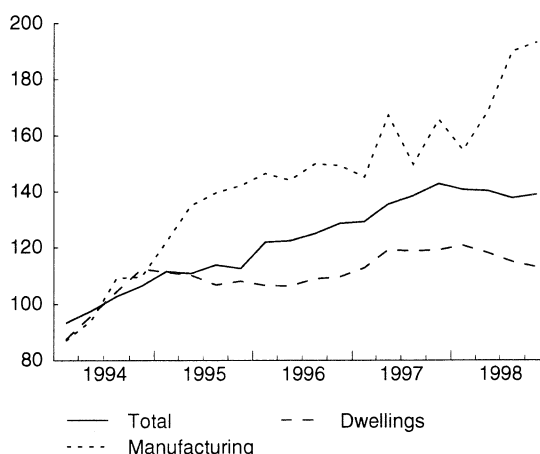
In the four-year period 1994-1997, mainland fixed investment made an annual contribution to growth in total demand equivalent to about 2 per cent of mainland GDP. This investment component, however, showed a seasonally adjusted decline throughout most of 1998, and growth on an annual basis appears to have been fairly moderate. Investment in manufacturing industry and other goods-pro-

Consumption in households
Seasonally adjusted volume indices, 1994=100



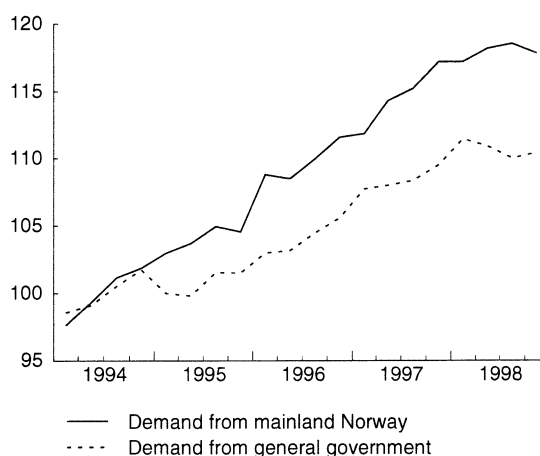
Source: Statistics Norway.

Gross fixed capital formation, mainland Norway
Seasonally adjusted volume indices, 1994=100



Source: Statistics Norway.

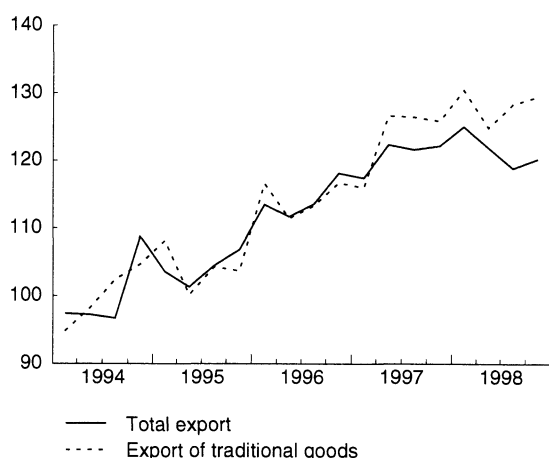
Demand from mainland Norway
Seasonally adjusted volume indices, 1994=100



Source: Statistics Norway.

Exports

Seasonally adjusted volume indices, 1994=100



Source: Statistics Norway.

Imports

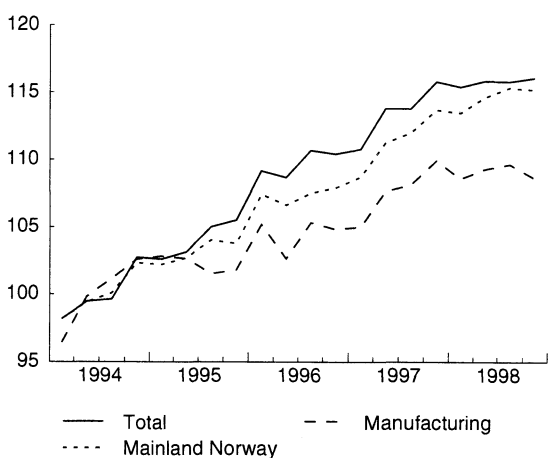
Seasonally adjusted volume indices, 1994=100



Source: Statistics Norway.

Gross domestic product

Seasonally adjusted volume indices, 1994=100



Source: Statistics Norway.

ducing industries pushed up the growth rate, while the opposite was the case for investment in private service industries. In spite of the substantial rise in mainland investment in the years 1994-1997, this demand component now accounts for a far smaller share of mainland GDP than in the period up to the mid-1980s, which was characterized by low real interest rates and credit rationing. Even though the authorities called for postponing some field development projects from 1998 until after 1 July this year, petroleum investment made a substantial contribution to growth in total demand in 1998, as was the case in 1997.

Traditional merchandise exports expanded by 3.7 per cent in 1998 after showing an average annual growth of around 8.5 per cent over the previous four years. While exports to the EU and the US continued to increase at about the same pace as in 1997, exports to other markets declined after expanding very sharply the previous two years. It now appears that Norwegian exporters lost market shares in 1998 following four years in which traditional merchandise exports showed an average annual increase that was 2.5 percentage points higher than merchandise imports among our main trading partners. It is natural to view this in connection with the rise in relative hourly wage costs the past few years.

Prices for traditional merchandise exports rose by a good half a percentage point last year, about the same as in 1997. Measured in Norwegian kroner, prices for this component of Norwegian exports were thus back to the level in 1995. Two factors help to explain why the sharp fall in prices for metals and industrial raw materials has so far not been visible in the average export price: prices for some Norwegian products are agreed for a certain period and thereby shadow international market prices with a lag, and the export-weighted krone exchange rate weakened by 5 per cent from 1997 to 1998.

The volume of both oil and gas production and exports declined from 1997 to 1998. The weak trend was partly related to delays in the completion of several development projects on the continental shelf, but must also be viewed in connection with the production limitations implemented from May of last year.

Growth in the volume of traditional merchandise imports slowed considerably through 1998, but due to sharp growth through 1997 this import component still showed an annual rise that was approximately on a par with the average of the previous three years. Prices for traditional merchandise imports have shown little change during the last three to four years, with prices rising by a good 1 per cent from 1997 to 1998. Even when we exclude imports of refined oil products and metals, which declined sharply, the rise in import prices was less than the depreciation of the import-weighted krone exchange rate. This may be because this exchange rate index underestimates the importance of imports from Asian countries with currencies that have depreciated sharply against the Norwegian krone, but may also reflect price adjustments by foreign producers in

step with changes in exchange rates in order to avoid losing market shares on their export markets.

Developments in manufacturing industry help to explain why mainland GDP growth measured at constant prices was slightly lower in 1998 compared with the previous year. Value added in this industry rose at a far slower pace than in the previous five years. The growth in value added in private service industries, on the other hand, remained high. Value added in the petroleum sector showed a decline for the first time in 18 years. If the last six years are considered as a whole, however, value added in petroleum activities has risen at a substantially faster pace than value added in mainland Norway, while goods and service industries in the mainland economy have moved on fairly parallel trend. By way of comparison, the growth in private service industries was considerably stronger than the growth in goods-producing industries during the cyclical upturn in the mid-1980s.

Employment growth has been considerable the last few years. In 1998, the number employed grew by 2.3 per cent after expanding by 2.9 per cent the previous year. From 1992 to 1996 employment increased by 240 000, equivalent to an average annual growth of nearly 2 per cent. This is a slightly higher average growth than during the upturn in 1983-1987. As during the upturn in the mid-1980s, the growth in employment in private service industries has been particularly high. Unlike the previous upturn, however, manufacturing employment has also risen sharply, while the growth in public sector employment has been more on a par with the average for the economy as a whole. In 1998, nearly 71 per cent of the population in the age group 16-74 years was gainfully employed. This is the highest employment rate that has ever been registered in Norway, and is also very high by international standards.

The bulk of the employment growth in the last five years has its counterpart in an expansion of the labour force, partly as a result of a growth in the working-age population and partly as a result of a sharp rise in participation rates, particularly for women. This was particularly in evidence in the period to end-1997. As a result, the unemployment rate only fell by a good half a percentage point a year, from 6.5 per cent of the labour force in 1992-1993 (adjusted for the revision to Statistics Norway's Labour Force Survey (LFS) in 1996) to 4.1 per cent in 1997. The sharp growth in the labour force tapered off during 1998, and unemployment declined by 0.9 percentage point, to 3.2 per cent, from 1997 to 1998.

Seasonally adjusted and smoothed monthly figures from the LFS indicate slower growth in employment through 1998, and a certain levelling off in unemployment. The latter trend is also reflected in changes in the Directorate of Labour's figures for registered unemployed and persons participating in ordinary labour market programmes up to the end of January this year. The number of vacancies has also moved on a slight downward trend over the last five months, while the rise in number of persons laid off in

December and January appears to have been higher than normal for this time of year.

The decline in unemployment the past few years and bottlenecks in the labour market have contributed to accelerating wage growth. Preliminary figures show a growth in wages per normal man-year of 6.3 per cent in 1998, or more than one and a half percentage points higher than the results for 1996 and 1997. Real wages increased by 4 per cent last year, the strongest rise in 20 years. For the last six years as a whole, real wages have risen by 2.2 per cent a year, considerably more than the average during the cyclical upturn in 1983-1987. While real wages probably grew at a slower pace than productivity in the mainland economy during the first three years of the upturn which is now coming to an end, it appears that real wages increased considerably faster the last three years. This may partly be ascribed to high profits in parts of the business sector in 1995, which contributed to relatively high wage growth in 1996. Another factor may be that it takes time before the entire wage effect of a tighter labour market is exhausted, and that the wage effect of a further tightening is greater the lower unemployment is at the start.

Wage growth the past few years has so far not had a strong impact in the form of accelerating price inflation. For 1998 as a whole, the consumer price index rose by 2.3 per cent after increasing by 2.6 per cent the previous year. The contribution to price inflation from changes in indirect taxes can be estimated at 0.5 percentage point in 1997 and a little less in 1998. In the past two years, however, the consumer price index has been heavily influenced by changes in electricity and petrol prices. When these two categories are excluded, price inflation showed a slight rising tendency through the second half of 1997 and first three quarters of 1998. The rise can primarily be ascribed to changes in prices for Norwegian-produced goods (excluding energy) and for services (excluding rent).

In the last six years consumer prices have risen by an average 2.1 per cent a year. This is on a par with the average for Norway's main trading partners in the same period, and close to half a percentage point lower than average price inflation in the ECU area. Both in 1997 and 1998, however, price inflation was about 1 percentage point higher than the average for our main trading partners.

As noted, the deterioration in the balance of payments, from a current-account surplus of nearly NKr 57 billion in 1997 to a deficit of nearly NKr 9 billion in 1998 must be seen in connection with the sharp fall in oil prices. About two thirds of the decline in the current-account surplus from 1997 to 1998 is ascribable to the reduced value of crude oil and natural gas exports, while the balance of goods and services deteriorated by a good NKr 23 billion. The deficit on the interest and transfers balance fell by about NKr 1 billion, primarily as a result of a pronounced rise in net interest income from abroad and reflecting the accumulation of net foreign assets through 1997. Movements in exchange rates contributed to a slight rise in

Main economic indicators 1997-2000. Accounts and forecasts

Percentage change from previous year unless otherwise noted

	Accounts 1998	1999			2000	
		SN	MoF	NB	SN	NB
Demand and output						
Consumption in households and non-profit organizations	3.2	1.4	2.7	1 3/4	2.0	1 1/4
General government consumption	2.8	0.7	1.1	1	1.9	2 1/4
Gross fixed investment	6.6	-11.4	-6.6	-9 1/2	-6.4	-8
- petroleum activities	22.3	-17.7	-12.5	-15	-18.3	-15
- mainland Norway	2.0	-9.6	-4.9	-8	-2.5	-5 3/4
- firms	4.1	-11.9	-7.5	-8 3/4	-5.0	-9 1/2
- housing	-0.7	-7.7	3.8	-10.0	3.9	-1 1/2
- general government	-2.1	-3.6	-3.8	-3 3/4	0.0	2
Demand from mainland Norway ¹	2.9	-0.9	..	-1/4	1.3	1/4
Stockbuilding ²	0.6	0.0	0.2	..	0.0	..
Exports	0.5	5.2	6.6	4 1/2	6.9	5 1/2
- crude oil and natural gas	-3.2	8.3	10.5	6 1/2	13.9	9 1/4
- traditional goods	3.7	3.9	4.7	2 1/4	3.0	3 3/4
Imports	6.9	-2.5	0.5	-2 1/4	0.2	1 3/4
- traditional goods	9.5	-2.0	1.6	-2	-0.2	3
Gross domestic product	2.0	1.1	2.6	1 1/4	2.8	1
- mainland Norway	2.9	0.0	1.3	1/2	1.3	-1/4
Labour market						
Employed persons	2.3	-0.4	0.7	1/2	0.4	-1/2
Unemployment rate (level)	3.2	3.8	3.2	3 1/2	3.9	4 1/2
Prices and wages						
Wages per standard man-year	6.3	5.3	5	6	4	4 1/4
Consumer price index	2.3	2.6	3 1/4	2 1/2	2.7	2 1/4
Export prices, traditional goods	0.7	0.2	1.9	3/4	2.9	2
Import prices, traditional goods	1.3	-0.1	1.9	1/2	0.9	1/4
Real price, dwellings	7.6	0.5	..	..	1.9	..
Balance of payment						
Current balance (bill. Nkr)	-8.7	14.4	32.5	17	65.9	35
Current balance (per cent of GDP)	0.8	1.3	2.8	1 1/2	5.5	3
Memorandum items:						
Household savings ratio	6.8	6.0	7.0	7 1/2	6.6	8
Money market rate (level)	5.7	5.8	..	..	4.5	..
Average borrowing rate (level) ³	7.1	8.3	..	..	6.7	..
Crude oil price Nkr (level) ⁴	96	87	110	90	101	91
International market growth	6.8	5.0	..	..	5.5	..
Importweighted krone exchange rate ⁵	4.5	-2.5	1.5 ⁶	..	-1.0	..

¹Consumption in households and non-profit organizations + general government + gross fixed capital formation in mainland Norway.²Change in stockbuilding. Per cent of GDP.³Households' borrowing rate in private financial institutions.⁴Average, Norwegian oil production.⁵Increasing index implies depreciation.⁶Effective exchange rate, manufacturing.

Sources: Statistics Norway (SN), Ministry of Finance, Nasjonalbudsjettet 1999 (MoF), Norges Bank, Penger og kreditt 1998/4 (NB).

Norway's net foreign assets again in 1998 in spite of the current-account deficit.

Outlook for 1999 and 2000

It now appears that the economy passed a turning point towards the end of 1998 and domestic demand is projected to contract from 1998 to 1999. A turnaround in investment, in particular, will contribute to the decline. High interest rates and a somewhat tighter fiscal policy will also contribute to lower domestic demand. The estimates for the international economy imply weak economic growth among Norway's main trading partners, pointing to mode-

rate growth in traditional merchandise exports in the period ahead. All in all, the present conditions will result in appreciably lower output and employment growth and lead to higher unemployment. Along with high wage growth, the depreciation of the krone will contribute to slightly higher price inflation in the period ahead, while increases in indirect taxes will generate a far lower inflationary impetus in 1999 than in 1998. Real wage growth will remain high, largely as a result of a high wage carry-over into 1999. Even though lower domestic demand will curb imports and contribute to improving the balance of payments position in 1999, low oil prices entail that the current-account balance is unlikely to show a large surplus before 2000.

Uncertain international prospects

Most forecasters expect an international cyclical downturn in 1999. Developments in Asia are one reason, but a more important factor is the likelihood that the growth rate in the US and the UK will slow substantially, partly for domestic reasons. Preliminary estimates for GDP in the fourth quarter of 1998 indicate, however, that so far no turnaround has occurred in the US. In Japan, the Government has presented a crisis package which may prevent a further fall in output, but pessimism continues to dominate. It is uncertain to what extent the measures in Japan will be able to resolve the crisis in the country's banking system. The Japanese financial system, which has experienced a virtually permanent crisis throughout the 1990s, is considered an important factor behind the country's low growth. So far, EU countries have not been severely affected by the international economic problems. As expected, the new European Central Bank is conducting a cautious interest rate policy where it appears that it does want to actively stimulate the economy. Lower international growth is now contributing to a decline in the EU's exports, and growth in the EU is expected to slow down. GDP growth among Norway's trading partners is estimated at about 1.5 per cent in 1999. Next year growth is expected to increase, particularly in Europe, while the recession in Japan is projected to come to a halt. GDP growth in the US is expected to be about the same as in 1999.

Inflation among Norway's trading partners is now down to a year-on-year rate of 1.0-1.5 per cent. The inflation rate varies slightly between different countries. The inflation rate is expected to edge up through 1999 and into 2000, but remain below 2 per cent. A weak rise in commodity prices, and not least oil prices, is an important factor behind the low inflation rate in the OECD area. With weaker demand growth in 1999, it is not likely that oil prices will rise sharply in the period ahead. We have, however, assumed that the oil price, measured in dollars, will drift up towards the end of 1999 and into 2000 as demand gradually picks up and the supply of oil continues to be limited.

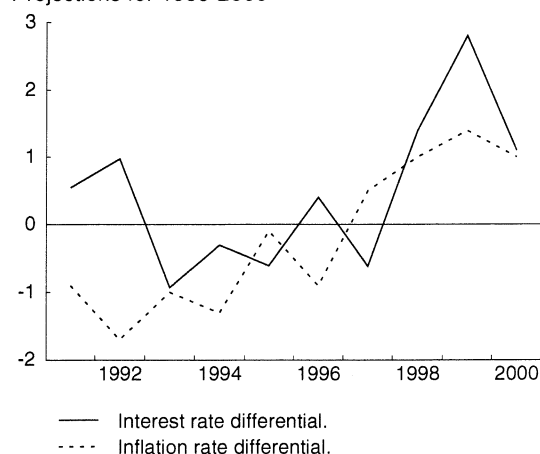
Against the background of sluggish economic growth and continued low price inflation, a number of central banks reduced their key rates towards the end of 1998. Interest rates are expected to fall further in the US and the UK. Interest rates have fallen to about 3 per cent in euro countries and it is unlikely that this interest rate will change substantially in the period ahead, unless there is a major international recession.

Interest and exchange rates in Norway

In recent months the money market rate in Norway was fairly stable at about 8 per cent before declining to a good 7 per cent in the last week of January, partly as a result of Norges Bank's reduction in its key rates. The import-weighted exchange rate has fluctuated considerably since September 1998 and was at its weakest level in December. The krone appreciated slightly in January.

Interest rate and inflation differential between Nkr, and the ECU/EURO. 1991-2000

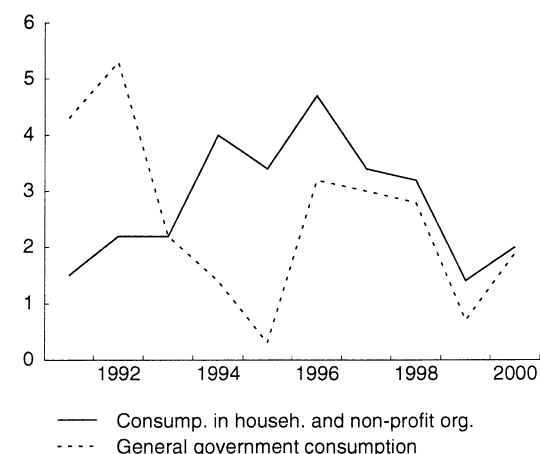
Projections for 1999-2000



Source: Central Bank of Norway and Statistics Norway.

Consumption

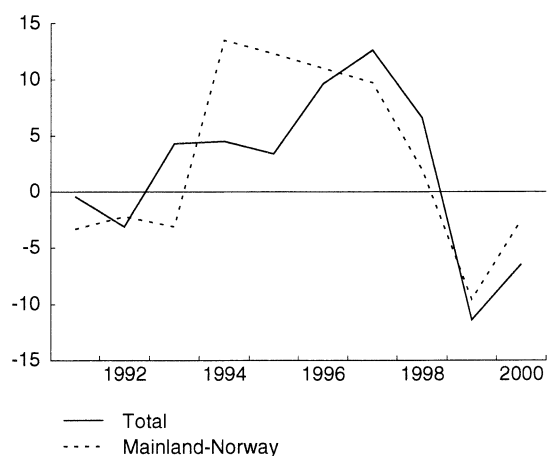
Percentage growth



Source: Statistics Norway

Gross fixed capital formation

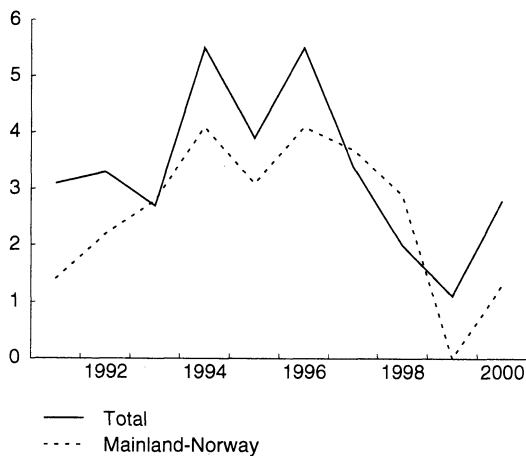
Percentage growth



Source: Statistics Norway

Gross domestic product

Percentage growth



Source: Statistics Norway

Exports

Percentage growth



Source: Statistics Norway

Labour market

Percentage change



1) Adj. for stat. rev. from 1996.
Source: Statistics Norway

As the high growth in domestic demand is gradually reduced which contributes to lower growth or even a decline in imports, the deficit on the current account in the second half of 1998 may be reversed to a surplus, albeit small, in 1999. Slightly higher oil prices will have the same effect. It is likely that exchange market participants now assume that a turnaround has taken place in the Norwegian economy. This also appears to have been one of the reasons for Norges Bank's decision to lower interest rates.

It is still assumed that the krone exchange rate will return to the mid-point in the existing target interval against the ECU/euro index in the course of the spring and that Norges Bank will continue to reduce interest rates. It is uncertain, however, how quickly interest rates will fall. According to our projections, Norwegian money market rates will decline through 1999, reaching 4.5 per cent at the beginning of 2000. With a projected interest rate level of about 3.5 per cent in the euro area, this will be approximately the same as the estimated inflation differential.

The US dollar and pound sterling are expected to depreciate against the euro in the period ahead. Projected lower economic growth and falling money market rates in these two countries are important factors behind this assumption. This influences the estimate for the import-weighted krone exchange rate, which depreciated by about 4.5 per cent from 1997 to 1998, but which is expected to appreciate in the period ahead and return approximately to the 1996 level in the course of 1999. This is expected to feed through to Norwegian import prices with a slight lag.

The underlying annual rise in prices for Norwegian imported goods, measured in foreign currency, can be estimated at a little more than 0.5 per cent a year in 1997 and 1998 based on estimates for export prices from the OECD. For 1999, the OECD has estimated this rise in prices at about zero, increasing to 1 per cent in 2000. As import prices for traditional goods only rose by 1.3 per cent in 1998, it is likely that at the beginning of 1999 there are considerable latent import price pressures measured in Norwegian kroner. A swift appreciation of the krone, as has been assumed, is therefore necessary if substantial increases in import prices are to be avoided in 1999 and our projection of approximately unchanged import prices from 1998 to 1999 is to materialize. Since the import-weighted krone exchange rate is assumed to be approximately the same in 2000 as in 1996, Norwegian import prices for traditional goods are expected to shadow the increase in prices for exports of goods from the OECD in the period as a whole. This is estimated at 2.5 per cent by the OECD. The estimate for import prices in Norwegian kroner has not been changed to any noteworthy extent since the last quarterly report. The effects of a sustained depreciation of the krone exchange rate are estimated in a separate section below.

Moderate tightening of fiscal policy in 1999

The approved government budget for 1999 entails a tightening of fiscal policy in relation to 1998. The budget entails

that indirect tax increases will make a smaller contribution to price inflation in 1999 than in 1998 and that the volume of public sector expenditure on goods and services for consumption and investment will be approximately unchanged. The estimates for 2000 are based on unchanged real tax rates and public spending growth that is assumed to be cyclically neutral.

Substantial decline in petroleum investment ahead

The growth in petroleum investment in 1998 is now estimated at about 22 per cent. In 1998, this investment accounted for a fourth of total fixed investment and was double the level of general government fixed investment. In 1999, petroleum investment is expected to return to the level recorded in 1997. Measured as a share of mainland GDP, this decline in demand corresponds to 1.4 per cent.

Low oil prices and sizeable cost overruns for many projects have reduced profitability in petroleum activities considerably during 1998. Against this background, there is reason to assume that oil companies will reassess their investment plans for 1999 and, not least, for subsequent years. Continued low oil prices may prompt companies to postpone investment projects, which may result in a continued sharp decline in investment in 2000. We have therefore assumed a further decline in petroleum investment from 1999 to 2000.

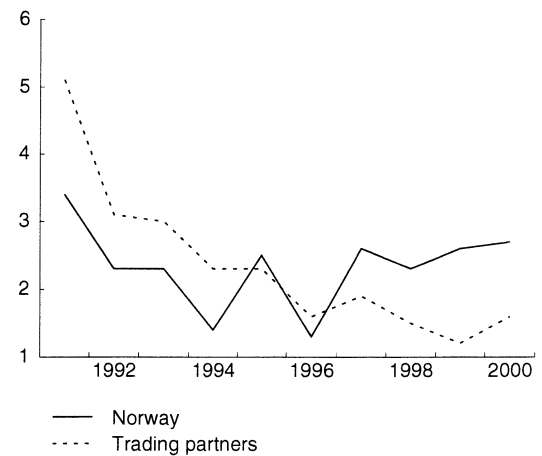
Norwegian oil production exhibited a sluggish trend in 1998, partly due to approved production limitations, but also as a result of delays in the start-up of new fields. Oil production is expected to be higher in 1999 as capacity increases. Gas production is also expected to rise, with growth continuing into 2000, while oil production is then expected to show little change.

Zero growth in the mainland economy in 1999?

According to preliminary national accounts figures, mainland GDP expanded by a little less than 3 per cent in 1998, while total GDP growth is estimated at 2 per cent. As in the previous quarterly report, growth in the mainland economy is expected to be substantially lower in 1999, and perhaps close to zero. Growth will be reduced as a result of a tighter fiscal policy and a weaker growth stimulus from the international economy, but particularly as a result of the fall in investment in petroleum activities and the mainland economy. The increase in interest rates in the second half of 1998 has contributed to reducing the growth in household demand. Even though interest rates may now be declining, interest rate movements through 1998 and 1999 will entail that consumption and housing investment will grow at a slower pace in 1999 than in 1998.

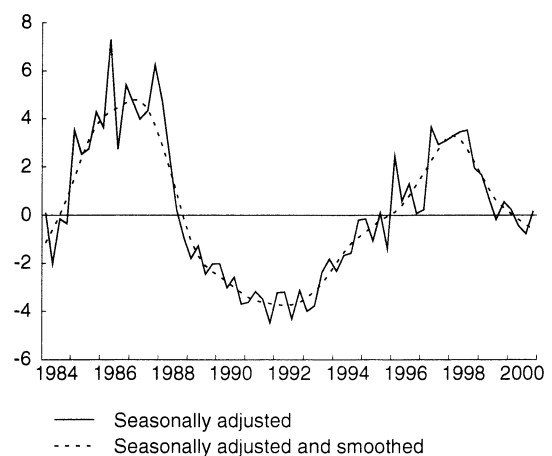
Even though only parts of the mainland economy have so far shown signs of a decline in investment, we project that investment more generally will be the main factor behind the cyclical downturn. A fall in general government investment, housing investment, manufacturing investment and,

Consumer price indices
Percentage growth



Source: Statistics Norway

GDP Mainland-Norway
Deviation from trend in per cent



Source: Statistics Norway.

not least, petroleum investment will contribute to this. Gross fixed investment is now projected to decline by about 10 per cent in 1999, or approximately the same as projected in our last report. For petroleum activities, manufacturing and the power supply sector, our projections are generally in line with the companies' own investment estimates, but we have assumed a slightly smaller investment decline in manufacturing than the level indicated by the companies. Housing investment has already fallen through 1998, and figures on housing starts imply a further fall in 1999. As a result of the increase in interest rates, residential construction is not expected to show any increase until the second half of this year. Housing investment may then resume an upward trend in 2000. Investment in private services is also projected to decline substantially in the period ahead. The completion of a number of major projects will contribute to this, but the decline will level off somewhat through 2000 as the downturn in the economy is curbed and production again increases.

The investment projections for 2000 are more uncertain, particularly for the petroleum sector. Low oil prices have prompted oil companies to review their projects with the aim of cutting costs and possibly postponing projects. The longer oil prices remain low in 1999, the more projects will be postponed and the more difficult it will be to avoid a substantial decline in investment also in 2000. All in all, however, investment is expected to decline by a much smaller margin in 2000 than in 1999.

Household consumption expanded by a good 3 per cent in 1998, but showed clear signs of levelling off towards the end of the year. Car sales have fallen noticeably in recent months and retail sales were lower in the fourth quarter than in the third quarter of 1998. According to preliminary estimates, the household saving ratio increased by about half a percentage point in 1998 to an historically high level. Markedly lower growth in households' real income will curb consumption growth in 1999. High interest rates will also contribute to reducing consumption growth next year. Compared with our last report, the estimate for consumption growth shows little change.

Traditional merchandise exports exhibited little growth through 1998 and are showing clear signs of stagnation. This was not unexpected in view of sluggish international economic developments. The weak growth in traditional exports is expected to continue through 1999. The depreciation of the krone since the summer of 1998 has enhanced competitiveness for export-oriented industries and is to some extent offsetting the effect of relatively high wage growth in Norway the last few years. However, an appreciation of the krone, as we have assumed, will in isolation contribute to a loss of market shares and reduced export growth in the short and medium term.

Our projections for mainland GDP for 1999 show a slight decline compared with preliminary estimates for 1998, but in general it may be said that the estimates entail a "pause in growth" for the mainland economy this year. Total GDP is projected to expand by a good 1 per cent this year, based on the assumption that oil and gas production will be higher than in 1998. Growth in the mainland economy is expected to pick up again later in 2000, partly as a result of the projected decline in interest rates through 1999 and the assumption of a cyclically neutral fiscal policy in 2000. International growth is also expected to be slightly higher next year. All in all, this results in a turnaround, with higher consumption growth, growth in housing investment and a slightly smaller decline in other mainland investment.

As a result of the sharp fall in investment, the construction industry in particular will notice the effects of the turnaround in the Norwegian economy in 1999. This sector has been one of the "winners" during the past upturn. A lower growth in consumption, however, will also have a negative impact on retail trade and other service industries. The projected sharp fall in petroleum investment will, in isolation, contribute to reduced manufacturing production. The loss of market shares may therefore be accompanied by a slight

fall in manufacturing production in the period ahead, following sustained growth through most of the 1990s.

Higher unemployment in 1999

Without the prospect of output growth in 1999, employment growth will come to a halt, and both man-hours worked and the number employed may edge down this year. With a weaker labour market, growth in the supply of labour will also decline, while unemployment will probably start to rise as early as this winter. Experience shows that a shift towards higher unemployment pushes up unemployment more quickly than the decline recorded during a boom. Our projections for 1999 thus entail that unemployment as an annual average will be higher than in 1998.

