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Economic Survey

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Economic Survey

Perspectives

2002 was a turbulent year for the Norwegian economy. The international downturn with falling interest rates, declining stock markets, fears of war and rising oil prices also influenced domestic developments. The value of the Petroleum Fund fell instead of growing, and the return was markedly lower than expected. Weakening profitability and activity in what was recently described as the new economy left a clear mark on the labour market. Continued high wage growth and a tight monetary stance contributed to a record-strong deterioration in competitiveness for the second consecutive year, with notices of relocation of production abroad and closures in internationally exposed industries. The international downturn and loss of markets shares for Norwegian enterprises led to a virtual halt in output growth in the Norwegian economy through 2002, following several years of low growth. This occurred in spite of brisk growth in domestic demand. In addition, the year ended with more negative news of low water reservoir levels and very high electricity prices. On the other hand, 2002 was a year with record-high growth in household real disposable income and inflation was kept at bay. A high and relatively equal distribution of wealth, continued low unemployment and solid national and public finances meant that last year was another year when Norway was among the countries that fared best.

2002 was also a year when economic policy was put to the test. Monetary policy has now been conducted using an official inflation target for two years, in practice since approximately 1999. Norges Bank sets its key rate with a view to achieving a rate of increase in the CPI, adjusted for tax changes and excluding energy products, of close to 2.5 per cent two years ahead. It was argued that an inflation target that is about a half percentage point higher than the monetary policy objective of our main trading partners was justified on the basis of a generally more expansionary fiscal policy in Norway as a result of the new fiscal rule on the phasing in of petroleum revenues into the Norwegian economy. The rule was introduced at the same time as the inflation target, and so far fiscal policy has been conducted closely in line with the rule. According to the rule, the central government will continue to save all current petroleum revenues, while the expected real return can be posted as income in the central government budget. In this way, the capital accumulated in the Petroleum Fund and remaining petroleum reserves will benefit all future generations. Furthermore, it is important to point out that this wealth will only be able to provide a moderate contribution to changes in consumption for present and future generations.

An expansionary fiscal policy stimulates demand for all types of goods and services. With high capacity utilization in the economy, increased demand for non-tradable products can only be covered by a transfer of labour and other resources from the internationally exposed sector to the sheltered sector. Increased demand for internationally exposed products can be covered by an increase in net imports. Market forces ensure that resources are transferred from the internationally exposed to sheltered sectors via higher domestic price and cost inflation and/or an appreciation of the Norwegian krone against our trading partners' currencies. Such a real appreciation of the Norwegian krone leads to a weakening in competitiveness among enterprises that compete with foreign enterprises on export markets or on the domestic market. As part of the rationale behind the revision of the guidelines for economic policy in 2001, it was therefore assumed that an extra half percentage point inflation in Norway relative to our trading partners, with a corresponding weakening in competitiveness, would be necessary and sufficient to achieve structural changes as a result of the some-

* Translated from Økonomiske analyser 1/2003 by Janet Aagenæs and Helle Snellingen.

what more expansionary fiscal policy implied by the new guidelines. This implied that there would not be a need for a nominal appreciation of the krone.

A comparison of the assumptions and intentions underlying the policy revision in 2001with actual developments through 2001 and 2002 shows substantial deviations. A stronger krone resulted in a real appreciation that was markedly sharper than half a percentage point per year. The decline in manufacturing exports, output and employment over the last half of 2002 indicates that the weakening in competitiveness has started to have an impact. On the other hand, the krone weakened again at the beginning of 2003. It remains to be seen whether this is too little and too late to counter the shock to which many internationally exposed industries have been exposed. Forecasts point to a fairly substantial downscaling in the period ahead.

In recent years, movements in the krone have been difficult both to predict and explain, even in retrospect. One of the objectives underlying the introduction of an inflation target was that it would contribute to a stable krone exchange rate. There is broad agreement as to certain qualitative relationships, for example that a widening in the interest rate differential between Norway and other countries in isolation rapidly leads to an appreciation of the krone. But the quantitative strength of the effects and how rapidly they feed through to the domestic economy and competitiveness are difficult to predict with a large degree of accuracy. This implies that greater weight should be given to uncertainty in the formulation of macroeconomic policy and in particular monetary policy. The margin of manoeuvre in monetary policy seems to be more limited than previously assumed.

Irrespective of the reasons: There are grounds for considerable concern over the erosion of competitiveness in the internationally exposed sector in recent years. A lack of mobility in the labour market means that those who are made redundant in the manufacturing sector and other internationally exposed sectors become unemployed. Experience shows that unemployment to a large extent leads to permanent occupational passivity in the form of long-term unemployment, disability pensioners or early retirement. Moreover, even temporary swings in unemployment have both welfare and real economic costs. These costs must, however, be balanced against the risk of preserving an inefficient industry structure. The above arguments imply that monetary policy has long-term real economic consequences.

In the long run, however, the many and demanding wishes of consumers, voters and politicians, which require higher output and employment in the sheltered sector, should not make the challenge of achieving full employment a problem for Norway. The real challenge is to achieve full employment at the same time that a sufficient number of people work in profitable, internationally exposed enterprises. An important reason why economic policy should focus on full employment and activity in the internationally exposed sector at the same time is that sustainable economic growth must fulfil the requirement of long-term balance in the external account. This means that a country – like a family – cannot spend more than it earns in the long run. However, with Norway's expected current account surplus in the years ahead, this is not likely to give rise to any policy constraints. The fiscal rule for the phasing in of petroleum revenues into the Norwegian economy can be interpreted as an attempt to introduce such a constraint.

If it is not left to market forces alone to ensure that the Norwegian economy avoids imbalances in the external account, it follows that economic policy must give more weight to competitiveness and the distribution of resources between the sheltered and internationally exposed sectors. It is difficult to see that the fiscal rule implies over time an irresponsibly rapid phasing in of petroleum revenues into the Norwegian economy. In relation to the operational objective, monetary policy also seems to have fulfilled expectations. The monetary policy reform appears to have contributed to a more stable inflation rate than would otherwise have been the case, albeit at the expense of less stability in output and employ-

ment. On the other hand, securing stable competitive conditions for Norwegian enterprises has not been as successful.

Higher wage growth than the level consistent with the inflation target is weakening the position of the internationally exposed sector to a further extent than the assumption underlying the fiscal rule's long-term phasing in of petroleum revenues into the Norwegian economy. One problem with today's monetary policy is that it can amplify the erosion of competitiveness. The mechanism in brief is: Norges Bank will increase its key interest rate to counter inflationary impulses through lower demand and – not least – through the appreciation of the krone that may occur as a result of a widening in the interest rate differential against trading partners. While the appreciation of the krone curbs the rise in prices for imported goods and reduces the general rise in prices, earnings measured in Norwegian krone terms for internationally exposed enterprises weaken. Inflation targeting through higher interest rates has thereby amplified the weakening of competitiveness that was caused by high wage growth. In other words, one can expect a systematic negative relationship between the inflation target, inflation and the more fundamental objective relating to competitiveness in the internationally exposed business sector.

This effect of monetary policy is in clear conflict with the way we previously promoted the objective of competitiveness for Norwegian enterprises. Monetary policy was aimed at a stable krone exchange rate, and historically all the necessary available stabilization policy measures were used to secure competitiveness: Incomes policy, fiscal policy (expenditure, taxes and excise duties) if there was a need for additional measures, and even measures that no longer allowed the market to function (regulations and price and wage legislation). If the inflation target is to be an appropriate operational objective in a small, open economy like Norway, it must over time be as effective as or more effective than a direct exchange rate stability objective in securing competitiveness for the internationally exposed sector.

A fiscal policy that is primarily oriented towards a sustainable increase in the use of petroleum revenues in the Norwegian economy, combined with a monetary policy that makes such a phasing in possible through a somewhat higher inflation target than among our trading partners, seems to be well founded in theory. In practice, however, we have still not succeeded. In recent years, real wage growth and deteriorating competitiveness have clearly been incompatible with long-term balance in the Norwegian economy and a reasonable distribution of petroleum wealth across present and future generations. The later this is reversed, the higher the costs will be to put the economy back on the right track. At the same time, we are facing the many challenges posed to the short-term management of a small, open economy like Norway. Rising unemployment bears testimony to this. To some extent, this is a question of two sides of the same coin. One of the main problems seems to lie in the linkage between the inflation target, the interest rate as an instrument and the effects on the krone, and the use of fiscal policy in cyclical policy.

If competitiveness is assigned fundamental importance, as assumed in both the long-term management of petroleum wealth and short-term cyclical management, today's monetary policy has considerable limitations. The margin of manoeuvre for an independent Norwegian interest rate policy has in practice proved to be narrower than most had expected, which the recent interest rate reductions would also indicate. However, continued weight on competitiveness and short-term economic stability as a priority objective would then place greater demand on fiscal and incomes policy. It is easy to increase public expenditure and show wage moderation during a downturn. The ability and willingness to tighten fiscal policy and refrain from using bargaining power during an upturn have, however, so far not been quite as prominent. But this will be a necessary price to pay if competitiveness, the long-term management of petroleum wealth, high employment and low unemployment are to be given equal weight.

Economic trends

The international economy

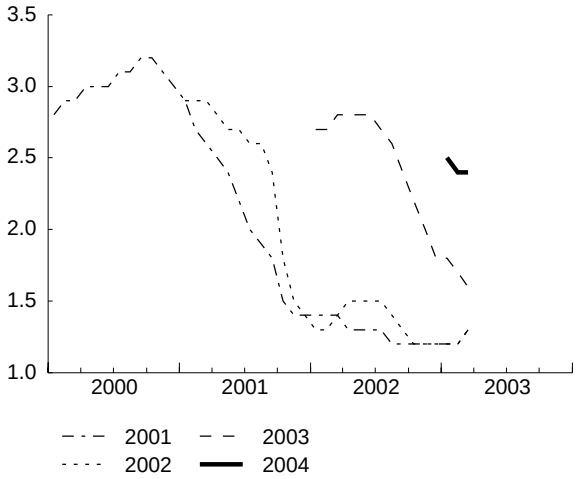
There were wide variations in economic developments internationally in 2002. After weak growth in 2001, economic growth in the US and some areas of Asia picked up last year, but slowed further in the EU, Japan and South America. From the beginning of the summer 2002, the prospects for an international upswing weakened. Sluggish investment growth in many OECD countries and a sharp decline in world stock markets contributed to the slowdown. Unemployment increased on both sides of the Atlantic. Weak developments in Japan and Germany are now being amplified by the appreciation of the yen and particularly the euro against the US dollar, pushing a recovery forward in time. The uncertainty surrounding the situation in Iraq is also restraining growth.

Inflation is low in most countries. This year, price inflation in the euro area is expected to fall below the European Central Bank's (ECB) upper limit of 2 per cent for the first time since 1999, to a large extent thanks to the appreciation of the euro. In Japan, inflation has fallen over the past four years, and it seems that this will continue to be the case this year. In the US, consumer price inflation edged up in the second half of the year, but core inflation has slowed. The rise in oil prices has, in isolation, pushed up price inflation internationally, but if the conflict with Iraq is resolved fairly rapidly, oil prices are expected to fall. However, if the conflict drags on, or a war should lead to lower production capacity in Iraq, oil prices may remain high for a longer period.

There is considerable uncertainty associated with future developments in the global economy, which is reflected in low interest rates in the US and Europe. Consensus Forecasts has adjusted downwards its growth forecasts for both the euro area and the US. A pick-up in growth in the euro area seems to be dependent on an increase in global demand. There is still a risk that the US economy will experience a new period of negative GDP growth like in 2001, i.e. a double-dip recession. The world economy may then be facing a longer downturn than previously assumed. However, it is our judgement that it is more likely that growth will pick up somewhat towards the end of the year, first in the US and then in Europe, while growth in Japan will continue on a weak trend.

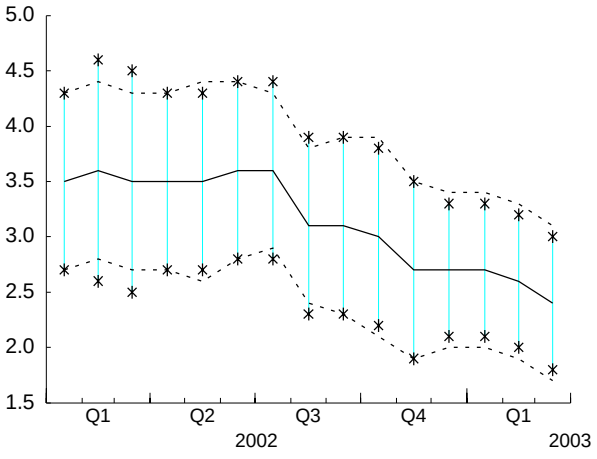
The conflict with Iraq is creating uncertainty. At present, it seems that a US-led attack will start in the near future. Even if the Iraq crisis has influenced and will continue to influence oil prices and world stock markets, our forecasts are based on the assumption that the conflict will be local, with limited real economic consequences for the international economy. This would be in line with the experience of the Gulf War in 1991. The downturn in the US at the beginning of the 1990s started before Iraq invaded Kuwait in the summer of 1990, and there is no evidence that economic developments were influenced by the war. If the war drags on, and particularly if it leads to conflicts in other regions, the consequences may be more substantial. But even with this scenario, one must be cautious about overstating the economic effects: The world economy did not come to a halt even though the US conducted a war in Vietnam for close to 15 years; economic growth continued and cyclical upturns were followed by downturns as previously.

GDP growth forecasts for Norway's main trading partners for 2000 - 2004 given on different dates
Per cent



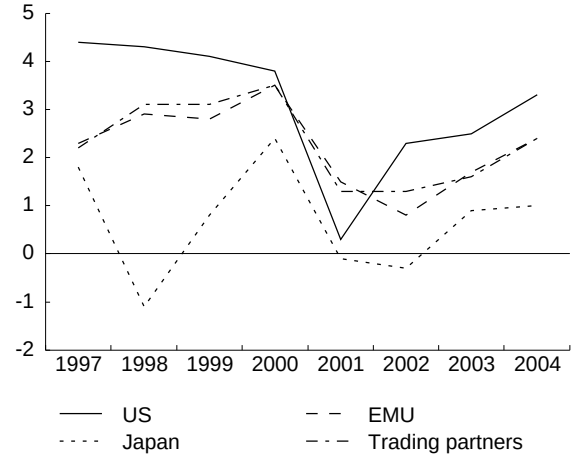
Source: Consensus Forecasts.

GDP growth forecasts for the US for 2003 at different points in time
Average forecast (solid line) with +/- 2 standard deviation (star points) and +/- 2 "normal" deviation (dashed line)



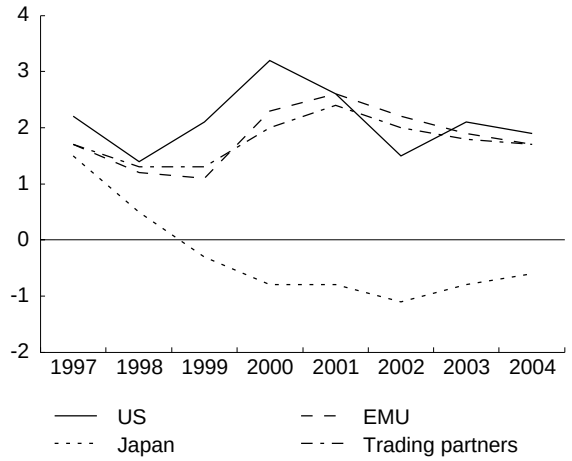
Source: Consensus Forecasts.

GDP growth for the US, Japan, the euro area and Norway's trading partners



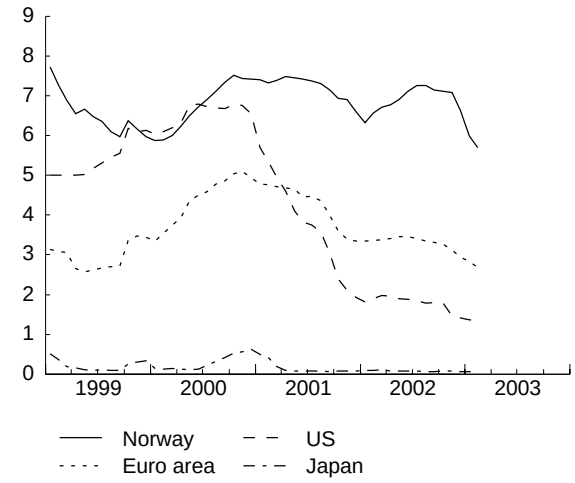
Sources: Average of projections from the NIESR in Jan. 03, CF in March 03 and the EC and the OECD in Nov. 02.

Consumer price inflation for the US, Japan, the euro area and Norway's trading partners



Sources: Average of projections from the NIESR in Jan. 03, CF in March 03 and the EC and the OECD in Nov. 02.

International interest rates
3-month Eurorate



Source: Norges Bank.

However, the experience of the Vietnam War points to the possibility of entirely different types of effects of considerable importance for the world economy: It led to the collapse of the fixed exchange rate cooperation under the Bretton Woods Agreement, which was replaced with floating exchange rates between major currencies. This was an effect of the war, which occurred as a result of changes in international political cooperation. Our analysis does not take into account that the present conflict with Iraq might have similar political effects with subsequent economic consequences.

US

Following nine years of robust growth, the downturn started in 2000. The stock market bubble burst, with a particularly sharp decline in technology shares. In the latter half of 2000, GDP growth slowed and the economy entered into recession in the first quarter of 2001, with negative GDP growth. The Federal Reserve cut interest rates sharply through 2001, but GDP continued to fall over three consecutive quarters. The development changed in the fourth quarter of the same year, and in the first quarter of 2002 economic growth was strong, supported by high productivity growth, low interest rates, an expansionary fiscal policy, high private consumption and a build-up in inventories. In the period to the summer, growth slowed again. Confidence in the US economy weakened in response to accounting irregularities, lower-than-expected profits and bankruptcies. Investment slumped, equity prices continued to fall and the US dollar started to weaken. Moreover, the growth impulses from inventory investment faded. The heightening conflict with Iraq intensified the uncertainty. High household consumption contributed to a pick-up in growth in the third quarter, but activity slowed again in the fourth quarter. In spite of the considerable uncertainty and wide fluctuations, GDP growth for 2002 as a whole was 2.4 per cent compared with 0.3 per cent in 2001. Growth was still well below the average for the latter half of the 1990s.

Imbalances in the US economy are still in evidence. Buoyant household consumption has made a considerable contribution to holding up growth, but in conjunction with high housing investment, this has resulted in high household debt. The brisk rise in house prices has also led to concerns that a bubble is developing in the housing market. It seems that the large government budget and current account deficits will persist over the next years. Against a background of weak corporate profitability and geopolitical uncertainty, the business sector is taking a wait-and-see attitude.

Weak developments also reflect high oil prices, which have been pushed up by the situation in Iraq. High oil prices are placing additional pressure on already squeezed airlines. Petrol prices have shown a marked increase in the US in recent months. For consumers, higher petrol prices are having a noticeable impact on disposable income. Lower equity prices have also af-

fected household wealth and combined with rising unemployment may push down consumption growth in the period ahead.

Industrial output exhibited weak growth last autumn, with moderate growth in new orders. Capacity utilization remains low, reflecting limited demand for new investment. On the other hand, investment in the previous cyclical upturn was to a large extent related to ICT equipment, which tends to have a relatively short life. We assume that investment will show a moderate increase in the course of 2003. In addition, inventory levels are low. This may mean that output will rise rapidly in response to signs of higher demand.

The dollar appreciated markedly during the latter half of the 1990s. Investment returns in the US were solid, foreign investors' showed a strong willingness to invest and the dollar appreciated in spite of a rising current account deficit in the US. As a result of the persistent, sharp fall in equity prices and low interest rates, foreign investment in the US has started to slow. At the beginning of 2002, the dollar started to weaken and has since depreciated by around 12 per cent against trading partners and 20 per cent against the euro. The depreciating dollar was accompanied by a further fall in returns on USD investments, with a risk of an accelerated weakening in the dollar. A more moderate correction in the dollar, as has been the case so far, may contribute to improving the current account balance through a strengthening of competitiveness. A sharp depreciation may, however, have a destabilising effect on the economy, but has been avoided this far, partly because several Asian countries have intervened to prevent an appreciation of their own currencies. The depreciation will also contribute to keeping deflation at bay. We assume that the dollar will continue to depreciate somewhat, and than level off at 1.12 against the euro during the projection period, against about 1.06 on 18 March 2003.

The Federal Reserve cut its key rate by a further 0.5 percentage point in February to 1.25 per cent, or the lowest level for 40 years. Extensive tax relief will contribute to holding up domestic demand in the period ahead. It is unclear how high the costs of a war in Iraq will be for the US government. The war will increase the budget deficit, which in isolation will have an expansionary impact on the economy, at least in the short term. In the Gulf War in 1991, a large share of the costs was borne by alliance countries. This time, the US will have to bear the largest share of the costs alone, unless Iraqi oil revenues are used for this purpose. The macroeconomic consequences of a short war in Iraq are expected to be limited, however.

Varying developments in 2002 indicate that a cyclical upturn has not taken hold. Weak figures for the US economy have been reported recently, and growth appears to be relatively modest in the first quarter of 2003. Unemployment has risen, and consumer confidence has weakened. Consensus Forecasts has lowered its GDP growth forecast for 2003. There is still a risk of a double-dip recession in the US. If this materializes, the world economy may witness a longer period of sluggish growth. We assume that growth will pick up somewhat in the latter half of 2003. This is conditional on continued growth in household consumption and a pick-up in investment. With a swift resolution of the conflict with Iraq, increased confidence in the economy and higher-than-projected investment growth, an upswing may be more pronounced than we have assumed.

Europe

After falling sharply in 2001, GDP growth in the euro area recovered somewhat into 2002, primarily fuelled by higher exports. The nascent upswing lost momentum, however, and growth for 2002 as a whole proved to be weak. The sharp decline in equity prices and sluggish investment activity are important factors behind the weak growth performance. Higher oil prices and a rise in food prices also contributed to lower demand. Confidence in the economy weakened, both in the business and household sectors. In autumn, external demand also stagnated. Against the background of weak growth and subsiding inflationary pressures, the European Central Bank lowered its key rate. The euro has appreciated markedly over the past year, which has led to a substantial deterioration in competitiveness. Geopolitical uncertainty and high oil prices have contributed to stagnation.

Unemployment in the euro area increased last year, averaging 8.3 per cent in 2002. In December, unemployment was 8.5 per cent, and a further rise is expected this year. There are wide variations in unemployment across the euro area, with unemployment higher than 10 per cent in Germany and Spain and around 3 per cent in the Netherlands. The sharp fall in stock prices has probably restrained investment activity. The rise in oil prices pushed up price inflation somewhat in February, to a year-on-year rate of 2.3 per cent. The appreciation of the euro will, however, continue to have a dampening impact on inflation through lower import and producer prices. Moderate economic growth is having the same effect. If oil prices do not continue to exert upward pressure on inflation, it is expected to fall below the ECB's upper limit of 2 per cent in the period to summer. This will contribute to holding up real disposable income, which will underpin household consumption.

The Stability and Growth Pact has come under considerable pressure. Lower-than-expected growth in 2002 was followed by lower tax revenues and higher expenditure than expected. In 2002, the EU Commission activated the excessive deficit procedure for Germany and Portugal, which both recorded a deficit in excess of 3 per cent of GDP. In the first round, this means that

Macroeconomic projections according to selected sources
Annual change in per cent

	GDP-growth						Inflation (consumer prices)					
	1999	2000	2001	2002	2003	2004	1999	2000	2001	2002	2003	2004
USA												
NIESR	4.1	3.8	0.3	2.4	2.6	3.1	1.6	2.5	2.0	1.4	1.8	1.5
ConsF	4.1	3.8	0.3	2.4	2.4	3.7	2.2	3.4	2.8	1.6	2.3	2.1
EC	4.1	3.8	0.3	2.3	2.3	2.8	2.2	3.4	2.8	1.6	2.3	2.3
OECD	4.1	3.8	0.3	2.3	2.6	3.6	2.2	3.4	2.8	1.6	1.9	1.8
Japan												
NIESR	0.8	2.4	-0.3	-0.2	0.7	0.9	-0.5	-1.1	-1.5	-1.5	-0.7	0.0
ConsF	0.8	2.4	0.3	0.3	0.6	0.7	-0.3	-0.7	-0.7	-0.9	-0.6	-0.6
EC	0.7	2.4	-0.1	-0.6	1.2	1.4	-0.3	-0.7	-0.6	-1.0	-1.0	-0.8
OECD	0.7	2.6	-0.3	-0.7	0.8	0.9	-0.3	-0.7	-0.7	-1.1	-1.1	-1.1
EMU												
NIESR	2.8	3.5	1.4	0.8	1.4	2.2	1.2	2.2	2.5	2.2	1.7	1.3
ConsF	2.8	3.5	1.4	0.8	1.1	2.1	1.1	2.1	2.4	2.2	1.8	1.6
EC	2.8	3.5	1.5	0.8	1.8	2.5	1.1	2.4	2.5	2.3	2.0	1.8
OECD	2.8	3.6	1.5	0.8	1.8	2.7	1.1	2.4	2.5	2.4	2.2	2.0
Trading partners												
NIESR	3.0	3.6	1.3	1.2	1.7	2.4	1.2	1.8	2.1	1.9	1.5	1.4
ConsF	3.1	3.5	1.3	1.3	1.6	2.4	1.3	2.2	2.5	2.1	2.1	1.8
EC	3.1	3.5	1.2	1.2	2.0	2.5	1.2	2.0	2.4	1.9	1.9	1.8
OECD	3.1	3.5	1.2	1.2	2.1	2.7	1.4	2.1	2.5	2.1	1.9	1.8

Sources: NIESR from January 2003, Consensus Forecasts from March 2003, EC from November 2002 and OECD from November 2002. All the inflation projections from the NIESR apply to the consumption deflator.

the countries must make non-interest-bearing deposits with the EU Commission, on the basis of the size of GDP and the budget deficits, which can be converted to fines if the deficit is not corrected within two years. France and Italy have received a warning from the EU Commission, fearing that the budget deficit ceiling would be exceeded in 2003 and 2004. Concerns that the Stability and Growth Pact might prolong the downturn have compelled the EU Commission to consider a more flexible interpretation. There have been proposals suggesting that countries with low public debt should be able to operate with moderate budget deficits in periods of weak growth. However, there are few euro area countries whose public debt is substantially lower than the 60 per cent of GDP ceiling set out in the Stability and Growth Pact. Moreover, this would not help any of the countries mentioned above. Thus, fiscal policy is not expected to provide further stimulus in the euro area in the period ahead.

The ECB was for a long period somewhat reluctant to cut interest rates as inflation has hovered above the upper limit in recent years. However, the appreciation of the euro has contributed to easing inflationary pressures, and since December 2002 the ECB has cut its key rate by 0.75 percentage point, most recently on 6 March when the key interest rate was reduced to 2.5 per cent. The considerable uncertainty surrounding global economic developments makes it particularly difficult to predict when a new upturn will take hold. In the light of recent developments, the growth outlook for 2003 is somewhat weaker than in December when the previous *Economic Survey* was published. The euro area is largely dependent on impetus from the world economy. Developments ahead are thus to a large extent contingent on an upswing in the US.

In 2002, the German economy grew by 0.2 per cent, which is the lowest growth rate for 10 years. Household consumption, investment and industrial output exhibited weak growth, and unemployment rose to 10.3 per cent in January 2003. Germany accounts for one third of the euro area economy and is an important trading partner for most countries in the region. Sluggish growth in Germany thus had negative spillover effects on the rest of the euro area. Germany is struggling with structural problems, particularly in the labour market according to many observers. In addition, the German economy is conducting an economic policy that is not adapted to the economic situation. Monetary policy, which is conducted by the ECB, has long been too tight for the German economy, while fiscal policy is limited by the Stability and Growth Pact. In addition, Germany, which has a relatively large share of trade with countries outside the euro area, is being affected by the appreciation of the euro in particular. A tightening of German fiscal policy has recently been signalled, which will dampen short-term growth prospects. Structural reforms may also be forthcoming, which would contribute to higher growth in the longer term.

Outside the euro area, the UK has so far fared relatively well during the global downturn. Economic growth has been higher than in the euro area, and unemployment has remained low. High household

consumption, fuelled by the sharp rise in house prices, combined with public demand, has been the main driving force in recent years. Growth in household consumption has to a large extent been debt-financed, partly through mortgage debt. House price inflation was 23 per cent in 2002, and is not sustainable, with a considerable risk of a correction in house prices. While the service sector is expanding, manufacturing industry has exhibited a negative trend in recent years. The pound sterling started to depreciate from the beginning of this year, and has depreciated by around 5 per cent against trading partners by mid-March. This has improved the outlook for manufacturing industry. The sharp rise in house prices poses a dilemma for monetary policy. The need to curb house price inflation must be weighed against the risk of stifling an already slowing economy. Towards the end of last year, inflation was higher than the 2.5 per cent target, partly reflecting rising house rents and oil prices. Inflation is projected to fall below target at the two-year horizon. In February, Consensus Forecasts lowered its growth forecast for the UK economy for 2003 and 2004, but growth is expected to show a moderate increase this year and next.

So far, Sweden and Denmark have also fared better than the euro area during this international downturn. In Sweden, growth improved markedly in the second quarter of last year, following a year of low growth. Later in the autumn, it seemed that growth was moderating again. The international slowdown had reduced exports. At the same time, investment and consumption growth has slowed. Against this background, the Swedish central bank lowered its key rate by a total of 0.5 percentage points to 3.75 per cent in the fourth quarter. Weak global developments have also dampened growth prospects in Denmark. High domestic demand and low interest rates, that primarily shadow euro area interest rates, have contributed to holding up growth. Nevertheless, it appears that sluggish trends in Germany are feeding through to the Danish economy. GDP growth was weak in the latter half of the year, and manufacturing output fell. Unemployment has increased since the summer, and both business and household confidence in the economy has weakened.

Japan

The Japanese economy is still struggling. Last year was the fourth consecutive year with deflation, and GDP grew by as little as 0.3 per cent. Household confidence in the economy is weak. Falling prices and wages and an ageing population with high pension savings are holding down consumption. Industrial output fell for the second consecutive year, and unemployment is still on the rise. A culture that counters bankruptcies is keeping alive a large number of unprofitable enterprises, and the banking sector has accumulated a large volume of bad loans. Interest rates seem to be remaining steady at zero. An expansionary fiscal policy, partly thanks to public works projects, has not been sufficient to stimulate domestic demand, while public debt is rising to a level that is causing concern. Economic reforms were promised already in 2001, but effective measures are still lacking. The Japanese central bank has repeatedly intervened in the foreign exchange market to counter the appreciation of the yen against the US dollar. In spite of this, the yen has tended to appreciate since the end of 2002, which is weakening the export industry in Japan.

The Japanese economy will continue to be marked by low growth and deflationary tendencies over the next years. Domestic demand is expected to remain low. Exports will thus be important for growth in the period ahead. If growth in the US and the rest of the world economy picks up, GDP growth in Japan is expected to stabilize at a low, but positive level in the years ahead.

Developments in the oil market

The spot price for Brent Blend rose from about USD 25 per barrel at the end of November 2002 to about USD 34 per barrel in mid-March. In the first 10 weeks of this year, the oil price has averaged a little less than USD 32 per barrel compared with about USD 25 per barrel in 2002. In recent days, oil prices have shown a marked fall to a little more than USD 27 per barrel on 18 March.

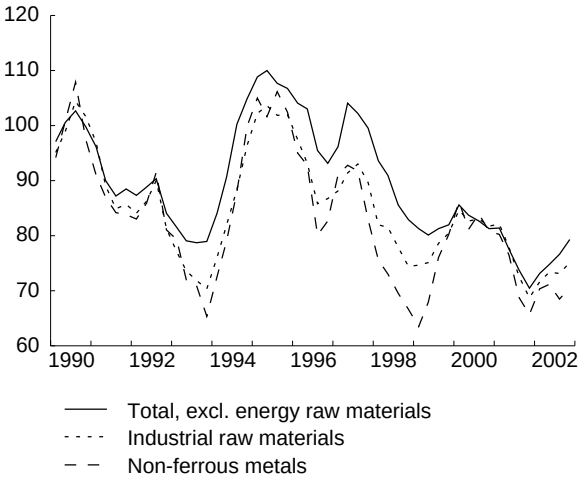
The high level of oil prices must be seen against the background of the conflict with Iraq. The Petroleum Intelligence Weekly (PIW) estimates that the oil prices have been USD 3-6 per barrel higher owing to fears of war and thereby supply concerns.

