

# Economic Survey

Volume 11

# 4/2001

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## Economic Survey

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***The next edition of Economic Survey will be published at the end of February 2002.***

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Not for publication	: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

# Economic trends

Two factors in particular are now influencing developments in the Norwegian economy. One is the more expansionary fiscal policy as a result of new guidelines concerning the use of the expected return on the Government Petroleum Fund. The second is sluggish global economic developments. The more expansionary fiscal policy has contributed to increasing the possibility of a demand-driven rise in inflation in Norway. This has prompted Norges Bank to maintain high interest rates, while interest rates among our trading partners have fallen. Despite a substantial decline in oil prices this autumn, high interest rates in Norway have contributed to maintaining a strong krone. The second factor is the international cyclical downturn that has evolved over the past year and which has been amplified by the terror attacks in the US on 11 September and subsequent military action. This has resulted in a decline in both the volume and prices of traditional Norwegian exports.

The outlook for the global economy is now perceived as considerably more uncertain than earlier and the possibilities of stimulating growth through a more expansionary monetary policy is being put to a test in many countries. Recently, Norway has also recorded an increase in unemployment which, combined with weak profitability in internationally exposed sectors and low imported price inflation, points to a reduction in underlying wage and price inflation in the period ahead. In view of the change in the international outlook and the prospect of lower domestic inflation, it is now more likely that the contractionary monetary policy in Norway will be revised and that Norwegian interest rates will fall more in the period ahead than assumed earlier. Even though fiscal policy is still being oriented with a view to stabilizing cyclical fluctuations, it is reasonable to assume, given the approved fiscal stimulus and high level of interest rates in Norway, that a further cyclical stimulus will first be transmitted through lower interest rates.

With sharper growth in household consumption next year and approximately unchanged investment, total household and mainland enterprise demand may rise somewhat in the period ahead compared with growth in 2001. However, we have revised down growth in domestic demand slightly in relation to our September report. Part of the downward revision reflects weaker developments in the international economy, which have effects on domestic activity and demand. Moreover, the orientation of economic policy differs from what we assumed in our September report when we had to make assumptions concerning how politicians would distribute the increased fiscal leeway between lower taxes and higher public sector demand. The approved programme from the current Government will generate a substantially smaller demand stimulus to the domestic economy than was then assumed. This is because a policy that places emphasis on lower taxes and excise duties generates a smaller demand impetus in the short and medium term than a policy that places more emphasis on public expenditure for consumption and fixed capital formation.

The Norwegian economy is now experiencing a cyclical downturn. However, we assume that an expansionary fiscal policy and a gradual shift in monetary policy, along with a resumed global upswing through 2002, will boost growth in the economy to nearly 2 per cent in 2003. However, this growth is not sufficient to allow the economy to approach a cyclically neutral situation. This is also reflected in the assumption that unemployment will rise.

# International economy

## Synchronized downturn in industrialized countries

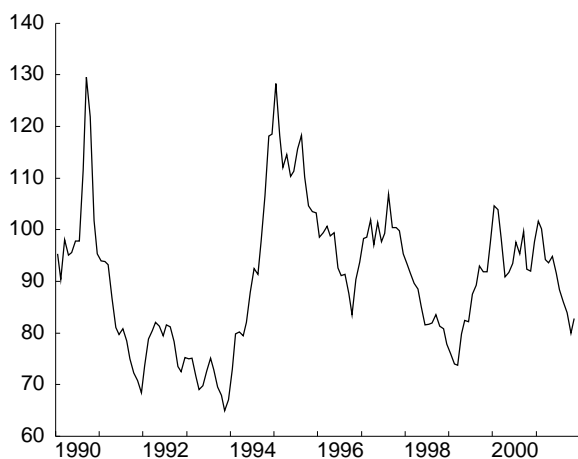
In the US, total output shrank by an annualized 1.1 per cent between the second and third quarter of this year, the first decline since the early 1990s. A further and probably sharper fall is expected in the fourth quarter. Even though a widely applied definition of a recession is a decline in GDP for at least two quarters, this did not prevent the National Bureau of Economic Research's Business Cycle Dating Committee from announcing that the recession started as early as March 2001. To some extent this is playing with words inasmuch as it has been clear for about a year that the US economy was in a cyclical downturn. Measured in relation to the growth potential for GDP, the US thus passed a cyclical peak in early summer 2000. Industrial production has fallen steadily for more than one year, accompanied by a decline in capacity utilization and a rise in unemployment.

