

Economic Survey

Volume 12

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Economic trends*

The quarterly national accounts show that the Norwegian economy expanded at a moderate pace in the first half of 2002. Both total GDP and mainland GDP were only slightly above the level recorded in the second half of 2001. The mainland economy grew at an annual rate of about 1 per cent from the previous six-month period. The level of gross investment and exports was lower than in the previous half-year, while household and public sector consumption demand increased appreciably. The occurrence of Easter in a different quarter compared with last year makes it difficult to interpret seasonally adjusted national accounts figures for the first two quarters of the year, but monthly data underpin the impression that growth in the Norwegian economy has been fairly moderate in many areas so far this year. This picture also tallies with weaker developments in the labour market. However, it would not be reasonable to characterize the situation in the Norwegian economy as a slump. If anything, the cyclical slowdown that started after the peak was passed in 1998 continued at a moderate pace.

The international economy, on the other hand, is emerging from a clear downturn. GDP growth among our trading partners, which was about 1.5 per cent in 2001, may be slightly higher this year, although there has been a tendency to lower growth rate projections for both this year and next. The projections are still based on an assumption of higher growth in the US, but the uncertainty here seems to have increased. The scope for a more expansionary monetary policy in the US is limited and previously large federal budget surpluses have been reversed to a deficit, partly due to discretionary measures and partly as a result of cyclical developments.

The combination of subdued global growth and considerable uncertainty in international financial markets concerning future developments, along with high Norwegian interest rates, resulted in a strong appreciation of the Norwegian krone over the past year. This has contributed to a marked decline in import and export prices in krone terms. Changes in import prices are in reasonable accord with changes in the krone exchange rate and in line with previous analyses, which indicate a swift feed-through of exchange rate changes to import prices measured in krone terms. So far, however, the feed-through from lower import prices to Norwegian consumer prices has been fairly modest. The krone appreciation has had even less of an impact on wages. Measured in a common currency, wages have risen sharply the past year.

Assessments of the outlook for the Norwegian economy are now largely linked to assumptions concerning developments in the krone exchange rate. If the krone remains strong in the period ahead, partly due to Norway's policy orientation, but also due to international factors, import prices may be expected to have a greater impact on Norwegian consumer prices. If, on the other hand, the krone begins to depreciate fairly quickly, the feed-through to consumer prices may be limited.

The import-weighted krone exchange rate has remained strong through the summer. In our projections for the Norwegian economy in the period ahead, we have assumed that the Norwegian krone depreciates slightly in relation to the level at the beginning of September, but even so the import-weighted krone exchange rate is expected to be a good 6 per cent stronger in 2004 than in 2001. The fairly moderate depreciation is an important precondition for attaining the inflation target that year, given the current high level of cost inflation in Norway. The overall picture of developments in the Norwegian economy in the period ahead is marked by continued moderate output growth which, over time, will result in rising unemployment. Normally, this would contribute to lower price and cost inflation. In line with this, we expect – as do market participants – money market rates to edge down through 2003 from the current level. According to our calculations, this will make it possible to achieve the inflation target after 2004 without substantial, further changes in the krone exchange rate.

* Translated from Økonomiske analyser 4/2002 by Janet Aagenæs.

International economy

There is considerable uncertainty concerning the strength of the turnaround in the global economy. In the US, growth was curbed in the second quarter following a strong first quarter. Growth in the US is expected to be sluggish this year and pick up gradually later in 2003, underpinned by a continued expansionary monetary policy. Growth has also stagnated in the euro area. The appreciation of the euro has eroded manufacturing industry's competitiveness and the demand impetus from the global economy is weak. Tax reductions, high wage growth and lower inflation are boosting private consumption. GDP growth is projected to edge up in the period to the end of the year and increase in 2003 as economic activity picks up internationally. The growth outlook in Japan is still bleak. Rising unemployment, sluggish wage developments and deflationary tendencies provide little hope of assistance from private consumption. However, there are signs of positive developments in manufacturing, and higher exports are expected to push up growth in Japan next year.

Growth projections for both the US and the euro area have been lowered since the June *Economic Survey*. According to Consensus Forecasts, GDP growth in the US is now projected at 2.3 per cent in 2002 and 3.1 per cent next year. The corresponding figures for the euro area are 1.1 and 2.5 per cent respectively. GDP in Japan is projected to expand by 1.1 per cent next year, compared with a contraction of 0.4 per cent this year. Total GDP growth among our main trading partners is set to be about 1.4 per cent this year, against 1.2 per cent in 2001. Growth is estimated at 2.6 per cent in 2003. This represents a downward revision of the estimates for 2002 and 2003 of 0.1 and 0.2 per-

centage point respectively compared with the projections in the June *Economic Survey*.

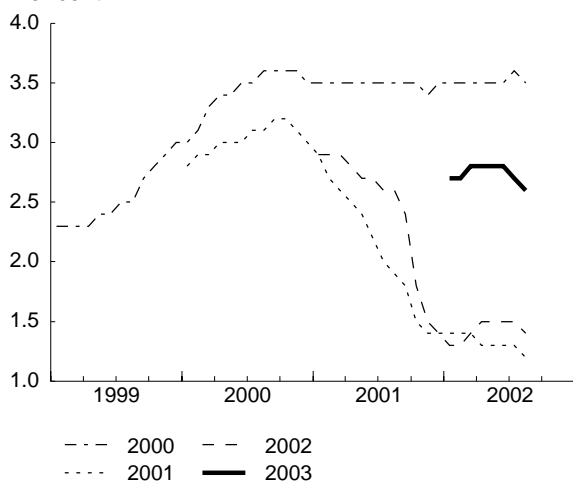
Developments in the oil market

The spot price of Brent Blend rose from USD 19-20 per barrel at the beginning of the year to about USD 26 at end-March. As an average for the first eight months of the year, the price has been just below USD 24 per barrel, compared with about USD 24.50 per barrel in 2001. At the beginning of September, the oil price was about USD 27 per barrel.

The most important reason for the rise in prices in the first quarter was OPEC's decision to reduce production by 1.5 million b/d from 1 January, while some other countries decided to reduce exports or production by a total of just under 0.5 million b/d. With its latest reduction, OPEC has approved production cuts of altogether 5 million b/d over the last 19 months. On average, OPEC has managed to fulfil just less than 75 per cent of its announced cuts. In addition, speculation that the US would attack Iraq and unrest in the Middle East have contributed to the relatively high price level.

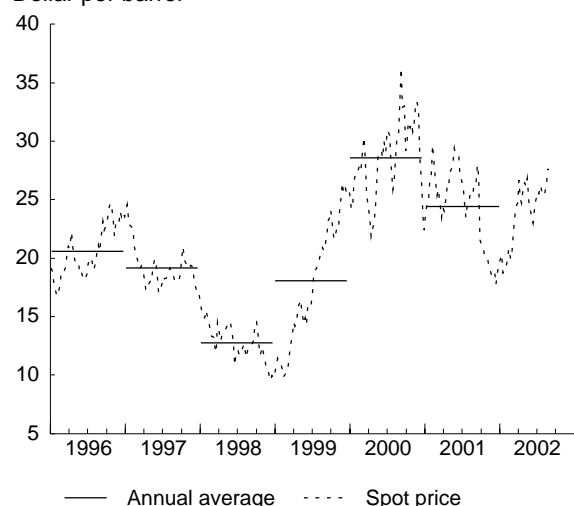
According to the International Energy Agency (IEA), stocks of crude oil and finished products in the OECD area are now slightly above the average for the past five years. The IEA has lowered its projections for global oil demand in 2002, but expects a higher growth in demand in 2003. Among non-OPEC countries, it appears that only Oman will maintain its production cuts until the end of the year. This means that even if OPEC does not increase its quotas at its next ordinary ministerial meeting in Japan in September,

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



Source: Consensus Forecasts.

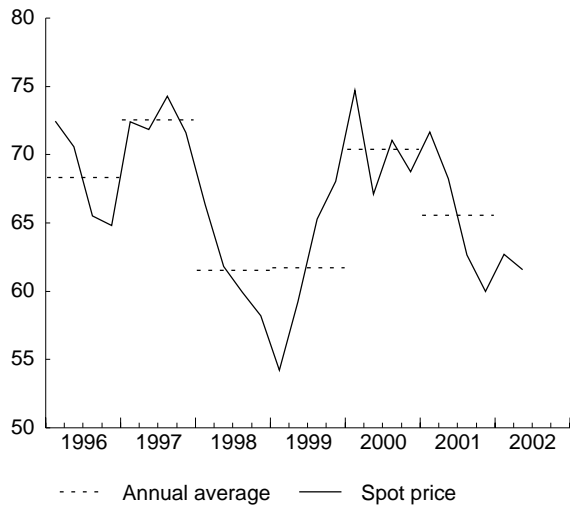
Spot price crude oil, Brent Blend
Dollar per barrel



Source: Norges Bank.

Spot price aluminium. 1996 - 2002

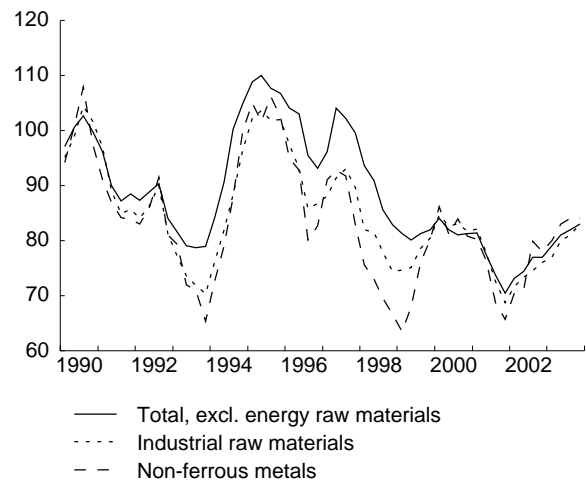
Dollar per 100 lbs.



Source: IMF.

Commodity prices on the world market**1990 - 2003**

Dollar based indices. 1990 = 100



Sources: HWWA-Institut für Wirtschaftsforschung and AIECE.

stocks of both crude oil and heating oil may be sufficient to satisfy demand this winter.

In periods this year, Iraq has produced less oil under the oil-for-food agreement with the UN than in 2001. The total production of the cartel and Iraq, however, has not varied to the same extent because in periods OPEC has increased production correspondingly. OPEC has signalled that production will be increased in the future if Iraq does not supply oil for a shorter or longer period.

If OPEC maintains its production cuts until the end of the year and the cartel continues to fulfil about 75 per cent of its announced cuts, the oil price may remain at the current level in the period ahead. A precondition for this is that those OPEC countries that want to see production increased do not gain acceptance for their views. OPEC production is at about the same level as 6 years ago even though total revenues are higher because the oil price is higher.

Commodity prices

Commodity prices fell last year as a result of lower growth in the global economy. Since the beginning of the year, commodity prices have risen, and the AIECE estimates that they will continue to rise this autumn and later in 2003. Metal prices also fell sharply in 2001, but edged up in the first quarter of this year. Metal prices stagnated in the second quarter, and we project that in the period ahead they will remain at approximately the current level measured in krone terms.

US

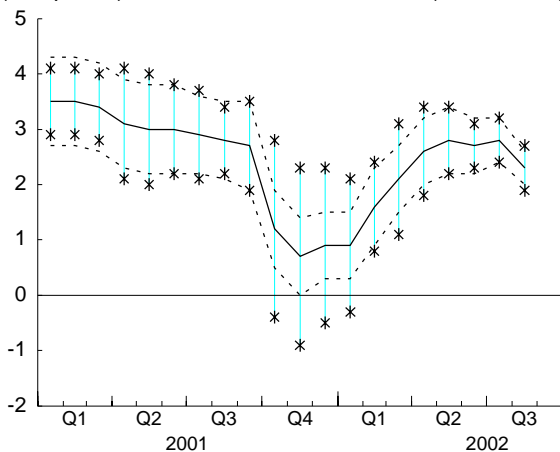
Following last year's recession, the US economy recovered sharply in the first quarter of 2002, fuelled by an expansionary monetary and fiscal policy and vigorous productivity gains. In the wake of accounting

scandals, broken promises regarding profits and bankruptcies, both consumer and business confidence in the economy has declined, a factor that may have contributed to slower GDP growth in the second quarter. Lower equity prices and a weaker dollar reflect reduced expectations concerning future growth.

The recession last year was mild and there are still imbalances in the US economy: The household saving ratio remains low, house prices are rising at a brisk pace and the trade deficit is large. The need to correct these imbalances is increasing the risk of a "double-dip".

Private consumption remained buoyant through last year's recession and was an important reason why the downturn was shorter and milder than many feared. The saving ratio has edged up so far this year, but is still very low. The sharp rise in house prices in the US is probably an important explanation for the high level of consumption. For most Americans, a dwelling is the most important investment, and rising house prices have made people feel more wealthy, despite negative movements on the stock exchange. House prices normally tend to stagnate or fall during a downturn. The last downturn, however, was not accompanied by high inflation, which would have compelled the Federal Reserve to raise interest rates, and thereby curb the rise in house prices. The contraction was, however, accompanied by low inflation, and the Federal Reserve could therefore quickly reduce interest rates sharply in order to stimulate demand, and house prices rose further. The trend has levelled off this summer, but the housing market remains buoyant. The risk is that reduced confidence and a further decline in equity prices will result in a collapse of the housing market. A strong correction in the housing market may lead to more moderate private consumption and reduced economic growth.

GDP growth forecasts for the US for 2002 at different points in time
Average forecast (solid line) with +/- 2 standard deviation (star points) and +/- 2 "normal" deviation (dashed line)



Source: Consensus Forecasts.

The US has recorded a trade deficit equivalent to about 4 per cent of GDP in recent years. As a result of swifter growth in domestic demand than among trading partners, the deficit is expected to increase further next year. Productivity growth in the US is still relatively high, and so far the necessary supply of capital to finance the large deficit has not dried up. Scandals in the business sector and turmoil in financial markets may have increased uncertainty among foreign investors, but has not been manifested in an extensive investor flight. The depreciation of the dollar may have a positive impact through improved competitiveness and help to reduce the trade deficit. We assume that the dollar will stabilize at around parity against the euro. This is in line with the projection in Consensus Forecasts, and is a somewhat stronger depreciation of the USD against the euro than assumed in the June report.

There is considerable uncertainty concerning the real economic consequences of the fall in equity prices. The implications of any US attack on Iraq are also shrouded in uncertainty, and may affect both the oil price and foreign investment in the US.

We project that the Federal Reserve will maintain its expansionary monetary policy stance in the period ahead and that private consumption will remain buoyant, and consider it most likely that the US economy will avoid a new recession. The growth projections have, however, been lowered somewhat compared with the June *Economic Survey*, both for 2002 and 2003. Growth is expected to be sluggish in the period to the end of the year and then pick up in 2003.

Europe

Growth in the euro area stagnated in the second quarter of 2002, and it does not appear that a recovery has taken firmer hold. Private demand has declined in

both Italy and Germany, which together account for nearly half of the euro area economy. The fall in equity prices in the US spread to European stock exchanges. This has a negative impact on investment opportunities and affects both consumer and business confidence. Total domestic demand is low in the euro area, and at the moment there is little help to be had from the global economy. Growth in both private consumption and investment is subdued and unemployment is moving up. Through 2000 and 2001, a weak euro helped to sustain economic growth. An expansionary period for export industries compensated for low private consumption in large parts of the euro area. The euro has appreciated in recent months and manufacturing industry's competitiveness has deteriorated. However, the appreciation is also contributing to lower inflation, which combined with high wage growth and tax reductions, will boost private consumption.

The rebuilding costs following this summer's floods in Europe are estimated at around NOK 100 billion. Infrastructure, such as roads, railways and dwellings, has probably been the hardest hit. The rebuilding work will provide increased opportunities, for example for the German construction sector, which has been facing excess capacity and bankruptcies the last few years. Private consumption and investment will partly be shifted to repairs and rebuilding. Many enterprises in the flood-damaged regions have been affected, and the floods will be noticeable for the insurance industry. For a small country like the Czech Republic, the damages constitute a considerable share of GDP, while for Germany the costs are of much less importance. For Europe as a whole, economic growth will not be affected to any extent.

A cyclical upturn that is confined to Europe is not very likely. A great deal depends on the situation in the US. Fiscal policy is being constrained by tight government finances in a number of major countries and by the Stability and Growth Pact, which limits the government budget deficit to 3 per cent of GDP. Inflation has subsided, but we expected the European Central Bank to keep its key rate at 3.25 per cent in the period to the end of 2002.

We project that GDP growth in the euro area will pick up in the period ahead, fuelled by higher private consumption and higher exports as the situation in the global economy gradually improves. A moderate upturn is expected this autumn followed by stronger growth next year. Consensus Forecasts estimates growth at 1.1 per cent in 2002 and 2.5 per cent next year.