However, there is considerable uncertainty associated with how much unemployment will increase. This is partly because the decline in production will have a severe impact on the construction industry where the proportion of foreign labour has increased during the upturn. When the downturn starts, it is conceivable that foreign workers are the first to be dismissed so that the decline will have less of an effect on observed unemployment in Norway. The introduction of cash grants in 1998 to parents with small children who are not in a daycare centre, and the expansion of the scheme in 1999 may reduce the supply of labour somewhat. In addition, the early retirement scheme is being used by an increasing number of employees, entailing that labour force participation for persons over the age of 62 is falling. The quantified relationships for labour force participation by sex and age only capture a small part of such policy changes, entailing that the estimates for the labour force, and therefore unemployment, are particularly uncertain this year.

Continued relatively high price and wage inflation ahead

Consumer price inflation was 2.3 per cent in 1998, i.e. slightly lower than in 1997. Low electricity prices and reduced price inflation internationally were important reasons for the low rate of inflation in 1998. So far, there have been few signs that the weak krone exchange rate has fed through to consumer prices. An important factor here is that the import-weighted exchange rate has not depreciated as much as the ECU/euro rate. Furthermore, high wage growth in 1998 has so far not had much impact on consumer price inflation, even though some prices for services are now rising sharply. However, this is consistent with previous experience which shows that it takes time before higher costs feed through to consumer prices. Strong wage growth in 1998 will therefore influence price inflation both in 1999 and next year.

The government budget for 1999 entailed that excise duties would be adjusted by expected inflation at the beginning of this year. This means that the contribution to inflation from indirect tax changes are reduced by about half a percentage point compared with last year, which in isola-

tion indicates that consumer price inflation should decline in January 1999. Cost impulses, however, will gradually feed through to price inflation, and it is unlikely that electricity prices will continue to fall. Hence consumer price inflation may edge up through 1999. Consumer price inflation is therefore projected at 2.6 per cent for 1999 as a whole and about the same next year. This is again based on the assumption that real indirect tax rates remain unchanged. The price impetus from higher costs will gradually decline, while the impetus from underlying price inflation internationally will increase.

Wage growth in 1998 is estimated at 6.3 per cent. Wages increased sharply through 1998, with a high carry-over into 1999. It is assumed that higher unemployment and the fact that the spring wage settlement is not a main settlement, will contribute to a slightly lower wage growth than in 1998. Wage growth in 1999 is now projected at 5.3 per cent, a little higher than in the last quarterly report. All in all, our projections entail that real wage growth will be about 2.5 per cent in 1999. In 2000, a main settlement will again take place, which in isolation will push up wage growth. On the other hand, the labour market may gradually be less tight, a factor which will moderate wage growth. The same also applies to projected, weaker profitability in manufacturing industry, entailing that the scope for wage increases will be reduced. All in all, this results in noticeably lower wage growth next year.

Current-account surplus despite low oil prices

As a result of low oil prices last autumn, it now appears that Norway's current-account balance will show a small deficit in 1998. There is considerable uncertainty concerning oil prices in the period ahead and the possibility that oil prices will remain low in 1999 cannot be ruled out. However, we project a slight rise in oil prices through 1999 from the current level of about \$11. An increase in oil and gas production, weaker domestic demand and a slower rise in import prices imply that Norway will again record a current-account surplus this year. This is considered as an important precondition for an appreciation of the krone and a decline in interest rates through 1999, an assumption which is embodied in our baseline scenario. With a projected increase in oil prices up to \$14 in 2000, the surplus on the current account may be substantial in 2000 even though the dollar exchange rate is assumed to depreciate slightly. The projected high growth in oil and gas exports will make a major contribution to this.

What will happen if the krone exchange rate remains weak?

In our baseline scenario, which is described above, it is assumed that the krone exchange rate appreciates during the first quarter of 1999 and returns to the estimated target interval of 103-105 for the krone exchange rate against the euro. This is one of the preconditions for a considerable decline in interest rates through 1999. If, in particular, oil prices remain at about the current level of \$11 a barrel, this

Effects of a persistent weak krone. 1999-2000

Percentage deviation from the baseline scenario unless otherwise noted

	1999	2000
Household consumption	0.0	0.1
Gross fixed investment	0.1	0.6
Traditional merchandise exports	0.6	1.3
Imports	-0.1	-0.2
Mainland GDP	0.2	0.5
Employed persons	0.1	0.3
LFS unemployment (level)	-0.1	-0.2
Consumer price index	0.3	1.1
Wages per standard man-year	0.1	1.1
Current-account balance, Nkr bn.	-7	-31

Source: Statistics Norway.

may be perceived as an optimistic projection. What happens to our projections for developments in 1999 and 2000 if the krone does not appreciate and remains at approximately the current level against the euro? In order to answer this, it is necessary to make some assumptions concerning interest rates in this situation. As a simple solution, we allow the real interest rate to shadow developments as described in the baseline scenario. A continued weak krone will result in a faster rise in import prices and thereby higher price inflation in Norway. The assumption of a constant real interest rate therefore entails that the nominal interest rate level must be higher in this alternative scenario than in the baseline scenario. In both scenarios, the nominal interest rate differential between Norway and other countries corresponds to the inflation differential in 2000.

It is assumed that a weaker-than-projected krone exchange rate will result in higher import prices with a brief lag. This means that prices rise at a faster pace than in the baseline scenario. This will particularly be the case next year when the persistently weaker krone exchange rate is assumed to feed fully through to import prices. Higher price inflation will have further effects on wage growth. A weaker krone improves the internationally exposed sector's relative cost position and results in higher exports of traditional goods and a smaller loss of domestic market shares than in the baseline scenario. This means that manufacturing production rises and has further positive effects on investment and employment. Household demand shows little change inasmuch as household income will not be particularly affected and the real interest rate is assumed to remain unchanged.

All in all, the mainland economy will grow at a slightly faster pace than in the baseline scenario, but the increase is only a quarter of a per cent each year in 1999 and 2000. The current account of the balance of payments, excluding export revenues from oil and gas, improves as a result of higher export revenues in Norwegian kroner and market share gains. This, however, is not sufficient to offset the negative effect of lower oil prices, which results in a deterioration in the current account. On the whole, the cur-

rent-account surplus will be reduced by half compared with the projections in the baseline scenario.

These assumptions imply that consumer price inflation will be almost 3 per cent in 1999, rising to between 3.5 and 4 per cent in 2000. This is more than two percentage points higher than the inflation projection for Norway's trading partners. Wage growth will also be somewhat higher than in the baseline scenario. It may perhaps be maintained that this is not a particularly realistic scenario in the sense that nominal interest rates decline at the same time that the krone exchange rate is weak. The assumption of the same real interest rate as in the baseline scenario entails, however, that the fall in interest rates from 1998 to 2000 is less than in the baseline scenario. The table shows the percentage deviation from the baseline scenario for some key variables.

A further look at economic developments in the period 1997-2000

The projections for the Norwegian economy that are presented above show that mainland GDP may return to its trend level in the course of 2000. It is then natural to pose the question: what factors contributed to the cyclical upturn that is now behind us? An exhaustive analysis shall not be presented here. Many observers, however, have pointed to some factors as potential candidates in this causal analysis. In the following, we shall study the effects of three factors. What would be the effect on economic developments if

- petroleum investment had been constant from 1996 to 2000
- public sector expenditure on goods and services had been constant from 1996 to 1998 and increased in such a way in 1999 and 2000 that the level in 2000 was the same as in the baseline scenario
- the money market rate had increased so much in 1997 and the first half of 1998 that output growth in the mainland economy shadowed an assumed trend.

These three factors have been selected partly because they have a considerable impact on the Norwegian economy, entailing that changes in these can make a significant contribution to fluctuations in the Norwegian economy. As noted in the previous discussion of the baseline scenario, major changes in petroleum investment play an important role in the current economic situation. Many are also of the view that fiscal policy should have been tighter. We have chosen to show the effects of a different time profile for some public sector expenditure, but with an unchanged level in 2000. Finally, it has been maintained that interest rate policy has had a destabilizing effect on cyclical developments because it has been constrained by the objective of maintaining a fixed exchange rate instead of being linked to domestic conditions.

Effects of unchanged petroleum investment. 1997-2000

Percentage deviation from baseline scenario unless otherwise noted

	1997	1998	1999	2000
Household consumption	-0.1	-0.5	-0.9	-1.0
Gross fixed investment	-0.5	-1.6	-2.7	-2.5
Petroleum investment	-13.4	-29.2	-13.8	5.4
Traditional merchandise exports	-0.1	0.3	0.6	0.4
Imports	-1.0	-2.9	-1.6	-0.3
Mainland GDP	-0.4	-1.3	-1.0	-0.5
Employed persons	-0.2	-0.7	-0.8	-0.5
LFS unemployment (level)	0.2	0.4	0.2	0.1
Wages per standard man-year	-0.1	-0.7	-1.3	-1.4
Consumer price index	-0.0	-0.1	-0.4	-0.5
Current-account balance, NKr bn.	3.8	13.7	8.9	4.3

Source: Statistics Norway.

The contribution of petroleum investment to cyclical developments

Whereas investment related to the production and pipeline transport of crude oil and natural gas (petroleum investment) declined at the beginning of the recovery which started in 1993, thereby curbing the expansion in the Norwegian economy, it increased considerably from 1996 to 1998. In the two years as a whole, this investment increased by about NKr 20 billion at constant 1995-prices. In 1998 alone, investment rose by NKr 12.5 billion, or 1.4 per cent of mainland GDP. These figures do not include oil-related investment on land, such as the plant at Tjeldbergodden. In the projections for the Norwegian economy that were presented above, it was assumed that petroleum investment will fall sharply in 1999 and 2000. The level of investment projected for 2000 is about the same as the level in 1996 measured at constant prices. Against this background, the question may be raised as to how the Norwegian economy would have evolved in the period 1997-2000 if petroleum investment in real terms had been constant from 1996 to 2000. What importance did petroleum investment have for economic developments in this period?

To study this, calculations have been made with the help of macroeconomic model KVARTS where petroleum investment is kept at the 1996 level throughout the period 1997-2000. This investment path would have generated a negative demand impetus in 1997 and 1998, but a positive impetus thereafter. For the sake of simplification, we have disregarded the possibility that changes in production capacity as a result of the change in the level of investment might have resulted in a production path that differs from the baseline scenario. The effect on some key macroeconomic variables is shown in the table as a percentage deviation from the baseline scenario (actual for 1997 and 1998 and our projections presented earlier for 1999 and 2000).

The effects in 1997 of unchanged petroleum investment in relation to the 1996 level are relatively modest because the change compared with the baseline scenario is not so great and, second, it takes time before the effects spread in the

economy. Lower demand results in lower employment, wages and consumption, but also leads to a noticeable decline in imports inasmuch as petroleum investment is an import-intensive demand component.

In 1998, the additional demand impetus from petroleum investment is considerably greater and thus the effect on the mainland economy is also substantial. Part of the effect in 1998 reflects the multiplier effect of what took place the previous year. Without the increase in petroleum investment after 1996, GDP growth would have been 2.0 per cent in 1998 compared with the actual level of 2.9 per cent, according to preliminary quarterly national accounts figures. LFS unemployment would not have been 3.2 per cent in 1998, but 3.6 per cent, and wage growth in 1998 would have been 5.7 per cent instead of the actual level of 6.3 per cent.

The current account, which showed a deficit of about Nkr 9 billion in 1998, would have shown a surplus without the demand impetus generated by petroleum investment. Most of the improvement in the current account is due to lower investment, which would have resulted in lower imports, but as the table indicates petroleum investment would also to some extent have supplanted traditional exports. According to our calculations, lower price inflation and a more favourable current-account position would have resulted in slightly lower interest rates in 1998 and 1999, but not more than a few percentage points a year. This would nevertheless have contributed to offsetting the effect of lower household disposable income on household consumption in this scenario.

Beginning in 1999, the negative demand impetus generated by lower petroleum investment gradually wanes, but lags in adaptation entail that e.g. mainland investment is still lower in 2000 even though petroleum investment is then a good 5 per cent higher than in the baseline scenario. It also takes time before changes in the labour market feed through to prices and wages. We see that while unemployment in 2000 starts to return to the level in the baseline scenario, this is still not the case for prices and wages.

To what extent have developments in petroleum investment contributed to amplifying cyclical movements in the mainland economy? Using trend growth in mainland GDP, which is about 2.5 per cent a year (approximately equal to the average growth the past 20 years) as a basis for comparison, the mainland economy expanded by 1.2 percentage points more than the trend in 1997. 0.4 percentage point of this can thus be ascribed to changes in petroleum investment. In 1998, actual GDP growth was 0.4 percentage point higher than the trend, and the contribution from petroleum investment was as much as 0.9 percentage point. If we look at 1997 and 1998 as a whole, mainland GDP growth was thus 1.6 percentage points higher than trend growth. According to our calculations, most of this, i.e. 1.3 percentage points, is ascribable to changes in petroleum investment.

Effects of an alternative scenario for public sector demand. 1997-2000

Percentage deviation from baseline scenario unless otherwise noted

	1997	1998	1999	2000
Government consumption and investment	-4.0	-6.0	-1.0	0.0
Household consumption	-0.4	-1.3	-1.7	-1.3
Gross fixed investment, mainland firms	-1.2	-2.5	-3.1	-2.2
Traditional merchandise exports	0.0	0.2	0.5	0.5
Mainland GDP	-1.0	-2.0	-1.1	-0.6
Unemployment rate (level)	0.6	1.1	-0.1	0.0
Wages per standard man-year	-0.5	-1.6	-2.1	-1.9
Consumer price index	0.0	-0.3	-0.6	-0.7
Current-account balance, Nkr bn.	4.9	10.0	9.8	8.7

Source: Statistics Norway.

Effects of a different time profile for fiscal policy

In this scenario we first look at the effects of zero growth in 1997 and 1998 in public sector expenditure on goods and services for consumption and investment, but without making any changes (tax rates, transfers, etc.) in the fiscal policy programme. This entails a fiscal policy tightening of about Nkr 10 billion in 1997, while there would have been a further tightening of about Nkr 5 billion in 1998. It is assumed that only small changes in interest rates would have resulted in the same exchange rate movements as in the baseline scenario. In the following two years public sector demand increases to the extent that its level in 2000 is approximately the same as in the baseline scenario.

According to the calculations, zero growth in public sector demand in 1997 and 1998 would have reduced mainland GDP growth by 1.0 percentage point, to 2.7 per cent in 1997 and 1.9 per cent in 1998. At constant 1995-prices, public sector consumption and investment would have been Nkr 10 and 15 billion lower in 1997 and 1998, respectively, than was actually the case. Growth would thereby have approached the previously mentioned annual trend growth of about 2.5 per cent. Unemployment would have been appreciably higher than the actual level these years, but would still have declined by 0.2 percentage point from the previous year both in 1997 and 1998. The negative direct and indirect demand effects would to some extent have been curbed by higher production in internationally exposed sectors as a result of an improvement in cost competitiveness.

In this alternative scenario we eliminate in 1999 most of the reduction in public sector demand in relation to the baseline scenario. This entails a growth in public sector consumption and investment of 5.9 per cent compared with the previous year. Mainland GDP is then almost one percentage point higher than in the baseline scenario. Higher public sector expenditure contributes to higher employment growth than in the baseline scenario and the unemployment rate would have been reduced sharply from 1998 to 1999. In this scenario we have increased public

Effects of monetary policy tightening in 1997 and first half of 1998

Percentage deviation from baseline scenario unless otherwise noted

	1997	1998	1999	2000
Money market rate (level)	3.5	1.8	0	0
Exchange rate ¹	-3.6	-0.5	0	0
Household consumption	-1.4	-4.8	-0.9	-0.2
Gross fixed investment, mainland firms	-1.1	-3.7	-2.6	0.3
Traditional merchandise exports	-1.0	0.1	0.3	0.5
Mainland GDP	-1.1	-2.6	-0.7	0.3
Unemployment rate (level)	0.4	0.5	0.1	-0.1
Wages per standard man-year	-0.6	-1.7	-1.9	-1.6
Consumer price index	-0.6	-0.1	-0.7	-0.9
Current-account balance NKr bn.	3.7	15.7	7.1	2.7

¹ Negative sign denotes appreciation.

Source: Statistics Norway.

sector expenditure further in 2000. The level of public sector consumption and investment is then at about the same level as in the baseline scenario. The effect on mainland GDP is such that it almost reaches the trend growth level, while unemployment is the same as in the baseline scenario.

With this time shift in public sector expenditure on goods and services, the rapid growth which took place in the Norwegian economy in 1997 and 1998 would thus largely have been avoided. Furthermore, this would to some extent have counteracted the strong downturn which, according to our projections, the Norwegian economy is facing. Competitiveness would also have improved, making it easier to achieve the objective of full employment in the period ahead due to the increased scope for manoeuvre in the external account.

These results may seem rather obvious. What is not so obvious, however, is that a more stable level of unemployment would have provided a basis for higher current-account surpluses than when unemployment first rises and then declines, as is the case in the baseline scenario. This is because the loss of competitiveness through lower unemployment from a given level is greater than the gains in competitiveness with the same increase in unemployment from the same starting point.

Effects of monetary policy tightening

For a number of years the result of the orientation of monetary policy has been that the money market rate has been closely linked to European rates. Because EU countries have been at a different stage of the business cycle compared with Norway, this has entailed that Norwegian interest rates up to the first half of 1998 were declining, while for stabilization purposes they should instead have risen in Norway, at least after 1996. In this alternative scenario we allow the authorities to increase interest rates without taking account of the objective of a stable exchange rate. The money market rate is increased by 3.5 percentage

points compared with the level in the baseline scenario in 1997 and the first half of 1998 (i.e. in relation to the actual level). Beginning in the second half of 1998, interest rates in this scenario are the same as in the baseline scenario.

The exchange rate moves in line with the theory of uncovered interest parity (UIP) so that foreign investors' profitability in investing in the Norwegian money market is the same as in the baseline scenario. We assume that the exchange rate and money market rates from the third quarter of 1998 would have been back to their historical levels. If the UIP assumption is to hold true, the Norwegian krone must immediately appreciate by a good 5 per cent after interest rates increase so that the currency can depreciate over the next six quarters to the extent that the increase in interest rates is matched by the depreciation (both in relation to the baseline scenario).

A 3.5 percentage point increase in interest rates over the six quarters reduces mainland GDP growth by 1.1 per cent the first year. Even though the increase in interest rates is only in effect in the first half of 1998, the effect in 1998 is 2.6 per cent, entailing that growth in 1998 is 1.5 percentage points lower than in the baseline scenario. Deposit and lending rates for the private sector are changed with a brief lag in relation to the money market rate and along with other lags in adaptation, this contributes to the relatively sizeable impact in 1998. The change in the exchange rate in this scenario is assumed to have an immediate effect on import prices. In the first year, internationally exposed industries are affected by the appreciation of the krone. This results in a loss of cost competitiveness, and activity in exposed sectors is reduced. In the second year, the exchange rate effect is negligible, but a smaller decline in unemployment than in the baseline scenario results in lower wage growth. Cost competitiveness therefore improves compared with the baseline scenario even after the exchange rate is back to the path in the baseline scenario.

As will be seen by the calculations, money market rates would have had to increase considerably in 1997 and 1998 in order to achieve growth in mainland production on a par with the annual trend growth of 2.5 per cent. The interest rate differential against the ECU rate would in this period have been about the same as the current interest rate differential.

This variant of monetary policy tightening has in 1997 and 1998 about the same tightening effect as the fiscal policy tightening discussed above. Mainland GDP is reduced by a slightly greater margin, while unemployment shows less of a change than is the case with fiscal tightening. In 2000, GDP and unemployment are at about the same level in the two policy scenarios. The current account position, however, is somewhat more favourable in the fiscal policy shift since the effects on the labour market are greater than is the case with the interest rate shift.

How accurate were Statistics Norway's forecasts for 1998?

The Economic Surveys published by Statistics Norway over the past two years have presented forecasts for macroeconomic developments in 1998 eight times. The first forecasts were presented in Economic Survey (ES) 1/97, and this was followed by forecasts in each quarterly survey. In addition, alternative scenarios which differ from the baseline scenario have been presented several times. These will not be discussed here. The table below shows how Statistics Norway's forecasts have changed over time as new information and new assumptions have been incorporated.

The main tendencies in the forecast error appear to be a clear underestimation of wage growth, while forecasts for changes in the consumer price index and mainland GDP growth were close to the outturn. The growth in household consumption was slightly underestimated through 1997 and then slightly overestimated through 1998, but the deviations are marginal. The growth projections for mainland gross fixed investment show greater variation, and although the downward turnaround was predicted, growth was overestimated. The growth in general government consumption as well as petroleum investment was sharply underestimated, while the forecast for growth in oil exports and petroleum production was too high, entailing that total GDP growth was clearly overestimated.

If we look at the forecasts for mainland GDP growth in relation to employment growth, productivity gains were overestimated, i.e. the forecast for employment growth was too low. As a result, the decline in unemployment was also underestimated, a factor which has a bearing on the forecast for wage growth. The weak growth in productivity is partly related to the composition of output growth, which deviates from our forecast through 1997 when much of the growth referred to the public sector where, according to the national accounts, productivity gains are very low.

In terms of nominal movements, we see that the forecast for consumer price inflation was fairly accurate taking into account

that through 1997 we invoked the normal assumption of an inflation adjustment of indirect taxes in 1998. The real increases in indirect taxes in 1998, which were approved in autumn 1997, are assumed to have pushed up price inflation by nearly 0.4 percentage point. These were incorporated in the price forecasts for the first time in ES 3/97. The forecast for consumer price inflation was thereafter gradually revised downwards as a result of lower-than expected electricity prices, and of the crisis in Asia which has resulted in lower price inflation internationally.

On the other hand, wage growth in 1998 was highly underestimated until the results of the wage settlement were known and incorporated in ES 2/98. This underestimation is due to two factors. First, we underestimated the importance of a main settlement taking place in 1998. Second, the underestimation of the decline in unemployment contributed to a forecast for wage growth that was too low. The fairly accurate forecast for growth in household consumption in spite of the underestimation of income growth is partly related to the sharp rise in interest rates in the second half of 1998, which contributed to curbing consumption growth towards the end of the year.

Originally, the current-account surplus was considerably overestimated, primarily because the forecast for oil prices and oil exports was too high, but also to some extent ascribable to an underestimation of imports (volume and prices). The forecasts for market growth among Norway's main trading partners was close to the outturn, as were the projections for growth in traditional merchandise exports, even though this component was slightly overestimated. The forecasts for changes in interest rates abroad, which are not shown in the table, have been fairly accurate throughout the period. Respite this, interest rates in Norway were therefore underestimated because we were never close to forecasting the interest and exchange rate changes in August 1998. When this occurred, however, and was incorporated in the forecasts as from ES 3/98, the forecasts were again on track.

Statistics Norway's forecasts for 1998. Growth rates in per cent

	ES1/97 ¹	ES2/97	ES3/97	ES4/97	ES1/98	ES2/98	ES3/98	ES4/98	ES1/99
Consumption in household and non-profit organizations	2.7	2.6	2.2	3.1	3.1	3.5	3.5	3.8	3.2
General government consumption	1.7	1.9	2.2	1.8	2.0	2.0	2.5	2.4	2.8
Gross fixed investment	3.7	4.6	3.0	3.0	8.5	6.9	5.3	4.7	8.2
Gross fixed investment, mainland Norway	3.8	4.8	3.4	3.3	7.0	5.5	3.4	0.8	2.0
Exports	4.0	6.2	6.0	7.7	8.4	3.8	3.3	1.3	0.5
-traditional goods	5.0	5.1	4.6	5.1	5.1	7.3	5.5	3.6	3.7
Imports	3.4	3.0	2.5	5.0	5.4	7.8	6.0	5.9	6.9
-traditional goods	3.1	3.1	2.2	5.3	5.4	8.8	7.7	8.6	9.5
GDP	3.0	4.2	3.8	4.0	5.3	3.2	3.0	2.4	2.0
-mainland GDP	2.7	3.2	2.7	2.5	3.6	3.5	3.5	3.1	2.9
Employed persons	1.4	1.6	1.4	1.9	1.7	2.4	2.2	2.2	2.3
Unemployment rate (level)	4.3	4.0	3.9	3.9	3.6	3.3	3.3	3.2	3.2
Wages per man-hour	2.7/3.7	3.6	3.9	4.3	4.6	5.8	5.9	5.9	6.3
Consumer price	1.2/1.8	1.8	2.1	2.7	2.5	2.5	2.5	2.3	2.3
Export price, traditional goods	0.4/2.4	2.0	1.1	3.1	-0.8	0.3	0.6	1.0	0.7
Import price, traditional goods	-1.2/0.5	0.4	0.1	0.7	-0.3	1.1	2.0	1.8	1.3
3 month eurokrone rate (level)	4.0	3.9	4.3	4.3	3.9	4.4	5.7	5.7	5.7
Average borrowing rate (level)	5.7	6.4	6.5	6.4	6.0	6.5	7.4	7.3	7.4
Market growth	5.3	5.9	6.0	6.1	5.7	7.1	5.3	5.2	6.3
Crude oil price, NKr	115	119	119	128	111	104	102	92	90
Current balance (bill. NKr)	77	88	81	85	49	15	11	-2	-9

¹ In ES 1/97 we presented two sets of estimates based on alternative assumptions concerning the development of exchange rates. For wages and prices we reproduce both sets of forecasts.

Source: Statistics Norway.

National accounts: Final expenditure and gross domestic product, 1997-1998

At fixed 1995 prices. Million kroner

	Unadjusted		Seasonally adjusted							
	1997	1998	97.1	97.2	97.3	97.4	98.1	98.2	98.3	98.4
Final consumption exp. of housh. and NPISHs.	496319	511968	121434	124101	124468	126317	126526	128385	129488	127569
Household final consumption expenditure.	472933	488954	115607	118252	118616	120457	120720	122604	123757	121873
Goods	270914	281431	65997	67478	68068	69372	69050	71075	71641	69666
Services	196411	201546	48525	49207	49081	49597	49979	50076	50715	50776
Direct purchases abroad by resident househ.	20731	21320	4896	5354	5187	5294	5415	5251	5383	5270
-Direct purchases by non-residents	-15124	-15344	-3811	-3787	-3721	-3806	-3725	-3798	-3982	-3839
Final consumption exp. of NPISHs	23386	23014	5826	5848	5852	5859	5806	5781	5731	5696
Final consump. exp. of general government	206781	212611	51291	51392	51756	52341	52804	52980	53313	53514
Final consump. exp. of central government	82027	83498	20463	20344	20498	20722	20790	20785	20864	21058
Central government, civilian	59735	61267	14906	14807	14943	15079	15207	15268	15320	15473
Central government, defence	22292	22231	5558	5536	5554	5643	5583	5518	5545	5585
Final consump. exp. of local government	124754	129112	30828	31048	31259	31619	32013	32195	32448	32455
Gross fixed capital formation	237777	253393	56306	59840	59867	61764	62473	63034	64186	63700
Petroleum activities	56206	68739	12788	14911	13596	14911	14906	17654	18594	17584
Ocean transport	10124	9706	2946	2405	2768	2005	3448	1375	2372	2510
Mainland Norway	171447	174949	40572	42524	43503	44848	44118	44005	43220	43606
Mainland Norway ex. general government	136709	140941	31847	33760	34907	36195	34842	35216	35260	35623
Manufacturing and mining	18270	20554	4228	4864	4357	4821	4501	4901	5527	5625
Production of other goods.	12995	14010	3082	3283	3431	3200	3557	3343	3395	3715
Dwellings	28497	28306	6835	7225	7202	7235	7321	7169	6968	6848
Other services	76946	78072	17702	18388	19917	20940	19463	19803	19370	19436
General government	34738	34007	8725	8764	8596	8653	9276	8789	7959	7983
Changes in stocks and stat. discrepancies	23917	29890	3619	6860	5280	8157	7195	6132	6506	10056
Gross capital formation	261693	283283	59925	66700	65147	69921	69668	69166	70692	73757
Final domestic use of goods and services	964793	1007861	232650	242193	241371	248579	248998	250532	253493	254839
Final demand from mainland Norway	874546	899527	213297	218016	219727	223506	223448	225370	226021	224688
Final demand from general government	241519	246618	60016	60156	60352	60995	62080	61769	61272	61497
Total exports	410702	412831	99737	103899	103318	103748	106209	103547	100952	102124
Traditional goods	170493	176753	39957	43617	43555	43364	44938	43021	44202	44592
Crude oil and natural gas	133959	129668	31825	35284	32879	33972	33742	33199	30601	32126
Ships and platforms	9896	9220	4317	1273	2240	2066	2995	2795	1786	1644
Services.	96354	97191	23638	23724	24644	24347	24534	24532	24363	23762
Total use of goods and services	1375495	1420692	332387	346091	344689	352327	355206	354079	354444	356963
Total imports	362209	387318	85212	92228	90778	93991	97730	95581	96043	97964
Traditional goods	242355	265297	56100	61282	60738	64236	65413	66061	66342	67481
Crude oil	1235	1448	455	213	315	252	457	307	360	323
Ships and oil platforms	23179	22086	6758	6485	5549	4388	6721	4380	4622	6363
Services.	95440	98486	21900	24248	24177	25115	25139	24832	24719	23797
Gross domestic product.	1013286	1033374	247175	253863	253911	258337	257477	258498	258401	258998
Mainland Norway (market prices)	853090	877891	208177	212932	214363	217618	217190	219429	220812	220459
Petroleum activities and ocean transport.	160196	155484	38998	40931	39548	40719	40286	39069	37589	38539
Mainland Norway (basic prices).	740206	763085	180982	184633	185954	188637	189135	190524	191691	191736
Mainland Norway ex. general government.	584407	603601	142404	145906	146844	149253	149363	150743	151829	151666
Manufacturing and mining.	119000	120505	29015	29737	29878	30370	30003	30193	30298	30012
Production of other goods	80611	82958	19215	20391	20427	20578	20636	20514	21018	20791
Service industries	384796	400139	94175	95777	96539	98305	98724	100037	100514	100864
General government	155799	159484	38578	38728	39110	39383	39772	39781	39862	40070
Correction items.	112883	114805	27194	28299	28409	28981	28055	28906	29121	28723