The cyclical downturn in the US in late summer 2000 spread to Europe during the winter of this year. Measured from the previous quarter, GDP growth in the euro area was an annualised 2.1 per cent in the first quarter, i.e. up towards trend growth. It then fell to nearly zero in the following two quarters, and growth is set to be negative in the fourth quarter. A lag of a good two quarters is entirely in line with a normal cyclical lag for western Europe relative to the US. Among the large EU countries, the decline had the first and most severe impact on Germany, followed by Italy and – so far somewhat weaker – France, whereas the UK has not yet been affected to the same extent. While it is unusual that the UK does not shadow US

cyclical developments very closely, it is a part of the normal pattern that Germany is affected early and severely and France and Italy at a later stage, and in the case of France with diminished strength. For Germany, the effect this time was probably amplified by the fact that the downturn in the US has particularly affected investment in machinery and equipment and hence production sectors that are important in the German economy.

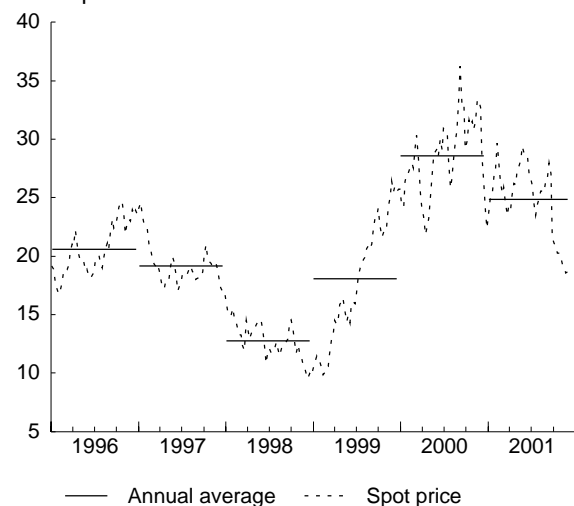
The downturn in the US and Western Europe is being accompanied by a continuation of the prolonged slump in Japan. Many are concerned that this makes the current downturn unusually synchronized across OECD countries. To some extent this is presenting the situation backwards: in the absence of special shocks for individual countries, it has been normal throughout the postwar period that US business cycles to a greater or lesser extent have had a pronounced impact on other OECD countries. The recession and subsequent recovery in the US in the early 1990s were thus an (admittedly one of several) exception. At that time, German reunification generated a strong expansionary fiscal stimulus to Germany and, to some extent, Germany's main trading partners, while the US was in a recession. The subsequent tightening of monetary policy in Germany thereafter had strong contractionary effects for the same countries (due to ambitions concerning fixed exchange rates against the German mark) while the US entered a phase of recovery. Thus, the reason for synchronized developments now is primarily that there are no special impulses that are having the opposite influence on developments in the various countries compared with the US.

**Aluminium price. 1990 - 2001**  
Dollar based index. 1979=100



Source: Norges Bank.

**Spot price, Brent Blend. 1995-2001**  
Dollar per barrel



Source: Norges Bank.

**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	2002
<b>USA</b>										
NIESR	4.1	4.1	0.9	1.1	3.2	1.6	2.7	1.9	0.9	1.4
ConsF	4.1	4.1	1.1	0.7	..	2.2	3.4	2.9	1.9	..
EC	4.1	4.2	0.9	0.5	3.4	2.2	3.3	3.0	1.8	2.0
OECD	4.1	4.1	1.1	0.7	3.8	1.6	2.7	1.8	1.0	1.4
<b>Japan</b>										
NIESR	0.8	1.5	-0.5	-0.1	1.4	-0.7	-1.1	-1.3	-0.3	0.8
ConsF	0.8	1.5	-0.5	-0.6	..	-0.3	-0.7	-0.7	-0.9	..
EC	0.8	1.5	-0.6	-0.9	0.5	-0.3	-0.7	-0.6	-0.8	0.2
OECD	0.8	1.5	-0.7	-1.0	0.8	-0.7	-1.1	-1.3	-1.5	-1.5
<b>EMU</b>										
NIESR	2.6	3.4	1.7	1.8	2.5	1.2	2.2	2.5	2.0	1.8
ConsF	..	3.4	1.5	1.5	..	..	2.2	2.6	1.7	..
EC	2.7	3.4	1.6	1.3	2.9	1.2	2.4	2.8	1.8	1.8
OECD	2.7	3.5	1.6	1.4	3.0	1.1	2.1	2.5	1.6	1.7
<b>Trading partners</b>										
NIESR	2.9	3.5	1.6	1.8	2.6	1.2	1.7	2.3	1.7	1.8
ConsF	3.0	3.5	1.4	1.5	..	1.4	2.2	2.5	1.9	..
EC	3.0	3.4	1.4	1.3	2.8	1.3	2.3	2.5	1.7	1.9
OECD	2.9	3.5	1.4	1.3	2.8	1.2	1.7	2.2	1.8	1.8

Sources: IMF from September 2001, NIESR from October 2001, Consensus Forecasts, European Commission and OECD from November 2001. All the inflation projections from the NIESR and OECD apply to the consumption deflator.