Outside the euro area, the outlook for Sweden is a moderate cyclical upturn. Manufacturing activity seems to be increasing and solid wage growth has contributed to boosting private demand. Employment

Macroeconomic projections according to selected sources

Annual change in per cent

	GDP-growth					Inflation (consumer prices)				
	1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
USA										
NIESR	4.1	4.1	1.2	2.5	2.9	1.6	2.7	1.9	1.4	2.0
ConsF	4.1	3.8	0.3	2.3	3.1	2.2	3.4	2.8	1.6	2.4
EC	4.1	4.2	1.2	2.7	3.1	2.2	3.4	2.8	1.4	2.4
OECD	4.1	4.1	1.2	2.5	3.5	2.2	3.4	2.8	1.8	2.4
Japan										
NIESR	0.7	2.2	-0.5	-0.1	2.1	-0.5	-1.0	-1.6	-1.7	-0.6
ConsF	0.7	2.4	-0.6	-0.4	1.1	-0.3	-0.7	-0.7	-1.0	-0.6
EC	0.7	2.4	-0.5	-0.8	0.6	-0.3	-0.7	-0.5	-0.9	-0.1
OECD	0.7	2.4	-0.4	-0.7	0.3	-0.3	-0.7	-0.7	-1.2	-1.2
EMU										
NIESR	2.7	3.5	1.4	1.2	2.5	1.1	2.4	2.5	2.3	1.7
ConsF		3.4	1.5	1.1	2.5		2.2	2.7	2.1	1.8
EC	2.7	3.4	1.6	1.4	2.9	1.1	2.4	2.5	2.2	2.0
OECD	2.7	3.5	1.6	1.3	2.9	1.1	2.4	2.5	2.0	1.9
Trading partners										
NIESR	3.0	3.6	1.3	1.5	2.5	1.2	1.8	2.0	1.9	1.6
ConsF	3.0	3.5	1.2	1.4	2.6	1.4	2.2	2.5	2.0	2.0
EC	3.0	3.5	1.3	1.6	2.8	1.2	2.0	2.4	2.0	1.9
OECD	3.0	3.5	1.4	1.6	2.8	1.4	2.2	2.5	2.0	2.1

Sources: NIESR from July 2002, Consensus Forecasts from August 2002 and OECD from June 2002. All the inflation projections from the NIESR and OECD apply to the consumption deflator.

remained buoyant through the downturn, and inflation has fallen towards the Swedish central bank's target of 2 per cent. GDP is projected to expand by 1.8 per cent this year and by 2.9 per cent in 2003.

The UK is among the European countries recording the highest growth. However, the annualized rate of growth fell from the first to second quarter, primarily reflecting a decline in industrial production. The strong pound sterling has contributed to the contraction in manufacturing. The decline in stock markets is restraining growth and inflation, but due to the sharp rise in house prices the Bank of England has refrained from lowering interest rates. Growth in private consumption has slowed somewhat, but is still solid and unemployment appears to remain at a low level. GDP is projected to grow by 1.7 per cent in 2002, picking up to 2.7 per cent in 2003.

Japan

Japan is still struggling with rising unemployment, while at the same time wage growth is slowing. This is contributing to reduced confidence in economic developments and to low private consumption. There have been positive developments in export industries. However, the yen has appreciated against the USD by about 10 per cent since March, which is exacerbating the deflationary tendencies in the economy and curbing export demand. The banking sector is still grappling with a large volume of non-performing loans. Some improvement is nevertheless expected next year, based on higher demand from Europe and the US and a moderate depreciation of the yen.

Norwegian economy

Figures from the quarterly national accounts (QNA) show that the Norwegian economy expanded at a moderate pace in the first half of 2002. Both total GDP and mainland GDP were only slightly above the level recorded in the second half of 2001. The level of gross investment and exports was lower than in the previous six months, while household and public sector consumption demand increased. Growth in household consumption, however, was moderate in relation to the sharp rise in real income, which reflects high wage growth and subdued consumer price inflation. Employment growth was low and pressures in the labour market are subsiding. The gradual slowdown

in the Norwegian economy, which began after the cyclical peak was passed in 1998, has therefore persisted.

The combination of subdued global growth and considerable uncertainty in international financial markets concerning future developments, along with high interest rates in Norway, resulted in a strong appreciation of the Norwegian krone over the past year. The appreciation was particularly strong up to end-June this year. This has resulted in a sharp fall in export and import prices measured in krone terms. So far, however, the feed-through to consumer prices has

Macroeconomic indicators 2000-2002

Growth from previous period unless otherwise noted. Per cent

	2000	2001	Seasonally adjusted			
			01.3	01.4	02.1	02.2
Demand and output						
Consumption in households and non-profit organizations	3.5	2.5	0.7	0.0	1.3	0.6
General government consumption	1.2	2.0	0.2	0.8	1.3	1.0
Gross fixed investment	-1.5	-4.6	-3.2	2.4	-3.5	2.3
- Mainland Norway	3.4	-0.3	-3.9	0.3	-0.4	-0.3
-Extraction and transport via pipelines	-31.6	7.2	13.2	18.9	-18.8	-3.6
-Service activities incidental to extraction	..	..	..	..	..	..
Final domestic demand from Mainland Norway ¹	2.9	1.8	-0.3	0.3	1.0	0.5
Exports	2.9	4.2	3.3	2.6	-5.8	4.4
- Crude oil and natural gas	6.6	5.2	10.5	-1.1	-7.8	11.5
- Traditional goods	1.7	4.0	-3.9	6.5	-2.3	2.7
Imports	3.2	0.0	-1.8	2.4	-3.5	0.5
- Traditional goods	2.6	4.0	-3.1	2.7	1.8	-2.6
Gross domestic product	2.4	1.4	0.8	0.4	-0.3	0.8
- Mainland Norway	1.9	1.2	0.2	0.7	0.5	-0.7
Labour market²						
Man-hours worked	-1.1	-1.0	-0.7	-0.8	-0.8	1.1
Employed persons	0.4	0.5	-0.2	0.6	0.0	0.1
Labour force	0.8	0.6	0.0	0.8	0.0	0.2
Unemployment rate, level ³	3.1	3.3	3.6	3.8	3.8	3.8
Prices						
Consumer price index (CPI) ⁴	3.1	3.0	2.6	2.0	1.1	0.4
CPI adjusted for tax changes and (excluding energy products (CPI-A28ATE) ⁴	..	2.6	2.4	2.6	2.4	2.6
Export prices, traditional goods	13.5	-3.1	-4.3	-2.7	-1.8	-2.4
Import prices, traditional goods	4.8	0.4	-3.6	-1.4	-2.5	-1.4
Balance of payment						
Current balance, bill. NOK	219.6	233.4	62.9	50.3	57.0	58.0
Memorandum items (Unadjusted, level)						
Money market rate (3 month NIBOR)	6.8	7.2	7.3	6.8	6.5	6.9
Lending rate, banks	8.1	8.8	8.9	8.7	8.3	8.4
Crude oil price NOK ⁵	252.0	220.1	228.3	173.0	186.1	205.2
Importweighted krone exchange rate, 44 countries, 1995=100	103.3	100.2	99.5	98.5	97.2	92.5
NOK per ECU/euro	8.1	8.1	8.0	8.0	7.8	7.5

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

² 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.

³ According to Statistics Norway's Labour force survey (LFS).

⁴ Percentage change from the same period the previous year.

⁵ Average spot price, Brent Blend.

Sources: Statistics Norway and Norges Bank.

been fairly modest. The krone appreciation has had even less of an impact on wages, which measured in a common currency have risen sharply over the past year. Reports from local wage settlements in the past few months indicate, however, that wage pressures may be subsiding.

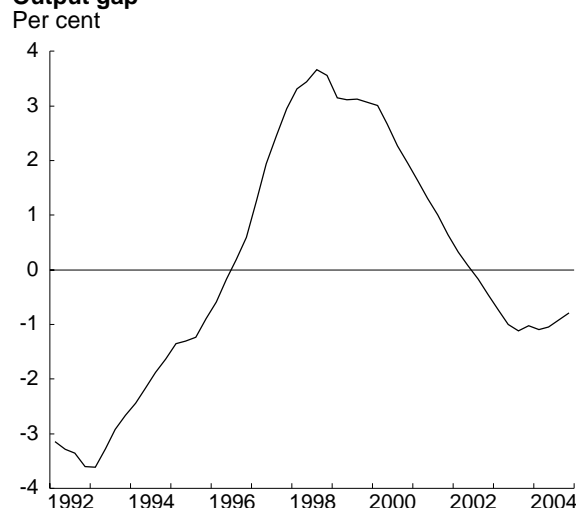
Assessments of the outlook for the Norwegian economy are now largely linked to assumptions concerning developments in the krone exchange rate. The import-weighted krone exchange rate remained strong through the summer, but we assume that the krone will depreciate through 2003. However, the level in 2004 will be noticeably higher than the normal range in the earlier monetary policy regime with a stable exchange rate as the objective.

Fiscal policy

The quarterly national accounts (QNA) show that seasonally adjusted growth in general government consumption in the first half of 2002 was about twice the level of annual growth that was estimated for 2002 as a whole in the Revised National Budget (RNB) for 2002. We have therefore assumed that growth through the second half of 2002 will be noticeably lower than in the first half of the year. More specifically, we have assumed that seasonally adjusted general government consumption will be at approximately the same level in the second half of the year as in the first half, which would put the annual rate of growth in 2002 at 2.5 per cent, compared with an estimate of 1.5 per cent in the RNB. The large pay increases awarded in the spring wage settlement may imply that growth in consumption volume will be lower ahead if budgets are to be observed. Strong growth in general government consumption combined with tighter budgets may imply that growth in general government investment will be slightly lower than assumed earlier. Investment growth is therefore now projected at a good 5 per cent in 2002.

Weak international stock markets and a strong Norwegian krone exchange rate imply a substantially lower estimate for the value of the Petroleum Fund (measured in krone terms) at the end of the year than projected earlier. However, the fiscal guideline for the use of the expected real return on the Petroleum Fund permits large shocks to asset values of this type to be absorbed over some years. This makes it possible to use more funds over the government budget next year than 4 per cent of the expected value of the Fund at the end of 2002, but this means that there is less scope for increasing the use of oil revenues in 2004. Another factor that may play a role for the government budget in 2003 is the general economic situation. This has become noticeably weaker through 2002 and can now be characterized as being approximately cyclically neutral. It may therefore be reasonable to assume that fiscal policy will be cyclically neutral in 2003. This can provide scope for compen-

Output gap



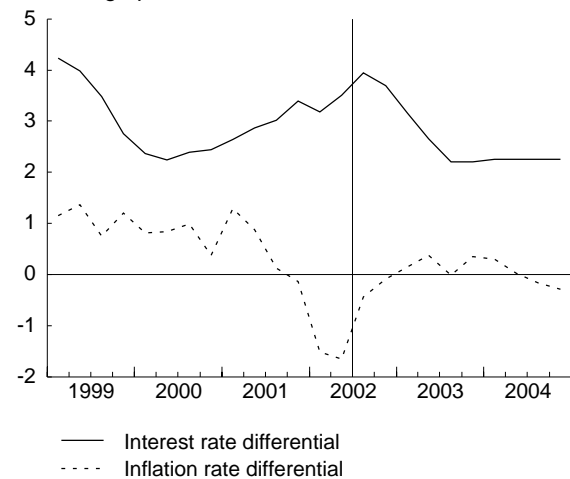
Source: Statistics Norway.

sating to some extent for the reduction in the use of oil revenues. The choice here, however, will depend on the weight given to fiscal expansion versus a less tight monetary policy in the period ahead.

The reduction in the value of the Petroleum Fund thus points to a somewhat tighter fiscal policy in 2003, while the cyclical situation points to the opposite. We have therefore decided to retain approximately the same projections for growth in general government consumption and investment in 2003 as in the June report. With regard to tax policy, the removal of the investment tax this autumn will limit the scope for further changes in direct and indirect taxes in 2003. The cost of the compromise on day-care rates between the opposition parties in the Storting, which in practice will function as a tax reduction, may be roughly estimated at NOK 1 billion in 2003 and will, in isolation, push down consumer price inflation by a tenth of a point in 2003. We have otherwise assumed unchanged real indirect tax rates in 2003, as in the June report.

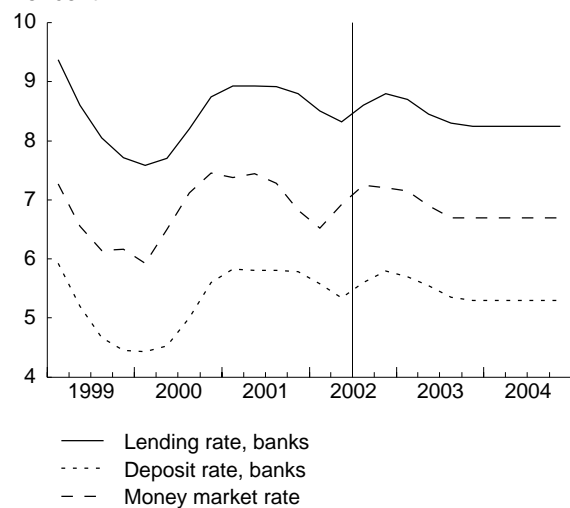
In 2004, general government consumption is projected to expand by 2.6 per cent, with gross investment approximately unchanged compared with 2003. The agreement on expanding day-care coverage and a further reduction in day-care rates are estimated to have a revenue effect amounting to about NOK 3 billion in 2004 and are expected to push down the rise in the CPI by 0.4 per cent. The high estimate of 2.6 per cent for growth in general government consumption reflects a good 0.6 percentage point change in the number of working days, which influences the number of man-hours worked without affecting wage expenditure to any extent. Against the background of the compromise on day-care, we have not assumed further tax reductions in 2004.

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



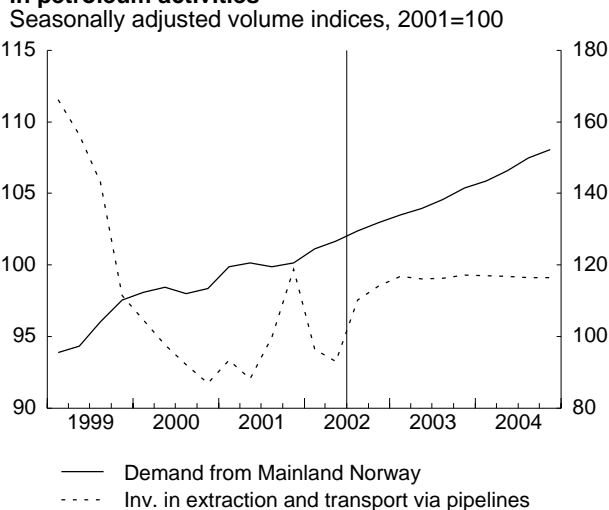
Sources: Norges Bank and Statistics Norway.

Lending rate and deposit rate
Per cent



Sources: Norges Bank.

Demand from Mainland Norway and investment in petroleum activities



Source: Statistics Norway.

Interest rates and the krone exchange rate

In July, Norges Bank raised its key rate by 0.5 percentage point, to 7 per cent. The three-month money market rate stood at about 7.2 per cent on 3 September. The wage settlements of recent years, high interest rates and the strong krone exchange rate have created problems for the internationally exposed manufacturing sector, which in turn has had an effect on sub-suppliers. In isolation, this will contribute to a moderate wage settlement next spring, which may create scope for Norges Bank to reduce its key rate next year. We have assumed that the three-month money market rate will remain at approximately the current level up to the end of the year and then gradually fall to 6.7 per cent up to next summer as it becomes increasingly evident that pressures in the Norwegian economy have subsided. This is in line with expectations in the money market at the beginning of September. We have assumed that money market rates will remain unchanged at this level through the projection period.

The import-weighted krone exchange rate has appreciated by about 10 per cent since the beginning of the year. The krone has appreciated by 8 per cent against the euro in the same period. We project that the strong appreciation will be reversed somewhat and that the krone will depreciate gradually to 7.75 against the euro at the end of 2004. This results in approximately the same path as assumed in the June report, but the krone depreciation takes place at a somewhat later time, so that the import-weighted krone exchange rate as an annual average will appreciate somewhat more sharply this year and next, while the depreciation in 2004 will be a little more pronounced. However, a sharp rise in oil prices, for example as a result of a US attack on Iraq, may contribute to a further appreciation of the krone.

In line with our projections for international developments, we assume that interest rates in the euro area and in the US will remain low in the period to the end of the year and then edge up in the course of 2003 as economic growth picks up. This path implies that the interest rate differential between Norway and our most important trading partners will narrow somewhat next year, which underpins the projection of a depreciation of the krone.

Upward adjustment of petroleum investment projections

Oil production is projected to increase through 2002, but the implemented production cuts in the first half of the year will nevertheless mean that production this year will be a good 2 per cent lower than in 2001. In 2003 and 2004, our projections are based on the assumption of a marginal increase in production in the order of 2-3 per cent annually; according to the last Revised National Budget, oil production will peak in 2004 and decline thereafter. As a result of the start-up of production in several new gas fields this year, gas

production in 2002 will be a good 25 per cent higher than in 2001. Some fields have already come on stream and others are expected to start production this autumn. We assume that annual growth in gas production will rise by a further 6 per cent in the next two years.