National accounts: Final expenditure and gross domestic product. 1997-1998

At fixed 1995 prices. Percentage volume change from previous period

	Unadjusted		Seasonally adjusted							
	1997	1998	97.1	97.2	97.3	97.4	98.1	98.2	98.3	98.4
Final consumption exp. of housh. and NPISHs . . .	3.4	3.2	-0.4	2.2	0.3	1.5	0.2	1.5	0.	-1.5
Household final consumption expenditure	3.6	3.4	-0.4	2.3	0.3	1.6	0.2	1.6	0.9	-1.5
Goods.	3.6	3.9	-1.1	2.2	0.9	1.9	-0.5	2.9	0.8	-2.8
Services	2.8	2.6	0.6	1.4	-0.3	1.1	0.8	0.2	1.3	0.1
Direct purchases abroad by resident househ . . .	10.0	2.8	3.5	9.4	-3.1	2.1	2.3	-3.0	2.5	-2.1
-Direct purchases by non-residents	0.9	1.5	5.5	-0.6	-1.7	2.3	-2.1	2.0	4.9	-3.6
Final consumption exp. of NPISHs	0.3	-1.6	0.1	0.4	0.1	0.1	-0.9	-0.4	-0.9	-0.6
Final consump. exp. of general government.	3.0	2.8	1.5	0.2	0.7	1.1	0.9	0.3	0.6	0.4
Final consump. exp. of central government.	2.4	1.8	1.6	-0.6	0.8	1.1	0.3	-0.0	0.4	0.9
Central government, civilian	1.7	2.6	0.8	-0.7	0.9	0.9	0.8	0.4	0.3	1.0
Central government, defence	4.4	-0.3	3.7	-0.4	0.3	1.6	-1.1	-1.2	0.5	0.7
Final consump. exp. of local government	3.3	3.5	1.5	0.7	0.7	1.2	1.2	0.6	0.8	0.0
Gross fixed capital formation	12.6	6.6	-2.3	6.3	0.0	3.2	1.1	0.9	1.8	-0.8
Petroleum activities.	15.5	22.3	-14.9	16.6	-8.8	9.7	-0.0	18.4	5.3	-5.4
Ocean transport	65.6	-4.1	33.3	-18.4	15.1	-27.6	72.0	-60.1	72.4	5.8
Mainland Norway	9.7	2.0	0.4	4.8	2.3	3.1	-1.6	-0.3	-1.8	0.9
Mainland Norway ex. general government	9.1	3.1	-0.9	6.0	3.4	3.7	-3.7	1.1	0.1	1.0
Manufacturing and mining	6.4	12.5	-2.8	15.0	-10.4	10.6	-6.6	8.9	12.8	1.8
Production of other goods	1.8	7.8	-5.8	6.5	4.5	-6.7	11.2	-6.0	1.6	9.4
Dwellings	9.0	-0.7	2.9	5.7	-0.3	0.4	1.2	-2.1	-2.8	-1.7
Other services.	11.2	1.5	-1.0	3.9	8.3	5.1	-7.1	1.7	-2.2	0.3
General government	12.1	-2.1	5.5	0.4	-1.9	0.7	7.2	-5.2	-9.4	0.3
Changes in stocks and stat. discrepancies	8.5	25.0	-6.2	89.5	-23.0	54.5	-11.8	-14.8	6.1	54.6
Gross capital formation	12.3	8.2	-2.5	11.3	-2.3	7.3	-0.4	-0.7	2.2	4.3
Final domestic use of goods and services	5.6	4.5	-0.5	4.1	-0.3	3.0	0.2	0.6	1.2	0.5
Final demand from mainland Norway	4.5	2.9	0.2	2.2	0.8	1.7	-0.0	0.9	0.3	-0.6
Final demand from general government	4.2	2.1	2.1	0.2	0.3	1.1	1.8	-0.5	-0.8	0.4
Total exports	5.8	0.5	-0.6	4.2	-0.6	0.4	2.4	-2.5	-2.5	1.2
Traditional goods	8.0	3.7	-0.6	9.2	-0.1	-0.4	3.6	-4.3	2.7	0.9
Crude oil and natural gas	2.3	-3.2	-4.7	10.9	-6.8	3.3	-0.7	-1.6	-7.8	5.0
Ships and oil platforms	11.7	-6.8	47.7	-70.5	75.9	-7.7	44.9	-6.7	-36.1	-8.0
Services	6.3	0.9	-0.9	0.4	3.9	-1.2	0.8	-0.0	-0.7	-2.5
Total use of goods and services	5.6	3.3	-0.6	4.1	-0.4	2.2	0.8	-0.3	0.1	0.7
Total imports	12.3	6.9	-3.0	8.2	-1.6	3.5	4.0	-2.2	0.5	2.0
Traditional goods	8.6	9.5	-4.0	9.2	-0.9	5.8	1.8	1.0	0.4	1.7
Crude oil	16.6	17.3	-1.1	-53.1	47.7	-19.8	81.3	-32.8	17.2	-10.3
Ships and oil platforms	36.3	-4.7	-10.2	-4.0	-14.4	-20.9	53.2	-34.8	5.5	37.7
Services	17.5	3.2	2.1	10.7	-0.3	3.9	0.1	-1.2	-0.5	-3.7
Gross domestic product	3.4	2.0	0.3	2.7	0.0	1.7	-0.3	0.4	-0.0	0.2
Mainland Norway (market prices)	3.7	2.9	0.8	2.3	0.7	1.5	-0.2	1.0	0.6	-0.2
Petroleum activities and ocean transport	1.9	-2.9	-2.1	5.0	-3.4	3.0	-1.1	-3.0	-3.8	2.5
Mainland Norway (basic prices)	3.7	3.1	1.1	2.0	0.7	1.4	0.3	0.7	0.6	0.0
Mainland Norway ex. general government	4.1	3.3	1.2	2.5	0.6	1.6	0.1	0.9	0.7	-0.1
Manufacturing and mining	3.1	1.3	0.2	2.5	0.5	1.6	-1.2	0.6	0.3	-0.9
Production of other goods	5.2	2.9	2.4	6.1	0.2	0.7	0.3	-0.6	2.5	-1.1
Service industries	4.1	4.0	1.3	1.7	0.8	1.8	0.4	1.3	0.5	0.3
General government	2.5	2.4	1.0	0.4	1.0	0.7	1.0	0.0	0.2	0.5
Correction items	3.9	1.7	-1.7	4.1	0.4	2.0	-3.2	3.0	0.7	-1.4

National accounts: Final expenditure and gross domestic product. 1997-1998

Price indices. 1995 = 100

	Unadjusted		Seasonally adjusted							
	1997	1998	97.1	97.2	97.3	97.4	98.1	98.2	98.3	98.4
Final consumption exp. of households and NPISHs	103.9	106.6	103.2	103.7	104.2	104.6	105.5	106.5	106.8	107.7
Final consumption exp. of general government. . .	105.8	111.4	104.2	105.5	106.7	106.8	107.9	110.1	112.7	114.7
Gross fixed capital formation	105.1	109.4	103.4	104.5	106.2	106.2	107.9	109.1	110.1	110.4
Mainland Norway	103.5	107.6	102.7	102.4	104.1	104.5	105.7	107.4	108.5	108.8
Final domestic use of goods and services	104.5	108.3	104.7	104.0	104.6	104.7	106.8	108.5	108.4	109.3
Final demand from Mainland Norway	104.3	107.9	103.4	103.9	104.7	105.1	106.1	107.5	108.5	109.6
Total exports	109.0	99.9	109.2	105.8	111.0	109.9	102.8	100.7	100.0	95.8
Traditional goods	99.3	100.0	97.9	96.7	101.2	101.3	100.7	100.4	100.1	98.8
Total use of goods and services	105.8	105.8	106.1	104.5	106.5	106.2	105.6	106.2	106.0	105.5
Total imports	102.4	103.9	100.9	101.1	104.5	103.2	103.6	104.8	104.0	103.3
Traditional goods	99.0	100.2	98.6	97.3	100.7	99.3	99.8	100.6	100.9	99.6
Gross domestic product	107.1	106.5	107.8	105.8	107.3	107.4	106.3	106.7	106.7	106.3
Mainland Norway	104.4	108.8	103.7	103.7	104.6	105.6	106.9	108.5	109.4	110.5

National accounts: Final expenditure and gross domestic product. 1997-1998

Price indices. Percentage change from previous period

	Unadjusted		Seasonally adjusted							
	1997	1998	97.1	97.2	97.3	97.4	98.1	98.2	98.3	98.4
Final consumption exp. of households and NPISHs	2.5	2.6	0.7	0.4	0.5	0.4	0.9	0.9	0.3	0.8
Final consumption exp. of general government. . .	2.7	5.3	-0.4	1.2	1.1	0.2	1.0	2.1	2.4	1.7
Gross fixed capital formation	2.5	4.1	-0.3	1.1	1.7	0.0	1.6	1.1	0.9	0.3
Mainland Norway	1.1	4.0	-0.7	-0.3	1.7	0.4	1.1	1.7	1.0	0.3
Final domestic use of goods and services	2.4	3.6	2.1	-0.7	0.6	0.1	1.9	1.6	-0.1	0.9
Final demand from Mainland Norway	2.3	3.5	0.2	0.5	0.9	0.3	1.0	1.3	0.9	1.0
Total exports	2.1	-8.4	-2.3	-3.1	4.9	-1.0	-6.5	-2.0	-0.7	-4.1
Traditional goods	0.5	0.7	-1.9	-1.2	4.6	0.1	-0.6	-0.3	-0.4	-1.3
Total use of goods and services	2.3	-0.0	0.7	-1.4	1.9	-0.3	-0.6	0.6	-0.2	-0.5
Total imports	1.2	1.5	-1.4	0.1	3.4	-1.2	0.4	1.1	-0.7	-0.7
Traditional goods	-1.1	1.3	-2.0	-1.3	3.5	-1.3	0.5	0.8	0.2	-1.2
Gross domestic product	2.8	-0.5	1.3	-1.9	1.4	0.1	-1.0	0.4	-0.0	-0.4
Mainland Norway	2.8	4.2	1.0	-0.0	0.8	1.0	1.2	1.4	0.9	1.0

Technical comments on the quarterly figures

Footnotes:

¹ NPISHs: Non-profit institutions 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.

Economic developments in Norway

General government sector and economic policy

Fiscal policy

In the period 1989-1993 fiscal policy was used actively to counteract the decline in domestic demand. Underlying spending growth in the government budget (spending excluding central government expenditure in connection with oil activities, interest expenditure, unemployment benefits and accounting factors) was during these years appreciably higher than the growth in mainland GDP. In response to the strong upturn in the Norwegian economy, which started in the autumn of 1993, fiscal policy was tightened in 1994, and this policy was continued in 1995 and 1996. The mainland economy continued to expand sharply the next two years, and average growth equalled 3.5 per cent in the entire period from 1993 to 1998. Fiscal policy, however, has gradually become less tight.

Measured by the Ministry of Finance's non-oil cyclically adjusted budget indicator net of interest payments, the tightening in 1997 and 1998 was equivalent to about per cent of mainland GDP. In 1994 and 1995, the budget indicator showed a tightening of about 2 per cent, while the tightening was a little more than 1 per cent in 1996.

Due to the guidelines for transfers between the government budget and the Government Petroleum Fund, it is most appropriate to consider the balance on the government budget and the Government Petroleum Fund as a whole in order to compare the government budget position over time. The consolidated balance on the government budget and the Petroleum Fund was reversed from a deficit of about NKr 44 billion in 1993 to a surplus of about NKr 70 billion in 1997. This improvement in the budget

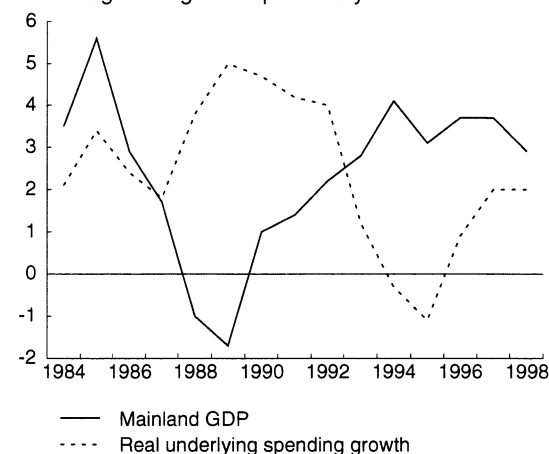
balance both reflects a sharp upturn in the economy and a considerable increase in central government revenues from petroleum activities. It is estimated that the total surplus on the government budget and Petroleum Fund was reduced by half from 1997 to 1998, primarily as a result of lower oil prices.

Government budget for 1998

Estimates for the accounts show a government budget surplus before allocations to the Government Petroleum Fund of NKr 28.7 billion in 1998. This is substantially lower than the corresponding surplus in 1997 (NKr 66.7 billion) and the projected surplus in the approved government budget for 1998 (NKr 68.9 billion). The decline in the surplus must be viewed in connection with the low oil price in 1998. In the National Budget for 1998 it was assumed that the oil price would be NKr 125 a barrel in 1998, while the result was an average oil price of NKr 96 a barrel. The cash flow from petroleum activities is estimated at NKr 45.7 billion in 1998, against NKr 86.8 billion the previous year. The non-oil deficit in 1998 is estimated at NKr 17.1 billion. The total surplus on the government budget and Government Petroleum Fund, including the return on the Petroleum Fund, is estimated at NKr 34.3 billion (which is less than half of the estimate in the approved budget for 1998).

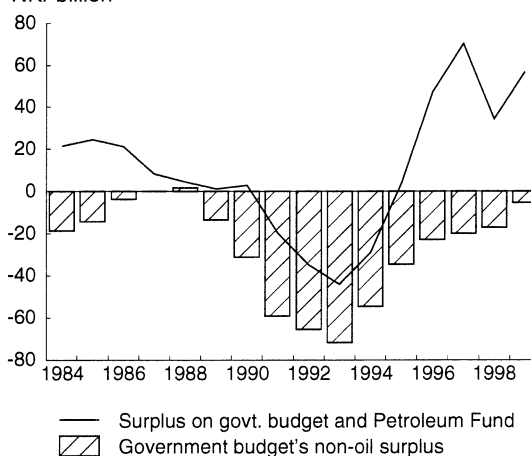
Underlying real spending growth from 1997 to 1998 was 2 per cent, according to estimates for the accounts. Part of the increase in government expenditure in 1998 was due to higher allocations to the National Insurance Scheme. The

Government budget's real underlying spending growth and growth in mainland GDP. 1984 - 1998
Percentage change from previous year



Source: Statistics Norway and Ministry of Finance.

Surplus on government budget and Government Petroleum Fund. 1984 - 1998 and forecast for 1999
NKr billion



Source: Ministry of Finance.

Main figures for government budget and Government Petroleum Fund. 1997-1999

NKr billion

	1997 ¹	1998 ²	1999 ³
Total revenues	478.2	468.6	506.2
Petroleum revenues	107.8	73.0	81.7
Revenues excl. petroleum rev.	370.4	395.6	424.5
Taxes from mainland Norway	325.1	356.8	377.6
Other revenues	45.2	38.8	46.9
- Total expenditure	411.5	439.9	455.5
Expenditure on petroleum activities	21.0	27.3	25.5
Expenditure excl. petroleum activities	390.4	412.6	430.0
= Surplus before transfer to Government Petroleum Fund	66.7	28.7	50.7
- Cash flow from petroleum activities	86.8	45.7	56.1
= Non-oil surplus	-20.1	-17.1	-5.6
+ Transferred from Government Petroleum Fund	22.8	17.1	5.6
= Surplus on government budget	2.7	0	0
+ Net allocation to Government Petroleum Fund	64.0	28.7	50.7
+ Interest income in Government Petroleum Fund	3.3	5.6	6.1
= Total surplus on government budget and Government Petroleum Fund	70.1	34.3	56.8

¹ Accounts 1997.² Estimates for the accounts 1998.³ Approved budget 1999.

Source: Ministry of Finance.

increase in transfers to the private sector is estimated at about NKr 13 billion, i.e. a doubling of growth from 1997 to 1998. Cash grants to families with small children accounted for a little less than NKr 1 billion, while the increase in minimum pensions resulted in an increase in estimated appropriations of NKr 1.4 billion. Total disbursements for old-age pensions accounted for the largest increase in transfers to households. Both an increase in the number of old-age pensioners and higher payments per old-age pensioner contributed to this.

Government budget for 1999

The approved budget for 1999 shows an estimated total government budget surplus before allocations to the Government Petroleum Fund of NKr 50.7 billion, an increase of NKr 22.0 billion from the previous year. The central government's net cash flow from petroleum activities is estimated at NKr 56.1 billion, based on an average oil price of NKr 110 a barrel in 1999. The non-oil deficit is estimated at NKr 5.6 billion. This deficit shall be covered by a transfer from the Government Petroleum Fund to the government budget, entailing that the entire surplus of NKr 50.7 billion is allocated to the Government Petroleum Fund. In addition, it is estimated that the Government Petroleum Fund will record interest income of NKr 6.1 billion in 1999. On the basis of these assumptions, the total accumulation of capital in the Petroleum Fund this year will be NKr 56.8 billion.

Some key concepts

General government net lending indicates the sector's budget balance and determines, along with valuation changes in assets and liabilities, changes in general government net financial assets. In the national accounts net lending is defined as follows:

$$\text{Net lending} = \text{Gross saving} - \text{Gross fixed investment} - \text{Net expenditure on land} - \text{Net capital transfers}$$

In public sector accounts, revenues and expenditure are recorded on the basis of the time of payment. In the national accounts, attempts are made to assign the payment flows to the period in which they accrue. When calculating net lending for general government, it is important in this connection to adjust public sector accounts for the difference between *book and accrued taxes*, i.e. between taxes paid in a period and taxes which have been assessed, but not necessarily paid in the same period.

The Ministry of Finance's non-oil, cyclically adjusted budget indicator net of interest payments shows changes in the surplus on the government budget excluding revenues and expenditure from petroleum activities, cyclical conditions and factors which are assumed to have no effect on the level of activity in the economy.

The following is done to arrive at an estimate for how much of the change in the budget balance is due to cyclical conditions: For *direct and indirect taxes*, we calculate the isolated effect on the budget balance of a deviation in output growth from trend growth. Separate calculations are also made of how the budget is influenced by the deviation in *new car registrations* from the trend. Furthermore, *payments of unemployment benefits* are adjusted by starting with the deviation from a trend-estimated unemployment level. When unemployment is higher than this, the balance is adjusted for estimated additional expenditure for unemployment insurance.

Real underlying spending growth in the government budget is based on central government expenditure minus expenditure on petroleum activities, unemployment benefits and interest expenditure. In addition, adjustments are made for accounting factors which influence the comparability of budget figures for subsequent years, such as the purchase of the railway stretch from Gardermoen to Eidsvoll (NKr 1.7 billion in 1998) and the acquisition of the former Fornebu airport from the Civil Aviation Administration (NKr 2.3 billion in 1999).

Underlying real spending growth in the approved government budget for 1999 is per cent. This is lower than in the Government's proposed government budget, which called for underlying spending growth of 1 per cent. Measured by the Ministry of Finance's non-oil, cyclically adjusted budget indicator net of interest payments, the approved budget corresponds to a tightening equivalent to 0.8 per cent of mainland GDP. Central government transfers to the private sector will again increase in 1999, partly as a result of the full-year effects of both cash grants for families with one-year olds and the increase in the minimum pension, and partly due to the expansion of the cash grant scheme to

Key figures for general government. 1994-1998

	1994	1995	1996	1997	1998 ¹
Net lending					
General government, accrued values, NKr bn.	3.7	32.3	64.1	79.3	49.7
General government, book values, NKr bn.	-7.6	22.9	51.6	82.0	57.0
Local government, book values, NKr bn.	4.0	-0.6	-1.0	-1.8	-4.2
General government, accrued values, per cent of GDP					
The size of general government	0.4	3.5	6.5	7.3	4.5
General government expenditure, per cent of GDP	49.9	47.7	45.3	44.4	46.3
General government consumption, per cent of GDP	21.5	21.0	20.3	20.2	21.5
Man-hours worked, per cent of total employment	27.1	26.8	26.9	26.6	26.5
Taxes, recorded, per cent of GDP	42.2	42.3	42.4	42.8	41.0

¹ Forecasts 1998.

Sources: Statistics Norway and Ministry of Finance.

families with two-year olds. Expenditure on cash grants for 1999 is estimated at a little more than NKr 2.8 billion in the National Budget. The full-year effect in 1999 of the upward adjustment in the minimum pension in 1998 is estimated at a good NKr 2 billion.

Government Petroleum Fund

The purpose of the Government Petroleum Fund is to increase the transparency of the use of petroleum revenues through the government budget. The Fund's revenues are the state's net cash flow from petroleum activities. In accordance with the guidelines for the Government Petroleum Fund, petroleum revenues are transferred in their entirety to the Petroleum Fund after first being recorded as income in the government budget. Interest and the return on the Fund's capital are recorded as income directly in the Petroleum Fund, and are thus separated from the government budget. The Fund's expenditure consists of a transfer from the Fund to the government budget which shall cover the non-oil deficit. In addition, up to half of the central government's increase in lending to state banks may be covered by drawing on the Fund, but so far the authorities have not made use of this possibility. Norges Bank is responsible for the management of the Petroleum Fund. According to the guidelines for the management of the Petroleum Fund, 30-50 per cent of the Fund's capital shall be invested in equity instruments (on 1 July 1998 equities accounted for about 40 per cent of the portfolio), while the remainder is invested in bonds. The entire capital of the Fund is invested in foreign securities.

The market value of the capital in the Government Petroleum Fund amounted to NKr 115.4 billion at end-1997. In 1998, an estimated NKr 28.7 billion was allocated to the Government Petroleum Fund with interest and dividend income amounting to NKr 5.6 billion. When estimated exchange rate and securities gains of NKr 9 billion are added, the total market value of the Fund is estimated at NKr 158.7 billion at end-1998.

With a projected oil price of NKr 110 a barrel this year, the Government expects the surplus in the Government

Petroleum Fund, including interest income and dividends on accumulated capital in the Fund, to amount to NKr 56.8 billion in 1999. When these values, along with exchange rate and securities gains, are added to the Fund, the market value of the total capital in the Government Petroleum Fund is estimated at a little more than NKr 220 billion at the end of 1999. According to the National Budget for 1999 a fall in the oil price by NKr 10 per barrel will reduce the estimated surplus in the Government Petroleum Fund by approximately 9 billion NKr in 1999.

General government

According to preliminary estimates, general government consumption, measured at constant prices, rose by 2.8 per cent from 1997 to 1998, which is on a par with the growth in mainland GDP. General government investment, measured at constant prices, was reduced by 2.1 per cent from 1997 to 1998. Total general government expenditure, including expenditure on investment, increased in nominal terms by 6.8 per cent in 1998. General government expenditure thereby came to 46.3 per cent of GDP in 1998. General government expenditure as a share of GDP has moved on a downward trend since 1992, when expenditure amounted to 52.1 per cent. The sharp decline in the share for expenditure in the period 1992-1997 is partly related to the brisk growth in GDP, a decline in unemployment benefit payments and lower interest expenditure in the general government sector. The share for general government expenditure rose from 44.4 per cent in 1997 to 46.3 per cent in 1998.

According to preliminary estimates, the general government sector recorded a surplus of NKr 49.7 billion in 1998, measured as accrued net lending, while the surplus in 1997 came to NKr 79.3 billion. Lower oil revenues in 1998 contributed to the decline in the general government surplus. Recorded net lending for the central government sector is estimated at NKr 57.0 billion in 1998, a reduction of NKr 25.0 billion from the previous year. The local government sector's recorded net borrowing in 1998 is provisionally estimated at NKr 4.2 billion, a reduction of NKr 2.4 billion from the previous year.

Local Government revenues and expenditure. 1994 - 1998

Nkr billion.

	1994	1995	1996*	1997*	Forecasts 1998
A. Current revenues	148 106	151 141	157 808	168 758	177 938
1. Property income, interest	2 500	2 946	3 131	3 937	4 600
2. Tax revenues	74 986	75 898	80 747	85 185	88 719
3. Other current transfers	68 047	69 550	70 886	76 332	81 023
Transfers within general government	65 816	67 263	68 773	73 918	78 423
Other transfers	2 231	2 287	2 113	2 414	2 600
4. Operating surplus ¹	2 573	2 747	3 044	3 304	3 557
C. Total revenues (=A)	148 106	151 141	157 808	168 758	177 938
D. Current expenditure	136 215	142 901	150 088	156 492	169 823
1. Property income, interest	5 993	5 610	5 125	4 352	4 900
2. Transfer to private sector	17 813	18 418	19 065	19 412	19 850
3. Other current transfers	1 845	1 929	1 470	780	1 000
Transfers within general government	1 396	1 484	1 674	1 634	1 500
Transfer to municipal enterprises	449	445	-204	-854	-500
4. Local government consumption	110 564	116 944	124 428	131 948	144 073
Compensation of employees	88 244	93 311	100 088	106 221	117 000
Product inputs	32 936	34 778	35 558	38 259	40 200
Depreciation	6 720	7 264	7 737	8 260	9 024
Product purchases for households	2 784	2 872	3 045	3 231	3 400
Operating surplus ¹	2 573	2 747	3 044	3 304	3 557
Fees (-)	-22 693	-24 028	-25 044	-27 327	-28 700
E. Saving (A-D)	11 891	8 240	7 720	12 266	8 115
F. Capital expenditure	7 858	8 790	8 688	14 072	12 323
1. Net fixed investment	7 620	8 637	9 067	14 452	12 923
Gross fixed investment	14 340	15 901	16 804	22 712	21 500
Depreciation (-)	-6 720	-7 264	-7 737	-8 260	-9 024
2. Net purchases of land	-206	-26	-420	-467	-700
3. Capital transfers to business activities	444	179	41	87	100
G. Total expenditure (D+F)	144 073	151 691	158 776	170 564	182 146
H. Net lending(E-F or C-G) (Surplus before loan transactions)	4 033	-550	-968²	-1 806	-4 208

¹ Local government water supply, sewer system and refuse disposal services are considered market-oriented activities even though they are part of general government. These activities have a positive operating surplus unlike the rest of general government where operating expenditure is higher than operating revenues, and where operating expenditure less operating revenues is included in general government consumption.

² The figures for the accounts for 1996 exclude extraordinary income in connection with the sale of Bergen Lysverker for about Nkr 2.8 billion. When this transaction is included, the local government sector recorded a surplus before loan transactions of about Nkr 1.8 billion.

* Preliminary figures.

Source: Statistics Norway.

The public sector's share of employment rose through the period 1978-1994, but has moved on a moderate downward trend in recent years. In the period 1980-1998 the number of persons employed in the public sector has grown by 232 800, equivalent to 180 200 new man-years. The number of man-hours worked in general government rose by 1.7 per cent in 1998.

Central government

According to preliminary estimates, central government consumption showed a rise in volume of 1.8 per cent from 1997 to 1998. Whereas military consumption showed close to zero growth, civilian consumption expanded by 2.6 per cent.

The number of man-hours worked in central government increased by 0.1 per cent from 1997 to 1998. There was a decline of 0.6 per cent in man-hours worked in the defence sector, while the number of man-hours in civilian central government activities increased by 0.5 per cent.

Product inputs in central government rose by 0.8 per cent, measured at constant prices, from 1997 to 1998. In the civilian central government sector, product inputs increased by 2.8 per cent, while in the defence sector there was a reduction of 3.3 per cent.

Central government gross fixed investment was reduced by 2.6 per cent from 1997 to 1998. Investment in the defence and health and care sectors showed a noticeable decline,

while investment increased in other central government services and the education sector.

Local government

Preliminary accounts figures for a selection of municipalities and counties indicate weaker growth in activity in the local government sector in 1998 than in 1997. In order to measure the change in activity in the local government sector, employment (measured in man-hours), product inputs (measured at constant prices), and gross fixed investment (measured at constant prices) can be weighted with the cost shares for the three components from the previous year as weights. Measured in this way, preliminary figures for local government show a growth in activity of 2.0 per cent in 1998, against 5.0 per cent in 1997. Activity in the education sector was reduced by about 1.0 per cent, while the health and care sector and other services recorded a decline in activity of 4.0 and 1.0 per cent, respectively.

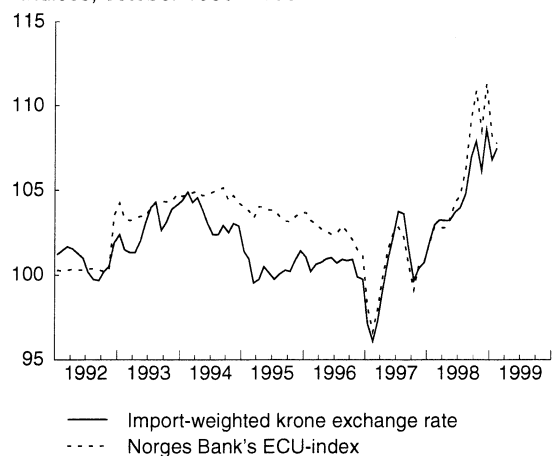
Measured at current prices, compensation of employees as a share of costs in the local government sector rose by 9.7 per cent from 1997 to 1998, reflecting a 2.3 per cent rise in man-hours worked and a growth of 7.2 per cent in wage costs per man-hour. In connection with the wage and social security settlement in 1998, it was decided to require an additional premium in the joint local government pension scheme. The increase in the premium will increase local government costs by an estimated Nkr 1.6 billion in 1998 and is included in wage costs. The number of persons employed in the local government sector rose by 2.4 per cent last year. According to the Directorate of Labour's figures, the number of persons employed in local government employment schemes fell from about 2 100 in 1997 to about 170 in 1998. Adjusted for the change in labour market programmes, employment in the local government sector rose by 2.8 per cent.

The sharpest growth in number of man-hours took place in the health and care sector where the number of man-hours worked increased by 3.0 per cent, while other local government services recorded a rise of 0.2 per cent. In the education sector, the number of man-hours increased by 2.7 per cent.

Product inputs in the local government sector rose by 3.0 per cent, measured at constant prices, in 1998, boosted in particular by the use of goods and services in the education sector and health and care sector.

Local government gross fixed investment was reduced in volume by 1.7 per cent from 1997 to 1998. The decline in investment was related to the high level of investment in 1997 in connection with the primary school reform. Investment in the education sector thus showed a reduction in volume of 23.0 per cent. Investment in the health and care sector and other services rose in volume by 17.4 per cent and 6.3 per cent, respectively, while investment in the water supply, sewer system and refuse disposal sector showed a decline in volume of 1.7 per cent.

Development in import-weighted krone exchange rate and Norges Bank's ECU-index. 1992 - 1999
Indices, October 1990 = 100

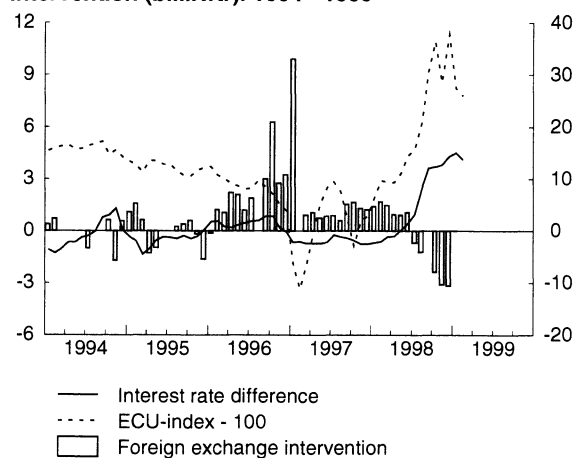


Source: Norges Bank and Statistics Norway.

According to the regulation on monetary policy, Norges Bank shall stabilize the krone against "European currencies". Up to 31 December last year the operational objective was the EU's European Currency Unit, the ECU, and thereafter the euro. In 1998, the countries which are now participating in EMU accounted for 38 per cent of Norway's foreign trade in traditional goods (i.e. imports and exports excluding oil and gas, ships and platforms). By way of comparison, Norway's imports from countries whose currencies formed the basis for calculating the ECU (EU12) accounted for 50 per cent of total traditional merchandise imports, while the export share for the same countries was 54 per cent. The euro is thus to an even lesser extent than the ECU representative of the geographical dimension of Norway's foreign trade. In order to illustrate the importance of exchange rate changes to the Norwegian economy, an ECU/euro index should be supplemented by alternative exchange rate indicators which to a greater extent reflect the pattern of trade. Examples of such indices are the import-weighted exchange rate, the export-weighted exchange rate, the trade-weighted exchange rate and manufacturing industry's effective krone exchange rate. The figure shows changes in the ECU/euro index and the import-weighted krone exchange rate where the weights in the latter are calculated on the basis of the composition of imports of traditional goods.

