

# Economic Survey

Volume 12

# 4/2002

## Contents

---

<b>Economic trends</b>	<b>3</b>
International economy	4
Norwegian economy	10
<hr/>	
<i>Jan Byfuglien and Jan Stensrud:</i> <b>Structural indicators for comparing Norway with the EU</b>	<b>26</b>
<hr/>	
<b>Research publications in English</b>	<b>37</b>
<hr/>	
<b>Appendix: National accounts for Norway</b>	<b>42</b>

---

*The cut-off date for information used in the publication was 10 December 2002.*

Inquiries should be directed to:

– Norway: Torbjorn.Eika@ssb.no, tel. +47 21 09 48 07

– foreign countries: Andreas.Benedictow@ssb.no, tel. +47 21 09 47 98

Economic Survey and the articles are available on internet at [www.ssb.no](http://www.ssb.no)

---

**Editorial board:** Ådne Cappelen (ed.), Helge Brunborg, Annegrete Bruvoll, Torbjørn Eika, Erik Fjærli, Kristian Gimming, Audun Langørgen and Li-Chun Zhang

**Editorial assistant:** Wenche Drzwi, tel.: +47 21 09 49 74, fax: +47 21 09 00 40

**Editorial address:** Statistics Norway, Research Department, P.O.Box 8131 Dep., N-0033 Oslo

---

**Sales- and subscription service:** N-2225 Kongsvinger, tel.: +47 62 88 55 00, fax: +47 62 88 55 95, e-mail: [salg-abonnement@ssb.no](mailto:salg-abonnement@ssb.no)

---

**Print:** Statistics Norway/960

---

## Economic Survey

is published four times a year by the Research Department of Statistics Norway. The Research Department was established in 1950. The Department has about 70 employees. The Research Department is organized in eight units. Head of Department is Ådne Cappelen.

- Unit for taxation, inequality and consumer behaviour  
*Head of unit Thor Olav Thoresen*
- Unit for energy and environmental economics  
*Head of unit Annegrete Bruvoll*
- Unit for macroeconomics  
*Head of unit Per Richard Johansen*
- Unit for labour market and Firm behaviour  
*Head of unit Torbjørn Hægeland*
- Unit for fiscal sustainability  
*Head of unit Nils Martin Stølen*
- Unit for local public finance and regional economics  
*Head of unit Audun Langørgen*
- Unit for economic growth and efficiency  
*Head of unit Brita Bye*
- Unit for petroleum and environmental economics  
*Head of unit Knut Einar Rosendahl*

---

***The next edition of Economic Survey will be published at the beginning of April 2003.***

---

<b>Symbols in tables</b>	<b>Symbol</b>
Data not available	..
Not for publication	:
Nil	0
Provisional or preliminary figure	*

## Economic trends\*

Over one year with high real interest rates and a steadily stronger currency have gradually been reflected in economic data. Combined with high wage growth over the last few years, this has resulted in a substantial deterioration in profitability in internationally exposed enterprises, but has also contributed to lower production in sheltered industries due to more subdued growth in domestic demand for goods and services from Norwegian producers. Pressures in the economy have subsided and unemployment is rising.

On the demand side, the most interest-sensitive components have been affected in particular; housing investment has been falling the last four quarters, and on a seasonally adjusted basis household consumption has shown moderate growth despite record-high real income growth. GDP growth has been lower than estimated trend growth for three years, and our calculations indicate that the Norwegian economy is now experiencing a recession. We expect the slump to be more pronounced in 2003. The adjustments we are now seeing in the electricity market, with lower production and higher prices, will exacerbate the downturn next year, but will probably contribute to stronger output growth in 2004. Weak developments in the global economy have also contributed to the downturn in the Norwegian economy.

Even though the rate of increase in the consumer price index (CPI) has edged up at the end of 2002 due to higher electricity prices, inflation adjusted for tax changes and excluding energy products (CPI-ATE) has been falling since summer 2002. The feed-through of the krone appreciation to prices occurs with a lag, primarily because import prices have not yet fully translated into lower prices for customers. This may be partly because the wholesale and retail sector between foreign producers and Norwegian consumers have contracts in Norwegian prices or because they have been uncertain as to the duration of the krone appreciation. In isolation, the strong appreciation of the krone we have seen is therefore expected to result in continued low inflation next year, even though we assume that the krone will depreciate somewhat in the period ahead. Lower wage growth, spurred by weak profitability in internationally exposed sectors, and rising unemployment will also curb inflation. The very high electricity prices that are expected in the first half of 2003 will have the opposite effect.

All in all, inflation, measured by the consumer price index, will therefore rise sharply after the end of the year. The increase at the end of 2002 will thus be only a prelude of what will probably come. The indirect effects of higher electricity prices will also contribute to sustaining the rise in consumer prices adjusted for tax changes and excluding energy products (CPI-ATE) through the second half of 2003. On the other hand, an expected return to more normal electricity prices through the second half of 2003 will keep the rise in both the CPI and CPI-ATE very low throughout 2004. A reduced level of activity and waning inflationary pressures two years ahead will create scope for Norges Bank to reduce interest rates. We have assumed that the three-month money market rate will fall to 6.25 per cent during the period to next summer.

When the economy has first entered a downturn, there are many mechanisms that can contribute to a self-reinforcing contraction. Not least, economic agents will be more uncertain as to when a new upturn will occur, and this uncertainty in itself can contribute to lower demand and production. On the other hand, the authorities have considerable scope for manoeuvre with regard to the formulation of policy. Monetary policy is very tight at the moment, and may therefore be quickly revised if the downturn is severe. The fiscal programme for 2003 cannot be characterized as tight, but nor cannot it be said that any real counter-cyclical policy is being conducted in this area. It is also likely that the global economy will improve through 2003 and generate a positive impetus to the Norwegian economy. Similarly, petroleum activities will generate a stronger demand and impetus in the period ahead, which will also curb the decline. Noticeably lower wage growth, which gradually limits the fall in market shares, will have the same effect. Even though the forecasts for important variables in the Norwegian economy are discouraging, not least with a continued rise in unemployment, the cyclical downturn will not be particularly deep or protracted if our projections materialize.

\* Translated from Økonomiske analyser 6/2002 by Janet Aagenæs.

# International economy

The growth forecasts for the OECD area have been revised down further, particularly for the euro area, since the publication of the September report. The upturn is expected to occur at a later time and be weaker than estimated earlier. The outlook for global growth has shown little change due to strong growth outside the OECD area, as for example in China and India.

Global economic activity picked up at the beginning of 2002, fuelled by higher international trade and a pronounced increase in industrial production. Developments varied across regions. The US was in the forefront, underpinned by an expansionary monetary and fiscal policy. Growth was weak in Japan, moderate in Europe and relatively strong in some Asian countries. Since late spring, the prospect of a global upswing has deteriorated. Subdued investment growth in large parts of the OECD area, a sharp decline in global equity markets and increased uncertainty with regard to the possibility of a US-led attack on Iraq have contributed to the slowdown.

The situation in the US is of considerable importance to global cyclical developments. Growth in the US picked up in the third quarter following a weak second quarter. Any upturn in the US will have positive spillover effects for the rest of the global economy. However, as a result of imbalances in the US economy, the growth outlook is uncertain. Developments in the euro area have been sluggish this autumn, and Germany in particular has recorded low growth. A less expansionary economic policy and weaker productivity growth are important reasons why the recovery is weaker in the euro area than in the US. The Japanese economy, which is still struggling with considerable

structural problems and deflation, is expected to lag behind, recording considerably lower growth than the rest of the OECD area.

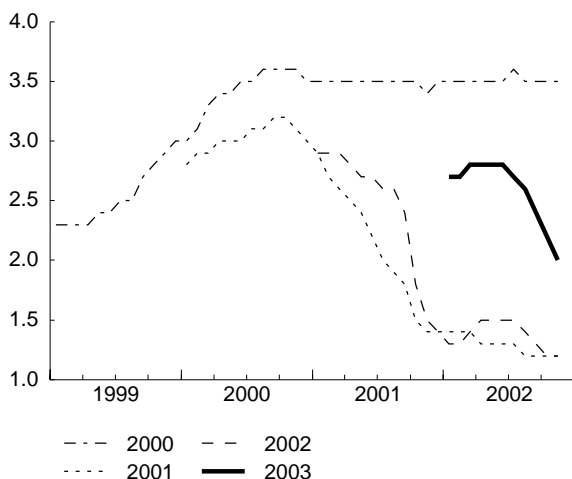
## Developments in the oil market

The spot price of Brent Blend fell from about USD 29 per barrel at the end of September to close to US 23 in mid-November. In recent weeks, the oil price has edged up to about USD 26 per barrel at the beginning of December. As an average for the first eleven months of the year, the price has been USD 24.70 per barrel, approximately the same as in 2001.

Over the last two years, OPEC has adopted production cuts of altogether 5 million b/d. The main factor behind the fall in prices in the last few months is that OPEC is now producing close to 2.5 million b/d more than its stipulated quotas. In addition, Iraq has increased its production under the oil-for-food agreement with the UN. Moreover, the fear of war has now been reduced because UN weapons inspectors have the right to inspect the country in order to reveal any illegal arms production.

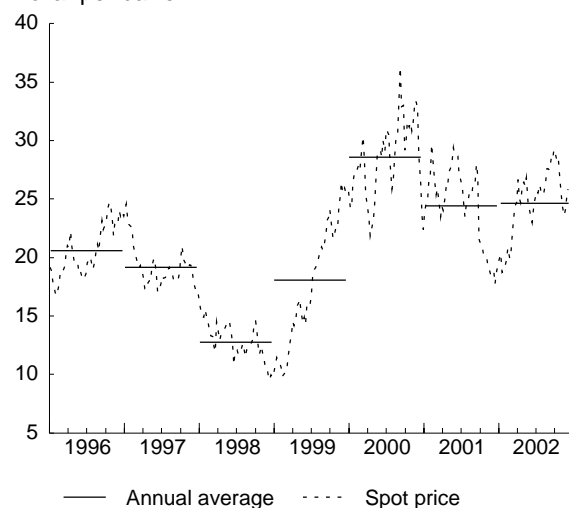
According to the International Energy Agency (IEA), stocks of crude oil and finished products in the OECD area are now somewhat below the average for the last five years. The IEA has assumed a normal winter in the western hemisphere (unlike the mild winters of the previous two years) and thus higher demand for heating oil. Even if OPEC manages to reduce production to about 75 per cent of the announced cuts, it appears that stocks of crude oil will remain stable in the fourth quarter of 2002 and first quarter of next year as a whole, a period when stocks are normally reduced by between 0.5 and 1 million b/d. In recent we-

**GDP growth forecasts for Norway's main trading partners for 2000 - 2003 given on different dates**  
Per cent



Source: Consensus Forecasts.

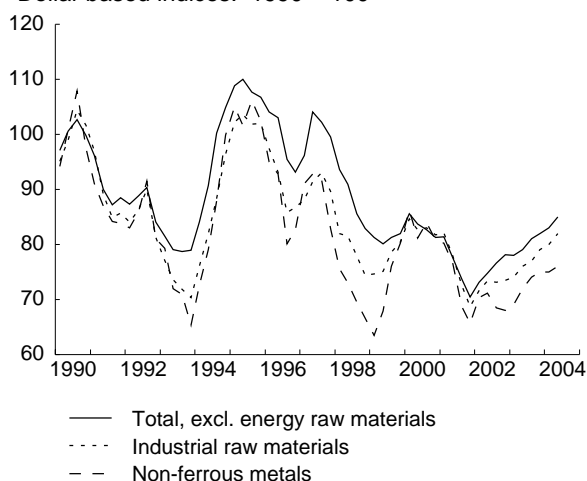
**Spot price crude oil, Brent Blend**  
Dollar per barrel



Source: Norges Bank.

### Commodity prices on the world market 1990 - 2004

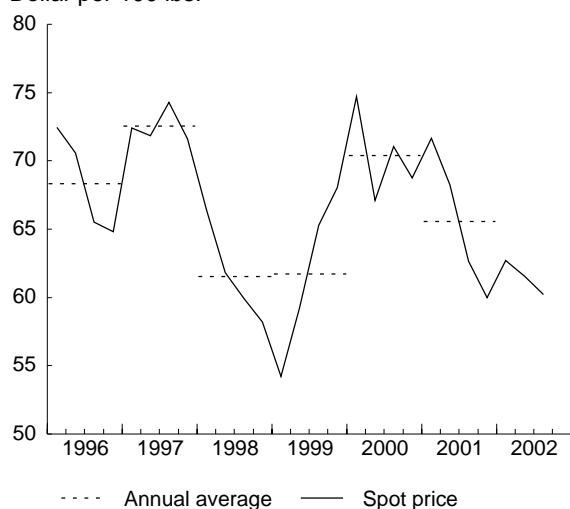
Dollar based indices. 1990 = 100



Sources: HWWA-Institut für Wirtschaftsforschung and AIECE.

### Spot price aluminium. 1996 - 2002

Dollar per 100 lbs.



Source: IMF.

eks, there have been signs that stocks of heating oil are beginning to increase somewhat.

The turbulence in the Middle East and speculation concerning an open conflict between the UN and Iraq are increasing the concern about future oil production in the area. The weapons inspectors in Iraq are now writing their report to the UN. If they do not find illegal arms production or plans for this, this may exert downward pressure on the oil price. In this situation, the cartel will probably carry out the production limitations that are necessary to keep the price above the lower limit in the cartel's price interval, which is equivalent to USD 23 per barrel for Brent Blend. If war with Iraq should break out, OPEC has indicated that it will ensure higher production if Iraq is completely eliminated from the oil market for a period. At the same time, IEA representatives have indicated that the

OECD will use its strategic stocks if the war spreads to Saudi Arabia and Kuwait and oil transport through the Strait of Hormuz is affected.

We assume that the oil price will remain below the current level in the period ahead, and in the projections we have assumed an oil price of USD 24 per barrel through 2003 and 2004.

### Other commodity prices

Commodity prices, excluding energy products, fell sharply in 2001 as a result of low growth in the global economy. The commodity market rebounded at the beginning of 2002 due to increased international economic activity. Prices stagnated during the autumn, but the AIECE estimates that prices will pick up again in 2003.

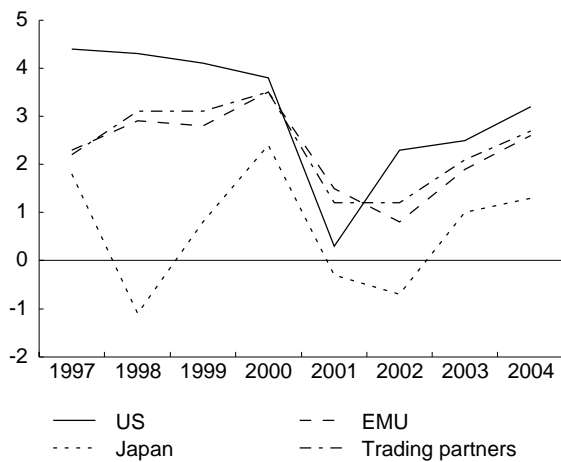
Aluminium prices rose in the first quarter of 2002, but edged down in the second quarter. The negative price trend persisted through the summer and prices continued to move on a sluggish trend in the third quarter. The supply of aluminium has increased in 2002 after having been limited last year and this factor, along with weak demand, has curbed the rise in prices. The AIECE projects that aluminium prices will edge up next year provided that global manufacturing activity picks up.

### US

Following the relatively mild recession in 2001, the US economy has moved along an unsteady trend. The turnaround occurred as early as the fourth quarter of 2001, and GDP growth was vigorous in the first quarter of 2002, underpinned by low interest rates, an expansionary fiscal policy and brisk productivity growth. The build-up of inventories also contributed to the upturn in late autumn 2001 and in the first quarter of 2002. Output growth slowed substantially in the second quarter. Accounting scandals, broken promises regarding profits and bankruptcies contributed to a decline in both consumer and business confidence. In addition, the inventory effect began to wane. Equity prices fell sharply and the US dollar depreciated.

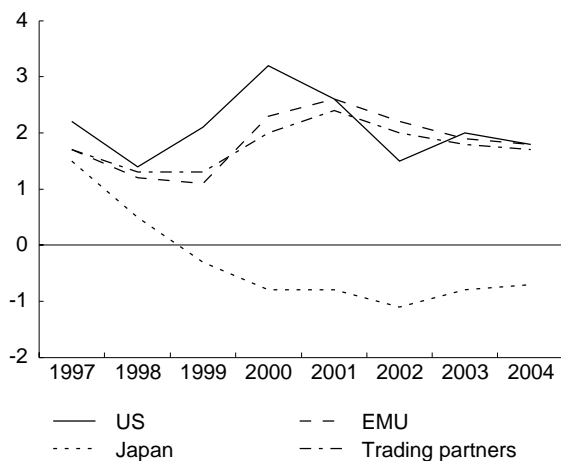
Figures for the third quarter show that growth has picked up again and indicate that the US economy is still improving. GDP growth was an annualized 4 per cent, compared with 1.3 per cent in the second quarter. Growth was primarily fuelled by private consumption, but general government consumption and private sector investment (equipment and software) also made a positive contribution. New orders in the business sector have picked up, and there are signs that unemployment is stabilizing after having risen over a longer period. The probability that the US economy will experience a "double dip" thus seems to have been reduced. However, there are still imbalances in the economy. Growth in private consumption remains

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



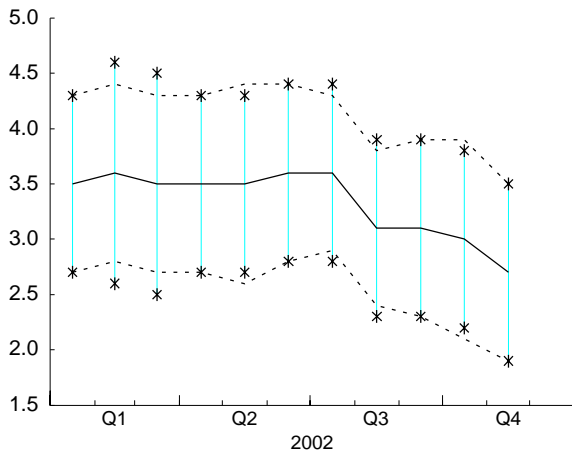
Sources: Average of projections from the NIESR in October and Consensus Forecasts, the EC and the OECD from Nov.

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



Sources: Average of projections from the NIESR in October and Consensus Forecasts, the EC and the OECD from Nov.

**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.

robust and has, along with high housing investment, resulted in a sharp rise in household debt, and there is a potential bubble building up in the housing market. Moreover, it appears that large trade deficits will persist in the next few years. The possibility of an invasion in Iraq is also contributing to increased uncertainty.

Developments in private consumption, which accounts for two thirds of the US economy, are important for growth in the US. Low interest rates, tax cuts and high real wage growth have helped to sustain consumption. High car sales, stimulated by very favourable financing terms, have also been an important factor behind consumption growth this year. This represents a shift in the timing of purchases, and demand for cars will probably taper off.

The sharp rise in house prices has also contributed to the strong growth in private consumption. The question is whether the rise in prices in the housing market is in the process of becoming a bubble and what consequences this might have if the bubble bursts. For most Americans, a dwelling is the most important investment, and rising house prices have made people feel more wealthy, despite the sharp fall on the stock exchange. Rising prices and low interest rates have increased households' home equity, and homeowners have freed up cash by refinancing their loans. Along with low interest rates, the rise in house prices has so far contributed to the relatively strong growth in residential construction. In October, however, housing starts fell, albeit after rising sharply in September. Rising unemployment may also contribute to a weaker housing market and lower consumption growth. However, low interest rates in the period ahead will have the effect of counteracting a steeper fall in consumption growth and housing demand.

The US economy expanded at a faster pace than its main trading partners through the second half of the 1990s, contributing to a sharp rise in trade deficits in the US. In recent years, the deficit has been equivalent to about 4 per cent of GDP. In 2002, it is expected to increase to 4.75 per cent, the highest in 50 years. As a result of strong productivity gains, investment in the US is still considered attractive, and has so far helped to maintain the supply of capital required to finance the large deficit. The US dollar has depreciated by about 7 per cent against trading partner currencies and 11 per cent against the euro in 2002. We project that the dollar will depreciate by a further 2-3 per cent against the euro next year. This is consistent with projections from Consensus Forecasts. A depreciation of the dollar may make a positive contribution to the trade balance through improved competitiveness, but the trade deficit is still expected to remain high in the next few years.

**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
<b>USA</b>												
NIESR	4.1	3.8	0.3	2.3	2.5	3.2	1.6	2.5	2.0	1.3	1.3	1.3
ConsF	4.1	3.8	0.3	2.3	2.7	-	2.1	3.4	2.8	1.6	2.2	-
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
<b>Japan</b>												
NIESR	0.8	2.4	-0.3	-0.6	1.1	1.6	-0.5	-1.1	-1.5	-1.4	-0.8	-0.1
ConsF	0.8	2.4	-0.3	-0.9	0.8	-	-0.3	-0.7	-0.7	-1.0	-0.7	-
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
<b>EMU</b>												
NIESR	2.8	3.5	1.4	0.9	2.1	2.6	1.2	2.2	2.5	2.2	1.7	1.6
ConsF	-	3.4	1.5	0.8	1.7	-	-	2.2	2.7	2.1	1.9	-
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
<b>Trading partners</b>												
NIESR	3.0	3.6	1.3	1.2	2.2	2.7	1.2	1.8	2.1	1.8	1.5	1.6
ConsF	3.1	3.5	1.2	1.2	2.0	-	1.3	2.2	2.5	2.1	1.9	-
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 October 2002, Consensus Forecasts from November 2002, EC from November 2002 and OECD from November 2002. All the inflation projections from the NIESR apply to the consumption deflator.