Measured in US dollar terms, the oil price has been rising through 2002, and we assume that it will remain at approximately the current level in the last four months of the year, i.e. USD 26, for the remainder of the projection period. The average for 2002 is thereby expected to be USD 25. Measured in krone terms, this means that the oil price will be a little less than NOK 200 in both 2003 and 2004.

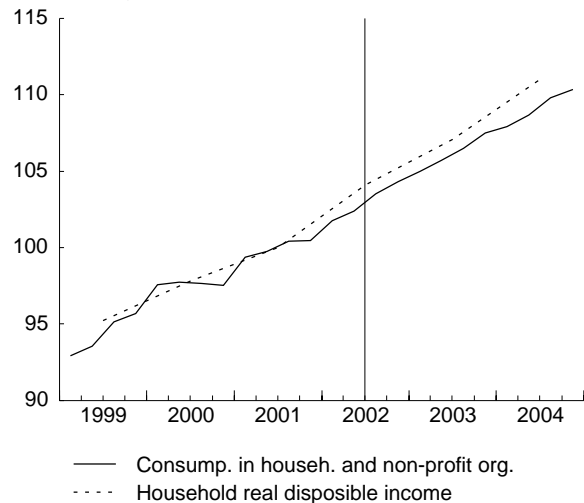
Statistics Norway's investment intentions survey for petroleum activities now shows that investment costs in 2002 are expected to increase by a little more than 3 per cent compared with 2001. It is uncertain what type of price changes form the basis for the estimates, but in keeping with the general tendency of weak price movements we assume that the increase in volume will be the same as the increase in value. Whereas investment in the form of exploration, pipeline transport and the development of new fields is assumed to fall, investment related to existing fields and land-based facilities is expected to expand relatively sharply. The estimates are based on the development of the Snøhvit field even though there are still aspects of the project that are controversial and delays may occur. The land-based facility for the Snøhvit field is an LNG plant, an area in which Norwegian contractors have little expertise. The majority of the contracts for development have therefore so far been awarded to foreign enterprises, which means that the import share of investment relating to this will be very high. In isolation, this points to a lower demand impetus for the Norwegian economy in 2002 than in 2001. However, our projections for investment in existing fields have been revised up to a considerable extent compared with the previous projections published in June, so that the impetus for the Norwegian economy will nevertheless show a slight rise. In 2003, investment is projected to rise by a good 6 per cent and then increase slightly through 2004. Along with investment in land-based facilities, investment in pipeline transport will also pick up through these two years.

Moderate growth in consumption despite strong income growth

Following sluggish growth in household consumption through 2001, with a decline in direct purchases abroad by resident households following the terrorist attacks on the US as an important contributor, consumption growth picked up again at the beginning of 2002 but has not continued at the same pace later in the spring and summer. Taking into account the sharp growth in household real income, the relatively weak rise in household consumption may seem surprising. Several factors, however, may contribute to explaining this.

Income and consumption in households

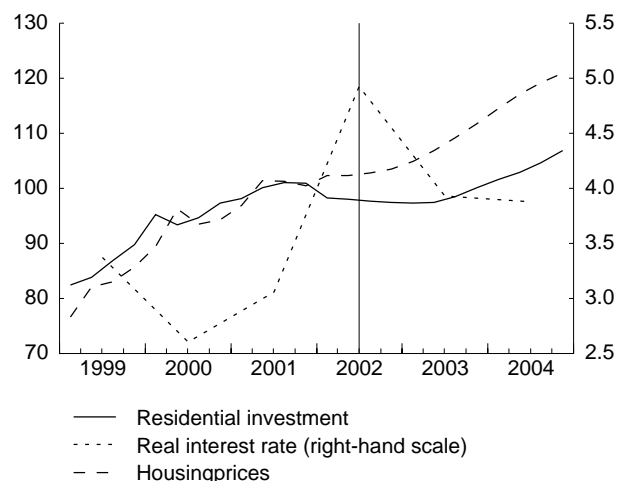
Seasonally adjusted volume indices, 2001=100



Source: Statistics Norway.

Residential investment and housing prices

Seasonally adjusted volume indices, 2001=100

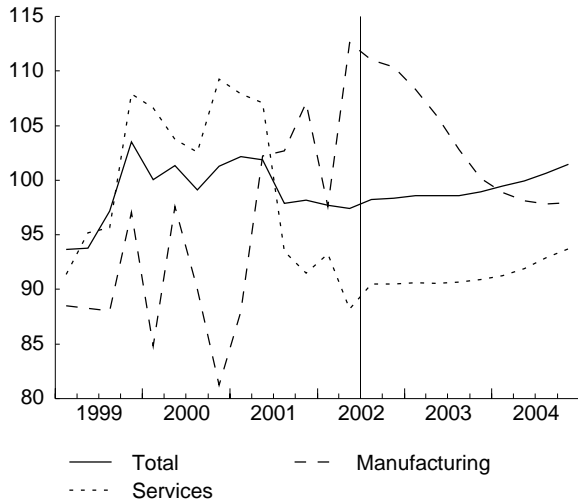


Source: Statistics Norway.

First, growth in household income was not particularly strong in 2001 and the household saving ratio showed little change from 2000 to 2001, according to preliminary national accounts figures. When income growth picks up, it is common to assume that the saving ratio will increase in the short and medium term until households adjust behaviour to what they perceive as a permanently higher income level. Furthermore, the real after-tax interest rate has risen considerably through 2002, partly as a result of the increase in nominal interest rates, but particularly because inflation has fallen. However, nominal interest rates are not very different from the level at the beginning of 2001. Finally, the fall in equity prices has contributed to slower growth in household wealth, which in isolation pushes down consumption growth and pushes up the saving ratio. A simple model-based calculation with the help of Statistics Norway's economic model KVARTS shows that the household sav-

Investment, Mainland Norway

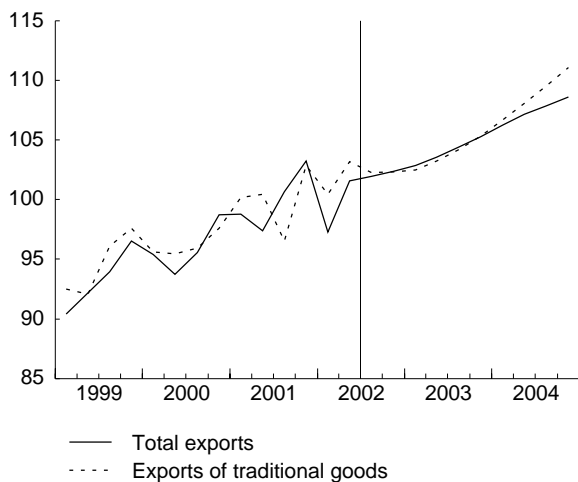
Seasonally adjusted volume indices, 2001=100



Source: Statistics Norway.

Exports

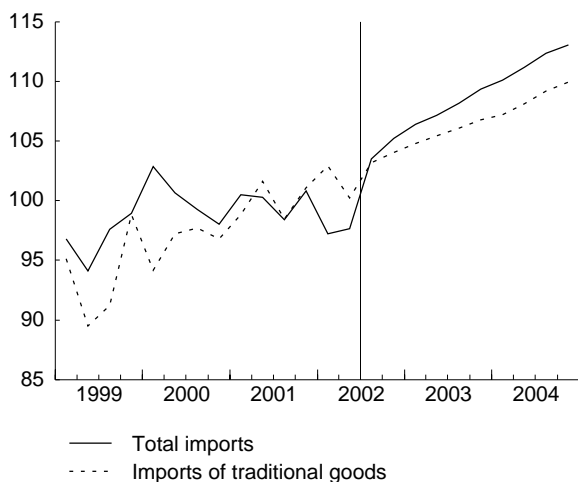
Seasonally adjusted volume indices, 2001=100



Source: Statistics Norway.

Imports

Seasonally adjusted volume indices, 2001=100



Source: Statistics Norway.

ing ratio in 2002 would have been four tenths of a percentage point lower in 2002 with unchanged equity prices from the first half of 2001. Consumption growth in 2002 would have been almost half a percentage point higher than the level now indicated by our forecasts.

Household real disposable income is projected to expand by a good 4 per cent from 2001 to 2002. This is about one percentage point lower than we estimated in the June report, but at that time the revision of national accounts figures had not been incorporated in the model. Our projections for consumption growth are unchanged from the June report and developments in household consumption so far in 2002 do not indicate that growth will be much higher than 3 per cent.

In 2003, growth in household real income will probably be somewhat lower than in 2002 because price inflation will pick up and because wage growth, according to our estimates, will be slightly lower. In addition, our estimates do not point to strong growth in employment next year, and due to demographic factors the number of disability pensioners will not increase to any extent either. As noted in the section on fiscal policy, we have not assumed a reduction in personal taxes in 2003. The assumption that consumption growth in 2003 will nevertheless be on a par with growth in 2002 reflects the expected fall in nominal interest rates through 2003. In real terms the decline will be stronger due to higher inflation than in 2002. Moreover, house prices are projected to edge up in 2003, while they are expected to rise very little through 2002. Finally, we assume – on a very uncertain basis – that the fall in equity prices will come to a halt. All in all, these factors will contribute to a slight decline in the household saving ratio from 2002 to 2003. These factors are also the main explanation for the further decline in the saving ratio in 2004 and the assumption that consumption growth will be fairly steady in the period ahead.

Housing investment peaked about a year ago and has since fallen slightly. As a result of higher interest rates and a slower rise in prices for existing dwellings, housing starts have also edged down. Strong income growth would normally imply slightly brisker growth in housing investment. Moreover, the effect of the high real interest rate on housing investment in 2002 will wane later in 2003. We therefore project that the fall in housing investment will come to a halt in early 2003 and increase thereafter. On an annual basis, however, housing investment in 2003 may be about the same as in 2002, which is now estimated to be about 3 per cent lower than investment in 2001. In 2004, growth through 2003 and thereafter will contribute to relatively high annual growth.

Contraction is reversed to weak growth in mainland business investment

According to revised national accounts figures, mainland fixed investment, excluding general government, appears to have peaked in 2001. In the first half of the year as a whole, gross investment has not been lower for a six-month period since the first half of 1999. It is primarily sheltered private mainland industries that have contributed to the decline in investment, particularly investment in service industries. Compared with the first half of 2001, however, investment in manufacturing has picked up.

This picture is expected to be reversed later this year. Admittedly, manufacturing investment is expected to remain at a high level in 2003, but slightly lower than in 2002. This is partly related to the partial completion of large plants for the production of metals, a factor that is also expected to contribute to a further fall in 2004. Weaker output and profitability trends in general amplify this picture. On the other hand, investment in mainland enterprises, excluding manufacturing, is projected to increase in 2003 and 2004. All in all, the level of investment in mainland enterprises is only expected to rise marginally in 2003 and 2004.

Moderate growth in domestic demand

Total domestic demand exhibited sluggish growth through 2001. According to seasonally adjusted QNA figures, growth picked up in the first quarter of 2002 as a result of the upswing in total consumption, while a decline in petroleum investment had the opposite effect. Weaker consumption growth in the second quarter, however, contributed to slower mainland demand growth. On an annual basis, growth in mainland demand is now projected at 1.9 per cent, approximately on a par with growth in 2001. Growth is also expected to be at about the same level in 2003, but in 2004 a projected increase in investment and somewhat stronger consumption growth will boost mainland demand growth to 3 per cent. If we also include the projected upswing in petroleum investment, total demand growth will be slightly stronger in 2002, 2003 and 2004, but this overestimates the impulses for Norwegian enterprises due to the higher import content of petroleum investment.

Swift fall in export prices curbs the loss of market shares – in the short term

Following a fall in the previous quarter, QNA figures indicate that seasonally adjusted traditional merchandise exports showed renewed growth from the first to second quarter of 2002. Traditional merchandise exports have fluctuated considerably from quarter to quarter over the past year, but if we look at developments since the first half of 2001 as a whole, the average growth rate has been marginally positive. The increase almost in its entirety reflects higher exports of engineering products (excluding ships and plat-

forms) and refined petroleum products. Most of the other product groups, particularly paper and pulp and industrial chemicals, have made a negative contribution to the export performance, particularly over the last six months.

The negative export trend for most product groups must be seen against the background of sluggish market developments internationally, several years of higher wage growth in Norway compared with other countries and the strong appreciation of the krone over the last two years. Whereas higher wage growth pushes up prices for Norwegian goods, a stronger krone pushes down export prices. The latter effect seems to have been strongest during the past year; with the exception of textiles, clothing and footwear, as well as chemical and mineral products, export prices have fallen markedly in this period. With two exceptions, however, the decline has been weaker than the corresponding fall in prices for imported goods, and therefore probably weaker than the decline in prices on international markets, measured in krone terms. In isolation, this may imply that Norwegian enterprises will lose market shares on export markets. (The exceptions noted above apply to products from primary industries with import prices rising through the period, and pulp and paper where export prices have fallen at a noticeably faster pace than the decline in import prices. Developments in these two groups alone contributed to a somewhat sharper fall in export prices for traditional goods than import prices as a whole.)

Despite the fall in traditional merchandise exports, excluding engineering products and refined petroleum products, the strong deterioration in Norwegian enterprises' competitiveness in recent years has not yet fully translated into lower exports. Calculations based on Statistics Norway's macroeconomic models show substantially stronger negative effects on total production of higher wages and a stronger krone in the long term than in the short term. The delayed feed-through applies in particular to deliveries to the export market where the effect is first offset by a relatively sharp fall in export prices, as we have already seen, particularly in the first half of 2002.

In line with this, it is assumed that Norwegian enterprises will continue to lose substantial shares on export markets in coming years, particularly in 2003. While traditional merchandise exports are expected to expand by 1.6 per cent this year, approximately in line with market growth, growth in exports is expected to remain unchanged in 2003 even though international market growth will rise to nearly 8 per cent. In 2004, however, we project that export growth will pick up, particularly for metals where new production capacity that is now being built will be in full operation. We project that exports of engineering products may also rise by a level close to market growth, based on the

Higher exports of engineering products despite deteriorating competitiveness

Higher exports of engineering products (excluding ships and platforms) over the past year may seem surprising in the light of sluggish market growth and because this is relatively labour-intensive production that should be affected by strong wage growth. QNA figures show that in the same period the sector reduced its export prices considerably measured in krone terms, almost as sharply as the decline in prices for imports of engineering products to Norway. Domestic market prices have also been reduced, but to a lesser extent than export and import prices. In the same period, supplies to the domestic market have declined, while imports have risen. A higher share of Norwegian production is thus now being exported while, at the same time, Norwegian enterprises' market share on the domestic market has fallen.

There are considerable methodological difficulties in determining the rise in prices for engineering products; if the fall in prices for the export and import of these products is overestimated, this will in the calculations result in a similar overestimation of the rise in volume. With this reservation, the shift in the market composition for this product group over the past year can be interpreted as being in line with the long-term trend where a higher degree of specialization shifts production in internationally exposed enterprises to increased exports, while imported products win higher market shares domestically. This effect on exports has thus dominated over the effects of stronger cost inflation for Norwegian enterprises compared with their foreign competitors. The shift to exports resulted in an increase in production in the second half of 2001, but did not prevent production from falling slightly in the first half of 2002 when the loss of domestic market shares was considerably amplified.

Market developments for engineering products

Change from previous half-year, seasonally adjusted

	Change in volume		Change in price	
	2001-II	2002-I	2001-II	2002-I
Norwegian production	3.2	-0.3	-1.8	-3.1
- Exports	7.7	4.1	-2.7	-3.6
= Domestic supplies	-2.3	-6.2	-0.4	-1.8
+ Import	0.9	2.4	-3.9	-4.1
= Supplies to the Norwegian market	-0.3	-0.7	-2.7	-3.4

assumption that increased specialization will continue to shift production to export markets (see box).

Lower import prices lead to fall in prices on the domestic market for traditional goods

Prices for Norwegian enterprises' deliveries to the domestic market have also fallen over the past year, but at a noticeably slower pace than import prices. Admittedly, the picture was somewhat mixed in the second half of 2001, but the decline in domestic prices in the first half of 2002 was so pronounced for most groups that the price level for virtually all

Market developments for engineering products

Change from previous half-year, seasonally adjusted

	Change in volume		Change in price	
	2001-II	2002-I	2001-II	2002-I
Norwegian production	0.5	-0.6	-2.8	-3.1
- Exports	-0.6	2.1	-5.6	-4.3
= Domestic supplies	1.3	-2.5	-0.8	-2.3
+ Imports	-0.4	1.5	-5.7	-3.7
= Supplies to the Norwegian market	0.5	-0.5	-3.2	-3.0

groups was then lower than one year earlier. Combined with falling import prices, this resulted in a pronounced decline in prices for total deliveries to the Norwegian market both in the second half of 2001 and first half of this year. The same applies to prices for total Norwegian production for the export and domestic market.