However, the strike in Venezuela made the most important contribution to the *increase* in oil prices over the past three months. The strike entailed a reduction in the country's oil production, by about 2 million b/d in December last year and in January of this year compared with the level prevailing in the preceding months. This affected oil exports to the US in particular, and as a result US crude oil reserves were at their lowest level for 27 years in January. In addition, as a result of a cold winter in North America and North-east Asia, heating fuel reserves in these regions were lower than the average for the past five years.

OPEC decided to increase production quotas from 1 January and 1 February this year by total of 2.8 million b/d. Even though the cartel already produced more than its quotas, the aim was that the effective increase in production would compensate for reduced supply from Venezuela and improve the reserve situation, particularly in the US. Since the largest share of the production increase comes from the Middle East and Saudi Arabia in particular, it will take four to six weeks for the oil to reach North America.

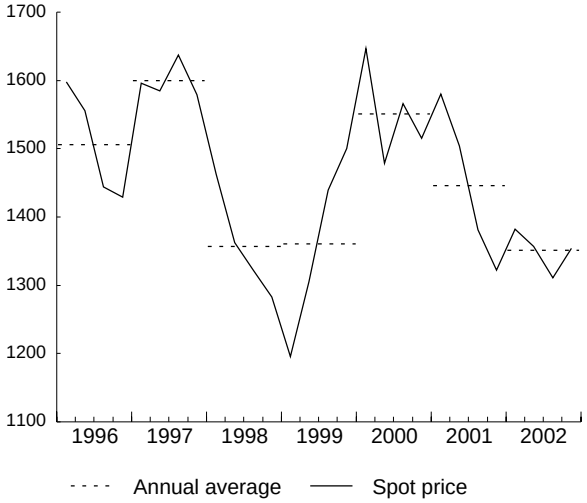
The International Energy Agency (IEA) estimates that global oil demand will increase by 1.1 million b/d

Commodity prices on the world market 1990 - 2002
Dollar based indices. 1990 = 100



Sources: HWWA-Institut fur Wirtschaftsforschung and AIECE.

Spot price aluminium. 1996 - 2002
Dollar per 100 lbs.



Source: IMF.

from 2002 to 2003. The bulk of the increase is expected to take place in North America, Asia and the Middle East. The IEA expects non-OPEC production to increase by 1.3 million b/d, particularly in the former Soviet Union and to some extent in North America, Latin America and Africa. This means that the residual demand for oil from OPEC countries will be somewhat smaller this year, and that the cartel will lose market shares to other producers.

Venezuela managed to increase production in February, to about 75 per cent of the level prior to the strike in the oil sector. According to the PIW, it will probably take several months before they can produce their allotted quota. Iraq produces about 2.5 million b/d under the UN oil-for-food programme. If the rest of OPEC adheres to production quotas in the months ahead, it appears that crude oil reserves will increase by a little more than 2 million b/d in the second and third quarter combined. This is a period when reserves normally increase by 0.5-1 million b/d before demand for heating oil increases in the northern hemisphere. Although oil prices have been higher than USD 30 per barrel since the beginning of the year, it appears that the market supply of oil will be more than sufficient in the period ahead. This is why OPEC has suspended its price mechanism that stipulates that if oil prices have been higher than USD 28 per barrel for a basket of OPEC oil for twenty days, the cartel shall increase production to bring oil prices back to the interval USD 22-28 per barrel.

If a full-scale war is launched in Iraq, the country's oil exports of about 1.7 million b/d will come to a total halt. OPEC has signalled that they would compensate for this reduction in supply. According to the IEA, this reduction in overall production is approximately equal to idle capacity in OPEC in the short term. In addition, the IEA has assured the market that they can rapidly supply the market with 10-15 million b/d from its strategic reserves if the need should arise. If the conflict does not drag on and does not affect oil production in Middle Eastern countries other than Iraq, it seems that there would be sufficient supply of oil in the market to avoid even higher oil prices over a longer period. This is contingent on the absence of oil production disruptions in other countries, for example as a result of the conflict concerning the election that will take place in Nigeria in April. On this set of assumptions, it appears that OPEC will be able to bring oil prices to below USD 28 per barrel. Irrespectively, oil prices will be particularly high for a period this year, which suggests that the average price for 2003 as a whole will be in the upper range of OPEC's interval.

The uncertainty surrounding oil production in Iraq over the next two years is especially prominent. If Iraqi production remains broadly at the current level and residual demand for oil from other OPEC countries does not rise, the cartel is likely to lose market shares to other countries. If countries such as Algeria, Nigeria and Libya, which are eager to increase their quotas, do not prevail, it is likely that OPEC will succeed in maintaining its policy, which implies an average oil price of about USD 25 per barrel.

Other commodity prices

Commodity prices excluding energy products rose last year. However, this must be seen in connection with the depreciation of the US dollar. Measured in euros, commodity prices fell somewhat during the year. Aluminium prices rose in the beginning of 2002, but edged down in the second and third quarter, before moving up somewhat towards the end of the year. Weak demand, combined with higher supply, has pushed down aluminium prices. We assume that aluminium prices, measured in USD, will edge up during the projection period, if global demand picks up.

Norwegian economy

Preliminary quarterly national accounts figures indicate that output growth in the Norwegian economy almost came to a halt in 2002. Annualized, growth from 2001 to 2002 was 1.3 per cent for the mainland economy and 1.0 per cent for the economy as a whole. This largely reflects growth through 2001. From the fourth quarter of 2001 to the fourth quarter of 2002, mainland GDP growth was as low as 0.5 per cent, while total GDP growth fell by 0.1 per cent. The real picture is not quite as dismal because in 2002 output was affected by the introduction of two additional vacation days, i.e. some of the growth was taken out in the form of increased leisure. On the whole, this may have pushed down mainland GDP growth by a few tenths of a percentage point between 2001 and 2002.

On the other hand, as a result of 3 per cent growth in productivity, the number of man-hours worked fell by 2.0 per cent over the year, with a decline in the number of employed in the same period. Even though growth in the labour force levelled off, unemployment moved up. According to Statistics Norway's Labour Force Survey (LFS), unemployment increased by 11 000 persons in the year to December 2002, bringing seasonally adjusted unemployment to 4.1 per cent of the labour force. In the same period, Public Employment Service figures for the number of registered unemployed showed an increase of 14 000, and 15 000 including persons participating in labour market programmes. According to Public Employment Service figures, the number has continued to rise into 2003.

Weak output growth primarily reflects the combined effects of the downturn among our main trading partners and a loss of market shares for Norwegian enterprises. The sharp appreciation of the krone in recent years, combined with high wage growth over several years, has led to a marked deterioration in competitiveness in the Norwegian business sector. While mainland demand expanded by 2.7 per cent in 2002 and aggregate domestic demand grew by as much as 3.7 per cent, exports fell markedly through the year, and import growth was relatively high, particularly for traditional merchandise imports.

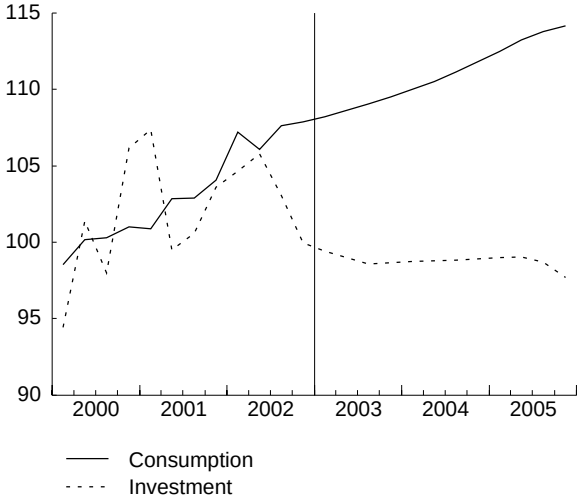
The fall in exports is expected to reduce annualized growth in 2003. Domestic demand will hold up better, partly owing to continued growth in consumption but primarily as a result of higher petroleum investment. On the other hand, mainland investment will fall. As a result of the component effect on the demand side, import growth will remain relatively low and mainland GDP may grow at a modest rate of 0.7 per cent. For 2004 and 2005, both exports and domestic demand are projected to pick up, but import growth is also expected to increase. GDP growth is projected to reach close to 2.5 per cent in both years. However, total GDP is expected show weaker growth at close to 1.5 per cent. Unemployment will continue to rise in 2003 to 4.8 per cent of the labour force in 2004, and then edge down in 2005.

Fiscal policy

According to quarterly national accounts figures, growth in general government consumption was 4.5 per cent in 2002. The main contribution to the increase comes from higher expenditure on product inputs, but the decline in the number of man-hours worked pushed down expenditure growth. Gross general government investment remained virtually constant between 2001 and 2002. The reorganization of hospitals makes it less relevant to break down growth between central and local government sectors in 2002. The uncertainty associated with the figures in this area may also have influenced the distribution of total expenditure between consumption and investment. All in all, general government consumption and investment increased by close to 4 per cent between 2001 and 2002.

The investment tax was removed from the fourth quarter of 2002. The revenue effects will be felt in 2003 in particular, and therefore limit the margin of manoeuvre in the central government budget in 2003. In the years ahead, the fiscal rule providing for the use of the return on petroleum wealth will in isolation reduce the room for increasing the structural and non-oil budget deficit on the central government budget compared with previous years. As a result, the impulses generated by fiscal policy may be more mod-

General government
Seasonally adjusted volume indices, 2000=100



Source: Statistics Norway.

Macroeconomic indicators 2001-2002
Growth from previous period unless otherwise noted. Per cent

			Seasonally adjusted			
	2001	2002	02.1	02.2	02.3	02.4
Demand and output						
Consumption in households and non-profit organizations	2.6	3.3	1.3	0.4	0.7	1.6
General government consumption	2.7	4.5	3.0	-1.1	1.5	0.2
Gross fixed investment	-4.2	-3.3	-1.8	5.6	-6.3	2.6
- Mainland Norway	0.7	-4.2	-1.1	-0.5	-1.0	-0.5
-Extraction and transport via pipelines	-1.0	-4.4	-8.1	-12.0	8.8	2.3
-Services activities incidential to extraction	..	..	..	..	..	..
Final domestic demand from Mainland Norway	2.3	2.3	1.3	-0.1	0.6	0.9
Exports	4.1	-0.5	-5.7	4.9	-2.5	-1.4
- Crude oil and natural gas	5.2	0.2	-8.1	10.7	-3.6	-1.2
- Traditional goods	3.7	1.3	-1.4	1.0	-0.5	-3.5
Imports	0.9	1.7	-1.4	4.4	-2.5	2.6
- Traditional goods	2.9	4.7	4.3	-2.2	1.6	3.3
Gross domestic product	1.9	1.0	-0.5	0.8	-0.6	0.2
- Mainland Norway	1.7	1.3	0.3	0.0	0.3	0.0
Labour market[1]						
Man-hours worked	-1.0	-1.0	-1.2	1.2	-0.1	-0.3
Employed persons	0.5	0.3	-0.1	0.1	-0.1	-0.1
Labour force	0.7	0.6	-0.1	0.2	-0.1	0.2
Unemployment rate, level[2]	3.6	3.9	3.8	3.8	3.8	4.1
Prices						
Consumer price index (CPI)[3]	3.0	1.3	1.0	0.4	1.4	2.2
CPI adjusted for tax changes and excluding energy products (CPI-A28ATE)[3]	2.6	2.3	2.4	2.6	2.4	2.0
Export prices, traditional goods	-2.9	-8.7	-1.4	-3.1	-1.8	0.1
Import prices, traditional goods	-0.2	-8.0	-2.2	-2.5	-1.0	-0.8
Balance of payment						
Current balance, bill. NOK	238.5	211.1	58.0	55.0	48.3	49.9
Memorandum items (Unadjusted, level)						
Money market rate (3 month NIBOR)	7.1	6.9	6.5	6.9	7.2	7.0
Lending rate, banks	8.8	8.4	8.5	8.3	8.1	8.6
Crude oil price NOK[4]	220.2	197.4	186.1	205.2	202.3	196.1
Importweighted krone exchange rate, 44 countries, 1995=100	100.2	91.6	97.2	92.5	89.1	87.7
NOK per ECU/euro	8.05	7.51	7.8	7.5	7.4	7.3

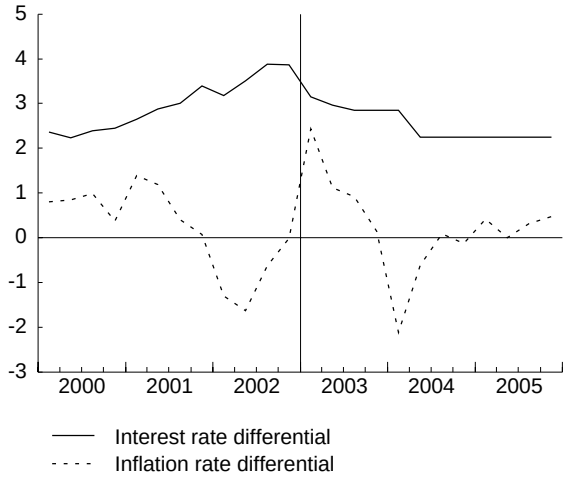
[1] Figures for 2001 and 2002 are from national accounts. The quarterly figures are from Statistics Norway's Labour force survey (LFS), since the new quarterly national accounts series for employment are too short for seasonal adjustment.
[2] According to Statistics Norway's labour force survey (LFS).
[3] Percentage change from the same period the previous year.
[4] Average spot price, Brent Blend.
Sources: Statistics Norway and Norges Bank.

erate than in previous years. General government consumption and investment is projected to grow by only 1.2 per cent in 2003 and 1.6 per cent in 2004, with weak or zero growth in investment spending. This is in line with the projections in the National Budget for 2003. The approved central government budget for 2003 has been incorporated in the basis for our calculations using our best judgement, but it is assumed that the expenditure increases implied by quarterly national accounts figures for 2002 will continue to apply in 2003.

In 2004, fiscal policy will partly be determined by the margin of manoeuvre implied by the real return on the Petroleum Fund, and partly by the general economic situation ahead. At end-2002, the value of the Petroleum Fund was about 10 per cent lower than estimated in the National Budget for 2003. A weakening of the krone exchange rate will contribute to increasing the value of the Fund in 2003. It also appears that the central government budget surplus will be higher than expected in 2003 as a result of high oil prices.

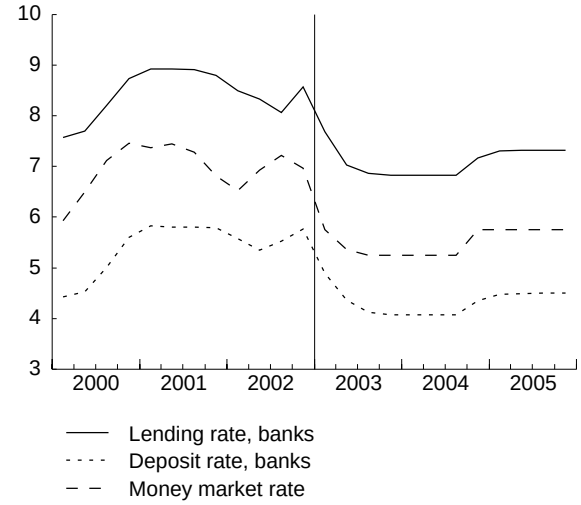
Rough estimates indicate that the value of the Petroleum Fund will amount to a good NOK 780 billion at the end of 2003. With a mechanical application of the fiscal rule, this would imply that there is no basis for a larger (structural and non-oil) central government budget deficit in 2004 than planned for 2003. A further, temporary weakening of the budget balance will either reflect the desire to spread the Petroleum

Interest rate and inflation differential between NOK, and the ECU/euro
Percentage points



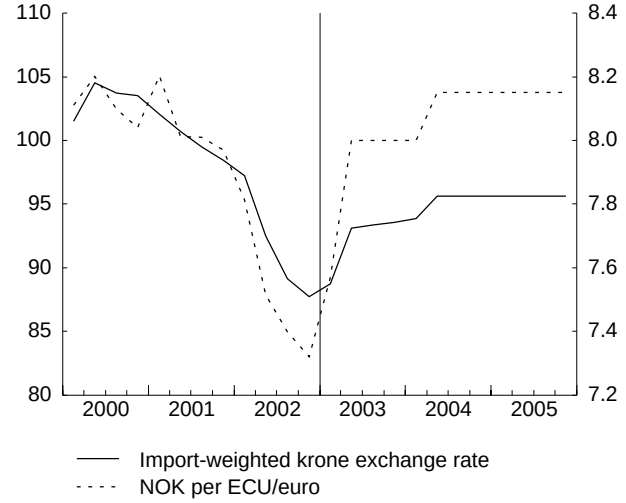
Sources: Norges Bank and Statistics Norway.

Lending rate and deposit rate
Per cent



Sources: Norges Bank.

Development in import-weighted krone exchange rate and NOK per ECU/euro



Sources: Norges Bank.

Fund's capital losses over a somewhat longer period or the general economic situation. Our projections have not incorporated such assumptions. However, the implementation of the so-called day care compromise between the opposition parties, which influences consumer prices among other things, is taken into account in our calculations.

General government purchases of goods and services for consumption are expected to show stronger growth (2.6 per cent) in 2005, while gross government investment is projected to show little growth. Tax rates are adjusted in pace with income growth, and specific taxes with price inflation in 2004. An increase in the Petroleum Fund through 2004 is expected to provide room for a budget weakening of a good NOK 5 billion in 2005 in the form of lower direct personal taxes and higher growth of approximately the same order in general government consumption.

In our baseline scenario, fiscal policy is broadly neutral based on the change in the budget balance. For 2003 and 2004 combined, the budget weakening is in line with the fiscal rule so that the extra consumption in 2003 will be compensated for in 2004. The fiscal rule in isolation will allow only limited economic stimulus in these two years. The increase in the budget deficit in 2005 – also in line with the fiscal rule – will have a somewhat more expansionary effect on the economy that year. Combined with a more expansionary monetary policy and an expected global upswing, this will result in higher growth in the Norwegian economy and a decline in unemployment after peaking in 2004.

At this stage, it is not easy to determine the most appropriate fiscal stance and the timing of fiscal policy over the coming years. A longer period of stagnation in the world economy than has been assumed here implies that the room for an expansionary fiscal policy in 2005 will be used already in 2004, with a reversal when the economy picks up again. Political ambitions concerning unemployment may also mean that a counter-cyclical fiscal policy will be used to a somewhat further extent than assumed here. We have illustrated the effects of a possible alternative scenario.

Lower interest rates and weaker krone

Since December last year, Norges Bank has reduced its key rate by 1.5 percentage points, most recently on 6 March. The key rate is now 5.5 per cent. Three-month money market rates fell from 7.1 per cent at the beginning of December last year to 5.5 per cent on 18 March. This is the lowest seen since 1998.

The Norwegian krone has weakened since January, after appreciating sharply in recent years. It appears that foreign investors' view of future developments in the krone exchange rate has changed, and the period

with a record-strong krone may be over. The recent interest rate cuts and signals of further rate cuts ahead have contributed to this.

The interest rate differential against trading partners has narrowed since last autumn. This may have contributed to the recent depreciation of the krone. The interest rate level in the US and the euro area is very low at 1.25 and 2.5 per cent, respectively. Further rate cuts may take place in the period to summer. This would increase the likelihood of further interest rate cuts in Norway.

The import-weighted krone exchange rate appreciated by around 13 per cent in 2002. The trend was reversed at the turn of the year when interest rate expectations showed a marked shift. Since January, the import-weighted krone exchange rate has depreciated by about 7 per cent. The krone has weakened against the euro by 8 per cent in the same period, and stood at NOK 7.90 on 18 March. We expect the krone to weaken further in the period ahead, and assume that the krone will depreciate to 8.15 against the euro through 2004.

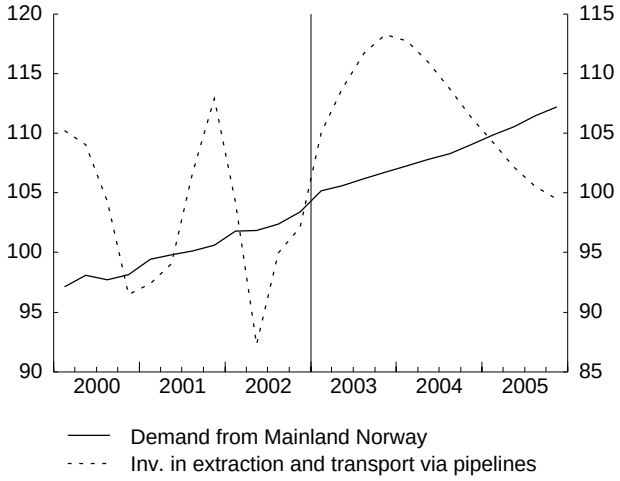
The krone exchange rate is important for interest rate developments ahead. If the krone continues to depreciate markedly, there will be less room for further interest rate cuts. If the krone depreciates to a more limited extent, there is room for further interest rate cuts in the period to summer. We assume that three-month money market rates will fall to 5.25 per cent in the second quarter and remain at this level to the end of the year. This implies a somewhat weaker fall in interest rates than implied by forward interest rates. We also assume that interest rates will move up to 5.75 per cent towards the end of 2004, as growth in the Norwegian economy picks up.

Stronger impulses from petroleum investment in 2003

Oil production on the Norwegian continental shelf was lower in 2002 than in 2001 owing both to the production limits that were introduced in the first half of 2002 and unexpected production disruptions at several fields in the autumn. Production is expected to decline further in 2003, and remain unchanged in 2004. The start-up of several new gas fields in 2002 led to strong growth in overall gas production. In 2002, gas production was around 20 per cent higher than in the previous year. Production is expected to increase further through 2003 and 2004, and is projected to be about 8 per cent higher in 2004 than in 2002.

Oil prices showed an overall rise in 2002, averaging USD 25 per barrel or about NOK 200 per barrel. In the first quarter of 2003, the price of Brent Blend has generally hovered above USD 30 per barrel, but has fallen in recent days. From the second quarter to the

Demand from Mainland Norway and investment in petroleum activities
Seasonally adjusted volume indices, 2000=100



Source: Statistics Norway.

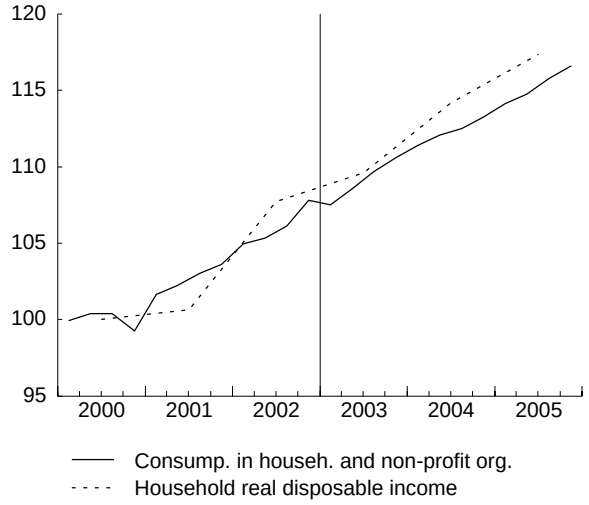
end of the projection period, the oil price is assumed to remain constant at USD 25. This implies an average oil price of close to USD 27 per barrel for 2003. On the basis of our assumptions concerning the dollar exchange rate, the average oil prices in Norwegian kroner will be a good NOK 190 in 2003 and a good NOK 180 per barrel in 2004 and 2005.

Gross investment relating to petroleum activity was somewhat lower in 2002 than assumed in our previous *Economic Survey*, which partly reflects the postponement of some investment projects partly because of increased uncertainty as a result of the low discovery rate over the year. Preliminary annual figures for 2002 show a decline in gross investment (measured in constant prices) of close to 5 per cent compared with the previous year.

In keeping with Statistics Norway's most recent investment intentions survey, the estimate for 2003 is higher than previously. This is primarily because we expect that the investment projects that were postponed in 2002 will take place this year, and because we have revised upwards our investment projections for on-shore installations, particularly relating to the terminal for the Snøhvit field on Melkøya. Investments relating to field development have also been adjusted upwards. For the year as a whole, petroleum investment is estimated to be more than 16 per cent higher than in 2002. Investments in connection with the Snøhvit field are of a nature that requires a larger than normal share of imports as there is limited expertise in the area of LNG installations in Norway. As a result, the impulses to the Norwegian economy are not expected to be as strong as that implied by the overall growth estimate.

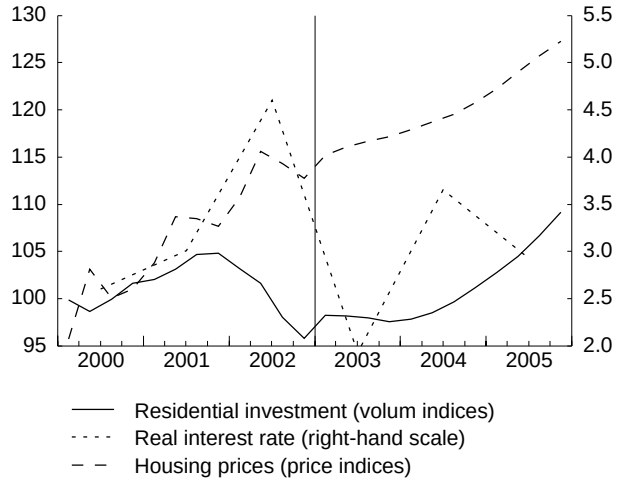
The overall level of investment in 2004 is expected to be approximately the same as in 2003, and with the same import share. Exploration activity is then expect-

Income and consumption in households
Seasonally adjusted volume indices, 2000=100



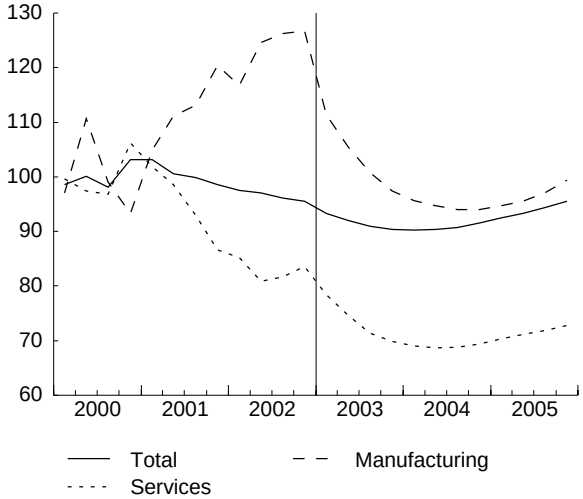
Source: Statistics Norway.

Residential investment and housingprices
Seasonally adjusted indices, 2000=100



Source: Statistics Norway.

Investment, Mainland Norway
Seasonally adjusted volume indices, 2000=100



Source: Statistics Norway.

ed to pick up, and investments related to fields in operation to increase further. Investments related to Melkøya are gradually phased out, which is expected to bring the level of on-shore investments in line with the level in 2002, with a marked decline from the level in 2003. A general decline in petroleum investment is expected in 2005, with the level assumed to be 8 per cent lower than in 2004.

Income and consumption for households and non-profit institutions

Real disposable income for households and non-profits institutions rose by as much as 7.0 per cent between 2001 and 2002. High pay increases and a sharp increase in dividend payments are the main reasons behind the unusually high income growth. Consumption rose by 3.3 per cent in volume terms, and the saving ratio increased from 4.1 per cent in 2001 to 7.4 per cent in 2002.

The saving ratio may have increased because it takes some time to adapt to the higher level of income, rising unemployment and expectations of weaker economic growth. In addition, it is likely that the propensity to consume is only marginally affected by dividend payments. Moreover, the average real interest rate after tax was about 1.6 percentage points higher in 2002 than in 2001, which implies higher saving and lower consumption. The consumption deflator that is used in the national accounts to convert nominal figures to real figures is broader than the consumer price index, and the weights are updated regularly. The increase in the consumption deflator was 0.7 per cent last year, while CPI inflation was 1.3 per cent. By either measure, the rate of increase in consumer prices was low in 2002, which contributed to the strong increase in purchasing power.

Wage growth is expected to be more moderate in 2003, which implies that income growth will be lower. Lower nominal interest rates in 2003 will have the opposite effect as households and non-profit institutions combined have higher interest expenditure than interest income. We project real disposable income to grow by 1.7 per cent in 2003. Consumption is projected to grow by 3.0 per cent in volume terms. These projections imply a decrease in the saving ratio to 5.8 per cent. Consumption growth will thus be higher than income growth, which will be reflected in net lending growth. In nominal terms, household net lending (including non-profit institutions) increased from NOK 0.7 billion in 2001 to NOK 29.3 billion in 2002. In 2003, a reduction of about 26 per cent is expected.

These developments, with consumption varying more than income, are in line with what one can expect. A further explanation for the high growth in consumption in relation to income growth in 2003 is that the real interest rate after tax is expected to be a good 2.5 per-

centage points lower in 2003 than in 2002. This is due to both a lower nominal interest rate and a markedly higher rise in consumer prices. The consumption deflator in the national accounts is expected to increase by 2.6 per cent in 2003 and the CPI by 3.2 per cent.

In our baseline scenario, real income growth picks up again in 2004. We project growth of 4.2 per cent in real disposable income. Consumption is projected to grow by 2.9 per cent in volume terms, again in line with a path for consumption that varies less than the path for income. The saving ratio is projected to rise to 7.0 per cent. The consumption deflator and CPI inflation are projected at 1.1 and 1.3 per cent, respectively. Markedly lower price inflation is one of the main explanatory factors behind the sharp increase in real income in 2004 compared with 2003. Consumption and income growth is expected to be more or less the same in 2005.

Housing investment and house prices

After expanding in 2001, growth in housing construction came to a halt in early 2002, and fell through the remainder of the year. Housing starts showed a gentle downward tendency in the months to December last year. According to quarterly national accounts figures, housing investment fell by 3.9 per cent on an annual basis. Housing starts came to a good 22 400, a decline of 10.6 per cent on the previous year. Measured in terms of surface area, this represents a decrease of 11.3 per cent. The largest share of the decline was for Oslo and Akershus. The number of dwellings under construction was nevertheless 9.4 per cent higher in 2002 than in 2001, but was tending downwards. Holiday cottage building continued to rise in 2002.

The rise in house prices levelled off last summer. Adjusted for seasonal variations, house prices were relatively stable during the autumn of 2002 and into 2003. Prices were nevertheless 5.8 per cent higher on average in 2002 than in 2001. By way of comparison, building costs increased by 3.3 per cent, or at a somewhat slower pace through the year. It appears that building costs have reached a level that is restraining demand, in addition to the general economic downturn. The high overall rise in prices, the prospect of higher unemployment and moderate wage growth seem to be more than offsetting the positive impulses generated by expectations of lower real interest rates. At the same time, the scale of commercial buildings that have been converted to residential property has increased over the past 10 years. The demand for new dwellings may thus have been overestimated.

With rising unemployment and prospects for a moderate wage settlement, house prices are expected to show only a moderate increase this year, and at a slower rate than the rise in consumer prices. Lower real interest rates will have the opposite effect. A lower rise in house prices and a longer average turnover time in the housing market imply a lower level of activity in the housing market. Housing investment is expected to fall later in 2003, with an estimated reduction of close to 4 per cent, as in 2002. Growth is then projected to pick up to almost 3 per cent in 2004 and to close to 6 per cent in 2005. The rise in prices for existing dwellings is also expected to pick up in 2005, as a result of high real income growth in 2004 and a downward shift in unemployment in 2005.

Investment declines in mainland business sector

Since the cyclical peak was reached in 1998, gross mainland business investment has had a dampening impact on total growth in domestic demand. This is in line with a normal business cycle. The decline was particularly pronounced in 2002. The decline in investment has occurred in spite of a considerable increase in manufacturing investment in preceding years, which is estimated to have increased by about 8 per cent in 2002. It is conceivable that many enterprises decided to postpone investments until the investment tax was removed from the fourth quarter of last year. In isolation, this will restrain a further fall in investment.

In 2003, manufacturing investment is projected to fall, partly because of the pressure on profitability in this sector and partly because a number of large projects have been completed or are near completion. Manufacturing investment is thus expected to show a fairly marked fall in the period to end-2004, in line with Statistics Norway's investment intentions survey. Thereafter, an international upturn is expected to lead to weak growth in manufacturing investment again. Investment in electricity production is expected to continue to fuel growth in overall investment in the coming years. Investment in many service sectors is expected to show little growth. A decline is expected for commercial property investment; a high level of investment in preceding years has led to a substantial increase in capacity and lower rents for commercial property.