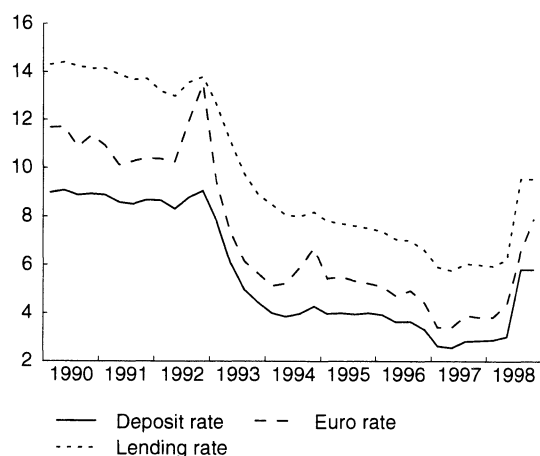
In 1997 and the first half of 1998 there was little deviation between the ECU index and the import-weighted exchange rate. From September last year, on the other hand, the krone depreciated by about 2 percentage points more measured against the ECU index than against the import-weighted krone exchange rate. This was because both the US dollar and Swedish krona depreciated against the ECU and both the US and Sweden are important trading partners for Norway. In January this year the value of the Norwegian krone was about 6 per cent lower than in the same month last year measured by the ECU/euro index and 4.5 per cent lower measured by the import-weighted krone exchange rate.

Interest rate difference and exchange rate against ECU and Norges Bank's foreign exchange intervention (bill.NKr). 1994 - 1999



Source: Norges Bank.

Average deposit and lending rate in private financial institutions and 3 month NKr euro rate. 1990 - 1998

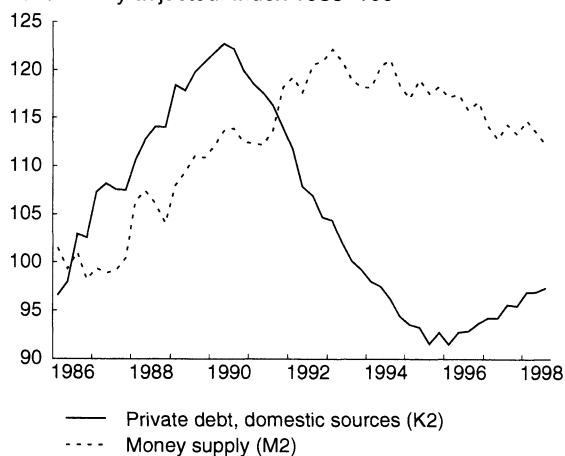


Source: Norges Bank.

Money supply and private debt. 1986-1998

Per cent of mainland GDP

Seasonally adjusted. Index 1986=100



Sources: Statistics Norway and Central Bank of Norway.

Monetary policy and financial developments

Monetary and exchange rate policy

Norway's monetary and exchange rate policy is set out in the Government's regulation on the exchange rate system for the Norwegian krone of 6 May 1994. This states that Norges Bank's "conduct of monetary policy shall be oriented towards maintaining a stable krone exchange against European currencies, based on the range of the exchange rate maintained since the krone was floated on 10 December 1992. In the event of significant changes in the exchange rate, monetary policy instruments shall be oriented with a view to returning the exchange rate over time to its initial range". The regulation does not specify an exact central rate or fluctuation margins for monetary management; nor does it specify the currencies against which the krone shall remain stable. Between October 1990 and December 1992 the Norwegian krone was pegged to the EU's currency unit, the ECU, and up to 31 December 1998 Norges Bank continued to use the exchange rate between the Norwegian krone and the ECU as an indicator of the krone's value against European currencies. Between 10 December 1992 and up to the beginning of May 1994, which can be considered the regulation's reference period, one ECU was generally worth between Nkr 8.25 and 8.40, with an average of Nkr 8.33 per ECU. On 31 December last year the ECU was replaced by the euro with a conversion rate of 1:1 on the changeover date, and Norges Bank has now allowed the euro to replace the ECU as the reference currency for the conduct of monetary policy.

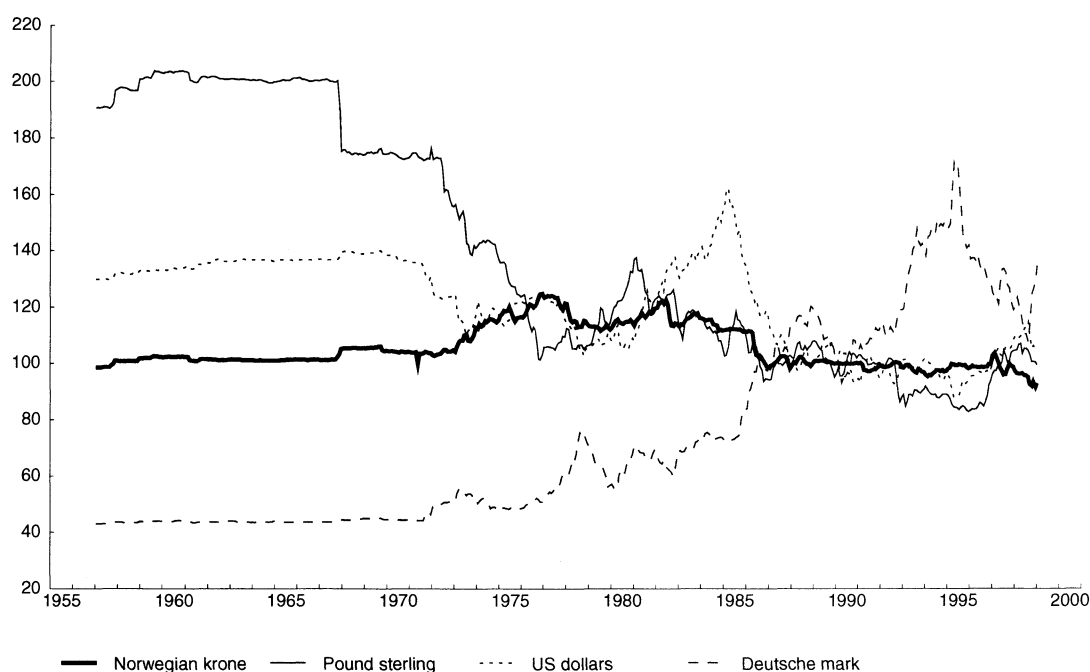
Over the past two years the exchange rate between the Norwegian krone and other European currencies has fluctuated considerably. Measured against the ECU, the Norwegian krone reached its strongest level in February 1997, when its value was about 8 per cent higher than the average in the Exchange Rate Regulation's reference period. Between February 1997 and end-August 1998 the Norwegian krone depreciated by more than 13 per cent against the ECU, and the krone exchange rate has since the end of August last year been considerably weaker than it was in December 1992.

Lower oil prices and the lack of fiscal tightening have been emphasized as explanatory factors behind the depreciation pressure on the Norwegian krone. The spot price of Brent Blend fell from an average of a little more than \$19 a barrel in 1997 to about \$12 for the period June-August 1998. The government budget for 1998 entailed a tightening of per cent of mainland GDP (measured by the Ministry of Finance's non-oil, cyclically adjusted budget indicator net of interest payments), which is the lowest level of tightening since 1993. In addition, the high pay increases awarded during last year's wage settlement may have contributed to reducing market confidence in Norway's ability to maintain low wage inflation.

In order to try to keep the value of the Norwegian krone as stable as possible, Norges Bank raised its keys rates by

Changes in nominal effective exchange rates for selected countries

Nominal effective exchange rates. 1957 - 1999



Source: Norges Bank.

Norway has long traditions in maintaining an exchange rate objective for monetary policy. After the Second World War the krone was pegged to the dollar through the Bretton Woods system. Following the collapse of the Bretton Woods system, Norway has stabilized the krone against various currency baskets. An important reason for this fixed exchange rate policy has been to protect the Norwegian business sector from the uncertainty associated with exchange rate fluctuations.

The International Monetary Fund (IMF) constructs weights for the calculation of effective exchange rates for a large number of countries. The weights used to calculate the nominal effective exchange rate are based on trade patterns for the years 1989-1991. The figure shows changes in the nominal effective exchange rate for Norway and other countries. A rising index value denotes an appreciation of the currency.

The nominal effective exchange rate for Norway has been very stable the past 40 years compared with developments in other countries. The greatest changes occurred in the first

half of the 1970s when the krone appreciated by about 20 per cent, measured by the nominal effective exchange rate index, and the depreciation in the mid-1980s. The krone appreciated in the 1970s because the currency was pegged to the Deutsche mark through the EC countries' "snake" cooperation. In addition, Norway revalued its currency against the currencies in the snake in 1973. The depreciation of the krone in 1986 was due to a devaluation of almost 10 per cent against the currency basket Norway stabilized its currency against in the 1980s. The weights in this basket were very similar to the IMF weights.

Many other currencies have experienced greater movements in the effective exchange rate than the Norwegian krone. The value of pound sterling was thus reduced by half during the years 1966-1976, while the value of the Deutsche mark and Japanese yen more than doubled from 1970 to 1986. The value of the US dollar increased by over 50 per cent in the first half of the 1980s, but the currency depreciated again over the next three years. The Swedish krona has also experienced greater turbulence than the Norwegian krone.

altogether 4.5 percentage points in the period 19 March to 25 August 1998. After this time, Norges Bank's sight deposit and overnight lending rates remained constant at 8 and 10 per cent, respectively. In Norges Bank's view, these interest rates were sufficiently high to gradually return the exchange rate to its initial range. In connection with the last increase in key rates in August, Norges Bank halted all currency trading up to mid-October.

During January the Norwegian krone appreciated slightly against the euro. Combined with the prospect of reduced pressures in the Norwegian economy, this prompted Norges Bank to reduce its key rates by half a percentage point with effect from 28 January 1999. In this connection Norges Bank stated that monetary policy must not contribute to a downturn which can undermine confidence in the krone. This is in accordance with signals in the National Budget for 1996 and the Final Budget Bill the same year where it was pointed out that monetary policy can be used

to adjust growth in domestic demand within the limits following from the operational objective of exchange rate stability.

Through the first half of 1998 Norges Bank purchased foreign exchange for the equivalent of Nkr 25 billion for allocations to the Petroleum Fund. At the beginning of July, however, Norges Bank began to purchase Norwegian kroner, and up to 25 August the central bank used about Nkr 6.8 billion on these exchange rate-motivated exchange-market interventions. On 16 October Norges Bank again began to intervene to support the krone, and in the period up to 15 December the central bank sold foreign exchange for a further Nkr 29.0 billion. In the course of 1998 Norges Bank thereby sold foreign exchange for Nkr 10.9 billion net. With an expected allocation to the Government Petroleum Fund of Nkr 28.7 billion, this entails that Norges Bank has in effect intervened in the market to support the krone for the amount of about Nkr 40 billion in 1998.

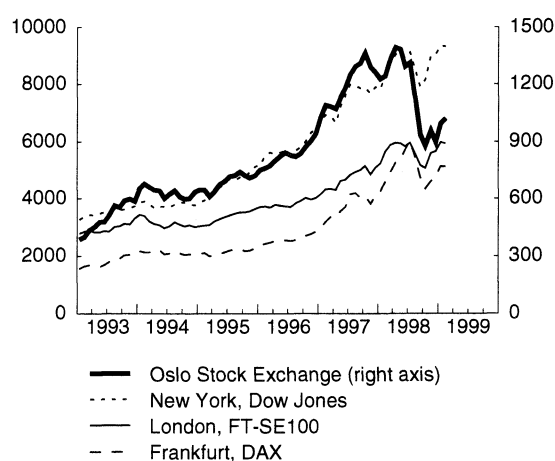
Through 1998 Norwegian money market rates shadowed the rise in key rates, and the 3-month Euro rate remained at around 8 per cent following the last increase in interest rates by Norges Bank. At the end of August the corresponding ECU rate was about 4.1 per cent, 0.4 percentage point lower than the level in January last year. In the course of the first 8 months of 1998 the interest rate differential between the Norwegian 3-month Euro-rate and the ECU widened from -0.8 to about 4 percentage points. In the last four months of 1998 Norwegian interest rates remained about 4 percentage points above the ECU rate.

After the beginning of 1999, the difference between the Norwegian money market rate and the equivalent euro rate was about half a percentage point higher than the interest rate differential between the Norwegian krone and the ECU. This is partly because Greece and the UK, which have interest rates of 11.5 and 6 per cent respectively, are not participating in EMU. After Norges Bank lowered interest rates on 28 January 1999, the interest rate differential between the Norwegian krone and the euro narrowed to about 4 per cent.

Financial developments

The yield on Norwegian government bonds during the period 1993-1997 generally shadowed changes in corresponding German and US yields. This pattern was broken last year when the yield on German and US bonds fell considerably, while the yield on Norwegian bonds showed relatively little change. The yield differential between Norwegian government bonds with a residual maturity of 10 years and corresponding German bonds thereby widened from 0.2 percentage point at the beginning of 1998 to 1.5 percentage points at the end of the year. During January 1999 the yield on Norwegian government bonds fell by almost 0.7 percentage point and is now 4.7

Oslo Stock Exchange's all-share index and foreign stock exchange indices. 1993 - 1999



Source: Norges Bank.

per cent. The yield differential between Norwegian and German government bonds with a residual maturity of 10 years has thus been reduced to 1.0 percentage point.

Financial institutions' average lending and deposit rates have over the past few years generally shadowed changes in the money market rate. At the end of the third quarter 1998 banks' average lending rate stood at 9.6 per cent, 3.6 percentage points above the level at the beginning of the first quarter. The average deposit rate rose in the same period from 2.9 to 5.8 per cent. The spread between financial institutions' deposit and lending rates has thus widened from 3.1 to 3.8 per cent.

After declining through 1991-1993, the credit supply (C2) has picked up in recent years. At the end of November 1998 private and municipal domestic debt was 8.5 per cent higher than at the same time one year earlier, which is the lowest 12-month growth in over one year. By way of comparison, the 12-month growth in private and municipal domestic debt was above 10 per cent in the first half of 1998. At the end of 1998 the growth in private and municipal domestic credit as a share of mainland GDP was only marginal. The high level of interest rates is probably an important reason for the moderation in credit growth.

After rising substantially for several years, prices for shares traded on the Oslo Stock Exchange showed sharp fluctuations in 1998. The all-share index was just under 1 000 at the end of 1998, or 26.7 per cent below the level at the beginning of the year. This is the steepest decline in the all-share index in the course of one calendar year since the index was established in 1983. The Oslo Stock Exchange peaked in May when the all-share index was higher than 1400. The fall from the peak level in May to the trough in October was as much as 46.2 per cent. At the end of January the all-share index was slightly lower than the level two years ago.

Economic objectives and results of the Energy Act

Torstein Bye and Bente Halvorsen

The Norwegian power sector has been regulated and dominated by the public sector for about 90 years, partly to safeguard Norwegian ownership rights to natural resources at the beginning of the century and partly due to uncertainty concerning substantial capital investments in power development just after the last World War. As a result of formal legal aspects as well as a lack of efficiency and profitability, the time was ripe at the beginning of this decade to change the existing framework conditions and provide for greater exposure to competition in parts of this sector. Eight years following the introduction of the new Energy Act we see signs that market orientation and the regulation of the power sector are now bearing fruit. Over-investment in the power sector has been reduced, and the increase in mean annual production capacity has almost come to a halt. Differences in electricity prices between manufacturing sectors have narrowed and network charges have been sharply reduced. However, the price differential between households and some manufacturing sectors has increased slightly. It appears that a steady flow of new regulations applying to this sector, such as the requirement that power supplies be separated from transmission services, is resulting in considerable changes, and it will therefore be important to follow developments in the period ahead.

Introduction

The government authorities own most of Norway's electricity production and transmission capacity. In 1993, the state's ownership interest in total power production was just below 40 per cent. County or inter-municipal power stations accounted for almost 40 per cent, while municipal and private power stations each had a share of a little more than 10 per cent, see Bye (1997).

The high proportion of government ownership stemmed from the concern about foreign ownership at the beginning of this century. This fear was reflected, for example, in the Citizens' Rights Act of 21 April 1888, which introduced a licensing requirement for purchasing or controlling various types of real property for companies without a Norwegian board or registered office in Norway. Later came the "Panic Act" of 1906, which introduced a licensing requirement for the acquisition of waterfalls. This was followed ten years later by Act no. 16 of 14 December 1917 "relating to the acquisition of waterfalls, mines and other real property", also referred to as the Industrial Concession Act. This Act introduced a requirement entailing that everyone, excluding the state and municipalities, had to obtain a license for purchasing waterfalls.

The new Energy Act¹ (which came into force on 1 January 1991) replaced several acts: the Power Supply Act of 25

June 1948, the Electricity Rationing Act of 9 July 1948, the Electricity Act of 19 June 1969, the District Heating Act of 18 April 1986, and Chapter IV of the Industrial Concession Act of 14 December 1917. Amendments have also been made to the licensing rules in the Industrial Concession Act of 14 December 1917 and the Watercourse Regulation Act of 14 December 1917. Purchases of Norwegian power stations, however, are still primarily regulated through the *licensing requirement* in the Industrial Concession Act. This Act also includes provisions on public *pre-emption rights* and the *right of reversion* to the state when a license expires.

Concern about the exploitation of Norwegian natural resources, and hence the emergence of extensive legislation and considerable public ownership interests, provided the real foundation for public sector regulation of the power sector in Norway. It should also be borne in mind that in connection with reconstruction after the Second World War there was considerable uncertainty attached to investments in capital-intensive projects. This laid the basis for two important developments in the Norwegian power market. The government authorities assumed the entire risk associated with development at the same time that they tried to reduce this risk by linking power production to long-term contracts with Norwegian energy-intensive manufacturing production.

Given this historical background, and the many sound motives underlying the regulation of the power sector, the question may be raised as to why the work on a new Energy Act was initiated. There were two main reasons for this. One was of a formal legal nature. Proposition no. 43 to the

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1 See Proposition no. 43 (1989-90) to the Odelsting, sanctioned by the Crown Prince on 29 June 1990.

Odelsting states: "Existing statutory rules are today spread among various pieces of legislation. This spread makes it difficult to obtain a total overview of energy legislation and to use existing legislation for executing future tasks in the energy sector".

The second was of a purely economic nature. The same proposition states: "A legal basis must be created for increasing the efficiency of the power market and providing for a more flexible use of power. Statutory rules must create conditions, which allow the organization of the energy supply sector to ensure a economically sound adaptation of production and consumption. It should be possible to use the statutory rules to promote energy efficiency".

It was thus deemed that the regulations that had been implemented might well have been justifiable from an historical point of view, but they were hardly appropriate for the current situation. Work was therefore started on drawing up a new Energy Act that in part would cover the need for simplifying the legislation and in part provides new framework conditions to achieve a better utilization of the total resources in the power sector. Furthermore, there was a desire to enhance the basis for improving the functioning of the electricity market itself.

The main objectives of the new Energy Act can be summarized as follows:²

- One comprehensive act for the electricity supply sector which had previously been covered by a large number of laws and regulations.
- A clear division between those parts of production which can function in a market and those which are natural monopolies.
 - Regulation of monopolies.
 - Remove ties between large subscribers and distribution utilities with an obligation to deliver.
 - Introduce a licensing requirement for engaging in monopoly activities.
- Provide framework conditions for a more cost-effective expansion of power stations, including the selection of development solutions that reflect the willingness to pay for energy and effect, and a sound ranking of projects according to rising costs.
- Reorganization of the sector to achieve more cost-effective operations, including the desire for mergers of distribution utilities and a reduction in the number of energy utilities, at the same time that vertical integration would no longer be an objective. Emphasis was placed on a voluntary approach, but it was also pointed out that it would be desirable to have more information (for example publication of cost figures for distribution utilities) in order to gain a better basis for evaluating mergers.
- Ensure that local electricity producers were not discriminated against by distribution utilities.
- Improve the utilization of electricity by having the market provide for a narrowing of electricity price differences

between customer groups even though energy-intensive manufacturing was still kept outside the market.

- The state would continue to have import and export rights.
- Reorganize Statkraft (Norwegian Energy Corporation) by separating network and electricity production in order to promote deregulation and competition.

In this article we will focus on the economic arguments for introducing new statutory rules in the energy sector. The fact that the Energy Act was aimed at increasing efficiency in the power market and achieving a more economically sound adaptation of production and consumption is an indication that the situation in the energy sector was not as it should have been. We shall first attempt to concretize the economic problems in the existing energy market. With the help of some economic indicators, we will then discuss to what extent developments have fulfilled the intentions underlying the new Energy Act. Finally, we will draw some conclusions and discuss the outlook for the future.

Economic arguments for the introduction of the Energy Act

Prior to the introduction of the Energy Act, a number of articles were published which criticized the existing regulation of energy markets, and pointed to the potential efficiency gains which could be achieved through deregulation. In the following we will briefly review the most important problems described in these analyses.

Over-investment in power production

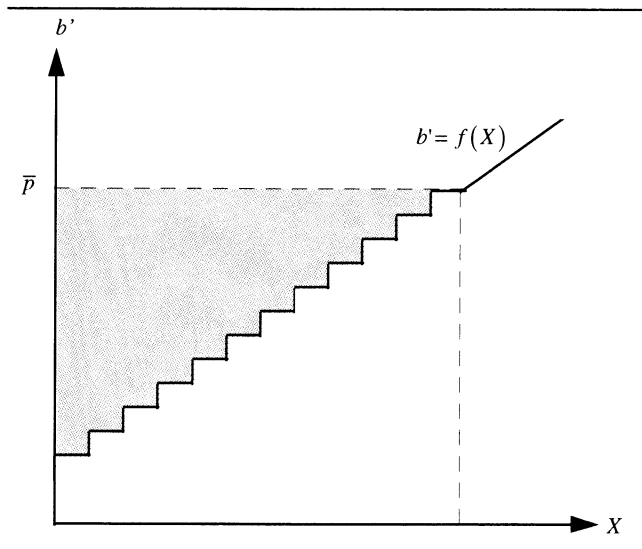
It is well known that there are rising marginal costs associated with developing hydropower, see e.g. "Master Plan for Water Resources" of 1984. If hydropower stations are ranked and constructed according to rising unit cost, and no development is undertaken until the price exceeds the unit cost of the next project, this ensures economically optimal development.

Historically, both expensive and cheap power station projects have been carried out in Norway. Furthermore, in the period prior to 1978 a pricing rule was followed which said that the price should be equal to the average cost of power development, including a 7 per cent return on capital. Development decisions were largely based on the elaboration of energy forecasts. Estimating changes in electricity prices and then calculating energy demand drew up the projections. Development was to balance with the projections of demand. Inconsistency in the estimates for prices and costs of marginal projects resulted in over-expansion. The attitude was that any increase in "need" was to be covered by increasing power capacity.

A new pricing principle was set out in the Energy Report of 1978: the price was to be equal to the marginal cost of development. It also established an escalation plan for

² Obtained from Proposition no. 43 to the Odelsting.

Figure 1. Economic rent in the Norwegian hydropower sector



Source: Bye and Johnsen (1991).

prices so that the price was to reflect the marginal cost for general consumption in 1985. This too failed to provide the right volume of new projects for several reasons. First, the Energy Report stated that the price should be equal to the marginal cost. In the long run this meant that development was only to take place when the price was high enough to cover the cost of the last project. This applies on the assumption that the price is set in a free market. Prices, however, were still regulated. Power producers could therefore in principle always cover their costs. Too high a price, and hence too low demand in relation to the power capacity that had been developed, would then result in net exports from Norway. Thus it may be said that Norwegian consumers were punished at the expense of other countries' demand for Norwegian electricity. Second, a lack of market pricing will have effects on the cost of development. The best economic choice of development solutions will not be implemented. A further drawback was that this new principle *only* applied to 70 per cent of the market. The price of electricity supplies to manufacturing was still determined on the basis of this industry's competitiveness and not on the alternative value in the market. Fourth, there was still no sound ranking of power projects. This did not appear until the "Master Plan for Water Resources" in 1984. The pricing rule that was applied constitutes a fifth factor: the price *including* the electricity tax was to equal the marginal cost. This resulted in a tax wedge between investments made by the state and municipalities/counties.

In a power system with rising marginal costs, profits exceeding normal returns to capital, or economic rent, shall arise. Since there are many cheap power station projects, and these are not built until the price covers the unit cost of the last project, the cheapest power projects achieve a

return which clearly exceeds the normal return on capital in Norway. In Figure 1 we have, in a very stylized manner, ranked "all power station projects in Norway" according to rising costs, cf. staircase line in Figure 1. Optimal development is carried out when the unit cost of the last power station (b') is equal to the price (p). The excess return in power production, also known as economic rent, then becomes the shaded area in Figure 1.

Bye and Johnsen (1991) made calculations of the return that should exist in the power sector in Norway if, given the current power production capacity, development was restrained until the price was higher than the marginal cost of new development projects.

"Assume that a further expansion in power capacity was postponed until the price equaled the cost of new projects. With electricity prices corresponding to the long-term marginal cost and the same volume sold as in 1988, the return in the power sector might be Nkr 22 billion. The normal return, calculated using a rate of 7 per cent, would amount to Nkr 12 billion for the power sector. According to the national accounts, the actual operating surplus in the power sector in 1988 was Nkr 9.6 billion. Including the electricity tax, the return came to Nkr 12 billion. In the long term, the power sector's revenues might be increased by about Nkr 9 billion". (See Bye and Johnsen 1991, page 30.)

This shows that at that time electricity production capacity had been increased so much that the private economic return (i.e. excluding the electricity tax) did not reach a normal return (7 per cent) on capital in addition to the fact that there should have been a substantial economic rent. The return for society (i.e. including the electricity tax) should be more than 80 per cent higher than the level achieved. In this connection the earlier electricity tax may be looked upon as a type of tax on economic rent. However, since the Norwegian power market was virtually closed and power development was undertaken by the public sector, this electricity tax will entail a tax wedge in investment.

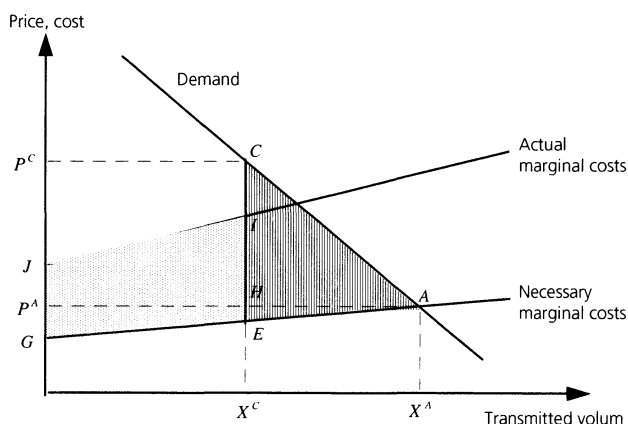
A very low return indicates substantial over-investment in the power sector in Norway at that time. This was an important argument for deregulating the power market and achieving a more market-determined basis for capacity. A sharp downward adjustment of investments as a result of deregulation through the Energy Act might therefore be expected.

Inefficient network

Network services are natural monopolies³ due to the falling average costs of developing network services. It is therefore not automatically possible to use the same pricing rule as for power production. A price equal to the marginal cost would result in large deficits in the networks (see e.g. Bye,

3 Berg et al. (1994) defines natural monopolies as follows: "A production activity is a natural monopoly if the total costs of producing the product volume are lower when production is carried out in one enterprise than when it is distributed on an arbitrary number of smaller enterprises". A monopoly will develop too little capacity and charge an excessive price for the service relative to the free competition solution (Gravelle and Rees 1981).

Figure 2. Cost and price ineffectiveness in transmission utilities



Source: Kittelsen (1994).

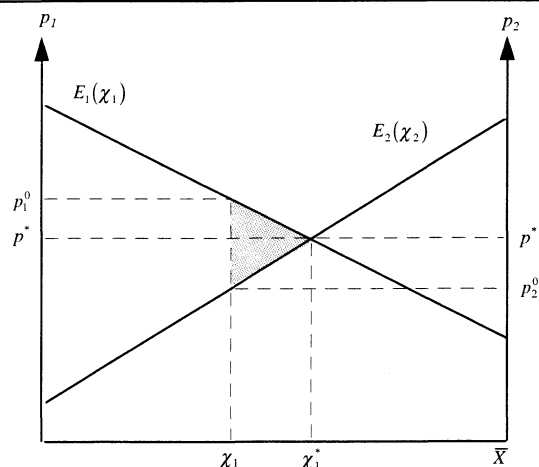
Johnsen and Strøm 1991). The development of networks, however, has largely been controlled on the basis of political objectives entailing that everyone in Norway could be linked to the network, and electricity utilities should guarantee that everyone received the electricity they demanded at any one time. The costs of developing the network and the pricing of the network services have, however, not been regulated. This may have resulted in two key problems in an efficiency context: lack of cost effectiveness and an overpricing of the service.

We have illustrated these two effects, monopoly pricing and cost-ineffective investments, in Figure 2. If there are natural monopolies, the price shall be set at the intersection point between the demand curve and the marginal cost curve. Let us now assume that the price is instead set at point C. In this case network operators have used their monopoly power to set too high a price, and demand will then be lower than what is economically optimal. The economically optimal price is set where the demand curve intersects marginal costs with optimal investments (necessary marginal costs) and not actual marginal costs.

Assume that it was possible through effective regulation to squeeze the costs in the network down to the line "necessary marginal costs". The price would then fall to p_A , and the demand for network services would increase. The area between the dashed lines then represents the economic loss that is due to a lack of cost effectiveness in investment, and the shaded area is the economic loss due to monopoly pricing.

Kittelsen (1994) studies in detail the costs of 171 Norwegian distribution utilities with the help of a DEA analysis⁴ in order to examine these losses. Kittelsen makes use of information concerning the most efficient utility in order to estimate the total efficiency loss in Norwegian distribution utilities, adjusted for differences in topographical and climatic conditions. Kittelsen's main conclusion is that

Figure 3. Efficiency losses from price regulation in the power market



Source: Bye and Johnsen (1991).

there was a considerable potential for increasing cost-effectiveness, and that the analyses did not provide a basis for maintaining that the service was overpriced given the total costs involved. In other words, the price was reasonable given the overall costs, but the costs were too high. The price was therefore also too high. Kittelsen estimated cost ineffectiveness in the network at Nkr 1.1-1.8 billion a year.

Inefficient market

The Statkraft price was adjusted in the government budget each year. Many municipal and county electricity utilities followed by adjusting their prices accordingly. A characteristic feature of the energy market prior to the Energy Act was that due to government regulations to achieve various political objectives, the administratively determined prices for different user groups varied. This regulation of prices in the power market at different administrative and public levels brought about a not insignificant loss of efficiency.

This has been stylized in Figure 3 by distributing a given volume of electricity (\bar{X}) between two customer groups. Here the price is assumed to be adjusted for transmission costs, the differing degree of supply security (spot, long contracts, etc.) and delivery date. In the regulated situation, customer group 1 will have price p_1^0 and demand volume x_1 , while customer group 2 will have price p_2^0 and demand volume $(\bar{X} - x_1)$. In a market with free competition, the price of all electricity will be approximately equal. This is illustrated in Figure 3 as the intersection point between the two customer groups' demand curves (E_1 and E_2) determines the price, which is the same for both groups (p^*). Customer group 1 demands volume x_1^* and the other demands volume $\bar{X} - x_1^*$.

A market with free competition will contribute to a pricing of electricity for customers, which results in the highest possible economic surplus of the power resource. A discrimination of various customer groups, in that some pay a

4 See Kittelsen (1994) for more information about DEA analyses.

high price and some pay a low price, will result in efficiency losses.⁵ The efficiency loss which arises through this price regulation is illustrated by the shaded area in Figure 3. This stylized example for two customer groups can be expanded to apply to additional customer groups.