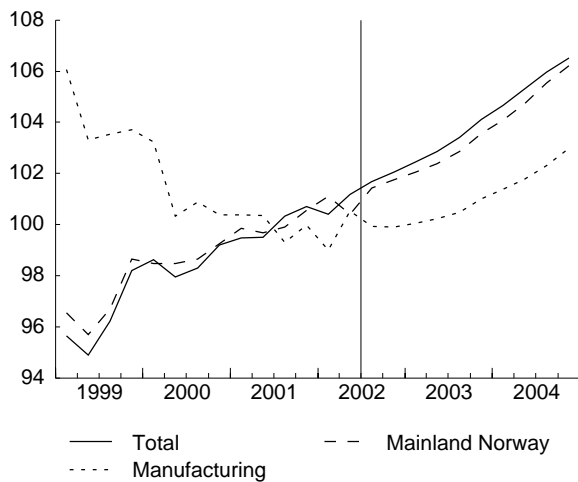
Despite a smaller decline in domestic prices than in import prices for traditional goods, Norwegian enterprises' market shares on the domestic market seem in general to have remained relatively high over the past year. However, since prices on the domestic market are adjusted downwards to a lesser extent than export prices when international prices measured in krone terms fall, the loss of market shares takes place more swiftly here. However, we assume that the loss of market shares on the domestic market will also continue. If the assumption of a depreciation of the krone along with lower wage growth ahead materializes, which means that some of the deterioration in competitiveness enterprises have experienced in recent years is reversed, the trend reduction of market shares on the domestic market in the period ahead is not expected to accelerate. Growth in traditional merchandise imports is thus projected at around 3 per cent in both 2003 and 2004, slightly higher than growth in domestic demand, but still substantially higher than growth in total manufacturing production. Growth in imports of traditional goods is not expected to be higher because, in the calculations, we have recorded a large part of estimated imports for the Snøhvit field as direct imports for petroleum activities, i.e. not as imports of traditional goods.

GDP growth below trend

Total GDP showed close to zero growth through the winter half of 2001/2002 followed by a higher growth rate in the second quarter. The path was to a substantial extent influenced by oil and gas production; the path for mainland Norway was thus the opposite of that for total GDP. Higher growth in exports of traditional goods in the fourth quarter of 2001, combined with higher domestic demand in the first quarter of 2002, contributed to a pick-up in mainland GDP growth, to about 2 per cent measured at an annual rate through the winter half-year. However, as a result

Gross domestic product

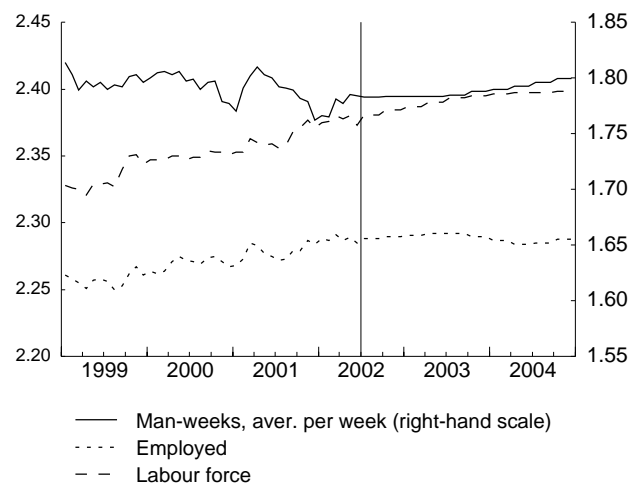
Seasonally adjusted volume indices, 2001=100



Source: Statistics Norway.

Labour force, employment and number of man-weeks

Millions. Seasonally adjusted and smoothed indices.



Source: Statistics Norway.

of a lower rate of growth in domestic demand, the growth rate in the second quarter of 2002 is now estimated to have been negative. The contraction primarily related to service industries, with production in commercial services in particular showing a sharp decline. Here, however, the data in the quarterly national accounts are particularly uncertain.

In both 2002 and 2003, both mainland and total GDP growth are now projected at about 1¼ per cent, i.e. on a par with the growth rates for 2001. This is slightly lower than growth in overall demand on export and domestic markets and reflects a loss of market shares for Norwegian enterprises on both markets. The higher growth in both domestic demand and exports in 2004, along with higher oil production, thereafter contributes to a pick-up in production growth to a good 2½ per cent. Both manufacturing and other mainland enterprises will be facing higher demand. Some of the projected rise in production, however, reflects an increase in the number of working days (3 more working days compared with 2003), a factor that boosts production capacity on an annual basis. Adjusted for this, mainland GDP is set to grow more slowly than estimated trend growth in the Norwegian economy in 2002, 2003 and 2004, as has been the case in each year since 1998.

Rising unemployment ahead

Figures from the Directorate of Labour show that at end-July 2002 about 80 000 were registered as unemployed, or 3.2 per cent of the labour force on a seasonally adjusted basis. This is an increase from 2.6 per cent in the same month one year earlier, with a relatively steady rise over the past 12 months. Statistics Norway's Labour Force Survey (LFS), on the other hand, shows approximately unchanged unemployment the past year. Seasonally adjusted LFS figures for June 2002 showed that 88 000 were unemployed,

or 3.7 per cent of the labour force, compared with 3.6 per cent unemployment in June 2001. However, measured from the previous trough in unemployment in September 1998, both registered unemployment and LFS unemployment rose by 0.9 percentage point.

The turnaround in the labour market is normally reflected more quickly in the Directorate of Labour's figures on the number of new vacancies than in unemployment. According to the Directorate of Labour, the seasonally adjusted number of vacancies advertised in the media fell from 36 000 in July 2001 to 27 000 in July 2002. In 2000, the average number of vacancies advertised each month came to 50 000. The decline in the number of vacancies is evenly distributed across most occupational groups, but measured from the same time one year earlier the decline has been most pronounced in industrial work and health care, with a fall of 46 and 43 per cent respectively. These groups have also recorded the sharpest decline in absolute terms. Figures from the Norwegian Media Businesses' Association, which maintains that its figures on the number of "vacancy" advertisements have often proved to be a swift and reliable indication of a turnaround in the economy, show the same tendency. In the first half of 2002, "vacancy" advertisements fell by 33.4 per cent in relation to the same period one year earlier.

If we look at both the number of vacancies and unemployment as a whole – as a common measure of the tightness of the labour market – the labour market situation has shown the greatest deterioration for employees in scientific occupations, the humanities and administrative work. The labour market is also considerably less tight now for occupational groups that experienced the strongest labour market pressures in 2001, such as education and the health care sector.

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	MoF	NB
Demand and output									
Consumption in households and non-profit organizations	2,5	2.9	3.5	4 1/4	2.8	3.5	4	3.5	3 1/2
General government consumption	2.0	2.5	1.5	1 1/2	1.6	0.8	3/4	2.6	2
Gross fixed investment ¹	-4.6	-0.1	0.5	1/2	2.5	2.6	4	1.6	0
Extraction and transport via pipelines ²	7.2	3.2	1.0	0	6.3	10.4	15	1.2	-5
Mainland Norway	-0.3	-1.9	0.0	1/4	0.3	0.4	1	1.8	1 3/4
Firms	-1.3	-4.0	-1.9	-3	0.5	-0.1	1 1/2	0.7	1 1/4
Housing	5.1	-2.7	-0.5	4	-0.2	4.7	2 3/4	5.9	2 1/4
General government	-4.3	5.2	6.7	6 3/4	0.2	-2.1	-2	-0.5	2
Demand from Mainland Norway ³	1.8	1.9	2.4	3	2.0	2.3	2 3/4	3	3
Stockbuilding ⁴	-0.8	-0.3	-0.1	..	0.0	0.0	..	0	..
Exports	4.2	1.0	2.0	1 1/2	2.2	3.1	1 3/4	3.5	1 1/4
Crude oil and natural gas	5.2	2.9	2.9	3	2.9	2.4	2 1/2	4	3/4
Traditional goods	4.0	1.6	1.6	0	1.6	3.9	1	4.9	1
Imports	0.0	1.8	2.7	3	4.9	3.8	4 1/2	4.2	2
Traditional goods	4.0	2.4	3.2	3	3.0	4.4	4 1/2	3.2	2
Gross domestic product	1.4	1.3	2.0	2 1/4	1.5	2.5	2 1/4	2.6	2 1/4
Mainland Norway	1.2	1.2	1.8	2	1.3	2.2	2 1/4	2.7	2 1/2
Labour market									
Employed persons	0.5	0.1	0.6	1/2	0.3	0.5	1/4	-0.4	1/2
Unemployment rate (level)	3.6	3.9	3.6	3 3/4	4.2	3.5	4	4.8	4
Prices and wages									
Wages per standard man-year	5.0	5.2	5 1/4	5 3/4	4.6	..	5 3/4	4.4	5 3/4
Consumer price index (CPI)	3.0	1.2	1,4	1	2.1	..	2 1/4	2	2 3/4
CPI adjusted for tax changes and excluding energy products (CPI-ATE)	2.6	2.4	..	2 1/4	2.1	..	2 1/4	2.1	2 3/4
Export prices, traditional goods	-3.1	-8.9	..	-8 1/2	1.6	..	-2 1/2	2.5	2 1/2
Import prices, traditional goods	0.4	-6.8	..	..	0.0	..	..	2.4	..
Housing prices	7.2	2.3	..	7 1/2	5.3	..	5 1/2	9.4	5 1/2
Balance of payment									
Current balance (bill. NOK)	233.4	221.3	188.6	190	215.4	179.7	165	224.2	140
Current balance (per cent of GDP)	15.4	14.6	..	12	13.8	..	11	13.6	9
Memorandum items:									
Household saving ratio (level)	4.6	6.1	8,6	5	5.8	8.1	5	6.1	5
Money market rate (level) ⁵	7.2	7.0	6,8	..	6.9	6.9	..	6.7	..
Lending rate, banks (level) ⁶	8.8	8.6	..	..	8.4	..	..	8.3	..
Crude oil price NOK (level) ⁷	220.1	195.5	200	..	195.3	182.0	..	197.5	..
Export markets indicator	0.3	1.9	..	..	7.6	..	..	7.1	..
Importweighted krone exchange rate (44 countries) ^{5,8}	-3.1	-7.5	..	-6.5	-0.5	..	-1.1	1.7	0

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

Sources: Statistics Norway (SN), Ministry of Finance, St.meld. nr 2, 2002 (MoF), Norges Bank, Inflasjonsrapport 3/2002 (NB).

As a result of higher wage growth than among our trading partners, a strong krone exchange rate and high interest rates, unemployment will continue to rise through 2003 and 2004. Manufacturing industry's cost competitiveness has been eroded because the rise in hourly labour costs has on average been 2.1 percentage points higher than among our trading partners in the period 1997-2001. This has particularly affected manufacturing enterprises where labour costs

account for a fairly high share of total costs, such as in the production of engineering products and in the production of intermediate goods and capital goods. Employment in these two industries accounts for as much as 57 per cent of total manufacturing employment.

At the same time, the earnings base of manufacturing enterprises has deteriorated sharply because the im-

Continued solidarity in wage settlements

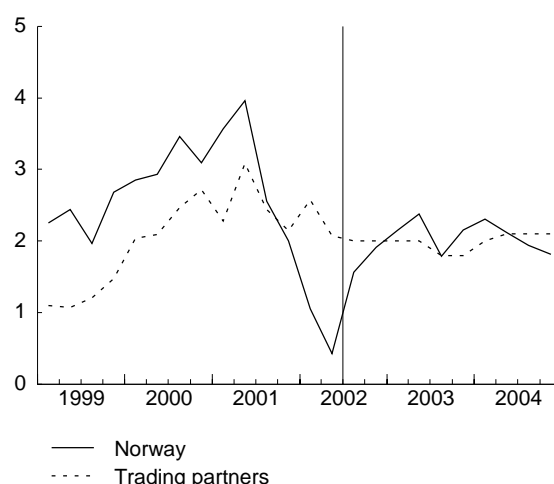
No formal changes of significance have taken place in wage determination that would imply a departure from how wage determination has functioned historically. The settlement sequence and formal institutions are the same as they were earlier. However, other changes have taken place that may have contributed to giving some trade unions increased bargaining power in recent years. In addition, for a longer period there has been an increasing barrier to the use of compulsory arbitration. New amalgamations of unions have also been established in recent years, such as the Federation of Norwegian Professional Associations and the Confederation of Higher Education Unions. Most of these unions' members have a higher education and work in traditional sheltered industries. Some of the unions with this type of member have advocated a greater degree of local negotiations in line with employers' stated objectives. The experience of other countries may indicate that total wage growth will be higher if a higher portion of wage growth is determined locally.

Another aspect that must be evaluated when considering the possibilities for a continuation of the Norwegian system for wage determination is to what extent manufacturing in the future can remain a wage leader. The settlement in 2002 may indicate that employees in the public sector did not to any extent follow the norm set by manufacturing that year. Through the discussions in the Holden Commission in 2000 and the Stabel Commission in 2001, however, it became evident that a precondition for a continuation of incomes policy cooperation and the Norwegian model for wage determination was that the trend through the 1990s, with lower wage growth in the public sector than in manufacturing, had to be broken. These groups had gained acceptance for their demand that in the future they should be ensured a rise in pay that was on a par with that of the private sector. The Technical Reporting Committee on Income Settlements estimates that wage growth from 1991 to 2001 was 3.4 per cent lower in the public sector compared with member companies in the Confederation of Norwegian Business and Industry. For central government employees with a higher education, pay increases were even less favourable than for employees with a higher education in private companies. Moreover, the settlement for public sector employees, and especially for local government employees, resulted in small pay increases in 2001. There seems to be agreement that the settlement in 2002 had to compensate for this. In other words, it does not appear that the high pay increases for public sector employees in 2002 were due to a separation of wage determination in these sectors from the settlement in manufacturing, but rather an indication of a greater degree of coordination between the parties. The settlement in 2002 and the parties' understanding of the need to prevent systematic pay lags for some groups may pave the way for stronger incomes policy cooperation in the next main settlement in 2004.

port-weighted krone exchange rate has appreciated by about 15 per cent since mid-2000. In addition to further exacerbating the situation for labour-intensive manufacturing, export firms with relatively few employees are also being adversely affected. These firms

Consumer price indices

Percentage growth from the same quarter previous year



Sources: Statistics Norway and Norges Bank.

have little labour to give to expanding service industries, but nevertheless account for a substantial share of total exports from the mainland economy.

As a result of the problems facing Norwegian manufacturing and the spillover effects through sub-suppliers, along with the fact that high interest rates are curbing growth in private consumption and housing investment, unemployment, as measured by Statistics Norway's Labour Force Survey, is now projected to rise to 4.2 per cent as an average for next year, moving up to 4.8 per cent in 2004, compared with 3.9 per cent this year.

It is particularly manufacturing employment that is declining. The number of employees in private services will probably show little change in coming years. In isolation, rising unemployment will reduce labour force participation; in 2002, the trend since the beginning of the 1990s, with increasing participation rates, will thus be broken. Demographic factors imply, however, that growth in the labour force will continue, albeit at a weaker pace than in earlier years.

Wage growth lower than among trading partners

Even though the labour market appears to be less tight than in a very long time, the pay increases awarded in the wage settlement in 2002 were high, particularly in the public sector. This may indicate a departure from the long-standing tradition of wage moderation during periods of contraction and with manufacturing as wage leader for ensuring wage growth on a par with that of our trading partners. We have assumed, however, that the wage settlement in 2002 was unusual and that the labour market organizations will resume this tradition in the future.

It is only during downturns with high unemployment that the system for wage determination has ensured

wage growth below that of our trading partners. Whereas wage growth in Norwegian manufacturing was well below that of our trading partners from 1989 to 1994, a period when LFS unemployment was more than 4 per cent, the rise in labour costs was substantially higher than among trading partners in the years 1982-1988 and 1997-2000, when unemployment was less than 4 per cent. It is therefore likely that the high wage growth recorded since 1997 is in accord with how Norwegian wage determination functions during periods of expansion. An increase in unemployment in line with our projections will, in the same way, probably have a dampening effect on wage growth in the period ahead. The figures reported from local negotiations for groups covered by the Federation of Norwegian Manufacturing Industries, which were conducted after the centralized settlements were completed, indicate that wage drift may be edging down. Moreover, the pay increases also appear to have been lower the later in the year these negotiations have taken place.

For the economy as a whole, wage growth is projected at 5.2 per cent from 2001 to 2002, which implies lower wage drift than has been observed in recent years. It is assumed that rising unemployment and the problems facing Norwegian manufacturing will bring total wage growth down in 2003 and 2004 to 4.6 and 4.4 per cent respectively. The high carry-over into 2003 may result in low pay increases, and thereby a low carry-over into 2004. On the other hand, the wage settlement in 2004 will be a main settlement, which traditionally has resulted in higher pay increases.

Strong krone and lower wage growth will result in moderate inflation ahead

Changes in indirect taxes and movements in the electricity price have contributed to considerable changes in the rate of inflation over the past few years. The year-on-year rise in the consumer price index (CPI) was thus as high as 4.3 per cent in May 2001, but down to only 0.4 per cent in May and June 2002 before rising to 1.6 per cent in July. Recent developments largely reflect the direct effect of changes in indirect taxes on 1 July last year. When energy products and the direct effects of real tax changes (CPI-ATE) are excluded, the rate of inflation has remained fairly stable at about, or slightly higher than, 2.5 per cent over the two years for which statistics are available.