**Weaker growth in the global economy is affecting the oil market**

The spot price of Brent Blend was about USD 25 per barrel in the first eleven months of 2001, compared with an average of a little more than USD 28 per barrel last year. Since mid-September 2001, the oil price fell from USD 28 per barrel to about USD 20 per barrel two weeks later, primarily triggered by the terrorist attacks in the US. The terrorist attacks resulted in reduced demand for aviation fuels and growth in the world economy was expected to be somewhat lower than prior to the attacks. At the beginning of December, the oil price was a little less than USD 19 per barrel.

The International Energy Agency (IEA) expects only marginal growth in the global demand for oil in 2002, and countries outside the OECD area will primarily account for the increase. The IEA expects demand in North America and Europe to edge down through the first half of 2002 and then move up through the second half of the year as a result of a pick-up in growth in these regions.

Following the terrorist attacks in the US, OPEC suspended its guideline which implies that if the oil price should remain outside the range USD 22-28 per barrel on average for more than 20 days, the cartel would adjust production to the level required to bring prices back to that range. So far this year, OPEC has on three occasions approved cuts in production quotas by altogether 3.5 million b/d and the cartel has satisfied about 75 per cent of the announced cuts. As a result,

OPEC has lost market shares to other oil producers, particularly as a result of higher production in Russia.

OPEC recently signalled that it is willing to reduce production by a further 1.5 million b/d with effect from 1 January 2002 if other non-OPEC countries agree to production cuts of altogether 0.5 million b/d from the same date. So far, Oman has indicated that it will cut production by 50 000 b/d, Mexico by 100 000 b/d and Norway by 100-200 000 b/d; in our calculations, we have assumed a production cut of 150 000 barrels compared with the estimates in the National Budget for 2002. Russia has indicated that it will not make a decision on any reductions in oil production until 10 December 2001.

According to the IEA, stocks of both heating and crude oil in the OECD area are now satisfactory viewed in the light of the size of stocks the last five years. Many analysts are of the view that the current oil price is to some extent based on expectations of future cuts in oil production. If OPEC succeeds in convincing other countries to reduce production and the cartel continues to satisfy about 75 per cent of the new, announced cuts, a slight reduction in stocks of crude oil can be expected in 2002 as a whole. This is conditional on Iraq continuing its oil production of a little less than 3 million b/d under the new oil-for-food agreement with the UN. On the basis of these assumptions, the oil price can be expected to rise slightly from the current level, but the average price next year will still be somewhat below the lower limit in OPEC's targeted range.

### Will the future recovery be sustainable?

Given the sizeable importance of the US to international cyclical developments, not least in the light of the limited possibilities for an effective counter-cyclical policy in euro countries (partly due to the limited effects of monetary policy and partly due to limitations in the possibilities for an expansionary fiscal policy), developments in the US will largely determine the growth prospects for Europe and hence Norway's most important trading partners in the period ahead.

In the light of this, the international economy will enter a critical period in the coming six months. The cyclical downturn that began in the US in late summer 2000 has now lasted so long that normally it should be approaching its end. On average, these downturns have lasted for six quarters (implying a turnaround in the first quarter of next year), although seven quarters is in no way uncommon, and also appears to be more probable as a result of the immediate effects of the terrorist attacks in the US on 11 September. The monetary policy stimulus which was initiated in the US at the beginning of the year and which reached a considerable scale later in the summer of 2001 should boost interest-sensitive demand in the period ahead. This in turn should – through the income multiplier and accelerator mechanism – contribute to broader output growth in the US economy.

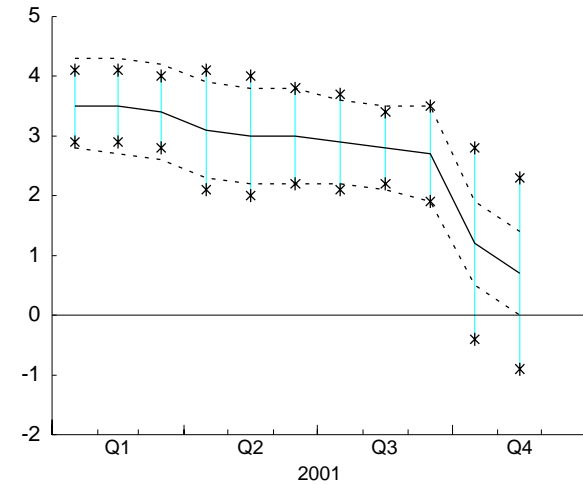
In this situation, the critical element is not primarily the uncertainty that followed in the wake of the terrorist attacks in September, which clearly contributed to curbing activity levels in the very short term and which had a more sustained impact on some sectors. Under the assumption that similar dramatic events do not occur in the period ahead, it is unclear whether the uncertainty will have long-lasting effects on corporate and household behaviour. Since the terrorist attacks also prompted further monetary and fiscal policy stimulus later this autumn, it is thus not entirely clear what the net effect on economic growth will be in the future.