On balance, mainland business investment is still projected to contract at about the same pace in 2003 as in the preceding years, but the pace of decline will slow through 2004 and rebound in 2005, calculated on an annual basis.

Higher costs and stronger price competition reduce exports

Measured in constant prices, traditional merchandise exports grew by 1.3 per cent between 2001 and 2002, after expanding by 3.7 per cent in the previous year. Most components showed negative volume growth, however. The increase is solely ascribable to a 7.2 per cent increase in exports of engineering products (excluding ships and platforms). In 2001 the increase for this component was as high as 15.5 per cent.

Main economic indicators 2001-2005. Accounts and forecasts
Percentage change from previous year unless otherwise noted

	Accounts	Forecasts						
		2003			2004		2005	
	2002	SN	MoF	NB	SN	NB	SN	NB
Demand and output								
Consumption in households and non-profit organizations	3.3	3.0	3.5	2 3/4	2.9	3 1/4	2.4	3.0
General government consumption	4.5	1.6	0.5	3/4	1.8	2.0	2.6	2.0
Gross fixed investment[1]	-3.3	-0.3	3.2	1.0	-0.3	1/4	0.2	1 1/2
Extraction and transport via pipelines[2]	-4.4	16.7	12.2	20.0	-0.6	0.0	-8.1	0.0
Mainland Norway	-4.2	-5.2	0.1	-4.0	-0.3	1/4	3.4	2.0
Firms	-6.0	-7.2	-1.0	-6.0	-2.2	-1.0	3.4	1.0
Housing	-3.9	-3.8	2.2	-3.0	2.8	2.0	5.9	5.0
General government	0.1	-1.9	0.3	1/4	0.2	2.0	0.3	2.0
Demand from Mainland Norway[3]	2.3	1.3	2.7	1 1/4	2.1	2 1/2	2.6	2 1/2
Stockbuilding[4]	-0.2	0.0	..	..	0.0	..	0.0	
Exports	-0.5	-2.3	0.8	-1.0	1.2	1 1/2	0.8	1 1/2
Crude oil and natural gas	0.2	-1.8	-2.1	-2.0	0.7	4.0	-1.8	0.0
Traditional goods	1.3	-2.2	2.7	-3.0	3.1	-1.0	4.0	2.0
Imports	1.7	1.5	2.9	1.0	1.3	1 1/4	1.7	3 1/2
Traditional goods	4.7	0.1	3.2	1 1/4	1.5	1 1/4	3.1	3 1/2
Gross domestic product	1.0	0.1	1.9	1.0	1.7	2 1/4	1.5	1 3/4
Mainland Norway	1.3	0.7	1.8	1 1/4	2.3	2.0	2.5	2 1/4
Labour market								
Employed persons	0.3	0.0	0.4	-0.5	-0.5	0.0	0.5	1/2
Unemployment rate (level)	3.9	4.3	4.0	4 1/2	4.8	4 3/4	4.6	4 3/4
Prices and wages								
Wages per standard man-year	5.3	4.6	5.0	5.0	4.6	4 1/2	4.4	4 1/2
Consumer price index (CPI)	1.3	3.2	2 1/4	3 1/4	1.3	1.0	2.3	2 1/4
CPI adjusted for tax changes and excluding energy products (CPI-ATE)	2.3	2.3	..	1 3/4	2.1	2.0	2.4	2 1/4
Export prices, traditional goods	-8.7	3.8	..	-5.0	7.6	1 1/4	2.0	1 3/4
Import prices, traditional goods	-8.0	1.5	..	..	6.1	..	1.9	
Housing prices	5.8	2.3	..	..	2.0	..	4.7	
Balance of payment								
Current balance (bill. NOK)	211.1	175.5	178.9	205.0	157.1	155.0	153.4	120.0
Current balance (per cent of GDP)	13.8	11.3	..	14.0	9.9	10.0	9.4	8.0
Memorandum items:								
Household saving ratio (level)	7.4	5.8	6.6	5.0	7.0	5 1/4	7.4	5 1/2
Money market rate (level)[5]	6.9	5.4	6.7	5.6	5.4	5.5	5.8	5.5
Lending rate, banks (level)[6]	8.4	7.1	..	..	6.9	..	7.3	
Crude oil price NOK (level)[7]	197.4	191.0	180.0	..	181.0	..	182.0	
Exports markets indicator	0.7	3.9	..	..	5.9	..	3.0	
Importweighted krone exchange rate (44 countries)[8]	-8.5	0.6	..	-3 3/4	3.2	0	0.5	0

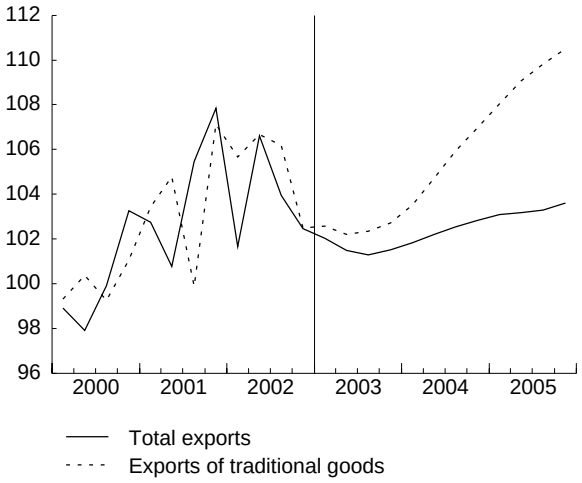
[1] Forecasts from Norges Bank include stockbuilding.
[2] Forecasts from Ministry of Finance and Norges Bank include service activities incidential to extraction.
[3] Consumption in households and non-profit organizations + general government consumption + gross fixed capital formation in Mainland Norway.
[4] Change in stockbuilding. Per cent of GDP.
[5] NB technically assumes its rates to be constant through the forecast period.
[6] Households' borrowing rate in private financial institutions.
[7] Average spot price, Brent Blend.
[8] Increasing index implies depreciation.
Sources: Statistics Norway (SN), Ministry of Finance, St.meld. nr 1 2002-2003 (MoF), Norges Bank, Inflasjonsrapport1/2003 (NB).

Developments in traditional merchandise exports over the past two years must be seen against the background of weak growth in Norwegian export markets – around a half per cent annually – as a result of the global downturn. At the same time, the competitiveness of Norwegian enterprises has deteriorated sharply partly as result of high wage growth, but in particular as a result of a stronger krone, which reduces the international price level translated into Norwegian kroner. While higher labour costs push up prices for Norwegian products in NOK, a stronger krone pushes down prices. In recent years, the exchange rate effect has dominated. Prices for traditional merchandise exports fell by 2.9 per cent between 2000 and 2001 and by a further 8.7 per cent between 2001 and 2002. On the whole, this approximately corresponds to the weakening of foreign currencies against the Norwegian krone over the past two years, as measured both by manufacturing industry's trade-weighted index (-3.2 and -7.4 per cent in 2001 and 2002 respectively)

and by the import-weighted exchange rate index (-3.1 and -8.5 per cent respectively). The price decline was particularly pronounced for cyclically sensitive commodity-based products.

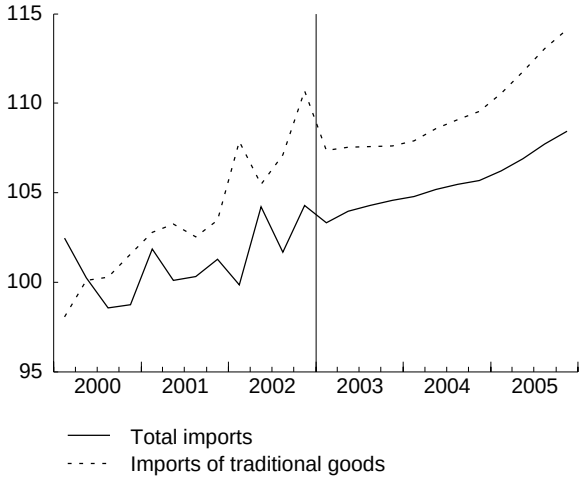
Seasonally adjusted figures show that the price decline for traditional merchandise exports levelled off through last year, while volume figures showed a downward shift, particularly in the fourth quarter. Export markets are expected to pick up in 2003, in line with our assumption of an upswing in the international economy. At the same time, if the krone weakens in line with our assumption for the coming year, the deterioration in competitiveness may be reversed to some extent, but not sufficiently to prevent Norwegian enterprises from losing market shares. The next years will finally bring to completion projects that will increase aluminium production capacity, which in isolation will push up exports. This implies that the volume of traditional merchandise exports will probably fall in 2003 and then grow by 3-4 per cent in 2004 and 2005. Prices are also expected to increase, primarily reflecting a cyclical increase in various commodity prices.

Exports
Seasonally adjusted volume indices, 2000=100



Source: Statistics Norway.

Imports
Seasonally adjusted volume indices, 2000=100



Source: Statistics Norway.

Moderate growth in imports despite higher import shares

The deterioration in Norwegian companies' competitiveness is also resulting in a loss of market shares on the import side. Prices for traditional import goods declined by 8 per cent measured in krone terms from 2001 to 2002, i.e. a little less than the fall in the import-weighted exchange rate. At the same time, the volume of imports rose by 4.7 per cent, considerably stronger than the total consumption of goods and services (1.2 per cent) and Norwegian output (total gross output growth of 0.9 per cent, 1.2 per cent for mainland Norway).

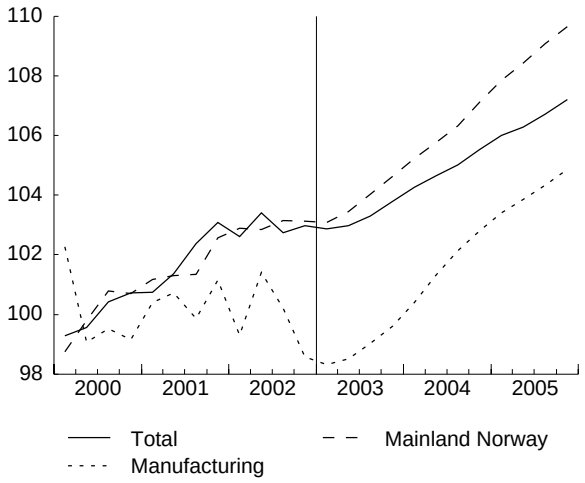
Viewed in connection with the particularly sluggish developments in exports and investment, two demand components that traditionally have a high import content, the increase in import shares was probably stronger than implied by import developments seen in relation to total consumption and production and an underlying trend due to increased foreign trade. Engineering products (excluding ships and platforms) also accounted for a substantial share of the increase in imports and import shares for these products must have increased considerably.

Despite the loss of market shares for Norwegian companies, import growth is expected to be virtually flat in 2003. This is partly due to a direct decline in exports and mainland investment, but is also ascribable to a projected shift in the composition of imports for petroleum activities from what is considered traditional goods to direct imports for petroleum activities. Total merchandise imports thus show somewhat stronger growth. The fall in investment will contribute to keeping import growth close to growth in total demand and output in 2004, but imports will increase at a faster pace again in 2005.

Weak GDP growth in 2003, but higher thereafter

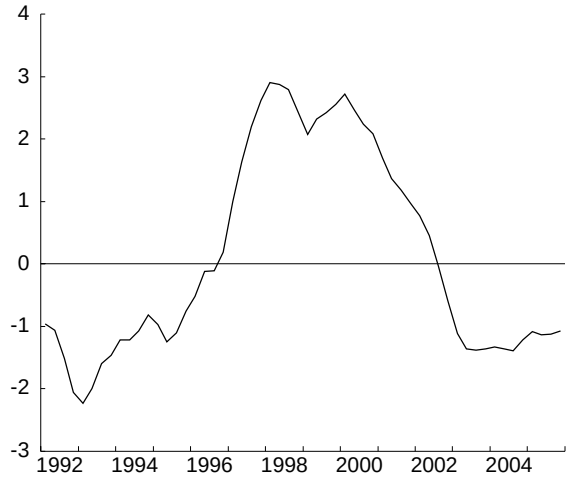
Total GDP expanded by 1 per cent from 2001 to 2002 and growth in the mainland economy was only slightly higher. Weak growth in mainland demand in both 2001 and 2002 has contributed to curbing growth impulses. This will continue in 2003. The decline in electricity production is expected to push down growth in the mainland economy by 0.3 percentage point in 2003 and push up growth to an equivalent extent in 2004. Lower electricity production will contribute to high electricity prices in 2003, which will result in slower growth in household real income and demand.

Gross domestic product
Seasonally adjusted volume indices, 2000=100



Source: Statistics Norway.

Output gap
Per cent



Source: Statistics Norway.

A pronounced global upturn has not yet materialized. We have again lowered our projections for market growth abroad in 2003, thereby contributing to lower growth for traditional exports and exports of some services. Admittedly, the krone has recently depreciated, which will help to reduce Norwegian exporters' loss of market shares. All in all, however, exports are projected to fall from 2002 to 2003. The decline in oil production will also contribute to this. Combined with weaker growth in mainland demand, this will push down growth further in 2003. Brisk growth in petroleum investment will have the opposite effect. On balance, mainland GDP growth is projected at only 0.7 per cent in 2003.

As a result of low output growth, growth in employment will come to a halt and growth in household income will be substantially lower than in 2002. Unemployment will rise further, which in turn will have an impact on the housing market. On the other hand, our assumptions of a sharper decline in interest rates than assumed earlier and slightly higher inflation in 2003, both of which will push down the real interest rate to a greater extent, will have the opposite effect. This means that the household saving ratio may fall, with the result that consumption growth shows little change compared with 2002. All in all, however, the Norwegian economy now appears to be facing a somewhat more pronounced cyclical downturn in 2003 than projected earlier.

For 2004, our growth projections show little change from the previous report. The projected rise in production in 2004 is related to both the global upturn, which will boost traditional exports, and somewhat weaker negative impulses from domestic demand. Lower electricity prices and higher electricity production are of particular importance, implying that consumer price inflation will be subdued in 2004. Household real income will thereby show higher growth and consumption growth edge up. Similarly, housing investment will be reversed from a decline in 2003 to an increase towards the end of 2004. The fall in manufacturing investment is expected to slow. The impetus from fiscal policy is assumed to be approximately the same in 2004 as in 2003, while the decline in interest rates in 2003 along with the depreciation of the krone will have a positive impact on demand and competitiveness. On balance, growth in 2004 will therefore be more on a par with trend mainland GDP growth.

The projections for 2005 indicate that growth may be even somewhat stronger. A more expansionary fiscal policy in keeping with the fiscal rule will contribute to this. Moreover, we may then experience a turnaround in mainland business investment following many years of decline. Employment growth will move up and unemployment may fall slightly. If these projections materialize, the cyclical trough might be passed towards the end of 2004. It should be emphasized, however, that the projections are very uncertain and depend not least on the actual materialization of the projected upturn in the global economy.

Continued rising unemployment

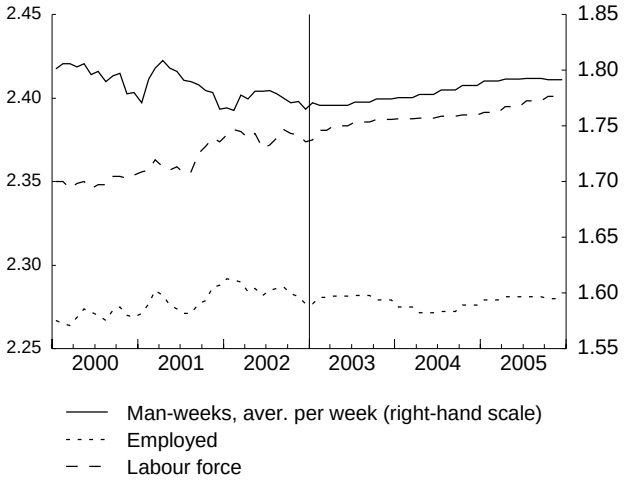
Unemployment, measured by the Labour Force Survey (LFS), has risen steadily since the beginning of 1999. Registered unemployment was more stable up to mid-2001 but has since risen sharply. For the period as a whole, however, both registered unemployment and the number of LFS unemployed have increased by about 30 000. As an average for 2002, LFS unemployment was 3.9 per cent as a share of the labour force, while registered unemployment stood at 3.2 per cent.

In addition, an average 9 300 persons participated in ordinary labour market programmes, a decline from 10 100 the previous year. There was a broad increase in registered unemployment in 2002. Unemployment rose for all occupational groups, in all counties and among both women and men in all age groups.

The working-age population will continue to rise by about 10 000 annually. However, a shift in the composition of the population towards age groups with lower participation rates and a more sluggish labour market will contribute to slower growth in the labour force, with the result that the participation rate in 2003 is projected to fall for the first time since 1993. It thus appears that the participation rate will have peaked in 2002 when 74.2 per cent of all persons in the age group 16-74 were either employed or unemployed. This is the highest participation rate ever registered in Norway and is also very high by international standards. The long period of growth in employment is expected to come to a halt in 2003 and is projected to show a decline at an annual rate in 2004 for the first time since 1992.

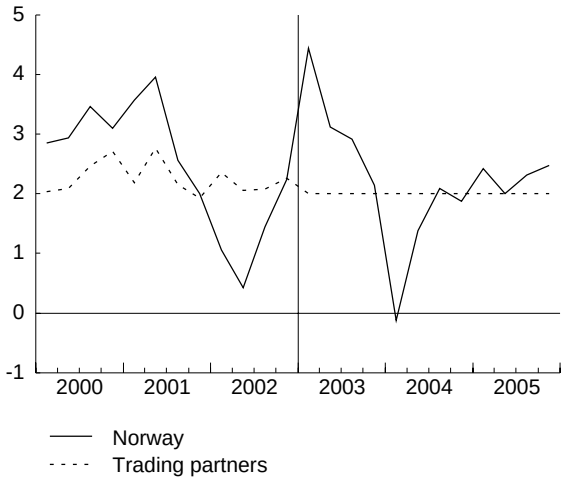
Continued problems with profitability in manufacturing will reduce employment further in this sector, and the spillover effects of problems in manufacturing will also contribute to low employment growth in other sectors of the economy. However, employment in the public sector will continue to rise, albeit at a slower pace in 2003 and 2004 than in recent years. The trend of rising LFS unemployment is thus expected to persist until 2004. Measured as a share of the labour force, unemployment is projected at 4.3 per cent in 2003 and 4.8 per cent in 2004. In 2004, however, it appears that the Norwegian economy will pass a cyclical trough and unemployment is expected to fall to 4.6 per cent as an average for 2005.

Labour force, employment and number of man-weeks
Millions. Seasonally adjusted and smoothed indices.



Source: Statistics Norway.

Consumer price indices
Percentage growth from the same quarter previous year



Sources: Statistics Norway, OECD and Eurostat.

Weak profitability and higher unemployment will result in lower wage growth

According to preliminary national accounts figures, wages per normal man-year rose by 5.3 per cent in 2002, against 5.0 per cent in 2001. This resulted in real wage growth of 4.0 per cent in 2002, only 0.2 percentage point lower than in the record year 1998. For manufacturing, construction, retail trade, transport, hotels and restaurants and business services, growth in wages per normal man-year was between 5.0 and 5.3 per cent, i.e. approximately the same as the average for the economy as a whole. Wage growth came to 6.0 per cent in the financial services sector, while growth in wages per normal man-year in the public sector was 6.3 per cent.

Wage growth of 5.3 per cent in manufacturing was higher than what might be expected in view of the profitability problems in this sector through 2002. High wage growth was recorded in particular by white-collar employees in manufacturing, and in companies that are members of the Confederation of Norwegian Business and Industry (NHO) wage growth for this group came to a little more than 6.0 per cent. However, an estimated 0.5 percentage point of this wage growth is ascribable to structural changes as a result of a lower share of white-collar employees with low pay. The Technical Reporting Committee on Income Settlements (TRC) estimates that manufacturing workers in NHO enterprises recorded one percentage point lower wage growth than full-time white-collar employees in manufacturing in 2002.

Manufacturing workers in NHO enterprises have recorded wage growth of 61.7 per cent since 1991, while wage growth for white-collar employees in NHO enterprises came to 75.4 per cent. In the same period, wage growth for central and local government employees was 64.8 and 61.2 per cent respectively. As

many employees in central and local government have qualifications similar to those of white-collar employees in the private sector, high wage growth for these groups in 2002 may have partly been due to a desire to narrow the differential in wage growth in recent years.

The TRC estimates that the carry-over into 2003 from pay increases awarded in 2002 will contribute to annual wage growth of 2½ per cent in 2003, compared with a carry-over of 1¾ per cent into 2002. At the same time, some pay increases have already been agreed for 2003, which will contribute an estimated ½ percentage point to annual wage growth this year. A projected rise in wages per normal man-year of 4.6 per cent for 2003, as in our forecasts, thus implies low pay increases in this year's interim settlement. The carry-over into 2004 may thus be noticeably lower than into 2003. This will provide greater scope for contractually agreed pay increases in the main settlement next year, even with total wage growth on a par with the level in 2003. Growth in wages per normal man-year is projected at 4.6 per cent in 2004 and 4.4 per cent in 2005.

Annual wage growth of about 4½ per cent in the period 2003-2005 reflects profitability problems in manufacturing in 2001 and 2002 and the increase in unemployment since the beginning of 1999. The projections presuppose that wage growth in manufacturing will serve as a benchmark for other sectors of the economy. More subdued wage growth, combined with our other projections, will curb the decline in manufacturing employment by improving profitability in the sector. After one year of continued squeezed profitability in manufacturing in 2003, profitability will then show an improvement in 2004 and 2005. Low wage growth and high output growth in 2004 and 2005 will also lead to an increase in total employment so that unemployment will be reduced in 2005.

Consumer prices – electricity prices dominate

Despite several years with growth of more than 6 per cent annually in hourly labour costs in Norway, the consumer price index (CPI) rose by only 1.3 per cent from 2001 to 2002. The rise in prices was 0.1 percentage point lower in 1996, but otherwise a lower rate of inflation has not been seen since 1960. The appreciation of the krone exchange rate and the absence of external inflationary impulses were important factors behind the subdued inflation rate. However, a reduction in indirect taxes and lower energy prices also made a marked contribution to the low rise in prices. The rise in the CPI adjusted for tax changes and excluding energy products (CPI-ATE) was 2.3 per cent in 2002.

The inflation rate varied considerably through 2002. In the first half of the year, changes in indirect taxes pushed down the rate of inflation. Through 2001, electricity prices showed virtually no change, while the normal situation is that they fall in the spring and at the beginning of the summer and that they increase later in the autumn. In 2002, a far more normal path was observed. Electricity prices thereby contributed to reducing the rate of increase in prices in the spring and summer. Towards the end of the year and into 2003, however, the inflation rate rose as a direct result of higher electricity prices. In January 2003, electricity prices increased even more and were then 82.5 per cent higher than one year earlier. This contributed 3.2 percentage points to year-on-year CPI inflation, which then reached 5.0 per cent, the highest rate of inflation since January 1989. A slight decline in electricity prices contributed to reducing the rate of inflation to 4.8 per cent in February, and inflation is projected to fall markedly later in the spring.

The import-weighted krone exchange rate appreciated by as much as 8.5 per cent from 2001 to 2002. This helped to slow the rise in the CPI. The krone appreciation reduced Norwegian producers' product input prices in general and prices for imported consumer goods declined by 1.5 per cent. Three factors may explain why prices for these goods did not exhibit a greater fall:

- Long-term contracts stipulated in NOK as well as market assessments imply that it takes time before changes in the exchange rate fully feed through to import prices.
- Norwegian costs (margins in retail trade and indirect taxes) account for a considerable share of the costs associated with imported consumer goods.
- Margins in retail trade increase in the short term through a postponement of price reductions that follow from lower import prices.

In the forecasts, the krone exchange rate depreciates slightly from 2002 to 2003 and depreciates further over the next two years. In isolation, this will contribute to pushing up import prices and consumer price inflation. As a result of lags, however, these effects may be fairly modest this year, but they may be of greater importance in 2004 when import prices for traditional goods are projected to rise by 6 per cent. This increase is not only the result of exchange rate changes. It is assumed that the cyclical upturn abroad will push up prices for industrial commodities, and prices for finished goods may also edge up at a faster pace than in previous years. CPI-ATE inflation is projected to remain somewhat below 2.5 per cent this year and next, but is projected at about 2.5 per cent in 2005.

Electricity prices will obviously have an important influence on overall price developments in the period ahead. A sharp fall in electricity prices over the next few months will probably contribute to a marked re-

Effects of an expansionary fiscal policy

Unemployment is likely to continue to increase over the next few years. In 2002, the downturn shifted to a recession, albeit so far not particularly deep. A traditional instrument for reducing the depth of a recession is a more expansionary fiscal policy. The introduction of a fiscal rule and a monetary policy that is oriented towards an inflation target limit the possibility of pursuing an overall expansionary policy. According to the fiscal rule, however, it is possible to conduct a stabilizing fiscal policy. However, if the fiscal rule is to be adhered to, fiscal expansion presupposes a corresponding tightening of policy during the next upturn. If this does not occur, fiscal policy will contribute to a swifter increase in the use of petroleum revenues than implied by the long-term application of the fiscal rule.

The following presents scenarios based on Statistics Norway's macroeconometric model KVARTS that shed light on the effect of some possible expansionary measures, given the orientation of the division of responsibility between fiscal policy and monetary policy. The question that is posed is to what extent a more expansionary fiscal policy for a limited period will have to result in an increase in interest rates in order to ensure that the inflation target is achieved two years ahead. Moreover, if the interest rate has to be raised, how much higher must it be set to prevent inflation that is too high? Will there then be any effects on production and unemployment that can reduce the increase in unemployment assumed in our forecasts and which here are considered our baseline scenario?

Scenario A
In this scenario, public consumption is increased by about NOK 2.5 billion per quarter for six quarters from the third quarter of 2003 to end-2004. Public spending then returns to the level in the baseline scenario. The purpose of this temporary increase in public spending is to reduce the rise in unemployment in the period when the recession is amplified according to the baseline scenario. The increase in spending occurs through a proportional change in public sector employment and purchases of product inputs from the private sector. The interest rate is assumed to remain unchanged from the baseline scenario, while the exchange rate changes in line with exchange rate relationships that are presented in a separate box.

This type of expansionary fiscal policy quickly translates into reduced unemployment. Traditional multiplier mechanisms result in higher household income, with an attendant increase in household demand. Business investment also rises somewhat as a result of increased activity levels. The counterpart to this is that cost competitiveness, measured by relative labour costs in manufacturing compared with trading partners and measured in a common currency, deteriorates as a result of higher wage growth, but the deterioration is partly offset by a depreciation of the krone. However, inflation edges up, both as a result of higher wage growth due to lower unemployment and gradually a depreciation of the krone because of the increase in the Norwegian price level. Inflation increases by 0.1 percentage point in both 2004 and 2005.

In the next scenario, it is assumed that the central bank is of the view that this rise in inflation is not consistent with the inflation target and responds by increasing the interest rate.

Scenario B
Fiscal expansion in this scenario is exactly the same as in scenario A, but the money market rate increases immediately by 0.25 percentage point. According to the calculations, this is sufficient to neutralize the effect on inflation after two years. Provided that inflation in the baseline scenario was the same as the inflation target that year, this interest rate change is what is necessary for a rigid achievement of the inflation target.

In isolation, the increase in the interest rate contributes to curbing household demand, and the exchange rate is also affected. After about four quarters, the krone exchange rate is stronger than in the baseline scenario and it is essentially this change that brings inflation back to target. Compared with fiscal policy expansion without an interest rate response, the expansionary effects are slightly smaller. The deterioration in cost competitiveness is somewhat greater in 2004 and 2005 as a result of the appreciation of the krone. In this case monetary policy has the effect of amplifying the deterioration in competitiveness initiated by fiscal expansion.

These two calculations indicate that it may be possible to conduct a stabilizing fiscal policy even when Norges Bank conducts a counteracting monetary policy in order to neutralize the inflation effect two years ahead. The effect of the interest rate response is that cost competitiveness deteriorates to a greater extent, whereas inflation is naturally reduced, but nevertheless in such a way that the increase in unemployment over the next two years will slow. Other types of expansion in government budgets, however, are far less effective in relation to a short-term stabilization policy objective concerning the level of unemployment. According to an article by Johansen and Holm, tax relief for households will not reduce unemployment to any extent within the short time horizon being analyzed here.

The quantitative effects are naturally dependent on how the model being used is constructed with regard to some key variables. The greatest uncertainty is perhaps associated with the exchange rate response to changes in inflation and the interest rate (see discussion in separate box). The effect of a higher interest rate on domestic demand is also important for the conclusions, and uncertainty surrounding this effect implies that these calculations should be interpreted with caution

A. Effects of an expansionary fiscal policy. No interest rate response. Deviation in per cent from baseline scenario unless otherwise specified

	2003	2004	2005
Public consumption	1.1	2.3	-0.1
Household consumption	0.1	0.6	0.6
Mainland gross inv.	0.1	1.0	1.7
Unemployment rate, percentage point	-0.3	-0.4	0.1
Mainland GDP	0.3	0.8	0.3
Inflation (CPI-ATE), percentage point	0.0	0.1	0.1
Import-weighted exchange rate[1]	0.0	0.2	0.3
Wages per normal man-year	0.3	0.9	0.5
Relative hourly labour costs in manufacturing in common currency	0.3	0.5	0.1

[1] Positive figure denotes a weaker krone.

B. Effects of an expansionary fiscal policy with an interest rate response. Deviation in per cent from baseline scenario unless otherwise specified

	2003	2004	2005
Public consumption	1.1	2.3	0.0
Household consumption	0.1	0.4	0.3
Mainland gross inv.	0.1	0.7	0.9
Unemployment rate, percentage point	-0.3	-0.4	0.2
Mainland GDP	0.3	0.7	0.1
Inflation (CPI-ATE), percentage point	0.1	0.1	0.0
Import-weighted exchange rate[1]	0.1	0.0	-0.2
Wages per normal man-year	0.3	0.9	0.4
Relative hourly labour costs in manufacturing in common currency	0.2	0.7	0.5
Money market rate, percentage point	0.1	0.3	0.3

[1] Positive figure denotes a weaker krone.

Relationship between the interest rate and exchange rate

Exchange rates are prices that ensure equilibrium in demand for and supply of currency. Demand and supply of currency may have a tendency to change in such a way that exchange rates in the long term contribute to balance in the external account.

A balanced external account will normally mean that price developments in one country cannot be independent of price developments in another country if the objective is to achieve a stable exchange rate. The theory of purchasing power parity states that prices in Norway in the longer term must shadow prices abroad measured in NOK on a one-to-one basis. According to the theory of purchasing power parity, Norway must therefore, over time, have the same rate of inflation as other countries if the exchange rate is to remain unchanged.

There are many reasons why purchasing power parity does not apply in the short term. Transport costs and the fact that domestic and foreign goods are not entirely identical are reasons for deviations in purchasing power parity in the short term. However, even if purchasing power parity is not always satisfied, it may nevertheless apply in the longer term.

Currency is not only traded for export and import settlements, but also in connection with cross-border financial investments. If there are wide differentials in money market rates between two countries, investors will invest funds in countries with a high interest rate and possibly borrow funds in the country with a low interest rate. This flow of funds may be countered by an expected change in the exchange rate between the two countries. The theory of uncovered interest parity implies that any interest rate differential between two countries is offset by expectations of an equivalent change in the exchange rate between the countries' currencies so that the return will be the same irrespective of where the funds are invested.

In practice, uncovered interest parity will not apply continuously either. A deviation in the expected return may be necessary to induce market participants to shift their funds so that the demand for a country's currency is equal to the supply of that country's currency.

Empirical studies have found little individual support for purchasing power parity and uncovered interest parity (except when very long data series are analyzed). It may therefore be necessary to combine these two theories in order to be able to explain and predict exchange rate movements.

In an empirical analysis of the exchange rate between Norway and its trading partners, Bjørnland and Hungnes (2002, 2003) conclude that sustained deviations from purchasing power parity may be explained by the interest rate differential back to the 1980s. In other words, a high interest rate differential against other countries will result in a permanent appreciation of the exchange rate. These results underscore the importance of the interest rate differential in the long term when drawing up forecasts for exchange rate movements. An exchange rate model that ignores the long-term effect of interest rates on the exchange rate and solely focuses on purchasing power parity in the long term will result in a considerably more inaccurate forecast.

According to the exchange rate model used by Bjørnland and Hungnes (2003), a permanent increase of one percentage point in the interest rate abroad will result in a depreciation of the krone of 1.7 per cent after four years. This also coincides with the long-term effect. A reduction in the domestic interest rate of one percentage point will have virtually the same effect in the short term and an identical effect in the long term.