In July, there were considerable differences in year-on-year price increases across the main groups in the consumer price index. For five of the groups, the rate of increase was below 1.5 per cent and for two of these the price level was lower than it was 12 months earlier. Three of the groups showed a rise in prices of more than 3.5 per cent, so that only five of the twelve groups recorded a rise in prices in the interval 1.5 to 3.5 per cent. Higher house rents have made the

largest single contribution to the increase in consumer prices in the past 12 months. Estimated and paid house rents have risen by 6.0 and 5.2 per cent respectively. Food, insurance premiums, restaurant services, prices for services related to maintenance and repairs of dwellings as well as various health services have also pushed up the average considerably. Clothing and footwear are at the other end of the scale where prices fell by as much as 5.8 per cent from July 2001 to July 2002. The appreciation of the krone may have played a role here.

By excluding energy products and disregarding indirect tax changes, price developments will largely be determined by developments in fundamental factors, such as unit labour costs, exchange rates and prices on the world market. In the past few years, the rise in unit labour costs in the mainland-based business sector (excluding electricity) has been very stable at about 3.5 per cent. The fact that inflation at the same time has been clearly lower, about 2.5 per cent, is partly related to the generally very moderate rise in import prices and, more recently, the relatively pronounced decline. This is not peculiar to Norway, but is largely an indication that prices for services have generally risen more than prices for goods. However, there are also a number of other factors that influence inflation. Higher interest rates contribute for example (when we disregard the effects on the krone exchange rate) to higher prices in the short and medium term, particularly through changes in house rents, which have recently generated the strongest impetus to the CPI. Another factor that influences inflation is payments made by insurance companies. These costs are quickly passed on to premiums. The recent increase in the volume of damages claims has thus contributed to a higher rise in the consumer price index.

The strong appreciation of the krone has provided a potential for a substantial decline in Norwegian consumer prices. Imports are equivalent to a third of GDP and are estimated to account for a similar share of household consumption. In addition to having an effect through reduced import prices, the exchange rate has the effect of reducing prices for Norwegian-produced goods which to a greater or lesser extent shadow prices on the world market. According to our models, the short-term effect should be stronger than we have observed so far. Several factors indicate a substantial delay of these effects. A delay in the feed-through from the exchange rate to import prices is one such factor, but the sharp fall in import prices so far in 2002 indicates that this is not so important. On the other hand, it is likely that margins in retail trade have increased in the short term to a greater extent than indicated by our models. Other factors may be the costs of hedging importers' contracts against exchange rate changes. To the extent the krone appreciation has not fully translated into reduced domestic prices, it is likely that this will occur in the period

ahead provided it is not countered by a depreciation of the krone. In the very long term, it must be expected that an exchange rate change will fully feed through to all factor input prices, including labour. This will, however, take a long time, and a strong krone may thereby have a dampening effect on inflation for a long period.

The increase in the number of vacation days in 2001 and 2002 has been an important reason why cost inflation has remained at a high level these years. In the period ahead, the rise in unit labour costs is expected to slow somewhat. In spite of the assumption of a moderate depreciation of the krone, the appreciation we have seen is expected to contribute to a slower rise in prices for some time in the future. Increased competitiveness in the aviation industry may point to the same. Electricity prices are expected to push up the year-on-year rise in the CPI towards the end of this year as a result of the very abnormal price movements through 2001. Based on prices in the futures market, electricity prices are not expected to generate a strong inflationary impetus in coming years. However, this can naturally change quickly as a result of weather conditions.

After showing some increase through the remainder of the year, inflation is projected to be relatively stable at around 2.0 per cent through 2003. The delayed effects of the krone appreciation will push down price inflation for a period, while the projected moderate depreciation of the krone will have the opposite effect. Lower growth in labour costs will, in isolation, contribute to reducing the rate of inflation. The direct, short-term effect of the projected decline in interest rates also points to the same to some extent. In 2004, the krone appreciation we have seen will be more remote which, combined with the subsequent depreciation, points to higher inflation. A further slowing of the rise in labour costs and the reduction in day-care rates imply that the rise in the consumer price index – also measured by CPI-ATE – may be approximately the same as in the previous year.

The current account – stable, large surpluses

The current account surplus came to NOK 115 billion in the first half of 2002. Both export and import prices fell sharply from 2001 to 2002, primarily as a result of the krone appreciation, although it is estimated that the decline in export prices was stronger than the fall in import prices. This is normal for the Norwegian economy during an international downturn. In the first eight months of 2002, the oil price was about 11 per cent lower than in the same period in 2001. Higher production of natural gas will contribute to boosting export earnings, but lower crude oil production will contribute to a lower surplus on the balance of goods and services. At the same time, the interest and transfers balance has so far this year been substantially smaller than in the same period in 2001. All in all,

we estimate that the current account surplus in 2002 will be slightly lower than last year.

In 2003, an estimated further terms-of-trade loss is projected to reduce the current account surplus. Somewhat stronger growth in the volume of imports compared with export volumes points to the same. The interest and transfers balance, on the other hand, is expected to improve further in step with the rise in net foreign assets. All in all, the current account surplus is estimated at NOK 215 billion next year. As a result of stronger export growth in 2004 along with a further improvement in the interest and transfers balance, the current account surplus is projected to show a small increase again in 2004, which means that the surplus will fluctuate around NOK 220 billion each year throughout the forecast period.

National accounts: Final expenditure and gross domestic product

At fixed 1999 prices. Million kroner

	Unadjusted		Seasonally adjusted							
	200	2001	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2
Final consumption exp. of housh. and NPISHs	604 894	619 828	151 305	151 067	153 967	154 512	155 569	155 627	157 646	158 619
Household final consumption expenditure	579 806	594 720	145 093	144 797	147 595	148 194	149 273	149 499	151 206	152 300
Goods	323 787	331 261	80 535	80 396	82 378	82 082	82 271	84 401	85 422	85 234
Services	247 270	254 712	62 476	61 954	62 809	63 813	64 723	63 394	63 921	64 603
Direct purchases abroad by resident househ.	26 089	26 065	6 527	6 520	6 658	6 561	6 656	6 107	6 018	6 888
Direct purchases by non-residents	-17 340	-17 317	-4 445	-4 074	-4 250	-4 262	-4 377	-4 403	-4 155	-4 426
Final consumption exp. of NPISHs	25 088	25 108	6 211	6 271	6 371	6 318	6 296	6 128	6 440	6 319
Final consump. exp. of general government	266 777	272 176	66 688	66 792	67 614	67 917	68 053	68 608	69 511	70 182
Final consump. exp. of central government	105 948	107 664	26 338	26 376	26 950	26 872	26 759	27 089	37 125	37 334
Central government, civilian	81 256	83 875	20 216	20 304	20 948	20 949	20 891	21 098	31 222	31 312
Central government, defence	24 692	23 789	6 122	6 072	6 002	5 923	5 868	5 991	5 903	6 022
Final consump. exp. of local government	160 829	164 513	40 350	40 416	40 664	41 045	41 294	41 519	32 386	32 848
Gross fixed capital formation	267 774	255 527	62 864	61 987	65 134	62 358	60 386	61 830	59 660	61 054
Extraction and transport via pipelines	47 929	51 362	10 511	9 905	10 642	10 054	11 383	13 539	10 995	10 603
Service activities incidental to extraction	6 573	-897	476	470	253	1 034	295	-2 479	94	177
Ocean transport	16 298	8 672	3 226	1 917	4 112	1 283	679	2 597	611	2 458
Mainland Norway	196 974	196 390	48 650	49 695	50 127	49 986	48 029	48 174	47 960	47 816
Mainland Norway ex. general government	158 114	159 189	38 998	39 864	40 330	40 993	38 927	38 790	38 130	38 297
Manufacturing and mining	19 620	22 457	5 026	4 535	4 912	5 708	5 732	5 979	5 450	6 286
Production of other goods	15 832	15 601	3 882	3 727	3 954	3 716	3 915	3 904	3 791	4 059
Dwellings	47 830	50 288	11 892	12 224	12 322	12 572	12 697	12 677	12 349	12 310
Other services	74 832	70 842	18 199	19 378	19 142	18 997	16 582	16 229	16 540	15 641
General government	38 860	37 201	9 652	9 831	9 797	8 993	9 102	9 384	9 830	9 519
Changes in stocks and stat. discrepancies	29 300	18 583	10 352	8 956	5 405	9 006	6 287	4 488	6 937	1 212
Gross capital formation	297 074	274 110	73 215	70 943	70 539	71 364	66 674	66 319	66 597	62 266
Final domestic use of goods and services	1168745	1166114	291 207	288 802	292 120	293 793	290 296	290 553	293 753	291 067
Final demand from Mainland Norway	1068645	1088395	266 642	267 554	271 707	272 416	271 651	272 408	275 117	276 617
Final demand from general government	305 637	309 377	76 339	76 623	77 411	76 910	77 155	77 991	79 341	79 701
Total exports	500 366	521 299	124 570	128 685	128 713	126 952	131 162	134 528	126 775	132 394
Traditional goods	188 774	196 328	47 079	47 897	49 171	49 312	47 377	50 473	49 306	50 642
Crude oil and natural gas	169 668	178 502	42 795	42 782	44 043	42 029	46 463	45 959	42 353	47 210
Ships and oil platforms	8 892	14 178	3 068	2 892	2 399	2 864	3 867	5 049	3 026	1 665
Services	133 032	132 291	31 628	35 114	33 100	32 747	33 455	33 047	32 090	32 877
Total use of goods and services	1669111	1687413	415 777	417 487	420 833	420 745	421 458	425 081	420 529	423 461
Total imports	406 472	406 535	100 808	99 598	102 089	101 861	99 981	102 405	98 775	99 225
Traditional goods	260 826	271 200	66 218	65 589	67 000	68 876	66 715	68 509	69 734	67 922
Crude oil	1 009	1 034	409	408	233	224	194	382	103	132
Ships and oil platforms	22 592	12 112	4 566	2 384	3 907	1 753	2 928	3 524	668	1 409
Services	122 045	122 188	29 615	31 217	30 949	31 008	30 143	29 990	28 270	29 762
Gross domestic product	1262638	1280878	314 969	317 889	318 743	318 885	321 478	322 676	321 754	324 236
Mainland Norway (market prices)	1055393	1068415	263 738	265 359	266 934	266 502	267 057	268 829	270 300	268 437
Petroleum activities and ocean transport	207 245	212 464	51 231	52 530	51 810	52 383	54 420	53 847	51 454	55 799
Mainland Norway (basic prices)	915 769	930 088	229 089	230 343	232 069	231 709	232 355	234 430	235 890	234 225
Mainland Norway ex. general government	711 897	723 906	178 100	179 137	180 617	180 251	180 758	182 554	184 023	182 279
Manufacturing and mining	134 200	132 701	33 460	33 293	33 289	33 278	32 932	33 159	32 835	33 341
Production of other goods	102 805	98 808	25 928	25 071	25 170	24 223	23 891	25 056	24 767	24 854
Service industries	474 893	492 397	118 711	120 772	122 158	122 750	123 936	124 340	126 421	124 084
General government	203 871	206 182	50 989	51 206	51 452	51 457	51 597	51 876	51 867	51 946
Correction items	139 624	138 326	34 649	35 016	34 865	34 793	34 702	34 399	34 410	34 212

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	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2
Final consumption exp. of housh. and NPISHs	3.5	2.5	-0.1	-0.2	1.9	0.4	0.7	0	1.3	0.6
Household final consumption expenditure	3.6	2.6	-0.1	-0.2	1.9	0.4	0.7	0.2	1.1	0.7
Goods	3.3	2.3	-0.9	-0.2	2.5	-0.4	0.2	2.6	1.2	-0.2
Services	3.5	3.0	1.0	-0.8	1.4	1.6	1.4	-2.1	0.8	1.1
Direct purchases abroad by resident househ.	0.7	-0.1	1.5	-0.1	2.1	-1.4	1.4	-8.2	-1.5	14.5
Direct purchases by non-residents	-7.6	-0.1	2.1	-8.3	4.3	0.3	2.7	0.6	-5.6	6.5
Final consumption exp. of NPISHs	1.2	0.1	-0.1	1.0	1.6	-0.8	-0.4	-2.7	5.1	-1.9
Final consump. exp. of general government	1.2	2	0	0.2	1.2	0.4	0.2	0.8	1.3	1.0
Final consump. exp. of central government	0.5	1.6	-0.8	0.1	2.2	-0.3	-0.4	1.2	37	0.6
Central government, civilian	3.2	3.2	-0.5	0.4	3.2	0.0	-0.3	1	48	0.3
Central government, defence	-7.4	-3.7	-1.8	-0.8	-1.2	-1.3	-0.9	2.1	-1.5	2.0
Final consump. exp. of local government	1.6	2.3	0.6	0.2	0.6	0.9	0.6	0.5	-22	1.4
Gross fixed capital formation	-1.5	-4.6	-6.2	-1.4	5.1	-4.3	-3.2	2.4	-3.5	2.3
Extraction and transport via pipelines	-31.6	7.2	-5.6	-5.8	7.4	-5.5	13.2	18.9	-18.8	-3.6
Service activities incidental to extraction	..	..	..	..	..	..	..	..	..	..
Ocean transport	23.8	-46.8	-43.2	-40.6	114.5	-68.8	-47.1	282.2	-76.5	302.3
Mainland Norway	3.4	-0.3	-2.2	2.1	0.9	-0.3	-3.9	0.3	-0.4	-0.3
Mainland Norway ex. general government	6.7	0.7	-1.9	2.2	1.2	1.6	-5	-0.4	-1.7	0.4
Manufacturing and mining	-3.4	14.5	-7.8	-9.8	8.3	16.2	0.4	4.3	-8.9	15.3
Production of other goods	1.0	-1.5	-6.8	-4.0	6.1	-6.0	5.4	-0.3	-2.9	7.1
Dwellings	11	5.1	1.4	2.8	0.8	2.0	1.0	-0.2	-2.6	-0.3
Other services	8.3	-5.3	-1.1	6.5	-1.2	-0.8	-12.7	-2.1	1.9	-5.4
General government	-8.1	-4.3	-3.4	1.9	-0.3	-8.2	1.2	3.1	4.8	-3.2
Changes in stocks and stat. discrepancies	41.3	-36.6	18.3	-13.5	-39.6	66.6	-30.2	-28.6	54.6	-82.5
Gross capital formation	1.5	-7.7	-3.4	-3.1	-0.6	1.2	-6.6	-0.5	0.4	-6.5
Final domestic use of goods and services	2.5	-0.2	-0.9	-0.8	1.1	0.6	-1.2	0.1	1.1	-0.9
Final demand from Mainland Norway	2.9	1.8	-0.4	0.3	1.6	0.3	-0.3	0.3	1	0.5
Final demand from general government	-0.1	1.2	-0.4	0.4	1.0	-0.6	0.3	1.1	1.7	0.5
Total exports	2.9	4.2	1.9	3.3	0	-1.4	3.3	2.6	-5.8	4.4
Traditional goods	1.7	4	0.5	1.7	2.7	0.3	-3.9	6.5	-2.3	2.7
Crude oil and natural gas	6.6	5.2	3.4	0	2.9	-4.6	10.5	-1.1	-7.8	11.5
Ships and oil platforms	-38.9	59.4	95	-5.7	-17.1	19.4	35	30.6	-40.1	-45
Services	4.9	-0.6	-2.3	11	-5.7	-1.1	2.2	-1.2	-2.9	2.5
Total use of goods and services	2.6	1.1	-0.1	0.4	0.8	0	0.2	0.9	-1.1	0.7
Total imports	3.2	0	-1.4	-1.2	2.5	-0.2	-1.8	2.4	-3.5	0.5
Traditional goods	2.6	4	0.5	-0.9	2.2	2.8	-3.1	2.7	1.8	-2.6
Crude oil	-51.4	2.5	702	-0.2	-42.8	-3.8	-13.7	97.4	-73.1	28.3
Ships and oil platforms	13	-46.4	-23.2	-47.8	63.9	-55.1	67.1	20.4	-81	110.8
Services	3.9	0.1	-2.5	5.4	-0.9	0.2	-2.8	-0.5	-5.7	5.3
Gross domestic product	2.4	1.4	0.4	0.9	0.3	0	0.8	0.4	-0.3	0.8
Mainland Norway (market prices)	1.9	1.2	0.2	0.6	0.6	-0.2	0.2	0.7	0.5	-0.7
Petroleum activities and ocean transport	4.9	2.5	1.3	2.5	-1.4	1.1	3.9	-1.1	-4.4	8.4
Mainland Norway (basic prices)	2.0	1.6	0.4	0.5	0.7	-0.2	0.3	0.9	0.6	-0.7
Mainland Norway ex. general government	2.4	1.7	0.5	0.6	0.8	-0.2	0.3	1	0.8	-0.9
Manufacturing and mining	-2.9	-1.1	0.6	-0.5	0	0	-1	0.7	-1	1.5
Production of other goods	5.0	-3.9	-1	-3.3	0.4	-3.8	-1.4	4.9	-1.2	0.4
Service industries	3.5	3.7	0.7	1.7	1.1	0.5	1	0.3	1.7	-1.8
General government	0.5	1.1	0.3	0.4	0.5	0	0.3	0.5	0	0.2
Correction items	1.4	-0.9	-1.5	1.1	-0.4	-0.2	-0.3	-0.9	0	-0.6

Source: Statistics Norway.