In Bye and Johnsen (1991), an attempt was made to calculate the economic loss in Norway when different customer groups are faced with regulated prices which are different from those which a free competition market would generate. They found that the economic loss came to about Nkr 4.5 billion a year.

Other market imperfections

Through government regulations in the period prior to the new Energy Act all the costs were covered by adjusting prices in step with the Statkraft price, which was an administratively determined price stipulated by the Storting (Norwegian parliament). This provided poor incentives for a cost-effective choice of development solutions in various projects. No calculations have been made of the magnitude of these efficiency losses in the power sector before the new Energy Act was introduced. In an industry where the capital value is close to Nkr 200 billion, however, it is quite conceivable that these efficiency losses were substantial. The industry's own calculations through the so-called 5 per cent program (how to obtain 5 per cent more electricity from existing power stations) indicate that it is possible to obtain more power from the present resources.

In the same manner as for distribution utilities, the question may be raised whether there have also been over-expansion and incorrect dimensioning in the transmission grid. There is also reason to question whether cost-effective expansion has taken place in the transmission grid. Here, however, we know very little about the amount that could have been saved with a more cost-effective regulation of activities.

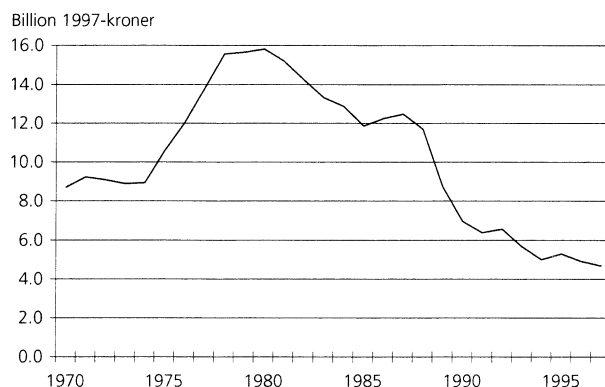
Total efficiency losses

The total, estimated efficiency losses in the power market, power production, and distribution add up to Nkr 15-20 billion a year, which amounts to about 8-10 per cent of total fixed assets in the power sector, or about 2.5-3 per cent of GDP in 1991.⁶ This was an important reason underlying the desire to deregulate the power market and promote increased competition.

After the Energy Act

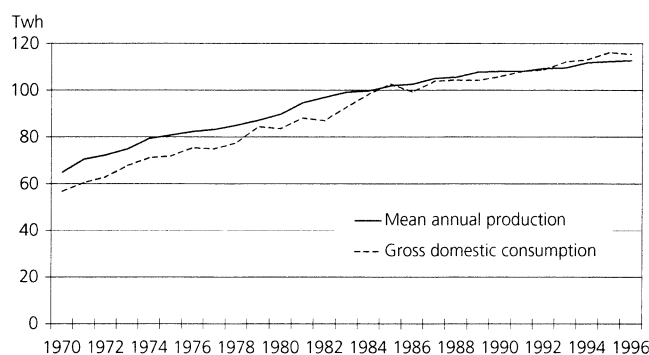
The question which now arises is what effects the Energy Act had on the energy market, and to what extent this regulation was able to reduce the substantial efficiency losses

Figure 4. Changes in investments in power production. Billion 1997-Nkr. 1970-1997



Source: Electricity Statistics, Statistics Norway.

Figure 5. Changes in mean annual production capacity and gross consumption. TWh. 1970-1996



Source: Electricity Statistics, Statistics Norway

which existed in the energy market prior to the legislative change.

Investments and power production

Figure 4 shows changes in investments in power production (in billions of 1997-Nkr) for the period 1970 to 1997, while Figure 5 shows changes in mean annual production capacity and gross domestic consumption (in TWh) of electricity in the period 1970 to 1996. In 1989-1990, investments in the power sector in Norway amounted to about Nkr 7-9 billion a year measured at constant 1997-prices. In 1996, these were reduced to Nkr 4.5 billion. At the same time, *growth* in production levelled off even though the mean annual production capacity still rose from a good 108 TWh in 1990 to a little more than 112 TWh in 1996 (see Figure 5).

⁵ This analysis is contingent on all customer groups having the same attitude towards uncertainty. If some customer groups attempt to reduce the uncertainty of electricity prices by entering into longer contracts, the differences in prices will not necessarily result in efficiency losses.

⁶ As each of the studies reviewed is partial, it is not automatically possible to add up the estimates which are specified for the various components. It indicates, however, that the magnitude is considerable.

If we look *only* at the figures after 1991, it would appear that the Energy Act to a certain extent has ensured that further expansion in a period with considerable excess capacity has come to a halt. If, however, we look at developments in the power sector in a slightly longer perspective, we find that investments in the power sector in Norway started to fall sharply long before the Energy Act came into force. Through the 1970s mean production capacity rose by an average 3.3 per cent a year. For the ten-year period as a whole, the production capacity increased from 65 to 90 TWh. Investments also rose sharply in the 1970s until the period 1978-1981 when they reached a level of more than Nkr 15 billion a year. It was in this period that major hydropower development projects were under way in Norway, with considerable protests from environmental protection groups. Between 1980 and 1990 investments in the power sector were reduced by half. Similarly, the growth rate for mean annual production fell to 1.9 per cent a year. Nevertheless, the amount invested was almost 40 per cent more from 1980 to 1989 than the combined amount from 1970 to 1979, while mean production capacity only grew by 18 TWh compared with 25 TWh in the 1970s. The reason for the continued high growth in production was that even though investments declined through the period, the level remained high. Lower growth in mean production capacity than in the 1970s despite higher investments reflects the rising marginal costs of hydropower development in Norway since the cheapest projects had already been carried out.

Why then did investments in the power sector fall more sharply in the first half of the 1980s than the observed decline following the introduction of the Energy Act in 1991? First, there were considerable protests from environmental protection groups concerning further hydropower development. Second, it was less profitable to develop new projects since the most profitable power stations had already been built. This was offset to some extent, however, by the reduction in electricity prices through the decision to base pricing on the marginal cost instead of pricing based on the average cost as a result of the Energy Report of 1978. The very high level of interest rates at the end of the 1980s was another reason for the decline in profitability. In a capital-intensive industry like the power sector, high interest rates will have a considerable impact on production costs, and thereby on the profitability of new projects. Similarly, the fall in interest rates through the 1990s will contribute to maintaining investments in the power sector. This may be one of the reasons why the fall in investments in the power sector was not as great as expected after the Energy Act entered into force. Furthermore, more people were concerned about domestic production capacity being higher than gross consumption in Norway (see Figure 5). It should also be noted that at the beginning of the 1980s new forecasting communities appeared (see, for example, Longva and Olsen 1982), which pointed out that the existing forecasts for consumption – which formed the basis for development plans – heavily exaggerated the growth in consumption. Another factor is that the authorities were working on the new Energy Act throughout the last half of the 1980s. Even

Table 1. Transmission charges for different customer groups. Øre/kWh. Weighted average of prioritized and unprioritized electricity. 1993 and 1996

	1993	1996
Mining/manufacturing	..	11,7
Transport	13,5	11,4
Other industries	15,5	12,7
Households	19,5	17,4
Total	..	15,4

Source: Electricity Statistics, Statistics Norway

at the time the proposals for a new Energy Act were presented by the Labor Party Government in 1987, it was fairly clear that this work would result in a system which involved greater market adaptation in the power sector. When the Syse Government took over in 1989, the Labor Party Government's proposal was withdrawn, and the Government presented new recommendations for the Energy Act where the market element was further strengthened. It is likely that those planning new hydropower development projects felt greater uncertainty about these projects, which in turn resulted in a postponement of plans or a scaling back of new project planning.

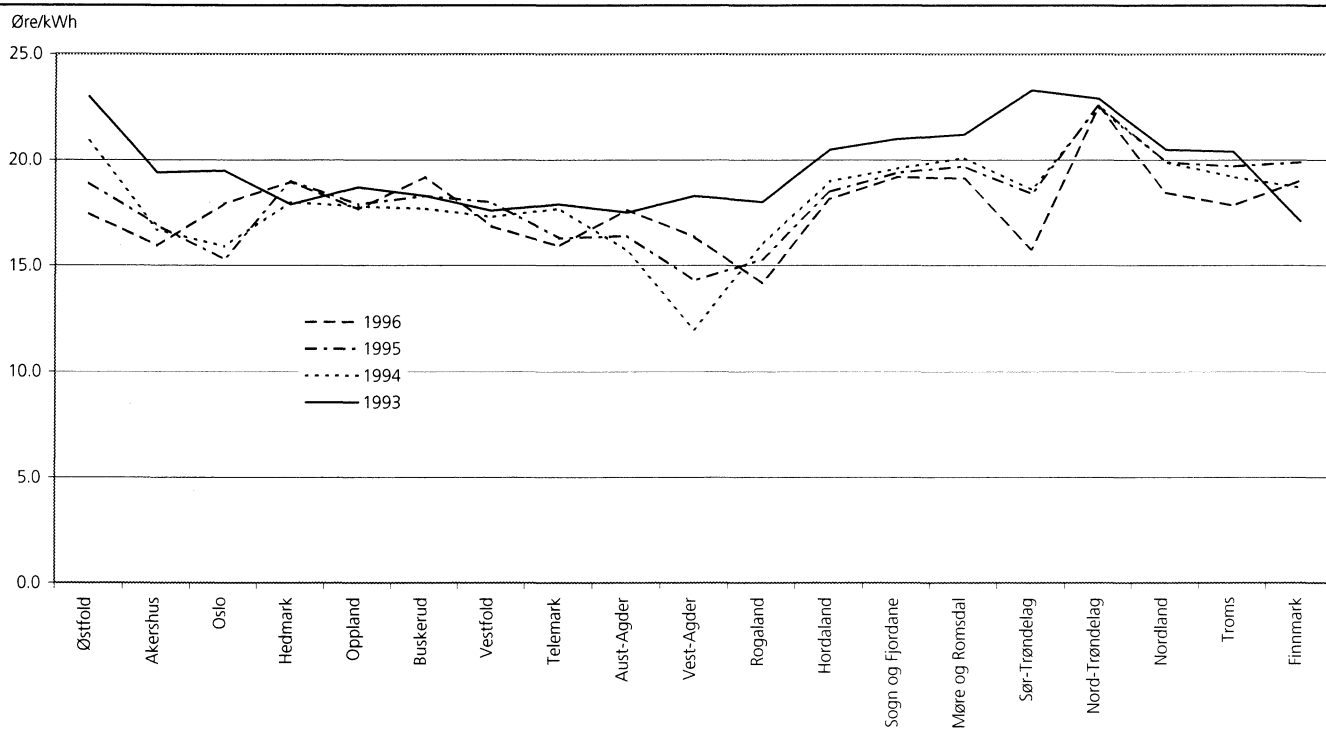
Network charges

After the Energy Act came into force, the price of electricity transmission and distribution has fallen (see Table 1). Average network charges for supplying electricity to households declined, according to Electricity Statistics, from 19.5 øre/kWh in 1993 to 17.4 øre/kWh in 1996, i.e. by 11 per cent. It is not possible to determine on the basis of these statistics how much the charges have fallen since 1991 when the Energy Act was introduced and network charges began to be more tightly regulated. The reason is that Electricity Statistics do not distinguish between electricity prices and network charges, i.e. the price of electricity transmission and distribution, prior to 1993.

For other industries, the charge has fallen by nearly 20 per cent in three years. Electricity Statistics do not show changes in manufacturing industry's transmission charges from 1993, but this is now registered as a separate group entailing that it will be possible to follow developments in the future. Regulation of network services by the Norwegian Water Resources and Energy Administration has thus entailed that some of the efficiency potential referred to in Kittelsen (1994) has probably already been achieved. For example, a decline of 2 øre/kWh in the network charge for the household sector's total consumption amounts to about 35 TWh, Nkr 700 million on an annual basis. This figure cannot be directly compared with Kittelsen's estimate for the efficiency potential of Nkr 1.1-1.8 billion, but it is an indication that regulation has been effective.

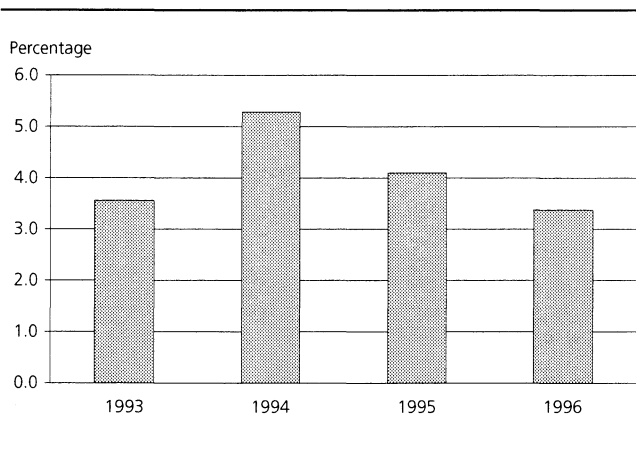
In order to illustrate the regional effects of the Energy Act on network charges we have, in Figure 6, plotted changes in the average network charge for different counties. This

Figure 6. Network charges for households distributed by county. Øre/kWh. 1993-1996



Source: Electricity Statistics, Statistics Norway.

Figure 7. Coefficient of variation for household network charges in different counties. Percentage. 1993-1996



Source: Electricity Statistics, Statistics Norway.

shows a fall in the network charge for almost all counties from 1993 to 1996, with the exception of Hedmark and Buskerud. These were counties that had charges below the average in 1993 and where the charge in these counties was higher than the average in 1996. Vest-Agder also had

very low charges in 1994, but has now reached a level more on a par with the other counties.

There is reason to point out, however, that average charges at the county level may conceal a change in the magnitude of supplies from high-cost utilities within a county. The overall change for a county may thereby exaggerate or underestimate changes at the energy utility level.

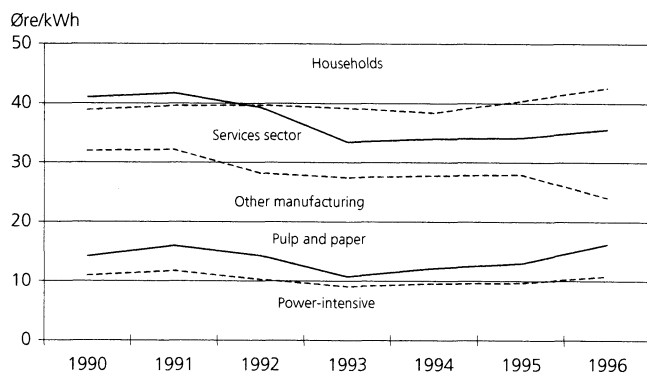
In addition to the decline in network charges since the introduction of the Energy Act, it also appears that the variation in network charges between counties has been reduced. In Figure 7 we have calculated the coefficient of variation for network charges for households in the period 1993 to 1996. The coefficient of variation⁷ is a measure of the variation in charges between various countries. The higher the figure is, the greater the difference.⁸

Figure 7 shows that the coefficient of variation fell sharply from 1994 to 1996. This, combined with the fall in charges as noted above, shows that the Norwegian Water Resources and Energy Administration's regulation of charges in the wake of the Energy Act has been effective. Prices and variation have been reduced. Part of the efficiency potential pointed out by Kittelsen has thus apparently been achieved.

7 The coefficient of variation is the ratio of the standard deviation to the mean. We have also calculated the variation in household charges by applying the Gini coefficient. Since both measures provided the same overall picture we have chosen to present only the coefficient of variation.

8 Due to topographical differences, network charges shall differ somewhat between the various areas covered. The variation in network charges may, however, also be due to the inefficient operation of transmission and/or distribution utilities. In recent years the Norwegian Water Resources and Energy Administration has tightened up on the regulation of energy utilities which charge a higher price than the most efficient utility, adjusted for, among other things, topographical conditions. It is therefore likely that a reduction in the price variation between the different utilities is an indication of more efficient operations.

Figure 8. Electricity prices for different user groups. Øre/kWh. Including electricity tax. 1990-1996



Source: Electricity Statistics, Statistics Norway.

The market

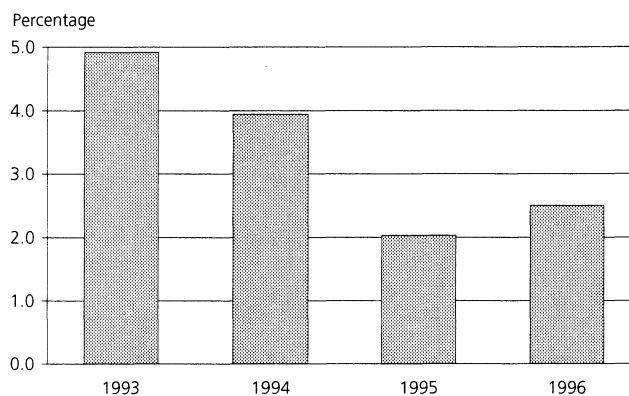
An important aim of the Energy Act was to ensure that the market would generate less variation in prices between consumer groups, regions and within consumer groups. In brief, the market was to ensure more uniform pricing of electricity. In the following we shall use figures from Electricity Statistics and historical information concerning household charges from the Norwegian Water Resources and Energy Administration in order to shed light on developments in electricity prices.

Prices for user groups

Bye and Johnsen (1991) estimated efficiency losses as a result of considerable price discrimination in the electricity market between various user groups at Nkr 4.5 billion a year. The most important discrimination related to differences in pricing between industries. Figure 8 shows changes in electricity prices, including the electricity tax, for some groups of industries.

As Figure 8 illustrates, there has been a clear narrowing of price differentials between pulp and paper and other manufacturing sectors. While the price for pulp and paper has increased, it has fallen sharply for other manufacturing sectors. Part of this is probably due to a large proportion of electricity purchases at spot prices for the pulp and paper sector's boilers. The spot price was considerably lower than the fixed price early in the period. Later, the spot price rose and in periods was higher than fixed prices, which fell slightly in the market. The sector that initially had a low average price thereby experienced higher prices, while those sectors which were more exposed to the market experienced slightly lower prices. It may seem somewhat surprising that prices for manufacturing industry fell by a considerable margin from 1995 to 1996 in spite of the electricity crisis in 1996. This may in part reflect good adaptation in manufacturing, where longer-term contracts were entered into in a period of low prices (1995) and where expectations of continued low prices were high.

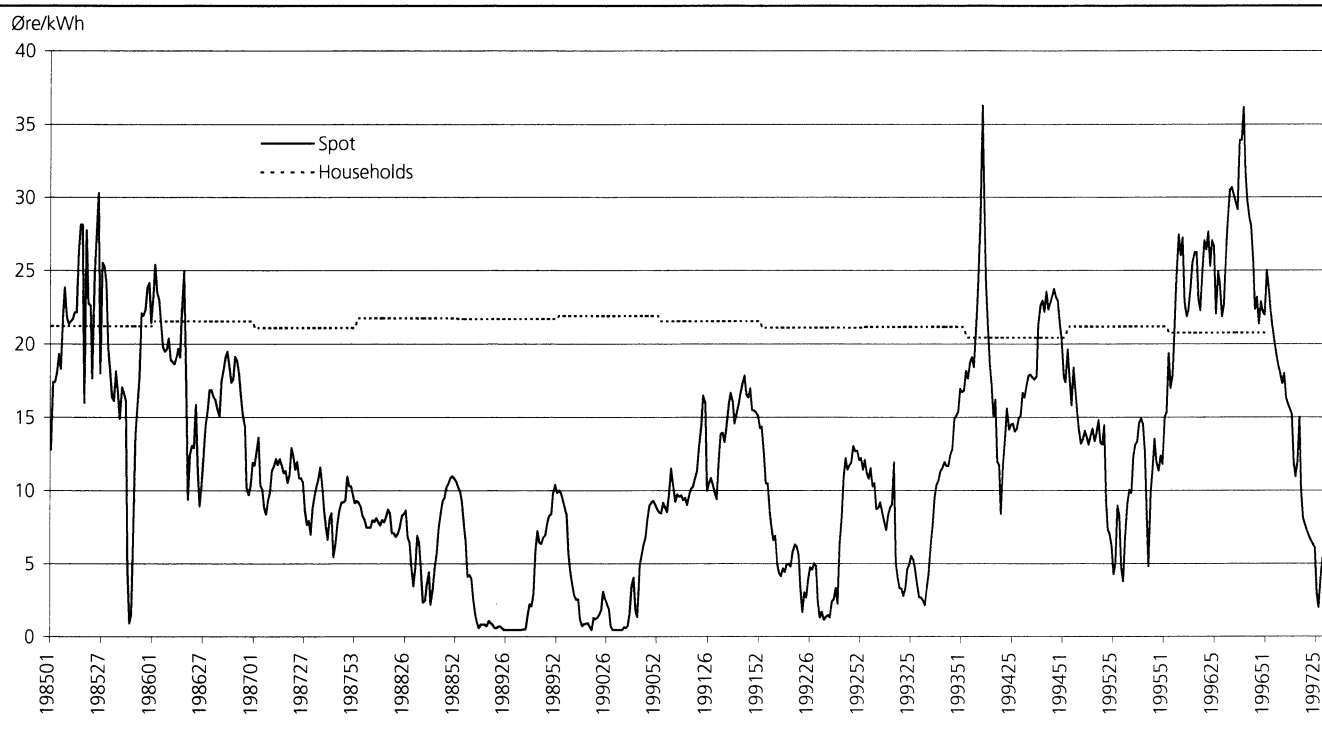
Figure 9. Coefficient of variation for household electricity prices in different counties. Percentage. 1993-1996



Source: Electricity Statistics, Statistics Norway.

We also see from Figure 8 that the price for households and service sectors, which were the most negatively discriminated sectors with the highest prices according to Bye and Johnsen (1991), also fell slightly in the first few years following the introduction of the Energy Act. The rise in prices in 1996 for these groups may be due to little precipitation and high prices in the market, but also that these groups had not hedged sufficiently against a short-term rise in prices through longer contracts. There is also reason to emphasize the administrative arrangements that prevented consumers from participating in the market in the initial period after the Energy Act came into force. First, the Energy Act states directly that household customers are not likely to derive considerable benefits from participating actively in the market. Second, a system was established with relatively high fees for household customers who wanted to change supplier were an effective barrier to such changes. The fees were gradually reduced and finally eliminated. This coincided, however, with a period of increased volatility in the market, entailing that household customers are cautious in terms of active market participation. On the other hand, energy utilities have become better at participating in the market through their purchases of electricity. This has in turn contributed to transferring part of the market gains to customers, including households.

We also see from Figure 8 that the price for power-intensive manufacturing as a whole rose through the period. This was the sector that in absolute terms had the lowest price initially due to very favorable long-term contracts. Some of the electricity this sector previously had access to has been subject to renegotiations, where this has resulted in slightly rising prices. Two events in this segment of the market deserve considerable attention. The political authorities have still been willing to negotiate contracts with manufacturing industry, but have exerted considerable pressure on the industry to first attempt to negotiate contracts on a commercial basis with suppliers of electricity, basically Statkraft. As a result, Norsk Hydro has actually concluded a commercial contract with Statkraft. In more recent periods Elkem, as another large power-intensive manufacturing player, has

Figure 10. Spot price and price for households. Øre/kWh in 1996-prices. 1985-1996

Source: Electricity Statistics, Statistics Norway.

also negotiated a commercial contract with the largest Swedish power producer, Vattenfall, concerning electricity supplies on long contracts. These are important events both because they would hardly have been possible under the old regime, and because the largest share of the efficiency potential calculated by Bye and Johnsen (1991) for the power market was found in the lack of market relationships inherent in the pricing of electricity for this industry. Once again, the Energy Act has produced a new regime where a large efficiency potential is in the process of being achieved.

These may be viewed as examples of how the Energy Act has had influence on developments in the electricity market, with prices declining for large consumer groups. Differences in prices for various manufacturing sectors have narrowed, but there is still a price differential between households and manufacturing which has not been appreciably reduced in this period. However, recent developments with market-based pricing for energy-intensive manufacturing may in the long run entail reduced variation here. In Figure 8, all prices include the electricity tax, and some of the price differentials therefore partly reflect the considerable variation in the electricity tax between different user groups. This means that a differentiation of the electricity tax will amplify the differences in electricity prices between various user groups.

Price variations between regions

In the above we saw that prices for large consumer groups have declined, and electricity price differentials between

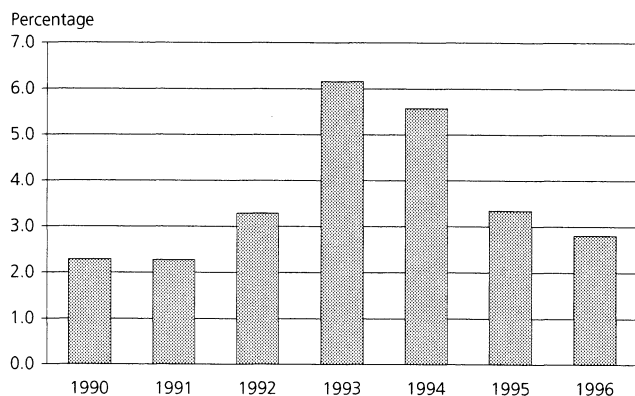
various production sectors have narrowed somewhat. The price for households, however, has risen slightly in this period. In order to investigate whether differences in electricity prices between households on a regional basis have narrowed, we have in Figure 9 plotted the coefficient of variation for the electricity price for households in various counties for the period 1993 to 1996.⁹

Figure 9 shows that in spite of the rise in prices for households in this period, the variation in the electricity price for households between counties has been reduced. The coefficient of variation in 1996 is about half the level in 1993.

By comparing the information in Figures 8 and 9 it appears that the introduction of the Energy Act has resulted in smaller variations in electricity prices between different manufacturing sectors and regionally between households. However, the differences in electricity prices between manufacturing and households do not appear to have been reduced noteworthy. It should be borne in mind that the market for household customers did not function very efficiently in the period following the introduction of the Energy Act, partly due to high transfer fees. This is clearly illustrated in Figure 10, which shows weekly average variations in the spot price for electricity and the average electricity price for households for the period 1985-1996. The spot price in the electricity market was very low for long periods without this having a major impact on changes in the household price.

⁹ Unfortunately Electricity Statistics do not separate the network charge and the electricity price prior to 1993.

Figure 11. Coefficient of variation for the total electricity price for households in different counties. Percentage. 1990-1996



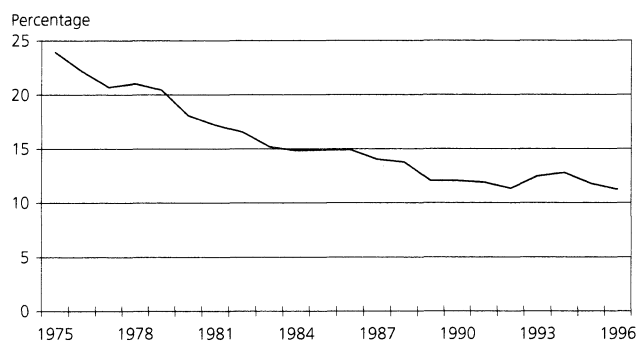
Source: Electricity Statistics, Statistics Norway.

There has been virtually no correlation between the spot price and the average household price in this period even though in principal households could participate actively in the market. Throughout the entire period relatively few households have changed their contract type and supplier. However, this situation has changed somewhat the last two years when fees for changing supplier were removed. At the same time, however, the spot price has increased so that the potential for profiting from a change has been reduced. It is likely that the strong focus on the "electricity crisis" through 1996 also created increased uncertainty and prompted renewed caution among household customers with a view to using the market to obtain cheaper electricity supplies even though there has been a considerable potential for benefiting from such a change.

As noted earlier, Electricity Statistics do not provide a basis for studying changes in electricity prices and network charges separately in years prior to 1993. The statistics do, however, allow us to study electricity prices including network charge for households distributed by county. In connection with the discussion of Figures 7 and 9 we concluded that differences in prices for network services and electricity for households narrowed in the period 1993 to 1996. This conclusion, however, may depend on the time period chosen, which has been selected here for statistical reasons. The trend we observe in the period 1993 to 1996 may be a random fluctuation, which is due to other factors.

If we look at Figure 11, which shows the variation in electricity prices for households, including network rent, for the period 1990 to 1996, we find that differences in the price of electricity have not been reduced from 1991 to 1996. In the period 1991 to 1993 actual prices varied more, followed by a narrowing of differentials in the years to 1996. This may be due to several factors. First, the degree to which the various energy companies managed to follow up the intentions in the Energy Act the first few years pro-

Figure 12. Variation in H4-charge, variable component at energy utility level, measured by the coefficient of variation. Percentage. 1975-1996



Source: Scales of charges 1975-1987 from Nor Energi, primary material from Electricity Statistics.

bably varied. The fact that some actually adapted while others did not adapt will result in greater variation in prices in the short term. Furthermore, high fees for changing supplier prevented market adaptation. Third, fluctuations in market prices that do not have a full impact on all market segments in the short term (cf. Figure 10) will be observed, partly because different types of customers have different degrees of risk aversion. Figure 11 leads us to conclude that the new Energy Act resulted in a larger variation in prices in the short term, but this trend has been reversed in recent years. It will therefore be important to follow developments in the period ahead.

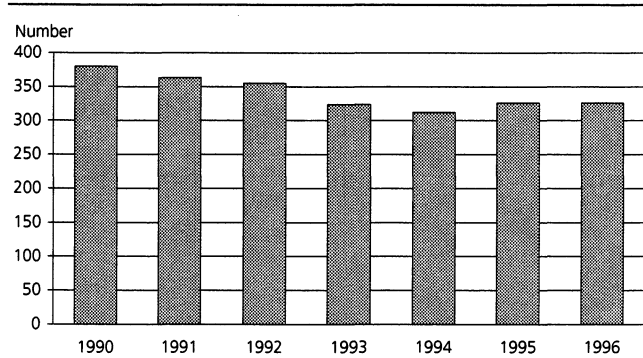
Household prices at the energy utility level

So far we have used Electricity Statistics, which provide information about average electricity prices by county, in order to comment on the regional variation in electricity prices between households. This aggregation by county may, however, conceal considerable price variations since there is a fairly wide variation in household charges between energy utilities within each county. For example, we know that a number of municipal energy utilities attempt to maintain low prices for customers in their own area even though the alternative value of the electricity (the value in the market) may be substantially higher. Rising prices in the market may entail that the variation in prices, as measured by the consumer, will be greater. With lower prices in the market, the variation due to this is smaller. In order to study developments in household charges at the energy utility level, we have applied information about household tariffs from the Association of Norwegian Energy Utilities for the period 1975 to 1987,¹⁰ as well as primary material for Electricity Statistics. Figure 12 shows changes in the coefficient of variation for the variable component of H4-charges for households in the period 1975-1996.

Here we find the same trend as in Figure 11; the variance in the charges increases in the period 1991 to 1993 and

¹⁰ See Association of Norwegian Energy Utilities (1975-1987).

Figure 13. Number of energy utilities in Norway (including production plant, industrial generators, wholesale and distribution utilities and network companies). 1990-1996



Source: Electricity Statistics, Statistics Norway.