Productivity in the US grew by 5.1 per cent at an annual rate in the third quarter, up from 1.7 per cent in the second quarter. This is the fifth consecutive quarter in which productivity has risen. Productivity growth has remained high in a period when the economy has shown relatively sluggish developments, but the driving force has changed. In the 1990s, the strong growth of the ICT sector in itself made the most important contribution to overall productivity gains for the US economy. ICT equipment was used to a steadily increasing extent and in new areas in the production process. Today's productivity growth, with a more effective use of labour, is now resulting in workforce reductions. The growing tendency to fire redundant employees is probably an important reason why productivity growth remained high through last year's recession. Labour costs are expected to fall, which will contribute to increased profitability in the business sector. In the short term, higher productivity may take place at the expense of employment, but in the longer term the result will be higher growth for the economy as a whole, and employment will pick up again. Since 2000, unemployment has risen by nearly 2 percentage points and now stands at around 6 per cent. Figures for November show that unemployment continued to rise this autumn. We project that unemployment will level off at the current level and that it will gradually decline as a result of a pick-up in the economy.

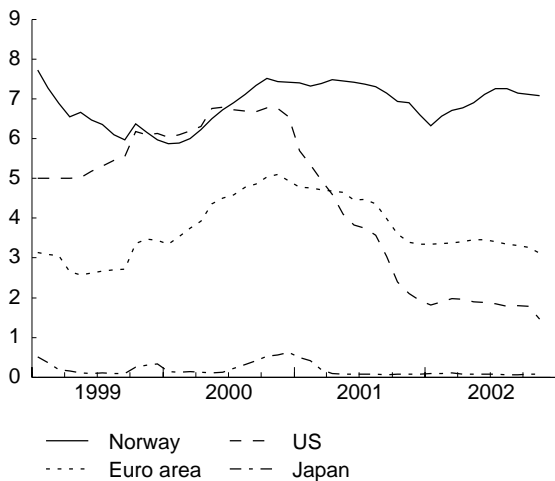
Growth in the production of goods came to a halt this summer and some industries have even experienced a

slight decline, particularly in manufacturing. Excess production capacity in manufacturing implies that moderate demand growth will not require higher investment in production equipment. Inventory investment was subdued in the third quarter, and the level of inventories is now fairly low. This may lead to higher inventory investment in the next few quarters, which may contribute to some improvement in the situation for manufacturing industry.

Fiscal policy has been expansionary over a longer period and has helped to counter the relatively sluggish developments in corporate and foreign demand. The increase in public sector purchases of goods and services, combined with a decline in tax revenues, is expected to result in a budget deficit of 1.5 per cent this year. The deficit will probably be maintained next year, and the objective of a balanced budget in the somewhat longer run will require spending discipline. Monetary policy is also very expansionary. The Federal Reserve's key rate was 1.75 per cent for almost one year before being lowered by half a percentage point on 6 November. Low interest rates are expected to persist for some time ahead, but interest rates will edge up as economic growth is gradually consolidated later in 2003.

The recovery following last year's recession is taking a longer time to materialize than assumed earlier, and unsteady developments through 2002 show that the turnaround has not taken root. It appears that inflation will be subdued in the period ahead, reflecting

### International interest rates 3-month Eurorate



Source: Norges Bank.

excess capacity in the economy. GDP growth is expected to be moderate in the first half of 2003 before picking up thereafter.

### Europe

Following a promising start in 2002, growth has stagnated in the euro area. Investment growth has slowed, and a higher oil price and increases in food prices reduced purchasing power and contributed to lower demand. Both business and consumer confidence has declined, and the household saving ratio has risen. Higher exports have not been sufficient to boost production and thereby generate income and higher consumption. This autumn, foreign demand has also stagnated. Against the background of weak growth and receding inflationary pressures, the European Central Bank reduced its key rate by 0.5 percentage point at the beginning of December.

There are wide internal variations in the euro area. Germany and Italy in particular are struggling with low growth: private consumption is moving on a sluggish trend and both countries seem to be dependent on an external boost – through an upswing in export demand – to stimulate the economy. The Stability and Growth Pact has been subject to severe criticism for some time because many are of the view that it hinders an effective counter-cyclical policy. In the past year, the limit for the government budget deficit of 3 per cent of GDP has been under pressure in Germany, Italy, France and Portugal. A more flexible interpretation of the Stability and Growth Pact has been signalled. It is primarily countries with low government debt that may be given somewhat greater leeway in fiscal policy. This relaxation will thus be of lesser importance to the countries mentioned above inasmuch as government debt in these countries is close to or exceeds the Stability and Growth Pact's limit of 60 per cent of GDP. The countries that will primarily benefit from this increased flexibility are those that have lo-

wer government debt, such as Ireland, the Netherlands, Finland, most of the new member candidates and possibly the UK, Denmark and Sweden. More severe sanctions are also likely to be imposed on countries that do not adopt the measures necessary to reduce their high debt and countries that conduct a fiscal policy that is too expansionary. On balance, it is therefore unlikely that fiscal policy in Europe will make any significant contribution to demand growth.

It appears that Germany, which accounts for a third of the euro economy, will record the weakest developments in the period ahead. The problems in the German economy stem in part from reunification. In the first half of the 1990s, there was a boom in the construction industry, which is still struggling with extensive excess capacity. Vigorous wage growth in the east resulted in a sharp rise in unemployment. As a result, social security costs have risen by more than twice the level of GDP growth since the mid-1990s. Pension obligations are also a large expenditure item. The gap between public sector expenditure and revenues is steadily widening. Fiscal policy is being constrained by unfavourable government finances and monetary policy has not been adapted to the situation in the German economy. Unemployment is rising and is now around 10 per cent. Labour market reforms have not materialized and there is no political will to adopt effective – and unpopular – measures to cope with the budget deficit. Germany is an important trading partner for most countries in the euro area, and the sluggish developments are therefore having negative spill-over effects in the entire EU.

The euro area seems to be dependent on increased global demand in order to stimulate the economy. The projections for GDP growth have been lowered since our September *Economic Survey*. Consensus Forecasts projects that GDP will expand by 0.8 per cent this year and 1.7 per cent next year, a downward revision of 0.2 and 0.6 per cent respectively compared with the September projections. The upturn in the euro area will also be weaker and occur at a later time than we assumed in September.

Outside the euro area, it appears that economic growth in Sweden has stagnated somewhat after having shown signs of improving earlier this autumn. The sharp fall in equity prices and overinvestment, particularly in the telecommunications sector, have contributed to curbing demand growth. Tax cuts have led to an increase in disposable income in 2002. This is expected to result in a gradual increase in private consumption, as households are cautious in periods of economic uncertainty. Inflation has slowed since last spring, and the Swedish central bank reduced its key rate by 0.25 percentage point at the beginning of December. GDP growth is expected to pick up in the period ahead, but the path is sensitive to developments in the ICT sector.



The Danish economy has fared relatively well in spite of the international slowdown, and prospects are favourable in the period ahead. This is due not least to robust government finances and a trade surplus. The latter reflects solid growth in internationally exposed industries. Interest rates, which largely shadow the euro area, are having a stimulatory effect on activity and unemployment has remained low. If, contrary to expectations, there is an economic slowdown, the strong financial position of the public sector will provide scope for adopting the necessary measures. Pressures in the labour market will contribute to relatively high wage growth, but this is not likely to prevent moderate price inflation of about 2 per cent next year.

The UK economy has coped fairly well through the global downturn, and economic growth has been higher than in the euro area. High private demand has been a key factor, underpinned by low interest rates and rising house prices. Higher government consumption has contributed to sustaining activity levels in a period when private sector investment and global demand have exhibited a weak trend. The sharp rise in house prices has created a dilemma for monetary policy. The fear of stifling fragile growth must be weighed against the need to intervene in order to counter bubble tendencies in the housing market, which represent a potential threat to macroeconomic stability. GDP growth is expected to increase moderately next year, fuelled by higher government consumption and an increase in private sector investment.

### **Japan**

Japan will continue to struggle with sluggish growth and deflation in the period ahead. In 2002, GDP will contract for the second year in a row, and consumer prices will fall for the fourth consecutive year. Japanese households still have solid purchasing power, but confidence in the economy is low and consumption is subdued. Falling prices are contributing to a positive real return on cash. Consumers are thus postponing their consumption. In addition, the debt burden is increasing, with the result that borrowers give priority to the repayment of debt rather than consumption. Another important explanation for the low level of consumption is that Japan has an ageing population and high pension saving. Unemployment and government debt are rising, and the banking sector is struggling with non-performing loans. Attempts to rectify the situation in the banking sector have recently been stepped up. Banks have been given a deadline of March to introduce measures to improve their financial position, and the authorities are threatening to nationalize banks that do not initiate satisfactory measures. In 2003, GDP growth is expected to crawl above zero. Domestic demand is expected to remain low in the period ahead, and exports are expected to be the main growth factor for the Japanese economy. Developments in the US and the rest of the global economy will therefore be very important in the period ahead. Prices are expected to decline over the next two years.

# Norwegian economy

After declining from the first to second quarter, mainland GDP again expanded in the third quarter, according to seasonally adjusted, preliminary figures from the quarterly national accounts (QNA). Total GDP, however, showed the opposite, with a decline from the second to third quarter of 2002. For the year as a whole, GDP growth is expected to be about 1¼ per cent. Weak growth in demand both from the mainland economy and export markets in both 2001 and 2002 has contributed to curbing the growth impetus. Moreover, we have revised down our projections for growth in demand in 2003 and, combined with the

loss of market shares, this will reduce GDP growth in 2003 compared with 2002. For 2004, production is projected to show an appreciable rise, both because the international upturn is expected to gain momentum and because of the reduced negative impetus from domestic demand.

## Fiscal policy

QNA figures for the first three quarters of 2002 indicate that growth in general government consumption and gross investment will be close to 3 per cent in 2002. This is approximately half a percentage point

## Macroeconomic indicators 2000-2002

Growth from previous period unless otherwise noted. Per cent

	2000	2001	Seasonally adjusted			
			01.4	02.1	02.2	02.3
<b>Demand and output</b>						
Consumption in households and non-profit organizations	3.5	2.5	-0.1	1.7	0.6	0.5
General government consumption	1.2	2.0	-0.2	2.1	0.2	0.7
Gross fixed investment	-1.5	-4.6	0.5	-3.4	7.8	-5.9
- Mainland Norway	3.4	-0.3	-0.1	-2.0	0.9	-1.1
-Extraction and transport via pipelines	-31.6	7.2	9.2	-12.1	-6.3	5.4
-Service activities incidental to extraction	..	..	..	..	..	..
Final domestic demand from Mainland Norway <sup>1</sup>	2.9	1.8	-0.1	1.2	0.5	0.3
Exports	2.9	4.2	2.5	-5.1	4.2	-1.8
- Crude oil and natural gas	6.6	5.2	-1.5	-8	10.8	-3.6
- Traditional goods	1.7	4.0	6.8	-0.6	1.2	1.2
Imports	3.2	0.0	2.5	-2.9	5.1	-4.3
- Traditional goods	2.6	4.0	2.7	1.2	-1.2	-0.5
Gross domestic product	2.4	1.4	0.3	-0.2	1.0	-0.2
- Mainland Norway	1.9	1.2	0.7	0.6	-0.2	0.8
<b>Labour market<sup>2</sup></b>						
Man-hours worked	-1.1	-1.0	-0.7	-0.7	1.1	-0.1
Employed persons	0.4	0.5	0.7	-0.1	0.1	-0.1
Labour force	0.8	0.6	0.9	-0.1	0.2	-0.2
Unemployment rate, level <sup>3</sup>	3.4	3.6	3.8	3.8	3.8	3.7
<b>Prices</b>						
Consumer price index (CPI) <sup>4</sup>	3.1	3.0	2.0	1.1	0.4	1.4
CPI adjusted for tax changes and excluding energy products (CPI-A28ATE) <sup>4</sup>	..	2.6	2.6	2.4	2.6	2.4
Export prices, traditional goods	13.5	-3.1	-3.4	-1.9	-2.9	-2.7
Import prices, traditional goods	4.8	0.4	-1.5	-2.0	-2.7	0.7
<b>Balance of payment</b>						
Current balance, bill. NOK	219.6	233.4	50.3	56.5	53.6	48.2
<b>Memorandum items (Unadjusted, level)</b>						
Money market rate (3 month NIBOR)	6.8	7.2	6.8	6.5	6.9	7.2
Lending rate, banks	8.1	8.9	8.8	8.5	8.3	8.6
Crude oil price NOK <sup>5</sup>	252	220.1	173.0	186.1	205.2	202.4
Importweighted krone exchange rate, 44 countries, 1995=100	103.3	100.2	98.5	97.2	92.5	89.1
NOK per ECU/euro	8.11	8.05	8.0	7.8	7.5	7.4

<sup>1</sup> Consumption in households and non-profit organizations + general government consumption + gross fixed capital formation in Mainland Norway.

<sup>2</sup> Figures for 2000 and 2001 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.

<sup>3</sup> According to Statistics Norway's labour force survey (LFS).

<sup>4</sup> Percentage change from the same period the previous year.

<sup>5</sup> Average spot price, Brent Blend.

Sources: Statistics Norway and Norges Bank.

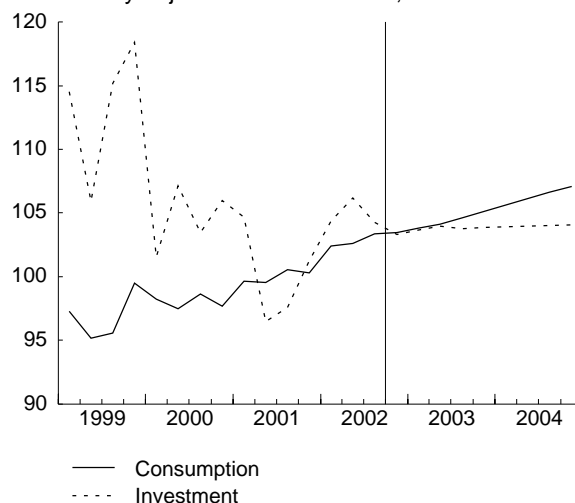
higher than estimated in the National Budget for 2003. The main components behind this have been higher general government spending on investment and intermediate goods, while developments in man-hours worked are pushing down growth. The reorganization of hospitals makes it less relevant to distribute growth between central and local government in 2002. The sharp growth in 2002 is largely a result of the guideline for fiscal policy that was introduced from the 2002 fiscal year.

The investment tax was removed in the fourth quarter of 2002. This will contribute to lower prices for investment goods. The revenue effects will particularly be seen in 2003 and have thus contributed to limiting budgetary leeway for the government budget for 2003. In the years ahead, it is estimated that the guideline for the use of the return on petroleum wealth will provide less scope for a higher structural, non-oil government budget deficit than in previous years, with fiscal policy generating a somewhat more modest impetus in the period ahead. General government consumption is expected to expand on average by a little less than 2 per cent per year over the next two years, with weak or no growth in investment spending. Our projection for spending growth in 2004 has been revised down compared with our September report and is in line with the estimates in the National Budget for 2003.

An attempt has been made to incorporate in our calculations the political compromise on the government budget for 2003 that was recently concluded in the Storting. In relation to our previous reports, the standard tax allowance has been increased, some annual excise duties (that are counted as direct taxes) have been reduced, taxes on alcohol have been reduced, the local government sector will be given additional funds compared with the Government's budget proposal and the basic pension will also increase for married and cohabiting minimum pensioners. The implementation of the so-called day-care compromise between the opposition parties has partly been shifted to 2004. All in all, it is estimated that the compromise will result in changes in the budget amounting to NOK 4.4 billion compared with the Government's budget proposal.

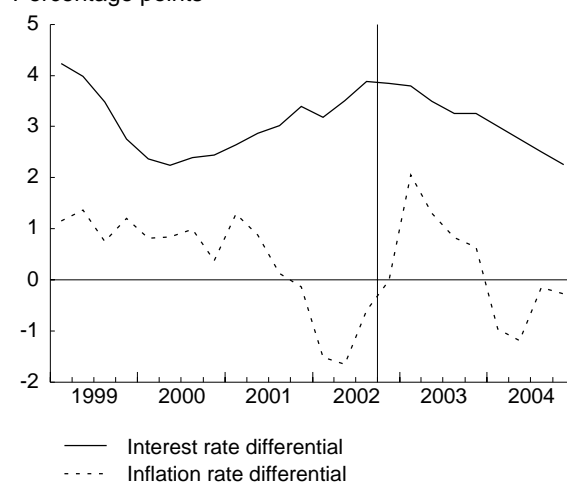
The sharp increase in electricity prices, which is discussed in greater detail elsewhere in this report, is having a contractionary impact on the Norwegian economy in relation to earlier analyses. As the period of strong expansion is now obviously over and unemployment is rising, the authorities must evaluate what emphasis shall be placed on fiscal and monetary policy respectively in stabilization policy in the period ahead. Following the Storting's deliberations on the National Budget, the structural, non-oil budget deficit as a share of mainland GDP is expected to edge up next year, and in the event the fiscal policy stance will be mildly counter-cyclical.

### General government Seasonally adjusted volume indices, 2001=100



Source: Statistics Norway.

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

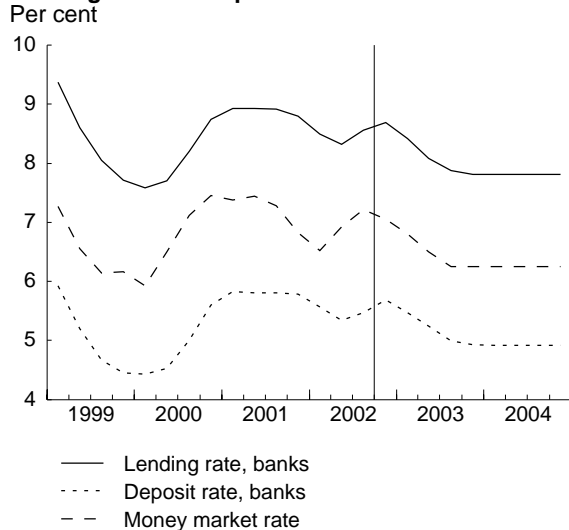


Sources: Norges Bank and Statistics Norway.

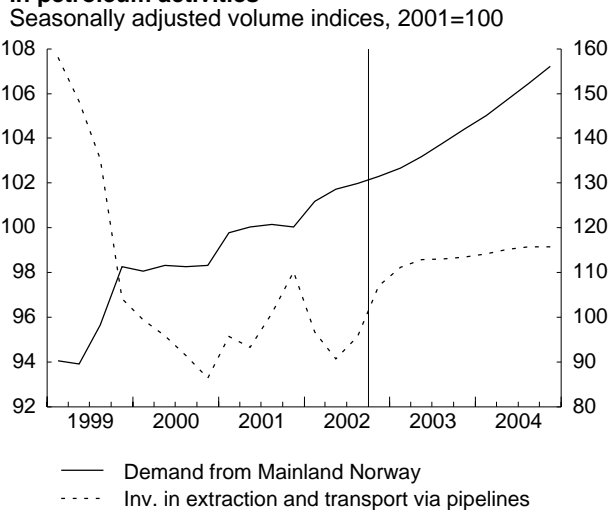
### Lower interest rates and somewhat weaker krone

The three-month money market rate has fallen slightly since the report presented at the beginning of September, from about 7.2 per cent to a little less than 7 per cent at the beginning of December. The FRA market has now priced in a decline in the three-month money market rate of about one and a quarter percentage points up to autumn 2003. Norges Bank's key interest rate has remained unchanged at 7 per cent since July this year. Unemployment has started to rise, and will contribute to lower inflation as a result of slower wage growth. Reduced activity levels and subsiding inflationary pressures will create room for Norges Bank to lower interest rates.

We have assumed that the three-month money market rate will fall to 6.25 per cent during the period to summer 2003 and then remain unchanged at this

**Lending rate and deposit rate**

Sources: Norges Bank.

**Demand from Mainland Norway and investment in petroleum activities**

Source: Statistics Norway.

level through the projection period. This corresponds to a somewhat steeper fall in interest rates than was assumed in the September report, but a somewhat smaller decline in interest rates than has currently been priced into the FRA market.

The import-weighted krone exchange rate appreciated by about 10 per cent in the first half of 2002. After having depreciated slightly in the second half of July and the beginning of August, the krone has again appreciated, although the appreciation has been more moderate this autumn. Since the beginning of the year, the import-weighted krone exchange rate has appreciated by about 12 per cent. The krone has appreciated by about 9 per cent against the euro and 18 per cent against the US dollar since the beginning of the year. Expectations of a persistently wide interest rate differential between Norway and other countries due to the decision to increase the phasing in of petroleum revenues may have contributed to this.

In line with our projections for global developments, we assume that interest rates in the US will be increased in the second half of 2003. In the euro area, interest rates are not expected to be raised until 2004. This means that the interest rate differential between Norway and other countries will narrow through the projection period. This may result in a depreciation of the krone. We project that the krone will depreciate over the next two years and assume a euro exchange rate of NOK 7.70 at the end of 2004. This is consistent with projections from Consensus Forecasts. There is considerable uncertainty, however, concerning future movements in the Norwegian krone. Any escalation of the conflict in Iraq may prompt investors to perceive the Norwegian krone as a good alternative to the Swiss franc as a safe-haven currency. This may result in a temporary appreciation of the krone.

**Positive impetus from petroleum activities next year**

Oil production is expected to be a good 3 per cent lower in 2002 than in 2001. This is partly due to the production cuts that were carried out in the first half of 2002, but also because of closures of some production facilities so far in the second half of the year. For 2003, the level of production is expected to remain approximately unchanged and then increase by about 4 per cent in 2004. Production is projected to decline again thereafter. As a result of the start-up of production in several new gas fields in 2002, gas production is expected to be nearly 25 per cent higher in 2002 than last year. Gas production is projected to expand further in the period ahead, growing by 4 per cent next year and a good 6 per cent thereafter.

The oil price, measured in USD, generally rose up to the end of the third quarter of 2002 before falling so far in the fourth quarter. The average oil price for 2002 is expected to be approximately the same as in 2001, about USD 25 per barrel. It is expected to fall gradually to USD 24 next year and then remain at this level through the remainder of the projection period. With a dollar exchange rate that gradually falls to about NOK 7.50 in 2004, this implies that the krone price per barrel will be about NOK 200 this year and then remain stable at just under NOK 180 ahead.