National accounts: Final expenditure and gross domestic product

Seasonally adjusted. Price indices. 1999=100

	Unadjusted		Seasonally adjusted							
	2000	2001	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2
Final consumption exp. of households and NPISHs	103.3	105.1	104.2	105.2	104.7	105.8	104.8	105.6	105.5	105.3
Final consumption exp. of general government	105.0	112.5	105.9	107.9	110.1	111.6	113.1	115.5	113.9	115.7
Gross fixed capital formation	105.9	109.6	107.0	107.8	109.9	110.5	110.0	107.7	108.7	107.4
Mainland Norway	104.4	107.6	105.1	105.4	108.6	108.0	107.7	106.2	107.7	106.5
Final domestic use of goods and services	104.3	107.5	104.5	105.9	107.2	108.1	106.2	108.9	107.9	108.4
Final demand from Mainland Norway	103.9	107.4	104.8	105.9	106.8	107.7	107.4	108.2	108.0	108.1
Total exports	137.2	134.1	141.4	145.7	141.9	142.0	133.0	120.7	125.7	126.2
Traditional goods	113.5	110.0	115.0	117.1	113.0	113.0	108.1	105.2	103.3	100.9
Total use of goods and services	114.1	115.7	115.6	118.2	117.8	118.3	114.6	112.6	113.3	113.9
Total imports	108.2	108.7	109.3	111.2	112.2	110.2	107.0	105.8	104.2	102.4
Traditional goods	104.8	105.2	105.0	106.9	109.5	107.0	103.2	101.7	99.2	97.8
Gross domestic product	116.0	118.0	117.6	120.4	119.6	120.9	116.9	114.8	116.1	117.5
Mainland Norway (market prices)	104.4	107.8	104.8	106.0	106.7	108.2	107.0	109.5	108.7	110.4

Source: Statistics Norway.

National accounts: Final expenditure and gross domestic product

Seasonally adjusted. Price indices. Percentage volume change from previous period

	Unadjusted		Seasonally adjusted							
	2000	2001	00.3	00.4	01.1	01.2	01.3	01.4	02.1	02.2
Final consumption exp. of households and NPISHs	3.3	1.8	1.2	1.0	-0.5	1.1	-0.9	0.8	-0.1	-0.2
Final consumption exp. of general government	5.0	7.1	1.4	1.9	2.0	1.4	1.3	2.1	-1.3	1.5
Gross fixed capital formation	5.9	3.5	1.6	0.7	1.9	0.6	-0.4	-2.1	1.0	-1.2
Mainland Norway	4.4	3.1	0.8	0.3	3.1	-0.5	-0.4	-1.4	1.4	-1.1
Final domestic use of goods and services	4.3	3.1	0.2	1.3	1.2	0.9	-1.7	2.5	-0.9	0.4
Final demand from Mainland Norway	3.9	3.4	1.2	1.1	0.8	0.8	-0.3	0.8	-0.2	0.1
Total exports	37.2	-2.3	5.7	3.0	-2.6	0.1	-6.4	-9.3	4.1	0.4
Traditional goods	13.5	-3.1	0.3	1.8	-3.5	0.0	-4.3	-2.7	-1.8	-2.4
Total use of goods and services	14.1	1.4	2.3	2.2	-0.3	0.5	-3.2	-1.7	0.6	0.6
Total imports	8.2	0.4	1.1	1.7	0.9	-1.8	-2.9	-1.1	-1.5	-1.7
Traditional goods	4.8	0.4	1.0	1.8	2.4	-2.3	-3.6	-1.4	-2.5	-1.4
Gross domestic product	16.0	1.7	2.6	2.4	-0.6	1.1	-3.3	-1.8	1.1	1.2
Mainland Norway (market prices)	4.4	3.3	0.0	1.1	0.7	1.3	-1.1	2.3	-0.7	1.6

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.

Norwegian enterprises lag behind Nordic neighbours in use of ICT

Geir Martin Pilskog

This article describes the use of Information and Communication technology (ICT) in Nordic enterprises with at least 10 employees in 1999 and 2000. In most areas, Norway seemed less progressive than the other Nordic countries. 1 out of 10 of all enterprises in Denmark, Finland, Norway and Sweden had Internet sales. The volumes of Internet sales were low in all the Nordic countries.

The use of ICT in enterprises is expected to impact profitability, productivity and employment levels. International comparisons are becoming more important as ICT usage is generally considered to be a critical factor contributing to national performance on both micro and macro economic level. Benchmarking ICT performance against other countries is thus seen as a key issue in an Information Society characterised by increasing globalisation.

National statistical offices are experiencing high or growing demands for ICT statistics. As a consequence of these demands, the director generals of the five Nordic statistical institutes in 1999 set down a Nordic group for the development of statistics on the Information Society. Among the first projects of the group was a questionnaire-based survey of enterprises. This article is based on the publication "Use of ICT in Nordic enterprises 2000/2001" which presented main results from these surveys.

Saturation point reached in Denmark, Finland and Sweden

By the end of 2000, 9 out of 10 enterprises with at least 10 employees in Denmark, Finland and Sweden had Internet connections. Norwegian enterprises were the least advanced. 74 per cent of Norwegian enterprises had Internet access. In all four countries the share of enterprises with Internet access increased at approximately the same rate in 2000. In Sweden the industry Construction was excluded from the survey for this year. In the 1999 survey Sweden had included Construction. The exclusion of this industry also from the Danish, Finnish and Norwegian samples did not radically alter the results. Without Construction respectively 92, 91, 89 and 73 per cent of the enter-

prises in Finland, Sweden, Denmark and Norway had Internet access by the end of 2000.

The Internet penetration rate was everywhere dependent on the size of the enterprises. The relative number of Internet accesses was higher in the largest enterprises than among smaller ones in all the countries. By the end of 2000 almost all enterprises with at least 100 persons employed had access to the Internet in Denmark, Finland and Sweden. The Internet penetration rate was not much lower in smaller enterprises. In enterprises with 10-19 persons employed the relative number of Internet accesses was between 80 and 90 per cent. The Internet penetration rate in Norwegian industry was different. In enterprises with less than 20 persons employed Norway had an Internet penetration rate about 15 per cent below enterprises in Denmark, Finland and Sweden. The gap was smaller among larger enterprises. Norwegian enterprises with at least 100 persons employed were less than 10 per cent behind comparable enterprises in the other Nordic countries.

Even though variations in the response rates between the industries create uncertainty, there seems to be some distinctive national differences in the Internet penetration rate of Nordic industry. The difference between Retail trade enterprises in Denmark, Finland and Sweden and Norwegian Retail trade enterprises was striking. Differences in the national industrial structures may have affected the results.

Homepages least common among Norwegian enterprises

By the end of 2000 between 60 and 70 per cent of all enterprises with at least 10 employees in Denmark, Finland and Sweden had established a homepage while about half of the Norwegian enterprises had one. In Norway the share of enterprises with homepages increased slightly more in 2000 than in

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Figure 1. Share of all enterprises with Internet access. 1999-2000. Per cent

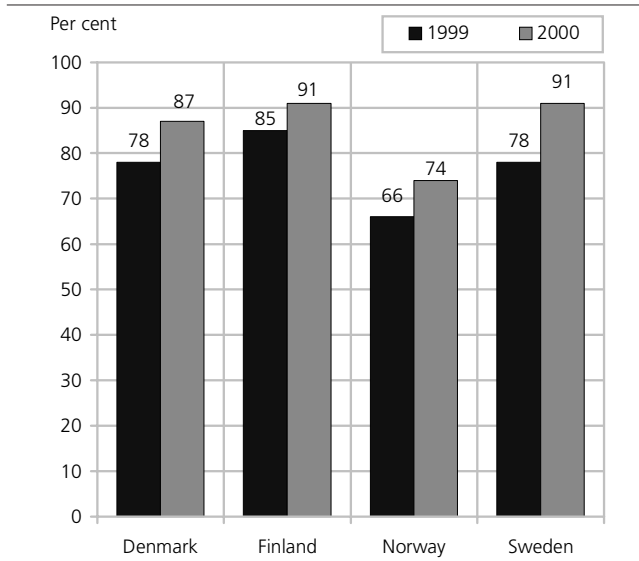


Figure 4. Share of all enterprises with homepage. 1999-2000. Per cent

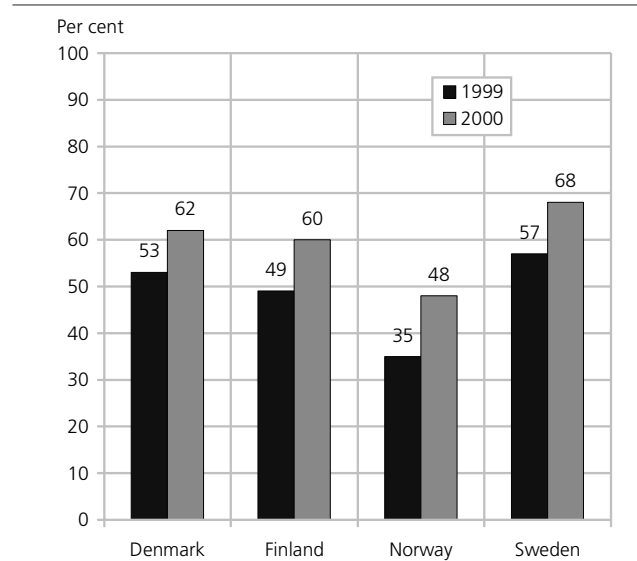


Figure 2. Share of all enterprises with Internet access. Distributed by employment. 2000. Per cent

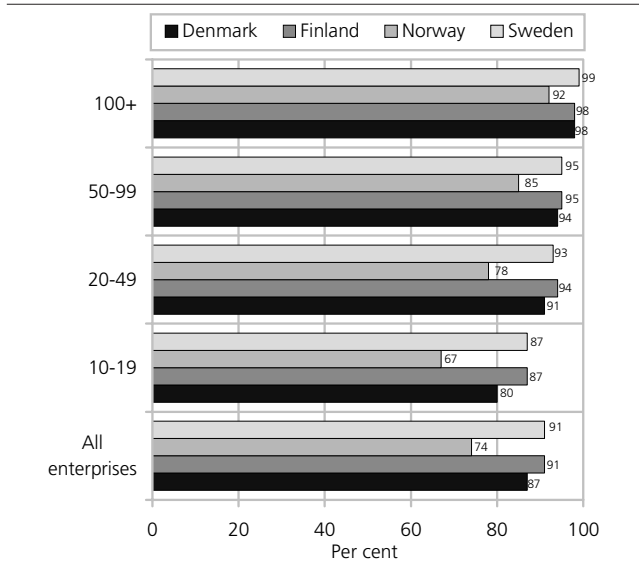


Figure 5. Share of all enterprises with homepages. Distributed by employment. 2000. Per cent

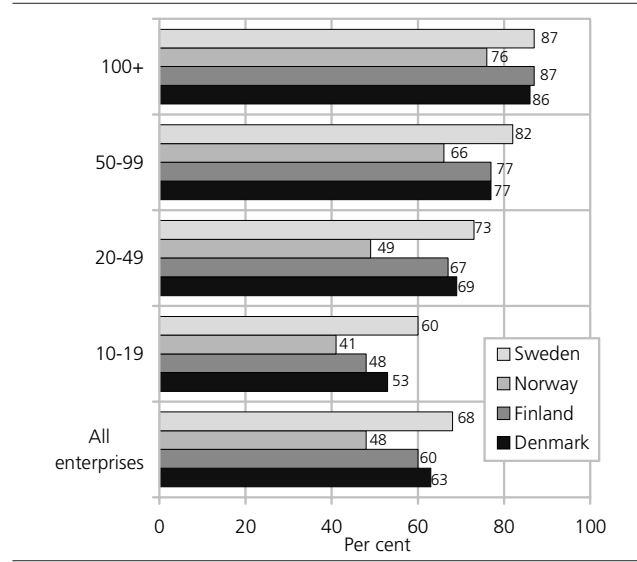
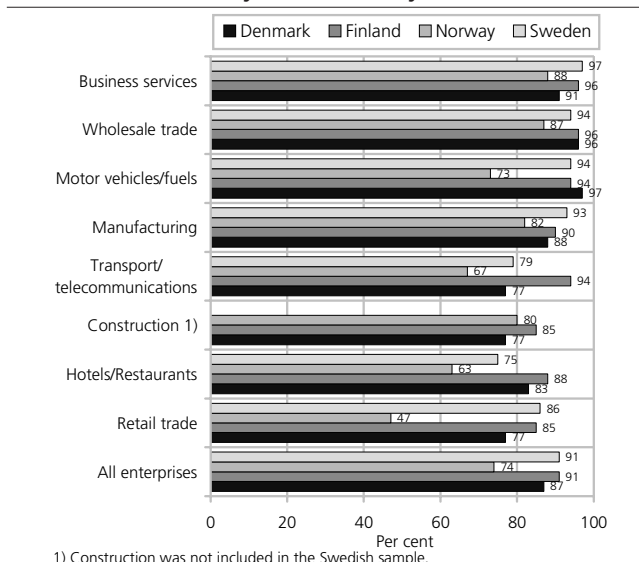
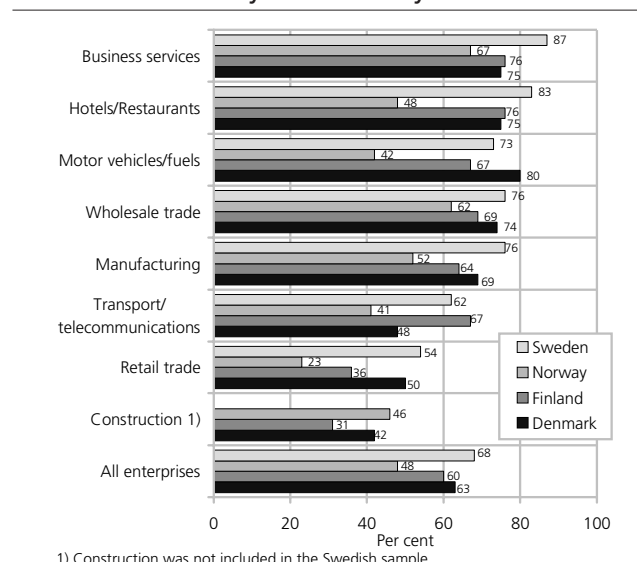


Figure 3. Share of all enterprises with Internet access. Distributed by area of industry. 2000. Per cent



1) Construction was not included in the Swedish sample.

Figure 6. Share of all enterprises with homepages. Distributed by area of industry. 2000. Per cent



1) Construction was not included in the Swedish sample.

the three other countries. As mentioned previously, in Sweden the industry Construction was excluded from the survey in 2000. The exclusion of this industry also from the Danish, Finnish and Norwegian samples changed the results in both Denmark and Finland. Without Construction respectively 68, 67, 64 and 48 per cent of the enterprises in Sweden, Denmark, Finland and Norway had homepages by the end of 2000.

Everywhere large enterprises operated homepages more often than small ones. By the end of 2000 50-60 per cent of Danish, Finnish and Swedish enterprises with 10-19 employees had a homepage against about 40 in Norway. Among enterprises with at least 100 employees there also existed differences. In Sweden, Finland and Denmark almost 90 per cent of all enterprises with at least 100 employees had homepages. In Norway three out of four enterprises in the same size group operated a homepage.

Even if variations in the response rates between the industries create uncertainty, there appears to be clear national differences in the distribution of homepages in Nordic industries. The differences were e.g. large in Retail trade. In Danish and Swedish Retail trade the relative number of enterprises with homepages was more than twice the figure of the Norwegian Retail trade. Differences in the national industrial structures may have influenced results.

Fewer enterprises with Intranets and Extranets in Norway

Intranet is the Internet used internally in an enterprise. Usage of this technology in internal homepages disseminates information among the employees. Between 30 and 40 per cent of all enterprises in Denmark, Finland and Sweden had an Intranet by the end of 2000. About 20 per cent of all Norwegian enterprises had an Intranet. The differences can be explained by variations between the countries in industrial structure and size of enterprises. There were no clear common development features in 2000. While the share of enterprises with Intranets in Sweden increased sharply the share was stable in Denmark, Finland and Norway.

The relative number of enterprises with Intranets was higher in the largest enterprises than among smaller ones. By the end of 2000 more than half of all Nordic enterprises with at least 100 persons employed had Intranets. Not surprisingly, in enterprises with 10-19 persons employed the relative number of Intranets was much lower.