A permanently lower price level of one percentage point in other countries will in the long term result in a one percentage point depreciation of the krone. The krone will depreciate by about 1.7 per cent in the first two years following the shift. This exchange rate overreaction must be viewed in connection with the fact that we are looking at an immediate change in the price level from one quarter to the next. When different price developments abroad have such a swift effect, this may give rise to expectations of greater deviations in price developments ahead and thus have an immediate impact on the exchange rate. The exchange rate is back to its new long-term level three years after the shift. A permanently higher level of prices in Norway of one percentage point will have approximately the same effect in both the short and longer term.

The exchange rate is obviously a variable that is difficult to predict in terms of changes. Substantial fluctuations in recent periods have provided room for large losses and gains on such speculation. Those who have found the "right" model may therefore be very wealthy. There are competing theoretical and empirical approaches. In order to be able to quantify the effect of various measures on the Norwegian economy, this is a variable that must be quantified. Deciding that a measure does not change the exchange rate may be just as wrong as choosing a model that is not perfect.

If we replace the exchange rate movements embodied in the baseline scenario with the above-mentioned equation, we obtain the following result for the exchange rate: the exchange rate against the euro depreciates gradually from the first quarter of 2003 until the end of the projection period. At the end of 2005, the exchange rate is up to 8.08, i.e. just blow the level assumed in the baseline scenario. Because the depreciation of the krone in this calculation takes place over a longer period, the rise in prices is somewhat lower in 2003 and 2004 and slightly higher in 2005. In isolation, a stronger krone has a contractionary effect on the economy, and on the whole all demand components that are determined in the model expand slightly less than in the baseline scenario. Unemployment is about 0.1 percentage point higher in these three years.

Sources:

Bjørnland, H.C. and H. Hungnes (2002): Fundamental determinants of the long run real exchange rate: The case of Norway, Discussion Papers 326, Statistics Norway

Bjornland, H.C. and H. Hungnes (2003): The importance of interest rates for forecasting the exchange rate, Discussion Papers 340, Statistics Norway

duction in the inflation rate. Through the autumn of 2003, electricity prices will probably not contribute to further changes in the inflation rate until December when we see the effect of high prices in December last year. CPI inflation is now projected at 3.2 per cent at an annual rate.

At the beginning of 2004, the inflation rate is set to be record low, perhaps negative, as a result of the extremely high electricity prices in this period in 2003. The introduction of maximum rates for day-care places, which we assume will contribute to pushing down CPI inflation by 0.4 percentage point, will further amplify this picture. However, the inflation rate will increase fairly quickly as a result of developments in electricity prices this year. A reduction in oil prices in the period ahead will also push down the inflation rate for a period. On an annual basis, CPI inflation is projected at 1.3 per cent in 2004 and 2.3 per cent in 2005.

Balance of payments – large but declining surpluses

Preliminary estimates show that the surplus on the current account came to NOK 211 billion in 2002, equivalent to almost 14 per cent of nominal GDP. The surplus was a good NOK 30 billion lower than in 2001. This primarily reflects a terms-of-trade loss since export prices, and particularly oil prices measured in krone terms, fell more than import prices.

Oil prices, measured in krone terms, are now projected to edge down from 2002 to 2003. Prices for service exports are also expected to move on a sluggish trend, which means that we will again record a terms-of-trade loss in 2003 and to a greater extent than in 2002. Moreover, growth in imports is expected to be considerably higher than growth in exports in 2003. This is partly due to assumptions concerning petroleum exports, but also reflects the effects of deteriorating competitiveness. All in all, the current account surplus is estimated at NOK 176 billion next year, which according to our calculations will be equivalent to a good 11 per cent of nominal GDP.

Our oil price projections entail a further deterioration in the terms of trade in 2004. A substantial increase in import prices on an annual basis as a result of a weaker krone exchange rate in 2004 compared with the average for 2003 points to the same. This means that the terms-of-trade loss is expected to be considerable in 2004, which will reduce the surplus on the balance of trade. A smaller deficit on the interest and transfers balance will offset this to some extent, but the current account surplus is now estimated at a good NOK 157 billion in 2004, or 10 per cent of GDP. For 2005, the calculations show only marginal changes in the current account surplus.

Considerable uncertainty, but small systematic errors in the forecasts

Statistics Norway presented its first quantified forecasts for the Norwegian economy in 1988, and has since 1990, with few exceptions, published forecasts each year. In the following, we provide an overall evaluation of these 15 years of forecasting activity. The evaluation is confined to the rise in the consumer price index (CPI), mainland GDP and unemployment as a percentage of the labour force (LFS). In particular, we examine whether the projections have deviated systematically from preliminary national accounts figures, and the spread in the deviations. The analysis also seeks to provide an indication of the uncertainty associated with the forecasts for 2003 and 2004.

Unemployment and CPI figures are not revised after publication. However, there are often deviations between preliminary GDP figures published in February/March the year following the accounting year and the final figures that are normally available two years later. The “final” figures may also be revised in connection with individual censuses or changes in principles, etc. for calculating the national accounts. There are four reasons why we use preliminary GDP figures in the accounts presented in February/March. First, there are no final accounts figures available for the years after 2000. The estimates for these years must therefore be compared with preliminary accounts figures. Second, the forecasts are prepared using preliminary, not final accounts figures for recent history. Third, the figures may not be comparable as a result of changes in the base year between the preliminary national accounts and subsequent accounts. Fourth, the main revisions in 1995 and 2002 included definitional changes, which meant that forecasts and final figures were not linked to the same variables.

How accurate have our forecasts been?

Figures 1, 2 and 3 show the average deviation between forecasts at different points in time and figures for growth in mainland GDP, the rise in the CPI and unemployment. The figures also provide an indication of the spread in the deviations in that they include three intervals around the average. These intervals are calculated using the historical spread, but do not show how many of the deviations actually lie within the intervals. The intervals are still chosen because by making a reasonable assumption that all deviations belong to a given statistical distribution (normal distribution with the same expectations and spread) and are independent, we can calculate the probability that future deviations will lie within the interval. Under this assumption, the probability that the deviation between future estimates and accounts figures will lie within these intervals is 50, 80 and 90 per cent respectively.

On average, the forecasts for GDP growth two years ahead are 0.4 percentage point higher than actual growth, estimated on the basis of preliminary accounts figures. In the subsequent quarters, the forecasts have been on average 0.2, 0.1, 0.4 and 0.1 percentage point below actual growth. The last three forecasts have been more accurate. All in all, the deviations are small relative to normal GDP growth. Average estimates for the rise in the CPI have been even more accurate and are off the mark by no more than 0.3 percentage point. On average, the forecasts for unemployment are higher than the final figures at all the forecast points, albeit by no more than 0.2 percentage point. In the light of the wide spread in these forecasts and the relatively few observations in the analysis (between 10 and 15), it can be said that the forecasts for the three main variables only show small systematic errors.

The spread in the deviation between the forecast for GDP growth published in February of the year preceding the projection year and the preliminary accounts figure has been substantial. The forecasts in 1991 and 1993 were the least accurate, off by 2.6 and 1.8 percentage points respectively. Of the 13 forecasts published at that time, 6 deviate from the preliminary figures by more than 1 percentage point. At the next time of publication, however, the difference between the forecasts and the accounts figures is substantially smaller, and one year prior to the publication of accounts figures only 4 out of the 15 forecasts were off the mark by more than 1 percentage point. In the last three reports prior to the publication of the preliminary accounts figures, most of the forecasts deviate by less than 0.5 percentage point.

A similar pattern applies to the forecasts for the rise in the CPI. The first five forecasts show wide deviations from the final accounts, while the estimates from June of the same year are very accurate. Thereafter, there are no projections that deviate by more than 0.3 percentage point from actual CPI inflation. The variations in the preceding forecasts are 3-4 times as great. This is because the actual rise in the CPI is gradually known through the year.

The spread in the deviation between the forecasts for unemployment published in June the preceding year and the accounts figures shows a marked decrease compared with the forecast published the previous quarter. The average absolute deviation is 0.6 percentage point in February of the preceding year compared with 0.4 percentage point for the forecast published in June of the same year. Thereafter, the spread gradually declines. The forecast error for unemployment is also reduced substantially for the last three forecasts prior to the publication of the accounts. Thereafter, there are no forecasts that deviate by more than 0.3 percentage point from the accounts figures.

The forecasts for 2003 and 2004 are uncertain

Figures 3, 4 and 5 provide an assessment of the uncertainty attached to the forecasts for 2003 and 2004 published in this report. Mainland GDP is now expected to expand by 0.7 per cent in 2003 and 2.3 per cent in 2004. The analysis above shows that there is a 50 per cent probability that mainland GDP growth will range between 0.1 and 1.3 per cent in 2003 and 1.3 and 3.3 per cent in 2004. There is an 80 per cent probability that growth will range between 0.6 and 2.0 per cent in 2003 and 0.4 and 4.2 per cent in 2004. An interval of 3.3 percentage points in 2003 and 5.0 percentage points in 2004 covers percentage growth with a probability of 90 per cent.

The rate of increase in the CPI was 1.3 per cent in 2002. CPI inflation is projected at 3.2 per cent in 2003 and 1.3 per cent in 2004. There is a 50 per cent probability that the forecasts for 2003 and 2004 will be off the mark by less than 0.5 and 0.6 percentage point respectively. There is an 80 per cent probability that we will be off the mark by less than 0.9 percentage point in 2003 and 1.2 percentage points in 2004. There is a 90 per cent probability that the interval between 2.0 and 4.4 covers the actual rise in the CPI in 2003 and that the interval between –0.3 and 2.9 covers CPI inflation in 2004.

Unemployment is estimated at 4.3 per cent in 2003 and 4.8 per cent in 2004. While historical forecast errors imply that the forecast for 2003 is fairly accurate, there is considerable uncertainty associated with the forecast for 2004. For example, accounts figures will with a probability of 80 per cent be 0.4 percentage point below our forecast for 2003. In 2004, on the other hand, there is an 80 per cent probability that unemployment will lie in an interval of 1.1 percentage points above and below the forecast. The interval that covers the unemployment estimate for 2004 with 90 per cent probability ranges between 3.4 and 6.2, an interval of as much as 2.8 percentage points.

Figure 1. Estimates for percentage change in mainland GDP. Deviations from preliminary accounts figures and spread
The intervals show 50, 80 and 90 percent confidence intervals respectively

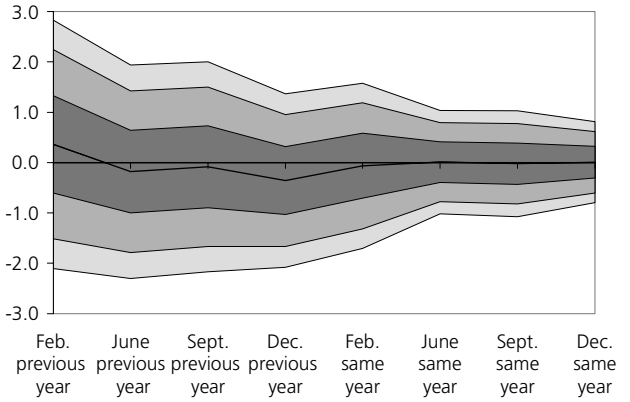


Figure 2. Estimates for percentage change in the CPI. Deviations from accounts figures and spread
The intervals show 50, 80 and 90 percent confidence intervals respectively

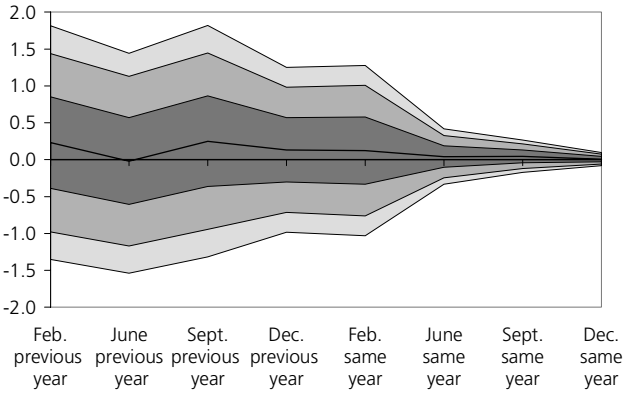


Figure 3. Estimates for unemployment in percent. Deviations from accounts figures and spread
The intervals show 50, 80 and 90 percent confidence intervals respectively

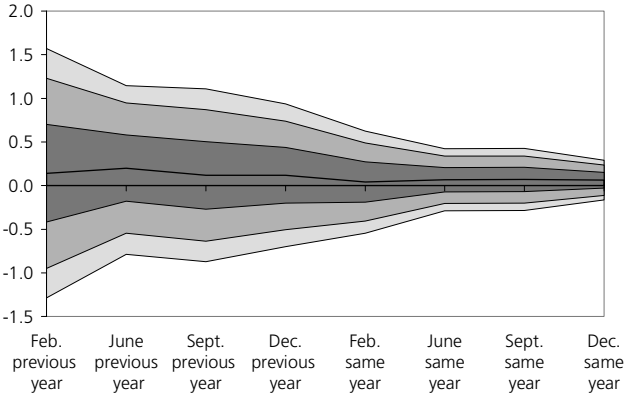


Figure 4. Estimates for percentage change in mainland GDP
The preliminary accounts figures will lie within the intervals with 50, 80 and 90 percent confidence respectively

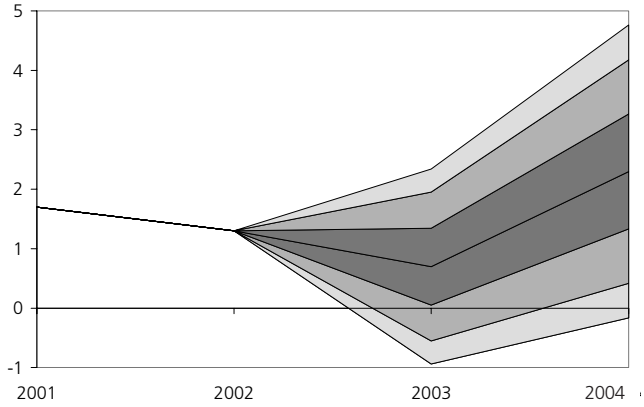


Figure 5. Estimates for percentage change in the CPI
The accounts figures will lie within the intervals with 50, 80 and 90 percent confidence respectively

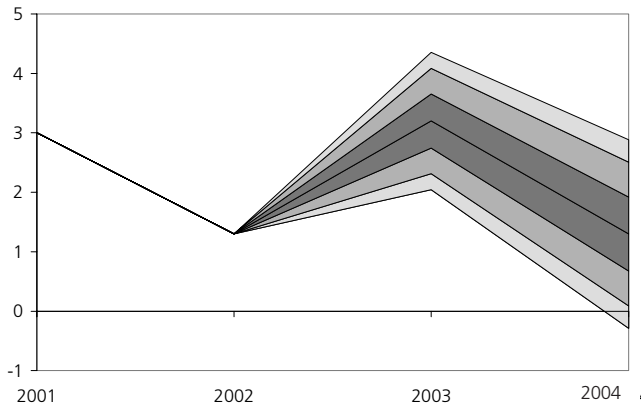
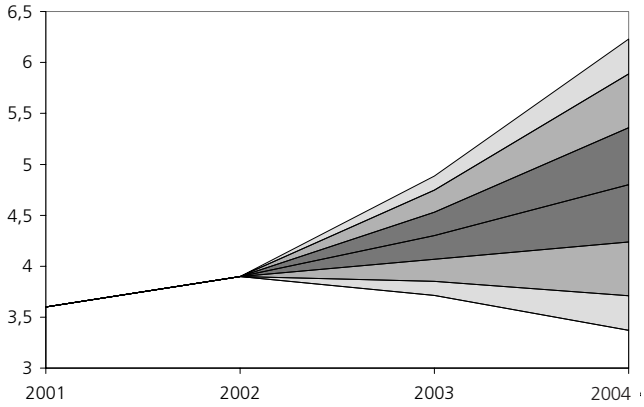


Figure 6. Estimates for unemployment in percent
The accounts figures will lie within the intervals with 50, 80 and 90 percent confidence respectively



How accurate were Statistics Norway's forecasts for 2002?

Statistics Norway's Economic Surveys have for the past two years presented forecasts for macroeconomic developments in 2002 eight times, starting with Economic Survey 1/2001. Several of the Economic Surveys included alternative scenarios, but these are not discussed here. Our analysis will be confined to the projections presented in detail in Economic Surveys and which may be considered our forecast path.

The projections for 2002 were generally too optimistic throughout 2001. The projections for global growth and international price inflation were gradually lowered. This resulted in downward adjustments of growth in exports of traditional goods. The tendency was the opposite, however, for oil and gas. Petroleum investment was also revised downwards, while the projections for total consumption growth were approximately unchanged. As a result, total GDP growth showed little change through 2001, while the projection for mainland GDP growth was gradually revised downwards. This contributed to lower projections for employment growth and higher projections for unemployment. On the whole, however, developments in both employment and unemployment were very close to our forecasts from the end of 2001.

However, the projection for inflation, measured by CPI inflation, was revised downwards, partly as a result of lower projections for the rise in import prices, while higher estimates for wage growth had the opposite effect. The fact that consumption growth showed little change partly reflects an underestimation of interest rates, while real wage growth was revised upwards. On the whole, the projections for growth in household real disposable income were therefore influenced by errors in two factors that had opposite effects and which may explain why consumption growth projections showed little change and were fairly accurate in both 2001 and 2002. It should be noted that as a result of the introduction of an inflation target for monetary policy, we began to publish inflation projections for the CPI adjusted for tax changes and excluding energy products (CPI-ATE), starting with Economic Survey 2/2001.

There was a fairly clear shift in the perception of the cyclical situation in spring 2002. The projection for interest rates was raised and the projections for global growth and export growth were lowered further. This also translated into lower mainland investment growth. The projection for wage growth was increased by about one percentage point after the results of the wage settlement in 2002 were generally known. However, the effect of this on the inflation forecast was offset by a further downward adjustment of the projection for the rise in import prices as a result of the appreciation of the krone, with the result that the projections for CPI inflation were very close to the outcome throughout 2002.

Towards the end of 2002, there was a further downward revision of oil and gas production, so that the projection for total GDP growth was lowered. As a result of higher oil prices, however, the forecast for the current account surplus was increased in spring 2002. To some extent this also reflected a downward revision of import growth in step with the fall in total demand. In connection with the publication of preliminary national account figures for 2002, the projection for general government consumption expenditure for 2002 was revised upwards markedly, but it should be noted that there is particular uncertainty surrounding the figures that year due to substantial structural changes in general government in connection with the hospital reform.

All in all, the forecasts for 2002 at the beginning of 2001 were fairly optimistic. Weak international developments and the shift to a new monetary policy gradually resulted in downward revisions in growth projections.

Statistics Norway's forecasts for 2002
Growth rates in per cent

	ES1/01	ES2/01	ES3/01	ES4/01	ES1/02	ES2/02	ES3/02	ES4/02	ES1/03
Consumption in households and non-profit organizations	2.7	3.2	3.2	2.9	3.0	3.1	2.9	3.0	3.3
General government consumption	1.9	2.9	2.5	1.6	1.7	1.8	2.5	2.6	4.5
Gross fixed investment	1.9	3.8	5.1	1.9	0.8	0.9	-0.1	-2.2	-3.3
Petroleum activities	7.4	5.4	4.6	2.8	-3.8	0.5	3.2	-1.2	-4.4
Mainland Norway	0.6	3.5	4.6	-0.4	-0.2	-1.3	-1.9	-4.4	-4.2
Exports	3.4	2.7	3.0	2.5	3.7	1.6	1.0	0.1	-0.5
Crude oil and natural gas	0.9	0.3	1.8	3.2	5.4	2.4	2.9	1.1	0.2
Traditional goods	5.2	4.5	3.5	2.7	2.1	0.8	1.6	3.5	1.3
Imports	5.0	6.3	5.5	4.1	3.7	3.7	1.8	0.9	1.7
Traditional goods	4.3	5.3	6.3	4.0	3.5	3.2	2.4	1.6	4.7
GDP	1.8	1.9	2.5	1.8	2.3	1.5	1.3	1.1	1.0
Mainland GDP	1.8	2.1	2.6	1.5	1.6	1.2	1.2	1.3	1.3
Employed persons	0.4	0.5	0.8	0.0	0.4	0.1	0.1	0.3	0.3
Unemployment rate (level)	3.6	3.3	3.4	3.9	3.8	3.9	3.9	3.9	3.9
Wages per man-hour	3.8	4.2	4.4	4.1	4.3	5.0	5.2	5.4	5.4
Consumer price index	1.4	1.8	1.7	1.0	1.1	1.1	1.2	1.2	1.3
CPI-ATE			2.0	2.4	2.4	2.3	2.4	2.3	2.3
Export prices, traditional goods	-1.7	-2.0	-2.8	-4.7	-3.1	-4.1	-8.9	-10.0	-8.7
Import prices, traditional goods	-0.9	-0.9	0.6	-2.2	-2.6	-6.7	-6.8	-7.2	-8.0
Money market rate (level)	6.1	6.6	6.5	6.0	6.1	7.3	7.0	6.9	6.9
Average borrowing rate (level)	8.1	8.8	8.4	7.4	7.5	8.6	8.6	8.5	8.4
Current balance, bill. NOK	161.4	202.3	170.8	167.3	170.9	205.0	221.3	207.0	211.1
Export market indicator	6.4	5.8	5.4	4.3	4.0	4.0	1.9	0.8	0.7
Crude oil price, NOK	190.0	227.0	218.9	192.5	174.4	199.7	195.5	196.6	197.4

Source: Statistics Norway.

Macroeconomic effects of a new monetary policy

Two years have now passed since Norway introduced an inflation target for Norges Bank's interest rate setting and a fiscal rule concerning the use of the real return on the Petroleum Fund. Against this background, it may be interesting to look at the effects of the new guidelines and what the effects may be in the period ahead. Using Statistics Norway's macroeconomic model KVARTS, this question is examined by calculating a counterfactual path for the Norwegian economy for the years 2001-2005 based on the assumption that interest rate setting shall contribute to maintaining a stable krone exchange rate against European currencies, as was the case in the former monetary policy regime. Moreover, it is assumed that Norway did not introduce the explicit rule on the use of petroleum revenues, which signalled a more expansionary fiscal policy in the years ahead, thereby providing scope for a real appreciation of the krone. It is nevertheless assumed that the fiscal policy stance, also in the counterfactual path, was the same as the actual stance and the stance that is assumed to be the case in 2003-2005. This is not unreasonable because so far the rule has only permitted a modest increase in the use of petroleum revenues. The difference between fiscal policy in the actual and counterfactual path is that the actual introduction of the rule may have had a signal effect which, among other things, may have influenced actual and expected interest rate setting and hence the exchange rate. This signal effect is not explicitly calculated, but is included as part of the difference in interest rates and the exchange rate between the two paths.

Some will point to the experience of autumn 1998 and be of the view that it would not have been possible to maintain the former monetary policy regime. On the other hand, the experience of the period 1993-2000 as a whole was that it was possible to stabilize the krone's value over time. These calculations thus apply the experience of the latter period and presuppose that at any point in time it would have been possible to stabilize the exchange rate with a suitable interest rate response following shocks to prices, euro rates and the current account balance (including oil prices). These are variables which, according to Statistics Norway's analyses, had an influence on Norwegian interest rates under the former regime. This means that shocks of the Asian crisis type, which probably contributed to the depreciation of the krone in 1998, have not been assumed; nor have similar shocks been experienced in 2001-2002. On the other hand, it has been demonstrated that the effects of other international events in these years are of importance to the krone exchange rate; for example, reduced possibilities for exchange gains in other international financial markets may in itself have led to greater emphasis being placed on the high interest rate differential between Norway and other countries than earlier. Such extraordinary effects have not been taken into account in the counterfactual analysis.

Specifically, it is assumed that monetary policy in the counterfactual analysis had been oriented towards keeping the euro exchange rate at the same level as in the first quarter of 2001 (NOK 8.20). In that case, the import-weighted exchange rate would have followed the dashed line in Figure a instead of the solid line, which shows actual/forecast developments according to the actual figures and forecasts that are presented in this publication. The figure shows that the krone would have appreciated considerably even with a stable exchange rate against the euro. The main reason is the effect on the import-weighted exchange rate of a weaker dollar against the euro. The figure also shows that differences in the exchange rate between the two paths in 2004 and 2005 are small; this follows from the assumption concerning the depreciation of the krone to 8.15 against the euro, which is the assumption underlying the forecasts for the Norwegian economy in this publication.

Since the model's relationships are quantified over periods with an exchange rate target for monetary policy, it is actually more appropriate to determine how the Norwegian economy would have developed under this regime than under the current regime. When the model is used to draw up forecasts under the current regime, it is necessary to evaluate how the change in regime has changed market participants' behaviour viewed in relation to the model's description. In an earlier version of the model there were problems in explaining why the decline in import prices resulting from the sharp appreciation of the krone last year only had a modest impact on consumer prices. Using a re-estimated equation, the model manages to explain this at the same time that the relationship also provides a good description of behaviour under the former exchange rate regime.

The dashed curve in Figure b shows CPI inflation in the counterfactual path. It shows that without the sharp appreciation against the euro, Norway would have had higher inflation in both 2001 and 2002, but about the same rate of inflation as indicated in Statistics Norway's forecasts for 2003-2005. Figure c shows that the underlying inflation rate, measured by CPI-ATE, would have shown similar developments in relation to actual developments and that this would have resulted in a considerably more variable inflation rate than under the new regime.

The wage settlement in 2002 in particular resulted in pay increases that were considerably higher than the level implied by normal wage determination, according to quantified relationships in KVARTS, and with consequences for wage growth in 2003 as well. Less emphasis - both directly and indirectly - was placed on manufacturing industry's competitiveness. This deviation from normal wage determination may have been linked to the introduction of the new guidelines when the need for a deterioration in manufacturing industry's competitiveness in the years ahead was emphasised so strongly. Or perhaps the change in the monetary policy objective may have led to a shift in employee organizations' priorities, away from competitiveness towards increased emphasis on real wages. In order to estimate the importance of a possible relationship between the policy change in 2001 and the observed deviation from normal wage determination, an alternative counterfactual inflation path has been calculated based on the assumption that the deviation in wage determination in 2001-2002 was caused by the change in regime. The dashed curves in Figures b and c show this alternative path. If the deviation in wage determination can be traced to the change in regime, inflation in the paths with an exchange rate target would have been lower than if the deviation were independent of the change in regime.

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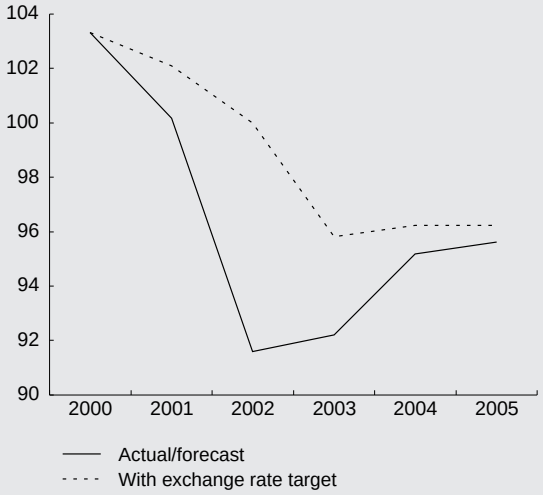
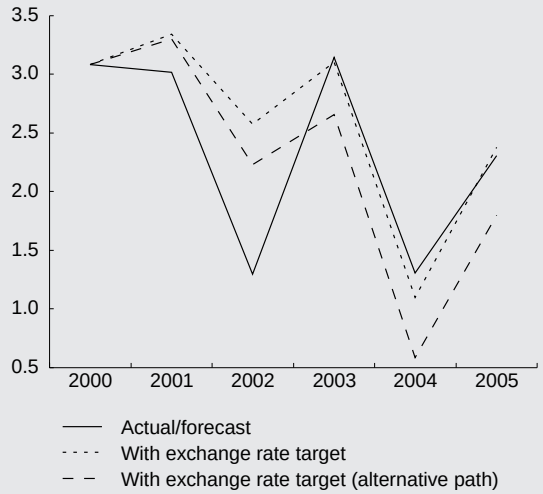
Figure a: Import weighted exchange rate 44 countries



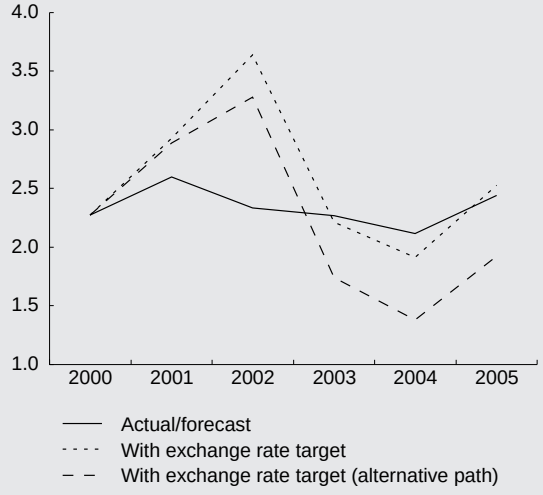
Source: Statistics Norway.

Figure b: CPI growth



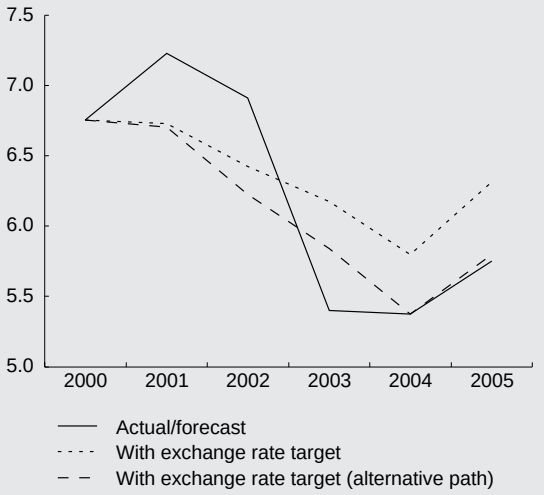
Source: Statistics Norway.

Figure c: CPI-ATE growth



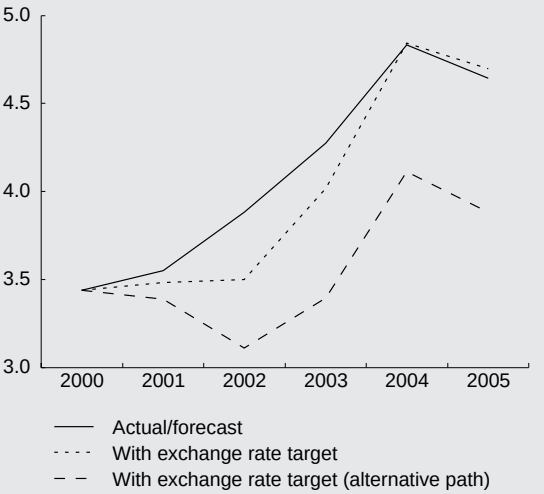
Source: Statistics Norway.

Figure d: Interest rate, 3 month



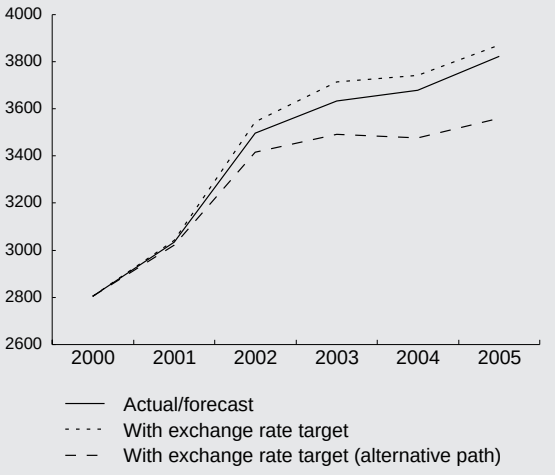
Source: Statistics Norway.

Figure e: Unemployment rate



Source: Statistics Norway.

Figure f: Wages per standard man-year/ import weighted exchange rate 44 countries



Source: Statistics Norway.

Cont.

Cont.