Statistics Norway's investment plans survey for the petroleum sector shows that the level of investment spending in 2002 is expected to be the same as in 2001. This is a downward revision of more than NOK 1 billion of the estimates provided in the previous quarter, primarily reflecting lower estimates for investment expenditure on exploration and fields in operation. Adjusted for the projected rise in prices, the investment volume will decline by more than one per cent from 2001 to 2002. For 2003, we are primarily basing our projections on the investment intentions survey, but in view of more recent information we have also decided to revise upwards the estimates for

investment costs by about NOK 1 billion. Investment is expected to be less import-oriented than assumed in the September report. For 2003, investment is now projected to rise by more than 10 per cent, reflecting higher estimates for investment in land-based facilities, field development and existing fields in relation to the survey's estimates in the previous quarter. This is expected to generate an increased impetus to the Norwegian economy. For 2004, investment is projected to increase further, by a little less than 3 per cent, with approximately the same import share as in the previous year.

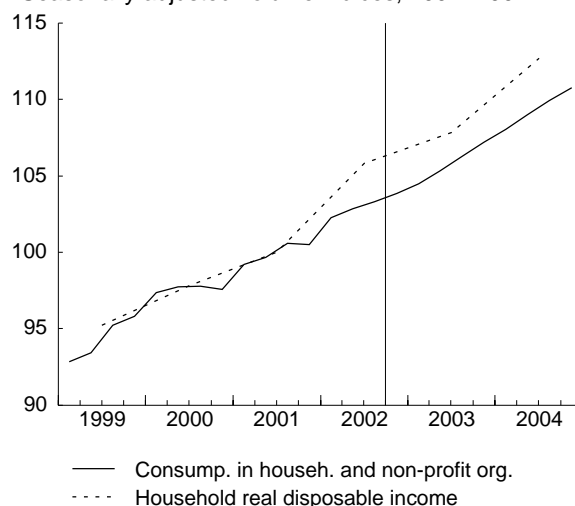
### Household income and consumption

According to the quarterly national accounts, seasonally adjusted consumption by households and non-profit institutions rose by 1.7, 0.6 and 0.4 per cent respectively in the first three quarters of 2002, measured from the previous quarter. The figure for the first quarter is higher than that published in September, reflecting an upward revision of spending on services and direct purchases abroad by resident households.

Growth in household real disposable income is set to be strong in 2002. The most important factors are high wage growth – due to the high pay increases awarded to employees in this year's wage settlement – and unusually low inflation. In addition, capital income is expected to show solid growth, partly because we assume a pronounced rise in share dividends received by households from 2001 to 2002. This is because there was a tax on share dividends paid to households from September 2000 until the end of the 2001 accounting year. As a result, dividend payments were low in 2001, and they have probably increased now that the tax has been removed. One factor that has curbed growth in household disposable income is the high level of interest rates. The net effect of higher short-term interest rates is negative for household disposable income, despite the fact that households have positive net financial assets. The reason is that insurance claims account for a high share of household financial assets and these are less sensitive to fluctuations in short-term interest rates. Growth in household real disposable income may be close to 6 per cent this year.

Consumption is primarily influenced by real disposable income. We project that household consumption will increase in real terms by 3.0 per cent in 2002. In other words, real consumption growth is noticeably lower than growth in real disposable income, with the saving ratio rising this year. Possible reasons for the relatively weak consumption growth in 2002 compared with real disposable income growth were discussed in the September *Economic Survey*. First, the saving ratio may increase in the short term because households need some time to adjust consumption to what they possibly perceive as a permanent, higher income level. Moreover, the real interest rate has been high, and

**Income and consumption in households**  
Seasonally adjusted volume indices, 2001=100



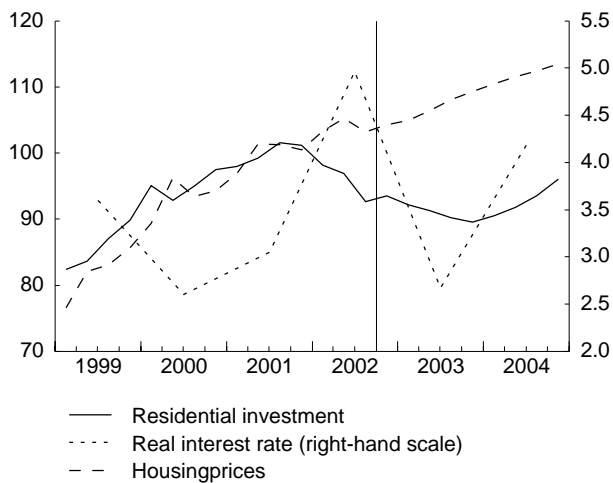
Source: Statistics Norway.

equity prices have fallen substantially through the year. Finally, higher unemployment and expectations of a further rise in unemployment may have contributed to restraining consumption growth. A more difficult labour market curbs consumption growth because people become more cautious and save more. Another factor that helps to explain why consumption is growing less than income in 2002 is the low propensity to use share dividends and other capital income for consumption.

Real disposable income is projected to rise by about 2 per cent in 2003, i.e. considerably lower than in 2002. The main explanation is a far higher rate of inflation, but other factors are somewhat lower growth in nominal income as a result of a more moderate wage settlement and lower growth in capital income. However, a lower real interest rate, combined with tax cuts in the government budget for 2003, will have the effect of curbing the fall in real disposable income.

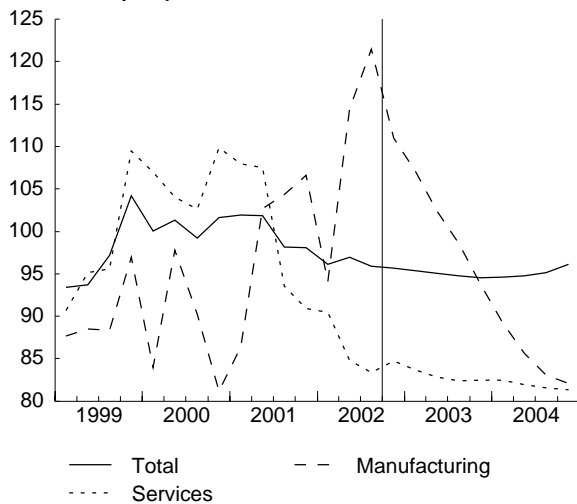
Noticeably slower growth in household real income and higher unemployment are some of the factors behind reduced consumption growth, but lower real interest rates will have the opposite effect. We project that consumption will grow at a faster pace than real disposable income in 2003. The high electricity prices that have been observed at the end of 2002, and which are expected to remain high into 2003, are an element that may influence saving. A sharp increase in electricity prices can be compared to a tax. It may be difficult for households to reduce their electricity consumption, at least in the short term. The same applies to other consumption expenditure. The isolated effect of higher electricity prices is therefore presumably that total consumption expenditure increases for households. Consumption is projected to expand in volume by 2.7 per cent in 2003, with the saving ratio declining that year.

**Residential investment and housing prices**  
Seasonally adjusted volume indices, 2001=100



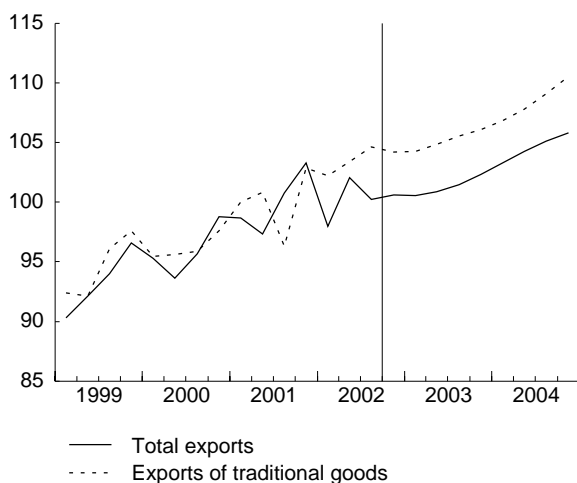
Source: Statistics Norway.

**Investment, Mainland Norway**  
Seasonally adjusted volume indices, 2001=100



Source: Statistics Norway.

**Exports**  
Seasonally adjusted volume indices, 2001=100



Source: Statistics Norway.

For 2004, growth in real disposable income is projected at 4.5 per cent, while consumption growth is estimated at 3.6 per cent. In other words, the saving ratio will pick up again, partly because the real interest rate is projected to increase from 2003 to 2004.

**Housing investment and house prices**

House prices are projected to show a rise of 3.7 per cent in 2002, 3.4 per cent next year and 4.4 per cent in 2004. As a result of the lower real interest rate in 2003, the rise in house prices will be sustained next year in spite of weaker growth in real income and the increase in unemployment.

Housing investment is projected to fall by 5.3 per cent from 2001 to 2002. We assume that it will continue to decline in 2003, with an estimated contraction of 4.5 per cent. In 2004, growth is projected at about 1 per cent. Mechanisms that can explain the decline in housing investment in 2002 and 2003 are higher unemployment, the high real interest rate in 2002, the projected low real income growth in 2003 and the more moderate outlook for increases in house prices compared with earlier years.

**Investment decline in mainland enterprises comes to a halt**

Gross investment in mainland enterprises has curbed total growth in domestic demand ever since the cyclical peak was passed in 1998. This is what may be expected on the basis of a normal cycle. Over the past two years, this investment has generally been declining. It has been particularly pronounced in 2002, and we now project it will fall by nearly 7 per cent. The contraction in investment has occurred in spite of a considerable increase in manufacturing investment in previous years. For 2002, it now appears that manufacturing investment will expand by almost 9 per cent. It is conceivable that many enterprises have decided to postpone investment until the removal of the investment tax, which occurred in the fourth quarter of this year. This will in the even have the effect of curbing a further decline in investment.

Manufacturing investment is projected to fall in 2003. This is partly due to the current situation for manufacturing, with squeezed profitability, but also reflects the completion or final stages of major projects. Manufacturing investment is therefore expected to contract considerably in the period to end-2004, when the decline is projected to level off. In line with Statistics Norway's investment intentions survey, the electricity supply sector is expected to continue to make a positive contribution to investment in the next few years. Investment in a number of service industries is not expected to show pronounced growth, and investment in commercial buildings is likely to fall. This reflects the high level of investment in previous years, which has increased capacity considerably, and weaker rental rates for commercial property. All in all,

investment in mainland enterprises is projected to show little change over the next few years compared with the level in 2002.

### Export growth despite strong krone

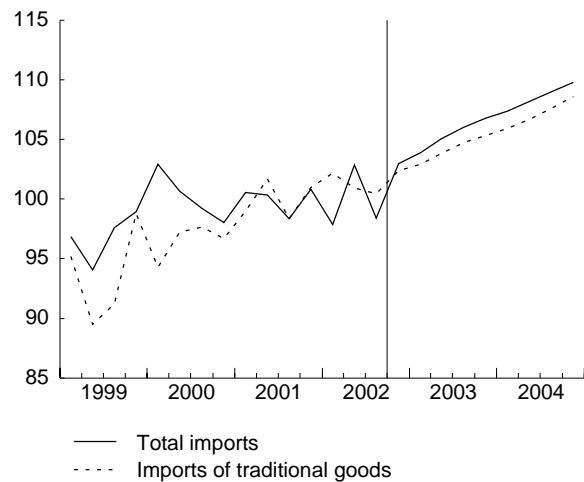
After falling in the first quarter of 2002, traditional merchandise exports rose in volume in both the second and third quarter. Farmed fish, fish and fish production from manufacturing, basic chemicals, chemical and mineral products and engineering products made the largest contribution to growth, while refined petroleum products was the only main category that made a strong negative contribution. The expansion in traditional merchandise exports may appear surprising in the light of the sharp appreciation of the Norwegian krone over the past year, but must also be seen in connection with the sharp fall in export prices. Most main groups of traditional merchandise exports have thus recorded a decline in prices of about 10 per cent or more during the past year, i.e. almost on a par with the appreciation of the krone. The fall in prices has been particularly pronounced for pulp and paper products, refined petroleum products and metals. For goods that have not recorded a fall in prices, or where the fall in prices has levelled off, export volumes have had a tendency to decline appreciably (textiles, clothing and footwear, wood products). The total value of exports has also tended to move on a downward trend.

To the extent the steep fall in prices is related to the krone appreciation, it may reflect either contractual conditions (for example, orders concluded in foreign currency) or a strategy whereby enterprises decide to reduce export prices measured in krone terms in order to maintain market shares on export markets. However, the consequence of maintaining production, but lowering prices, is a sharp reduction in profitability. This strategy is therefore not sustainable over the longer term, even though in the short term it may be countered through currency hedging instruments. Unless the krone depreciates markedly again, enterprises will probably feel compelled to increase export prices in the period ahead and accept a greater loss of market shares, or possibly a direct decline in exports. This pattern, whereby export prices fall fairly sharply in the very short term, while volumes are reduced in the longer term (in relation to the baseline scenario), is consistent with the functioning of Statistics Norway's macroeconomic models.

While the projection for export growth of 3.5 per cent in 2002 may indicate an increase in market shares for Norwegian exports this year, our calculations point to a substantial loss of market shares in the years ahead. Since the metals sector is expected to account for a large share of the increase in exports (due to new, efficient capacity), the loss of market shares for other export industries will generally be somewhat higher than for traditional exports as a whole. The fall in

### Imports

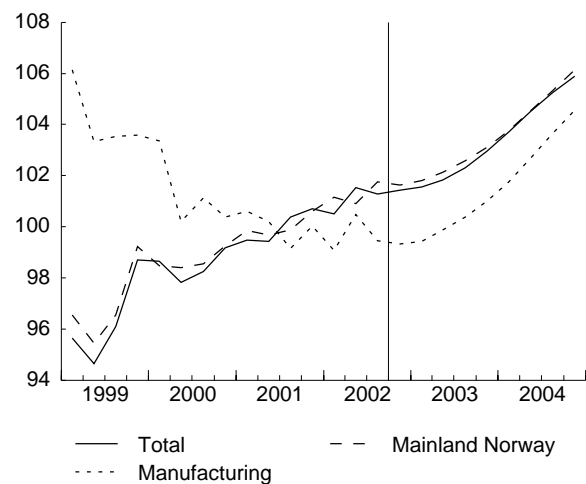
Seasonally adjusted volume indices, 2001=100



Source: Statistics Norway.

### Gross domestic product

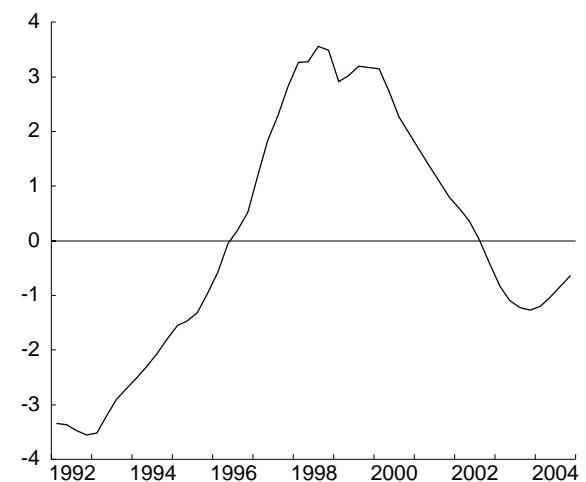
Seasonally adjusted volume indices, 2001=100



Source: Statistics Norway.

### Output gap

Per cent



Source: Statistics Norway.

export prices is expected to be reversed to an increase in 2003, partly due to the assumption that the krone will depreciate in the period ahead, although this is not sufficient to prevent the loss of market shares. In the calculations, we have disregarded the possibility of accelerated relocation to other countries or the closure of a large segment of Norwegian manufacturing industry, which cannot be ruled out in view of the real appreciation of the Norwegian krone that has taken place.

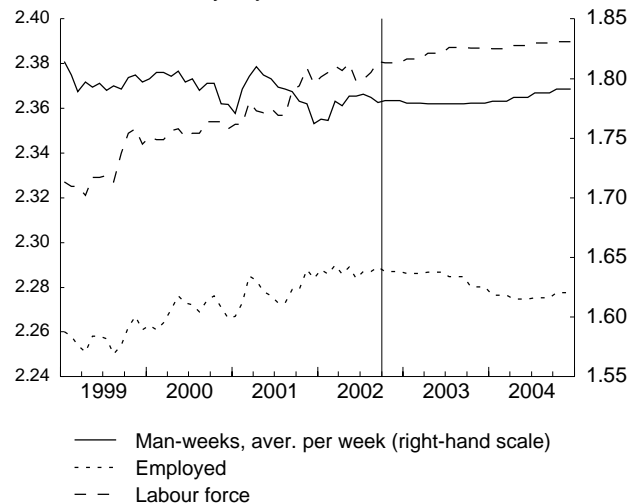
### Weak GDP growth in 2003

After declining from the first to second quarter, mainland GDP expanded again in the third quarter, according to seasonally adjusted, preliminary QNA figures. However, developments were the opposite for total GDP, which showed a decline (seasonally adjusted) from the second to third quarter of 2002. GDP growth in 2002 is still projected at about 1¼ per cent. Sluggish growth in demand from the mainland economy in both 2001 and 2002 has contributed to curbing the growth impetus. This will continue in 2003 and we have revised down our projection for growth in demand, which will reduce GDP growth in 2003 compared with 2002.

It is now likely that electricity production will be lower and electricity prices higher in 2003 than assumed earlier. This negative supply-side shock has negative indirect effects on both demand and output. It therefore appears that the downturn in 2003 may be somewhat stronger than assumed earlier. If we assume that precipitation and reservoir levels are normalized in the course of 2003 and 2004, these effects will be reversed in 2004. The path for production and inflation in the next few years will therefore be heavily influenced by developments in the electricity sector. Reference is made to a separate box on the effect of higher electricity prices.

A pronounced global upturn has failed to materialize. We have therefore lowered our forecasts for market growth abroad, which contributes to lower growth for traditional exports and exports of some services. In addition, the krone exchange rate has remained at a noticeably stronger level than assumed earlier, with the result that Norwegian exporters are expected to lose market shares to a greater extent than assumed earlier. Along with weaker growth in domestic demand and from the mainland economy, this will contribute to pushing down growth next year. Higher petroleum investment, with a lower import content than assumed earlier, will have the opposite effect. All in all, this contributes to lower projected growth in mainland GDP than in our September report. This will reduce employment and household income growth and will increase unemployment, which in turn will have an impact on the housing market. Factors that point to the opposite are our assumptions of a sharper fall in interest rates than assumed earlier and slightly

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



Source: Statistics Norway.

higher inflation in 2003, which will reduce the real interest rate to a greater extent. This means that the household saving ratio may edge down so that consumption growth shows little change. On balance, however, the picture is that the Norwegian economy is now facing a somewhat stronger cyclical downturn in 2003 than we assumed earlier.

For 2004, our growth projections show little change compared with the September report. The projected rise in output that year is related to the international upturn, which will boost traditional exports, as well as a weaker negative impetus from domestic demand. Of particular importance are lower electricity prices and higher electricity production, which will keep consumer price inflation low in 2004. Household real income will thus increase more and consumption growth will be higher. Similarly, housing investment will be reversed from a decline in 2003 to an increase through 2004. It is projected that the fall in manufacturing investment will be considerably more moderate. The impetus from fiscal policy is approximately unchanged in relation to the previous year, while the fall in interest rates through 2003 and the krone depreciation will have positive effects on demand and competitiveness. All in all, we therefore project that growth in 2004 will be on a par with estimated trend growth in mainland GDP, with the cyclical downturn coming to a halt.

### Rise in unemployment

At the end of November, almost 78 000 were registered as unemployed with the public employment service, equivalent to 3.6 per cent of the labour force when adjusted for seasonal variations. By way of comparison, unemployment was 2.9 per cent at the beginning of the year. The rise in unemployment picked up this autumn and the increase now appears to be broadly based.



## Different measures of unemployment - divergent unemployment figures?

Figures on registered unemployment show a pronounced increase through 2002, while the latest figures from Statistics Norway's Labour Force Survey (LFS) show a far slower rise. The reason for the differences is that the two data sources capture a turnaround in the labour market in a somewhat different way. The deterioration in the labour market, which is reflected to a large extent in registered unemployment at employment offices this year, may have been captured by the LFS through 2000 and 2001. From the trough level of the LFS in the second quarter of 2000 and up to the third quarter of 2002, both data sources show a rise of the same magnitude (a seasonally adjusted 14 000 in the LFS and 12 000 in registered unemployment). The main impression over the last few decades is that the two series shadow each other well through the various cyclical fluctuations. For changes from quarter to quarter, however, the LFS has some "random noise" because it is a sample survey.

### Reasons for the deviation

There are several explanations for the differences between unemployment measured by the LFS and by registered unemployment.

- The LFS captures to a greater extent new entrants to the labour market and others who are not eligible for unemployment benefits.
- Persons participating in labour market programmes are not classified as registered unemployed, while many of them are classified as unemployed in the LFS.
- Some older unemployment benefit recipients report that they are on early retirement in the LFS and state that they are no longer seeking work. These are still registered as unemployed.
- Some registered unemployed report in the LFS that they have odd jobs and are therefore classified as employed. Some are captured in the LFS concept "underemployed".

These factors have different effects. They thus conceal the relatively small differences in level between the statistics' large gross deviations. A comparison carried out by Statistics Norway for the years 1993 and 1997 shows that only about 50 per cent were classified as unemployed in both sources at the same time. The importance of the gross deviations also varies considerably over a business cycle, and the effect on figures on change and net deviations will therefore also vary.