The critical element is rather whether the basis for a sustainable upturn in the US economy exists in the medium term. Even at the start of any future recovery, household saving in the US economy is low and house prices and housing investment are at a historically high level. Although corporate investment has been reduced in relation to overall production, it is still high in relation to earnings and capacity requirements. Moreover, equity prices are still at a historically high level. The potential for a substantial multiplier/accelerator effect of the stimulus thus appears to be fairly limited, which implies that any recovery will be relatively sluggish.

On the other hand, there are conditions that modify these factors somewhat. Decisive emphasis cannot be placed on an overall positive or negative household

### GDP growth forecasts for the US for 2002 at different points in time

Average forecast (solid line) with  $\pm 2$  standard deviation (star points) and  $\pm 2\sigma$  normal "deviation" (dashed line)



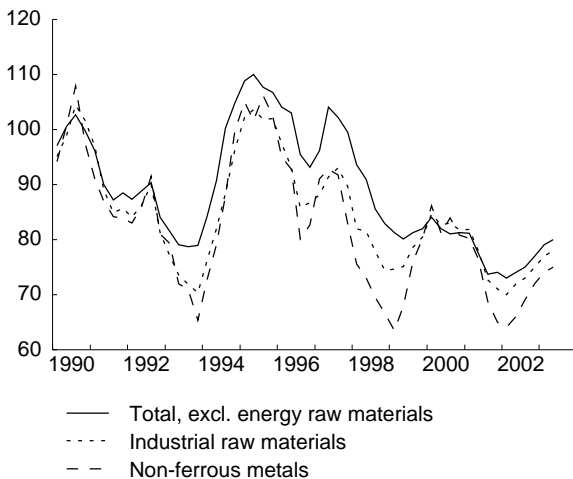
Source: Consensus Forecasts.

saving ratio; households that have both positive and negative saving can be found at each level of the saving ratio. With its large inflow of young labour through immigration, even a low saving ratio in the US may be possible over a longer period. This is further underpinned by high housing investment. Moreover, a large part of the risk of a low return on invested capital in the US is borne by foreigners, who to an unusually large extent were behind the massive injections of capital in the US business sector through the 1990s. This also means that the costs of any unsound investments will largely have to be borne by foreigners. Finally, given the assumptions underlying this report, lower oil prices may make a somewhat more positive contribution to real income in the US through 2002 than during the recovery phases at the beginning of the 1980s and 1990s.

The uncertainty inherent in the question concerning a sustainable upturn is not reflected in the set of forecasts for the US economy provided by the NIESR, the average projections from Consensus Forecasts, the EU Commission and the OECD (see table). The projections of these forecasters are very similar for the US, EMU and for Norway's trading partners as a whole. This is probably due to a tendency to apply the most probable scenario involving a traditional US cyclical upturn. If, on the other hand, we look at the individual estimates for the US that are included in Consensus Forecasts, where forecasters may find it more advantageous to market themselves through alternatives that are considered less probable by the majority, the picture of uncertainty changes completely. In October and November, the standard deviation between the projections increased to more than double the normal level, measured as the average deviation at the same point the previous five years (see figure). Even though the events in September were the triggering factor for this, it is clear that the various forecasts for 2002 re-

### Commodity prices on the world market 1990 - 2002

Dollar based indices. 1990 = 100



Sources: HWWA-Institut für Wirtschaftsforschung and AIECE.

flect very different cyclical developments through the year. If we assume flat growth paths through 2002, the average of 0.7 per cent at an annual rate corresponded to growth through the year of 1.8 per cent. Similarly, a fall of 0.9 per cent corresponded to growth through the year of -0.8 per cent, and an increase of 2.3 per cent corresponded to growth through the year of as much as 4.3 per cent.

Against this background, we have used two scenarios for the US and global economy in this report. In the baseline scenario, we have used the NIESR's projections for market growth for Norway's different trading partners. The NIESR's scenario is a type of "business cycles as usual" in which we see a clear upswing in the US through 2002 and 2003, but with somewhat weaker growth in 2003 than recorded in earlier upturns. This means that even though the scenario is optimistic in the sense that a turnaround takes place early in 2002, it is not particularly optimistic given that the turnaround occurs. Hence, this indicates weaker trend growth for the US economy than that assumed by many investors in recent years. Along with large current account deficits, it is assumed that this will result in a depreciation of the US dollar against the euro in coming years, reaching 0.975 at

the end of 2003, in line with the projections in the latest edition of Consensus Forecasts. Consumer price inflation in euro area countries is reduced to less than 2 per cent and 3-month euro rates are pushed down to 3 per cent up to the beginning of 2002 before gradually rising to 4.5 per cent after end 2003. As in the latest edition of the OECD's Economic Outlook, we have also assumed a crude oil price (Brent Blend) of about USD 22 per barrel in 2002, which rises to a good USD 25 per barrel in 2003.