The consequences for interest rate setting, measured by three-month money market rates, are shown in Figure d. In both counterfactual paths the interest rate is lower in 2001 and 2002 than was actually the case, but noticeably higher in 2003 than assumed in Statistics Norway's forecasts. This is because inflation, measured by the consumer price index, has moved up swiftly over the past year due to higher electricity prices and because the inflation differential between Norway and euro area countries was an important factor when setting interest rates under the former exchange rate regime. On the other hand, the counterfactual path also shows a substantial interest rate differential between Norway and other countries. If the extraordinary international conditions noted in the introduction had led to extraordinary emphasis being placed on this interest rate differential also in the counterfactual case, this would have contributed to lower interest rates than shown in the calculations. On the other hand, without explicitly formulated expectations of an appreciation of the nominal krone - also on the part of Norges Bank - as a result of the introduction of the new guidelines, investor interest in the Norwegian krone would most likely not have been as strong as has actually been the case. The interest rate might also have been higher in 2004 and 2005 than the level assumed in Statistics Norway's forecasts, but only if we disregard the possibility that the change in regime may have influenced wage determination.

The consequences for unemployment and competitiveness, measured by the level of Norwegian wages converted into foreign currency with the help of the import-weighted exchange rate, are shown in Figures e and f. Here, the counterfactual path is highly dependent on whether wage determination was influenced by the change in regime or not. If the change in regime has not influenced wage determination, the rise in unemployment would have taken place at a later stage than has actually been the case, but unemployment would still have reached the same level in 2004 and 2005 as indicated by Statistics Norway's current forecasts. Lower unemployment in 2001-2003 would have resulted in higher wage growth, and in 2004 and 2005 - when the exchange rate in the two scenarios is almost identical - labour costs measured in foreign currency would have been somewhat higher than in the forecasts, i.e. deteriorating competitiveness. If, on the other hand, the change in regime has influenced wage determination, a continuation of the regime with an exchange rate target would have resulted in lower unemployment every year in the calculations. Wage growth would nevertheless have been noticeably lower and competitiveness would have been stronger than in the forecasts.

Statistics Norway's forecasts are otherwise based on the assumption that the deterioration in manufacturing industry's competitiveness over the last few years will only gradually result in a situation where Norwegian enterprises price themselves out of export and domestic markets. If enterprises assume that in the years ahead they may be facing a lasting deterioration in competitiveness as a result of the new policy rules, this may quickly result in decisions to relocate abroad well in advance while their equity capital is still intact. In that case, unemployment may increase at a faster pace than shown by our forecasts.

The calculations also show that the introduction of an inflation target may result in considerably more stable inflation in the years 2001-2005 than would have been the case under the former regime, at the expense of less stable developments in production and possibly in unemployment as well.

National accounts: Final expenditure and gross domestic product
At fixed 2000 prices. Million kroner

	Unadjusted		Seasonally adjusted							
	2001	2002	01.1	01.2	01.3	01.4	02.1	02.2	02.3	02.4
Final consumption exp. of housh. and NPISHs	641 829	663 207	158 880	159 819	161 091	161 996	164 044	164 673	165 891	168 504
Household final consumption expenditure	615 225	636 070	152 305	153 163	154 467	155 244	157 237	157 997	159 220	161 499
Goods	342 546	354 686	84 913	84 989	85 719	86 959	87 884	88 256	88 128	90 420
Services	263 866	270 238	65 456	65 884	66 100	66 613	67 096	67 218	67 729	68 402
Direct purchases abroad by resident househ.	27 131	28 901	6 780	6 852	6 984	6 398	6 777	7 112	7 591	7 164
Direct purchases by non-residents	-18 317	-17 755	-4 844	-4 563	-4 336	-4 727	-4 520	-4 589	-4 228	-4 487
Final consumption exp. of NPISHs	26 605	27 137	6 575	6 656	6 624	6 752	6 807	6 675	6 671	7 006
Final consump. exp. of general government	288 592	301 495	70 911	72 289	72 331	73 140	75 358	74 565	75 666	75 840
Final consump. exp. of central government	115 101	163 689	28 587	28 811	28 730	28 991	40 830	40 633	41 004	41 291
Central government, civilian	88 521	135 944	21 934	22 156	22 101	22 351	33 910	33 656	34 082	34 364
Central government, defence	26 579	27 745	6 653	6 655	6 629	6 640	6 919	6 976	6 922	6 927
Final consump. exp. of local government	173 491	137 805	42 324	43 478	43 600	44 149	34 528	33 932	34 661	34 549
Gross fixed capital formation	261 191	252 558	67 911	65 157	64 519	63 387	62 267	65 762	61 602	63 203
Extraction and transport via pipelines	54 837	52 405	12 779	13 007	14 067	14 929	13 723	12 074	13 136	13 435
Service activities incidential to extraction	-797	5 442	264	1 081	308	-2 450	98	4 868	277	199
Ocean transport	10 886	6 697	4 581	2 016	1 449	2 840	896	1 493	1 337	2 970
Mainland Norway	196 265	188 013	50 287	49 053	48 694	48 068	47 551	47 326	46 851	46 599
Mainland Norway ex. general government	156 189	147 901	39 815	39 353	38 886	37 965	37 347	37 010	36 801	36 850
Manufacturing and mining	21 163	22 887	4 916	5 203	5 300	5 638	5 467	5 837	5 916	5 936
Production of other goods	16 070	16 906	4 036	3 860	4 132	3 935	3 937	4 295	4 288	4 174
Dwellings	49 475	47 547	12 223	12 245	12 440	12 542	12 363	12 087	11 653	11 449
Other services	69 481	60 562	18 640	18 045	17 013	15 851	15 581	14 792	14 944	15 291
General government	40 077	40 112	10 472	9 700	9 809	10 104	10 203	10 316	10 050	9 749
Changes in stocks and stat. discrepancies	27 193	27 708	6 064	10 306	5 517	4 501	8 686	4 504	5 698	7 509
Gross capital formation	288 384	280 266	73 976	75 463	70 036	67 888	70 953	70 266	67 299	70 712
Final domestic use of goods and services	1218805	1244967	303 767	307 571	303 458	303 024	310 356	309 504	308 856	315 056
Final demand from Mainland Norway	1126687	1152714	280 079	281 161	282 117	283 204	286 953	286 564	288 407	290 943
Final demand from general government	328 668	341 607	81 383	81 989	82 139	83 244	85 561	84 881	85 715	85 589
Total exports	713 743	709 902	176 034	172 636	180 674	184 742	174 169	182 664	178 102	175 524
Traditional goods	222 201	225 163	55 358	56 076	53 448	57 325	56 543	57 082	56 821	54 851
Crude oil and natural gas	322 590	323 206	79 566	75 550	84 373	83 261	76 513	84 730	81 674	80 677
Ships and oil platforms	15 716	10 003	2 699	3 214	4 464	5 340	3 487	3 306	2 054	1 157
Services	153 236	151 531	38 411	37 795	38 389	38 816	37 626	37 546	37 554	38 840
Total use of goods and services	1932548	1954869	479 801	480 207	484 132	487 766	484 525	492 168	486 958	490 581
Total imports	435 146	442 536	109 782	107 906	108 133	109 166	107 632	112 359	109 598	112 398
Traditional goods	282 860	296 144	70 556	70 896	70 393	71 027	74 063	72 405	73 544	75 995
Crude oil	1 852	1 021	418	402	347	685	184	236	366	234
Ships and oil platforms	14 365	11 175	4 659	2 130	3 519	4 058	767	6 616	1 540	2 253
Services	136 068	134 196	34 149	34 478	33 875	33 395	32 617	33 101	34 148	33 916
Gross domestic product	1497402	1512334	370 019	372 301	375 999	378 601	376 893	379 809	377 360	378 183
Mainland Norway (market prices)	1119859	1134895	278 684	279 049	279 175	282 521	283 405	283 282	284 094	284 036
Petroleum activities and ocean transport	377 543	377 438	91 335	93 252	96 824	96 080	93 489	96 527	93 266	94 147
Mainland Norway (basic prices)	971 575	984 464	241 454	242 232	242 220	245 219	246 015	246 161	246 346	245 926
Mainland Norway excl. general government	754 528	765 140	187 982	187 923	187 769	190 449	190 662	191 734	191 587	191 219
Manufacturing and mining	145 143	144 126	36 239	36 351	36 048	36 506	35 840	36 604	36 169	35 582
Production of other goods	100 576	102 518	25 596	24 830	24 172	25 544	25 633	25 385	26 111	25 393
Service industries	508 808	518 496	126 146	126 742	127 549	128 399	129 189	129 745	129 307	130 244
General government	217 047	219 324	53 473	54 309	54 451	54 770	55 353	54 427	54 759	54 707
Correction items	148 284	150 432	37 230	36 817	36 955	37 302	37 390	37 122	37 748	38 110

Source: Statistics Norway.

National accounts: Final expenditure and gross domestic product
At fixed 2000- prices. Percentage volume change from previous period

	Unadjusted		Seasonally adjusted							
	2001	2002	01.1	01.2	01.3	01.4	02.1	02.2	02.3	02.4
Final consumption exp. of housh. and NPISHs	2.6	3.3	2.4	0.6	0.8	0.6	1.3	0.4	0.7	1.6
Household final consumption expenditure	2.6	3.4	2.4	0.6	0.9	0.5	1.3	0.5	0.8	1.4
Goods	2.8	3.5	2.9	0.1	0.9	1.4	1.1	0.4	-0.1	2.6
Services	2.4	2.4	0.9	0.7	0.3	0.8	0.7	0.2	0.8	1.0
Direct purchases abroad by resident househ.	-1.1	6.5	-2.2	1.1	1.9	-8.4	5.9	4.9	6.7	-5.6
Direct purchases by non-residents	-3.8	-3.1	-13.9	-5.8	-5.0	9.0	-4.4	1.5	-7.9	6.1
Final consumption exp. of NPISHs	1.7	2.0	1.2	1.2	-0.5	1.9	0.8	-1.9	-0.1	5.0
Final consump. exp. of general government	2.7	4.5	-0.1	1.9	0.1	1.1	3.0	-1.1	1.5	0.2
Final consump. exp. of central government	2.5	42.2	1.2	0.8	-0.3	0.9	40.8	-0.5	0.9	0.7
Central government, civilian	4.5	53.6	2.5	1.0	-0.2	1.1	51.7	-0.7	1.3	0.8
Central government, defence	-3.7	4.4	-2.9	0.0	-0.4	0.2	4.2	0.8	-0.8	0.1
Final consump. exp. of local government	2.8	-20.6	-1.0	2.7	0.3	1.3	-21.8	-1.7	2.1	-0.3
Gross fixed capital formation	-4.2	-3.3	3.3	-4.1	-1.0	-1.8	-1.8	5.6	-6.3	2.6
Extraction and transport via pipelines	-1.0	-4.4	1.0	1.8	8.1	6.1	-8.1	-12.0	8.8	2.3
Service activities incidential to extraction	-118.6	-782.5	-15.2	309.6	-71.5	-894.8	-104.0	..	-94.3	-28.3
Ocean transport	-40.0	-38.5	84.9	-56.0	-28.1	96.0	-68.5	66.7	-10.4	122.1
Mainland Norway	0.7	-4.2	0.0	-2.5	-0.7	-1.3	-1.1	-0.5	-1.0	-0.5
Mainland Norway ex. general government	0.1	-5.3	-0.3	-1.2	-1.2	-2.4	-1.6	-0.9	-0.6	0.1
Manufacturing and mining	13.6	8.1	12.5	5.8	1.9	6.4	-3.0	6.8	1.3	0.3
Production of other goods	-2.2	5.2	2.0	-4.4	7.1	-4.8	0.1	9.1	-0.2	-2.6
Dwellings	3.7	-3.9	0.3	0.2	1.6	0.8	-1.4	-2.2	-3.6	-1.8
Other services	-5.1	-12.8	-4.1	-3.2	-5.7	-6.8	-1.7	-5.1	1.0	2.3
General government	2.9	0.1	1.1	-7.4	1.1	3.0	1.0	1.1	-2.6	-3.0
Changes in stocks and stat. discrepancies	-22.4	1.9	-20.0	69.9	-46.5	-18.4	93.0	-48.1	26.5	31.8
Gross capital formation	-6.3	-2.8	0.9	2.0	-7.2	-3.1	4.5	-1.0	-4.2	5.1
Final domestic use of goods and services	0.4	2.1	1.4	1.3	-1.3	-0.1	2.4	-0.3	-0.2	2.0
Final demand from Mainland Norway	2.3	2.3	1.3	0.4	0.3	0.4	1.3	-0.1	0.6	0.9
Final demand from general government	2.7	3.9	0.0	0.7	0.2	1.3	2.8	-0.8	1.0	-0.1
Total exports	4.1	-0.5	-0.5	-1.9	4.7	2.3	-5.7	4.9	-2.5	-1.4
Traditional goods	3.7	1.3	2.3	1.3	-4.7	7.3	-1.4	1.0	-0.5	-3.5
Crude oil and natural gas	5.2	0.2	2.7	-5.0	11.7	-1.3	-8.1	10.7	-3.6	-1.2
Ships and oil platforms	51.5	-36.4	-19.4	19.1	38.9	19.6	-34.7	-5.2	-37.9	-43.7
Services	-1.0	-1.1	-8.6	-1.6	1.6	1.1	-3.1	-0.2	0.0	3.4
Total use of goods and services	1.7	1.2	0.7	0.1	0.8	0.8	-0.7	1.6	-1.1	0.7
Total imports	0.9	1.7	3.1	-1.7	0.2	1.0	-1.4	4.4	-2.5	2.6
Traditional goods	2.9	4.7	1.2	0.5	-0.7	0.9	4.3	-2.2	1.6	3.3
Crude oil	2.5	-44.9	-42.8	-3.8	-13.7	97.4	-73.1	28.3	54.9	-36.1
Ships and oil platforms	-45.4	-22.2	65.2	-54.3	65.2	15.3	-81.1	762.8	-76.7	46.3
Services	6.0	-1.4	3.0	1.0	-1.8	-1.4	-2.3	1.5	3.2	-0.7
Gross domestic product	1.9	1.0	0.0	0.6	1.0	0.7	-0.5	0.8	-0.6	0.2
Mainland Norway (market prices)	1.7	1.3	0.5	0.1	0.0	1.2	0.3	0.0	0.3	0.0
Petroleum activities and ocean transport	2.7	0.0	-1.3	2.1	3.8	-0.8	-2.7	3.2	-3.4	0.9
Mainland Norway (basic prices)	1.6	1.3	0.5	0.3	0.0	1.2	0.3	0.1	0.1	-0.2
Mainland Norway ex. general government	1.8	1.4	1.1	0.0	-0.1	1.4	0.1	0.6	-0.1	-0.2
Manufacturing and mining	0.5	-0.7	1.3	0.3	-0.8	1.3	-1.8	2.1	-1.2	-1.6
Production of other goods	-3.2	1.9	0.1	-3.0	-2.7	5.7	0.4	-1.0	2.9	-2.8
Service industries	3.2	1.9	1.3	0.5	0.6	0.7	0.6	0.4	-0.3	0.7
General government	1.0	1.0	-1.7	1.6	0.3	0.6	1.1	-1.7	0.6	-0.1
Correction items	2.1	1.4	0.3	-1.1	0.4	0.9	0.2	-0.7	1.7	.01

Source: Statistics Norway.

National accounts: Final expenditure and gross domestic product
Price indices. 2000=100

	Unadjusted		Seasonally adjusted							
	2001	2002	01.1	01.2	01.3	01.4	02.1	02.2	02.3	02.4
Final consumption exp. of households and NPISHs	102.4	103.1	102.0	103.0	102.2	102.4	101.7	102.8	103.1	104.1
Final consumption exp. of general government	107.3	111.6	105.2	106.5	107.6	109.3	109.1	110.8	112.1	114.6
Gross fixed capital formation	103.6	102.4	103.8	103.4	103.4	104.2	102.0	102.6	103.0	101.7
Mainland Norway	103.4	102.7	103.4	103.3	103.4	103.8	101.8	103.0	103.4	102.3
Final domestic use of goods and services	103.7	104.9	103.3	103.2	103.9	104.8	103.4	104.1	105.6	106.3
Final demand from Mainland Norway	103.8	105.2	103.1	104.0	103.8	104.4	103.7	104.9	105.5	106.6
Total exports	97.7	90.2	103.4	104.1	96.2	88.3	91.9	92.2	87.7	89.1
Traditional goods	97.1	88.7	100.3	99.3	95.8	92.8	91.6	88.8	87.2	87.3
Total use of goods and services	101.5	99.6	103.4	103.5	101.0	98.5	99.3	99.6	99.1	100.2
Total imports	100.0	93.8	102.6	101.5	98.8	97.5	96.2	94.5	92.9	92.0
Traditional goods	99.8	91.9	102.9	101.7	98.5	96.5	94.4	92.0	91.1	90.3
Gross domestic product	101.9	101.2	103.6	104.1	101.7	98.8	100.2	101.2	100.9	102.6
Mainland Norway (market prices)	103.8	106.3	102.4	104.2	103.8	104.9	104.6	105.8	106.6	107.8

Source: Statistics Norway.

National accounts: Final expenditure and gross domestic product
Price indices. Percentage volume change from previous period

	Unadjusted		Seasonally adjusted							
	2001	2002	01.1	01.2	01.3	01.4	02.1	02.2	02.3	02.4
Final consumption exp. of households and NPISHs	2.4	0.7	0.9	1.0	-0.8	0.2	-0.6	1.1	0.3	1.0
Final consumption exp. of general government	7.3	4.1	3.1	1.2	1.1	1.6	-0.2	1.6	1.1	2.3
Gross fixed capital formation	3.6	-1.2	1.8	-0.4	0.0	0.8	-2.2	0.6	0.4	-1.3
Mainland Norway	3.4	-0.7	2.4	-0.1	0.0	0.5	-2.0	1.2	0.4	-1
Final domestic use of goods and services	3.7	1.1	1.4	-0.1	0.7	0.8	-1.3	0.6	1.5	0.7
Final demand from Mainland Norway	3.8	1.4	1.7	0.9	-0.2	0.6	-0.7	1.2	0.6	1.0
Total exports	-2.3	-7.7	-3.0	0.6	-7.5	-8.3	4.1	0.3	-4.8	1.6
Traditional goods	-2.9	-8.7	-3.5	-0.9	-3.6	-3.1	-1.4	-3.1	-1.8	0.1
Total use of goods and services	1.5	-1.9	-0.3	0.2	-2.4	-2.5	0.8	0.4	-0.6	1.1
Total imports	0.0	-6.2	-0.1	-1.1	-2.7	-1.3	-1.4	-1.8	-1.7	-0.9
Traditional goods	-0.2	-8.0	0.8	-1.1	-3.2	-2.0	-2.2	-2.5	-1.0	-0.8
Gross domestic product	1.9	-0.7	-0.3	0.5	-2.3	-2.8	1.4	1.0	-0.3	1.7
Mainland Norway (market prices)	3.8	2.4	0.8	1.8	-0.3	1.0	-0.2	1.1	0.7	1.2

Source: Statistics Norway.

Technical comments on the quarterly figures

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.

Base year and chain linking of the data: In the quarterly national accounts (QNA) all volume measures are currently calculated at constant 2000 prices using weights from that year. The choice of base year influences the constant price figures and thus the annual rates of change in volume (growth rates). For the sake of comparison, all tables present growth rates with 2000 as the base year (common year of recalculation). The recalculation of prices is carried out at the sectoral level of the quarterly national accounts.

European Internal Market and Norwegian Trade

Katrine Hveem

Norway's trade with the countries that constitute the European Economic Area (EEA) has increased considerably in absolute numbers, since Norway as a member of the EEA gained access to the internal market from 1994. Relative to Norway's trade with the rest of the world, the trade with the EEA countries has, however, decreased slightly. In 1993, the last year before the EEA agreement came into force, imports from the countries that now constitute the EEA comprised 67.4 per cent of total imports and in 2002 67.0 per cent. For total exports the portions were 78.8 in 1993 and 75.6 in 2002. Large increases in exports of oil and gas have given Norway a huge and growing trade surplus with the EEA during the period. Concerning the traditional commodities, however, there has been an increasing deficit versus the EEA.

Through the EEA agreement in 1994, Norway joined the EU's internal market for all products, except for agricultural and fish products, for which less liberal agreements apply. The internal market comprises the 15 EU countries and three of the EFTA countries, Norway, Iceland and Liechtenstein. Tables 1a and 1b show the development since 1990 of Norwegian exports and imports. In 2002, Norwegian exports to the internal market amounted to NOK 364 billion and imports to NOK 185 billion.

The figures 1a and 1b reveal that since 1993, the relative importance of the trade with the EEA has slightly diminished. We observe that the share of exports to countries outside the EEA went up by 3.2 percentage points in 2002 compared to 1993. Figures for imports show an increase of 0.3 percentage points in the same period. When comes to the trade with traditional commodities[1], exports to the EEA countries constitute only 68 per cent of total trade with traditional commodities in 2002 against 75 per cent in 1993, i.e. a 7 percentage points fall. Corresponding figures for imports show a decrease of 0.1 percentage points, see figure 2.

These developments reflect, *inter alia*, the fact that the EEA agreement did not change the tariffs much for trade within the EEA. The free trade agreements, in force from 1973, already eliminated most tariffs on industrial products between Norway and the member states of the European Community (EC). The only significant remaining tariffs by 1993 were on agricultural and fish products. The free trade agreements also formally prohibited use of non-tariff barriers to trade. However, the EEA agreement contributed to enforce these principles more effectively, through establishing a common set of rules for free competition and effective enforcement procedures. Since Norway started to implement tariff reductions according to the agreements of the World Trade Organization (WTO), the relative favoring of the EEA countries has gradually diminished after 1995. This also contributes to explain the development of the trade shares.

Growing trade surplus with the EEA

Norway has enjoyed a trade surplus with the EEA countries throughout this period. The main reason for the improved trade balance with the EEA is a growth in the value of exports of crude oil and natural gas to the EEA. From 1993 to 2002 the export value of mineral fuels, lubricants and related materials increased by 136 per cent, from NOK 103 billion to NOK 242 billion, mainly due to higher oil prices.

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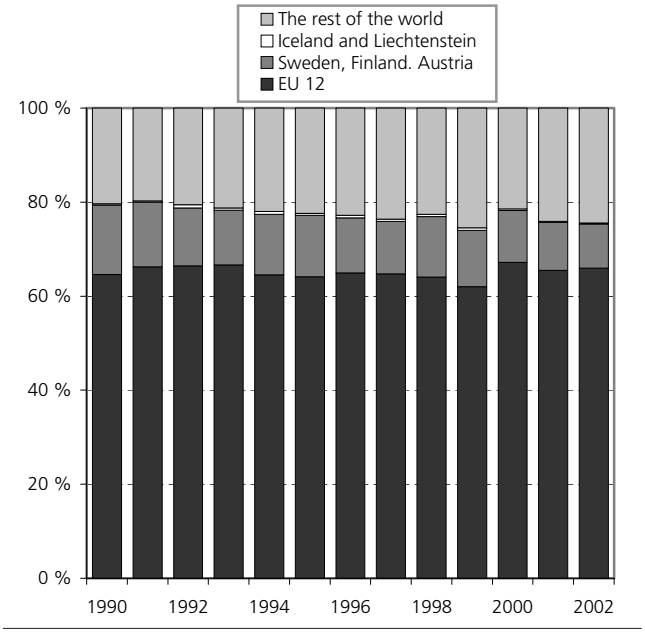
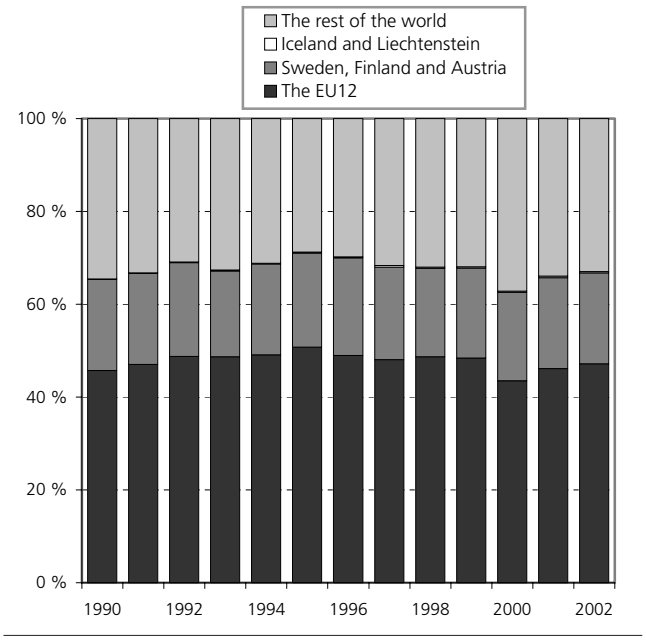
[1] The figures are exclusive of ships and mobile oil platforms, the same as traditional goods on the import side. For exports, traditional goods are also exclusive of crude oil, natural gas and from 2001 condensates.

Figure 1a. Exports. Portions



Source: Statistics Norway.

Figure 1b. Imports. Portions



Source: Statistics Norway.

Table 1a. Norways exports to the countries in the EEA and the rest of the world. 1990-2002. NOK Million. Value in current prices

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total exports	211579	220316	218374	226626	244475	265883	320128	342421	304653	355171	520814	529964	481475
The EU12	136752	145943	145073	151004	157774	170584	207914	221570	195152	220218	349852	347171	317603
Sweden, Finland and Austria	31163	30235	26890	26335	31523	34614	37459	38432	39107	42638	57479	53897	45282
The EU15 estimated until 1995	167915	176178	171963	177339	189297	205198	245373	260002	234259	262857	407331	401068	362885
Iceland and Liechtenstein	531	599	1514	1166	1407	1061	1719	1546	1558	1957	1735	1323	1033
The EEA-countries	168446	176778	173477	178505	190704	206258	247092	261548	235817	264814	409065	402390	363918
The rest of the world	43133	43538	44897	48121	53771	59625	73037	80873	68836	90357	111749	127574	117557

Table 1b. Norway's imports from the countries in the EEA and the rest of the world. 1990-2002. NOK Million. Value in current prices

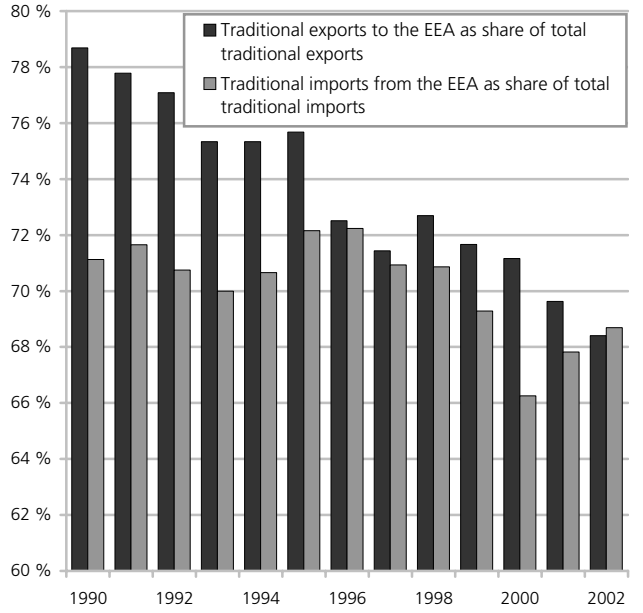
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total imports	169 998	165 181	161 931	170 991	192 963	208 626	229 720	252 232	282 638	266 677	302 852	296 156	275 975
The EU12	77 749	77 661	79 004	83 231	94 718	105 831	112 479	121 284	137 713	129 101	131 888	136 727	130 156
Sweden, Finland and Austria	33 370	32 443	32 647	31 595	37 769	42 347	48 277	50 250	53 724	51 735	57 498	57 922	54 013
The EU15 estimated until 1995	111 119	110 104	111 650	114 826	132 487	148 178	160 755	171 535	191 437	180 835	189 386	194 649	184 169
Iceland and Liechtenstein	173	140	254	378	296	393	518	772	779	747	825	1 066	830
The EEA-countries	111 292	110 243	111 904	115 203	132 783	148 571	161 274	172 306	192 217	181 582	190 211	195 715	184 999
The rest of the world	58 706	54 938	50 027	55 788	60 180	60 055	68 447	79 926	90 422	85 095	112 641	100 441	90 976

The surplus has been stable or growing except for the periods 1997-1998 and 2001-2002. The significant decline in 1998 was due to the oil price collapse combined with high imports. A sharp upturn until 2000 is mainly due to higher oil prices together with a rise in the exchange rate (NOK/USD). Since the year 2000 our surplus with the EEA has decreased because of lower oil prices. A considerably stronger NOK against the US dollar after 2001 has enhanced this.

Trade deficit with the EEA for traditional goods

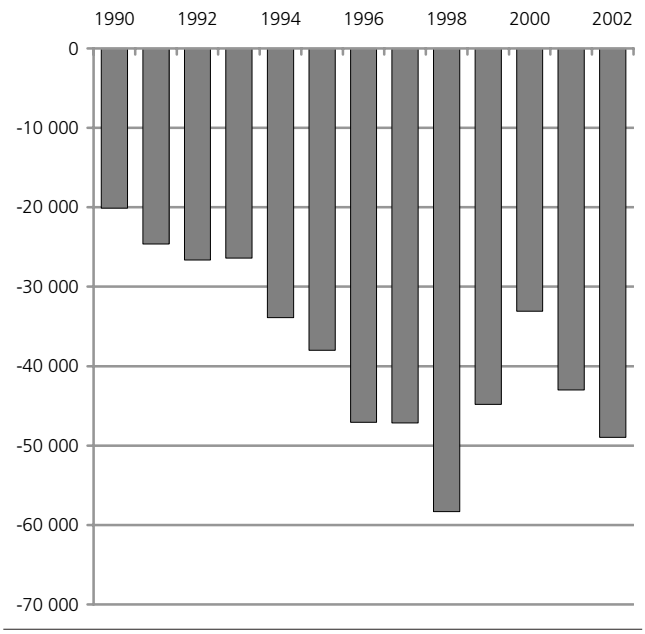
When we consider traditional commodities, only, there has been an increasing trade deficit with the EEA countries from 1990 to 2002, see figure 3. The deficit increased after Norway was committed to the EEA-agreement. The average annual deficit for 1990-1994 was NOK 26.3 billion and increased by 71 per cent to NOK 45.0 billion during the period 1994-2002. The trade balance development is due to a 60 per cent

Figure 2. Portions of Norway's total imports and exports of traditional commodities from and to the EEA countries



Source: Statistics Norway.

Figure 3. Norway's trade balance with the EEA in traditoinal goods. Value in current prices. NOK Million



Source: Statistics Norway.

increase in the exports of traditional goods to the EEA countries and a 66 per cent increase in the corresponding imports from 1993 to 2002.

The composition of the trade with the EEA countries is also somewhat changed. Concerning imports, the portion of the commodity section machinery and transport equipment increased by as much as 7 percentage points from 1993 to 2002, whereas manufactured goods decreased by 4 and 3 percentage points, respectively. As regards exports, machinery and transport equipment increased the most, by 6 percentage points, reducing inter alia the food share and the manufactured goods share by 3 and 1 percentage points, see figure 4a and b. There is little evidence that this development is significantly explained by lower tariff rates.

Trends in EU trade show a reduction of Norway's shares

Figures from Eurostat[2] show that Norway has lost market shares in the EU markets since 1990. Norway's portion of the EU's[3] total imports – from countries outside the EU – was 4.6 per cent in 1990 and 4.3 in 2001. The annual average for the period 1998-2001 was 4.1 per cent.

The decrease in Norway's portion of EU's import occurred in spite of the fact that Norway's share of the EU's total import of oil and gas increased from 47.9 per cent in 1990 to 53.6 per cent in 2001. We do, however, see a reduction in Norway's shares of the EU's import of goods for all the other SITC sections. The commodity sections for manufactured goods show a fall of as much as 7.2 percentage points.

The import portion for the commodity section machinery and transport equipment has also decreased, something that indicates that Norway's increase of exports to the EEA of such products has to do with the fact that the EU in general demanded more in 2001 than in 1990, and not that Norway had become a more important country for the EU concerning imports of such goods. As a comparison, Poland's, Czechoslovakia's and Hungary's shares of the EUs total import of the commodity section machinery and transport equipment have increased by as much as 25,8, 36.8 and 49.6 percentage points, respectively.