### Differences over the business cycle

With a turnaround in the economy and rising unemployment, as in autumn 2000, newcomers to the labour market will experience problems finding a job. This is a group that the LFS captures to a considerably greater extent than the employment offices. As a result, LFS figures show a turnaround in unemployment at an earlier stage. When the deterioration in the labour market continues, newcomers to the labour market will be divided into two groups: one group continues the job search and starts to register as unemployed at the employment office to obtain help in the job search and/or to participate in labour market programmes. This results in a rise in registered unemployment, but not in the LFS, since these have already been defined as unemployed in these statistics. Figures from the LFS show that the share who reported using the employment offices for job searches rose from 28 per cent in the third quarter of 2001 to 34 per cent in the third quarter of 2002.

The second group of newcomers ceases to search actively when the labour market deteriorates. Since the LFS covers most in this group, this will particularly contribute to curbing the rise in LFS figures. When people stop searching actively for a job it may be because they no longer believe they can compete successfully for jobs in a labour market where a greater number of unemployed are competing for steadily fewer vacancies. Some will also stop looking for a job because they have an alternative activity, e.g. education. From the third quarter of 2001 to the third quarter of 2002, the share of unemployed in the LFS who reported education as the main activity fell from 30 to 25 per cent. The deterioration in the labour market will thereafter gradually be reflected in workforce reductions in enterprises. Some will find a job immediately, but some will be

unemployed and be entitled to unemployment benefits. All of them will be registered as unemployed, while in the LFS some of them may be defined as employed or on early retirement. In isolation, these cases will mean that the rise in registered unemployment is greater than the rise in LFS unemployment. In 2002, the rise in registered unemployment has been divided fairly evenly between those entitled to unemployment benefits and those who are not. The share of registered unemployed entitled to unemployment benefits is just below 60 per cent.

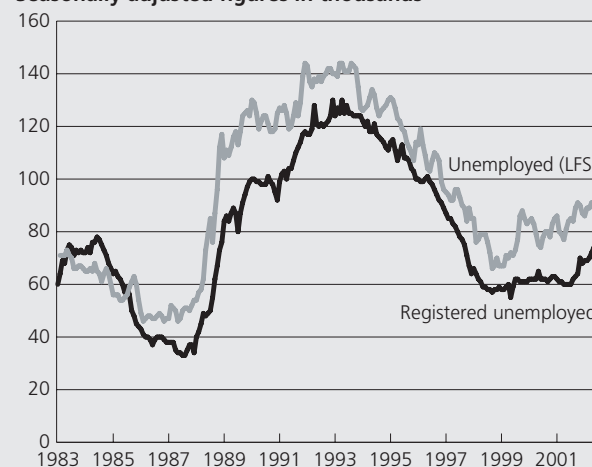
A persistent deterioration in the labour market is often accompanied by an increase in labour market programmes. This has not yet occurred in relation to the rising level of unemployment in 2002, but when it does occur this will have a different impact on the LFS and registered unemployment. Everyone who participates in a programme is excluded from the group registered unemployed. Persons participating in training measures who respond that they are available for work immediately will continue to be defined as unemployed in the LFS. A direct effect is that registered unemployment will show a slower rise than LFS unemployment. However, an indirect effect of expanded labour market programmes will be that more of the unemployed who have not registered earlier will report to the employment offices and thus contribute to a higher rise in registered unemployment than in LFS unemployment.

### Why two measures of unemployment?

Both the LFS' and public employment office's measure of unemployment is useful. They have their advantages and drawbacks in different areas, and therefore supplement each other. Registered unemployment provides a very precise picture of how changes in the cyclical situation are reflected in the number of people receiving unemployment benefits. Registered unemployment can also be broken down into detailed groups by gender, age, occupation, region, etc. Because of the uncertainty associated with a sample survey, the LFS can only provide reliable figures with a much rougher classification at country level. On the other hand, the LFS provides a better overall picture of unemployment. It also provides a broader picture inasmuch as developments in unemployment are presented alongside developments in employment and persons outside the labour force.

On the whole, only LFS figures are used in international comparisons of unemployment. The LFS provides figures that are considerably more comparable and less influenced by institutional differences than figures on registered unemployment. Norway's position is exceptional with both LFS figures and reliable figures on registered unemployment, which to a large extent show the same developments, albeit more random in the short term.

### Unemployed persons according to LFS, and registered unemployed persons at the Employment Offices. Seasonally adjusted figures in thousands\*



\* Three-months moving average

According to the Labour Force Survey (LFS), unemployment so far this year has not increased as sharply as registered unemployment. As an average for the period August-October 2002, the LFS showed seasonally adjusted unemployment of 3.9 per cent of the labour force. This is only 0.1 percentage point higher than in the same period one year earlier and 0.2 percentage point higher than corresponding figures for the period January-March 2002. However, it is not unusual that these two measures of unemployment show some divergence in the short term (see box). At any given time, only about half of those who respond that they are unemployed in the LFS are also registered as unemployed. The reason is that the LFS captures to a greater extent those job-seekers who – primarily because they are not eligible for unemployment benefits – do not report to employment offices. Similarly, there are more registered unemployed who are not genuine job-seekers. Since the LFS to a greater extent captures marginal groups and since these are influenced by changes in the labour market to a greater extent, a turnaround in the economy is reflected more quickly in the LFS than in the figures reported by the public employment service. If we look at overall developments after unemployment passed a trough in autumn 1998, the increase in unemployment is 1.1 percentage points in both data sources.

The exit from the labour force among older workers is still lower than the entry of new youth cohorts, with the result that the labour force is still rising by about 10 000 yearly because of demographic factors. After ten years with a continuous increase, participation rates now appear to have peaked. In the third quarter of 2002, 73.9 per cent of the population between the ages of 16 and 74 was either employed or unemployed. This is 0.1 percentage point higher than in the same period in 2001, but 0.2 percentage point lower than in the second quarter of this year.

Compared with the end of November 2001, figures from the public employment service show that unemployment has risen for all occupational groups with the exception of occupations classified in the group agriculture, forestry and fishing. The increase has been highest among those who do not specify an occupational background. The reason may be that immigrants with language problems, young labour market entrants and others without work experience are often those who experience the toughest climate in the labour market during a nascent cyclical downturn. It is also likely that a large share of the dismissals relate to contract workers and that these workers have difficulty in placing themselves in an occupational category. Among those who specify an occupational background, the largest percentage increase has been recorded for those with administrative and humanitarian work and for those with scientific work. The increase here particularly reflects higher unemployment among employees in ICT-related occupations.

An increasingly squeezed financial position for the local government sector, as a result of high wage growth and considerable interest expenditure, may explain why there are now more unemployed workers in health and care occupations and among employees in the education sector. Moreover, the agreement concerning an increase in working hours in return for higher pay for teachers may have contributed to an increase in the unemployed in the education sector. Unemployment has also risen among commercial, service and transport workers, which may be related to the slowdown in retail trade. Moreover, deteriorating profitability in manufacturing over the past year has resulted in rising unemployment among manufacturing workers in recent months. An increase in layoffs in manufacturing signals a further rise in unemployed among these workers in the period ahead. As export enterprises' currency hedging positions and long-term order contracts gradually expire, profitability in manufacturing enterprises is expected to deteriorate substantially in 2003. This will result in further dismissals in this sector.

Looking more closely at developments in the number of advertised vacancies can provide an indication of any mismatches between the type of worker who is unemployed and the type of worker in demand, also within occupational groups. For example, there may be a need for a worker with a different level of education than that possessed by the unemployed. Seasonally adjusted figures for November 2002 show that the number of vacancies was less than half the number in 2000. If we look at different occupational groups, the decline is generally a reflection of unemployment developments the past year. This does not suggest increased mismatches between different types of labour.

Registered unemployment has risen in all counties. Perhaps as a result of problems in ICT industries, the increase has been greatest in Oslo and Akershus. However, all counties in southeast Norway have recorded a sharp rise in unemployment. Western Norway and Central Norway have also experienced a noticeable increase in unemployment. In North Norway, the increase has been more modest, albeit from a higher level. Registered unemployment is also increasing for all age groups with the exception of those under 20. The increase has been considerable for both women and men between 30 and 59 years of age. Both short-term and long-term unemployment has risen in the past year, but with a steadily higher share of long-term unemployed. Whereas developments in short-term unemployment provide some indication of the extent of job cuts, long-term unemployment provides some indication of employment frequency.

The figures from the public employment service may thus indicate that some workers are experiencing special problems in the labour market. A slacker labour

**Main economic indicators 2001-2004. Accounts and forecasts**

Percentage change from previous year unless otherwise noted

	Accounts 2001	Forecasts							
		2002			2003			2004	
		SN	MoF	NB	SN	MoF	NB	SN	NB
<b>Demand and output</b>									
Consumption in households and non-profit organizations	2.5	3.0	3.1	3 3/4	2.7	3.5	3 1/2	3.6	3 1/4
General government consumption	2.0	2.6	1.7	1 3/4	1.6	0.5	3/4	2.0	2
Gross fixed investment <sup>1</sup>	-4.6	-2.2	-0.2	0	1.6	3.2	3 1/2	0.5	0
Extraction and transport via pipelines <sup>2</sup>	7.2	-1.2	5.1	2	11.1	12.2	15	2.6	-5
Mainland Norway	-0.3	-4.4	..	-1/4	-1.3	..	1/2	-0.2	1 1/2
Firms	-1.3	-6.9	-3.8	-4 1/4	-0.3	-1.0	3/4	-1.0	1 1/4
Housing	5.1	-5.3	-1.5	4	-4.5	2.2	3/4	1.1	1 3/4
General government	-4.3	4.2	6.0	6	-0.2	0.3	1/4	0.2	2
Demand from Mainland Norway <sup>3</sup>	1.8	1.6	2.0	2 1/2	1.8	2.7	2 1/4	2.5	2 1/2
Stockbuilding <sup>4</sup>	-0.8	-0.2	..	..	0.0	..	..	0.0	..
Exports	4.2	0.1	1.3	0	0.3	0.8	1 1/2	3.7	1 3/4
Crude oil and natural gas	5.2	1.1	2.8	-1 3/4	0.8	-2.1	4 1/2	5.0	2
Traditional goods	4.0	3.5	1.5	1/2	1.4	2.7	-1	2.9	0
Imports	0.0	0.9	0.9	1 3/4	4.3	2.9	3 3/4	2.9	1 1/4
Traditional goods	4.0	1.6	2.1	2 1/2	2.7	3.2	3 3/4	2.7	1 1/4
Gross domestic product	1.4	1.1	2.0	1 3/4	0.8	1.9	2	2.9	2 1/2
Mainland Norway	1.2	1.3	1.7	1 1/2	0.9	1.8	1 3/4	2.5	2 1/4
<b>Labour market</b>									
Employed persons	0.5	0.3	0.5	1/2	0.0	0.4	0	-0.5	1/2
Unemployment rate (level)	3.6	3.9	3.9	4	4.4	4.0	4 1/4	5.0	4 1/4
<b>Prices and wages</b>									
Wages per standard man-year	5.0	5.4	5.5	5 3/4	4.4	5.0	5 1/2	4.2	5 1/4
Consumer price index (CPI)	3.0	1.2	1.2	1 1/4	3.1	2 1/4	2	1.4	2 1/4
CPI adjusted for tax changes and excluding energy products (CPI-ATE)	2.6	2.3	..	2 1/4	2.2	..	2	1.9	2 1/4
Export prices, traditional goods	-3.1	-10.0	..	-8 3/4	0.4	..	-2 3/4	5.3	2 1/2
Import prices, traditional goods	0.4	-7.2	..	..	0.2	..	..	3.1	..
Housing prices	7.2	3.7	..	..	3.4	..	..	4.4	..
<b>Balance of payment</b>									
Current balance (bill. NOK)	233.4	207.0	206.2	210	174.8	178.9	185	185.2	170
Current balance (per cent of GDP)	15.4	13.7	..	14	11.4	..	12	11.6	11
<b>Memorandum items:</b>									
Household saving ratio (level)	4.5	7.1	6.5	5 1/2	6.4	6.6	5	7.3	5
Money market rate (level) <sup>5</sup>	7.2	6.9	7.0	..	6.5	6.7	..	6.3	..
Lending rate, banks (level) <sup>6</sup>	8.9	8.5	..	..	8.1	..	..	7.8	..
Crude oil price NOK (level) <sup>7</sup>	220.1	196.6	..	..	178.5	..	..	179.9	..
Export markets indicator	0.3	0.8	..	..	7.0	..	..	7.3	..
Importweighted krone exchange rate (44 countries) <sup>5,8</sup>	-3.1	-8.4	..	-9	-2.1	..	-3 1/2	2.9	0

<sup>1</sup> Forecasts from Norges Bank are including stockbuilding.<sup>2</sup> Forecasts from Ministry of Finance and Norges Bank are including service activities incidental to extraction.<sup>3</sup> Consumption in households and non-profit organizations + general government consumption + gross fixed capital formation in Mainland Norway.<sup>4</sup> Change in stockbuilding. Per cent of GDP.<sup>5</sup> NB technically assumes its rates to be constant through the forecast period.<sup>6</sup> Households' borrowing rate in private financial institutions.<sup>7</sup> Average spot price, Brent Blend.<sup>8</sup> Increasing index implies depreciation.

Sources: Statistics Norway (SN), Ministry of Finance, St.meld. nr 1 2002-2003 (MoF), Norges Bank, Inflasjonsrapport 3/2002 (NB).

market without substantial sectoral, geographic, demographic, occupational or education-related differences may nevertheless suggest that the Norwegian economy is being hit by a general cyclical downturn. Continued sluggish growth in production and high productivity growth will contribute to a continued, noticeable increase in unemployment in both traditionally sheltered sectors and manufacturing in 2003 and 2004. As an average for 2003 and 2004, LFS unemployment is expected to rise to 4.4 and 5.0 per cent respectively.

**Zero settlement in 2003?**

The rise in wages per normal man-year in the public sector is set to be a little more than 6 per cent from 2001 to 2002. By way of comparison, annual wage growth for manufacturing workers will be slightly more than 4 per cent, one percentage point below the level thought to be the case just after the spring wage settlement. Salaried employees in manufacturing are likely to record wage growth that is 0.5 percentage point higher than this. It appears that wage growth in

### Effects of higher electricity prices

In the forecasts presented in this report, we have based projections for electricity prices on forward prices at 10 December. Contracts for the first and second quarter indicate electricity prices for households of about 65 øre in the first quarter and a little more than 40 øre in the second quarter. We have, however, adjusted these figures down and assumed an electricity price for households of 60 øre in the first quarter of 2003 and 40 øre in the second quarter, which correspond to an overall price of about NOK 1.10 per kWh in the first quarter and 86 øre in the second quarter, when all taxes and grid rent have been included. Compared with the first half of 2002, this will then entail an increase of about 45 øre in the first quarter and 30 øre in the second quarter. Measured in per cent, the increase will be 70 and 50 per cent respectively. In the third quarter, we have an increase in electricity prices of 15 per cent, but it is only 2 per cent in the second quarter.

With the help of Statistics Norway's macroeconomic model KVARTS, we have estimated the effect of the rise in electricity prices from 2002 to 2003. The combined effect on CPI inflation is estimated at 2.5, 2.2, 1.0 and 0.3 in the four quarters of next year. Electricity has a weight of 3.3 per cent in the CPI. The direct effect on CPI inflation of the projected increases in electricity prices from 2002 to 2003 is thus 2.3 percentage points in the first quarter, 1.7 percentage points in the second quarter and 0.5 percentage point in the third quarter. In addition to the direct CPI effect from households' electricity consumption, there are indirect ef-

fects that reach their maximum level in the second and third quarter at 0.5 percentage point. The indirect effects come first via electricity as an input in all sectors of the economy, which results in a general rise in costs that is gradually passed on to buyers. Wage growth will be somewhat higher because employees are to some extent compensated for the higher prices. On the other hand, pressures in the labour market and the rest of the economy are reduced through the dampening effect resulting in part from the reduction in household real disposable income. All these price and income impulses give rise to a change in the use of inputs and the composition and magnitude of demand, which in turn spills back to prices.

In the calculations, price levels in the electricity market return to the baseline scenario from the first quarter of 2004. Year-on-year consumer price inflation will naturally be influenced in 2004 to a large extent, but then with the opposite sign, with the rise in electricity prices sharply negative. At an annual rate, price inflation is reduced by 1.3 percentage points in 2004 after rising by 1.5 percentage points in 2003. As a result of the lag for indirect effects, the rise in prices is not entirely reversed in 2004.

In the CPI-ATE, the direct effects from changes in electricity prices are removed, while the indirect effects also influence this index. According to our calculations, CPI-ATE inflation increases by 0.4 percentage point in 2003 and is reduced by 0.2 percentage point in 2004 as a result of the projected rise in electricity prices from 2002 to 2003.

### Effects of projected rise in electricity prices on inflation from 2002 to 2003

Effects as deviations from the baseline scenario in percentage points

	03.1	03.2	03.3	03.4	04.1	04.2	04.3	04.4
Electricity price for households	70.0	50.0	15.0	2.0	0.0	0.0	0.0	0.0
Rise in consumer prices from same quarter previous year	2.5	2.2	1.0	0.3	-2.4	-2.0	-0.8	-0.1
Rise in CPI-ATE	0.2	0.5	0.5	0.2	-0.1	-0.4	-0.4	-0.1

private services will end up somewhere between the level in manufacturing and in the public sector. All in all, growth in wages per normal man-year is set to be 5.4 per cent.

If we disregard the settlement in 2000 for school employees, annual wage growth in the public sector has not been higher than in the private sector since 1989. While non-contractual pay increases account for a large share of wage growth in the private sector, wage drift is very limited in central and local government. When wage drift in private enterprises is higher than assumed in the wage negotiations, this has not been compensated for in settlements in the public sector the following year. This has widened the pay gap between the public and private sector. Employee organizations gained considerable understanding for this problem in both the Holden and Stabel committees, and the stage was therefore set for considerable compensation for the lag in the public sector in this year's wage negotiations.

There appears to be considerable rigidity in wage determination. An analysis in *Economic Survey 4/2001* shows that wage growth this year, and for several years ahead, must be viewed in connection with the decline in unemployment from 1993 to 1998 when unemployment troughed. The increase in unemployment since then, and in 2003 and in 2004, will in the same way have the opposite effect and reduce wage growth in the years ahead. For 2003 and 2004, wage growth is estimated at 4.4 and 4.2 per cent respectively. There will be a considerable wage carry-over from 2002 and into 2003. In addition, some pay increases in 2003 have already been negotiated. If we further assume some wage drift, our projection for wage growth in 2003 entails a virtual zero settlement for many groups next year. On the other hand, considerable contractual pay increases have been assumed in the projection for wage growth in 2004. This is because a main settlement will take place that year and the modest pay increases in 2003 will result in a low carry-over into 2004, and hence provide greater scope for contractual pay increases.

### Price developments – electricity price results in wide variations

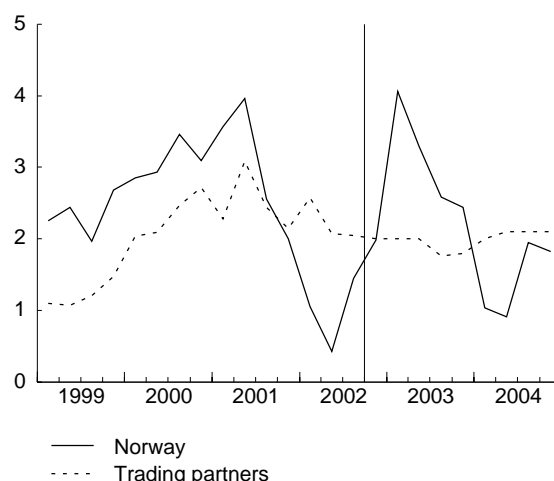
The year-on-year rise in the consumer price index (CPI) has been around 1.5 per cent since the summer, but developments in electricity prices have contributed to a rise over the last three months. In November, the rate of increase was 2.1 per cent, and it will be higher. According to our calculations, consumer price inflation may be more than 4 per cent at the beginning of 2003. The rise in the CPI is projected at 3.1 per cent on an annual basis in 2003. A normalization of electricity prices later in 2003 and into 2004 as well as the introduction of a minimum rate for day-care places in 2004 will contribute to very low inflation in 2004, estimated at 1.4 per cent.

When we exclude energy prices and tax changes (CPI-ATE), the rate of inflation was around or a little above 2.5 per cent in the two-year period August 2000 to July 2002. In the subsequent four months, this measure of underlying inflation was reduced and in November slowed to 2.0 per cent. For a few years, and particularly this year, an important driving force behind price developments has been the appreciation of the krone. The full effect of the krone appreciation has probably not yet been reflected in the CPI. Some of the appreciation has probably benefited foreign exporters in the form of higher prices than would otherwise have been the case. It must also be assumed that low import prices have contributed to an increase in margins for Norwegian importers – with prices for Norwegian households being reduced less than the level implied by lower import prices. Normal market mechanisms will gradually contribute to an elimination of these gains for the business sector, which may point to subdued price inflation for a period ahead even if the krone depreciates somewhat. In the calculations, it is assumed that the import-weighted krone exchange rate depreciates over the coming two years by altogether 6 per cent from the level prevailing in the first week of December. After some time, this depreciation will in isolation contribute to higher inflation in Norway.

House rents showed a steadily rising rate of increase from February to July, but the increase has slowed thereafter. Imputed house rents, which account for the highest share of house rents, showed a rise of 1.8 percentage points to July, but have since fallen by 1.1 percentage points to November. In November, the rate of increase was 4.4 per cent, and house rents are thus still pushing up inflation. Over the past few months, however, the contribution from this component has been reduced, and has led to a decline in underlying inflation (CPI-ATE). The projected decline in interest rates next year will also contribute to a slower rise in house rents in the period ahead. Lower wage growth, spurred by weak profitability in internationally exposed enterprises, and rising unemployment will also help to curb inflation.