In an alternative scenario we assume that a nascent recovery through the first half of 2002 does not prove to be sustainable as the direct stimulus from monetary and fiscal policy is gradually exhausted through the second and third quarter. GDP growth for the US is adjusted downwards by about 1 percentage point for both 2002 and 2003, with the result that the cyclical trough is not passed until the beginning of 2003. This also pushes down growth in western Europe by 0.3 and 0.7 percentage point respectively these two years. We have then assumed that interest rates in the US and Europe are reduced in relation to the baseline scenario by 1 percentage point during the summer of 2002 and that the fall in interest rates feeds fully through to bond yields. The oil price falls by USD 8 in relation to the baseline scenario, i.e. to about USD 14 per barrel in 2002 and USD 17 in 2003. In this scenario, trend growth in the US for the years 1997-2003 is reduced to less than 2.5 per cent, corresponding to trend growth before the "new economy" started. Both noticeably lower trend growth and a reduced interest rate differential between the US and euro area countries pushes down the US dollar by 10 per cent against the euro in the second half of 2002 and a further 10 per cent during 2003. The dollar exchange rate thus reaches 1.17 at the end of 2003. After a period of five years, i.e. an approximately normal length of a business cycle for the US economy, the euro is thus back to the exchange rate level prevailing in the euro's first week following its introduction in January 1999. The appreciation of the euro exchange rate, combined with somewhat lower activity levels, pushes down inflation in the euro area by a little more than 1 percentage point in the second half of 2002 and a further half a percentage point in 2003.

# Norwegian economy

Following two quarters of close to trend growth, output growth in mainland Norway weakened again in the third quarter. According to the quarterly national accounts, mainland GDP (seasonally adjusted and measured from the previous quarter) rose by 0.3 per cent, compared with 0.7 and 0.5 per cent respectively in the previous two quarters. Traditional exports of goods fell by as much as 5.2 per cent, and mainland investment also showed a marked decline of 2.6 per cent. The effect on production growth in the third quarter was curbed by a decline of 3.4 per cent in traditional imports of goods. Even though output growth moved on a downward trend, the growth path

has nevertheless been revised up to some extent compared with the previous report. The upward revision primarily relates to mainland investment, which now shows a contraction through the summer half-year while this component previously showed a fall through the first half of the year. Moreover, petroleum investment now shows steadier growth over the past year than in the previous report, generating a somewhat stronger contribution to growth. Whereas household consumption, etc. showed growth that was lower than growth in mainland GDP through the summer, growth in general government consumption was higher.

## Macroeconomic indicators 1999-2001

Growth from previous period unless otherwise noted. Per cent

	1999	2000	Seasonally adjusted			
			00.4	01.1	01.2	01.3
<b>Demand and output</b>						
Consumption in household and non-profit organizations	2.2	2.4	-0.6	2.1	0.2	0.3
General government consumption	3.3	1.4	0.5	0.6	0.4	0.5
Gross fixed investment	-8.2	-1.1	-0.8	4.4	-5.6	-2.9
- Mainland Norway	-2.6	1.4	2.5	0.5	-1.4	-2.6
- Petroleum activities <sup>1</sup>	-19.9	-17.1	-2.4	2.7	3.2	0.2
Final domestic demand from Mainland Norway <sup>2</sup>	1.5	1.9	0.2	1.4	0.0	-0.2
Exports	2.8	2.7	4.2	1.6	-1.9	1.5
- Crude oil and natural gas	-0.1	6.4	6.0	2.3	-5.9	6.1
- Traditional goods	3.2	2.1	0.2	5.4	-0.5	-5.2
Imports	-1.6	2.5	-1.7	3.7	-2.0	-2.1
- Traditional goods	-1.3	1.7	-1.1	3.0	1.8	-3.4
Gross domestic product	1.1	2.3	0.1	0.6	0.3	0.9
- Mainland Norway	1.0	1.8	-0.4	0.7	0.5	0.3
<b>Labour market<sup>3</sup></b>						
Man-hours worked	0.2	-0.8	-1.0	1.4	1.1	-0.5
Employed persons	0.6	0.5	0.2	0.2	0.2	-0.4
Labour force	0.5	0.8	0.3	0.1	0.1	-0.2
Unemployment rate, level <sup>4</sup>	3.2	3.4	3.6	3.4	3.4	3.6
<b>Prices</b>						
Consumer price index (CPI) <sup>5</sup>	2.3	3.1	3.1	3.6	4.0	2.6
CPI excl. energy products and changes in indirect taxes <sup>5</sup>	..	..	2.6	2.8	2.6	2.4
Export prices, traditional goods	0.0	13.8	1.5	-2.5	-1.1	-1.9
Import prices, traditional goods	-2.3	6.0	0.8	2.9	-1.2	-3.6
<b>Balance of payment</b>						
Current balance, bill. NOK	48.8	203.6	66.3	62.3	56.1	56.9
<b>Memorandum items (Unadjusted, level)</b>						
Money market rate (3 month NIBOR)	6.5	6.8	7.5	7.4	7.5	7.3
Average borrowing rate	8.4	8.1	8.7	8.9	8.9	8.7
Crude oil price NOK <sup>6</sup>	141.6	252.0	277.8	229.4	250.1	228.3
Importweighted krone exchange rate, 44 countries, 1997=100	101.0	103.6	103.6	102.2	100.8	99.6
NOK per ECU/euro	8.31	8.11	8.04	8.20	8.01	8.01