The distribution of Intranets in Nordic industry showed some national differences. There were e.g. clear differences between hotel and restaurant enterprises in Denmark, Finland and Sweden and Norwegian hotel and restaurant enterprises. In Danish enter-

Figure 7. Share of all enterprises with Intranet. 1999-2000. Per cent

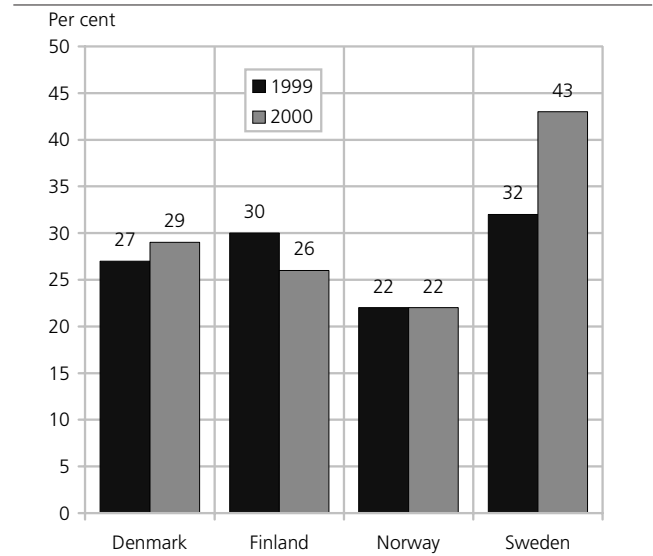


Figure 8. Share of all enterprises with Intranet. Distributed by employment. 2000. Per cent

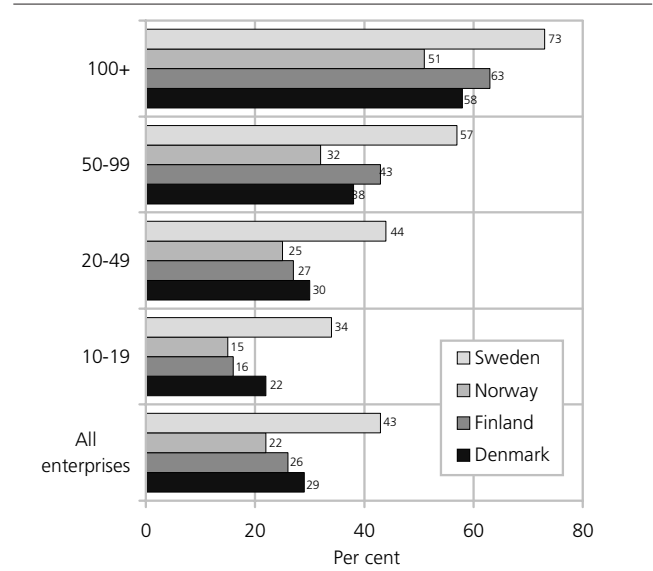
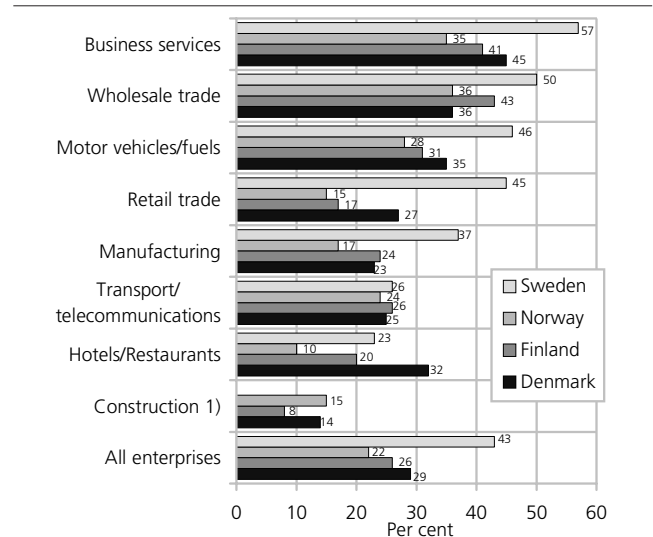


Figure 9. Share of all enterprises with Intranet. Distributed by area of industry. 2000. Per cent



1) Construction was not included in the Swedish sample.

Figure 10. Share of all enterprises with Extranet. 1999-2000. Per cent

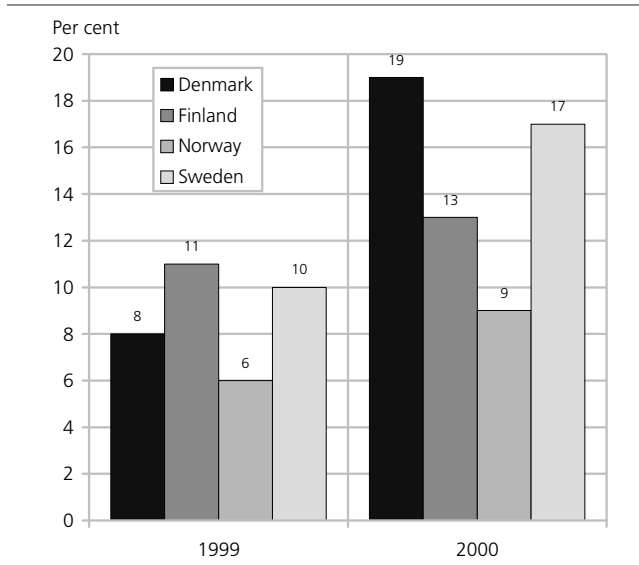


Figure 13. Share of all enterprises with EDI. 1999-2000. Per cent

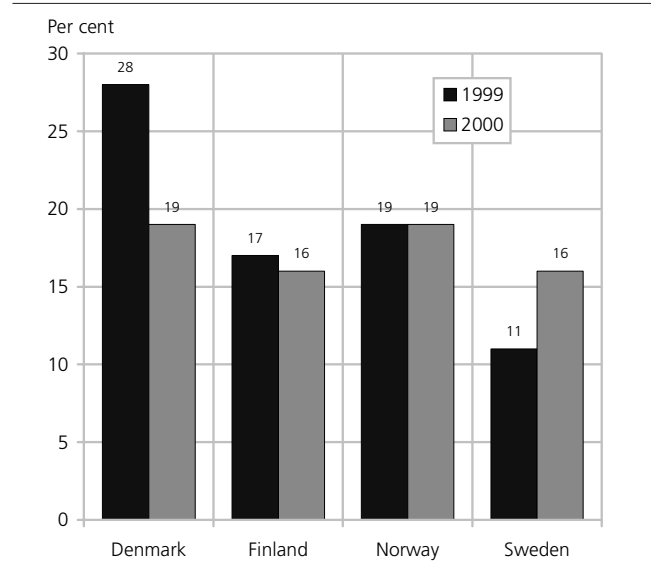


Figure 11. Share of all enterprises with Extranet. Distributed by employment. 2000. Per cent

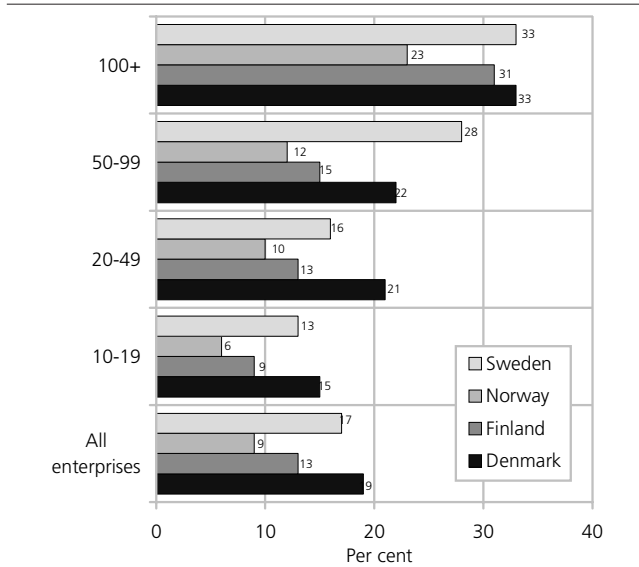


Figure 14. Share of all enterprises with EDI. Distributed by employment. 2000. Per cent

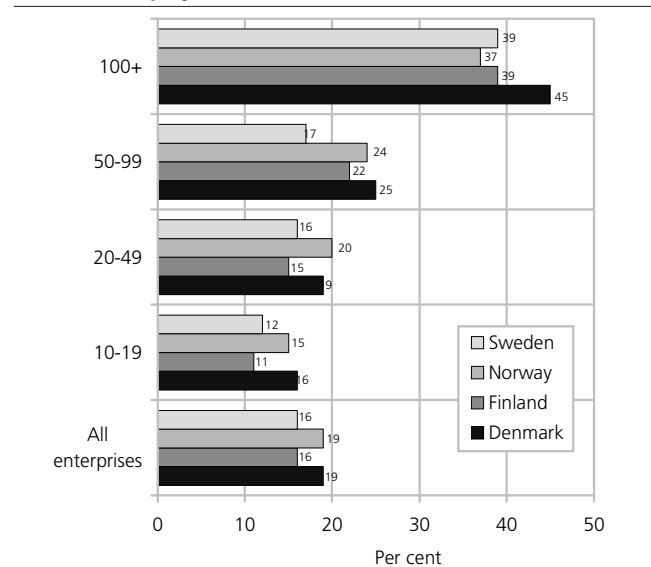


Figure 12. Share of all enterprises with Extranet. Distributed by area of industry. 2000. Per cent

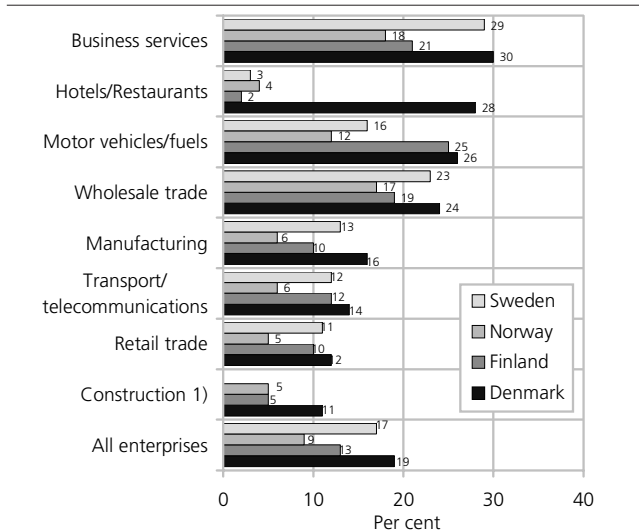
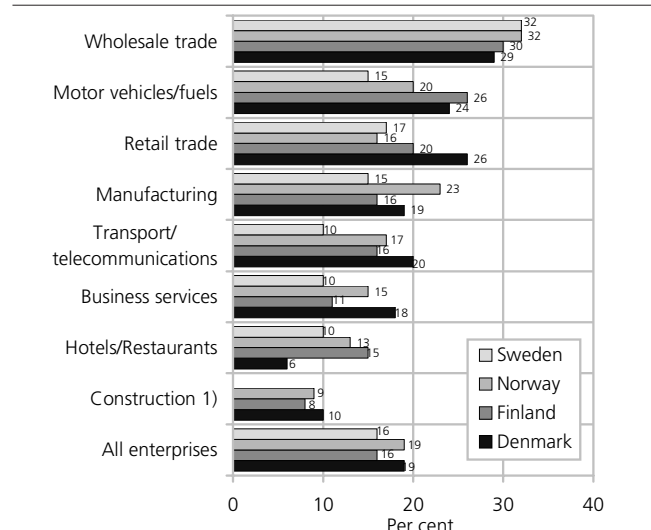


Figure 15. Share of all enterprises with EDI. Distributed by area of industry. 2000. Per cent



1) Construction was not included in the Swedish sample.

1) Construction was not included in the Swedish sample.

prises in this industry Intranets were three times more common than in Norway. Variations in the response rates between the industries create uncertainty.

Extranets are homepages made available for a limited group outside the enterprise. Customers or suppliers get access to services and products through a password. Extranets were not common among Nordic enterprises. Norwegian enterprises were again the least advanced. By the end of 2000 less than 10 per cent of all Norwegian enterprises had established an Extranet. The corresponding Danish number was almost 20 per cent. In Denmark the share of enterprises with Extranets increased more in 2000 than in the three other countries.

Extranets were more common among the largest enterprises than among smaller ones everywhere. By the end of 2000 about one third of all Danish, Finnish and Swedish enterprises with at least 100 employees had extranets against two out of ten Norwegian.

Even if variations between the industries response rates create uncertainty, there seems to be clear national differences in the distribution of Extranets in Nordic industries. The difference between hotel and restaurant enterprises in Denmark and the Finnish, Swedish and Norwegian hotel and restaurant is extreme.

EDI most often used by large enterprises

EDI (Electronic Data Interchange) is electronic transmission of data in a structured form between an enterprises own computer system and a remote computer system based on a defined standard. In 1999 and 2000 only the use of EDI based on the EDI-FACT standard was surveyed. By the end of 2000 almost two out of 10 Nordic enterprises used EDI. It is difficult to find any clear development features in 2000.

The use of EDI was least common in smaller enterprises with 10-19 employees and most common in the biggest enterprises with 100 or more employees. Among the largest enterprises about 40 per cent used EDI in Denmark, Finland, Norway and Sweden. EDI is an investment intensive technology and the advantages are expected to rise with the number of EDI documents exchanged.

EDI was most commonly used within Wholesale. In Nordic enterprises about one out of three enterprises in Wholesale used EDI. An industry with large differences between the four countries was Hotels and restaurants.

Internet sales not common

Sale via Internet was limited to orders received via homepages. Enterprises with at least one per cent of total turnover from orders received via homepages

have Internet sales. By the end of 2000 Internet sales were not common among Nordic enterprises. Internet sales were least common among Norwegian enterprises.

The share of enterprises with Internet sales is dependent on the size of enterprises. The relative number of enterprises with Internet sales was higher among large enterprises than among small ones everywhere. By the end of 2000 between 10 and 20 per cent of all enterprises with at least 100 persons employed had Internet sales in Denmark, Finland, Norway and Sweden. Among enterprises with 10-19 persons employed the relative number of enterprises with Internet sales was lower. In this size group between 5 and 10 per cent of the enterprise in the four countries had Internet sales.

A look at Internet sales in Nordic industries showed some distinctive national differences. Almost 40 per cent of the Hotel and restaurant enterprises in Denmark and Finland had Internet sales against only 20 per cent in Norway and Sweden. In Danish Retail trade the relative number of enterprises with Internet sales was three times higher than among the corresponding Norwegian enterprises.

Internet sales made up a small share of total turnover

Internet sales made up a considerable share of total turnover in few enterprises. Respectively 5, 3, 2 and 2 per cent of the enterprises in Sweden, Denmark, Finland and Norway received 10 per cent or more of total turnover from Internet sales by the end of 2000. The total Internet sales of Nordic enterprises were almost 12 billion Euros. About two thirds of the volumes were created by Swedish enterprises. The volumes of Swedish, Finnish, Danish and Norwegian Internet sales were in billion Euros respectively 7,5, 1,8, 1,6 and 0,8.

Norwegian enterprises generally less progressive

By the end of 2000 Norwegian enterprises were generally less advanced than their Nordic neighbours in implementing and utilizing ICT. Since comparable data currently is available only from 1999 and 2000, the survey results give little information about development features. It seems highly likely that most Nordic dissimilarities in some time will be levelled out. However, there is so far little actual evidence of Norwegian enterprises catching up with enterprises in Denmark, Finland and Sweden.