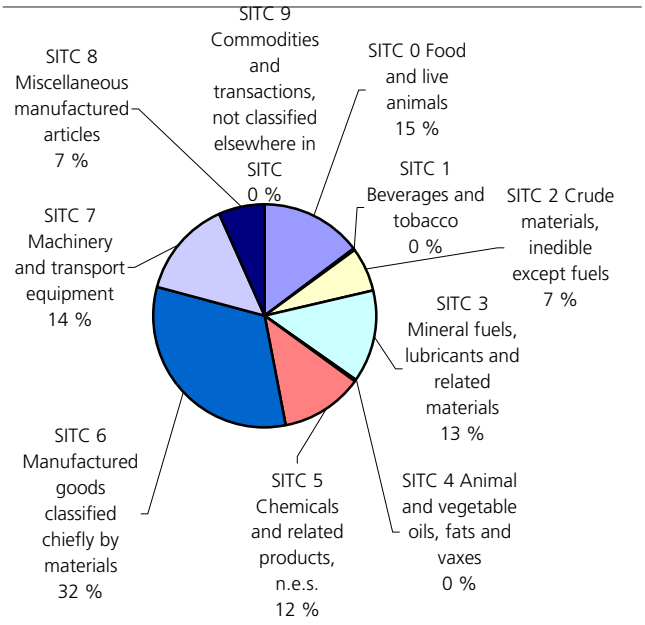
The EU's import shares from and export shares to European countries outside the EU have increased, especially for imports. The European non-member countries increased their portion of EU's total imports from 25.2 per cent in 1990 to 29.2 in 2001, i.e. by as much as 4 percentage point. The portion from Iceland decreased by 0.1 percentage points whereas Liechtenstein's portion remained the same and virtually zero during the period. Consequently exports from countries outside the EEA constitute the EU's increased share of imports from European non-member countries.

Fish exports to the European Union (EU) have decreased the last two years

The tariff rates for Norwegian fish and fish products are regulated by type of species. Some of the fish species like cod, haddock, saithe, and halibut and "black"

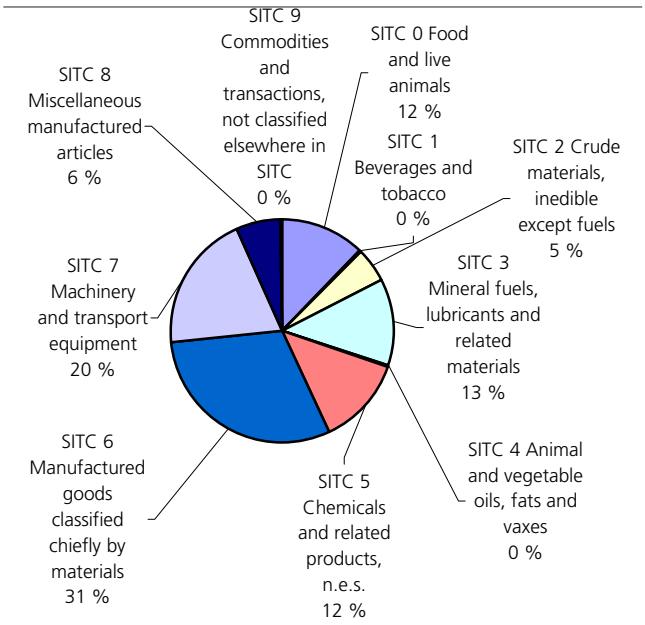
[2] External and intra-European Union trade — Statistical yearbook. Data 1958-2001. EUROPEAN Commission/ Eurostat
[3] EU 15 (= EU 12, Sweden, Finland and Austria) estimated back to 1990

Figure 4a. Traditional goods. Norwegian exports to the EEA. 1993



Source: Statistics Norway.

Figure 4b. Traditional goods. Norwegian exports to the EEA. 2002



Source: Statistics Norway.

(Greenland) halibut have free access to the EU market. Still, there are no tariff reductions for species like salmon, mackerel, herring, shrimps (prawns) and crustaceans. The special terms for salmon, that is fresh as well as frozen, are part of the so-called "salmon agreement". For species beyond the already mentioned, the tariff is reduced by 30 per cent from the original tariff rates. The degree of processing of the fish determines the size of the remaining tariff rates.

Despite these tariff reductions – exports of fish to the 12 original EU countries flattened out from 1994 to 1997. While total exports of these products to Sweden, Finland and Austria increased slightly, there was a relatively strong increase of exports of fish to the rest of the world from 1995 to 2000. After 2000 and until today the value of exports of fish products to both the 12 original EU countries and the total of the 15 EU countries has decreased, but remained relatively constant concerning exports to the rest of the world.

Conclusion

The trade with the countries that are part of the internal market is very important to Norway, but the EEA countries' contribution to our total trade has shown a slight decrease after we joined in 1994. The decrease is quite noticeable when it comes to exports of traditional goods. This development partly reflects the fact that the trade conditions within the EEA were fairly liberal already prior to the EEA agreement. In addition, the relative favoring of the EEA countries has diminished as the WTO agreements have gradually been implemented since 1995.

Furthermore, the composition of this trade has changed. The most striking change is a strong increase in the portion of our imports and exports of machinery and transport equipment.

Figures from Eurostat show that Norway's portion of the EU's total imports has declined in spite of the fact that Norway's share has increased considerably in EU's oil and gas import. In the same period, the EU's import shares from and export shares to European countries outside the EEA have increased especially for imports. The lower shares of Norwegian exports going to the EEA, especially of traditional commodities, thus reflect, *inter alia*, the lower Norwegian market shares within the European Union.

A new father's role?
Employment patterns among Norwegian fathers 1991-2001[1]

Ragni Hege Kitterød and Randi Kjeldstad

Norwegian work-family policies aim at promoting equal division of paid and unpaid work among mothers and fathers. During later years however, we have witnessed a shift in policies, from making it easier for mothers to take up paid work, to the encouragement of fathers to participate more actively at home. Today fathers are expected to take their share of the unpaid work, especially in the care of small children. Whether, and to what extent, this new father's role has affected fathers' labour market behaviour has until now been little examined. In this article we utilise especially prepared Labour Force Survey data on parents with children under the age of 16, to analyse changes in fathers' employment patterns and working hours from 1991 to 2001.

Introduction

In most Western countries the family model with the father as a sole provider and the mother as a full-time homemaker is in full retreat. In Norway, as in the other Scandinavian countries, the increase in the number of dual-earner families has been made possible by the introduction of a variety of work-family polices aimed at supporting flexible solutions for parents in combining family responsibilities and paid work. In these countries the work-family tension in families with two employed parents has been modified by state policies.

In much of the Norwegian public debate on the family during later decades, a family model where both fathers and mothers combine income generating work and unpaid family work has been an implicit ideal. Still, during the 1970s and 1980s reconciling work and family life was mainly defined as a challenge for women, and the political concern was to make it easier for mothers to combine paid work and domestic work. The 1990s however, represent a shift in Norwegian work-family policies, as higher political priority was gradually given to increasing fathers' participation in family care. In 1986 a Government Commission on the role of men was appointed, and the commission influenced Norwegian public opinion and policies considerably during the 1990s. The commission especially put the role of men as *fathers* on the political agenda, focusing both on the fathers' duties and their rights to spend time with, and care for, their children (NOU 1991:3). In the following years several initiatives were taken to encourage the active involvement of men in care activities. Hence, in Norway as in the other Scandinavian countries, the concept of the "caring father" was politically institutionalised well before it was made a political topic in other countries (Leira 2002). However, as we shall see in this article, there is still a considerable distance between ideals and reality. The family model with fathers as sole providers is still far from replaced by a gender-equal breadwinner model.

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Whereas mothers' employment patterns are continually monitored through the national Labour Force Surveys (LFS) and various analyses of these (for example Ellingsæter and Wiers-Jenssen 1997; Jensen 2000; Kjeldstad 1993, 1991; Statistics Norway 2003), fathers' paid working hours have been less systematically studied in Norway. Hence, in spite of much focus on the so called "new father's role" during recent decades, information on possible alterations in fathers' employment patterns has been sparse. One reason for this is that it is more complicated to identify fathers than mothers in the LFS because complete information on the participants' household members is not recorded. However, by linking data on own children from the Central Population Register with LFS, it is possible to identify fathers with children at different ages. In this article we discuss changes from 1991 to 2001 in employment patterns and working hours among married/cohabiting fathers with children 0-15

[1] The article is based on a project titled The new working life: New working time patterns among fathers and mothers, funded by the Research Council of Norway's program: Working life research: New challenges for the working life.

years of age.[2] We look at contractual/usual working hours as well as actual working hours, and we differentiate between fathers with children in various age groups. As many of the family policy reforms in the 1990s were directed particularly at parents with very young children, we focus especially on fathers with children 0-2 years of age. Although the main topic of the article is fathers' labour market behaviour, we also want to make some comparisons with the development for mothers in order to illustrate the diminishing, but still quite significant, gender differences in this field.[3]

Before discussing the empirical analyses we give a brief account of some of the family policy reforms in Norway during the 1990s. We also mention some key issues regarding men's and women's labour market behaviour in Norway and point out some of the regulatory aspects in the Norwegian labour market. Data and definitions are accounted for in the text box on page 42.

Recent family policy reforms in Norway

Except for an expansion of the rights to paid vacation from 21 to 23 days a year from January 1. 2001, there have been only few and insignificant changes in the general working time and vacation regulations in Norway during the period under consideration. However, in the field of family and gender policies, many important reforms that might affect parents' time use have been implemented. The parental leave scheme in Norway was substantially developed during the 1990s, and the total length of the parental leave now adds up to 52 weeks with 80 percent wage compensation, or 42 weeks with 100 per cent compensation. In connection with the extension of the parental leave in 1993, a father's quota was introduced, reserving four of the compensated weeks for fathers. The intention was to promote fathers' participation at home, both during the four weeks of leave, and in the longer run, also to ensure that the benefits and burdens of family life as well as working life are distributed more equally between men and women. Whereas fathers' ordinary leave entitlements previously were partly dependent on the mother's employment end earnings prior to delivery, fathers have recently, in July 2000, acquired more independent rights.

Furthermore, a time account scheme was introduced in 1994 in order to make possible more flexible uses of the parental leave. The scheme allows parents of small children to combine parental benefits with reduced working hours. The total period of parental leave remains the same, but it can be stretched over a longer period of time. In 1998/99 a "cash for care" reform was introduced, implying that parents with small children (1-2 years of age) who do not use publicly subsidised childcare, will get paid in cash an amount equivalent to the state subsidy for a place in the public kindergarten. The aim of the reform was threefold, namely that parents should be given the opportunity to spend more time with their children, to give families a real choice in relation to the mode of care they want, and to equalise support between families with respect to state subsidies received for childcare, regardless of the form of care used (St. prp. no. 53 (1997-98)).

In Norway, family policies and gender equality policies have been closely intertwined, and the family policy reforms implemented during the 1990s were meant to serve a mixture of purposes. One important objective has been to encourage a more equal sharing of income generating work and unpaid family work among mothers and fathers and also to strengthen the father-child relationship. As far as gender equality is concerned, it has been maintained that some of the reforms might work in opposite directions. Whereas the father's quota encourages fathers to increase their contribution in family work, the "cash for care" reform is more likely to cement a traditional gender division of labour (Leira 1998). The "cash for care" reform has been disputed, and the opponents warned, among other things, that a likely outcome might be that many mothers, but few fathers, would reduce their working hours.

Several analyses have been undertaken in order to evaluate the possible effects of the reforms. By and large, the father's quota is seen as a success, in that the great majority of the eligible fathers utilise the "mandatory" weeks (Brandth and Kvande 2001). Still, rather few take more than four weeks of leave, except from a couple of weeks off after the birth of the child. A slight increase has been seen however, following the implementation of more independent rights for fathers in 2000 (The National Insurance Association 2002). The "cash for care" reform has been thoroughly assessed regarding outcomes in various areas (see Baklien et. al 2001 for a summary). Special attention has been paid to possible changes in parents' employment patterns, but alterations have been more carefully analysed for mothers than for fathers. Various data sources and methods give somewhat different results, but it seems safe to conclude that at least in the short run, the reform caused a significant, but fairly modest, reduction in mothers' employment, whereas fathers' employment was hardly affected. While both the father's quota and the cash for care-scheme are widely used, the time account scheme is hardly utilised at all (Brandth and Kvande 2001).

[2] Employment patterns and working hours among single mothers and fathers based on the same data sources have been analysed in Kjeldstad and Rønsen (2002).

[3] Gender differences in the labour market behaviour of Norwegian parents are discussed in more detail in another paper from the project mentioned in footnote 1 (Kitterød and Kjeldstad 2002).

Labour market regulations and labour market participation in Norway

The Work Environment Act in Norway regulates the daily and weekly working hours. The maximum ordinary working time is 40 hours weekly. However, according to collective agreements in all industries and sectors 37.5 hours per week is the standard working time. Overtime is regulated to be maximum 10 hours a week as a rule, 25 hours during 4 successive weeks, and 200 hours a year. The Work Environment Act states each individual's right to reduced working hours due to medical, social and other important welfare reasons. The employer is obliged to comply with the needs of the employee - or otherwise, prove that it will be of great inconvenience to the company to do so. In addition, employees with responsibility for children 12 years and younger are entitled to leave during children's illness: 10 days per year per employee with one child and 15 days with more children. This right applies independently to both mothers and fathers.

Male labour market participation has been fairly stable in Norway during the 1980s and 1990s. The participation of women however, especially mothers with small children, has increased significantly. Today the total employment rates of men and women differ with only eight percentage points (75 and 67 percent respectively in 2001). The proportion of all employed men working full-time, has been stable at 90 percent throughout the period. At the same time women's full-time proportion increased from 48 percent in 1980 to 57 percent in 2001 (Statistics Norway 2003). During the 1990s the shift from part-time to full-time was especially significant among mothers (Ellingsæter and Wiers-Jenssen 1997; see also table 7 in this article).[4]

Whereas Norwegian fathers rarely work part-time, there has been much focus on fathers' long working hours. In the 1980s, the Level of living surveys showed that a significant number of fathers with small children had weekly working hours far exceeding normal hours, and that such arrangements were increasing (Ellingsæter 1991). More recent surveys indicate that such arrangements became slightly less common in the 1990s (Kitterød and Roalsø 1996). As these analyses were based on relatively small samples and a less detailed registration of working hours than what is done in the LFS, the conclusions are somewhat uncertain. Hence, analyses of fathers' working hours based on the LFS are needed in order to enhance our knowledge of changes in fathers' labour market behaviour.
The labour market in Norway, as in the other Nordic countries, is among the most gender segregated of the western world (Kjeldstad 2001; Melkas and Anker 1998). This is mainly due to the large female dominated public sector of the Nordic countries, and is a result of the welfare state monetising women's traditionally unpaid work. Also, but on a smaller scale, there are certain sectors of the economy that are still strongly male dominated, in the private sector, especially in some traditional manufactory industries. Differences between women's and men's work hours are often structured by occupational and company culture. Abrahamsen (2002) finds, for example, that the norm about the "normal worker" and the "normal working hours" is stricter in male dominated than in female dominated occupations. The work culture at male dominated working places is often characterised by extensive hours, while part-time work is punished with regard to promotion and payment (Ellingsæter 1999a). Still, many fathers now reflect actively on how to practice their fatherhood and whether and how to adjust their working hours to their parental responsibilities (Brandth and Kvande 1999).

The years 1987-1993 were characterised by economic recession in Norway and unemployment rates were relatively high. As men more often than women work in the private sector, they were more severely affected by the economic downturn. Consequently their unemployment rate was higher. Among parents, however, the unemployment rate of mothers exceeded the rate of fathers throughout the 1990s (Kjeldstad and Rønsen 2002). This is mainly associated with the particularly low unemployment rate of fathers. Unemployment is more a youth and old age phenomenon among men than women in Norway. Thus, the unemployment rates of fathers of small children were low throughout the period under consideration here.

A Labour Force Survey analysis of fathers' employment 1991-2001

Increased employment and some more temporary absence

During the second half of the 1990s we saw a slight increase in the employment rates among married/cohabiting fathers in Norway, – a development that is consistent with the economic recovery during he period. In 2001 94.2 percent of the fathers with children 0-15 years of age were employed, – 2.5 percentage points more than the minimum in 1993 (table 1). There are only minor differences in employment rates between fathers with children in various age groups. Fathers with the youngest children (0-2 years) had an employment rate of 94.0 percent in 2001, – an increase of almost 4 percentage points since the minimum in1994 (figure 1). However, there was no increase in the percentage of fathers actually at work in the survey week in this period. Whereas about 82 percent of the married/cohabiting fathers with children 0-2 years of age

[4] During the 1980s part-time work in Norway underwent a process of normalisation in which working conditions and behaviour of the employees changed. The proportion of employees with short part-time work decreased, job security for part-time workers improved, and part-time workers increasingly joined a union (Ellingsæter 1989). Thus, part-time arrangements in Norway now bear few signs of marginality (Bjurstrøm 1993).

Concepts and definitions in LFS

The concepts and definitions in the Norwegian LFS are in accordance with recommendations given by ILO[1]. Data are collected by telephone interviewing, and the sample comprises 24 000 respondents each quarter. People are asked about their relations to the labour market in one specific week. The reference period is one week each month.

Employed persons are those who performed work for pay or profit for at least one hour in the survey week, or who were temporary absent from work because of illness, vacation, permission leave, etc. Both employees, self-employed and unpaid family workers are included. Conscripts are classified as employed persons. Persons engaged in government programs to promote employment are included if they receive wages. In table 1 and figure 1 in this article we look at employed fathers and differentiate between those *being temporarily absent*, and those *at work*, which means that they actually did perform some income generating work during the reference week.

Contractual/usual working hours refer to the weekly number of working hours according to the work contract. Absence from work because of illness, holidays, parental leave, etc. is not subtracted, and overtime is not included. Employees whose contractual working hours vary from week to week, give information on the actual survey week as well as the average of their contractual working hours per week. In this article the average numbers are used. For employees without an agreement on working hours, for self-employed and for unpaid family workers, data on their usual weekly working hours are used (average during the last 4 weeks). For those having more than one job, working hours in all jobs are included in the figures in this article.

We differentiate between fathers with contractual/usual working time 1-19 hours per week (short part-time); 1-36 hours per week (long part-time); 32-40 hours per week (normal full-time work); 41-49 hours per week; and 50 hours or more per week. The general rule is that contractual/usual working hours below 37 hours per week is counted as part-time. However, if the contractual working hours in the profession is less than 37 hours, employees are classified as full-time workers even if they work less than 37 hours. Hence, the category capturing normal full-time work is labelled "32-40 hours" in this article. We also show the average contractual/usual working hours for different groups of parents.

Actual working hours refer to the number of hours actually worked during the reference week. Overtime and other extra work is included, and absence because of illness, vacation, parental leave, etc. is excluded. As is the case for contractual/usual hours, actual hours in primary jobs as well as possible secondary jobs are included in the figures in the following. We differentiate between six categories: Temporarily absent the whole reference week; working 1-19 hours; working 20-36 hours; working 37-40 hours; working 41-49 hours; and working 50 hours or more. We also show the average actual working hours for various groups of employed parents, and for all fathers and mothers in various groups. Whereas average actual working hours are usually calculated only for persons actually at work during the reference week in the LFS reports, in this article we calculate averages for all employed persons. Those not at work at all in the survey week are assigned to zero hours.

The various measures for employment and working time in the LFS serve different purposes and may also give somewhat dissimilar pictures regarding parents' working hours. As entitlements and rights are often based on the contractual working hours, knowledge about people's contractual arrangements is important. However, actual working hours give a better description of how parents really spend their time and also of the difference in time spent on paid work between fathers and mothers.

In order to be able to define groups of married/cohabiting fathers and mothers in the data, information on biological and adopted children from the Central Population Register is linked on the Survey data. We do not have information on other children in the household. Hence, persons without own children in the household, but living together with a partner's children, are not included in the analyses in this article. Information on whether people are married or cohabiting is collected both from the survey and the register. In some cases (about 5 per cent of all parents interviewed in the LFS) there is inconsistency between these sources. Such persons are excluded from the analyses. This differs from what is being done in the regular reports from the LFS, where classification of people as married/cohabiting is based solely on information given in the interview.

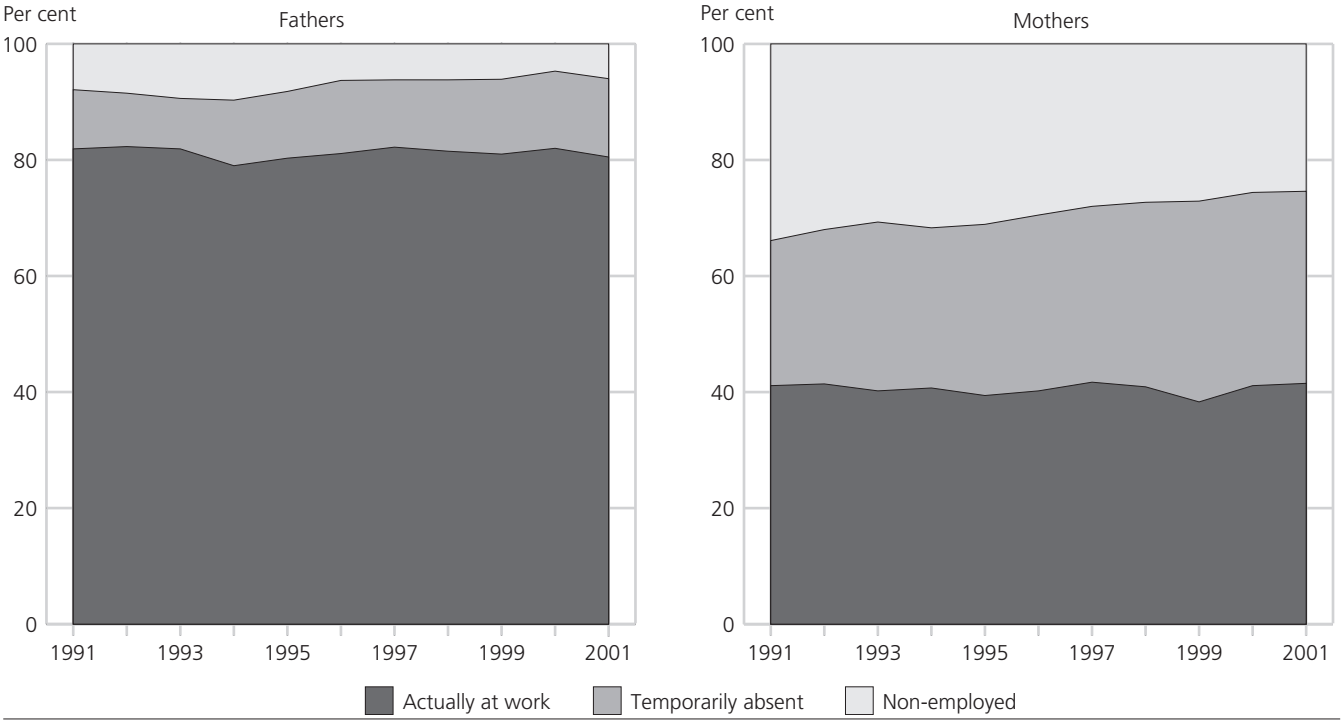
The data presented here are based on large samples. The sub-samples of married/cohabiting fathers and mothers with children in the various age groups in the tables vary between 2000 and 4000 in the years under study.

[1] A more detailed documentation of the Norwegian LFS is given in Bø and Håland (2002).

was actually at work in the survey week in 1991, the percentage in 2001 was 80.5. There was, however, a significant, albeit modest, increase in the proportion being temporarily absent in the survey week. In 2001 13.5 of the fathers with very young children was temporarily absent from work, - 3.3 percentage points more than in the beginning of the 1990s.

These changes most probably reflect the increasing use of the improved parental leave schemes during the period. However, both the level of, and the increase in, fathers' temporary absence is far below that of mothers (figure 1, table 7). In 2001 as much as one in three mothers with children 0-2 years of age were temporary absent from work, - an increase of 8 percentage points since 1991. This reflects the fact that in Norway as in most other countries, mothers are still the primary users of parental leave. It is also worth noticing that although the employment rate among mothers with children 0-2 years of age increased sig-

Figure 1. Percentage actually at work, temporarily absent and non-employed among married/cohabiting fathers and mothers with youngest child 0-2 years. 1991-2001. Per cent



Source: Labour Force Surveys, Statistics Norway.

Table 1. Percentage of men employed, temporarily absent and actually at work among married/cohabiting fathers with children in various age groups. 1991-2001. Percent

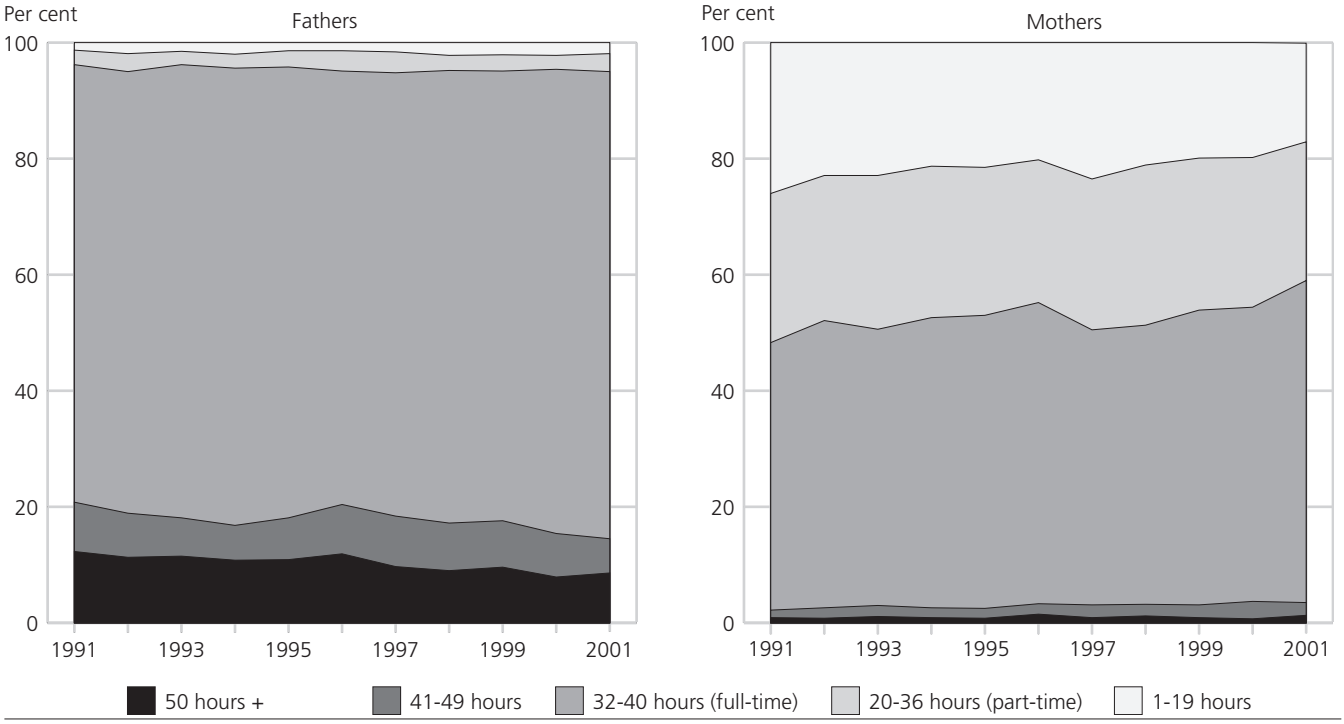
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Change 1991-2001
Children 0-2 years												
Employed persons	92.1	91.5	90.6	90.3	91.8	93.7	93.8	93.8	93.9	95.3	94.0	+1.9
Temporarily absent	10.2	9.2	8.7	11.3	11.5	12.6	11.6	12.3	12.9	13.3	13.5	+3.3
At work	81.9	82.3	81.9	79.0	80.3	81.1	82.2	81.5	81.0	82.0	80.5	-1.4
Children 3-6 years												
Employed persons	93.6	91.1	92.0	93.2	94.9	93.4	94.3	95.3	95.1	94.4	93.5	+0.1
Temporarily absent	11.0	8.9	8.0	9.3	9.3	9.8	9.8	11.6	10.6	11.3	11.4	+0.4
At work	82.6	82.2	84.0	83.9	85.6	83.6	84.5	83.7	84.5	83.1	82.1	-0.5
Children 7-10 years												
Employed persons	94.9	93.5	92.1	93.2	93.3	94.9	95.2	95.2	94.0	93.9	95.5	+0.6
Temporarily absent	11.4	10.4	9.2	9.5	9.3	11.5	10.8	9.6	11.9	13.4	11.4	-
At work	83.5	83.1	82.9	83.7	84.0	83.4	84.4	85.6	82.1	80.5	84.1	+0.6
Children 11-15 years												
Employed persons	94.6	92.4	92.5	93.6	92.1	93.0	93.8	95.1	94.0	94.1	93.1	-1.5
Temporarily absent	10.9	9.8	9.7	9.6	9.0	11.6	10.0	9.8	11.9	11.8	12.6	+1.7
At work	83.7	82.6	82.8	84.0	83.1	81.4	83.8	85.3	82.1	82.3	80.5	-2.3
Children 0-15 years												
Employed persons	93.4	92.2	91.7	92.4	93.3	93.7	94.2	94.8	94.3	94.5	94.2	+0.8
Temporarily absent	10.8	9.5	8.8	9.8	9.9	11.4	10.6	11.1	12.3	12.4	12.3	+1.5
At work	82.6	82.7	82.9	82.6	83.4	82.3	83.6	83.7	82.0	82.1	81.9	-0.7

Source: Labour Force Surveys, Statistics Norway

nificantly, with 8.5 percentage points from 1991 to 2001, there was almost no increase in the proportion of mothers actually at work in the survey week. The considerable rise in the proportion of mothers being temporarily absent in the survey week followed from the improved parental leave rights during the 1990s.

A similar development was seen among Swedish mothers in connection with the extension of the parental leave schemes in Sweden in the 1980s (Jonung and Persson 1993).

Figure 2. Contractual/usual working hours among employed married/cohabiting fathers and mothers with youngest child 0-2 years. 1991-2001. Per centt



Source: Labour Force Surveys, Statistics Norway.

Hence, among parents with very young children we see large and rather persistent gender differences in both employment rates, temporary absence from work, and proportions actually at work. Due to an increase in mothers' employment during the 1990s, the gender gap in employment rates was slightly reduced during this decade. Yet, the gender difference in the proportion actually at work among parents with very young children remained fairly stable. In 2001 the proportion of fathers actually at work was still 39 percentage points above the proportion of mothers. Thus, the redefinition of the father's role in Norway to comprise more active involvement in family life is not yet reflected in the employment rates. However, the modest growth in temporary absence among fathers with very young children shows that rising employment during the economic upturn in the second half of the 1990s did not imply more fathers actually at work. This might be seen as a signal of an expanding family role among Norwegian fathers. It remains to bee seen, however, if the more independent parental leave rights for fathers in 2000 will eventually be reflected in more temporary absence among fathers with young children.

Contractual/usual working hours: Little part-time, but decreased long hours for fathers

Changing cultural norms towards more active fathering have not resulted in more part-time work among Norwegian fathers. In 2001 still only about 4 percent of the employed fathers with children 0-15 years of age had a contractual part-time arrangement, and there was almost no increase to be seen from 1991 to 2001 (table 2). Also fathers with very young children (0-2 years), have a fairly low and stable part-time rate, only 5 percent in 2001 (figure 2). Accordingly, part-time adjustment in the labour market is still a far more common strategy among mothers than fathers in Norway. In spite of somewhat reduced part-time rates during the 1990s, approximately 50 per cent of employed mothers with children 0-15 years had contractual part-time work in 2001 (table 7). Among those with children 0-2 years of age the part-time rate was 41 per cent at that time (figure 2). The lower part-time rate among mothers with very young children than among those with somewhat older children is partly due to the fact that many of the mothers with small children and formal full-time arrangements were actually not at work during the survey week, mostly because they were on parental leave. Hence, their full-time arrangements refer to their working hours prior to the leave period.