<sup>1</sup> Figures for petroleum activities now covers the sectors oil and gas extraction proper, transport via pipelines and service activities incidental to oil and gas extraction.

<sup>2</sup> Consumption in households and non-profit organizations + general government consumption + gross fixed capital formation in Mainland Norway.

<sup>3</sup> Figures for 1999 and 2000 are from national accounts. The quarterly figures are from Statistics Norway's Labour force survey (LFS), since the new quarterly national accounts series for employment are too short for seasonal adjustment.

<sup>4</sup> According to Statistics Norway's labour force survey (LFS).

<sup>5</sup> Percentage change from the same period the previous year.

<sup>6</sup> Average spot price, Brent Blend.

Sources: Statistics Norway and Norges Bank.



At the moment there are two factors in particular that are influencing developments in the Norwegian economy. One factor is a somewhat more expansionary fiscal policy with the use of the expected return on the Government Petroleum Fund, and the second is weaker developments in the global economy. The more expansionary fiscal policy has contributed to increasing the possibility of a demand-driven rise in inflation in Norway. This has prompted Norges Bank (Central Bank of Norway) to maintain high interest rates even though interest rates among our trading partners have fallen. Despite a substantial decline in oil prices this autumn, the high level of interest rates in Norway has contributed to maintaining a strong krone. The second factor relates to the terror attacks in the US on 11 September and subsequent military action, which have amplified an international cyclical downturn that was already under way. This has resulted in a fall in both the volume and prices of traditional Norwegian exports.

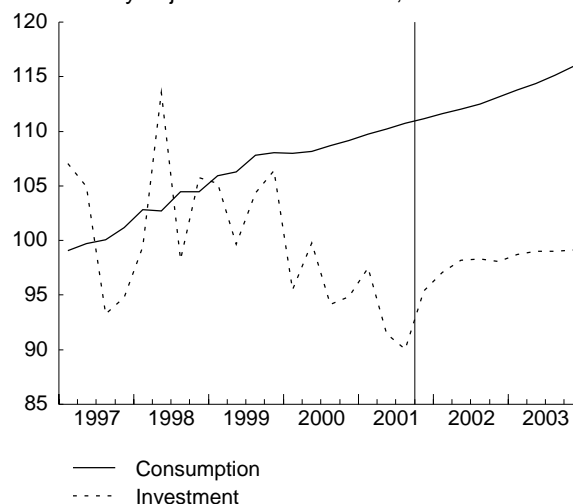
The outlook for the global economy is now perceived as considerably more uncertain than earlier and the possibilities for stimulating growth through a more expansionary monetary policy is being put to a test in many countries. Recently, Norway has also recorded an increase in unemployment which, combined with weak profitability in internationally exposed sectors and low imported price inflation, points to a reduction in underlying price inflation in the period ahead. In view of the change in the international outlook and the prospect of lower domestic inflation, it is now more likely that the contractionary monetary policy in Norway will be revised and that Norwegian interest rates will also fall to a greater extent in the period ahead than assumed earlier.

### Fiscal policy – lower taxes

Whereas in the previous report, which was published before the general election, we had to make assumptions concerning the fiscal policy stance in 2002, we can now apply the current Government's budget as presented in a supplementary proposition (Proposition no. 1 to the Storting, Supplement no. 4). The approved government budget is drawn up in line with the new guidelines for fiscal policy as presented in Report no. 29 to the Storting (2000-01). As a result of high oil prices in 2000 and well into 2001, the Government Petroleum Fund has reached a considerable size, thereby permitting a deficit in the non-oil structural budget balance of about NOK 26 billion in 2002, a budget weakening of a good NOK 7 billion compared with this year's budget. Even though fiscal policy shall continue to be oriented with a view to stabilizing cyclical fluctuations, it is reasonable to assume, based on the approved fiscal stimulus and high level of Norwegian interest rates, that a further cyclical stimulus will initially be transmitted through lower interest rates.