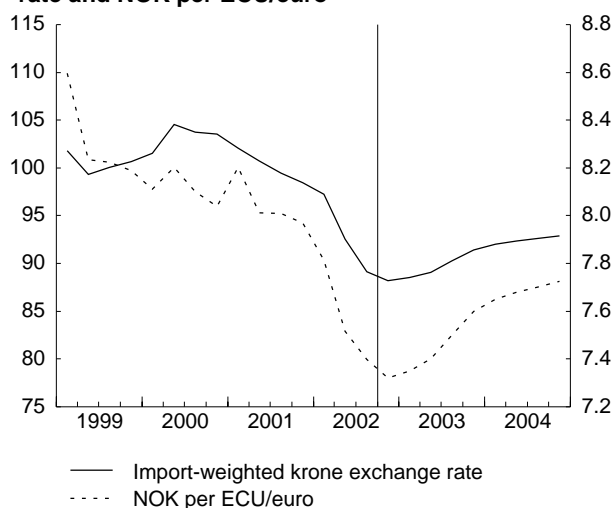
### Consumer price indices

Percentage growth from the same quarter previous year



Sources: Statistics Norway and Norges Bank.

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



Sources: Norges Bank.

High electricity prices are assumed to be a relatively short-lived phenomenon, which to a large extent will disappear with the spring flood. With a further normalization of electricity prices through the second half of 2003, the rate of inflation may be very subdued at the beginning of 2004. The calculations are based on the assumption that electricity prices reach almost the same level as indicated by forward prices in the second week of December.

### Balance of payments – large but declining surpluses

It now appears that the surplus on the current account may be about NOK 207 billion in 2002, equivalent to 13.7 per cent of nominal GDP. The surplus is nearly NOK 30 billion lower than in 2001. This primarily reflects a terms-of-trade loss since export prices, and

particularly oil prices, have fallen more than import prices. We project that oil prices, measured in krone terms, will continue to fall from 2002 to 2003, which means that next year we will again record a terms-of-trade loss of approximately the same magnitude as in 2002. Moreover, growth in imports is expected to be higher than growth in exports next year. This is partly due to assumptions concerning petroleum exports, but also reflects the effects of deteriorating competitiveness. All in all, the surplus on the current account is estimated at about NOK 175 billion in 2003, equivalent to 11.4 per cent of nominal GDP. Our oil price projection entails a further terms-of-trade deterioration in 2004, but then the improvement in the interest and transfers balance will offset this so that the current account surplus is estimated to increase marginally and slightly more as a percentage of GDP. Our projections imply that for the first time in 50 years Norway might record a surplus on the interest and transfers balance. The last time this occurred was in the years Norway received considerable Marshall aid.

**National accounts: Final expenditure and gross domestic product**

At fixed 1999 prices. Million kroner

	Unadjusted		Seasonally adjusted							
	2000	2001	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Final consumption exp. of housh. and NPISHs	604 894	619 828	151 162	153 656	154 421	155 854	155 707	158 401	159 308	160 057
Household final consumption expenditure	579 806	594 720	144 894	147 274	148 117	149 551	149 582	151 905	152 870	153 664
Goods	323 787	331 261	80 328	82 307	82 029	82 464	84 300	85 416	85 191	84 761
Services	247 270	254 712	62 152	62 533	63 751	64 857	63 591	64 240	64 880	65 852
Direct purchases abroad by resident househ.	26 089	26 065	6 546	6 714	6 584	6 579	6 146	6 396	7 152	7 174
Direct purchases by non-residents	-17 340	-17 317	-4 132	-4 280	-4 246	-4 349	-4 454	-4 147	-4 353	-4 123
Final consumption exp. of NPISHs	25 088	25 108	6 269	6 382	6 304	6 303	6 125	6 495	6 438	6 393
Final consump. exp. of general government	266 777	272 176	66 450	67 799	67 724	68 402	68 252	69 678	69 832	70 337
Final consump. exp. of central government	105 948	107 664	26 317	26 996	26 824	26 825	27 010	36 933	36 952	37 134
Central government, civilian	81 256	83 875	20 246	20 994	20 900	20 957	21 019	31 151	31 046	31 331
Central government, defence	24 692	23 789	6 072	6 002	5 923	5 868	5 991	5 782	5 905	5 802
Final consump. exp. of local government	160 829	164 513	40 133	40 803	40 900	41 577	41 242	32 745	32 880	33 203
Gross fixed capital formation	267 774	255 527	63 312	66 628	64 234	62 066	62 349	60 245	64 933	61 134
Extraction and transport via pipelines	47 929	51 362	11 094	12 288	11 968	12 941	14 131	12 417	11 640	12 274
Service activities incidental to extraction	6 573	-897	470	253	1 034	295	-2 479	94	4 431	265
Ocean transport	16 298	8 672	1 917	4 112	1 283	679	2 597	608	1 302	1 574
Mainland Norway	196 974	196 390	49 832	49 975	49 948	48 151	48 101	47 126	47 560	47 021
Mainland Norway excl. general government	158 114	159 189	39 962	40 223	40 962	39 060	38 667	37 405	37 669	37 309
Manufacturing and mining	19 620	22 457	4 534	4 822	5 734	5 827	5 951	5 255	6 389	6 781
Production of other goods	15 832	15 601	3 722	3 973	3 723	3 899	3 903	3 794	4 087	4 131
Dwellings	47 830	50 288	12 257	12 314	12 471	12 770	12 721	12 339	12 187	11 646
Other services	74 832	70 842	19 448	19 114	19 034	16 564	16 092	16 017	15 007	14 752
General government	38 860	37 201	9 870	9 752	8 986	9 090	9 433	9 721	9 892	9 712
Changes in stocks and stat. discrepancies	29 300	18 583	7 704	4 213	7 236	3 915	4 153	5 362	2 688	2 329
Gross capital formation	297 074	274 110	71 017	70 841	71 470	65 981	66 502	65 607	67 621	63 463
Final domestic use of goods and services	1168745	1166114	288 629	292 297	293 615	290 237	290 462	293 686	296 761	293 858
Final demand from Mainland Norway	1068645	1088395	267 444	271 431	272 093	272 406	272 060	275 205	276 700	277 416
Final demand from general government	305 637	309 377	76 320	77 551	76 710	77 492	77 686	79 399	79 723	80 049
Total exports	500 366	521 299	128 744	128 630	126 872	131 323	134 614	127 729	133 048	130 659
Traditional goods	188 774	196 328	47 893	49 092	49 480	47 283	50 476	50 175	50 762	51 361
Crude oil and natural gas	169 668	178 502	42 826	44 039	41 821	46 711	46 027	42 342	46 904	45 210
Ships and oil platforms	8 892	14 178	2 892	2 399	2 864	3 867	5 049	3 027	2 917	1 464
Services	133 032	132 291	35 132	33 100	32 708	33 463	33 062	32 186	32 466	32 623
Total use of goods and services	1669111	1687413	417 373	420 927	420 487	421 560	425 076	421 415	429 809	424 516
Total imports	406 472	406 535	99 583	102 144	101 914	99 899	102 392	99 406	104 486	99 952
Traditional goods	260 826	271 200	65 531	67 079	68 910	66 666	68 438	69 227	68 414	68 064
Crude oil	1 009	1 034	408	233	224	194	382	103	132	204
Ships and oil platforms	22 592	12 112	2 384	3 907	1 753	2 928	3 524	670	5 399	1 230
Services	122 045	122 188	31 260	30 924	31 027	30 111	30 047	29 406	30 541	30 453
Gross domestic product	1262638	1280878	317 790	318 783	318 573	321 661	322 684	322 009	325 322	324 565
Mainland Norway (market prices)	1055393	1068415	265 295	266 921	266 437	266 972	268 897	270 380	269 736	272 006
Petroleum activities and ocean transport	207 245	212 464	52 495	51 862	52 136	54 689	53 787	51 629	55 587	52 559
Mainland Norway (basic prices)	915 769	930 088	230 223	232 188	231 674	232 269	234 368	236 100	235 573	237 416
Mainland Norway excl. general government	711 897	723 906	179 223	180 716	180 280	180 530	182 751	183 833	183 320	185 029
Manufacturing and mining	134 200	132 701	33 278	33 358	33 220	32 876	33 166	32 852	33 312	32 974
Production of other goods	102 805	98 808	25 084	25 200	24 258	23 839	25 072	24 808	25 105	25 541
Service industries	474 893	492 397	120 862	122 158	122 801	123 816	124 514	126 174	124 903	126 514
General government	203 871	206 182	51 000	51 472	51 394	51 739	51 617	52 267	52 253	52 387
Correction items	139 624	138 326	35 071	34 733	34 762	34 704	34 529	34 280	34 162	34 590

Source: Statistics Norway.

**National accounts: Final expenditure and gross domestic product**

At fixed 1999-prices. Percentage volume change from previous period

	Unadjusted		Seasonally adjusted							
	2000	2001	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Final consumption exp. of housh. and NPISHs	3.5	2.5	-0.2	1.7	0.5	0.9	-0.1	1.7	0.6	0.5
Household final consumption expenditure	3.6	2.6	-0.3	1.6	0.6	1.0	0.0	1.6	0.6	0.5
Goods	3.3	2.3	-0.4	2.5	-0.3	0.5	2.2	1.3	-0.3	-0.5
Services	3.5	3.0	-0.7	0.6	1.9	1.7	-2.0	1.0	1.0	1.5
Direct purchases abroad by resident househ.	0.7	-0.1	1.2	2.6	-1.9	-0.1	-6.6	4.1	11.8	0.3
Direct purchases by non-residents	-7.6	-0.1	-6.1	3.6	-0.8	2.4	2.4	-6.9	5.0	-5.3
Final consumption exp. of NPISHs	1.2	0.1	0.9	1.8	-1.2	0.0	-2.8	6.0	-0.9	-0.7
Final consump. exp. of general government	1.2	2.0	-1.0	2.0	-0.1	1.0	-0.2	2.1	0.2	0.7
Final consump. exp. of central government	0.5	1.6	-0.4	2.6	-0.6	0.0	0.7	36.7	0.1	0.5
Central government, civilian	3.2	3.2	-0.2	3.7	-0.4	0.3	0.3	48.2	-0.3	0.9
Central government, defence	-7.4	-3.7	-0.8	-1.2	-1.3	-0.9	2.1	-3.5	2.1	-1.7
Final consump. exp. of local government	1.6	2.3	-1.4	1.7	0.2	1.7	-0.8	-20.6	0.4	1.0
Gross fixed capital formation	-1.5	-4.6	-1.2	5.2	-3.6	-3.4	0.5	-3.4	7.8	-5.9
Extraction and transport via pipelines	-31.6	7.2	-5.5	10.8	-2.6	8.1	9.2	-12.1	-6.3	5.4
Service activities incidental to extraction	..	..	..	..	..	..	..	..	..	..
Ocean transport	23.8	-46.8	-40.6	114.5	-68.8	-47.1	282.2	-76.6	114.2	20.9
Mainland Norway	3.4	-0.3	2.4	0.3	-0.1	-3.6	-0.1	-2.0	0.9	-1.1
Mainland Norway excl. general government	6.7	0.7	2.4	0.7	1.8	-4.6	-1.0	-3.3	0.7	-1.0
Manufacturing and mining	-3.4	14.5	-10.0	6.4	18.9	1.6	2.1	-11.7	21.6	6.1
Production of other goods	1.0	-1.5	-3.9	6.7	-6.3	4.7	0.1	-2.8	7.7	1.1
Dwellings	11.0	5.1	2.7	0.5	1.3	2.4	-0.4	-3.0	-1.2	-4.4
Other services	8.3	-5.3	7.0	-1.7	-0.4	-13	-2.9	-0.5	-6.3	-1.7
General government	-8.1	-4.3	2.4	-1.2	-7.9	1.2	3.8	3.0	1.8	-1.8
Changes in stocks and stat. discrepancies	41.3	-36.6	-5.8	-45.3	71.8	-45.9	6.1	29.1	-49.9	-13.4
Gross capital formation	1.5	-7.7	-1.7	-0.2	0.9	-7.7	0.8	-1.3	3.1	-6.1
Final domestic use of goods and services	2.5	-0.2	-0.8	1.3	0.5	-1.2	0.1	1.1	1.0	-1.0
Final demand from Mainland Norway	2.9	1.8	0.1	1.5	0.2	0.1	-0.1	1.2	0.5	0.3
Final demand from general government	-0.1	1.2	-0.6	1.6	-1.1	1.0	0.3	2.2	0.4	0.4
Total exports	2.9	4.2	3.2	-0.1	-1.4	3.5	2.5	-5.1	4.2	-1.8
Traditional goods	1.7	4.0	1.8	2.5	0.8	-4.4	6.8	-0.6	1.2	1.2
Crude oil and natural gas	6.6	5.2	-0.3	2.8	-5.0	11.7	-1.5	-8.0	10.8	-3.6
Ships and oil platforms	-38.9	59.4	-5.7	-17.1	19.4	35.0	30.6	-40.1	-3.6	-49.8
Services	4.9	-0.6	11.1	-5.8	-1.2	2.3	-1.2	-2.7	0.9	0.5
Total use of goods and services	2.6	1.1	0.4	0.9	-0.1	0.3	0.8	-0.9	2.0	-1.2
Total imports	3.2	0.0	-1.2	2.6	-0.2	-2.0	2.5	-2.9	5.1	-4.3
Traditional goods	2.6	4.0	-1.0	2.4	2.7	-3.3	2.7	1.2	-1.2	-0.5
Crude oil	-51.4	2.5	-0.2	-42.8	-3.8	-13.7	97.4	-73.1	28.3	54.9
Ships and oil platforms	13.0	-46.4	-47.8	63.9	-55.1	67.1	20.4	-81	706.2	-77.2
Services	3.9	0.1	5.6	-1.1	0.3	-3.0	-0.2	-2.1	3.9	-0.3
Gross domestic product	2.4	1.4	0.9	0.3	-0.1	1.0	0.3	-0.2	1.0	-0.2
Mainland Norway (market prices)	1.9	1.2	0.7	0.6	-0.2	0.2	0.7	0.6	-0.2	0.8
Petroleum activities and ocean transport	4.9	2.5	2.1	-1.2	0.5	4.9	-1.6	-4.0	7.7	-5.4
Mainland Norway (basic prices)	2.0	1.6	0.7	0.9	-0.2	0.3	0.9	0.7	-0.2	0.8
Mainland Norway excl. general government	2.4	1.7	1	0.8	-0.2	0.1	1.2	0.6	-0.3	0.9
Manufacturing and mining	-2.9	-1.1	-0.7	0.2	-0.4	-1.0	0.9	-0.9	1.4	-1.0
Production of other goods	5.0	-3.9	-3.1	0.5	-3.7	-1.7	5.2	-1.1	1.2	1.7
Service industries	3.5	3.7	2.4	1.1	0.5	0.8	0.6	1.3	-1.0	1.3
General government	0.5	1.1	-0.4	0.9	-0.2	0.7	-0.2	1.3	0.0	0.3
Correction items	1.4	-0.9	0.9	-1.0	0.1	-0.2	-0.5	-0.7	-0.3	1.3

Source: Statistics Norway.



**National accounts: Final expenditure and gross domestic product**

Price indices. 1999=100

	Unadjusted		Seasonally adjusted							
	2000	2001	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Final consumption exp. of households and NPISHs	103.3	105.1	105.2	104.6	105.9	104.7	105.6	105.4	105.2	106.2
Final consumption exp. of general government	105.0	112.5	108.0	110.4	111.8	112.6	115.4	113.8	115.7	117.4
Gross fixed capital formation	105.9	109.6	108.5	109.8	110.1	109.7	109.0	108.1	107.4	106.9
Mainland Norway	104.4	107.6	105.3	108.5	108.1	107.6	106.6	106.9	106.2	106.9
Final domestic use of goods and services	104.3	107.5	105.8	107.7	107.9	106.3	108.6	108.4	108.1	109.1
Final demand from Mainland Norway	103.9	107.4	105.9	106.8	107.8	107.2	108.3	107.8	108.0	109.1
Total exports	137.2	134.1	146.0	141.2	141.9	133.3	120.9	124.9	126.8	119.0
Traditional goods	113.5	110.0	117.0	113.1	112.4	108.8	105.1	103.1	100.1	97.4
Total use of goods and services	114.1	115.7	118.2	117.9	118.1	114.7	112.5	113.4	113.9	112.2
Total imports	108.2	108.7	111.2	111.9	110.1	107.4	105.9	105.0	103.3	102.8
Traditional goods	104.8	105.2	107.1	109.2	107.1	103.4	101.9	99.8	97.1	97.8
Gross domestic product	116.0	118.0	120.4	119.8	120.7	117.0	114.6	116.0	117.3	115.1
Mainland Norway (market prices)	104.4	107.8	106.0	106.8	108.1	107.2	109.2	108.6	110.1	110.2

Source: Statistics Norway.

**National accounts: Final expenditure and gross domestic product**

Price indices. Percentage volume change from previous period

	Unadjusted		Seasonally adjusted							
	2000	2001	00.4	01.1	01.2	01.3	01.4	02.1	02.2	02.3
Final consumption exp. of households and NPISHs	3,3	1,8	1,1	-0,5	1,3	-1,1	0,9	-0,2	-0,3	0,9
Final consumption exp. of general government	5	7,1	2,5	2,2	1,2	0,7	2,5	-1,4	1,6	1,5
Gross fixed capital formation	5,9	3,5	1,5	1,1	0,3	-0,4	-0,7	-0,8	-0,7	-0,4
Mainland Norway	4,4	3,1	0,2	3	-0,4	-0,5	-0,9	0,2	-0,6	0,6
Final domestic use of goods and services	4,3	3,1	1	1,8	0,2	-1,4	2,2	-0,2	-0,2	0,9
Final demand from Mainland Norway	3,9	3,4	1,3	0,8	0,9	-0,5	1	-0,4	0,2	1
Total exports	37,2	-2,3	3,1	-3,3	0,5	-6	-9,3	3,3	1,5	-6,1
Traditional goods	13,5	-3,1	1,4	-3,4	-0,6	-3,2	-3,4	-1,9	-2,9	-2,7
Total use of goods and services	14,1	1,4	2	-0,2	0,2	-2,9	-1,9	0,8	0,4	-1,5
Total imports	8,2	0,4	1,5	0,6	-1,6	-2,4	-1,4	-0,8	-1,6	-0,5
Traditional goods	4,8	0,4	1,8	2	-2	-3,4	-1,5	-2	-2,7	0,7
Gross domestic product	16	1,7	2,2	-0,4	0,7	-3,1	-2	1,2	1,1	-1,9
Mainland Norway (market prices)	4,4	3,3	0,8	0,8	1,2	-0,8	1,9	-0,6	1,4	0,1

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 1999 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 1999 as the base year (common year of recalculation). The recalculation of prices is carried out at the sectoral level of the quarterly national accounts.

# Structural indicators for comparing Norway with the EU\*

Jan Byfuglien and Jan Stensrud

*Norway is very well placed compared with the EU in terms of the level of overall value creation, productivity and employment, with a large proportion of the population at work and low unemployment. This is shown by a comparison based on structural indicators, which have been devised to compare and assess trends in countries within the EU. The figures show that Norway has excellent government finances, and scores highly on indicators related to social cohesion, with an even income distribution and limited poverty. On the other hand, Norway trails the EU when it comes to research and development, and other technological indicators. Norway also has a high general price level. In the environmental sphere Norway is relatively poorly placed on indicators of greenhouse gas emissions and energy consumption, but very well placed as regards urban air quality and renewable energy. As well as giving an overview of Norway's position in terms of structural indicators, this article places the work on structural indicators and benchmarking, which is part of the same field, in a wider perspective both nationally and internationally. Some technical challenges posed by the use of such indicators are also discussed.*

## Introduction

Over the past 50 years the European integration process has brought a steadily growing demand for high-quality statistics in new areas, not least because statistics are used for policy shaping purposes and to monitor attainment of policy objectives. The EC/EU's statistical needs originally referred to topics related to coal and steel production. Subsequently substantial needs arose in connection with the implementation of agricultural and regional policy and with common customs tariffs (foreign trade). In recent years there have been marked needs linked to the implementation of the single market and the development of Economic and Monetary Union with emphasis on short-term economic indicators. One such initiative is the "Lisbon strategy" which sets ambitious goals for competitiveness, social cohesion and the environment in Europe. This entails an even stronger focus on statistics as a tool for comparison and policy implementation. Norway is linked to the single market via the EEA Agreement, and is bound by largely the same compliance

obligations as the EU member states. This also applies in the field of statistics. Where the Lisbon strategy is concerned Norway, together with Iceland and Liechtenstein, has made an active effort under the EEA Agreement to get involved in this process, which is why there have been clear expectations that structural indicators developed in connection with the Lisbon process should be equally comprehensive as for the EU member states.

The EFTA-EEA states delivered comments ahead of the EU summit in Barcelona in March 2002 that underscored their commitment in many of the areas encompassed by the strategy. At the same time they underscored their expectation that statistics for EFTA-EEA countries would be included in future reports to the summit. Moreover, an EFTA plan for following up the Lisbon strategy contains a detailed discussion of measures in the following areas:

- a strategy for the single market
- the European social agenda
- a strategy for sustainable development

**Jan Byfuglien** is Senior Statistical Adviser at the office of the Director General (jan.byfuglien@ssb.no)

**Jan Stensrud** is Senior Statistical Adviser at the Department of Economic Statistics. (jan.stensrud@ssb.no)

## Development and use of structural indicators within the EU

Structural indicators are selected via a process involving many players. At the outset the basic work on developing structural indicators was left to the

\* Translated by Peter Thomas.

<sup>1</sup> The main task of the Economic Policy Committee (ECP) is to contribute to the preparation of the work of the Council of coordinating economic policy. The Committee is composed of up to four members of each Member State, generally senior officials from national ministries of finance or economics and from national central banks. It works closely with DG ECFIN (Economic and Financial Affairs in the Commission)

<sup>2</sup> The ECOFIN Council normally comprises the finance minister in EU member states and plays a central policy role in the area of economy and finance.

### Benchmarking

This testing method compares outputs or performance and relates the results to best practice. The object is to learn and improve. Initially benchmarking was applied in the business sector to gauge a business enterprise's performance in terms of best practice among competitors in the same sector or market. In due course benchmarking has been widened to include comparisons between countries.