The vast majority of Norwegian employed fathers, about 79 percent of those with children 0-15 years of age, have ordinary full-time work (32-40 hours per week), and such arrangements became somewhat more common during the 1990s, with an increase of approximately 6 percentage points from 1991 to 2001. However, long weekly hours still represent a rather common option among fathers. In 2001 some 17 percent of the employed fathers had contractual arrangements exceeding ordinary full-time work. It is important to bear in mind that contractual/usual working hours in this article include working hours in both main jobs and possible second jobs. The rather high

Table 2. Contractual/usual working hours among employed married/cohabiting fathers with children in various age groups. 1991-2001. Percent

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Change 1991-2001
Children 0-2 years												
1-19 hours	1.3	1.9	1.5	2.0	1.4	1.4	1.6	2.2	2.1	2.2	1.9	+0.6
20-36 hours (part-time)	2.5	3.1	2.3	2.4	2.8	3.5	3.6	2.6	2.8	2.4	3.1	+0.6
32-40 hours (full-time)	75.3	76.1	78.1	78.7	77.7	74.7	76.5	78.1	77.4	80.0	80.5	+5.2
41-49 hours	8.5	7.6	6.6	6.0	7.2	8.5	8.7	8.2	8.0	7.5	5.9	-2.6
50 hours +	12.3	11.3	11.5	10.8	10.9	11.9	9.7	9.0	9.6	7.9	8.6	-3.7
Children 3-6 years												
1-19 hours	1.0	1.2	1.3	0.9	1.1	1.2	1.0	1.1	1.0	1.5	1.4	+0.4
20-36 hours (part-time)	2.8	1.7	1.9	2.3	2.5	3.0	2.9	2.5	3.3	3.5	2.6	+0.2
32-40 hours (full-time)	72.1	74.9	74.9	76.7	77.3	74.2	74.2	76.1	77.1	76.8	78.6	+6.5
41-49 hours	9.3	7.6	8.8	8.0	7.0	8.3	7.9	9.0	8.1	8.0	7.2	-2.1
50 hours +	14.8	14.6	13.2	12.1	12.2	13.2	14.1	11.3	10.5	10.2	10.4	-4.4
Children 7-10 years												
1-19 hours	1.4	0.9	1.0	1.4	1.4	1.3	1.0	1.0	1.9	1.9	1.3	+0.1
20-36 hours (part-time)	2.1	2.7	2.3	2.4	2.2	3.1	2.5	2.1	3.0	2.3	2.6	+0.5
32-40 hours (full-time)	69.8	71.6	74.4	75.2	73.7	70.6	73.8	74.9	73.0	74.9	78.2	+8.4
41-49 hours	9.3	8.0	8.3	7.6	9.3	9.4	8.4	8.5	9.3	9.4	7.3	-2.0
50 hours +	17.4	16.8	14.0	13.4	13.5	15.6	14.3	13.5	12.8	11.4	10.6	-6.8
Children 11-15 years												
1-19 hours	1.3	1.0	1.8	1.2	1.1	1.0	1.0	1.4	1.0	1.0	1.8	+0.5
20-36 hours (part-time)	2.8	2.7	2.1	1.7	2.1	1.8	2.7	3.0	2.9	1.9	2.4	-0.4
32-40 hours (full-time)	71.9	74.0	73.2	73.0	75.1	72.4	72.5	71.5	75.0	76.9	76.7	+4.8
41-49 hours	8.8	8.8	7.7	8.5	8.6	10.4	9.6	8.2	7.2	7.5	7.9	-0.9
50 hours +	15.2	13.5	15.1	15.5	13.1	14.5	14.2	16.0	13.8	12.7	11.1	-4.1
Children 0-15 years												
1-19 hours	1.2	1.3	1.4	1.4	1.3	1.2	1.2	1.5	1.5	1.7	1.6	+0.4
20-36 hours (part-time)	2.6	2.6	2.2	2.2	2.5	2.9	3.0	2.5	3.0	2.6	2.7	+0.1
32-40 hours (full-time)	72.6	74.4	75.4	76.2	76.3	73.3	74.5	75.6	75.6	77.4	78.7	+6.1
41-49 hours	9.0	8.0	7.8	7.5	7.8	9.0	8.6	8.5	8.1	8.0	7.0	-2.0
50 hours +	14.7	13.7	13.3	12.7	12.2	13.5	12.8	11.9	11.4	10.2	10.0	-4.7

Source: Labour Force Surveys, Statistics Norway

Table 3. Average number of contractual/usual working hours among employed married/cohabiting fathers with children in various age groups. 1991-2001

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Change 1991-2001
Children 0-2 years	39.9	39.6	39.5	39.3	39.5	39.9	39.5	39.3	39.4	38.8	39.1	-0.8
Children 3-6 years	40.7	40.6	40.2	39.9	39.7	40.3	40.5	39.9	40.0	39.8	39.9	-0.8
Children 7-10 years	40.9	41.0	40.7	40.2	40.4	40.7	40.6	40.4	40.2	40.1	40.0	-0.9
Children 11-15 years	40.3	40.0	40.4	40.8	40.2	41.0	40.8	41.2	40.7	40.6	39.9	-0.4
Children 0-15 years	40.4	40.2	40.1	40.0	39.9	40.4	40.3	40.1	40.0	39.7	39.7	-0.7

Source: Labour Force Surveys, Statistics Norway

percentage of fathers with contractual/usual working hours exceeding the collective agreement of 37.5 hours per week probably reflects that some have more than one job. It is also due to the fact that many self-employed fathers work long hours. The percentage of fathers with long hours is far above the rate for mothers, with only 4 percent having such agreements (table 7). Nevertheless, there was a slight decrease in long-hours arrangements among fathers during the 1990s. From 1991 to 2001 the proportion of employed fathers with long hours decreased with about 7 percentage points. It was first and foremost the extended working hours (50 hours + per week) that became less common. Hence, if the new father's role has affected fathers' contractual working hours, the outcome is not more part-time work, but somewhat less long hours. This goes for those with very young children as well as for those with somewhat older children.

The average number of contractual working hours among employed fathers is presented in table 3. In 2001 the average for fathers with children 0-15 was 39.7 hours per week. The reduction from 1991 to 2001 was fairly modest, only 0.7 hours. Fathers with very young children have somewhat shorter average weekly working hours than those with older children. As can bee seen from table 2, this is not due to more part-time work in this group, but to less long hours

Table 4. Actual working hours among employed married/cohabiting fathers with children in various age groups. 1991-2001. Percent

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Change 1991-2001
Children 0-2 years												
Temporarily absent	11.1	9.2	9.6	12.5	11.6	13.4	13.2	12.3	14.5	13.1	14.4	+3.3
1-19 hours	2.6	3.4	3.5	2.7	2.7	4.2	5.8	4.9	4.0	4.9	4.0	+1.4
20-36 hours	12.8	14.3	13.9	14.3	15.2	14.3	15.7	13.9	15.3	15.6	15.2	+2.4
37-40 hours	39.3	40.3	40.0	38.4	40.2	36.1	34.7	37.7	34.7	38.5	37.6	-1.7
41-49 hours	15.4	16.8	16.5	16.1	15.2	15.1	15.7	16.4	15.3	13.9	13.6	-1.8
50 hours +	18.8	16.0	16.5	16.1	15.2	16.8	14.9	14.8	16.1	13.9	15.2	-3.6
Children 3-6 years												
Temporarily absent	12.7	8.8	7.8	9.1	8.9	9.6	9.5	13.0	12.0	12.0	12.2	-0.5
1-19 hours	2.0	2.9	2.9	1.8	2.7	3.5	4.3	3.3	3.4	3.4	3.5	+1.5
20-36 hours	12.7	11.8	13.6	12.7	14.3	14.9	14.7	13.8	14.5	16.2	15.7	+3.0
37-40 hours	36.3	39.2	38.8	40.9	40.2	35.1	35.3	35.8	37.6	37.6	40.0	+3.7
41-49 hours	16.7	17.6	17.5	17.3	17.0	17.5	17.2	17.1	16.2	15.4	14.8	-1.9
50 hours +	19.6	19.6	19.4	18.2	17.0	19.3	19.0	17.1	16.2	15.4	13.9	-5.7
Children 7-10 years												
Temporarily absent	12.0	9.7	8.6	11.6	8.6	12.2	10.1	8.9	12.7	13.0	11.9	-0.1
1-19 hours	2.7	2.8	2.9	1.4	2.9	4.1	3.8	3.8	2.5	3.9	3.6	+0.9
20-36 hours	12.0	12.5	11.4	11.6	11.4	13.5	13.9	15.2	15.2	14.3	14.3	+2.3
37-40 hours	33.3	36.1	40.0	40.6	40.0	33.8	35.4	35.4	36.7	39.0	40.5	+7.2
41-49 hours	17.3	16.7	17.1	17.4	17.1	16.2	16.5	16.5	15.2	14.3	14.3	-3.0
50 hours +	22.7	22.2	20.0	17.4	20.0	20.3	20.3	20.3	17.7	15.6	15.5	-7.2
Children 11-15 years												
Temporarily absent	11.5	11.8	11.6	9.1	9.8	11.3	12.0	9.0	13.9	12.5	13.6	+2.1
1-19 hours	2.3	2.4	2.3	2.3	2.4	3.8	4.0	5.1	2.5	3.8	3.7	+1.4
20-36 hours	11.5	11.8	11.6	11.4	12.2	12.5	14.7	14.1	13.9	13.8	16.0	+4.5
37-40 hours	37.9	41.2	38.4	39.8	39.0	36.3	34.7	35.9	35.4	40.0	37.0	-0.9
41-49 hours	16.1	15.3	16.3	17.0	18.3	18.8	16.0	15.4	16.5	13.8	14.8	-1.3
50 hours +	20.7	17.6	19.8	20.5	18.3	17.5	18.7	20.5	17.7	16.3	14.8	-5.9
Children 0-15 years												
Temporarily absent	11.8	10.6	9.6	10.8	10.6	12.1	11.3	11.9	13.3	12.6	13.1	+1.3
1-19 hours	2.4	2.6	2.7	2.4	2.4	3.6	4.6	4.0	3.3	4.0	3.7	+1.3
20-36 hours	12.3	12.7	12.6	12.4	13.5	14.2	15.1	14.2	14.5	15.2	15.3	+3.0
37-40 hours	37.0	39.1	39.3	39.8	39.5	35.4	35.0	36.1	36.1	38.4	38.5	+1.5
41-49 hours	16.3	16.6	16.8	16.6	16.7	16.5	16.4	16.4	16.0	14.6	14.6	-1.7
50 hours +	20.2	18.5	19.0	17.9	17.2	18.1	17.6	17.4	16.8	15.2	14.8	-5.4

Source: Labour Force Surveys, Statistics Norway

among those with children below 3. For those with very young children the average weekly working hours decreased with 0.8 hours from 1991 to 2001. The fact that fathers with young children on the average have shorter contractual working hours than fathers with older children may indicate that young children impact fathers' working arrangements so that very long contractual hours are to some degree avoided during the children's early infancy. However, considering the increased focus on more active fathering throughout the 1990s, we would have expected a more clear decrease in working hours for this group.

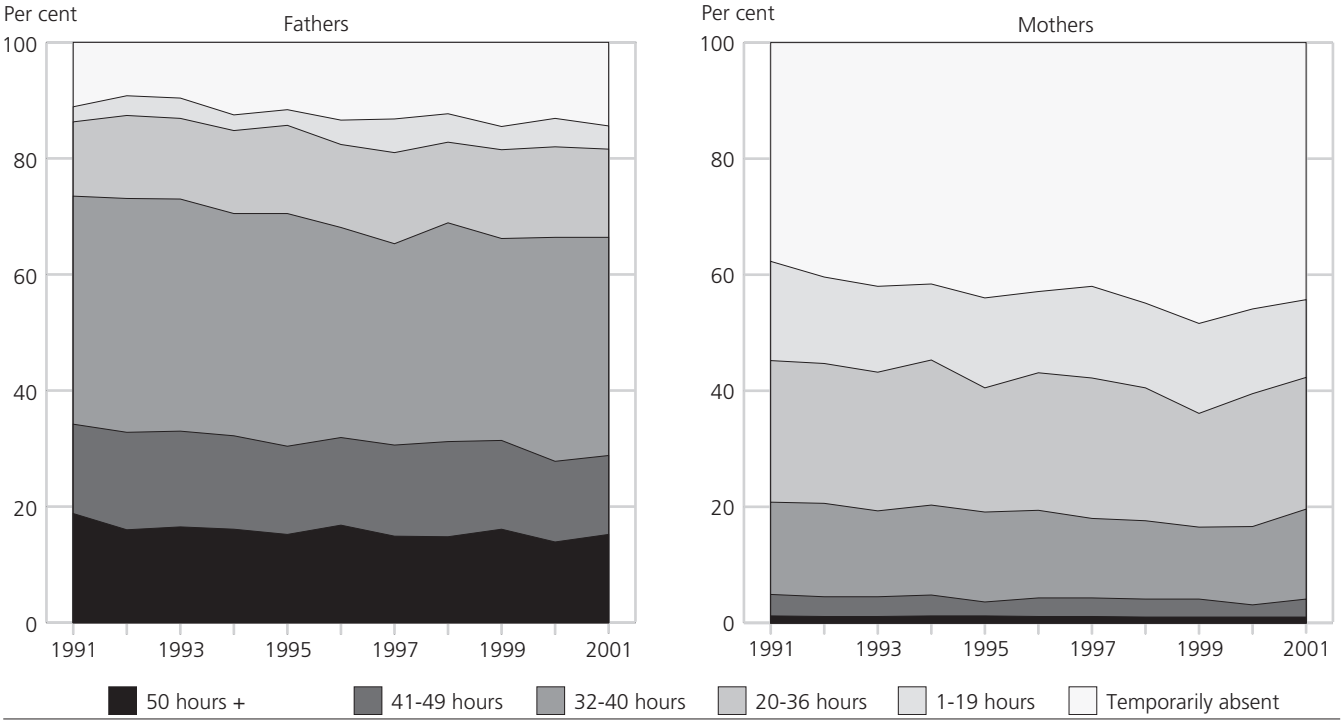
Actual working hours: Declining averages among employed fathers

People's actual working hours in the survey week may differ from their contractual hours either because they work less than agreed upon, or because of extra work or overtime. Table 4 shows that Norwegian fathers did reduce their time spent on income generating work somewhat from 1991 to 2001. However, considering the intense focus on the new father's role in the period, and also the improved leave schemes for fathers, the change in their actual working hours has been fairly modest.

Both for fathers with very young children, and for those with older children, there was a development towards more fathers working less than full-time and fewer working long hours. Whereas fairly few fathers have contractual part-time work, quite many actually work reduced hours during the reference week, and such adjustments became more widespread throughout the 1990s. In 2001 about 19 percent of the employed fathers with children 0-15 years of age worked 1-36 hours in the surveyed week, and this was about 4 percentage points more than in 1991. The pattern among fathers with very young children differs very little from the pattern of fathers with older children in this respect (figure 3).

The observed decrease in long hours actually worked among fathers is in accordance with the trends in their contractual/usual working hours, and is also

Figure 3. Actual working hours among employed married/cohabiting fathers and mothers with youngest child 0-2 years. 1991-2001. Per cent



Source: Labour Force Surveys, Statistics Norway.

Table 5. Average number of actual working hours among employed married/cohabiting fathers with children in various age groups. 1991-2001

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Change 1991-2001
Children 0-2 years	37.3	37.1	37.4	36.3	36.1	35.5	35.0	35.1	34.9	34.1	34.4	-2.9
Children 3-6 years	38.2	38.5	38.6	37.9	37.7	37.2	37.1	36.2	36.6	36.0	35.1	-3.1
Children 7-10 years	38.3	38.8	39.0	37.7	38.3	36.9	37.3	37.4	36.4	34.9	36.1	-2.2
Children 11-15 years	37.9	37.4	38.3	38.9	38.0	36.8	36.8	37.5	36.4	36.0	35.0	-2.9
Children 0-15 years	37.9	37.9	38.2	37.6	37.4	36.5	36.5	36.4	36.0	35.2	35.1	-2.8

Source: Labour Force Surveys, Statistics Norway

consistent with results from Level of Living studies in Norway. In spite of this decrease, long actual working hours are still quite widespread among fathers. Approximately 30 percent of employed fathers with children 0-15 years worked more than 40 hours a week in 2001. This was about 7 percentage points less than in 1991, but still it is significantly higher than the proportion of fathers formally holding such arrangements, and also far above the level among mothers. Only 8 percent of the employed mothers with children 0-15 years worked more than 40 hours a week in 2001, and the proportion stayed almost unaltered during the 1990s (table 7).

The enhanced opportunities for parental leave during the 1990s could give reason to expect more temporary absence among employed fathers with young children. However, the changes in this respect are modest, and also a great deal smaller than what is found among mothers. Only about 14 percent of the employed fathers with children 0-2 years of age were temporarily absent from work the whole survey week in 2001, - 3 percentage points more than in 1991 (figure 3). In contrast, as much as 44 percent of the employed mothers with very young children were temporarily absent in 2001, - 6.5 percentage points more than in 1991. Again, this reflects the fact that mothers continue to take the bulk of the parental leave period. It is also somewhat surprising that temporary absence is not particularly more common among fathers with very young children than among those with older children. As the opportunities for paid leave are most favourable during the child's first years, we would expect a somewhat more marked difference between fathers in accordance with the age of children.

In order to get a better overview of the aggregate changes in fathers' and mothers' actual working hours, and also a more concise measurement of the difference between actual and contractual hours, we have calculated the average actual working hours in the survey week from 1991 to 2001 (tables 5 and 7).

Table 6. Average number of actual working hours among all married/cohabiting fathers (employed and non- employed) with children in various age groups. 1991-2001

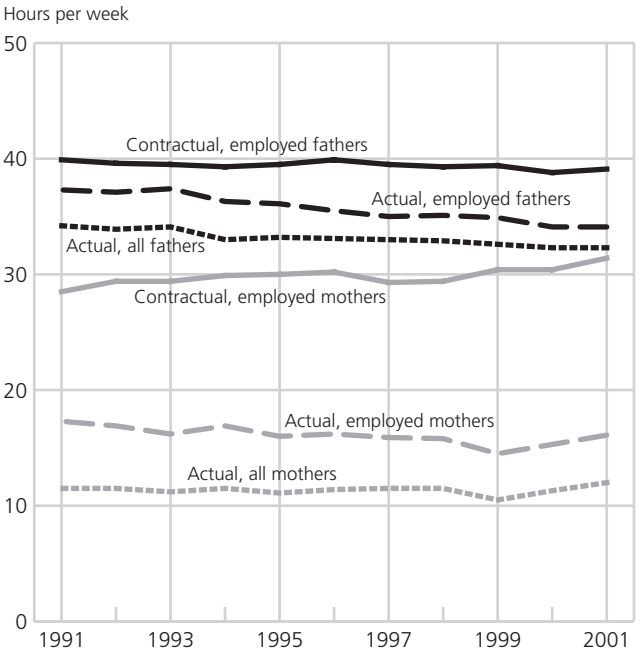
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Change 1991-2001
Children 0-2 years	34.2	33.9	34.1	33.0	33.2	33.1	33.0	32.9	32.6	32.3	32.3	-1.9
Children 3-6 years	35.6	35.3	35.6	35.4	35.6	35.0	35.0	34.3	34.7	34.2	33.1	-2.5
Children 7-10 years	36.4	36.4	35.5	34.9	35.8	35.0	35.5	35.6	34.4	32.8	34.2	-2.2
Children 11-15 years	35.8	34.6	35.4	36.4	35.4	34.3	34.5	35.8	34.2	33.8	32.8	-3.0
Children 0-15 years	35.3	34.9	35.1	34.8	34.9	34.3	34.4	34.4	33.9	33.3	33.0	-2.3

Source: Labour Force Surveys, Statistics Norway

Employed fathers with children 0-15 years of age worked 35.1 hours per week on the average in 2001. This was 2.8 hours less than in 1991, and also somewhat below the average contractual/usual hours of fathers. The decrease in fathers' actual hours in the 1990s was more pronounced than the decrease in their contractual hours, and accordingly, the difference between actual and contractual hours became a bit more marked.

Despite a certain decrease in fathers' actual working hours since the beginning of the 1990s, fathers' time spent on income generating work still far exceeds that of mothers. This is the case irrespective of the age of the youngest child, but is particularly prominent among parents with very young children (figure 4). Looking at parents with children below 3 years of age, we find that employed mothers actually worked only 16.1 hours per week on the average in 2001, while the fathers worked 34.4 hours. In 1991 the corresponding averages were 17.3 hours for mothers and 37.3 hours for fathers. Accordingly, the gender difference was barely reduced at all from 1991 to 2001. In 2001 employed mothers still worked on average less than half of what employed fathers did.

Figure 4. Average number of contractual/usual and actual working hours among employed fathers and mothers, and average actual working hours among all fathers and mothers. Figures for married/cohabiting parents with youngest child 0-2 years. 1991-2001. Hours per week



Source: Labour Force Surveys, Statistics Norway.

Including the non-employed in the averages gives a somewhat different picture of parents' working hours

In previous sections we have analysed fathers' weekly working hours by looking at contractual/usual weekly hours and actual weekly hours for those who are employed. Changes in fathers' time spent on gainful work can also be assessed by calculating the average working hours for all fathers, both employed and non-employed. This measurement captures the effects of employment rates as well as actual working hours among the employed. Working hours among the non-employed are set to zero. Hence, this way of calculating produces somewhat lower average working hours than do calculations including employed fathers only.

Table 6 demonstrates that married/cohabiting fathers with children 0-15 years of age spent on the average 33 hours per week on income generating work in 2001, - 2.3 hours less than in 1991. Hence, the increased employment rate was outweighed by the reduction in actual working hours among the employed. Fathers with very small children worked on the average 32 hours per week in 2001 (figure 4). This was only modestly less than fathers with older children.

Looking at all married/cohabiting parents with children 0-15 years we find that the gender difference in average time spent on gainful work became somewhat reduced during the 1990s, due to a slight increase among mothers and a small reduction among fathers. Nevertheless, the gender difference was still marked in 2001; the average for mothers was 18.7 hours per week, and this constituted only about 57 percent of the average for fathers. The gender difference is especially pronounced among parents with children below 3 years of age, where mothers' average actual working hours made up only some 37 percent of fathers'

Table 7. Employment, contractual/usual working hours and actual working hours among married/cohabiting mothers with children in various age groups. 1991 and 2001

	Children 0-2 years			Children 0-15 years		
	1991	2001	Change	1991	2001	Change
Employment, % of all (employed and non-employed)						
Employed	66.1	74.6	+8.5	74.3	81.6	+7.3
Temporarily absent	25.0	33.1	+8.1	15.0	19.1	+4.1
At work	41.1	41.5	+0.4	59.3	62.5	+3.2
Contractual/usual working hours, % of the employed						
1-19 hours	26.0	17.0	-9.0	26.9	17.2	-9.7
20-36 hours (part-time)	25.7	23.9	-1.8	31.2	31.4	+0.2
32-40 hours (full-time)	46.1	55.5	+9.4	37.8	47.2	+9.4
41-49 hours	1.3	2.2	+0.9	2.4	2.8	+0.4
50 hours +	0.9	1.3	+0.4	1.7	1.4	-0.3
Average among the employed	28.5	31.4	+2.9	28.0	30.7	+2.7
Actual working hours, % of the employed						
Temporarily absent	37.8	44.3	+6.5	19.9	23.5	+3.6
1-19 hours	17.1	13.4	-3.7	20.2	15.0	-5.2
20-36 hours	24.4	22.7	-1.7	32.3	32.6	+0.3
37-40 hours	15.9	15.5	-0.4	19.5	21.1	+1.6
41-49 hours	3.7	3.1	-0.6	5.4	5.6	+0.2
50 hours +	1.2	1.0	-0.2	2.7	2.3	-0.4
Average among the employed	17.3	16.1	-1.2	22.7	23.0	+0.3
Average among all (employed and non-employed)	11.5	12.0	+0.5	16.9	18.7	+1.8

Source: Labour Force Surveys, Statistics Norway

average hours in 2001 (figure 4). This huge gender difference reflects both the lower employment rate among mothers during the children's early infancy, and the far lower actual working hours among employed mothers than among employed fathers.

Summary and conclusion

During the past decades Norwegian authorities have developed work-family policies aiming at a more equal division of paid and unpaid work among mothers and fathers. The combination of paid work and family care has often been framed as a challenge first and foremost for mothers, but Norwegian fathers now increasingly meet expectations of more active participation at home. Whether, and to what extent, this has affected fathers' labour market behaviour has until now been little examined. In this article we utilise the LFS, linked with data from the Central Population Register, to assess possible changes in fathers' employment patterns and contractual and actual working hours from 1991 to 2001.

Consistent with the economic upturn in the second half of the 1990s the employment rate among fathers increased somewhat and reached about 94 percent in 2001. The proportion of fathers actually at work in the reference week stayed fairly stable, whereas there was a slight increase in the percentage being temporarily absent from work. Cultural norms of more active fathering have until now not resulted in more contractual part-time work among Norwegian fathers. The vast majority of fathers have ordinary full-time work, but long working hours still represent a quite common option. Nevertheless, we saw a certain decrease in long-hours arrangements during the 1990s. Not only fathers' contractual working hours, but also their actual working hours were somewhat reduced throughout the 1990s. It was first and foremost very long working hours that became less widespread.

Despite a certain reduction in fathers' contractual and actual working hours, and an increase in mothers' employment rates and contractual working hours, there are still huge gender differences in Norwegian parents' labour market behaviour. Part-time work is still mainly a female option, and long weekly hours are mostly found among fathers. Moreover, the substantial amount of temporary absence from work among mothers, compared to the rather modest absence among fathers, reflects that women are still the primary users of the parental leave schemes. Considering the strong focus on the new father's role in the 1990s, and also the improved leave opportunities for fathers, the change in fathers' working hours must be judged as rather modest. Significant as the reduction in fathers' long hours might be, it is still the case that fathers rarely choose part-time arrangements and only rarely make use of more than a modest share of the parental leave schemes.

Undoubtedly, although still the main breadwinners, Norwegian fathers have become far more involved in family work during the past decades. The Norwegian time use surveys show that fathers have increased their time spent on housework and family care quite substantially since the 1970s (Kitterød 2002). However, the Labour Force Surveys show that in contrast to

what is the case for mothers, fathers' adjustments in the labour market are mostly done within a full-time contract, or even a contract of long weekly hours. Part-time work and extensive use of parental leave schemes still seem to be mainly a female model. Ellingsæter (1999b) argues that short periods of absence from work, as for instance the father's quota, does not question an individual's job commitment in the same way as reduced hours over longer periods do. Maybe this is part of the explanation why most Norwegian fathers still opt for full-time arrangements in the labour market and make modest use of their leave opportunities. The strong gender segregation in the Norwegian labour market, and the overrepresentation of men in the private sector, entails that fathers often work in professions characterised by a culture were reduced working hours and long periods of leave are not warmly welcomed (Abrahamsen 2002). However, this culture may change as new cohorts of parents enter the labour market. Whether Norwegian fathers will make more pronounced adjustments to family life in the years to come remains to be seen.

Several conditions not discussed here, may of course also have significant impact on the changing gender division of paid and unpaid work within families with small children. One such important factor is the gender differences in wages. Discussing the significance of wages is, however beyond the scope of this article. Also, more detailed analyses of the LFS are needed in order to explore possible divergences in labour market behaviour between fathers in various sectors and trades, between fathers with various numbers of children, various levels of education and differences between fathers and men in other life cycle stages. In this article, we have explored parents' working hours by looking at groups of fathers and groups of mothers separately. Analyses of couples based on information on both fathers and mothers in the same household will give an even better understanding of changes in parents' labour market behaviour and working hours, and also of differences between various groups of parents.

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The cost of inpatient curative care by gender, age and diagnosis

Ann Lisbet Brathaug and Elisabeth Nørgaard

The OECD has published a manual for a System of Health Accounts (SHA). The system focuses on providers of health care, types of services and goods provided and sources of funding. Eurostat is highly involved in introducing the OECD system and supports several projects. One of the projects concerns statistics for the distribution of health expenditure by gender and age. Norway has contributed to this project by supplying data for inpatient curative care distributed on age and gender, and the data presented in this article build on this contribution. However, an additional dimension is added by including diagnosis. The framework for the project is the SHA of OECD and the principles of the system are therefore described. It is illustrated how this framework can be used to link economic data with data on demography and diseases. Norway is in an early phase of the implementation of the SHA and the results presented should be regarded as illustrative examples. The results show that even though men and women account for equal shares of the population, men constitute 44 per cent of total discharges moreover, since men are over-represented in diagnosis groups with higher weights, they carry 47 per cent of the cost. Those over 80 years represent 4 per cent of the population, 14 per cent of the discharges and due to higher DRG-weights 17 per cent of the total costs. The age group 0 - 9 years account for 14 per cent of the population. This age group represents 9 per cent of the discharged and 7 per cent of the total cost.

Introduction

Most health systems in the world are experiencing rapid and fundamental change. New medical technologies, e-health commerce, changing demographic and social structures put pressure on health system's management, with a constant requirement to improve productivity. In addition financial restraints of public budgets are a challenge. In Norway the health expenditures are estimated to 8 per cent of Gross domestic Product (GDP) and the public financing contributes to more than 80 per cent of the total expenditures. This illustrates that expenditure on health constitutes an important part of the economy. Readily available and widely accepted statistical indicators facilitate the determination of policy objectives such as health care expenditures or cost containment. The formulation of health policies as well as accessibility to health services, the efficiency of alternative resource-use patterns, and the evaluation of the structure of the health sector, all require quantifiable and documented health-related and general economic indicators. Both economic and social data are thus essential in order to conduct an evaluation of health policies.

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One way to present health statistics in a consistent way is to apply a national accounting framework. National Accounts constitute an integrated system of comprehensive, internally consistent and internationally comparable accounts. A system of health accounts or satellite accounts will share these goals as well as being compatible with other aggregate economic and social statistics as far as possible. Thus, a satellite account relates factors influencing the health care system to other macro- and micro-economic variables, and enables an evaluation of the resources allocated to health care relative to the total amount of resources available to the society. There is a growing appreciation of the key role of health accounting in understanding health system developments generally. In order to provide an adequate information policy for this new political orientation, the European Union has for example taken itself to make the European health system more comparable. This requires a comprehensive information system providing policy makers with the necessary data on which to base their information. Thus, Eurostat is highly involved in introducing OECD's system of health accounts and is supporting projects to give practical guidelines and also projects concerning comparison of implementation of the system of health accounts and the feasibility of providing expenditure distributed on gender and age (Eurostat - SHA Age and gender, 2002).

The usefulness and desirability to classify expenditure by age and gender is indicated by the potential uses of

The Sienna group

This paper was presented on the Sienna Group meeting on Social Statistics, in London in November 2002. The purpose of the Siena Group is the promotion and coordination of international cooperation in the area of social statistics by focusing on social indicators, social accounting, concepts and classification as well as the analysis of the linkages and framework for integrating social, economic and demographic data for the purpose of policy formulation and analysis.

age-related expenditure data. For example, it can help to:

- Estimate future resource requirements for health care;
- Assess to what extent age explains variation in health costs (as opposed to, for example, proximity to death);
- Predict future long-term costs of ageing populations and examine responsibility for financing this care;
- Monitor age-related rationing of health care

Health care statistics and the system of health accounts

A thorough evaluation of a health care system requires a range of data both on inputs (cost, employment, allocation of resources), throughputs (e.g. treatments, number of patients treated) and outcomes (i.e. the effect in the health of the population). Different approaches are possible when constructing a statistical system covering health care. It is, however, important that the statistical system provides a set of consistent data because this assures completeness. Explicit considerations must be made to the areas and scope of the data to be collected. This will also enable the statistical agency to spot and assess data gaps and data collection priorities (Wolfson, 1991). A systematic data framework also makes it possible to consider the theories that underlie the data or the analysis for which the data will be used. In order to construct a consistent data framework, data from different sources will have to be used, which means that inconsistencies between sources will have to be considered.

The idea of a systematic account in the area of social data is not new. Richard Stone developed a "system of social and demographic statistics". In this framework, the population is divided into groups by age and status (for example in labour force or in education). The system allows for both stocks (e.g. number of patients) and flows (entering hospital) to be recorded. It is also possible to link demographic data to economic data in an integrated economic framework (Stone, 1981).

Another approach, not as broad in scope as a complete system of health statistics, is the literature on the cost of illness (Cooper and Rice, 1976, Hartunian et al 1980, Rice et al 1985, quoted in Wolfson 1991). Both the direct cost and the indirect cost of an illness, the economic value of lost output when a person is too sick to work and the non-market cost that may be imposed by family members who take care of an ill person are distinguished and measured. This field of work takes account of the impact of individuals as well as non-market factors.

Health accounts based on a National Accounting framework is another alternative. The focus is on health care, rather than the health outcome and the perspective is that of economic production and financing. This framework measures flows in common unit of accounts (e.g. Norwegian kroner) and provides information on type of institutions, type of factor input sources of revenue, purpose etc.