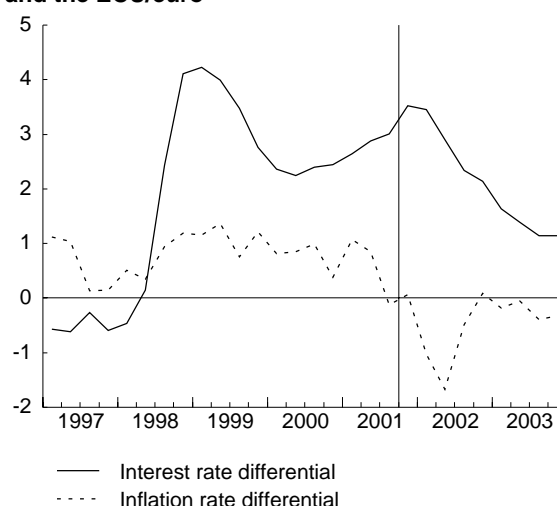
### General government

Seasonally adjusted volume indices, 1997=100



Source: Statistics Norway.

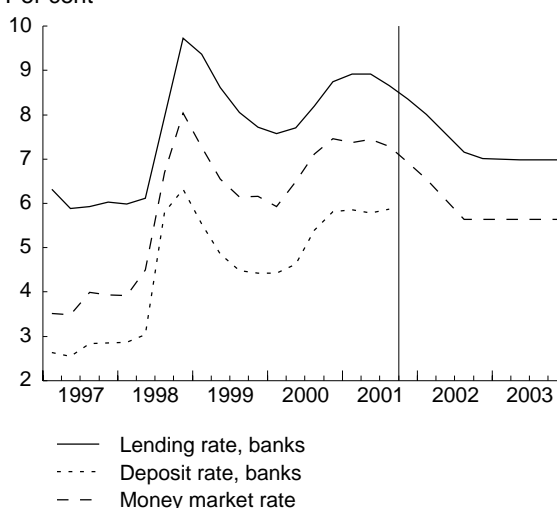
### Interest rate and inflation differential between NOK, and the ECU/euro



Sources: Norges Bank and Statistics Norway.

### Lending rate and deposit rate

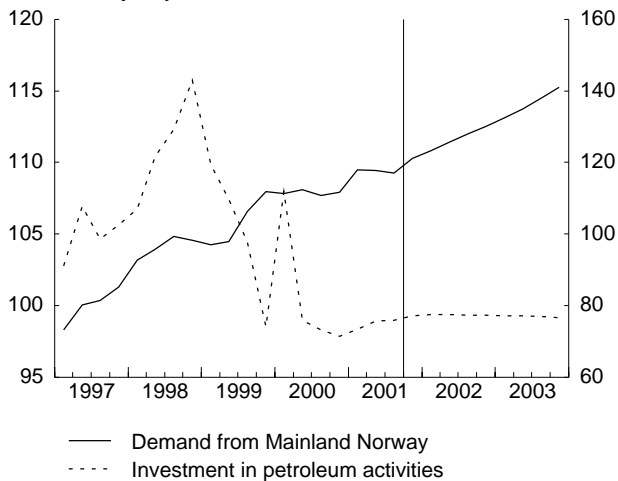
Per cent



Sources: Norges Bank.

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

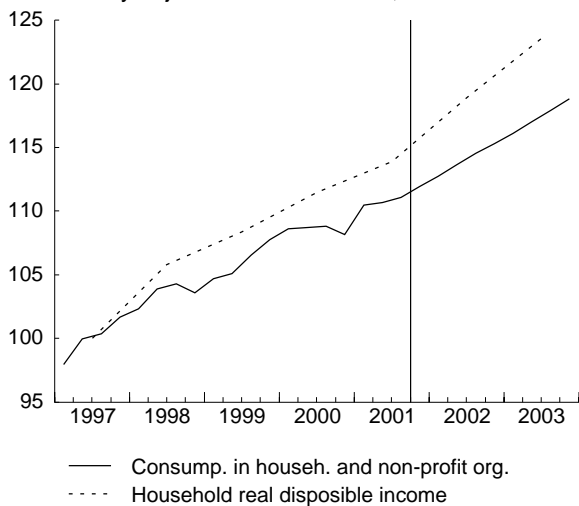
Seasonally adjusted volume indices, 1997=100



Source: Statistics Norway.

### Income and consumption in households

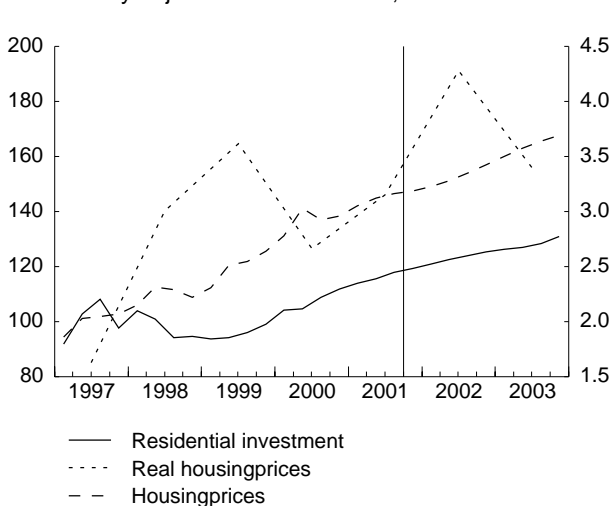
Seasonally adjusted volume indices, 1997=100



Source: Statistics Norway.