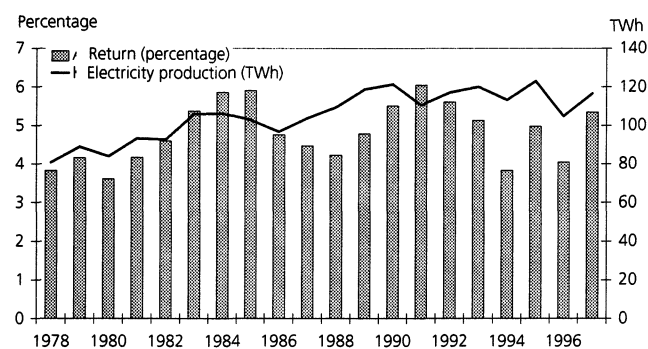
then declines. The most interesting aspect of Figure 12, however, is that the variation in H4-charges for households was reduced substantially from 1975 until work on the new Energy Act began at the end of the 1980s. The most important reason for this is probably a sharp rise in electricity prices for households in the period 1975-1985. In this period, household prices rose by almost 70 per cent in excess of inflation. When the authorities increased the Statkraft price, most power companies probably followed suit and raised prices by the same margin. If the differences in øre/kWh have been partly maintained through the power utilities' pricing policy. This might explain the decline in the percentage deviation from the average price through the period. It may also seem surprising that the price differentials did not increase in 1996 as a result of the sharp rise in market prices due to little precipitation that year. One explanation is that even though spot prices were rising, contract prices were not increased by the same margin. Nor were many contract prices increased until the end of 1996, at a time when spot market prices resumed a downward trend.

Organization of the activity

Compared with many other countries, Norway has many energy utilities. Figure 13 shows changes in the number of energy utilities in Norway in the period 1990 to 1996. In 1990, Norway had 380 energy utilities. A number of utilities were expected to merge as a result of the Energy Act in order to position themselves and be better equipped to compete in the new market. Larger entities may have a number of advantages, e.g. through economies of scale at the administrative level, through purchases of equipment for expansion, upgrading and maintenance of existing equipment and through possible electricity purchases.

Economies of scale in administration and through electricity purchases have probably been decisive for mergers of energy utilities, which took place in the period 1990-1994. In 1994, the number of energy utilities had been reduced from 380 in 1990 to 312, i.e. a reduction of nearly 20 per

Figure 14. Changes in the return (per cent) and electricity production (TWh). 1978-1997



Source: Electricity Statistics, Statistics Norway.

cent in the course of four years. In recent years, however, the net number of energy utilities has risen again by 14 utilities, primarily because several energy utilities have been split up into an electricity supplier and a network service supplier. The increase in the number of energy utilities in recent years has been motivated by the authorities' requirements concerning separate accounts for supplying electricity and network deliveries. It is likely, however, that in the long run increasingly stringent efficiency requirements established by the Norwegian Water Resources and Energy Administration for energy utilities will result in more mergers, both for network companies and electricity suppliers, in order to benefit from any economies of scale.

The return in the power sector

In order to examine the effects of the Energy Act on the return for energy utilities, we have in Figure 14 plotted changes in total electricity production and the return in per cent for the period 1978 to 1996.

Figure 14 shows that production capacity has shown little increase in this period, i.e. 4 per cent or 4.5 TWh. With rising prices and rising production, we might expect a certain increase in the return in the sector. We know, however, that electricity production in Norway has also varied substantially in this period, from a peak of 120 TWh in 1995 to a trough of 104 TWh in 1996. This primarily reflects the considerable variation in precipitation from one year to the next. Prices have also varied extensively due to variations in precipitation and production, but also due to changes in cyclical conditions and temperatures on the demand side. This has resulted in sharp variations in the return. In 1993, the rate of return (per cent of fixed assets) in the power sector was down to the level recorded in 1978 even though production was approximately at the mean year production level. From a level of 5-6 per cent in 1990-1991, the level is now barely 5 per cent. Higher prices and higher production have thus been offset by expensive investments in recent years. For the period 1991-1997 the average return has been 4.5-5 per cent. With continued low prices, the return

and hence the profitability of new development projects are likely to be low for some years ahead.¹¹

Concluding remarks

The introduction of the Energy Act was motivated not only on the basis of the formal administrative view that existing legislation should be streamlined, but was also based on several studies which demonstrated considerable efficiency losses as a result of the way in which the electricity market was regulated. Against the background of the analyses presented here, we may conclude that the Energy Act has basically functioned according to its intentions, but that this has taken somewhat longer than expected due to rigidities in the initial phase, like fees in the household sector and the exclusion of manufacturing contracts. It appears, however that the effect of the Energy Act has been fairly extensive. Investments in the power sector have continued to decline substantially and the increase in mean annual production capacity has almost come to a halt.

Moreover, electricity prices have remained relatively stable for many consumer groups when we disregard the extremely low precipitation year 1996 and subsequent rise in prices in late 1996 and in 1997. Price differentials have narrowed somewhat between manufacturing sectors, while the difference between manufacturing, services and households has widened. The situation for households in particular was less favorable in the initial phase. Differences in prices at the county level and energy utility level were greater in the first few years following deregulation, but these differences have again narrowed in recent years (see Figure 11). In a longer term perspective it might be said that the narrowing of differentials in household charges after the new Energy Act came into force is marginal compared with developments in the period 1975-1985 (see Figure 12). Furthermore, network charges have been reduced sharply, entailing that much of the efficiency potential that existed in 1991 has probably been achieved. However, technological advances, mergers, etc., which can boost the potential in the period ahead, will continue to take place.

Mergers of energy utilities have been fairly extensive, a development which will most probably increase over time. The rate of return in the power sector has also declined. This has in turn contributed to restraining investments. Even though the power sector loses out, society as a whole gains from this development. It may take many years before economic rent, which this sector commands, is achieved due to considerable over-expansion not only in Norway but also in other North European countries. This results in low prices and a low return.

The outlook points to continued low prices and little expansion. Competitive conditions may result in both greater and smaller price differentials in the period ahead. This depends in part on the various market participants' attitude

towards risk. In the long term, international climate agreements may also result in sharply rising electricity prices, and economic rent in the power sector may gradually be achieved and at a faster pace than otherwise. In addition, an environmental rent may be obtained in the long term.

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11 See, for example, the Energy Report NOU 1998:11 where low prices and large net imports are assumed for a number of years following the turn of the century

Research publications in English

New titles

Discussion Papers

Sverre Grepperud, Henrik Wiig and Finn Roar Aune:

Maize Trade Liberalization vs. Fertilizer Subsidies in Tanzania: A CGE Model Analysis with Endogenous Soil Fertility

DP no. 249, 1999. 36 pages.

This paper presents an analysis on economy-environmental interlinkages for Tanzania by using a computable general equilibrium (CGE) model based on a social accounting matrix. The purpose of the analysis is to include general equilibrium effects when evaluating two suggested policy measures meant to stimulate growth and crop production. The model is multisectoral with a particular focus on crop producing sectors and soil mining processes. Maize trade liberalization and a fertilizer subsidy are considered. The model simulations show that both policy reforms have expansive effects and that there are significant sectoral complementarities between agriculture and non-agriculture in Tanzania. Fertilizer subsidies promotes cash crop production and a more land intensive production pattern in agriculture, while a maize trade liberalization stimulates food crops and a more land extensive agriculture. Fertilizer subsidies are found to imply far more expansive effects than a trade liberalization does. Only minor differences are identified between the two policy reforms as concerning their impact on the balance of trade, distribution and the environment.

Morten Sjøberg:

Asymmetric Information and International Tradable Quota Treaties. An experimental evaluation

DP no. 248, 1999. 22 pages.

This paper reports an experimental test of international quota trading on a market characterised by several dominant traders. Asymmetric information regarding quota demand and supply imply true market-clearing prices which differ from an expected competitive quota price. However, in the experiment the expected price level emerges as a focal point on which the bulk of quota trade contracts are keyed. Thus, incomplete price discovery obtains.

Rune Johansen and John K. Dagsvik:

The Dynamics of a Behavioral Two-Sex Demographic Model

DP no. 247, 1999. 35 pages.

In this paper, we examine the dynamic properties of a particular demographic model. An essential part of the model is the marriage function which is derived from assumptions about the behavior of women and men in a market where each individual is looking for a suitable partner. By means of simulation experiments we investigate different aspects of the model. Specifically, we find that it is difficult to determine parameters related to preferences, birth and death rates, such that a non-trivial stable equilibrium is attained.

John K. Dagsvik and Bjørn H. Vatne:

Is the Distribution of Income Compatible with a Stable Distribution?

DP no. 246, 1999. 28 pages.

Mandelbrot (1961) proposed to apply the class of Pareto-Levy distributions which belong to the Stable distributions as a framework for modelling income distributions. He also presented theoretic arguments in favour of the Pareto-Levy distributions. In this paper we provide additional theoretical justification for this class of distributions. We also use micro data on individual market income to estimate the parameters of a Pareto-Levy distribution. Several estimation methods have been applied. The estimated Pareto-Levy distribution appears to fit the data well.

Elin Berg, Snorre Kverndokk and Knut Einar Rosendahl:

Optimal Oil Exploration under Climate Treaties

DP no. 245, 1999. 45 pages.

In this paper we focus on how an international climate treaty will influence the exploration of oil in Non-OPEC countries. We present a numerical intertemporal global equilibrium model for the fossil fuel markets. The international oil market is modelled with a cartel (OPEC) and a competitive fringe on the supply side, following a Nash-Cournot approach. An initial resource base for oil is given in the Non-OPEC region. However, the resource base changes over time due to depletion, exploration and discovery. When studying the effects of different climate treaties on oil

exploration, two contrasting incentives apply. If an international carbon tax is introduced, the producer price of oil will drop compared to the reference case. This gives an incentive to reduce oil production and exploration. However, the oil price may increase less rapidly over time, which gives an incentive to expedite production, and exploration. In fact, in the case of a rising carbon tax we find the last incentive to be the strongest, which means that an international climate treaty may increase oil exploration in Non-OPEC countries for the coming decades.

Joe Sexton and Anders Rygh Swensen:
ECM-algorithms that converge at the rate of EM

DP no. 244, 1999. 17 pages.

This paper describes a way of constructing an ECM algorithm such that it converges at the rate of the EM algorithm. The approach is motivated by the well known conjugate directions algorithm, and a special case of it is when the parameters corresponding to different CM steps are orthogonal. Three examples are given illustrating the approach. Possible implications of the theme for the ECME algorithm are briefly discussed.

Bjørn E. Naug:

Modelling the Demand for Imports and Domestic Output

DP no. 243, 1999. 30 pages.

The paper models domestic output over imports in Norway's expenditure on manufactures. Using Johansen's (1988, 1991) method, we obtain a cointegrating vector between the output-imports ratio, relative prices and a proxy for international specialisation. This vector enters a conditional equilibrium correction model of the output-imports ratio; a model which also includes short-run influences of relative prices and a negative coefficient for domestic capacity utilisation. The utilisation coefficient aside, we do not find significant activity effects on the output-imports ratio. Lastly, the model passes several tests of the Lucas critique.

Brita Bye:

Labour Market Rigidities and Environmental Tax Reforms: Welfare Effects of Different Regimes

DP no. 242, 1998. 35 pages.

The working of the labour market is important for the total welfare effects of tax reforms. This paper analyses, by using a computable general equilibrium model for the Norwegian economy, how different assumptions about labour mobility between industries and wage formation influence the non-environmental welfare effects of an environmental tax reform. Three different alternatives are analysed; competitive labour market, immobility and wage rigidity, and wage formation through union wage bargaining. The welfare effects differ substantially between the alternatives, depending especially on the total tax wedge on labour.

parallelism - the degree of transferability of experimental results to real-life settings - is questioned.

Erling Holmøy, Birger Strøm and Turid Åvitsland:

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Reprints no. 131, 1999. 35 pages.

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Morten Sjøberg:

Experimental Economics and the US Tradable SO₂ Permit Scheme: A Discussion of Parallelism

Documents 99/5, 1999. 19 pages.

In the US tradable SO₂ permit scheme 97.2% of the permits are allocated to the affected utilities on an annual basis. The remaining 2.8% are traded at an auction conducted each year by the US Environmental Protection Agency (EPA) along with permits offered for sale by the permit holders. In addition, permits are traded on a complementary private permit market. In this paper we review a set of experiments that preceded these developments and tried to predict auction and, to some extent, market behaviour. The reviewed experimental efforts concluded that the auction prices would tend to be downward biased and thus underestimate the true marginal cost of emissions control. Also, one paper forecasted a divergence between the auction price and the corresponding permit market price level. A comparison with available empirical data serves to falsify several of these predictions. Indeed, the practical relevance of the EPA auction's experimentally alleged properties is negligible. Hence,

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1*
NATIONAL ACCOUNTS FOR NORWAY

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Final consumption exp. of househ. and NPISHs	515 747	545 971	118 095	125 509	131 995	140 149	126 224	132 736	141 148	145 864
Household final consumption expenditure . . .	490 949	520 162	112 011	119 372	125 730	133 836	119 971	126 397	134 594	139 201
Goods	279 573	295 286	62 460	67 225	69 282	80 607	66 592	71 451	74 535	82 708
Services	205 819	218 429	48 970	51 125	54 743	50 981	52 365	53 631	58 273	54 160
Direct purchases abroad by resident househ.	21 359	23 041	3 758	4 948	7 479	5 174	4 215	5 340	8 121	5 364
- Direct purchases by non-residents	-15 802	-16 593	-3 177	-3 926	-5 774	-2 925	-3 201	-4 026	-6 335	-3 031
Final consumption exp. of NPISHs 4)	24 798	25 809	6 083	6 137	6 265	6 313	6 253	6 339	6 555	6 663
Final consumption exp. of general government .	218 811	236 811	53 437	54 199	55 370	55 804	57 010	58 241	60 315	61 246
Final consumption exp. of central government.	86 585	92 311	21 179	21 425	21 874	22 108	22 397	22 764	23 339	23 810
Central government, civilian	63 039	67 785	15 424	15 599	15 926	16 091	16 411	16 712	17 146	17 516
Central government, defence	23 546	24 526	5 755	5 826	5 948	6 017	5 986	6 053	6 193	6 295
Final consumption exp. of local government . .	132 225	144 500	32 258	32 775	33 496	33 696	34 613	35 477	36 975	37 435
Gross fixed capital formation	249 931	277 215	54 414	62 134	62 632	70 750	63 950	67 796	69 829	75 640
Petroleum activities	61 382	78 283	12 798	16 794	15 112	16 678	16 399	20 348	21 246	20 290
Ocean transport	11 168	10 713	3 172	2 583	3 220	2 193	3 991	1 454	2 522	2 747
Mainland-Norway	177 380	188 219	38 445	42 757	44 300	51 879	43 560	45 994	46 061	52 603
Mainland-Norway excl. general government .	141 327	151 457	29 980	34 213	35 792	41 342	34 197	36 932	37 789	42 540
Manufacturing and mining	18 582	21 470	3 341	4 828	4 442	5 971	3 695	4 979	5 749	7 047
Production of other goods	13 146	14 708	2 266	3 645	3 702	3 533	2 681	3 796	3 821	4 410
Dwelling services	30 151	31 377	6 922	7 331	7 742	8 156	7 721	7 638	7 908	8 109
Other services	79 448	83 902	17 450	18 410	19 906	23 681	20 099	20 518	20 311	22 974
General government	36 053	36 762	8 465	8 544	8 508	10 537	9 364	9 063	8 272	10 064
Changes in stocks and stat. discrepancies . . .	23 741	31 083	7 696	7 189	4 219	4 637	12 340	6 841	5 807	6 096
Gross capital formation	273 672	308 299	62 111	69 324	66 850	75 387	76 290	74 638	75 635	81 736
Final domestic use of goods and services	1 008 230	1 091 081	233 643	249 032	254 215	271 340	259 523	265 614	277 098	288 845
Final demand from Mainland-Norway 2)	911 938	971 002	209 977	222 465	231 664	247 832	226 794	236 971	247 524	259 713
Final demand from general government 3)	254 864	273 573	61 902	62 743	63 878	66 341	66 374	67 304	68 586	71 309
Total exports	447 582	412 224	108 757	109 975	114 189	114 660	109 893	102 967	100 418	98 945
Traditional goods	169 280	176 727	39 355	42 386	42 324	45 214	46 337	42 297	42 383	45 709
Crude oil and natural gas	163 674	120 125	42 598	38 947	40 220	41 909	34 286	31 048	27 268	27 523
Ships and oil platforms	10 761	9 851	3 207	2 735	2 482	2 337	3 138	3 045	1 887	1 781
Services	103 867	105 521	23 597	25 907	29 163	25 200	26 132	26 577	28 880	23 932
Total use of goods and services	1 455 812	1 503 305	342 400	359 007	368 404	386 000	369 416	368 582	377 516	387 791
Total imports	371 024	402 531	82 019	93 518	96 268	99 219	98 390	99 045	101 619	103 477
Traditional goods	239 895	265 909	53 371	60 482	59 328	66 714	64 961	65 725	65 050	70 173
Crude oil	1 517	1 313	436	322	413	346	446	288	316	263
Ships and oil platforms	26 011	24 462	7 405	7 146	6 458	5 002	7 630	4 842	5 003	6 987
Services	103 601	110 847	20 807	25 568	30 069	27 157	25 353	28 190	31 250	26 054
Gross domestic product 1)	1 084 788	1 100 774	260 381	265 489	272 136	286 781	271 026	269 537	275 897	284 314
Mainland-Norway (market prices)	890 883	955 406	210 132	218 799	224 977	236 975	229 580	232 633	242 173	251 019
Petroleum activities and ocean transport	193 904	145 368	50 249	46 690	47 159	49 806	41 446	36 903	33 724	33 294
Mainland-Norway (basic prices)	776 750	835 879	186 285	190 842	194 484	205 139	203 338	202 448	212 476	217 617
Mainland-Norway excl. general government . .	609 937	654 661	145 518	149 616	152 306	162 498	159 920	158 040	166 214	170 487
Manufacturing and mining	122 689	131 615	29 238	31 812	28 575	33 064	33 119	32 931	31 616	33 949
Production of other goods	85 938	93 683	21 170	17 527	22 682	24 560	23 473	19 064	25 627	25 518
Service industries	401 309	429 363	95 110	100 277	101 049	104 874	103 328	106 046	108 970	111 020
General government	166 813	181 218	40 767	41 226	42 178	42 641	43 418	44 408	46 263	47 130
Correction items	114 134	119 527	23 847	27 957	30 493	31 836	26 242	30 185	29 697	33 403

- 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 from general government
- 4) NPISH: Non-profit institutions serving households

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NATIONAL ACCOUNTS FOR NORWAY

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Final consumption exp. of househ. and NPISHs	496 319	511 968	114 458	120 756	127 024	134 080	119 487	124 477	132 358	135 646
Household final consumption expenditure . . .	472 933	488 954	108 618	114 938	121 172	128 204	113 674	118 719	126 629	129 931
Goods	270 914	281 431	60 310	65 220	67 310	78 074	63 599	68 016	71 063	78 753
Services	196 411	201 546	47 576	48 631	52 318	47 887	49 006	49 462	54 087	48 992
Direct purchases abroad by resident househ.	20 731	21 320	3 806	4 810	7 131	4 984	4 050	4 944	7 400	4 926
- Direct purchases by non-residents	-15 124	-15 344	-3 073	-3 723	-5 587	-2 741	-2 981	-3 702	-5 920	-2 740
Final consumption exp. of NPISHs 4)	23 386	23 014	5 840	5 818	5 851	5 876	5 813	5 758	5 729	5 715
Final consumption exp. of general government .	206 781	212 611	51 440	51 475	51 700	52 166	53 080	53 005	53 227	53 299
Final consumption exp. of central government.	82 027	83 498	20 429	20 377	20 501	20 720	20 842	20 736	20 865	21 055
Central government, civilian	59 735	61 267	14 871	14 841	14 947	15 077	15 259	15 218	15 320	15 470
Central government, defence	22 292	22 231	5 558	5 536	5 554	5 643	5 583	5 518	5 545	5 585
Final consumption exp. of local government . .	124 754	129 112	31 011	31 097	31 199	31 447	32 237	32 269	32 362	32 244
Gross fixed capital formation	237 777	253 393	52 858	59 244	59 060	66 614	59 335	62 015	63 450	68 593
Petroleum activities	56 206	68 739	12 078	15 442	13 593	15 093	14 539	17 875	18 562	17 764
Ocean transport	10 124	9 706	2 946	2 405	2 768	2 005	3 448	1 375	2 372	2 510
Mainland-Norway	171 447	174 949	37 834	41 396	42 699	49 517	41 349	42 765	42 517	48 319
Mainland-Norway excl. general government .	136 709	140 941	29 555	33 117	34 533	39 504	32 475	34 369	34 965	39 132
Manufacturing and mining	18 270	20 554	3 334	4 776	4 369	5 791	3 595	4 755	5 465	6 738
Production of other goods	12 995	14 010	2 265	3 609	3 641	3 481	2 621	3 601	3 587	4 200
Dwelling services	28 497	28 306	6 663	6 952	7 278	7 603	7 158	6 926	7 050	7 172
Other services	76 946	78 072	17 293	17 780	19 245	22 629	19 100	19 087	18 863	21 021
General government	34 738	34 007	8 280	8 280	8 166	10 013	8 873	8 396	7 552	9 187
Changes in stocks and stat. discrepancies . . .	23 917	29 890	7 759	6 895	4 494	4 769	11 807	6 436	5 501	6 145
Gross capital formation	261 693	283 283	60 617	66 139	63 554	71 383	71 143	68 451	68 951	74 739
Final domestic use of goods and services	964 793	1 007 861	226 516	238 370	242 277	257 630	243 710	245 932	254 536	263 683
Final demand from Mainland-Norway 2)	874 546	899 527	203 733	213 627	221 423	235 763	213 915	220 246	228 102	237 263
Final demand from general government 3)	241 519	246 618	59 720	59 754	59 866	62 179	61 953	61 400	60 779	62 486
Total exports	410 702	412 831	100 313	103 108	102 850	104 431	107 442	102 070	100 299	103 021
Traditional goods	170 493	176 753	40 468	43 582	41 824	44 618	46 155	42 226	42 308	46 062
Crude oil and natural gas	133 959	129 668	33 861	33 300	32 113	34 686	34 298	32 743	29 826	32 800
Ships and oil platforms	9 896	9 220	3 015	2 575	2 240	2 066	2 995	2 795	1 786	1 644
Services	96 354	97 191	22 969	23 651	26 673	23 061	23 993	24 306	26 378	22 515
Total use of goods and services	1 375 495	1 420 693	326 829	341 478	345 127	362 061	351 151	348 002	354 835	366 704
Total imports	362 209	387 318	82 235	92 259	91 594	96 121	95 174	95 104	96 815	100 225
Traditional goods	242 355	265 297	54 958	61 896	58 549	66 952	65 177	65 846	63 998	70 276
Crude oil	1 235	1 448	354	285	331	265	463	308	358	319
Ships and oil platforms	23 179	22 086	6 846	6 397	5 549	4 388	6 721	4 380	4 622	6 363
Services	95 440	98 486	20 077	23 682	27 165	24 517	22 812	24 570	27 838	23 267
Gross domestic product 1)	1 013 286	1 033 374	244 594	249 218	253 533	265 940	255 978	252 898	258 020	266 479
Mainland-Norway (market prices)	853 090	877 891	204 011	209 373	215 502	224 204	215 070	213 848	221 982	226 990
Petroleum activities and ocean transport	160 196	155 484	40 584	39 845	38 031	41 736	40 907	39 050	36 038	39 489
Mainland-Norway (basic prices)	740 206	763 086	178 612	181 689	186 821	193 085	188 901	185 566	192 494	196 125
Mainland-Norway excl. general government . .	584 407	603 601	139 923	142 932	147 756	153 796	148 956	145 795	152 688	156 162
Manufacturing and mining	119 000	120 505	28 974	30 574	28 092	31 360	30 850	30 127	28 521	31 006
Production of other goods	80 611	82 958	19 375	16 570	22 445	22 221	20 958	16 664	23 040	22 295
Service industries	384 796	400 139	91 573	95 789	97 219	100 215	97 148	99 004	101 127	102 861
General government	155 799	159 484	38 689	38 757	39 064	39 289	39 945	39 771	39 806	39 963
Correction items	112 883	114 805	25 399	27 684	28 681	31 119	26 170	28 282	29 488	30 866

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 from general government

4) NPISH: Non-profit institutions serving households

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NATIONAL ACCOUNTS FOR NORWAY

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

	1996	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Final consumption exp. of househ. and NPISHs	4,7	3,4	3,2	0,8	5,3	3,8	3,7	4,4	3,1	4,2	1,2
Household final consumption expenditure . . .	4,9	3,6	3,4	0,9	5,5	4,0	3,8	4,7	3,3	4,5	1,3
Goods	6,2	3,6	3,9	-1,0	6,3	4,5	4,1	5,5	4,3	5,6	0,9
Services	2,9	2,8	2,6	2,5	3,5	2,5	2,6	3,0	1,7	3,4	2,3
Direct purchases abroad by resident househ.	4,7	10,0	2,8	8,4	12,5	8,3	11,4	6,4	2,8	3,8	-1,2
- Direct purchases by non-residents	0,1	0,9	1,5	-3,0	1,0	1,2	4,6	-3,0	-0,6	6,0	-0,0
Final consumption exp. of NPISHs 4)	0,3	0,3	-1,6	-0,5	0,4	0,6	0,7	-0,5	-1,0	-2,1	-2,8
Final consumption exp. of general government .	3,2	3,0	2,8	2,5	3,0	2,9	3,5	3,2	3,0	3,0	2,2
Final consumption exp. of central government.	3,2	2,4	1,8	2,4	2,4	2,1	2,9	2,0	1,8	1,8	1,6
Central government, civilian	3,3	1,7	2,6	1,6	1,6	1,6	2,0	2,6	2,5	2,5	2,6
Central government, defence	3,0	4,4	-0,3	4,6	4,4	3,3	5,2	0,5	-0,3	-0,2	-1,0
Final consumption exp. of local government . .	3,2	3,3	3,5	2,6	3,4	3,5	3,9	4,0	3,8	3,7	2,5
Gross fixed capital formation	9,6	12,6	6,6	13,6	18,5	12,8	7,0	12,3	4,7	7,4	3,0
Petroleum activities	1,5	15,5	22,3	23,9	30,3	14,6	-0,7	20,4	15,8	36,6	17,7
Ocean transport	63,8	65,6	-4,1	135,0	120,6	77,5	-9,3	17,1	-42,8	-14,3	25,2
Mainland-Norway	11,0	9,7	2,0	6,5	11,8	9,7	10,4	9,3	3,3	-0,4	-2,4
Mainland-Norway excl. general government .	12,9	9,1	3,1	2,5	9,5	10,7	12,8	9,9	3,8	1,3	-0,9
Manufacturing and mining	9,4	6,4	12,5	-2,2	17,7	-1,8	10,2	7,8	-0,4	25,1	16,3
Production of other goods	-3,9	1,8	7,8	-3,8	5,3	6,2	-2,1	15,7	-0,2	-1,5	20,7
Dwelling services	-1,2	9,0	-0,7	6,0	12,5	9,1	8,5	7,4	-0,4	-3,1	-5,7
Other services	24,7	11,2	1,5	3,0	7,3	15,7	17,8	10,5	7,4	-2,0	-7,1
General government	3,7	12,1	-2,1	24,1	21,9	5,6	2,1	7,2	1,4	-7,5	-8,2
Changes in stocks and stat. discrepancies . . .	-19,6	8,5	25,0	-28,5	83,4	-35,7	965,5	52,2	-6,7	22,4	28,9
Gross capital formation	6,0	12,3	8,2	5,6	23,1	7,1	13,9	17,4	3,5	8,5	4,7
Final domestic use of goods and services	4,7	5,6	4,5	2,5	9,1	4,5	6,3	7,6	3,2	5,1	2,3
Final demand from Mainland-Norway 2)	5,4	4,5	2,9	2,3	5,9	4,7	5,0	5,0	3,1	3,0	0,6
Final demand from general government 3)	3,3	4,2	2,1	5,0	5,2	3,3	3,3	3,7	2,8	1,5	0,5
Total exports	9,8	5,8	0,5	3,3	9,9	6,8	3,4	7,1	-1,0	-2,5	-1,4
Traditional goods	10,0	8,0	3,7	-1,4	15,5	11,2	7,7	14,1	-3,1	1,2	3,2
Crude oil and natural gas	15,6	2,3	-3,2	5,8	3,9	-2,0	1,9	1,3	-1,7	-7,1	-5,4
Ships and oil platforms	-16,2	11,7	-6,8	19,0	21,9	73,1	-29,3	-0,7	8,5	-20,2	-20,4
Services	5,2	6,3	0,9	6,7	7,9	8,4	2,1	4,5	2,8	-1,1	-2,4
Total use of goods and services	6,2	5,6	3,3	2,7	9,4	5,2	5,4	7,4	1,9	2,8	1,3
Total imports	8,3	12,3	6,9	8,4	22,4	12,5	7,0	15,7	3,1	5,7	4,3
Traditional goods	10,0	8,6	9,5	2,2	14,9	7,3	9,9	18,6	6,4	9,3	5,0
Crude oil	-5,5	16,6	17,3	83,3	44,6	62,2	-43,0	31,0	8,2	8,1	20,3
Ships and oil platforms	31,7	36,3	-4,7	85,7	182,1	57,0	-41,7	-1,8	-31,5	-16,7	45,0
Services	0,6	17,5	3,2	10,6	24,3	17,5	17,1	13,6	3,7	2,5	-5,1
Gross domestic product 1)	5,5	3,4	2,0	0,9	5,2	2,8	4,9	4,7	1,5	1,8	0,2
Mainland-Norway (market prices)	4,1	3,7	2,9	0,0	5,4	4,1	5,4	5,4	2,1	3,0	1,2
Petroleum activities and ocean transport	13,4	1,9	-2,9	5,6	4,0	-4,1	2,1	0,8	-2,0	-5,2	-5,4
Mainland-Norway (basic prices)	3,1	3,7	3,1	0,2	5,2	3,9	5,6	5,8	2,1	3,0	1,6
Mainland-Norway excl. general government . .	2,9	4,1	3,3	-0,2	6,0	4,2	6,3	6,5	2,0	3,3	1,5
Manufacturing and mining	2,3	3,1	1,3	-3,4	7,8	2,9	5,1	6,5	-1,5	1,5	-1,1
Production of other goods	-1,5	5,2	2,9	-6,7	9,1	8,7	10,9	8,2	0,6	2,7	0,3
Service industries	4,1	4,1	4,0	2,3	4,9	3,6	5,6	6,1	3,4	4,0	2,6
General government	3,7	2,5	2,4	1,6	2,4	2,9	3,0	3,2	2,6	1,9	1,7
Correction items	11,3	3,9	1,7	-0,8	6,9	4,9	4,3	3,0	2,2	2,8	-0,8

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 from general government
4) NPISH: Non-profit institutions serving households

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NATIONAL ACCOUNTS FOR NORWAY