The production of official Nordic statistics in this field includes only data about the enterprise's access and usage of ICT. A more important matter still not examined in this context is the possible effect of ICT access and usage on the performance of the enterprises. Hopefully, the data already collected and future

Figure 16. Share of all enterprises with Internet sales. Internet sales mean that at least 1 per cent of total turnover is received via homepage. 2000. Per cent

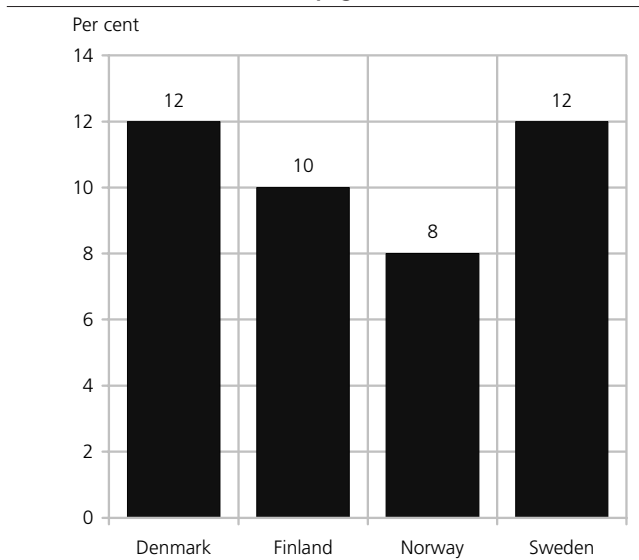
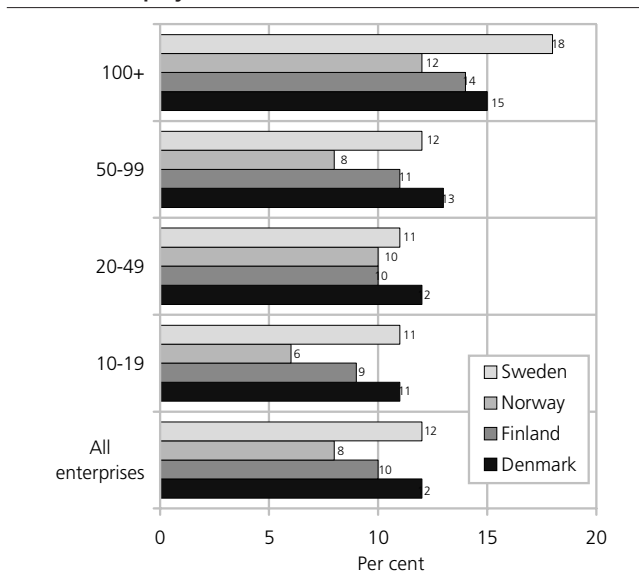


Figure 17. Share of all enterprises with Internet sales. Internet sales mean that at least 1 per cent of total turnover is received via homepage. Distributed by employment. 2000. Per cent



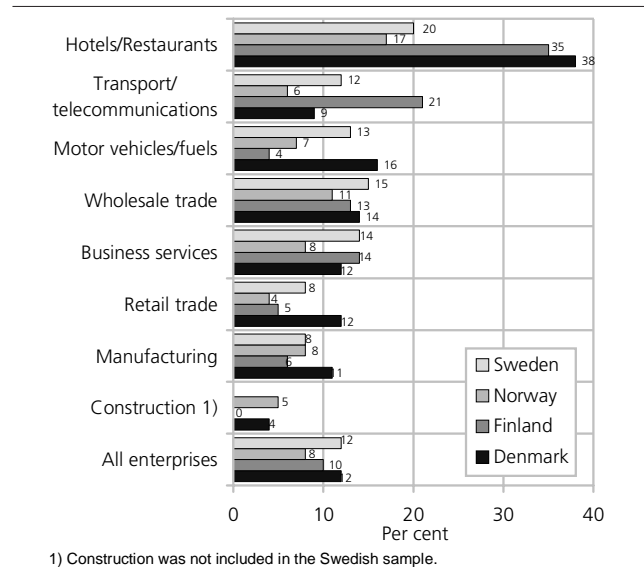
surveys of ICT usage will be useful tools to analyse the impact of ICT. Does really lacking Norwegian usage of ICT have any significance?

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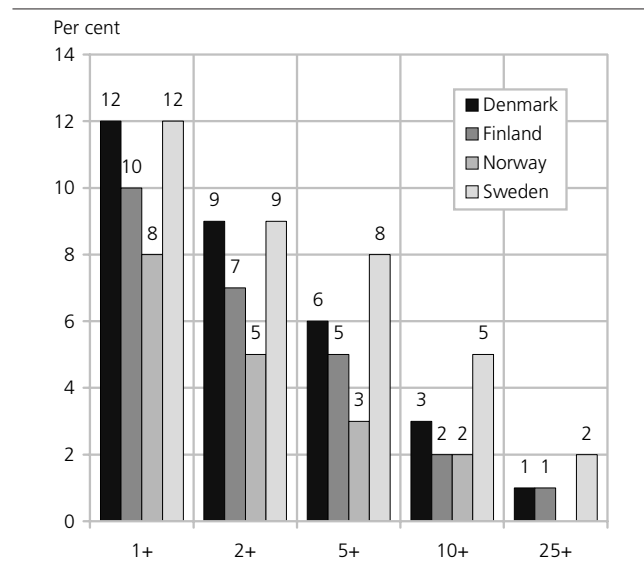
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Figure 18. Share of all enterprises with Internet sales. Internet sales mean that at least 1 per cent of total turnover is received via homepage. Distributed by industry. 2000. Per cent



1) Construction was not included in the Swedish sample.

Figure 19. Share of total turnover from Internet sales among all enterprises. Internet sales mean that at least 1 per cent of total turnover is received via homepage. 2000. Per cent



Pilskog, Geir Martin, Leiv Solheim and Kristin Ødegård: Use of Information and Communication Technology in enterprises 2000 (in Norwegian), Reports 2001/42, Statistics Norway.

Pilskog, Geir Martin and Erik Sverrbo: Use of Information and Communication Technology in enterprises 1999 (in Norwegian), Reports 2000/24, Statistics Norway.

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Research publications in English

New titles

Reports

Lars Østby: The demographic characteristics of immigrant population in Norway. Reports 2002/22. 58 pages.

This report presents a demographic analysis of immigration to Norway, and of immigrants in Norway. It starts with the immigration history, showing that the proportion immigrants in the population was larger at the beginning of than in the middle of the previous century. Since then, the immigration has increased, and changed its composition. Earlier, it was dominated by immigrant workers from our neighbouring countries, then more workers came also from distant countries, and the influence of refugees increased.

Taken all together, more than 500 000 persons (11 per cent of the population) have some kind of immigrant background, themselves or at least one of their parents are born abroad. Fifty per cent (250 000) are born abroad with two foreign-born parents, 50 000 are born in Norway with two parents born abroad. Together, these two groups consist the immigrant population in Norwegian statistics. Citizenship cannot be used as a statistical definition of immigrants, as 140 000 have been naturalised during the 25 years we have had statistics on that.

This report shows beyond any doubt that the immigrants in Norway is a very heterogeneous group, not having more than some kind of foreign background in common. All immigrants taken as one single group is without meaning for analytical or descriptive purposes, at least one needs a breakdown by region of origin. Immigration figures are not easily compared between countries, but it seems that the level of immigration to Norway is somewhat more than half that of Sweden and the Netherlands.

The refugees are almost everyone of non-western origin, and consist 50 per cent of all non-western immigrants to Norway. Of the 84 000 refugees, three fourth were primary refugees, and one fourth were accepted for family reunification to persons already being given protection in Norway.

The immigrants in Norway are a rather young population, with few old persons. There are, however, big differences according to region and country of origin. Among non-western immigrants, we have more children and fewer older persons than among western immigrants. This is due both to differences in age at immigration and different fertility.

On average, the fertility is higher among immigrants than in the rest of the population. It does, however, vary much between the different countries of origin, and it adapts to the Norwegian pattern with increasing duration of stay, and between the generations. As a result of children born to immigrants, the fertility rate in Norway is 0.05 children higher than it would have been without immigrants.

Immigrants from western countries often return when forming a family. Non-western immigrants primarily find their partners in their country of origin, or among persons from their country of origin, already settled in Norway. Cross-national marriages are not very common. Persons born in Norway with two foreign-born parents are now entering the age of family formation. Those in this group marrying at young ages seem to follow the marital pattern of their parents, but the proportion marrying young is much lower.

Hitherto, we have had little knowledge about immigrant mortality in Norway. It seems that, for third world immigrants as a whole, there is no significant difference in mortality when comparing with the population in Norway. There is, however, a significant lower mortality for the first generation immigrants, counterbalanced by a clearly higher mortality for persons born in Norway with two parents born in a third world country.

Immigration influences the growth and composition of the Norwegian population, in an increasing degree. Norway has a population growth relatively high in Europe, due both to high immigration, and to high natural growth relative to the rest of Europe.

Discussion Papers

Morten Sørberg: The Duhem-Quine thesis and experimental economics: A reinterpretation. DP no. 329, 2002. 24 pages.

The Duhem-Quine thesis asserts that any empirical evaluation of a theory is in fact a composite test of several interconnected hypotheses. Recalcitrant evidence signals falsity within the conjunction of hypotheses, but logic alone cannot pinpoint the individual element(s) inside the theoretical cluster responsible for a false prediction. This paper considers the relevance of the Duhem-Quine thesis for experimental economics. A starting point is to detail how laboratory evaluations of economic hypotheses constitute composite tests. Another aim is to scrutinize the strategy of conducting a series of experiments in order to hem in the source(s) of disconfirmative evidence. A Bayesian approach is employed to argue that reproducing experiments is not necessarily useful in terms of identifying correct causes of recalcitrant data.

Morten Sørberg: Voting rules and endogenous trading institutions: An experimental study. DP no. 328, 2002. 41 pages.

This paper reports on recurring laboratory elections in which buyers and sellers choose institutional rules to govern a subsequent trading round. The bid auction (buyers propose prices), offer auction (sellers suggest prices) and double auction (both trader types initiate price quotes) make up the electoral candidates. Both plurality rule and approval voting are used as vote-counting schemes. The former allows each trader to vote for, at most, one auction, whereas approval voting permits voters to either abstain or to vote for one, two or all three institutional alternatives. The main result is threefold. First, plurality rule induces a Duverger effect in the sense that only the bid and offer auctions emerge as viable auctions. Approval voting instead leads to close three-way races with each of the three auctions winning approximately one third of the elections. Second, buyers (sellers) in the plurality-rule sessions concordantly vote for the bid (offer) auction. Approval-voting behavior is

comparatively more heterogeneous. Third, bid-auction prices are significantly lower than double-auction prices, which again are significantly below offer-auction prices.

Morten Søberg: A laboratory stress-test of bid, double and offer auctions. DP no. 327, 2002. 34 pages.

This paper reports on the empirical properties of the bid auction (buyers propose prices), offer auction (sellers suggest prices) and double auction (both buyers and seller initiate price quotes). These trading institutions are stress-tested using a nonstationary monopolistic market environment in which the buyers' demand schedule and the single seller's supply curve shift unpredictably between trading periods. The principal result is threefold. First, double-auction prices tend to be greater than offer-auction prices which again tend to be greater than bid-auction prices. Second, the listed ranking reflects tendencies only. The laboratory data do not support statistically significant behavioral differences between the three auctions. Third, trading is highly efficient regardless of auction type.

Hilde Christiane Bjørnland and Håvard Hungnes: Fundamental determinants of the long run real exchange rate: The case of Norway. DP no. 326, 2002. 39 pages.

Modelling the Norwegian exchange rate against a basket of currencies, we find a robust long-term link between the real exchange rate and real interest differential that is consistent with purchasing power parity (PPP) and uncovered interest parity (UIP). However, PPP alone is rejected. These findings are confirmed focusing on the Norwegian bilateral exchange rate with Germany and (possibly) Sweden, but rejected against the UK and the US. We argue that rejection of bilateral relationships may result from idiosyncratic shocks in the different countries that may be negligible when modelling against a basket of currencies.

Erling Røed Larsen: Consumption Inequality in Norway in the 80s and 90s. DP no. 325, 2002. 31 pages.

Overall consumption inequality in Norway does not rise in the first half of the 90s. However, the inequality in the distribution of consumption among single-person households in-

creases while it decreases among families. There is supporting evidence that the tax reform of 1992 contributed to reduce consumption inequality. These results emerge from a novel estimation procedure of consumption for each household and the subsequent measurement of consumption inequality among households. This article proposes a latent variable model that simultaneously estimates latent total household consumption and the variance of total consumption over households in order to investigate trends of consumption inequality in Norway in the late 80s and early 90s. The model makes use of both expenditure and non-expenditure indicators of latent total consumption in a variance minimizing way. We compute inequality measures, including the Gini index and the coefficient of variation, for consumption in the period 1986-1995, and investigate the development of consumption inequality for the population as a whole and for different household types.

Erling Røed Larsen: Estimating Latent Total Consumption in a Household. DP no. 324, 2002. 30 pages.

This article presents a new way of estimating latent total consumption in a household that may improve the accuracy of studies into permanent income and consumption inequality. While the frequently used total purchase expenditure in a household is an unbiased estimator of latent total household consumption, it is inoptimal since total purchase expenditure is an un-weighted sum of expenditures that contain measurement errors. We derive a competing estimator, unbiased and variance minimizing, based on a latent variable model. From estimates of error term variance among consumption indicators, we give accurate indicators more weight, and align weights to minimize variance. An advantage of the suggested estimator is that it allows both expenditure and non-expenditure indicators of latent total consumption. We demonstrate empirically how the minimum-variance estimator reduces variance, and find that on Norwegian expenditure data from 1993 the reduction is 44 per cent.

Erling Røed Larsen: Searching for Basic Consumption Patterns: Is the Engel Elasticity of Housing Unity? DP no. 323, 2002. 15 pages.

We estimate Engel elasticities of housing expenditures for each inde-

pendent cross-section of the Consumer Expenditure Surveys in the period 1986-1998, and find that the elasticity remains close to unity for all years. Its mean over the period is 1.02. Engel and demographic effects for housing are estimated in an errors-in-variables two stage least square regression model using random samples of Norwegian households. We find that given demographic composition household demand for housing seems to increase proportionately with total consumption, in contrast to other categories such as food and transportation. The empirical regularity between housing expenditures and total consumption yields forecasting potential and may represent a basic pattern of consumption.

Erling Røed Larsen: The Political Economy of Global Warming: From Data to Decisions. DP no. 322, 2002. 28 pages.

This article studies the process from data acquisition to policy decision in relation to an optimum policy on global warming. Policymakers must be reasonably skeptical before proposing remedies to curb warming, but policymakers cannot await the final proof of any proposal's merit. Balancing evidence with doubt requires an informed approach, in which information is converted to knowledge and used to illuminate and compare human welfare connected to different scenarios. This article suggests, normatively, three essential elements for data based policies: evidence, consequence, and strategy. The presented framework for data based policy-making combines results from decision theory, economics, and political theory.

Jørgen Aasness and Erling Røed Larsen: Distributional and Environmental Effects of Taxes on Transportation. DP no. 321, 2002. 23 pages.

This article studies environmental and distributional effects from a differentiated tax system on a set of disaggregated transportation goods. Empirical examination on Norwegian data indicates that higher tax rates on high-pollution luxury modes of transportation such as air flights and taxis reduce inequality and increase the environmental quality. Lower tax rates on low-pollution necessary modes such as buses, bicycles, and mopeds reduce inequality and increase environmental quality. However, higher taxes on high-pollution necessities such as gasoline have

favorable environmental effects, but increase inequality somewhat. Railway passenger transportation appears to be distributionally neutral. In order to interpret the estimates with respect to distributional and environmental concerns, we use a theory of distribution effects based on Engel, child, and adult elasticities and a wide range of empirical estimates of environmental hazards from transportation consumption. For different modes of transportation, we study emissions per passenger-kilometer and per monetary unit.

Tor Jakob Klette and Arvid Raknerud: **How and why do Firms differ?** DP no. 320, 2002. 43 pages.

How do firms differ, and why do they differ even within narrowly defined industries? Using evidence from six high-tech, manufacturing industries covering a 24-year period, we show that differences in sales, materials, labor costs and capital across firms can largely be summarized by a single, firm-specific, dynamic factor, which we label efficiency in the light of our structural model. The model contains the complete system of supply and factor demand equations. It suggests that efficiency is strongly linked to profitability and firm size, but it is unrelated to labor productivity. Our second task is to understand the origin and evolution of the differences in efficiency. Among the firms established within the 24-year period that we consider, permanent differences in efficiency dominate over differences generated by firm-specific, cumulated innovations.

Reprints

Svein Blom: **Some Aspects of Immigrant Residential Concentration in Oslo. Time Trends and the Importance of Economic Causes.** Reprints no. 224, 2002. 26 pages.

Reprint from L.-G. Tedebrand and P. Sköld (eds.): *Nordic Demography in History and Present-Day Society*, Scandinavian Population Studies, vol. 12. Report no. 18 from the Demographic Data Base, Umeå University, 2001, 431-456.

Ragni Hege Kitterød: **Mothers' Housework and Childcare: Growing Similarities or Stable Inequalities?** Reprints no. 223, 2002. 23 pages.

Reprint from *Acta Sociologica*, Vol. 45 No. 2, 2002, 127-149.

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. 32 pages.

Reprint from *European Journal of Population*, Vol. 18, 2002, 121-152.

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. 19 pages.

Reprint from *Journal of Productivity Analysis*, Vol. 18, 2002, 39-57.

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The main aim of this paper is to discuss distributional effects across households of increased electricity taxation. We focus on four progressive tax schemes and one proportional. We find that the most progressive alternatives have the best distributional properties when assuming that households cannot change their consumption. When allowing household electricity consumption to change as a response to the tax increase, the positive distributional effects of the progressive alternatives are weak-

ened. The ranking of the tax schemes is not affected by the choice of equivalence scale.

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Sustainable travel is possible, even if current evidence seems to suggest otherwise. Today's problem is that too many travelers go too far too often within a limited area, our planet. When demand rises and supply is bounded by nature, technology may come to our rescue. If not, social reorganization must. To make travel sustainable the requirement is that we balance demand with supply. To understand sustainability of travel, we should thus understand demand for it and supply of it. This article outlines the sources of the demand and the limits to supply. We discuss how policymakers may strike a balance in reaching sustainable levels of tourism by finding the right prices.

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