Use of benchmarking presupposes the establishment of quantitative data (indicators) that cast light on the results of the examined entities. The indicators are used to rank entities by performance. The method is of a partial nature: a single factor, an indicator, is studied at a time. However, the factors analysed are rarely independent. In general, indirect effects and interactions are not captured by comparing indicators one by one. Developing composite indicators, often as a weighted average of many single indicators, will not change this without further ado. Hence benchmarking cannot replace fuller analyses and models that view aspects of the economy in conjunction.

The benchmarking method is based on empirics in the sense that best practice is established as a reference point on the basis of observed performance or perceptions of performance. The method can be used to identify areas showing wide deviance from best practice, and to gauge the results of action taken. Hence benchmarking can be applied as a systematic process for improving performance.

Economic Policy Committee<sup>1</sup>, which subsumes under ECOFIN<sup>2</sup>. The committee presented its report in October 2000. In parallel with this the Commission presented a proposal for 27 key indicators in September 2000. At the meeting of chief statisticians in November 2000 criticism was levelled at the fact that central statistics bureaus had been drawn into the deliberations on indicators at too late a stage and had an inadequate overview of underlying definitions. Since that time the process for developing indicators has been clarified and improved, and a more systematic approach has been applied to quality issues. Statistical circles represented at Eurostat and central bureaus of statistics have also become more involved in the work done to develop structural indicators by various groups within the Commission and under the Council. At the same time some variance persists between politicians' desires to extend the compass of indicators to new themes, and the professional statisticians' caution in presenting figures which may not have been satisfactorily quality assured and are not based on internationally accepted standards and methods. This is a potential source of errors of interpretation.

When indicators were selected for the EU summit in Barcelona, emphasis was given to a reasonable degree of stability with a view to time series, at the same time as new areas (environment) were to be covered (COM (2001) 619 final). Moreover, importance was attached to viewing the indicators in conjunction with

### Benchmarking of Norwegian business enterprises

A committee appointed by the Ministry of Trade and Industry presented in December 2001 a report on benchmarking of the framework for value creation in business and industry (NOU 2001: 29 Best in test?). The committee proposes comparing framework conditions in Norway with those in other countries with a basis in 79 indicators distributed on seven areas (natural resources and environment; infrastructure; education; research and innovation; labour market; capital market; product markets and tax). Although the document refers to EU structural indicators, these indicators are only to a limited extent included among those proposed in the Norwegian system. The areas and indicators are selected on the basis of what is considered to be of greatest significance to Norwegian business and industry, what is likely to be affected by government policy instruments and the availability of relevant and reliable data. The bulk of the indicators are based on official sources, including official statistics.

Statistics Norway has issued a submission on the above report (NOU 2001: 29). The submission states that the benchmarking method appears intuitively attractive and will employ internationally comparable official statistics. By means of easily understood tabulations, central information on Norway can be focused on and placed in an international perspective. Indicators that are perceived to be relevant to value creation can be compared country-to-country, and Norway's placing can be read off. In areas where Norway appears to diverge clearly from other countries, the method can provide a basis for closer study and analysis. However, the method has clear-cut weaknesses. It is partial in nature, fails to capture mutual relationships between indicators and does not indicate how the indicators can be weighed together and used as a basis for a consistent industry and economic policy. Hence the benchmarking method cannot replace more comprehensive and deeper economic analysis and research, but should rather be viewed as a supplement to the latter. Go to Statistics Norway's website at <http://www.ssb.no/omssb/horing/> (dated 8 April 2002) for further information on the above submission.

the work on special indicators and benchmarking for various sectors. Finally, the indicators were expected to satisfy the same criteria as those underlying the original choice of indicators:

1. easy to read and understand
2. policy relevant
3. mutually consistent
4. available and timely
5. comparable across EU member states and as far as possible with other countries
6. selected from reliable sources
7. should not impose excessive extra burdens on member states and principals

The Laeken summit in December 2001 decided on a final list of 42 indicators for the 2002 report (in fact 76 indicators when broken down by gender and other subgroups).

The Commission's report to the Barcelona summit in 2002 (COM (2002) 14 final) presents a selection (17 + two not originally included) of structural indicators in the form of averages for the EU member states at the Lisbon summit (2000, figures for 1999) and for Barcelona (2002 figures for 2001, in the event the latest available). An "EU Best Performance Indicator", an unweighted average of the best-placed countries, was also constructed. Moreover, for some areas a target was set for 2010, in the event also for 2005. The comments point out that in some areas comparable figures are lacking for all EU member states for the period since Lisbon, and in other areas (social cohesion and environment) figures are out-of-date. In some areas (GDP per capita, GDP per person employed) the figures are reworked with the USA as the basis (US=100).

Figures for individual countries are presented as an annex in the form of a diagram in which countries are ranked on the basis of the last year. Figures are presented for two years only. In a number of cases estimates are made for some countries, or deviating years are employed.

### What do the structural indicators say about Norway compared with the EU?

In the following a brief overview is given of most of the structural indicators with figures for Norway compared with indicators for the EU as a whole (overall figures for the EU, i.e. the 15 member states. Figures (unweighted) are also given for the three "best" EU member states and Norway's ranking in relation to national figures for the 15 member states (EU15 + Norway and Iceland<sup>3</sup>). "Best" may be either low or high figures, depending on the particular indicator. The presentation is summary with no attempt made to discuss or analyse the selection of indicators and their interrelationships.

The data are taken mainly from the New Cronos database at Eurostat updated as of 11 November 2002.

The data are also available at Eurostat's website (<http://www.europa.eu.int/comm/eurostat/>). Some data for Norway are taken from national sources since data for Norway were not available from these sources at the time the data were obtained. Hence data in many areas are updated in relation to those presented in the report to the summit this spring. Indicators that lack data for Norway are not included in the overview.

Several of the structural indicators are computed in relation to gross domestic product (GDP). It should be noted that such indicators may produce low figures for Norway in periods of high oil prices, and therefore high GDP, as for example in the years 2000-01.

### General economic background

The economic background indicators show that the general economic situation in Norway is generally very favourable compared with EU member states.

GDP per capita, a measure of value creation, was 46 per cent higher in Norway than for EU member states as a whole in 2000 and 2001. Adjustments are made for national differences in price levels by calculating GDP per capita in purchasing power standards. Only Luxembourg had higher figures (96 per cent over the EU average in 2001). Norwegian figures for the period 1993-1999 were also clearly higher than for the EU (21-31 per cent higher). It should be noted that the Norwegian GDP figures are substantially affected by the level of crude oil prices (which were relatively high in the years 2000-01).

Norway also receives a high score as regards labour productivity. This applies both to gross domestic product per employed person and per hour worked. For the latter indicator Norway was 46 per cent above the EU average in both 2000 and 2001. Equivalent figures for Norway were also clearly higher than for the EU for the period 1993-1999 (19-26 per cent higher). Apart from Luxembourg no EU member states score higher on this indicator than Norway in 2000-01.

Table 1. General economic background

	EU 15 average	EU «3 best»	Norway	Norway ranked in relation to EU-15 + Iceland and Norway	
a1: GDP per capita in PPS -current prices, EU=100 (2001)	100.0	144.4	145.8	2	
a2: Growth rate of GDP at constant 1995 prices, % (2001)	1.5	4.2	1.4	9	
b1: Labour productivity - GDP per person employed, EU15=100 (2001)	100.0	145.0	125.0	2	
b2: Labour productivity - GDP per hour worked, EU15=100 (2001)	100.0	144.8	146.1	2	
c1: Total employment growth, % (2001)	1.2	3.7	0.4	12	Iceland missing
c2: Employment growth, females, % (2001)	1.9	4.1	0.7	14	Iceland missing
c3: Employment growth, males, % (2001)	0.8	3.4	0.2	12	Iceland missing
d: Growth in consumer prices, % (2001)	2.3	1.8	2.7	10	
e: Growth in unit labour costs, % (2001)	0.3	-2.3	-11.8	1	
f: General government net balance as % of GDP (2001)	-0.8	5.3	15.7	1	
g: General government gross debt as % of GDP (2001)	63.1	27.0	31.4	2	

<sup>3</sup> Little purpose is served by including the third EEA-EFTA country, Liechtenstein, since only a minority of the indicators are available for this country.

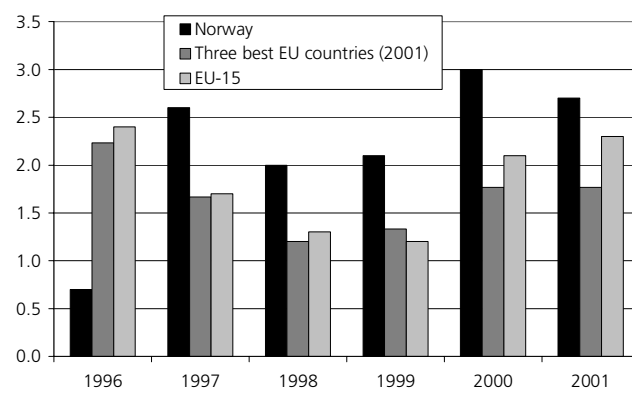
Unit labour costs have fallen in Norway in most years since 1993 (except 1998 and 2001). This means that labour productivity (GDP per employed person) has risen more quickly than labour costs per employed person. Again, this needs to be interpreted in light of the level of oil prices.

GDP growth (at constant prices) was weak both in Norway and the EU in 2001 (1.4 per cent and 1.5 per cent respectively). Growth rates for Norway were appreciably higher than in previous years, and considerably higher than in the EU in the period 1993-1997 (4.6 per cent and 1.8 per cent respectively). In 2000 all EU member states and Iceland showed stronger growth than Norway, while eight countries showed higher growth than Norway in 2001. Ireland showed by far the highest growth in these years at 10.0 and 5.7 per cent respectively (and also the highest growth since 1994).

Employment growth has been slower in Norway than in the EU since 1999. In 2001 growth measured 0.4 per cent in Norway and 1.2 per cent in the EU. The EU showed stronger growth for men and women alike. These figures should be viewed in light of the appreciably higher level of employment in Norway than in the EU (see below).

Consumer prices have risen more quickly in Norway than in the EU in the period 1997-2001, although the

Figure 1. Harmonised consumer price index. Annual change



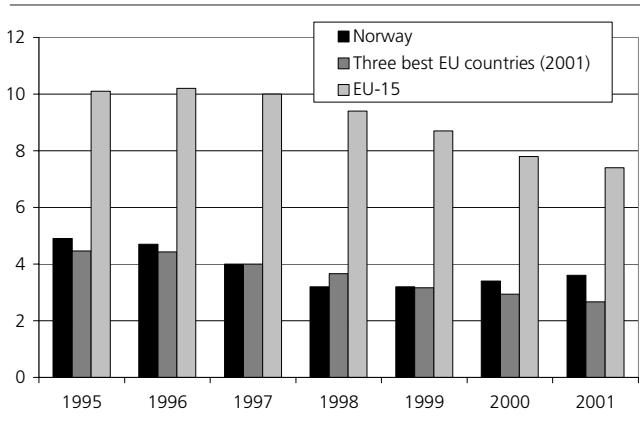
difference has narrowed in the past year. In 2001 consumer prices rose by 2.7 per cent in Norway compared with 2.3 per cent in the EU, and in 2002 the increase growth will be lower in Norway than in the EU.

Indicators of public finances show that Norway is very well placed, with strong growth in net financial assets (assets minus debt) and low gross debt (exc. internal general government debt). Norway's general government net balance measured 15.7 of GDP per cent in 2001, compared with a marginally negative figure for the EU as a whole. Norway's general government sector has enjoyed a higher net balance than all EU member states since 1975. The Norwegian figures are due

Table 2. Employment

	EU 15 average	EU «3 best»	Norway	Norway ranked in relation to EU-15 + Iceland and Norway	
1.1: Employed persons aged 15-64 as a share of the total population aged 15-64, % (2000)	63.2	73.6	77.9	2	
1.2: Employed women aged 15-64 as a share of the total female population aged 15-64, % (2000)	54.0	68.6	73.9	2	
1.3: Employed men aged 15-64 as a share of the total male population aged 15-64, % (2000)	72.5	80.3	81.8	3	
2.1: Employed persons aged 55-64 as a share of the total population aged 55-64, % (2000)	37.8	57.1	65.6	2	
2.2: Employed women aged 55-64 as a share of the total female population aged 55-64, % (2000)	27.9	50.1	59.3	3	
2.3: Employed men aged 55-64 as a share of the total male population aged 55-64, % (2000)	48.0	65.0	71.9	2	
4: Tax rate on low-wage earners - Income tax (incl. employer contributions) as a percentage of labour costs (2000)	37.8	23.6	34.0	7	
5: Life-long learning - Percentage of the population aged 25-64 participating in education and training (2000)	8.4	19.6	14.2	7	
6.1: Accidents at work - serious (> 3 days' absence), per 100 thousand persons in employment, index 1998=100 (1999)	100.0	91.0	91.0	2	Iceland missing
6.2: Accidents at work - fatal, per 100 thousand persons in employment, index 1998=100 (1999)	85.0	59.7	56.0	2	Iceland missing
7.1: Unemployed persons as a percentage of the total active population (2001)	7.3	2.7	3.6	3	Iceland missing
7.2: Unemployed women as a percentage of the total female active population (2001)	8.5	3.0	3.5	3	Iceland missing
7.3: Unemployed men as a percentage of the total male active population (2001)	6.4	2.2	3.7	5	Iceland missing

**Figure 2. Unemployment. Unemployed persons as a percentage of the economically active population**



to substantial accounting surpluses (for central government) as a result of oil production. Gross general government indebtedness in Norway at the end of 2001 was half as low as in the EU in terms of GDP (31 per cent and 63 per cent respectively). Apart from Luxembourg, no EU state recorded lower relative debt than Norway.

### Employment

The population's participation in the labour force is an important factor behind value creation, incomes earned and welfare. In the age range 15-64 the share of the population in employment is appreciably higher in Norway than in the EU; 78 per cent and 64 per cent respectively in 2001. The figure for Norway showed a clear-cut increase from 1995 to 1998, and since then has remained stable, whereas in the EU it has risen somewhat throughout the period. In 1995 the figures for Norway and the EU were 72 per cent and 60 per cent respectively. No EU state has such high employment shares as Norway (since 1996). However, Iceland has an even larger share of its population in employment. It should be noted that Norway shows less deviation in terms of hours worked since average working hours are relatively low in Norway. Work is thus more evenly distributed in Norway than in many other countries.

Where employment shares for women in the above age groups are concerned, the difference between Norway and the EU is even more marked, with shares of 74 per cent and 55 per cent respectively in 2001. The same applies to the older age group, 55-64, where the employment share in Norway was 66 per cent in 2001 compared with 39 per cent in the EU.

One of the indicators measures tax on earned income (incl. employer contributions) for industrial workers on low pay (67 per cent of average pay). This indicator was included since a low tax rate for low income earners could be a means of increasing the supply of labour. The figures show that the tax rate for the workers in question is lower in Norway (34 per cent

in 2001) than in the EU (38 per cent). The EU tax rate has marginally fallen since 1997 when it was close to 41 per cent, whereas it has remained relatively stable in Norway. In 2001 five EU member states and Iceland had a lower tax rate than Norway. The lowest rate was in Ireland and the United Kingdom at 17 and 25 per cent respectively.

Post-qualifying and further education are key to strengthening labour force competence. In Norway the share of employed persons participating in education/training programmes is higher than in the EU, 14 and 8 per cent respectively in the age range 25-64 in 2001. Iceland and five EU member states, including the other Nordic countries, had a higher share than Norway in 2001 (highest in the case of Iceland at 24 per cent).

Unemployment in Norway in recent years has stood at less than half the EU rate. In 2001 3.6 per cent of the labour force were unemployed in Norway, compared with the EU figure of 7.3 per cent. In the EU only Luxembourg and the Netherlands showed lower unemployment than Norway. The share of unemployed in the EU has fallen from around 10 per cent in the period 1993-97. However, employment is now climbing in the EU and Norway alike. In the EU unemployment is substantial higher among women than men, whereas only minor differences are in evidence in Norway.

### Education, research and innovation

Public expenditure on education as a percentage of GDP is higher in Norway than in the EU. In 1999 these shares were 7.5 and 5.0 per cent respectively. Only Denmark and Sweden had higher shares than Norway. The Norwegian figure was even higher earlier in the 1990s, measuring 8 per cent in 1992-93. The figure has also fallen somewhat in the case of the EU, down from the 1993 figure of 5.5 per cent.

However, where spending on research and development (R&D) is concerned Norway trails the EU. In 1999 overall R&D expenditure as a percentage of GDP was estimated at 1.7 per cent in Norway compared with 1.9 per cent in the EU. Sweden and Finland spent most in the EU with shares of 3.8 and 3.2 per cent respectively. Only Ireland and the four southernmost EU member states (Portugal, Spain, Italy and Greece) had lower shares than Norway. Business and enterprise sector expenditure on R&D was also lower in Norway than in the EU at 0.95 and 1.25 per cent respectively.

Norway also scores lower than the majority of EU member states when it comes to total tertiary graduates in science and technology per 1000 of population aged 20-29.

The number of new patents can also give an indication of innovation in the respective countries. Returns

**Table 3. Education research and innovation**

	EU 15 average	EU «3 best»	Norway	Norway ranked in relation to EU-15 + Iceland and Norway	
1: Public expenditure on education as a percentage of GDP (1999)	5.0	7.3	7.4	3	
2.1: Business and enterprise sector R&D expenditure as a percentage of GDP (1999)	1.25	2.25	0.95	10	Austria and Luxembourg missing
2.2: Total R&D expenditure as a percentage of GDP - all sectors (1999)	1.92	3.1	1.7	11	Luxembourg missing
3.1: Percentage of households with Internet access at home (2000)	37.7	61.0	58.2	5	
3.2: Percentage of enterprises (at least 10 employees) with Internet access (2000)	71.2	89.1	73.2	10	
4: Total tertiary graduates in science and technology per 1000 of population aged 20-29 (2000)		20.0	7.9	11	Greece missing (1999 figures for some countries)
5.1: Patents in Europe - Number of patent applications per million inhabitants (2000)	152.7	321.2	131.2	10	
5.2: Patents in the USA - Number of patents granted per million inhabitants (1999)	69.2	142.7	56.7	11	
6.1: Venture capital investments - early stage - as a percentage of GDP (2001)	0.045	0.096	0.036	10	Luxembourg missing
6.2: Venture capital investments - expansion and replacement - as a percentage of GDP (2001)	0.099	0.225	0.115	6	Luxembourg missing
7.1: Expenditure on information technology as a percentage of GDP (2001)	4.17	5.94	3.66	11	Iceland missing
7.2: Expenditure on telecommunications technology as a percentage of GDP (2001)	2.8	3.5	2.0	16	Iceland missing

show that Norway trails the EU in terms of the number of patents per million inhabitants that are applied for in Europe and granted in the USA.

Recent years have seen a burgeoning development in the field of information and communications technology (ICT). Here too Norway trails the EU. Expenditure on use of information technology (IT) is estimated at 3.7 per cent of GDP for Norway in 2001, compared with the EU figure of 4.2 per cent. Among EU countries it was again only Ireland and the four southernmost countries (as in the case of R&D) that showed a lower share than Norway. Sweden showed by far the largest share, 6.8 per cent. Where outlays on telecommunications technology are concerned, Norway's share of 2.0 per cent of GDP in 2001 trails all the EU countries.

The Internet has become an important source of information and a growing market place for trade in goods and services. Two of the structural indicators measure Internet access among households and enterprises. Norway is considerably better placed than the EU where households are concerned, but only marginally ahead in the case of enterprises. In Norway 58 per cent of homes had Internet access in 2001, compared with only 38 per cent of homes in the EU. Iceland and three EU member states (the Netherlands, Sweden and Denmark) had a higher share than Norway in the same year. Iceland had by far the highest proportion, 78 per cent, of homes with Internet access.

There are also indicators for project financing in the business and enterprise sector (venture capital). The figures show that the supply of venture capital to projects at the early stage (conception and start-up) is less ample in Norway than in the EU, but more ample for investments related to replacement and expansion of existing business.

### Economic reform

Several of the structural indicators illuminate the effect of economic reforms designed to improve competitive efficiency in the single market, among them measures to dismantle trade barriers and regulatory reforms. Prices and market dominance in the power and telecommunications market are among the items in focus.

An indicator of price differentials shows that Norway has a substantially higher general price level than the EU member states. In 2000 prices in Norway were as much as 29 per cent above the average EU level, i.e. on a par with Sweden but higher than all other EU member states. The price level in Norway has shown no clear-cut decline relative to the EU after the EEA Agreement became effective in 1994.