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

	1996	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Final consumption exp. of househ. and NPISHs	1,4	2,5	2,6	3,2	2,8	2,2	1,8	2,4	2,6	2,6	2,9
Household final consumption expenditure . . .	1,3	2,5	2,5	3,2	2,8	2,2	1,8	2,3	2,5	2,4	2,6
Goods	0,5	2,7	1,7	4,4	3,0	2,2	1,6	1,1	1,9	1,9	1,7
Services	2,3	2,4	3,4	2,1	2,8	2,5	2,3	3,8	3,1	3,0	3,8
Direct purchases abroad by resident househ.	3,4	-0,3	4,9	-4,1	-0,0	0,7	0,9	5,4	5,0	4,6	4,9
- Direct purchases by non-residents	1,5	2,9	3,5	2,5	3,0	2,9	3,3	3,9	3,1	3,5	3,6
Final consumption exp. of NPISHs 4)	3,2	2,8	5,8	3,1	3,0	2,7	2,3	3,3	4,4	6,9	8,5
Final consumption exp. of general government .	3,0	2,7	5,3	2,9	2,8	3,0	2,2	3,4	4,4	5,8	7,4
Final consumption exp. of central government .	2,9	2,6	4,7	2,5	2,6	3,0	2,1	3,7	4,4	4,8	6,0
Central government, civilian	2,8	2,7	4,8	2,7	2,7	2,8	2,4	3,7	4,5	5,0	6,1
Central government, defence	3,3	2,2	4,4	1,9	2,3	3,5	1,3	3,5	4,2	4,3	5,7
Final consumption exp. of local government . .	3,1	2,8	5,6	3,2	3,0	3,0	2,2	3,2	4,3	6,4	8,4
Gross fixed capital formation	2,6	2,5	4,1	1,3	2,4	3,8	2,4	4,7	4,2	3,8	3,8
Petroleum activities	3,3	5,7	4,3	3,9	5,5	7,3	6,1	6,5	4,7	3,0	3,4
Ocean transport	1,8	8,4	0,1	8,5	6,7	14,2	5,5	7,5	-1,6	-8,6	0,0
Mainland-Norway	2,4	1,1	4,0	0,0	1,1	2,0	1,1	3,7	4,1	4,4	3,9
Mainland-Norway excl. general government .	2,4	1,0	3,9	-0,1	1,0	2,0	0,9	3,8	4,0	4,3	3,9
Manufacturing and mining	1,5	0,2	2,7	-1,3	0,7	0,2	0,7	2,6	3,6	3,5	1,4
Production of other goods	1,4	-0,2	3,8	-1,2	0,4	0,2	-0,6	2,2	4,4	4,8	3,4
Dwelling services	3,0	2,8	4,8	1,8	2,3	3,1	3,7	3,8	4,6	5,5	5,4
Other services	2,5	0,7	4,1	-0,5	0,7	2,3	0,1	4,3	3,8	4,1	4,4
General government	2,4	1,4	4,2	0,4	1,2	1,8	2,1	3,2	4,6	5,1	4,1
Changes in stocks and stat. discrepancies . . .	0,8	-1,5	4,8	-2,5	0,1	-5,8	43,9	5,4	2,0	12,4	2,0
Gross capital formation	2,4	2,1	4,1	0,8	2,3	3,2	2,1	4,7	4,0	4,3	3,6
Final domestic use of goods and services	2,0	2,4	3,6	2,5	2,7	2,6	2,0	3,2	3,4	3,8	4,0
Final demand from Mainland-Norway 2)	2,0	2,3	3,5	2,5	2,5	2,3	1,7	2,9	3,3	3,7	4,1
Final demand from general government 3)	2,9	2,5	5,1	2,6	2,6	2,8	2,1	3,4	4,4	5,8	7,0
Total exports	6,7	2,1	-8,4	6,0	1,2	3,6	-1,7	-5,7	-5,4	-9,8	-12,5
Traditional goods	-1,2	0,5	0,7	-1,2	-1,8	3,4	1,6	3,2	3,0	-1,0	-2,1
Crude oil and natural gas	19,7	2,1	-24,2	16,4	2,1	2,6	-9,3	-20,5	-18,9	-27,0	-30,6
Ships and oil platforms	3,4	5,2	-1,7	3,5	3,2	5,9	9,1	-1,5	2,6	-4,7	-4,2
Services	2,1	5,6	0,7	1,8	6,0	7,3	6,9	6,0	-0,2	0,1	-2,7
Total use of goods and services	3,4	2,3	-0,0	3,6	2,2	2,9	0,8	0,4	0,7	-0,3	-0,8
Total imports	1,2	1,2	1,5	-1,0	0,7	4,3	0,6	3,7	2,7	-0,1	0,0
Traditional goods	0,1	-1,1	1,3	-3,4	-1,8	2,0	-1,3	2,6	2,2	0,3	0,2
Crude oil	36,4	-9,9	-26,2	9,1	-12,7	-2,4	-14,6	-21,9	-17,4	-29,2	-36,8
Ships and oil platforms	3,8	8,1	-1,3	5,6	8,2	10,7	9,6	5,0	-1,0	-7,0	-3,7
Services	3,3	5,0	3,7	2,7	4,4	7,2	5,0	7,2	6,3	1,4	1,1
Gross domestic product 1)	4,1	2,8	-0,5	5,1	2,9	2,6	0,9	-0,5	0,0	-0,4	-1,1
Mainland-Norway (market prices)	1,5	2,8	4,2	3,0	2,8	2,6	2,8	3,6	4,1	4,5	4,6
Petroleum activities and ocean transport	17,7	2,9	-22,8	14,6	3,2	3,4	-7,1	-18,2	-19,4	-24,5	-29,3
Mainland-Norway (basic prices)	1,8	3,1	4,4	3,9	3,3	2,2	3,1	3,2	3,9	6,0	4,4
Mainland-Norway excl. general government . .	1,3	3,0	3,9	3,8	3,2	1,9	3,1	3,2	3,6	5,6	3,3
Manufacturing and mining	-0,1	3,2	5,9	1,3	2,8	0,6	7,6	6,4	5,1	9,0	3,8
Production of other goods	3,1	3,4	5,9	6,9	3,7	1,1	2,4	2,5	8,2	10,1	3,6
Service industries	1,4	2,8	2,9	3,9	3,3	2,4	1,8	2,4	2,3	3,7	3,1
General government	3,4	3,6	6,1	4,2	3,5	3,3	3,2	3,2	5,0	7,6	8,7
Correction items	-0,0	1,1	3,0	-3,3	-0,1	5,6	1,3	6,8	5,7	-5,3	5,8

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 from general government
4) NPISH: Non-profit institutions serving households

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Gross domestic product 1).	1 084 788	1 100 774	260 381	265 489	272 136	286 781	271 026	269 537	275 897	284 314
Agriculture and hunting	11 462	11 816	2 327	25	6 122	2 987	2 202	-195	6 624	3 184
Forestry and logging	2 303	2 282	901	570	197	635	903	562	197	620
Fishing and fish farming	7 896	9 326	1 851	1 705	2 074	2 266	2 260	2 367	2 137	2 562
Oil and gas extraction incl. services	161 280	113 270	42 354	38 063	39 134	41 729	33 020	29 361	25 570	25 319
Oil and gas extraction	155 420	106 901	40 918	36 528	37 924	40 049	31 209	27 671	24 171	23 850
Service act. incidental to oil and gas ext.	5 860	6 369	1 436	1 534	1 210	1 680	1 811	1 690	1 398	1 470
Mining and quarrying	2 052	2 107	426	540	532	555	521	574	511	501
Manufacturing	120 638	129 507	28 812	31 272	28 044	32 509	32 599	32 356	31 104	33 448
Food products, beverages and tobacco	20 499	20 233	5 001	5 321	4 947	5 231	4 977	5 250	5 199	4 807
Textiles, wearing apparel, leather	1 959	1 760	503	573	407	476	473	454	380	452
Wood and wood products	5 578	5 352	1 255	1 378	1 360	1 585	1 485	1 395	1 286	1 186
Pulp, paper and paper products	4 184	5 031	1 008	1 007	979	1 191	1 205	1 215	1 324	1 287
Publishing, printing, reproduction	14 211	14 849	3 499	3 468	3 433	3 811	3 740	3 658	3 553	3 897
Refined petroleum products	883	2 218	184	272	210	217	536	421	547	713
Basic chemicals	6 743	6 808	1 554	1 729	1 721	1 739	1 829	1 804	1 631	1 545
Chemical and mineral products	10 340	9 697	2 498	2 893	2 421	2 527	2 479	2 419	2 304	2 495
Basic metals	7 482	9 144	1 559	2 122	1 607	2 193	2 342	2 475	2 230	2 097
Machinery and other equipment n.e.c.	31 916	35 831	7 817	8 175	6 981	8 942	8 934	8 760	8 276	9 861
Building of ships, oil platforms and moduls.	12 735	14 181	2 997	3 259	3 060	3 418	3 423	3 440	3 392	3 926
Furniture and other manufacturing n.e.c.	4 108	4 403	937	1 074	917	1 180	1 175	1 063	982	1 183
Electricity and gas supply	23 384	23 393	6 779	5 315	4 036	7 254	7 311	4 979	4 673	6 429
Construction	40 893	46 866	9 311	9 912	10 252	11 418	10 797	11 350	11 996	12 723
Service industries excluded general government	433 934	461 461	103 006	108 904	109 074	112 951	111 754	113 588	117 125	118 995
Wholesale and retail trade	98 556	102 917	22 836	23 984	24 036	27 700	24 954	24 717	25 449	27 797
Hotels and restaurants	12 918	13 907	2 806	3 389	3 463	3 260	3 059	3 491	3 812	3 546
Transport via pipelines	14 823	14 990	3 835	3 603	3 422	3 962	3 856	3 577	3 416	4 140
Water transport	20 119	19 601	4 553	5 649	5 245	4 672	5 149	4 602	5 448	4 401
Ocean transport	17 801	17 108	4 061	5 024	4 602	4 115	4 570	3 965	4 738	3 835
Inland water and costal transport	2 318	2 493	493	626	643	557	580	637	710	566
Other transport industries	45 315	47 906	10 432	12 151	11 998	10 733	11 081	12 365	13 041	11 419
Post and telecommunications	19 318	20 350	4 600	4 787	4 541	5 390	4 832	4 984	4 853	5 681
Financial intermediation	37 375	40 167	8 484	10 045	8 892	9 954	9 538	10 414	9 118	11 097
Dwelling services	67 078	69 394	16 469	16 679	16 884	17 047	17 139	17 297	17 444	17 513
Business services etc.	64 251	72 325	15 226	15 847	16 378	16 800	17 075	18 064	18 664	18 523
Personal services	54 181	59 904	13 765	12 768	14 215	13 433	15 070	14 076	15 880	14 878
General government	166 813	181 218	40 767	41 226	42 178	42 641	43 418	44 408	46 263	47 130
Central government	48 567	51 617	11 864	12 016	12 274	12 414	12 484	12 718	13 044	13 370
Civilian central government	36 447	38 741	8 907	9 017	9 211	9 311	9 350	9 549	9 791	10 050
Defence	12 121	12 876	2 957	2 998	3 063	3 103	3 134	3 169	3 253	3 320
Local government	118 245	129 601	28 903	29 211	29 904	30 227	30 934	31 690	33 218	33 759
FISIM 2)	-30 190	-31 998	-7 419	-7 740	-7 731	-7 300	-7 791	-8 223	-8 234	-7 750
Value added tax and investment levy	102 878	109 103	23 168	25 094	26 340	28 277	25 164	26 830	27 446	29 663
Other taxes on products, net	45 159	48 501	8 973	11 632	12 630	11 924	10 371	13 199	11 035	13 896
Statistical discrepancy	-3 713	-6 079	-875	-1 029	-745	-1 065	-1 503	-1 621	-550	-2 405
Mainland-Norway (basic prices)	776 750	835 879	186 285	190 842	194 484	205 139	203 338	202 448	212 476	217 617
Market producers	721 985	714 685	175 765	176 084	178 660	191 477	180 514	173 898	178 181	182 091
Non-market producers	248 669	266 563	60 769	61 448	62 983	63 469	64 271	65 454	68 019	68 820
Education	44 216	47 980	10 793	10 863	11 173	11 388	11 503	11 797	12 238	12 442
Health and social work	81 591	90 740	19 954	20 182	20 628	20 827	21 617	22 184	23 303	23 637

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 industry.
Percentage change in volume from the same period in the previous year

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Gross domestic product 1)	3,4	2,0	0,9	5,2	2,8	4,9	4,7	1,5	1,8	0,2
Agriculture and hunting	-4,3	4,2	-4,5	35,4	-3,3	-7,1	1,5	.	5,7	6,7
Forestry and logging	-	-4,0	-	-	-	-	-4,0	-4,0	-4,0	-4,0
Fishing and fish farming	4,4	-1,7	-12,1	17,4	7,1	9,6	2,6	-4,1	-5,7	0,5
Oil and gas extraction incl. services	1,1	-3,8	4,8	3,0	-5,3	2,2	0,4	-2,3	-6,4	-6,9
Oil and gas extraction	0,9	-3,6	3,8	2,2	-4,8	2,6	0,7	-2,2	-6,7	-6,3
Service act. incidental to oil and gas ext.	7,7	-9,7	45,1	31,3	-20,3	-9,1	-7,2	-6,7	6,4	-25,9
Mining and quarrying	2,5	-1,7	-4,5	5,8	9,8	-0,8	5,2	-3,4	-1,4	-6,2
Manufacturing	3,1	1,3	-3,3	7,8	2,8	5,2	6,5	-1,4	1,6	-1,0
Food products, beverages and tobacco	0,4	-3,0	0,1	-0,8	1,0	1,3	-0,3	-4,4	-3,5	-3,8
Textiles, wearing apparel, leather	-1,7	-5,2	-4,6	14,3	-7,2	-8,5	0,9	-13,7	-5,4	-1,5
Wood and wood products	7,4	-1,3	-2,5	3,7	14,7	14,0	15,8	6,2	-3,1	-19,7
Pulp, paper and paper products	4,2	-0,6	-4,7	9,1	4,7	8,5	5,6	-2,1	2,4	-7,5
Publishing, printing, reproduction	-0,1	0,3	-4,8	-0,6	2,5	2,5	4,6	0,7	-2,5	-1,7
Refined petroleum products	2,8	-11,1	8,7	6,6	-1,4	-1,7	-8,4	-15,5	-7,3	-13,4
Basic chemicals	2,7	3,3	-2,8	15,6	-3,5	3,1	6,9	6,3	4,8	-4,5
Chemical and mineral products	3,0	-1,2	-3,2	13,8	2,5	-0,6	0,6	-11,0	5,4	1,7
Basic metals	3,3	4,0	1,4	6,7	0,2	4,7	2,7	0,9	8,3	4,4
Machinery and other equipment n.e.c.	5,4	4,6	-2,7	12,8	4,6	7,3	11,9	1,5	3,9	1,6
Building of ships, oil platforms and moduls.	1,2	2,9	-13,0	6,0	2,0	12,3	9,1	-2,3	0,1	4,8
Furniture and other manufacturing n.e.c.	11,5	5,7	-3,7	26,1	14,7	11,7	23,1	-3,0	3,7	0,9
Electricity and gas supply	6,6	4,4	-24,9	9,4	37,8	27,4	17,6	-0,7	3,6	-2,1
Construction	8,5	3,3	9,3	7,7	7,1	9,8	7,3	4,0	2,3	0,2
Service industries excluded general government	4,2	3,7	2,8	5,2	3,4	5,3	5,8	3,0	3,6	2,5
Wholesale and retail trade	4,8	5,1	-0,8	8,0	6,5	5,5	9,4	3,6	5,6	2,8
Hotels and restaurants	5,6	4,0	3,5	6,1	7,2	5,3	4,5	3,0	4,4	4,0
Transport via pipelines	5,3	-1,8	12,2	6,7	-2,5	5,3	0,7	0,2	-5,3	-2,9
Water transport	4,5	2,2	5,9	8,8	3,6	0,1	3,9	-1,3	2,5	4,0
Ocean transport	4,2	2,0	5,8	8,9	3,2	-0,7	3,4	-1,5	2,2	4,0
Inland water and costal transport	7,1	4,4	6,6	7,9	6,7	7,0	9,5	0,5	4,6	3,8
Other transport industries	6,5	2,0	5,6	12,0	3,6	4,8	3,7	-1,5	2,6	3,4
Post and telecommunications	5,6	8,1	2,9	6,6	5,9	6,9	5,9	7,8	9,6	8,8
Financial intermediation	-2,3	5,6	-1,4	-6,6	-9,2	9,2	10,5	5,4	4,0	2,3
Dwelling services	1,0	1,0	0,9	1,0	1,0	1,1	1,0	1,0	1,1	1,1
Business services etc.	9,0	6,0	8,9	7,4	8,8	10,7	7,8	7,8	5,8	2,8
Personal services	3,3	2,2	2,4	3,5	3,5	3,9	3,8	2,4	2,0	0,6
General government	2,5	2,4	1,6	2,4	2,9	3,0	3,2	2,6	1,9	1,7
Central government	1,9	1,0	1,3	1,9	2,1	2,3	1,9	0,9	0,1	0,9
Civilian central government	2,4	0,9	1,8	2,4	2,6	2,8	1,8	1,0	0,0	1,0
Defence	0,4	1,0	-0,2	0,4	0,5	0,7	2,3	0,7	0,4	0,5
Local government	2,7	2,9	1,8	2,6	3,3	3,3	3,8	3,3	2,6	2,1
FISIM 2)	-2,1	5,2	-0,9	-2,1	-2,8	-2,5	10,8	6,1	2,0	1,8
Value added tax and investment levy	4,9	3,2	2,4	7,1	5,3	4,8	5,4	3,5	3,4	0,8
Other taxes on products, net	2,3	0,6	-3,2	5,3	3,6	3,5	3,2	1,7	1,0	-3,2
Statistical discrepancy	-97,1	21,7	-97,2	-96,9	-97,1	-97,0	33,4	21,9	17,9	14,6
Mainland-Norway (basic prices)	3,7	3,1	0,2	5,2	3,9	5,6	5,8	2,1	3,0	1,6
Market producers	3,8	2,1	1,0	6,1	2,5	5,8	5,7	1,2	1,7	0,0
Non-market producers	2,1	1,8	1,5	2,1	2,4	2,5	2,5	2,0	1,5	1,3
Education	2,1	3,1	1,1	1,7	2,6	2,8	3,3	3,5	3,0	2,6
Health and social work	3,4	3,2	2,6	3,5	3,7	3,7	4,1	3,5	3,0	2,2

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Household final consumption expenditure	490 949	520 162	112 011	119 372	125 730	133 836	119 971	126 397	134 594	139 201
Food, beverages and tobacco	99 652	105 526	21 884	24 288	26 071	27 410	23 044	26 532	27 209	28 741
Clothing and footwear	28 987	30 772	5 744	7 223	6 735	9 285	6 061	7 393	7 588	9 730
Housing, water, electr., gas and other fuels . . .	108 396	111 300	28 493	26 057	25 095	28 752	29 328	26 659	26 032	29 281
Furnishings, household equipment etc.	31 696	34 369	6 795	6 908	7 777	10 216	7 732	7 490	8 787	10 360
Health	13 101	14 842	3 067	3 266	3 301	3 465	3 530	3 697	3 731	3 884
Transport	84 230	86 687	18 622	22 534	22 719	20 355	19 878	22 859	23 973	19 978
Leisure, entertainment and culture	47 107	52 207	10 892	10 083	12 838	13 294	12 183	11 041	14 436	14 547
Education	2 290	2 458	528	492	620	650	565	520	685	688
Hotels, cafes and restaurants	28 973	31 724	6 047	7 309	8 647	6 969	6 559	8 088	9 513	7 564
Miscellaneous goods and services	40 960	43 829	9 358	10 189	10 222	11 191	10 076	10 804	10 853	12 095
Direct purchases abroad by resident househ. . .	21 359	23 041	3 758	4 948	7 479	5 174	4 215	5 340	8 121	5 364
- Direct purchases by non-residents	-15 802	-16 593	-3 177	-3 926	-5 774	-2 925	-3 201	-4 026	-6 335	-3 031
Goods	279 573	295 286	62 460	67 225	69 282	80 607	66 592	71 451	74 535	82 708
Services	205 819	218 429	48 970	51 125	54 743	50 981	52 365	53 631	58 273	54 160
Services, dwellings	86 966	90 363	21 244	21 685	21 851	22 187	22 183	22 473	22 686	23 021
Other services	118 853	128 066	27 727	29 441	32 892	28 794	30 182	31 158	35 587	31 139

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Household final consumption expenditure	3,6	3,4	0,9	5,5	4,0	3,8	4,7	3,3	4,5	1,3
Food, beverages and tobacco	0,9	-0,2	-1,0	-0,6	3,1	1,6	-0,3	3,3	-1,8	-1,6
Clothing and footwear	4,7	8,4	-1,0	9,3	4,3	5,5	9,6	3,9	14,6	6,4
Housing, water, electr., gas and other fuels . . .	0,9	2,1	-0,8	1,3	0,5	2,6	2,8	1,3	2,6	1,6
Furnishings, household equipment etc.	7,2	7,7	0,5	13,5	7,7	7,6	13,5	7,9	12,3	0,1
Health	6,3	5,4	3,9	8,0	6,4	6,7	7,3	4,8	5,4	4,2
Transport	3,1	0,8	1,3	9,6	1,5	-0,2	3,2	-0,5	3,9	-3,7
Leisure, entertainment and culture	6,1	9,2	-0,2	10,4	6,9	7,9	10,5	7,5	10,9	7,8
Education	5,2	3,5	1,9	5,8	5,7	6,9	3,4	1,3	7,3	1,8
Hotels, cafes and restaurants	5,6	4,6	5,7	4,0	6,9	5,2	3,5	6,7	4,9	2,8
Miscellaneous goods and services	5,4	4,8	4,0	6,1	5,9	5,5	4,2	4,8	5,2	4,8
Direct purchases abroad by resident househ. . .	10,0	2,8	8,4	12,5	8,3	11,4	6,4	2,8	3,8	-1,2
- Direct purchases by non-residents	0,9	1,5	-3,0	1,0	1,2	4,6	-3,0	-0,6	6,0	-0,0
Goods	3,6	3,9	-1,0	6,3	4,5	4,1	5,5	4,3	5,6	0,9
Services	2,8	2,6	2,5	3,5	2,5	2,6	3,0	1,7	3,4	2,3
Services, dwellings	0,9	1,3	0,9	0,9	0,6	1,1	1,2	0,9	1,5	1,5
Other services	4,2	3,6	3,7	5,5	3,7	3,9	4,4	2,3	4,6	2,9

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Gross fixed capital formation	249 931	277 215	54 414	62 134	62 632	70 750	63 950	67 796	69 829	75 640
Buildings and structures	98 595	102 027	21 715	23 318	24 661	28 902	24 511	24 808	25 226	27 482
Oil exploration, drilling, pipelines	28 045	33 358	5 372	7 079	7 593	8 001	7 580	8 699	8 686	8 393
Oil platforms etc.	31 783	39 298	7 218	9 438	7 194	7 933	8 038	10 315	10 796	10 149
Ships and boats.	12 808	12 433	3 640	2 938	3 639	2 591	4 495	1 866	2 958	3 113
Other transport equipment.	23 691	23 421	5 066	6 013	5 885	6 727	5 162	6 147	5 702	6 410
Machinery and equipment	55 009	66 678	11 404	13 349	13 659	16 597	14 163	15 961	16 461	20 092
Agriculture and hunting	5 917	6 093	982	1 805	1 714	1 416	1 150	1 810	1 719	1 414
Forestry and logging	564	586	140	140	140	143	144	146	147	148
Fishing and fish farming	853	971	258	195	231	169	214	268	255	235
Oil and gas extraction, incl. services	53 214	69 671	11 700	14 666	12 524	14 324	14 391	18 235	18 698	18 347
Oil and gas extraction	53 777	68 270	11 527	15 139	12 842	14 269	14 391	18 136	18 684	17 059
Service act. incidental to oil and gas ext.	-563	1 401	173	-473	-318	55	-	99	14	1 288
Mining and quarrying.	261	318	31	69	68	92	38	85	70	125
Manufacturing	18 321	21 153	3 310	4 759	4 374	5 879	3 657	4 894	5 679	6 922
Food products, beverages and tobacco	3 162	3 377	600	788	805	970	638	796	1 010	932
Textiles, wearing apparel, leather	276	199	66	61	63	85	34	72	47	45
Wood and wood products	833	549	247	196	207	184	85	158	161	146
Pulp, paper and paper products	1 473	1 908	179	381	366	547	304	560	496	547
Publishing, printing, reproduction	2 009	3 015	309	630	395	674	565	567	841	1 043
Refined petroleum products	455	549	30	69	220	136	101	135	81	232
Basic chemicals	1 273	1 550	342	319	257	354	173	274	551	553
Chemical and mineral products	2 185	2 335	366	537	548	733	515	540	495	786
Basic metals	2 866	1 906	559	910	576	821	383	517	457	550
Machinery and other equipment n.e.c.	2 513	4 018	421	545	622	926	558	860	1 060	1 540
Building of ships, oil platforms and moduls.	839	1 194	131	209	187	313	207	263	334	389
Furniture and other manufacturing n.e.c.	437	552	60	114	127	136	94	151	148	159
Electricity and gas supply	4 682	5 797	630	1 216	1 336	1 501	830	1 263	1 402	2 302
Construction.	1 129	1 261	256	288	281	305	343	309	298	310
Service industries excl. general government	128 936	134 605	28 643	30 452	33 456	36 385	33 819	31 724	33 289	35 773
Wholesale and retail trade	22 887	24 838	5 135	5 613	5 580	6 559	6 162	6 397	5 981	6 298
Hotels and restaurants	2 344	2 658	465	493	687	699	686	661	652	659
Transport via pipelines	8 168	8 612	1 098	2 128	2 588	2 354	2 008	2 113	2 548	1 943
Water transtort.	12 257	11 759	3 515	2 829	3 504	2 409	4 403	1 655	2 725	2 977
Ocean transport	11 168	10 713	3 172	2 583	3 220	2 193	3 991	1 454	2 522	2 747
Inland water and costal transport	1 088	1 046	343	246	284	216	412	201	203	230
Other transport industries	21 794	20 587	4 562	4 858	5 452	6 923	4 678	5 309	5 090	5 510
Post and telecommunications	7 955	8 883	1 326	1 463	2 086	3 081	1 533	1 644	2 246	3 461
Financial intermediation	6 312	6 917	1 476	1 518	1 582	1 736	1 776	1 532	1 489	2 120
Dwelling services	30 151	31 377	6 922	7 331	7 742	8 156	7 721	7 638	7 908	8 109
Business services etc.	9 819	11 193	2 302	2 480	2 442	2 595	2 738	2 864	2 742	2 849
Personal services	7 249	7 781	1 841	1 740	1 794	1 874	2 115	1 910	1 909	1 848
General government	36 053	36 762	8 465	8 544	8 508	10 537	9 364	9 063	8 272	10 064
Central government.	15 104	15 261	3 350	3 274	3 661	4 820	4 215	4 143	3 161	3 743
Civilian central government.	10 983	11 635	2 429	2 391	2 750	3 414	3 287	3 281	2 460	2 608
Defence.	4 121	3 626	921	883	911	1 406	928	862	701	1 135
Local government.	20 949	21 501	5 115	5 270	4 847	5 717	5 149	4 920	5 111	6 321
Mainland-Norway.	177 380	188 219	38 445	42 757	44 300	51 879	43 560	45 994	46 061	52 603
Education	8 562	7 462	2 670	2 705	1 557	1 630	2 431	2 021	1 347	1 662
Health and social work.	8 587	10 100	1 923	1 923	2 125	2 615	2 228	2 342	2 570	2 960

NATIONAL ACCOUNTS FOR NORWAY

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Gross fixed capital formation	12,6	6,6	13,6	18,5	12,8	7,0	12,3	4,7	7,4	3,0
Buildings and structures	9,2	-1,3	3,5	9,0	10,6	13,1	8,7	1,6	-3,2	-9,8
Oil exploration, drilling, pipelines	27,5	12,6	23,5	34,0	18,2	34,7	29,7	15,7	10,4	-0,2
Oil platforms etc.	11,5	18,4	40,6	40,3	9,2	-21,6	6,2	4,8	43,9	23,0
Ships and boats.	57,3	-2,9	111,3	108,7	66,1	-8,5	15,1	-35,8	-11,0	20,1
Other transport equipment.	3,4	-8,1	-2,6	1,6	8,0	6,5	-9,1	-2,7	-6,8	-13,3
Machinery and equipment	10,7	18,6	9,8	15,1	10,1	8,4	23,3	15,5	16,2	19,7
Agriculture and hunting	1,0	-0,5	2,4	0,2	0,6	1,4	14,8	-3,7	-4,3	-2,8
Forestry and logging	-	-0,1	-	-	-	-	-0,1	-0,1	-0,0	-0,1
Fishing and fish farming	21,5	7,1	43,5	68,1	6,3	-8,7	-17,8	28,2	4,7	22,4
Oil and gas extraction, incl. services	13,4	25,4	29,0	30,4	11,6	-7,4	15,1	18,8	45,3	23,9
Oil and gas extraction	22,6	21,4	23,7	33,2	15,0	18,7	16,8	14,1	41,1	15,4
Service act. incidental to oil and gas ext.	-	-	-	242,4	-	-98,3	-100,0	-	-	-
Mining and quarrying	-25,9	16,2	-54,4	8,1	-42,7	-7,1	14,4	19,0	-2,4	28,9
Manufacturing	7,0	12,4	-1,1	17,8	-0,7	10,5	7,8	-0,7	25,5	16,2
Food products, beverages and tobacco	18,1	3,4	13,1	35,8	27,3	3,6	3,3	-3,3	20,9	-5,6
Textiles, wearing apparel, leather	17,3	-29,3	39,2	26,1	-4,8	17,0	-47,8	15,7	-28,1	-48,6
Wood and wood products	-27,5	-36,6	56,7	-25,5	-56,6	-28,0	-66,9	-23,6	-25,3	-21,7
Pulp, paper and paper products	26,2	26,9	-38,6	40,1	66,1	44,9	63,0	45,0	34,0	-3,2
Publishing, printing, reproduction	41,4	47,4	5,3	92,7	18,7	44,8	77,2	-13,4	108,4	54,8
Refined petroleum products	31,0	22,5	-64,6	42,2	137,9	13,5	232,0	91,5	-62,7	76,7
Basic chemicals	-38,4	17,6	-33,8	-39,8	-52,0	-26,3	-49,1	-17,2	104,4	49,9
Chemical and mineral products	10,8	4,0	-7,2	24,8	10,9	12,6	36,2	-3,0	-12,9	5,6
Basic metals	14,2	-36,2	76,5	53,2	-9,7	-15,1	-33,2	-45,5	-25,8	-35,1
Machinery and other equipment n.e.c.	6,9	55,5	-13,4	-3,4	0,1	37,0	30,2	51,5	63,7	64,2
Building of ships, oil platforms and moduls.	13,3	38,2	-13,4	-10,7	16,7	62,0	54,7	20,7	72,6	22,3
Furniture and other manufacturing n.e.c.	-3,0	22,1	-19,5	-13,9	5,8	10,6	53,9	26,4	10,3	15,2
Electricity and gas supply	-2,3	19,6	-25,7	6,3	12,9	-7,2	29,5	-0,3	0,3	49,3
Construction	13,7	6,5	11,9	10,9	16,2	15,7	28,2	2,5	1,3	-3,6
Service industries excl. general government	14,8	0,6	9,4	14,8	18,7	15,9	12,9	0,6	-3,5	-5,7
Wholesale and retail trade	7,2	3,9	1,9	10,7	8,0	8,2	15,0	9,3	2,2	-8,2
Hotels and restaurants	22,3	8,6	-6,0	1,6	41,4	56,7	41,8	27,5	-9,4	-9,9
Transport via pipelines	30,6	2,6	-12,5	29,6	31,3	72,5	75,2	-4,3	-4,2	-19,0
Water transtort.	63,1	-4,0	124,7	116,1	75,3	-9,2	16,7	-40,7	-14,8	24,0
Ocean transport	65,6	-4,1	135,0	120,6	77,5	-9,3	17,1	-42,8	-14,3	25,2
Inland water and costal transport	41,2	-2,6	59,2	77,2	53,5	-7,7	13,0	-17,5	-19,9	10,7
Other transport industries	15,7	-9,1	-4,9	-1,9	33,0	39,9	-2,5	6,4	-9,2	-24,6
Post and telecommunications	11,6	8,3	12,7	10,2	11,4	12,0	13,2	7,9	3,3	9,8
Financial intermediation	10,6	4,1	8,8	12,2	10,7	10,8	15,1	-3,9	-11,0	15,3
Dwelling services	9,0	-0,7	6,0	12,5	9,1	8,5	7,4	-0,4	-3,1	-5,7
Business services etc.	9,4	8,9	8,1	10,9	8,2	10,4	14,1	11,0	6,6	4,3
Personal services	7,3	3,2	6,4	8,4	6,4	8,2	11,2	5,1	1,4	-5,1
General government	12,1	-2,1	24,1	21,9	5,6	2,1	7,2	1,4	-7,5	-8,2
Central government	-0,3	-2,6	-0,3	-0,9	-0,0	-0,2	21,8	21,1	-17,4	-25,2
Civilian central government.	0,6	1,7	-0,3	0,3	0,1	1,9	30,7	30,9	-15,1	-26,9
Defence.	-2,6	-13,8	-0,3	-3,8	-0,4	-4,8	-1,3	-4,9	-24,2	-21,0
Local government	23,1	-1,7	47,8	42,1	10,3	4,1	-2,4	-10,8	-0,1	6,0
Mainland-Norway	9,7	2,0	6,5	11,8	9,7	10,4	9,3	3,3	-0,4	-2,4
Education	45,3	-16,0	111,1	102,0	10,0	-13,8	-11,2	-28,2	-17,5	-1,8
Health and social work	13,8	13,2	14,6	13,5	13,6	13,5	12,7	16,8	15,2	9,2