National accounts and satellite accounts

National accounts consist of a consistent and integrated set of macroeconomic accounts, balance sheets and tables based on a set of internationally agreed concepts, definitions, classifications and accounting rules. They provide a comprehensive accounting framework within which economic data can be compiled and presented in a format that is designed for purposes of economic analysis, decision taking and policy making (SNA, 1993 $1). A revised manual (SNA 1993), on recommendations for recording of National Accounts, was jointly published by UN, IMF, OECD, World Bank and Eurostat in 1993. The accounts within the System of National Accounts (SNA) are designed to provide useful information about activities and processes taking place in the economy, such as production, consumption and accumulation of assets.

The SNA 1993 recognises the use of satellite accounts as an important and flexible tool building on the national accounting framework. Satellite accounts are intended for special purposes such as monitoring the community's health or environment. More specifically, three distinct purposes of a satellite account can be identified. One is to analyse the organisation, operation and financing of output of characteristic activities within the field; another is to describe and analyse the structure and financing of different goods and services or transfers allocated to various categories of beneficiaries; and lastly to measure the global efforts made by the community to finance this requirement (Pommier 1981, Teilet 1988).

Typically, satellite accounts or systems allow for (SNA, 1993 $21.4):

- The provision of additional information on particular social concerns of a functional or cross-sector nature;
- The use of complementary or alternative concepts, including the use of complementary and alternative classifications and accounting frameworks, when needed to introduce additional dimensions to the conceptual framework of national accounts;

- Extended coverage of costs and activities of human activities;
- Further analysis of data by means of relevant indicators and aggregates;
- Linkage of physical data, to data expressed in monetary terms.

Satellite accounts are linked to the central framework of national accounts and to the main body of integrated economic statistics, but since they are more specific to a given field or topic, they are also linked to the information system specific to this field or topic.

Satellite accounts can describe fields that overlap. A given expenditure item may be entered in several accounts, according to the purpose assigned to it. Thus, expenditures for teaching in medical schools or the expenditures of school doctors and nurses are recorded simultaneously in the Satellite Health Accounts and in the Satellite Education Accounts. Since the same information can be used in different satellite accounts some overlapping can occur in coverage and in the summing of various satellite accounts data. The combined totals of two or more satellite accounts, therefore, may not be meaningful since certain activities are considered within the scope of several satellite accounts (Sunga and Swinamer, 1986).

The accounts are drawn up in the form of tables which measure the contributions made by all the agents in a given field, so as to determine who is responsible for the financial burden and who benefits from the contributions. Each field is therefore analysed not only from the perspective of the producers but also from the viewpoint of financiers and beneficiaries (Lemaire, 1987). Coherent definitions and classifications ensure comparability of the statistics of the field with other statistics and enables one to relate monetary flows brought into play to the economic evaluations of the whole economy. A real analysis of the beneficiaries requires examination of their distribution according to relevant criteria (socio-economic groups, age, sex etc). Including these factors will lead to an integration of social and economic statistics, which improve the analytical usefulness of the statistics.

The OECD manual for the System of Health Accounts (SHA)

OECD has published a manual for a System of Health Accounts (SHA) (OECD, 2000). The manual provides a set of comprehensive, consistent and flexible accounts. It establishes a conceptual basis of statistical reporting rules and proposes a newly developed International Classification for Health Accounts (ICHA) which covers three dimensions: health care by functions of care; providers of health care services; and sources of funding.

The provision of health care and its funding is a complex, multi-dimensional process. The set of core tables in the SHA addresses three basic questions:

1. Where does the money come from? (source of funding)
2. Where does the money go to? (provider of health care services and goods)
3. What kind of (functionally defined) services are provided and what types of goods are purchased?

Consequently, the SHA is organised around a tri-axel system of recording of health expenditure, by means of the propose International Classification for Health Accounts (ICHA), defining:

1. health care by function (ICHA-HC);
2. health care service provider industries (ICHA-HP);
3. sources of funding health care (ICHA-HF)

These classifications provide basic links with non-monetary data such as employment and other resources statistics.

The main purposes of the OECD System of Health Accounts are:

- To provide a set of internationally comparable health accounts in the form of standard tables;
- To define internationally harmonised boundaries of health care and basic categories thereof;
- To distinguish core health care functions from health-related functions and to emphasis inter-sectoral aspects of health as a common concern of social and economic policy in various fields;
- To present tables for the analysis of flows of financing in health care together with a classification of insurance programmes and other funding arrangements;
- To provide a framework of main aggregates relevant to provide guidance for comparative research in the meso an micro structure of health care services;
- To propose a framework for consistent reporting of health care services over time;
- To monitor economic consequences of health care reform and health care policy;
- To provide a framework for analysing health care systems from an economic point of view, consistent with national accounting rules;
- To present an economic model of supply and use of health care services – as a tool to show the conceptual links between the System of health accounts and health satellite accounts.

The SHA thus shares the goal of System of National Accounts to constitute an integrated system of comprehensive, internally consistent, and internationally comparable accounts, which should be compatible with other aggregate economic and social statistics as far as possible. The SHA is designed to meet the needs of analysts of health systems and policy makers.

KOSTRA – a partnership between local and central government

An important source in the Norwegian system for health accounts will be the reporting system developed for reporting data from local to central government (KOSTRA). A description of this system is therefore included.

Central and local government

Norway has three levels of public government: The national level, the regional level (18 counties) and the local level (435 municipalities). The regional and local authorities are governed by elected councils. Local authorities are responsible for local planning and for services for the inhabitants such as schools, libraries, health services and social work. They have most of their responsibilities defined by law. Although much of their obligation is to implement national policies they also have some degree of autonomy. Their revenue comes from local taxes, from fees for their services and from the state. The revenue from the state is of two kinds, for special tasks or for general purposes. The transfer from central government is determined by characteristics of the municipalities, for example the number of inhabitants and the amount of local tax revenue. The regional and local authorities expenditures covered about 12% of the GDP, and about 60% of total public consumption in 2000. The system for income transfers between central and local government includes a weighting factor to facilitate redistribution between rich and poor regions.

Total expenditure on health has increased from about 56 billion NOK in 1990 to almost 121 billion NOK in 2001. Measured in fixed prices this is an increase of 49 per cent for the period or an average yearly increase of 3.7 per cent. There has been an increase in the population during the same period, which implies that when measured as expenditure per capita the growth in fixed prices was 3.1 per cent per year on average. The public expenditure on health as a share of total public expenditure was 13 per cent in the 1980s and early 1990s. In 1995 this had increased to 14 per cent and by 2001 17 per cent of the total public budget was directed to health. The figures thus indicate that health has been a prioritised area compared to other areas (Health and care services, 2002).

Central and local government are responsible for the finance of current expenditure and investment in hospitals, primary health care and prevention. In addition the social security refunds a large part of the private consumption of medicines, dentists, general practitioners and so on. As a result the public sector finance more than 80 per cent of the total health expenditure. It is thus, nothing in the data that indicates that the private sector has had to finance a larger share of the expenditure due to limited public resources.

However, the data indicates that there has been a shift of financing between central and local government. The central government, including social security, financed a larger share of the expenditure at the end of the 1990s that in the beginning of the decade. In 1995 about 35 per cent of the expenditure was financed by central government, in 1998 this had increased to almost 40 per cent. This is mainly explained by the change in the financing of hospitals and increased use of earmarked grants to the municipalities (Nørgaard, 2001).

This structure for achieving a balance between local and central government incorporates several political and administrative challenges. Politicians need to monitor the overall performance of the system and the effects of redistribution between rich and poor regions. There is also a need for surveillance of the welfare of the inhabitants. This involves a description of the standard of living and the quality of the public services. Information and statistics should be available for all partners in the system.

Each level of government needs its own sort of information, as well as providing information for each other. Official statistics have a role to play in this information system. The traditional system for official statistics for the public sector has been developed theme by theme. Themes such as child-care, education, primary health care and environmental protections have been emphasised, independent of the administrative system that produces the services. To some extent, this system mirrors the structure of central government, with separate ministries representing the different services: Ministries for Family affairs - Education - Health - Social services - Environment - Transportation. Laws governing Public education, Public Health, Social Services and so on are defining needs for control data. There is also a law governing Local Administration (i.e. how the municipalities are to be run), which defines standards for local economic accounting and for reporting on the municipality's economy. Most official statistics concerning local affairs are based both on data collected on the basis of rights specified in the laws mentioned above and on regulations in the Statistics Act.

Integrated and electronic reporting

KOSTRA is an abbreviation for "Municipality-State-Reporting". The KOSTRA-project started in 1995 as a pilot project with four municipalities as participants. This pilot developed a first version of a new system for electronic data reporting and publishing. After the first pilot the government decided that all local and regional governments should report according to the new system. After that the number of municipalities has increased gradually, and the first full scale reporting took place in March 2002.

KOSTRA focuses on several purposes (Ljones and Svinset); of which two are:
1) To give better information about the municipalities, both for the central and for the local governments. This includes a more coherent data collection, which makes it possible to combine data from many sources, for example combination of data on business accounts and data on services and personnel. The focus has also been on comparability between municipalities, to make benchmarking possible as a part of the management process. And timeliness is vital. Information is collected in February and the first figures are published in mid March. In this publishing only electronic tests check the reliability of data. Revised figures are published in mid June.

2) More efficient reporting, including lower response burden for the municipalities. All data reported from the municipalities are electronic, by use of electronic forms or file extracts. And the same data should be collected only once, even if it is used for several purposes. The publishing includes a number of fixed indicators on the municipalities' priorities, productivity and the coverage of needs. It is structured to enable the comparisons of one municipality with the average for the comparable group of municipalities, the region or the country. The publishing also includes detailed data that enables the users to construct their own indicators and tables, by use of several programmes as for example Excel or PC-Axis. Data may be presented on maps using PC-Axis in combination with PX-Map.

The cost of inpatient curative care by gender, age and diagnosis

The Eurostat project on expenditure by age and gender chose to focus on two functions in the SHA framework; inpatient curative care and pharmaceuticals. The participating countries have supplied data to one of these functions and Norway has supplied data on inpatient curative care. The project will prepare a final report, which will include recommendations for further work to improve data on health expenditure by function, age and gender, within the framework of the SHA. The final report should be completed by March-03. (Eurostat, SHA Age and gender, 2002). For the purpose of this paper, we have added the dimension of diagnosis in order to further illustrate how economic and social statistics can be integrated within the framework of the System of Health Accounts.
The new KOSTRA-system enables us to collect data from general hospitals at a relatively detailed level, which will be utilised in the construction of the SHA. It is important to be aware of the fact that the total cost for inpatient curative care is an estimated figure and not directly measured. In 2000 the total current expenditures for the hospitals was 35 billion NOK and the cost related to inpatient curative care is estimated to 29,4 billion NOK.

Costs

The starting point for distributing the costs is the gross current expense from general and specialised hospitals, excluding psychiatric hospitals. The statistics are based on a total count of all general institutions embraced by the counties' health plans. These hospitals have reported using the KOSTRA system. Also included are all state and private hospitals. Gross current expenses include expenses on wages and social benefits, expenses on equipment and maintenance, other current expenses and transfer expenses. Interest, principal repayment, financing transactions such as funds, charging of accounting losses/profits as expenses and coverage of previous years' losses, are not included. The costs associated with the outpatient activity performed by the institutions are thus included in the gross current expenses. The SHA has a functional breakdown on inpatient and outpatient treatments and the first step is to distribute the gross expenses of the hospitals on these functions using available information, such as reimbursement from social security and private expenditure on outpatient treatment.

The DRG-system

The DRG system is a system for classifying hospital stays in general and specialised hospitals into groups that are medically meaningful and as homogeneous as possible regarding resources used. Based on medical and administrative information about the discharges, each hospital stay will be placed in one and only one DRG. The DRG system is used by health administrators, mainly in the Ministries in many countries, and the system is developed to finance hospitals. By implementing the DRGs it is possible to reclassify all hospital stays/discharges by DRG.

Each DRG is related to a cost weight. The cost weight defines the average cost of the specific DRG relatively to average cost at the national level (for the average patient). The cost weights are estimated on the basis of costs related to the specific DRGs. The specific DRGs are made up of four different components; costs related to average length of a stay, x-ray costs, laboratory costs and operation costs. This means that all hospitals stays will be given a weight based on the costs related to this stay.

Information from the Norwegian Patient Register (NPR) is used to distribute costs on age, gender and diagnosis. The NPR contains information on discharges and bed-days for inpatients and also on the patient's sex, age, primary and secondary diagnoses etc. In addition the NPR contains information on Diagnosis Related Groups (DRG).

In our example, the estimated costs of inpatient curative care in general hospitals have been distributed on age, gender and diagnosis by using information on DRG from the NPR. The relative DRG-weight for each year group and for both gender and each group of diagnosis is applied on total costs. We have used 5 broad categories of diagnosis:

1. Malignant neoplasms and In situ neoplasms
2. Diseases of the circulatory system
3. Pregnancy, childbirth and the puerperium
4. Injury, poisoning and certain other consequences of external causes
5. Other

We have applied the following age groups; 0-9, 10-19, 20-39, 40-59, 60-69, 70-79, 80 and above.

Results

The level of detail is large when three dimensions such as age (7 groups), diagnosis (5 groups) and gender (2 groups) are combined. In addition we use data for discharges, costs and population as a whole. In order not to get lost in the jungle of data, we have chosen to focus on three main themes:

- Men and women, costs compared to discharges
- Diagnosis, cost compared to discharges
- Age groups, costs compared to discharges

The detailed tables are presented in the appendix.

Table 1 illustrates that men and women are about equally distributed in the population. However, men constitute a lower share of total discharges, 44 per cent of the discharged are men and these carry 47 per cent of the cost. This is also illustrated in table 2, which shows the average cost per person discharged. The average cost is 42 521 kroner, the average cost for men is 44 595 kroner, while the average cost for women is 40 865. This can be explained by the fact that men are over-represented in the diagnosis groups that are given higher DRG-weights. Diseases of the circulatory system constitutes the highest share of DRGs with 19 per cent of the total DRGs, and 61 per cent in this group is men.

The table above illustrates that by adding the cost component the relative weights of the diseases are altered. For example the cost of pregnancy and childbirth constitute 6 per cent of total cost, while the group constitutes 11 per cent of total discharges. On the other side the share of malignant neoplasms and in situ neoplasms, which makes up 11 per cent of the discharges increases to 15 per cent when costs are added. Diseases of the circulatory system constitute 15 per cent of the discharges and 18 per cent of the costs. The figure below illustrates the gender dimension of the cost per diagnosis.

The youngest and oldest age groups are worth a few comments. The age group 0 – 9 years constitutes almost 14 per cent of the population, however, the share of discharges is 9 per cent, and the share of total cost is only 7 per cent. The youngest age group has average cost that is 25 per cent below the average. Of the youngest age group 51 per cent are boys and they constitute 56 per cent of the costs. On the other side the oldest age group, those over 80 years represents only 4 per cent of the population, but 14 per cent of the discharges and due to higher DRG-weight, 17 per cent of the total cost. From the age of 60 years and above, women constitute a larger share of the population than men. Men, however, are more frequently hospitalised and make up more that 50 per cent of the discharges and also the associated costs. In the eldest age group, those 80 years and above, 67 per cent are women. However, the gender distributed costs show that women over 80 years old constitute 61 per cent of the cost associated with this age group. The only age group where women are more in hospitals than men, relatively speaking, are those between 20 and 39, where 72 per cent of the discharges are women and they constitute 68 per cent of the costs.

Table 1. The distribution of cost, discharges and population by gender, per cent

	Total cost	Total discharges	Total population
	100	100	100
Men	46.6	44.4	49.5
Women	53.4	55.6	50.5

Source: Statistics Norway.

Table 2. Average cost per person discharged, Norwegian kroner

	Total	Men	Women
Average cost per person discharged	42 521	44 596	40 865

Source: Statistics Norway.

Table 3. Costs and discharges by diagnosis

Both gender	Total costs	Total discharges
All	100	100
Malignant neoplasms and In situ neoplasms	15.2	11.1
Diseases of the circulatory system	18.4	14.6
Pregnancy, childbirth and the puerperium	6.2	10.3
Injury, poisoning and certain other consequences of external causes	10.5	10.7
Other	49.7	53.3

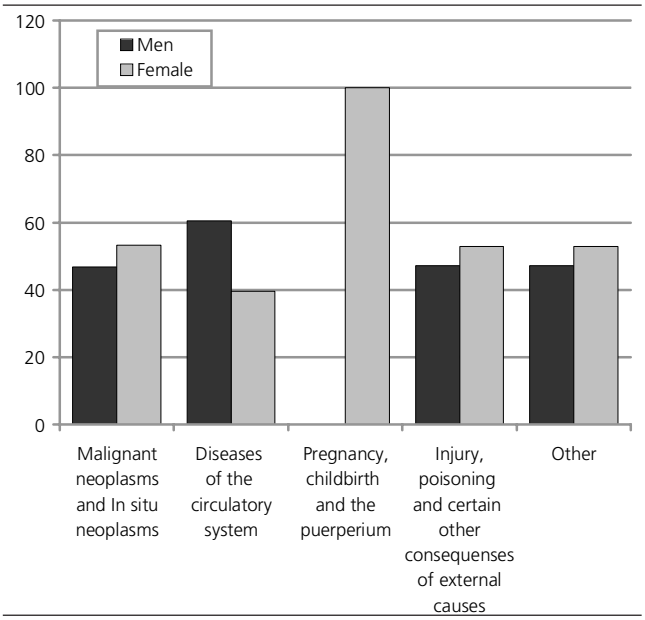
Source: Statistics Norway.

Table 4. The distribution of costs, discharges and population on age groups

	Cost Per cent	Discharges Per cent	Population Per cent	Average cost per person discharged in each age group, kroner
Age	100	100	100	42 521
0-9	6.8	9.1	13.5	31 743
10-19	2.9	4.5	12.4	27 621
20-39	16.5	22.8	28.6	30 883
40-59	21.4	20.6	26.2	44 082
60-69	14.4	11.7	7.8	52 142
70-79	21.2	17.0	7.0	53 246
80 +	16.8	14.4	4.4	49 603

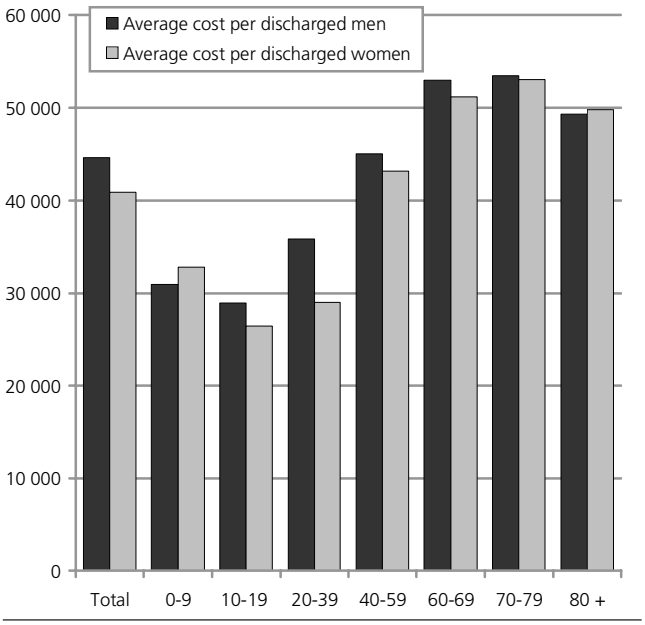
Source: Statistics Norway.

Figure 1. The distribution of cost of diagnosis on men and women, per cent



Source: Statistics Norway.

Figure 2. Average cost per man or women discharged in each age group, Norwegian kroner



Source: Statistics Norway.

This can largely be explained by hospitalisation due to pregnancy, childbirth and the puerperium.

It has been argued that the elderly part of the population is over-represented in the more expensive part within each DRG group. If this is the case the DRG weights will to some extent underestimate the cost of the elderly. The DRG system has also been criticised for not measuring adequately the cost associated with chronic cases and complex diagnosis. It is sometimes argued that the elderly is over-represented in these categories. Also in this case the DRG system will underestimate the cost of the elderly. However, we do not have information that confirms these arguments.

Figure 2 shows that the average cost per discharged man is higher than the average cost per discharged woman in all age groups except the age group 80 years and above.

Conclusions

This paper has illustrated that the System of Health Accounts is a suitable framework for the integration of economic and social statistics. Costs of inpatient curative care, which is a function in the SHA, have been distributed on age, gender and diagnosis. The main results can be summarised as:

- Men and women account for equal shares of the population. While 44 per cent of the discharged patients are men, they are over-represented in the diagnosis groups with higher DRG-weights, consequently they carry 47 per cent of the cost related to inpatient curative care.
- Adding the cost component alters the relative weights of the diseases. For example, pregnancy and childbirth constitute 11 percent of total discharges, but only 6 per cent of the total cost.
- The age group 0 - 9 years accounts for 14 per cent of the population. This age group represents 9 per cent of the discharged and 7 per cent of the total cost. The cost of the youngest age group is 25 per cent below the average cost.
- Those over 80 years represent 4 per cent of the population, 14 per cent of the discharges and due to higher DRG-weights 17 per cent of the total cost.

Health accounts can provide an “anchor” to which a variety of disaggregated sub-estimates can be linked. Specialised accounts fulfil a variety of informational needs. Health accounts by age, may help policymakers to focus on the different national expenditure, use, access and financing mechanism available to various age groups. Policymakers may therefore use the accounts when health care needs and objectives for health care planning are specified. The accounts may provide a tool for evaluating the effects of different policy options and may also be used to assess the cost of various health care programmes within a consistent framework.

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Appendix

Table A1. Population distributed on age and gender, 2000

Age groups	Total	Men	Women
Total	4 503 436	2 231 301	2 272 135
0-9	609 102	312 893	296 209
10-19	559 289	286 645	272 644
20-39	1 286 377	655 625	630 752
40-59	1 181 561	601 332	580 229
60-69	353 115	170 838	182 277
70-79	317 091	138 259	178 832
80 +	196 901	65 709	131 192

Source: Statistics Norway

Table A2. Discharges, both gender, 2000

ICD10 / age groups	Total	0-9	10-19	20-39	40-59	60-69	70-79	80 +
Total	691 974	62 705	30 807	157 449	142 857	81 010	117 331	99 815
Malignant neoplasms and In situ neoplasms	76 796	2 216	1 417	5 562	22 317	15 226	19 037	11 021
I00-I99 Diseases of the circulatory system	101 051	310	358	3 477	21 379	18 805	30 717	26 005
Pregnancy, childbirth and the puerperium	71 036	.	1 602	67 405	2 029	.	.	.
Injury, poisoning and certain other consequences of external causes	74 312	5 611	7 737	17 461	14 393	6 011	9 731	13 368
Other	368 779	54 568	19 693	63 544	82 739	40 968	57 846	49 421

Source: Statistics Norway

Table A3. Discharges, men, 2000

ICD10 /age groups	Total	0-9	10-19	20-39	40-59	60-69	70-79	80 +
Total	307 288	35 979	14 542	43 556	71 605	43 432	58 957	39 217
Malignant neoplasms and In situ neoplasms	35 351	1 131	746	2 339	7 990	7 631	10 150	5 364
Diseases of the circulatory system	58 308	152	179	1 945	15 178	12 694	17 545	10 615
Pregnancy, childbirth and the puerperium	.	.	.	.	.	.	.	.
Injury, poisoning and certain other consequences of external causes	37 984	3 320	4 772	11 571	8 487	2 932	3 589	3 313
Other	175 645	31 376	8 845	27 701	39 950	20 175	27 673	19 925

Source: Statistics Norway

Table A4. Discharges, women, 2000

ICD10 /age groups	Total	0-9	10-19	20-39	40-59	60-69	70-79	80 +
Total	384 686	26 726	16 265	113 893	71 252	37 578	58 374	60 598
Malignant neoplasms and In situ neoplasms	41 445	1 085	671	3 223	14 327	7 595	8 887	5 657
Diseases of the circulatory system	42 743	158	179	1 532	6 201	6 111	13 172	15 390
Pregnancy, childbirth and the puerperium	71 036	.	1 602	67 405	2 029	.	.	.
Injury, poisoning and certain other consequences of external causes	36 328	2 291	2 965	5 890	5 906	3 079	6 142	10 055
Other	193 134	23 192	10 848	35 843	42 789	20 793	30 173	29 496

Source: Statistics Norway

Table A5. The distribution of costs, both gender, 2000

Mill kroner	Total	0-9	10-19	20-39	40-59	60-69	70-79	80 +
All	29 424	1 990	851	4 862	6 297	4 224	6 247	4 951
Malignant neoplasms and In situ neoplasms	4 476	108	71	284	1 257	918	1 175	664
Diseases of the circulatory system	5 405	13	17	162	1 139	1 103	1 708	1 262
Pregnancy, childbirth and the puerperium	1 833	0	36	1 744	53	0	0	0
Injury, poisoning and certain other consequences of external causes	3 088	130	182	539	537	295	571	835
Other	14 622	1 740	546	2 134	3 312	1 907	2 793	2 191

Source: Statistics Norway

Table A6. The distribution of costs, men, 2000

Mill kroner	Total	0-9	10-19	20-39	40-59	60-69	70-79	80 +
Men	13 704	1 113	421	1 562	3 222	2 302	3 150	1 934
Malignant neoplasms and In situ neoplasms	2 091	55	37	121	482	466	624	308
Diseases of the circulatory system	3 268	6	8	92	833	774	1 025	529
Pregnancy, childbirth and the puerperium	0	0	0	0	0	0	0	0
Injury, poisoning and certain other consequences of external causes	1 457	80	119	376	320	141	210	210
Other	6 888	972	257	974	1 587	920	1 292	887

Source: Statistics Norway

Table A7. The distribution of costs, women, 2000

Mill kroner	Total	0-9	10-19	20-39	40-59	60-69	70-79	80 +
Women	15 720	877	430	3 300	3 075	1 922	3 097	3 018
Malignant neoplasms and In situ neoplasms	2 385	53	34	163	775	453	551	356
Diseases of the circulatory system	2 137	7	9	71	305	329	683	733
Pregnancy, childbirth and the puerperium	1 833	0	36	1 744	53	0	0	0
Injury, poisoning and certain other consequences of external causes	1 631	50	63	162	216	154	361	625
Other	7 734	767	289	1 160	1 725	987	1 502	1 304

Source: Statistics Norway

Research publications in English
New titles

Discussion Papers

Erik Biørn, Terje Skjerpen and Knut R. Wangen: **Parametric Aggregation of Random Coefficient Cobb-Douglas Production Functions: Evidence from Manufacturing Industries.** DP no. 342, 2003. 46 pages.

A panel data study of parametric aggregation of a production function is presented. A four-factor Cobb-Douglas function with random and jointly normal coefficients and jointly log-normal inputs is used. Since, if the number of micro units is not too small and certain regularity conditions are met, aggregates expressed as arithmetic means can be associated with expectations, we consider conditions ensuring the existence and stability of relationships between expected inputs and expected output and discuss their properties. Existence conditions for and relationships between higher-order moments are considered. An empirical implementation based on panel data for two manufacturing industries gives decomposition and simulation results for expected output and estimates of the aggregate parameters. Illustrations of approximation procedures and aggregation errors are also given.

Annegrete Bruvoll, Taran Fæhn and Birger Strøm: **Quantifying Central Hypotheses on Environmental Kuznets Curves for a Rich Economy: A Computable General Equilibrium Study.** DP no. 341, 2003. 35 pages.

We investigate whether the future relationships between several pollutants and per capita income in rich countries may assume the inverted U-forms of Environmental Kuznets Curves (EKC). The emission-augmenting effect of scaling up aggregate economic activity may be counteracted by greener composition of production and consumption, technological progress, and increased demand for environmental quality and policy. To quantify the importance of these central hypotheses, we use a CGE model with endogenous policy for Norway. Our results suggest significant future effects of all these three counteracting mechanisms. For most local and regional pollutants, they may be strong enough to prolong the falling emission trends. However, we cannot rely on reductions in emissions of climate gases and some transport-related local pollutants. Our results also indicate that pollution leakages abroad are likely to find place.

Hilde C. Bjørnland and Håvard Hungnes: **The importance of interest rates for forecasting the exchange rate.** DP no. 340, 2003. 21 pages.

This study compares the forecasting performance of a structural exchange rate model that combines the purchasing power parity condition with the interest rate differential in the long run, with some alternative models. The analysis is applied to the Norwegian exchange rate. The long run equilibrium relationship is embedded in a parsimonious representation for the exchange rate. The structural exchange rate representation is stable over the sample and outperforms a random walk in an out-of-sample forecasting exercise at one to four horizons. Ignoring the interest rate differential in the long run, however, the structural model no longer outperforms a random walk.

Rolf Aaberge and Audun Langørgen: Measuring the Benefits from Public Services: **The Effects of Local Government Spending on the Distribution of Income in Norway.** DP no. 339, 2003. 37 pages.

The purpose of this paper is to provide an evaluation of how local public in-kind benefits affect the distribution of income in Norway. To this end, a method that accounts for differences between municipalities in capacity to produce the same standard of public services is used for assessing the value of sector-specific local public services in each municipality. Next, the underlying justification of the various services is used as basis for determining the allocation of the assessed value of the services on the citizens in the municipalities. For instance, services like health care and care for the elderly and disabled are treated as an insurance arrangement. Thus, the corresponding in-kind benefits are allocated on the potential recipients. By contrast, the value of the production of education and child care is allocated uniformly on the families that receive these services. The empirical results show that the inequality in the (marginal) distribution of municipal in-kind benefits is rather high. The contribution of in-kind benefits to inequality in the distribution of extended income (cash (after-tax) income plus municipal in-kind benefits) is, however, approximately neutral. This result is due to the fact that elderly people and families with children receive the largest share of the municipal in-kind benefits and moreover are located in the central part of the distribution of extended income.

Bente Halvorsen and Runa Nesbakken: **A conflict of interests in electricity taxation? A micro econometric analysis of household behaviour.** DP no. 338, 2002. 40 pages.

In conducting economic policy, governments generally face conflicts in various objectives, e.g. between efficiency and equity. In Norway, one objective of energy politics has been to reduce electricity consumption, and several tax increases have been proposed. Whether this objective may be in conflict with objectives of efficiency and equity is the focus in this paper. We discuss the effects on household behaviour of three different electricity tax schemes, one proportional and two non-linear. For each household we estimate the reduction in household electricity consumption. As measures of distributional effects and efficiency effects we estimate compensating variation and excess tax burden from the tax schemes. We find that the non-linear tax scheme targeting high electricity consumption is most preferred in order to reduce consumption and least preferred concerning the objective of minimizing excess tax burden. When considering distributional effects, the ranking of tax schemes depends on the weight placed on different household groups.

Arvid Raknerud, Terje Skjerpen and Anders Rygh Swensen: **A linear demand system within a Seemingly Unrelated Time Series Equation framework.** DP no. 345, 2003. 29 pages.

We consider a Seemingly Unrelated Time Series Equations framework for the linear Almost Ideal Demand system. The framework is applied to a consumer demand system covering nine non-durable commodities. We test for demand homogeneity within a specification where the static linear Almost Ideal Demand system is augmented by three stochastic trends and three stochastic seasonal variables. The homogeneity restriction is rejected for about half of the commodities and in the system as a whole using conventional significance levels. However, when comparing the out-of-sample predictions from a homogeneous and non-homogeneous model, we do not find that the non-homogenous model performs better than the homogeneous one. Moreover, the income and price elasticities calculated under homogeneity restrictions are all of the right sign and have reasonable magnitudes.

John K. Dagsvik and Steinar Strøm: **Analyzing Labor Supply Behavior with Latent Job Opportunity Sets and Institutional Choice Constraints**. DP no. 344, 2003. 47 pages.

In this paper we discuss a general framework for analyzing labor supply behavior in the presence of complicated budget- and quantity constraints of which some are unobserved. The point of departure is that an individual's labor supply decision can be considered as a choice from a set of discrete alternatives (jobs). These jobs are characterized by attributes such as hours of work, sector specific wages and other sector specific aspects of the jobs. We focus in particular on theoretical justification of functional form assumptions and properties of the random components of the model.

The paper includes an empirical application based on Norwegian data, in which the labor supply of married women is estimated.

Brita Bye, Birger Strøm and Turid Åvitsland: **Welfare effects of VAT reforms: A general equilibrium analysis.**
DP no. 343, 2003. 34 pages.

Indirect taxes such as value added taxes (VAT) generate a substantial part of tax revenue in many countries. This paper analyses welfare effects of different reforms in the Norwegian system of indirect taxation. The main reform studied is the introduction of a uniform VAT rate on all goods and services. The Norwegian political VAT reform of 2001 is also analysed. The reforms are analysed by using an intertemporal CGE model for the Norwegian economy. A non-uniform VAT system gives a welfare loss compared to a uniform VAT system.

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