However, prices in Norway's telecommunications market have fallen substantially in recent years, in some cases to levels significantly below the EU as a whole. In 2001 the price of a local call in Norway was 83 per cent of the price in the EU, whereas prices of long

**Table 4. Economic reform**

	EU 15 average	EU «3 best»	Norway	Norway ranked in relation to EU-15 + Iceland and Norway
1.1: Relative price levels of private consumption (EU-15=100)	100.0	78.7	129.0	15
2a.1: Price of local telephone calls, in EUR per 10 min call	0.41	0.25	0.34	8 Iceland missing
2a.2: Price of national telephone calls, in EUR per 10 min call	1.15	0.34	0.34	3 Iceland missing
2a.3: Price of telephone calls to USA, in EUR per 10 min call	2.65	1.04	1.16	3 Iceland missing
2b.1: Electricity prices - industrial users, in EUR per kWh (2002)	0.062	0.041	0.043	3 Iceland and Austria missing
2b.2: Electricity prices - households, in EUR per kWh (2002)	0.103	0.066	0.093	9 Iceland missing
3.2.2: Markedsandel for største foretak, fasttelefon, nasjonale samtaler, present (2000)		53.7	85.0	10 Island and Ireland mangler
3.2.3: Market share of the largest operator in fixed telecommunications - long distance calls - as a percentage of the total market (2000)		53.7	71.5	7 Danmark, Island and Ireland mangler
3.3: Market share of the largest operator in mobile telecommunication - as a percentage of the total market (2001)		35.3	78.8	16 Iceland missing
6: Capital raised on stock markets as a percentage of GDP (2000)	4.5	15.6	3.0	10 Iceland missing
7: Gross fixed capital formation by the enterprise and household sector as a percentage of GDP (2000)	18.3	23.0	17.0	11 Iceland missing

**Table 5. Social cohesion**

	EU 15 average	EU «3 best»	Norway	Norway ranked in relation to EU-15 + Iceland and Norway
1: Income distribution (S80/S20) (1998)	5.4	3.0	2.9	2 Iceland missing
2.1: Percentage of the population below the at-risk-of-poverty threshold before social transfers (1998)	26	22	24	5 Iceland missing
2.2: Percentage of the population below the at-risk-of-poverty threshold after social transfers (1998)	18	9	11	4 Iceland missing
5: Percentage of the population aged 18-24 with at most lower secondary education and not in further education or training (2001)	19.4	10.3	9.2	1 UK and Ireland missing
6: Long-term unemployed (over 12 months) as a percentage of the total active population aged 15-64 (2000)	3.7	0.8	0.5	3

distance and international calls (to the USA) measured only 30 and 44 per cent of EU prices. Seven EU member states had lower prices for local calls than Norway in 2001, while for long distance and international calls only two EU countries, Sweden and the Netherlands, were better placed. Returns also show stronger concentration (in terms of the market share of the largest operator) in the telecommunications markets in Norway compared with most EU countries.

Norwegian prices in the electricity market are also below the EU average. In 2001 a Norwegian enterprise with average consumption paid only 53 per cent of what its EU equivalent paid, whereas a Norwegian household with average consumption paid 77 per cent of the price paid by its equivalent in the EU. However, preliminary figures for 2002 show a rise in Norwegian prices with shares of 70 and 90 per cent of EU prices respectively. Where concentration in the electricity market is concerned, the largest generator in Norway has a lower market share than its equivalent in most EU countries.

Returns also show that financing opportunities via the stock market are on the whole better in the EU than in Norway. In 2000, when capital was in particularly ample supply, the amount of new capital raised came to 3.0 per cent of GDP in Norway compared with 4.5 per cent of GDP in the EU. Capital supply was also lower in Norway in the two preceding years when it measured about 1 per cent of GDP.

Business investment in Norway dropped below the EU level in 2000 but was higher than in the EU in the period 1995-99. In 2000 business investment in Norway measured 17 per cent of GDP compared with 18.3 per cent in the EU. Business investment in Norway culminated in 1998 at 22.3 per cent of GDP.

### Social cohesion

Indicators in the social sphere are especially difficult to render comparable since the statistical base is less harmonised than in most other areas. This is partly because of the general difficulty in compiling comparable figures in this area due to variations in social



systems between countries, partly because less has been done to achieve harmonisation in this field since social policy has essentially been a national concern. Further significant weaknesses are the somewhat outdated nature of the data and the difficulty in obtaining time series. However, a broader set of indicators in this area is under preparation along with a scoreboard on social policy implementation (see references). A new European survey of incomes and living conditions, in which Norway will be participating, is also under way.

The ratio of total income received by the 20% of the population with the highest income to that received by the 20% of the population with the lowest income is used as an expression of income distribution (S80/S20, income quintile share ratio). An endeavour is made to harmonise the income concept; equivalised disposable income is employed and account is taken of differences in household size by estimating household income in terms of adult equivalents (giving a weight of 1.0 to the first adult, 0.7 to the next adult and 0.5 to each child). For most EU countries figures from the European Community Household Panel (ECHP) are employed, where the most relevant figures derive from 1998. For Norway, and some EU countries, national sources are employed which as far as possible are rendered comparable. Based on the above share ratio, Norway is in second place where income distribution is concerned (least difference). Only Denmark is in front, by a small margin. Norway is close to the average for the three "best" in the EU - our Nordic neighbours Denmark, Finland and Sweden. At the other end of the scale are countries bordering the Mediterranean with a share ratio of around 7.

The risk-of-poverty rate is measured both before and after social transfers, and is stated as the share of persons below the risk-of-poverty threshold. This threshold is set at 60 per cent of median disposable income after social transfers (disposable income reck-

oned in adult equivalents). Measured in this way, the share at risk of poverty (before social transfers) varies between 21 and 33 per cent in the EU. At 24 per cent, Norway is in fifth place, after the Netherlands, and just after Greece, Italy and Germany. When social transfers are taken into account, variations between EU countries range from 8 to 22 per cent, with Norway now in fourth place after Finland, Denmark and Sweden. This shows that social transfers are important for reducing the poverty problem, and it also illustrates that social transfers are best developed in the Nordic countries.

The share of persons aged 18-24 with at most lower secondary education and not in further education or training is intended to cast light on the level of investment in human capital and on the danger of marginalisation, especially in relation to the labour market. In 2001 the figures, taken from the labour force surveys, put Norway in first place, ahead of Austria, Finland and Sweden. This share is in excess of 40 per cent in Portugal and between 25 and 30 per cent in Spain and Italy.

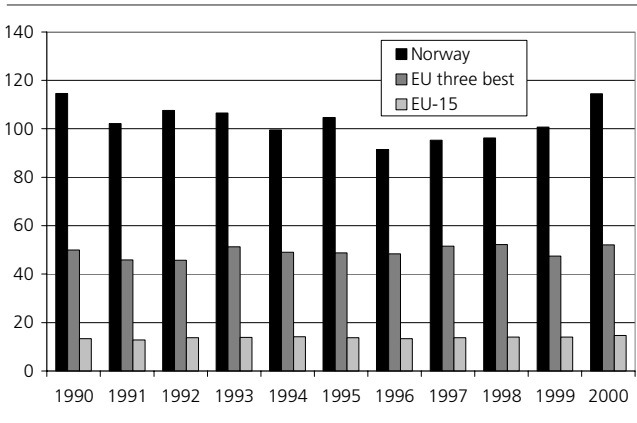
The long-term unemployed are regarded as susceptible to permanent exclusion from the labour market and social participation. In this context "long-term" means in excess of 12 months. The figures, which in this case too are taken from harmonised labour force surveys, show Norway to be very well placed (0.5 per cent), on a par with Luxembourg and just behind Iceland. At the lower end of the scale are Spain, Greece and Italy with shares ranging from 5.9 to 6.4 per cent.

### Environment

The environment was included as a part of the structural indicators as a result of the summit in Gothenburg in 2001 where four prioritised areas were identified: climate change, transport, public health and food resources. On this basis an initial set of indicators was constructed for the 2002 report, and the effort to de-

**Table 6. Environment**

	EU 15 average	EU «3 best»	Norway	Norway ranked in relation to EU-15 + Iceland and Norway
1: Greenhouse gases emissions; index 1990=100, based on CO <sub>2</sub> equivalents (1999)	96	76	108	12
2: Energy intensity of the economy - GDP at constant prices, 1995=100 - Kgoe per 1000 EUR (1999)	198.3	148.0	209.5	9
3.2: Index of passenger transport volume relative to GDP (passenger-km) (1995=100) (1999)	98.4	87.8	96.9	10 Iceland missing
4.2: Percentage share of car transport in total passenger transport, passenger-km (1999)	80.8	72.9	79.9	12 Iceland missing
5.1: Urban air quality - no. of days of ozone exposure above limit values (1999)	31	3	0	1 Luxembourg, Sweden and Iceland missing
6.1: Municipal waste collected - kg per capita per year (1999)	545	451	596	13
7: Contribution of electricity from renewables to total electricity consumption (2000)	14.7	52.1	114.4	1

**Figure 3. Share of gross consumption of electricity generated from renewable sources**

velop and improve indicators in this field continues as part of the work on developing indicators for sustainable development.

Emissions of greenhouse gases are stated as an index where 1990 = 100. This is based on a summation of the six most significant greenhouse gases (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub>) measured in CO<sub>2</sub> equivalents. The indicator shows the degree of improvement (or deterioration) in relation to the 1990 level. Norway ends in twelfth place, with only Iceland, Greece, Ireland, Portugal and Spain behind it. The EU as a whole lies just short of the target set for 2000, which was to stabilise emissions at the 1990 level. Many countries face a challenge in meeting the demands of the Kyoto Protocol which requires an 8 per cent reduction by 2010.

Gross domestic energy consumption (measured in oil equivalents) in relation to GDP is intended to throw light on the degree of energy intensity of the economy. This is viewed in relation to the goal of more effective energy use. Norway is well above the EU average and the three best countries in the EU (Denmark, Austria and Germany) and is in ninth place. Greece, Finland and Iceland foot the list.

The volume of transport is defined as the ratio of passenger kilometres to GDP, and is indexed on 1995. The policy goal is to avoid private transport being a necessary consequence of economic growth. The volume of passenger transport in terms of GDP has fallen by a somewhat larger margin in Norway than the average for the EU, but is far behind the best-placed countries: Luxembourg, Finland and the Netherlands. Norway is in tenth place.

Distribution of the transport volume on modes of transport (road, rail, air and sea) is important with a view to developing more environment-friendly transport, for example by bringing about a shift from road to rail. Due to incomplete figures on freight transport,

only passenger traffic by car is included. The overview shows that about 80 per cent of passenger traffic in Norway is by car, i.e. about the same as the EU average. This is higher than countries with the lowest share (Greece, Austria and Luxembourg), but lower than large countries such as France and the United Kingdom.

Based on the objective of improving urban air quality, indicators have been defined for ozone and particulates. Only the indicator for ozone is included since figures for particulates are lacking for a number of countries. The indicator is defined as the number of days on which the ozone content exceeds the limit values. The figure is based on an average of readings at urban monitoring stations and has been prepared by the European Topic Centre. The overview puts Norway in first place, closely followed by Ireland, Finland and Iceland. At the other end of the scale are Italy with 83 days and Greece with 94 days in 1999, which is the last year for which observations are available.

An aim is to reduce the quantity of waste and, not least, hazardous waste. Hence there are indicators for household waste collected, landfilled and incinerated per capita. Only the first-mentioned is included in this overview. Norway has a relatively high score in terms of amount of waste per capita and takes thirteenth place, well above the EU average and the three countries with the lowest amounts in the EU: Greece, Portugal and Sweden. However, caution must be applied when interpreting the figures since the countries employ somewhat differing interpretations of municipal waste.

The share of electricity from renewable sources is an important indicator for sustainable energy production.

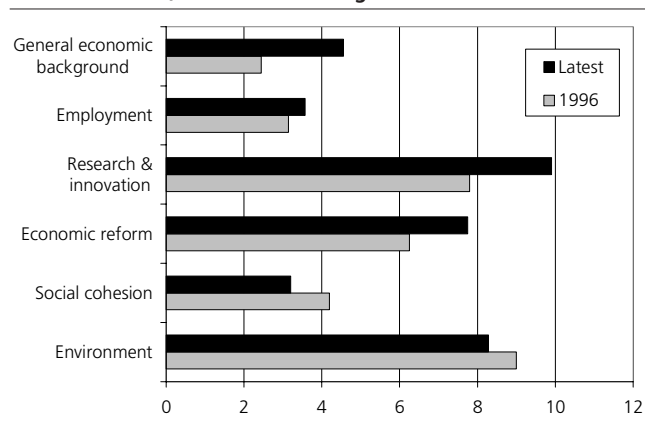
Norway takes a clear-cut first place in this area in 2000 with some surplus production of electricity from hydro-power plants (114 per cent). Iceland follows with 100 per cent ahead of Austria with a share of 72 per cent. The countries with the lowest share of electricity produced from renewable sources are Belgium, the United Kingdom, Luxembourg and the Netherlands.

The share varies somewhat over time in the case of Norway, averaging around 100 per cent (Chart 3). Neither the average for the EU nor for the three best EU countries shows clear-cut evidence of increase in the period since 1990.

### Summary and conclusion

This overview shows that Norway is very well placed compared with the EU as regards the level of overall value creation, productivity and employment, with a large share of the population at work and low joblessness. Moreover, Norway has excellent public finances,

**Figure 4. Norway's ranking (unweighted average) in various sectors, 1996 and latest figures**



and achieves high scores on indicators for social cohesion, with even income distribution and limited poverty. On the other hand, Norway trails the EU in research and development, patents, education and scientific/technical personnel and investment in information and communication technology. Capital available for business start-ups (venture capital) is also in shorter supply. Norway has a very high general price level and higher price inflation than the EU, while prices in deregulated markets for telecommunications and electricity production present a more favourable picture. In the environmental sphere Norway scores relatively poorly on indicators for emissions of greenhouse gases and energy consumption, but very highly in regard to urban air quality and renewable energy.

Overviews based on individual indicators present a confused picture, prompting contemplation of more composite and aggregated indicators. One possibility is to present the average of the country's ranking on indicators in various sectors. An example is given in Chart 4, which also shows the average ranking for 1996 in relation to the latest available figures. This suggests that Norway is best placed relative to the EU in the employment sphere and in regard to social cohesion (highest average ranking). At the same time the comparison with 1996 shows that Norway's relative position has strengthened in the spheres of environment and social cohesion, and weakened in other areas. Caution should be shown in interpreting the result since the selection of indicators is somewhat arbitrary, partly because some indicators had to be omitted owing to missing data. Moreover, no attempt has been made to weigh indicators against each other.

As the above review shows, the structural indicators provide a basis for interesting reflections on the situation and developments in Norway and in EU countries. The indicators are relevant and policy-oriented in the sense that they are designed to measure progress made in attaining the objectives contained in the Lisbon strategy. A continual effort is made to im-

prove the choice of indicators as well as the definition and relevance of the targets. Moreover, the indicators are also gaining interest in a European perspective since the 13 candidate countries applying for EU membership intend to prepare and publish figures for the same aggregates.

Despite the advances made, problems still attend the indicators. Their main weakness is that they come across as a collection of relatively disconnected individual aggregates that fail to constitute an integrated and consistent system. This is the very flaw that was pointed out in Statistics Norway's submission regarding NOU 2001:29 (Best in Test?). The method for comparing countries is partial, fails to capture mutual relationships between indicators and does not indicate how the indicators can be weighed together and used as a basis for a consistent industry and economic policy. An obvious alternative here would be to link the indicator system more closely to the national accounts which provide a wide-ranging, detailed and consistent picture of the economy. In many countries the national accounts incorporate additional modules for various spheres, so-called satellite accounts, for example for employment and the environment. This permits a more coherent view of various aspects of society. If a stronger linkage to the national accounts were established, the structural indicators would come across as more integrated and consistent than they do at present.

#### References and background literature:

- Holmøy, E., Hægeland, T. & Rosendahl, K.E.: Best i test, men hva så? Kommentarer til NOU 2001:29. Økonomisk Forum nr. 2, 2002.
- EFTA Action Plan on the follow-up to the Lisbon strategy. S/00/W/036 18. January 2002
- European Commission (2001): "Structural indicators" (COM (2001) 619 final)
- European Commission (2001): "2001 Innovation scoreboard" Commission staff working paper (SEC(2001) 1414)
- European Commission (2002): "The Lisbon Strategy - Making change happen: Communication from the Commission to the Spring European Council in Barcelona" (COM (2002) 14 final)
- European Commission (2002): "The Lisbon Strategy - Making change happen: Commission Staff Working Paper" (SEC(2002) 29/2) (annex to Com (2002) 14 final)
- European Commission (2002): "Internal Market Scoreboard. May 2002 -No 10
- European Commission (2002): "eEurope Benchmarking Report" (COM (2002) 62 final)

European Commission (2002): "Scoreboard on implementing the social policy agenda" (COM (2001) 104 final)

European Commission (2002): "Scoreboard on implementing the social policy agenda" (COM (2002) 89 final)

European Commission (2001): "Towards a European Research Area, Key Figures 2001, Special edition. Indicators for benchmarking of national research policies. 2001

Euro papers Number 45, July 2002: Co-ordination of economic policies in the EU: a presentation of key features of the main procedures by Directorate-General for Economic and Financial Affairs.

Keuning, S. & Verbruggen, M. (2001): European Structural Indicators, a way forward. Statistics Netherlands 2001.

NOU 2001:29: Best i test? Referansetesting av rammevilkår for verdiskaping i næringslivet

Report by the Economic Policy Committee to ECOFIN on "Structural Indicators: an Instrument for Better Structural Policies" EPC/ECFIN/608/00-fin, Brussels, October 2000

# Research publications in English

## New titles

### Discussion Papers

*Annegrete Bruvold and Bodil Merethe Larsen: **Greenhouse gas emissions in Norway. Do carbon taxes work?*** DP no. 337, 2002. 28 pages.

During the last decade, Norway has carried out an ambitious climate policy. The main policy tool is a relatively high carbon tax, which was implemented already in 1991. Data for the development in CO<sub>2</sub> emissions since then provide a unique opportunity to evaluate carbon taxes as a policy tool. To reveal the driving forces behind the changes in the three most important climate gases, CO<sub>2</sub>, methane and N<sub>2</sub>O in the period 1990-1999, we decompose the actually observed emissions changes, and use an applied general equilibrium simulation to look into the specific effect of carbon taxes. Although total emissions have increased, we find a significant reduction in emissions per unit of GDP over the period due to reduced energy intensity, changes in the energy mix and reduced process emissions. Despite considerable taxes and price increases for some fuel-types, the carbon tax effect has been modest. While the partial effect from lower energy intensity and energy mix changes was a reduction in CO<sub>2</sub> emissions of 14 percent, the carbon taxes contributed to only 2 percent reduction. This relatively small effect relates to extensive tax exemptions and relatively inelastic demand in the sectors in which the tax is actually implemented.

*Morten S berg: **Price formation in monopolistic markets with endogenous diffusion of trading information: An experimental approach.*** DP no. 336, 2002. 52 pages.

This paper reports on price formation in experimental markets in which a single seller trades with four buyers. Transactions occur if either a buyer accepts an offer to sell from the seller, or the seller accepts an offer to buy from a buyer. The dissemination of such offers is endogenous in that the seller determines which buyer(s) should be informed about offers to sell, whereas each buyer may broadcast his offer to buy to any of the residual buyers. Complete dissemina-

tion of offers is consistent with conventional double-auction trading rules. The result is two-fold. First, the diffusion of trading information is incomplete, in that neither the single seller nor the buyers inform all market participants about offers. Second, observed prices and the number of transactions are in line with the competitive theoretic benchmark.

*Thor O. Thoresen: **Reduced Tax Progressivity in Norway in the Nineties. The Effect from Tax Changes.*** DP no. 335, 2002. 32 pages.

The inequality in pre-tax income increases in Norway in the 1990s, while the distribution of taxes is about unaltered. This means that tax progressivity has decreased in the period, as measured by summary indices of tax progressivity. This paper discusses to what extent this observed decrease in tax progressivity can be explained by tax changes in the period, by analysing individual income data. As marginal tax rates at high income levels have been substantially reduced in the period, for instance through the tax reform of 1992, it is expected that tax changes may have influenced the degree of inequality in pre-tax incomes. This behavioral effect is examined by deriving tax elasticity estimates, obtained from various panel data set regressions. Moreover, the tax changes may also have shifted the distributional burden of taxes for unaltered level of pre-tax income inequality. In order to identify this (direct) effect of tax-law alterations, the same fixed distribution of pre-tax income is exposed to various tax-laws in the period.

*Bente Halvorsen and Tiril Willumsen: **Willingness to Pay for Dental Fear Treatment. Is Supplying Fear Treatment Socially Beneficial?*** DP no. 334, 2002. 29 pages.

The aim of this paper is to discuss the social desirability of a treatment program for patients with dental fear. The program consisted of three different fear treatments, cognitive therapy, applied relaxation or nitrous oxide sedation, as well as dental treatment. To evaluate the effects of uncertainty on the patients' benefits from the program, we elicit their willingness to

pay both before and after receiving treatment, since we expected patients to be uncertain about the outcome of the fear treatment. We find that the social desirability of the treatment is very sensitive towards uncertainty. While only 24 percent of the patients were willing to pay the actual cost of the treatment before attending, 71 percent were willing to pay afterwards. This implies that many patients who would benefit from the treatment ex post are not willing to pay the cost of the treatment ex ante, and will thus not receive any treatment unless it is subsidised.

*Jo Thori Lind: **Small continuous surveys and the Kalman filter.*** DP no. 333, 2002. 17 pages.

The time series nature of repeated surveys is seldom taken into account. I present a statistical model of repeated surveys and construct a computationally feasible estimator based on the Kalman filter. The novelty is that the estimator efficiently uses the whole underlying data set. However, for computational purposes, we only need the first and second empirical moments of the data.

*Mads Greaker: **Eco-labels, Production Related Externalities and Trade.*** DP no. 332, 2002. 33 pages.

We analyze the trade and welfare effects of eco-labels in a domestic market with one domestic firm and one foreign firm. Pollution is production related, and the government can choose between including the product category in an eco-label scheme and setting an environmental standard. The environmental standard will only apply to the domestic firm, while both firms can adopt the eco-label.

Given that the environmental damage is not too large, we find that it is optimal for the government to introduce an eco-label scheme. An eco-label scheme is optimal even though the domestic firm may lose profit and the foreign firm may gain. Hence, the eco-label scheme is not introduced for protectionist purposes. Further, if the government for some reason were prevented from using eco-labels, global, domestic and foreign welfare would be hampered.

Marie W. Arneberg, John K. Dagsvik and Zhiyang Jia: **Labor Market Modeling Recognizing Latent Job Attributes and Opportunity Constraints. An Empirical Analysis of Labor Market Behavior of Eritrean Women.** DP no. 331, 2002. 44 pages.

This paper analyzes labor market behavior of urban Eritrean women with particular reference to the impact of education, earnings and labor market opportunities. Unlike traditional models of labor supply, which assume that work can be supplied freely in the labor market, we develop a framework that explicitly takes into account the notion of job opportunities and observable sets of feasible jobs. The framework is formulated within a random utility setting in which unobservable jobs can conveniently be treated as latent alternatives. The framework can also readily take into account observed restrictions on the sets of feasible jobs.