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NATIONAL ACCOUNTS FOR NORWAY

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Total exports	447 582	412 224	108 757	109 975	114 189	114 660	109 893	102 967	100 418	98 945
Goods	343 715	306 703	85 160	84 068	85 026	89 460	83 761	76 390	71 538	75 013
Crude oil and natural gas.	163 674	120 125	42 598	38 947	40 220	41 909	34 286	31 048	27 268	27 523
Ships, new	5 267	6 921	1 513	1 307	1 121	1 326	2 727	1 583	1 480	1 131
Ships, second-hand.	4 126	2 588	1 627	831	723	945	339	1 349	311	589
Oil platforms and modules, new.	231	66	22	5	195	9	18	37	9	2
Oil platforms, second-hand	1 005	149	9	558	412	26	25	40	53	31
Direct exports related to petroleum act.. . . .	132	127	36	34	31	31	29	36	34	28
Other goods	169 280	176 727	39 355	42 386	42 324	45 214	46 337	42 297	42 383	45 709
Agriculture, forestry and fishing	7 711	8 848	1 863	1 888	1 779	2 181	2 203	2 096	2 186	2 363
Mining and quarrying	2 284	2 408	479	617	595	593	561	603	618	626
Manufacturing products.	158 673	165 044	36 965	39 791	39 698	42 218	43 499	39 536	39 426	42 582
Food products, beverages and tobacco	21 437	23 501	4 989	4 771	5 008	6 669	6 165	5 295	5 274	6 767
Textiles, wearing apparel, leather	2 351	2 464	550	594	575	632	596	592	611	665
Wood products	2 923	2 826	717	795	699	712	657	690	671	808
Pulp, paper and paper products	10 811	12 072	2 556	2 683	2 748	2 824	3 041	2 973	3 016	3 042
Printing and publishing	493	656	118	121	119	135	147	131	157	221
Refined petroleum products.	20 637	13 855	5 474	4 888	5 385	4 890	4 829	3 055	3 136	2 835
Basic chemicals	12 963	13 727	2 939	3 450	3 336	3 238	3 762	3 432	3 400	3 133
Chemical and mineral products.	10 627	11 242	2 392	2 709	2 789	2 737	2 691	2 860	2 879	2 812
Basic metals	33 792	35 449	7 591	8 626	8 808	8 767	9 657	8 737	8 559	8 496
Machinery and other equipment n.e.c.	39 121	45 496	8 823	10 295	9 402	10 600	11 051	10 892	10 830	12 722
Furniture and other manufacturing products	3 518	3 756	816	859	829	1 014	903	879	893	1 081
Electricity	612	427	48	90	252	222	74	62	153	138
Services	103 867	105 521	23 597	25 907	29 163	25 200	26 132	26 577	28 880	23 932
Gross receipts, shipping	52 787	52 106	12 165	13 759	13 688	13 175	13 479	13 079	13 366	12 182
Petroleum activities, various services.	752	736	186	188	185	193	192	184	170	190
Oil drilling etc.	1 925	1 682	429	451	534	511	518	578	304	282
Pipeline transport	3 987	4 909	1 076	890	848	1 173	1 187	1 015	1 070	1 637
Travel.	15 802	16 593	3 177	3 926	5 774	2 925	3 201	4 026	6 335	3 031
Other services.	28 614	29 495	6 564	6 693	8 134	7 223	7 555	7 695	7 635	6 610
Transport, post and telecommunication.	8 781	9 192	1 895	2 063	2 940	1 883	2 180	2 473	2 646	1 893
Financial and business services	15 694	16 332	3 693	3 550	4 237	4 214	4 376	4 163	3 996	3 797
Services n.e.c.	4 139	3 971	976	1 080	957	1 126	999	1 059	993	920

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Total exports	5,8	0,5	3,3	9,9	6,8	3,4	7,1	-1,0	-2,5	-1,4
Goods	5,6	0,4	2,3	10,5	6,3	3,8	7,9	-2,1	-3,0	-1,1
Crude oil and natural gas.	2,3	-3,2	5,8	3,9	-2,0	1,9	1,3	-1,7	-7,1	-5,4
Ships, new	22,8	28,2	136,7	4,5	82,0	-26,1	75,5	16,0	29,4	-16,1
Ships, second-hand.	-3,7	-33,0	-5,0	3,1	-10,0	-1,8	-80,9	73,7	-44,6	-29,3
Oil platforms and modules, new	275,4	-72,3	93,6	-59,8	650,1	-21,0	-21,3	601,0	-95,6	-78,8
Oil platforms, second-hand	5,1	-85,2	-97,4	224,4	776,6	-93,4	177,8	-92,8	-87,1	19,2
Direct exports related to petroleum act.	-4,4	-9,8	41,3	28,8	-9,5	-41,4	-27,6	0,1	6,7	-14,7
Other goods	8,0	3,7	-1,4	15,5	11,2	7,7	14,1	-3,1	1,2	3,2
Agriculture, forestry and fishing	7,0	7,4	10,4	7,9	-4,9	14,6	18,3	-3,9	14,7	2,5
Mining and quarrying	-2,1	-0,4	-20,1	6,6	4,7	2,7	1,8	-11,0	3,5	5,5
Manufacturing products	8,4	3,6	-0,8	16,2	12,1	7,0	14,0	-2,9	0,3	3,5
Food products, beverages and tobacco	6,7	1,5	-4,0	13,0	1,9	16,7	12,5	-2,6	-5,5	0,9
Textiles, wearing apparel, leather	10,6	6,9	1,4	15,2	12,3	13,8	11,6	8,0	4,0	4,6
Wood products	-3,2	-2,4	3,5	3,4	-8,5	-10,8	-10,4	-11,3	-1,7	15,4
Pulp, paper and paper products	6,4	2,1	-1,9	10,6	5,9	11,5	11,5	0,2	-0,8	-2,0
Printing and publishing	-18,4	27,0	-24,0	-25,4	-14,5	-6,5	-0,7	-5,0	23,9	91,5
Refined petroleum products.	12,5	-14,5	9,3	19,8	17,3	4,4	7,9	-25,0	-21,5	-18,9
Basic chemicals	4,8	7,7	-9,0	24,5	1,9	5,5	22,8	0,9	9,4	-1,2
Chemical and mineral products.	14,7	4,4	9,1	25,3	10,8	14,4	5,5	4,6	7,3	0,2
Basic metals	9,8	3,4	4,5	15,6	17,2	3,0	12,9	-2,4	0,3	3,1
Machinery and other equipment n.e.c.	8,0	11,3	-7,5	15,8	21,1	5,1	22,8	0,9	7,1	16,1
Furniture and other manufacturing products	8,1	4,0	6,2	16,8	4,2	6,1	2,2	-3,3	7,7	9,0
Electricity	-24,8	-9,5	-88,6	-49,6	90,0	272,9	12,3	-12,9	46,1	-51,9
Services	6,3	0,9	6,7	7,9	8,4	2,1	4,5	2,8	-1,1	-2,4
Gross receipts, shipping	4,2	2,0	5,8	8,9	3,2	-0,7	3,4	-1,5	2,2	4,0
Petroleum activities, various services.	1,6	-6,6	1,7	2,5	-1,2	3,5	-0,6	-7,3	-12,5	-6,1
Oil drilling etc.	7,4	-22,3	9,7	11,6	6,8	2,6	-0,6	14,3	-46,6	-50,8
Pipeline transport	19,1	7,9	43,3	24,9	2,4	11,8	6,7	13,0	2,2	9,4
Travel.	0,9	1,5	-3,0	1,0	1,2	4,6	-3,0	-0,6	6,0	-0,0
Other services.	11,9	-0,9	9,1	8,1	26,1	4,5	10,1	11,5	-9,1	-13,6
Transport, post and telecommunication.	0,0	1,5	-0,3	-8,6	26,4	-17,8	12,9	16,7	-13,3	-3,4
Financial and business services	19,0	-0,6	19,2	13,3	29,5	13,9	11,5	13,5	-8,3	-16,1
Services n.e.c.	15,3	-7,2	-5,0	34,4	12,3	24,1	-0,3	-4,8	-0,1	-21,5

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Total imports	371 024	402 531	82 019	93 518	96 268	99 219	98 390	99 045	101 619	103 477
Goods	267 423	291 684	61 212	67 950	66 199	72 062	73 037	70 855	70 369	77 423
Ships	14 041	10 940	5 388	2 818	3 784	2 051	4 055	1 993	2 369	2 523
Oil platforms and modules	2 241	3 046	36	1 846	305	54	1 013	116	92	1 825
Direct imports related to petroleum activities.	9 729	10 476	1 981	2 482	2 369	2 897	2 562	2 733	2 542	2 639
Other goods	241 412	267 222	53 807	60 804	59 741	67 060	65 407	66 013	65 366	70 436
Agriculture, forestry and fishing	8 323	9 051	1 935	2 321	1 828	2 239	2 880	2 171	2 007	1 993
Crude oil	1 517	1 313	436	322	413	346	446	288	316	263
Mining and quarrying	3 397	3 570	728	881	923	865	984	905	785	896
Manufacturing products	226 855	252 267	49 921	57 032	56 514	63 388	60 766	62 381	62 176	66 944
Food products, beverages and tobacco	10 669	12 436	2 228	2 596	2 966	2 879	2 743	2 951	3 406	3 336
Textiles, wearing apparel, leather	16 738	18 177	4 159	3 473	5 129	3 977	4 830	3 583	5 485	4 279
Wood products	4 869	5 259	1 007	1 286	1 225	1 351	1 307	1 372	1 278	1 302
Pulp, paper and paper products	6 487	6 653	1 532	1 614	1 588	1 753	1 697	1 616	1 614	1 726
Printing and publishing	3 706	4 130	823	842	966	1 075	984	886	1 018	1 242
Refined petroleum products.	11 743	10 203	2 681	2 824	2 969	3 269	2 535	2 492	2 577	2 599
Basic chemicals	9 621	9 932	2 166	2 556	2 425	2 474	2 482	2 453	2 421	2 576
Chemical and mineral products.	23 529	26 123	5 171	6 167	5 875	6 316	6 260	6 505	6 452	6 906
Basic metals	23 925	24 822	5 439	5 641	5 656	7 189	6 633	6 379	5 912	5 898
Machinery and other equipment n.e.c.	91 570	106 457	19 591	23 435	22 095	26 449	25 251	26 775	25 364	29 067
Furniture and other manufacturing products	8 169	9 368	1 771	1 979	1 964	2 455	2 258	2 114	2 202	2 794
Non-competitive imports.	15 829	18 707	3 353	4 619	3 656	4 201	3 786	5 255	4 447	5 219
Electricity	1 320	1 021	787	248	63	222	331	268	82	340
Services	103 601	110 847	20 807	25 568	30 069	27 157	25 353	28 190	31 250	26 054
Operating costs shipping, excl. bunkers	24 085	24 403	5 441	5 987	6 388	6 269	6 301	6 456	6 040	5 606
Operating costs oil drilling, excl. bunkers	1 602	2 896	215	394	512	481	572	683	758	883
Petroleum activities, various services.	5 685	3 107	799	2 235	1 613	1 038	944	776	741	646
Travel.	31 940	34 455	5 620	7 399	11 184	7 737	6 303	7 986	12 144	8 022
Other services	40 289	45 986	8 732	9 553	10 372	11 632	11 233	12 289	11 567	10 897
Transport, post and telecommunication.	3 427	4 305	862	799	841	925	1 047	1 176	1 180	902
Financial and business services	19 386	21 813	4 391	4 645	4 749	5 601	5 404	5 326	5 316	5 767
Services n.e.c.	17 476	19 868	3 479	4 109	4 782	5 106	4 782	5 787	5 071	4 228

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Table A14. Imports of goods and services.

Percentage change in volume from the same period in the previous year

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Total imports	12,3	6,9	8,4	22,4	12,5	7,0	15,7	3,1	5,7	4,3
Goods	10,6	8,3	7,8	21,7	10,5	4,0	16,4	2,9	7,1	7,5
Ships	101,7	-18,0	184,5	290,7	122,5	-25,7	-29,5	-23,8	-26,0	38,9
Oil platforms and modules	-43,8	40,3	10,6	.	38,3	-98,5	.	-93,5	-65,7	.
Direct imports related to petroleum activities.	22,1	2,9	-1,3	44,7	12,3	36,1	24,5	4,3	2,2	-13,1
Other goods	8,6	9,5	2,5	15,0	7,5	9,5	18,7	6,4	9,3	5,0
Agriculture, forestry and fishing	-2,8	4,6	-14,4	15,1	-7,6	-2,6	33,2	-9,0	10,2	-11,2
Crude oil	16,6	17,3	83,3	44,6	62,2	-43,0	31,0	8,2	8,1	20,3
Mining and quarrying	8,6	8,5	-16,0	27,5	17,6	11,1	45,7	-2,0	-1,8	-2,2
Manufacturing products	9,8	9,8	1,6	15,7	9,8	11,7	19,2	6,8	9,3	5,4
Food products, beverages and tobacco	9,2	6,4	6,5	12,5	9,7	7,9	8,8	2,0	5,9	9,4
Textiles, wearing apparel, leather	5,7	4,9	2,1	14,2	6,9	0,9	9,9	-0,1	4,1	5,0
Wood products	18,3	7,9	6,6	28,5	19,4	18,2	25,2	2,8	11,7	-3,7
Pulp, paper and paper products	9,5	0,4	2,2	14,0	12,1	9,9	9,9	-2,9	-0,9	-3,6
Printing and publishing	17,0	8,2	5,8	26,1	17,8	19,0	19,0	8,2	1,9	5,8
Refined petroleum products.	14,3	4,3	10,7	25,9	3,7	18,3	9,7	-4,0	7,8	4,7
Basic chemicals	6,6	2,3	-9,1	9,1	8,5	18,7	17,0	-0,5	-5,4	0,2
Chemical and mineral products.	7,2	7,7	-2,5	11,9	11,2	8,1	16,4	3,4	8,7	3,9
Basic metals	3,3	7,1	1,4	1,6	-4,8	13,9	14,0	13,0	16,0	-9,8
Machinery and other equipment n.e.c.	14,8	13,8	1,3	20,5	17,9	18,8	28,8	9,3	9,9	9,7
Furniture and other manufacturing products	15,5	11,0	6,5	25,8	16,0	14,6	19,9	5,2	9,6	9,9
Non-competitive imports.	-6,1	13,4	4,4	10,7	-13,1	-20,2	1,5	14,1	25,3	13,0
Electricity	-45,1	-12,8	489,7	-66,0	-95,1	-69,2	-59,7	84,0	117,7	48,5
Services	17,5	3,2	10,6	24,3	17,5	17,1	13,6	3,7	2,5	-5,1
Operating costs shipping, excl. bunkers	4,2	2,0	5,8	8,9	3,2	-0,7	3,4	-1,5	2,2	4,0
Operating costs oil drilling, excl. bunkers	26,9	74,0	-41,6	33,1	63,0	72,6	157,4	67,1	41,9	75,5
Petroleum activities, various services.	32,7	-47,7	-2,7	97,5	41,7	-13,5	13,7	-67,1	-56,3	-40,6
Travel.	10,0	2,8	8,4	12,5	8,3	11,4	6,4	2,8	3,8	-1,2
Other services.	31,1	8,5	19,4	34,5	34,6	35,6	21,0	21,9	8,4	-12,3
Transport, post and telecommunication.	17,3	21,2	23,9	10,1	3,6	33,9	17,8	39,9	35,2	-3,7
Financial and business services	32,7	6,9	29,0	38,6	34,1	30,0	15,8	10,4	8,3	-4,7
Services n.e.c.	32,5	7,7	7,9	35,9	43,3	42,7	28,5	31,1	3,5	-22,1

NATIONAL ACCOUNTS FOR NORWAY

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Total exports	447 582	412 224	108 757	109 975	114 189	114 660	109 893	102 967	100 418	98 945
Goods	343 715	306 703	85 160	84 068	85 026	89 460	83 761	76 390	71 538	75 013
Services	103 867	105 521	23 597	25 907	29 163	25 200	26 132	26 577	28 880	23 932
Total imports	371 024	402 531	82 019	93 518	96 268	99 219	98 390	99 045	101 619	103 477
Goods	267 423	291 684	61 212	67 950	66 199	72 062	73 037	70 855	70 369	77 423
Services	103 601	110 847	20 807	25 568	30 069	27 157	25 353	28 190	31 250	26 054
Balance of goods and services	76 558	9 693	26 738	16 457	17 921	15 441	11 503	3 922	-1 201	-4 532
Primary income and transfers from abroad . . .	45 636	57 618	10 599	12 215	10 962	11 860	14 567	15 273	14 375	13 403
Compensation of employees	1 200	1 200	300	300	300	300	300	300	300	300
Interest	28 775	37 474	6 254	7 977	6 797	7 747	9 471	10 213	9 212	8 578
Dividends etc.	3 377	3 331	241	1 126	1 060	950	765	1 376	620	570
Reinvested earnings	2 984	5 919	1 377	454	511	642	1 459	974	1 705	1 781
Current transfers	9 300	9 694	2 427	2 358	2 294	2 221	2 572	2 410	2 538	2 174
Primary income and transfers to abroad	65 418	76 012	15 997	17 337	14 522	17 562	18 353	19 095	18 225	20 339
Compensation of employees	3 910	3 956	893	976	1 040	1 001	1 015	1 044	990	907
Interest	28 324	31 946	7 436	7 946	5 646	7 296	8 079	7 807	7 858	8 202
Dividends etc.	10 183	13 774	2 984	4 859	954	1 386	4 832	6 760	1 111	1 071
Reinvested earnings	3 606	4 351	340	-932	2 300	1 898	-521	-1 609	3 221	3 260
Current transfers from general government . .	7 474	8 186	1 318	1 569	1 635	2 952	1 710	2 122	1 402	2 952
Other current transfers	11 921	13 799	3 026	2 919	2 947	3 029	3 238	2 971	3 643	3 947
Primary income and transfers from abroad, net.	-19 782	-18 394	-5 398	-5 122	-3 560	-5 702	-3 786	-3 822	-3 850	-6 936
Current external balance	56 776	-8 701	21 340	11 335	14 361	9 739	7 717	100	-5 051	-11 468
Capital transfers, net	-1 277	-542	-416	-279	-298	-284	-63	-289	94	-284
Net lending	55 499	-9 243	20 924	11 056	14 063	9 455	7 654	-189	-4 957	-11 752
Revaluations, net	-15 080	10 868	-6 927	-1 533	-5 786	-834	1 288	490	2 820	6 270
Increase in Norway's net assets	40 419	1 625	13 997	9 523	8 277	8 621	8 942	301	-2 137	-5 482

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NATIONAL ACCOUNTS FOR NORWAY

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Total employees	2 036,0	2 083,1	2 009,7	2 034,0	2 052,1	2 047,4	2 068,4	2 087,0	2 095,8	2 081,0
Agriculture and hunting	16,4	16,1	16,6	16,4	16,4	16,0	15,8	16,4	16,2	16,0
Forestry and logging	3,5	3,4	3,5	3,5	3,7	3,5	3,3	3,5	3,5	3,4
Fishing and fish farming	8,3	8,4	8,2	8,4	8,4	8,3	8,2	8,5	8,6	8,5
Oil and gas extraction incl. services	22,3	23,2	21,9	22,1	22,6	22,4	22,4	22,7	23,6	24,0
Oil and gas extraction	16,4	16,7	16,3	16,2	16,6	16,4	16,3	16,6	17,0	16,9
Service act. incidental to oil and gas ext.	5,9	6,5	5,6	5,9	6,0	6,1	6,2	6,2	6,6	7,1
Mining and quarrying	4,3	4,2	4,2	4,3	4,4	4,2	4,1	4,2	4,2	4,2
Manufacturing	306,0	308,3	301,6	307,0	310,3	304,9	308,3	310,6	309,3	305,0
Food products, beverages and tobacco	55,9	55,0	55,7	56,0	56,5	55,5	55,9	55,5	54,6	54,0
Textiles, wearing apparel, leather	7,8	7,7	7,8	7,9	7,9	7,7	7,8	7,8	7,6	7,6
Wood and wood products	16,2	15,9	15,6	16,2	16,5	16,3	16,1	16,3	16,2	15,2
Pulp, paper and paper products	11,5	11,6	11,3	11,6	11,7	11,4	11,4	12,0	12,0	10,9
Publishing, printing, reproduction	40,8	41,4	40,5	41,2	41,0	40,6	41,2	41,6	41,0	41,7
Refined petroleum products	2,1	2,0	1,9	2,2	2,3	2,1	1,8	2,0	2,0	2,0
Basic chemicals	9,5	9,5	9,3	9,5	9,6	9,4	9,4	9,6	9,6	9,6
Chemical and mineral products	21,5	21,6	21,3	21,4	22,0	21,3	22,0	21,8	21,8	21,0
Basic metals	17,2	17,3	16,7	17,3	17,8	16,9	16,7	17,5	17,6	17,4
Machinery and other equipment n.e.c.	75,1	75,9	73,8	75,2	76,4	75,1	75,9	76,0	76,8	74,8
Building of ships, oil platforms and moduls.	34,5	36,0	34,2	34,7	34,9	34,4	35,5	36,3	35,6	36,5
Furniture and other manufacturing n.e.c.	13,8	14,4	13,5	13,8	13,9	14,1	14,5	14,4	14,3	14,3
Electricity and gas supply	19,8	18,3	19,7	19,9	20,1	19,6	18,3	18,4	18,4	18,2
Construction	95,7	102,7	91,0	94,5	98,6	98,4	99,5	102,6	104,9	103,6
Service industries excluded general government	878,7	905,1	867,0	878,5	884,5	884,6	896,5	907,1	913,6	903,2
Wholesale and retail trade	301,6	308,8	298,4	302,3	300,1	305,5	308,0	310,7	308,7	307,8
Hotels and restaurants	58,6	60,3	56,5	58,6	60,4	58,9	58,3	60,2	61,9	60,9
Transport via pipelines	0,2	0,2	0,1	0,2	0,2	0,2	0,1	0,2	0,2	0,2
Water transport	48,7	49,4	48,3	48,2	49,7	48,4	48,9	49,2	50,4	48,9
Ocean transport	40,2	40,9	40,0	39,7	40,9	40,2	40,8	40,7	41,4	40,7
Inland water and costal transport	8,5	8,5	8,3	8,5	8,8	8,2	8,1	8,5	8,9	8,3
Other transport industries	77,1	79,3	75,0	77,3	78,5	77,4	77,4	78,5	80,5	80,8
Post and telecommunications	49,2	49,9	50,8	50,0	48,4	47,6	50,5	49,7	50,0	49,6
Financial intermediation	49,5	48,2	49,8	49,5	49,5	49,0	48,8	48,5	48,4	47,3
Dwelling services	1,2	1,3	1,3	1,3	1,3	1,0	1,2	1,3	1,3	1,3
Business services etc.	131,3	141,7	126,6	130,7	133,6	134,3	137,0	141,5	145,3	142,8
Personal services	161,4	166,1	160,2	160,4	162,8	162,3	166,3	167,3	167,2	163,6
General government	681,0	693,3	676,0	679,4	683,1	685,4	692,0	693,0	693,4	694,9
Central government	152,5	152,1	152,6	152,2	152,0	153,1	153,0	151,8	150,8	152,7
Civilian central government	108,8	108,8	108,9	108,7	108,4	109,2	109,1	108,8	107,9	109,5
Defence	43,7	43,3	43,7	43,5	43,6	43,9	43,9	43,0	42,9	43,2
Local government	528,5	541,2	523,4	527,2	531,1	532,4	539,0	541,2	542,5	542,1
Mainland-Norway	1 973,3	2 018,8	1 947,7	1 972,1	1 988,4	1 984,6	2 005,1	2 023,3	2 030,6	2 016,1
Total employees and self-employed	2 220,3	2 271,8	2 189,8	2 220,2	2 238,6	2 232,0	2 254,1	2 278,6	2 285,4	2 268,7

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NATIONAL ACCOUNTS FOR NORWAY

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

	1997	1998	97:1	97:2	97:3	97:4	98:1	98:2	98:3	98:4
Total employees	3,3	2,3	3,9	3,6	3,0	2,8	2,9	2,6	2,1	1,6
Agriculture and hunting	-4,5	-1,7	-2,3	-5,7	-5,4	-4,5	-5,0	-0,1	-1,5	-0,0
Forestry and logging	0,0	-3,1	1,7	-2,9	1,0	0,3	-4,6	-0,5	-4,2	-2,9
Fishing and fish farming	4,9	1,6	7,7	7,1	4,0	1,2	-0,4	1,9	2,9	2,1
Oil and gas extraction incl. services	3,0	4,3	2,0	2,9	3,9	3,2	2,5	3,1	4,6	6,9
Oil and gas extraction	-1,0	2,0	-2,0	-1,5	-0,0	-0,6	-0,3	2,3	2,7	3,3
Service act. incidental to oil and gas ext.	16,2	10,6	16,1	17,5	16,2	15,1	10,7	5,2	9,7	16,7
Mining and quarrying	-4,3	-2,1	-5,8	-5,8	-4,3	-0,9	-2,8	-3,4	-2,8	0,6
Manufacturing	2,9	0,7	4,0	3,5	2,6	1,5	2,2	1,1	-0,3	0,0
Food products, beverages and tobacco	2,6	-1,7	6,3	3,3	1,1	0,1	0,4	-1,0	-3,2	-2,8
Textiles, wearing apparel, leather	-5,9	-1,5	-5,3	-7,2	-6,2	-4,8	0,1	-0,9	-3,1	-2,2
Wood and wood products	5,2	-1,4	5,6	6,2	4,7	4,4	2,9	0,3	-1,7	-6,7
Pulp, paper and paper products	3,5	0,8	0,4	2,4	1,0	10,9	0,9	3,5	3,2	-4,5
Publishing, printing, reproduction	4,4	1,3	3,1	4,7	4,8	4,9	1,8	1,0	-0,1	2,6
Refined petroleum products	9,4	-6,3	10,6	9,5	8,7	9,0	-2,5	-9,1	-10,0	-2,9
Basic chemicals	-1,2	0,9	-1,1	-1,6	-0,9	-1,3	1,1	0,9	0,0	1,7
Chemical and mineral products	1,9	0,6	4,9	2,4	1,9	-1,4	3,1	1,7	-1,1	-1,1
Basic metals	1,3	0,7	1,6	0,9	1,3	1,4	0,3	0,8	-1,2	3,1
Machinery and other equipment n.e.c.	3,5	1,0	4,5	4,4	4,2	1,0	2,9	1,1	0,6	-0,3
Building of ships, oil platforms and moduls.	1,8	4,2	3,6	3,4	1,2	-0,7	4,0	4,4	2,2	6,0
Furniture and other manufacturing n.e.c.	6,9	3,8	8,3	8,2	6,3	4,9	6,9	4,1	3,4	0,9
Electricity and gas supply	-0,0	-7,6	1,7	0,1	-0,8	-0,9	-7,4	-7,8	-8,4	-6,7
Construction	10,1	7,3	11,0	9,8	9,5	10,2	9,3	8,6	6,3	5,3
Service industries excluded general government	4,1	3,0	5,4	4,5	3,3	3,2	3,4	3,3	3,3	2,1
Wholesale and retail trade	5,9	2,4	7,3	6,3	4,1	5,9	3,2	2,8	2,9	0,8
Hotels and restaurants	3,9	2,9	5,7	4,4	2,6	3,0	3,3	2,7	2,5	3,4
Transport via pipelines	-16,5	-7,8	-48,7	2,6	-23,1	2,6	-8,3	-8,3	-6,9	-7,6
Water transport	0,2	1,4	2,7	-0,3	0,1	-1,6	1,3	2,2	1,2	1,1
Ocean transport	-0,0	1,7	1,8	-0,7	0,3	-1,4	1,9	2,7	1,3	1,2
Inland water and costal transport	1,4	-0,0	7,3	1,8	-0,6	-2,1	-1,6	0,1	1,0	0,4
Other transport industries	3,7	2,9	4,6	4,6	3,0	2,6	3,2	1,5	2,4	4,3
Post and telecommunications	-2,3	1,5	1,0	-1,5	-4,5	-4,2	-0,6	-0,7	3,2	4,2
Financial intermediation	-1,6	-2,5	-0,2	-1,6	-2,3	-2,4	-2,1	-1,9	-2,2	-3,6
Dwelling services	-0,0	5,5	7,0	3,0	0,4	-11,7	-5,6	-0,2	-1,0	36,6
Business services etc.	9,1	7,9	10,3	10,0	9,3	6,9	8,2	8,3	8,8	6,3
Personal services	2,3	2,9	2,5	2,3	3,0	1,4	3,8	4,3	2,7	0,8
General government	2,1	1,8	1,6	2,1	2,4	2,2	2,4	2,0	1,5	1,4
Central government	0,2	-0,3	0,2	0,2	0,0	0,5	0,3	-0,3	-0,8	-0,2
Civilian central government.	1,9	0,0	2,0	1,9	1,6	2,2	0,2	0,1	-0,5	0,3
Defence.	-3,8	-0,9	-4,2	-3,7	-3,7	-3,4	0,6	-1,3	-1,6	-1,5
Local government	2,6	2,4	2,0	2,6	3,1	2,7	3,0	2,7	2,2	1,8
Mainland-Norway	3,4	2,3	4,0	3,7	3,1	2,9	2,9	2,6	2,1	1,6
Total employees and self-employed	2,9	2,3	2,7	3,1	2,8	2,9	2,9	2,6	2,1	1,6

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