The empirical estimation of the model is based on data from the labor force module of the 1996/97 Eritrean Household Income and Expenditure Survey for urban areas. We estimate structural choice probabilities of being in the states "Not employed", "Working in the wage sector", and "Working as self-employed", where it is taken into account that some women are constrained in their labor market choices.

We find that the effect on wages of changes in education level is high; improving the education levels of women greatly improves their wages, which again contributes to bringing more women into the labor force. However, our data do not support the assumption that basic education increases women's job opportunities. In order to do so, at least secondary education is required.

Arvid Raknerud: **Identification, Estimation and Testing in Panel Data Models with Attrition: The Role of the Missing at Random Assumption.** DP no. 330, 2002. 27 pages.

This paper discusses identification, estimation and testing in panel data models with attrition. We focus on a situation which often occurs in the analysis of firms: Attrition (exit) is endogenous and depends on the outcomes of an observed stochastic process and the interest-parameters characterizing this process. Thus attrition is non-ignorable even if selection is

based only on observed variables - that is, even if the missing items are missing at random (MAR). The likelihood function obtained by ignoring the attrition mechanism is a pseudo likelihood function. Assuming that the MAR condition holds, this paper establishes conditions for identification and consistent estimation based on the pseudo likelihood function. It is also shown that the MAR hypothesis has testable implications in many situations that are encountered in practice. Simulations suggest that in the case of the autoregressive model with random effects, the efficiency of the pseudo likelihood estimator (based on normality) is not much affected even by strong departures from normality. In a variety of simulation models, the pseudo likelihood estimator clearly outperforms the moment estimators - even when the latter are consistent.

### Reprints

Taran Fåhn: **The Qualitative and Quantitative Significance of Non-Tariff Barriers: an ERP study of Norway.** Reprints no. 230, 2002. 25 pages.

Reprint from Economic Systems Research, Vol. 14, No. 1, 2002, 35-57.

Kari Skrede: **Towards gender equality in Norway's young generations?** Reprints no. 228, 2002. 28 pages.

Reprint from Jørgen Carling (ed.): Nordic demography: Trends and differentials. Scaninavian Population Studies, vol. 13, 2002, 191-218.

Erik H. Nymoen: **Influence of migrants on regional variations of ischaemic heart disease mortality in Norway 1991-1994.** Reprints no. 227, 2002. 15 pages.

Reprint from Jørgen Carling (ed.): Nordic demography: Trends and differentials. Scaninavian Population Studies, vol. 13, 2002, 81-95.

Helge Brunborg: **Old-age mortality trends in Norway.** Reprints no. 226, 2002. 16 pages.

Reprint from Jørgen Carling (ed.): Nordic demography: Trends and differentials. Scaninavian Population Studies, vol. 13, 2002, 65-80.

### Documents

Trude Lappegård: **Education attainment and fertility pattern among Norwegian women** Documents 2002/18, 2002. 27 pages.

This study examines the connection between fertility trends and women's choice of education. The analyses indicate that field of study has a more decisive influence than educational level on women's fertility. The analysis dealing with the possibility of being childless at age 40, shows that among women who are childless, those educated towards female-dominated occupations are fewer than those educated towards other occupations. The result from the analysis focuses on mean number of children born to women who have children show that women educated towards female-dominated occupations have more children than women educated towards other occupations, but that there is also a high level of fertility among women whose education has a high-career orientation (doctors, dentists). This shows that through choice of occupation and adjustment on the labour market, women combine a high level of fertility with an active career.

Erik H. Nymoen: **Influence of Migrants on Regional Variations of Cerebrovascular Disease Mortality in Norway 1991-1994.** Documents 2002/16, 2002. 16 pages.

Mortality of cerebrovascular disease show regional differences that may be associated with characteristics of place of residence at the time of death. Nevertheless, such differences may be misinterpreted if the impact of migrants is not considered. This study estimates, for the first time, the impact of migrants on Norwegian regional mortality rates of cerebrovascular disease. For the period 1991-1994 age-standardized mortality rates were estimated for men and women born in Norway during 1907-1946 separately for total population, migrants, and non-migrants at the geographical scales of county and main region. Overall, the migrants experience the same cerebrovascular mortality level as the non-migrants, but there are great regional differences and ratios are observed both well below and well above unity. The impact of migrants on a county's cerebrovascular mortality level in some cases result in the rank of the county being substantially altered compared with its rank based on the non-migrant population only.

## Previously issued

### Social and Economic Studies

*Nico Keilman, Dinh Quang Pham and Arve Hetland:* Norway's Uncertain Demographic Future. SES 105, 2002.

### Statistical Analyses

Natural Resources and the Environment 2001. Norway. SA 47, 2001.

### Reports

*Lars Øtby:* The demographic characteristics of immigrant population in Norway. Reports 2002/22.

*Lasse Sigbjørn Stambd:* Qualification, mobility and performance in a sample of Norwegian regional labour markets. Reports 2002/6.

*Tone Ingrid Tysse:* Effects of Enterprise Characteristics on Early Retirement. Reports 2001/26.

*Marit Rønsen:* Market work, child care and the division of household labour. Adaptations of Norwegian mothers before and after the cash-for-care reform. Reports 2001/3.

### Discussion Papers

*Morten Sæberg:* The Duhem-Quine thesis and experimental economics: A reinterpretation. DP no. 329, 2002.

*Morten Sæberg:* Voting rules and endogenous trading institutions: An experimental study. DP no. 328, 2002.

*Morten Sæberg:* A laboratory stress-test of bid, double and offer auctions. DP no. 327, 2002.

*Hilde Christiane Bjørnland and Håvard Hungnes:* Fundamental determinants of the long run real exchange rate: The case of Norway. DP no. 326, 2002.

*Erling Rød Larsen:* Consumption Inequality in Norway in the 80s and 90s. DP no. 325, 2002.

*Erling Rød Larsen:* Estimating Latent Total Consumption in a Household. DP no. 324, 2002.

*Erling Rød Larsen:* Searching for Basic Consumption Patterns: Is the Engel Elasticity of Housing Unity? DP no. 323, 2002.

*Erling Rød Larsen:* The Political Economy of Global Warming: From Data to Decisions. DP no. 322, 2002.

*Jørgen Aasness and Erling Rød Larsen:* Distributional and Environmental Effects of Taxes on Transportation. DP no. 321, 2002.

*Tor Jakob Klette and Arvid Raknerud:* How and why do Firms differ? DP no. 320, 2002.

*Rolf Aaberge:* Characterization and Measurement of Duration Dependence in Hazard Rate Models. DP no. 319, 2002.

*Østein Dahl:* Energy Flexibility and Technological Progress with Multi-output Production. Application on Norwegian Pulp and Paper Industries. DP no. 318, 2002.

*Erik Biørn and Terje Skjerpen:* Aggregation and Aggregation Biases in Production Functions: A Panel Data Analysis of Translog Models. DP no. 317, 2002.

*Annegrete Bruvoll and Karine Nyborg:* On the value of households' recycling efforts. DP no. 316, 2002.

*Tom Kornstad and Thor O. Thoresen:* A Discrete Choice Model for Labor Supply and Child Care. DP no. 315, 2002.

*Knut Einar Rosendahl:* Cost-effective environmental policy: Implications of induced technological change. DP no. 314, 2002.

*Geir Haakon Bjertnæs:* Optimal Combinations of Income Tax and Subsidies for Education. DP no. 313, 2001.

*Knut R. Wangen and Erik Biørn:* Prevalence and substitution effects in tobacco consumption: A discrete choice analysis of panel data. DP no. 312, 2001.

*Mari Rege and Kjetil Telle:* An Experimental Investigation of Social Norms. DP no. 310, 2001.

*Håvard Hungnes:* Estimating and Restricting Growth Rates and Cointegration Means. With Applications to Consumption and Money Demand. DP no. 309, 2001.

*Tom Kornstad:* Are Predicted Lifetime Consumption Profiles Robust with respect to Model Specifications? DP no. 308, 2001.

*Rolf Aaberge, Ugo Colombino and John E. Roemer:* Equality of Opportunity versus Equality of Outcome in Analysing Optimal Income Taxation: Empiri-

cal Evidence based on Italian Data. DP no. 307, 2001.

*Brita Bye and Turid Åitsland:* The welfare effects of housing taxation in a distorted economy: A general equilibrium analysis. DP no. 306, 2001.

*Erling Rød Larsen:* Revealing Demand for Nature Experience Using Purchase Data of Equipment and Lodging. DP no. 305, 2001.

*Kjell G. Salvanes and Svein Erik Førre:* Job Creation, Heterogeneous Workers and Technical Change: Matched Worker/Plant Data Evidence from Norway. DP no. 304, 2001.

*Roger Bjørnstad:* Learned Helplessness, Discouraged Workers, and Multiple Unemployment Equilibria in a Search Model. DP no. 303, 2001.

*Torbjørn Hægeland:* Changing Returns to Education Across Cohorts: Selection, School System or Skills Obsolescence? DP no. 302, 2001.

*Torbjørn Hægeland:* Experience and Schooling: Substitutes or Complements? DP no. 301, 2001.

*Karine Nyborg and Mari Rege:* Does Public Policy Crowd Out Private Contributions to Public Goods? DP no. 300, 2001.

*John K. Dagsvik:* Compensated Variation in Random Utility Models. DP no. 299, 2001.

*Taran Fåhn and Erling Holmøy:* Trade Liberalisation and Effects on Pollutive Emissions and Waste. A General Equilibrium Assessment for Norway. DP no. 298, 2001.

*Jan F. Bjørnstad and Dag Einar Sommervoll:* Modeling Binary Panel Data with Nonresponse. DP no. 297, 2001.

*Jo Thori Lind:* Tout est au mieux dans ce meilleur des ménages possibles. The Pangloss critique of equivalence scales. DP no. 296, 2001.

*Arvid Raknerud:* A State Space Approach for Estimating VAR Models for Panel Data with Latent Dynamic Components. DP no. 295, 2001.

*Knut R. Wangen and Erik Biørn:* Individual Heterogeneity and Price Responses in Tobacco Consumption: A Two-Commodity Analysis of Unbalanced Panel Data. DP no. 294, 2001.

## Reprints

*Svein Blom*: Some Aspects of Immigrant Residential Concentration in Oslo. Time Trends and the Importance of Economic Causes. Reprints no. 224, 2002.

*Ragni Hege Kitterød*: Mothers' Household and Childcare: Growing Similarities or Stable Inequalities? Reprints no. 223, 2002.

*Ragni Hege Kitterød*: Mothers' Household and Childcare: Growing Similarities or Stable Inequalities? Reprints no. 223, 2002.

*Marit Rønsen and Marianne Sundström*: Family Policy and After-Birth Employment Among New Mothers - A Comparison of Finland, Norway and Sweden. Reprints no. 222, 2002.

*Erik Biørn, Kjersti-Gro Lindquist and Terje Skjerpen*: Heterogeneity in Returns to Scale: A Random Coefficient Analysis with Unbalanced Panel Data. Reprints no. 221, 2002.

*Iulie Aslaksen*: Gender Constructions and the Possibility of a Generous Economic Actor. Reprints no. 220, 2002.

*Ingi Runar Edvardsson, Elli Heikkilä Mats Johansson, Lars Olof Persson, Lasse Sigbjørn Stambøl*: The performance of metropolitan labour markets. A comparison based on gross-stream data. Reprints no. 219, 2002.

*Nico Keilman, Dinh Quang Pham and Arve Hetland*: Why population forecasts should be probabilistic - illustrated by the case of Norway. Reprints no. 218, 2002.

*John K. Dagsvik*: Discrete Choice in Continuous Time: Implications of an Intertemporal Version of the IIA Property. Reprints no. 217, 2002.

*Brita Bye*: Taxation, Unemployment, and Growth: Dynamic Welfare Effects of "Green" Policies. Reprints no. 216, 2002.

*John K. Dagsvik, Tom Wennemo, Dag G. Wetterwald and Rolf Aaberge*: Potential demand for alternative fuel vehicles. Reprints no. 215, 2002.

*Helge Brunborg*: Contribution of statistical analysis to the investigations of the international criminal tribunals. Reprints no. 214, 2002.

*Lars Øtby*: Why Analyzing Immigrants? Ethical and Empirical Aspects. Reprints no. 213, 2002.

*Rolf Aaberge*: Axiomatic Characterization of the Gini Coefficient and Lorenz Curve Orderings. Reprints no. 212, 2002.

*Ragni Hege Kitterød*: Does the recording of parallel activities in time use diaries affect the way people report their main activities? Reprints no. 211, 2002.

*Hilde Christiane Bjørnland*: Identifying domestic and imported core inflation. Reprints no. 210, 2001.

*Rolf Aaberge and Yu Zhu*: The pattern of household savings during a hyperinflation: The case of urban China in the late 1980s. Reprints no. 207, 2001.

*Randi Kjeldstad and Jan Erik Kristiansen*: Constructing a regional gender equality index: Reflections on a first experience with Norwegian data. Reprints no. 205, 2001.

*Turid Noack*: Cohabitation in Norway: An accepted and gradually more regulated way of living. Reprints no. 203, 2001.

*Einar Bowitz and Ålne Cappelen*: Modeling income policies: some Norwegian experiences 1973-1993. Reprints no. 200, 2001.

*John K. Dagsvik, Helge Brunborg and Ane S. Flaatten*: A Behavioral Two-Sex Marriage Model. Reprints no. 199, 2001.

*Runa Nesbakken*: Energy Consumption for Space Heating: A Discrete-Continuous Approach. Reprints no. 198, 2001.

*Karl O. Aarbu and Thor O. Thoresen*: Income Responses to Tax Changes Evidence from the Norwegian Tax Reform. Reprints no. 197, 2001.

*Randi Kjeldstad*: Gender policies and gender equality. Reprints no. 194, 2001.

*Brita Bye*: Labor Market Rigidities and Environmental Tax Reforms: Welfare Effects of Different Regimes. Reprints no. 193, 2001

*Taran Fåhn and Erling Holmøy*: Welfare Effects of Trade Liberalization in Distorted Economies: A Dynamic General Equilibrium Assessment for Norway. Reprints no. 192, 2001.

*Hege Medin, Karine Nyborg and Ian Bateman*: The assumption of equal marginal utility of income: how much does it matter? Reprints no. 191, 2001.

*Randi Kjeldstad*: Employment Strategy Policies and Lone Parenthood: The Case of Norway. Reprints no. 190, 2001.

*Bente Halvorsen and Bodil M. Larsen*: Norwegian residential electricity demand - a microeconomic assessment of the growth from 1976 to 1993. Reprints no. 189, 2001.

*Rolf Aaberge, Ugo Colombino and Steinar Strøm*: Labor supply responses and welfare effects from replacing current tax rules by a flat tax: Empirical evidence from Italy, Norway and Sweden. Reprints no. 188, 2001.

*Snorre Kverndokk, Lars Lindholt and Knut Einar Rosendahl*: Stabilization of CO<sub>2</sub> concentrations: mitigation scenarios using the Petro model. Reprints no. 187, 2001.

*Bente Halvorsen and Bodil M. Larsen*: The flexibility of household electricity demand over time. Reprints no. 186, 2001.

*Terry Barker and Knut Einar Rosendahl*: Ancillary benefits of GHG mitigation in Europe: SO<sub>2</sub>, NO<sub>x</sub> and PM<sub>10</sub> reductions from policies to meet Kyoto targets using the E3ME model and EXTERNE valuation. Reprints no. 185, 2001.

*Brita Bye*: Environmental Tax Reform and Producer Foresight: An Intertemporal Computable General Equilibrium Analysis. Reprints no. 183, 2001.

*Kjersti-Gro Lindquist*: The response by the Norwegian aluminium industry to changing market structure. Reprints no. 182, 2001.

*Karine Nyborg*: Project analysis as input to public debate: Environmental valuation versus physical unit indicators. Reprints no. 181, 2001.

*Karine Nyborg*: Homo Economicus and Homo Politicus: interpretation and aggregation of environmental values. Reprints no. 180, 2001.

*Joe Sexton and Anders Rygh Swensen*: ECM algorithms that converge at the rate of EM. Reprints no. 179, 2001.

*Karine Nyborg and Inger Spangen*: Cost-Benefit Analysis and the Democratic Ideal. Reprints no. 177, 2001.



## Documents

---

*Bente Halvorsen and Runa Nesbakken:*  
Distributional Effects of Household  
Electricity Taxation.  
Document 2002/12.

*Erling Rød Larsen:* An Introductory  
Guide to the Economics of Sustain-  
able Tourism.  
Document 2002/11.

*Bente Halvorsen:* Philosophical  
Issues Concerning Applied Cost-Bene-  
fit Analysis.  
Documents 2002/10.

*Torstein Arne Bye:* Climate Change  
and Energy Consequences.  
Documents 2002/9.

*Randi Kjeldstad and Marit Røsen:*  
Welfare Rules, Business Cycles and  
the Employment of Single Parents.  
Documents 2002/7.

*Bengt J. Eriksson, Anne B. Dahle,  
Ronny Haugan, Lars Einar Legernes,  
Jogeir Myklebust and Erik Skauen:*  
Price Indices for Capital Goods. Part 2  
- A Status Report. Documents 2002/6.

*Pål Boug, Ålne Cappelen and Anders  
Rygh Swensen:* Expectations and Re-  
gime Robustness in Price Formation:  
Evidence from VAR Models and Re-  
cursive Methods. Documents 2002/5.

*Roger Bjørnstad, Ålne Cappelen, Inger  
Holm and Terje Skjerpen:* Past and Fu-  
ture Changes in the Structure of Wag-  
es and Skills. Documents 2002/4.

*Roger Bjørnstad:* The Major Debates  
in Macroeconomic Thought - a Histor-  
ical Outline. Documents 2002/2.

*Erling Rød Larsen:* Bridging the Gap  
between Micro and Macro: Interde-  
pendence, Contagious Beliefs and  
Consumer Confidence. Documents  
2001/15.

*Helge Brunborg, Ian Bowler, Abu Yusuf  
Choudhury and Mahbuba Nasreen:*  
Appraisal of the Birth and Death Reg-  
istration Project in Bangladesh.  
Documents 2001/13.

*Turid Åvitsland:* User Cost of Real  
Capital. Documents 2001/4, 2001.

*Torstein Bye, Robin Choudhury,  
Magnus Hardarson and Pall Hardar-  
son:* The ISM model. A CGE model for  
the Icelandic Economy. Documents  
2001/1.

# Appendix

## List of tables

	Page
A1. Final expenditure and gross domestic product. At current prices. Million kroner .....	1*
A2. Final expenditure and gross domestic product. At constant 1999-prices. Million kroner .....	2*
A3. Final expenditure and gross domestic product. Percentage change in volume from the same period in the previous year .....	3*
A4. Final expenditure and gross domestic product. Percentage change in prices from the same period in the previous year .....	4*
A5. Production. At current prices. Million kroner .....	5*
A6. Production. At constant 1999-prices. Million kroner .....	6*
A7. Production. Percentage change in volume from the same period in the previous year .....	7*
A8. Production. Percentage change in prices from the same period in the previous year .....	8*
A9. Intermediate consumption. At current prices. Million kroner .....	9*
A10. Intermediate consumption. At constant 1999-prices. Million kroner .....	10*
A11. Intermediate consumption. Percentage change in volume from the same period in the previous year .....	11*
A12. Intermediate consumption. Percentage change in prices from the same period in the previous year .....	12*
A13. Gross domestic product and value added by industry. At current prices. Million kroner .....	13*
A14. Gross domestic product and value added by industry. At constant 1999-prices. Million kroner .....	14*
A15. Gross domestic product and value added by industry. Percentage change in volume from the same period in the previous year .....	15*
A16. Gross domestic product and value added by industry. Percentage change in prices from the same period in the previous year .....	16*
A17. Final consumption expenditure. At current prices. Million kroner .....	17*
A18. Final consumption expenditure. At constant 1999-prices. Million kroner .....	17*
A19. Final consumption expenditure. Percentage change in volume from the same period in the previous year .....	18*
A20. Final consumption expenditure. Percentage change in prices from the same period in the previous year .....	18*
A21. Final consumption expenditure of households. At current prices. Million kroner .....	19*
A22. Final consumption expenditure of households. At constant 1999-prices. Million kroner .....	19*
A23. Final consumption expenditure of households. Percentage change in volume from the same period in the previous year .....	20*
A24. Final consumption expenditure of households. Percentage change in prices from the same period in the previous year .....	20*
A25. Gross fixed capital formation by type of capital goods and by industry. At current prices. Million kroner .....	21*
A26. Gross fixed capital formation by type of capital goods and by industry. At constant 1999-prices. Million kroner .....	22*
A27. Gross fixed capital formation by type of capital goods and by industry. Percentage change in volume from the same period in the previous year .....	23*
A28. Gross fixed capital formation by type of capital goods and by industry. Percentage change in prices from the same period in the previous year .....	24*
A29. Exports of goods and services. At current prices. Million kroner .....	25*
A30. Exports of goods and services. At constant 1999-prices. Million kroner .....	26*
A31. Exports of goods and services. Percentage change in volume from the same period in the previous year .....	27*
A32. Exports of goods and services. Percentage change in prices from the same period in the previous year .....	28*
A33. Imports of goods and services. At current prices. Million kroner .....	29*
A34. Imports of goods and services. At constant 1999-prices. Million kroner .....	30*
A35. Imports of goods and services. Percentage change in volume from the same period in the previous year .....	31*
A36. Imports of goods and services. Percentage change in prices from the same period in the previous year .....	32*
A37. Balance of payments. Summary. At current prices. Million kroner .....	33*
A38. Employed persons by industry. Employees and self-employed. 1000 .....	34*
A39. Employed persons by industry. Employees and self-employed. Percentage change from the same period in the previous year .....	35*
A40. Total hours worked. Employees and self-employed. Aggregated activity. Millions .....	36*
A41. Total hours worked. Employees and self-employed. Aggregated activity. Percentage change from the same period in the previous year .....	36*