### Residential investment and housingprices

Seasonally adjusted volume indices, 1997=100



Source: Statistics Norway.

In the budget for 2002, a large portion of the increased fiscal policy leeway is used to reduce taxes. This is partly accomplished through a continuation of approved reforms from 2001 and partly through new reductions in the direct taxation of individuals and enterprises in addition to a further reduction in indirect taxes. General government expenditure for consumption and fixed capital formation is assumed to increase by about 2 per cent and thereby somewhat less than projected underlying mainland GDP growth. For 2003, we have assumed for the purpose of our forecasts that the increased fiscal policy leeway is used to reduce excise duties. With a somewhat lower oil price next year than in 2001, the agreed guidelines will provide scope for a further budget weakening of a good NOK 6 billion from 2002 to 2003. The removal of the investment tax with effect from 1 October 2002, which on an annual basis entails a direct budget weakening of about NOK 6 billion, will primarily affect the government budget in 2003 and thus, along with other budget resolutions with a carry-over into 2003, will provide little scope for a further weakening of the budget. Hence, no reductions in personal taxes have been assumed, although our forecasts incorporate the assumption that excise duties, excluding the investment tax, will be reduced by about NOK 2 billion from 2002 to 2003.

General government expenditure on goods and services is assumed to expand at about the same rate in 2003 as in 2002. The current Government has indicated that the production of services that traditionally have been produced in the public sector should to a greater extent than earlier be based on competition between private and public sector operators. As long as the public sector pays for the services, however, these will be classified as consumption in general government according to the national accounts. The difference in relation to the current distribution between the private and public sector will only be that general government consumption will to a greater extent consist of expenditure on goods and services and not labour and capital costs. If, on the other hand, tax reductions leave it up to households to purchase health, care and education services, the national accounts will record this as consumption in households.

Production in the general government sector is calculated on the basis of man-hours worked. Fewer working days due to public holidays in 2001 and 2003, along with an increase in vacation days in 2001 and 2002, will contribute to lower growth in general government production and general government consumption than the level implied by developments in the number employed in the sector.

### Strong krone and lower interest rates

It appears that the import-weighted krone exchange rate will show an appreciation of about 3 per cent from 2000 to 2001, particularly as a result of the de-

preciation of the Swedish krona and a weak euro. The Norwegian krone has been fairly stable against the US dollar through 2001 and only marginally weaker than in 2000. A stronger krone exchange rate has not been seen since 1997. We have thus recorded a considerable nominal appreciation, particularly from 1999 and to the end of the third quarter of 2001. The real appreciation has been even greater as price inflation has been higher in Norway than among our trading partners in these years.

As usual, we base our projections for the next two years on exchange rate estimates from Consensus Forecasts. The interest rate differential against the euro area is assumed to narrow. This is part of the reason for assuming a depreciation of the Norwegian krone against the euro over the next two years. The import-weighted krone exchange rate will therefore on the whole depreciate by one percentage point in the two-year period.

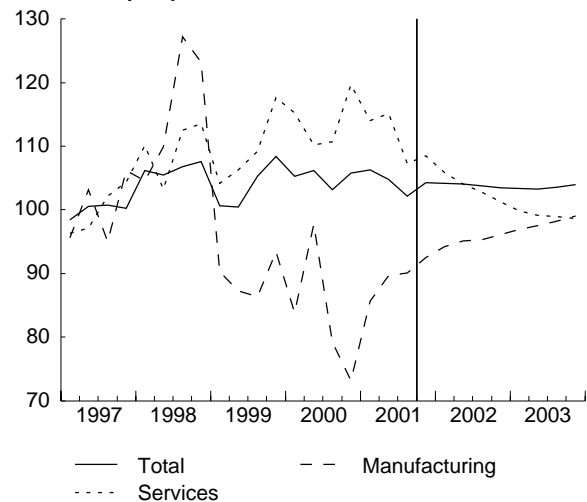
Central banks throughout the world have reduced their key rates in 2001. So far this year, Norges Bank has not changed interest rates. The interest rate differential against the euro area is now about 3 percentage points. With such a wide interest rate differential and the outlook for lower growth in the Norwegian economy than assumed earlier, it is likely that Norges Bank will reduce its key rates soon. Market participants also seem to have the same expectations. Our projections are now based on the assumption that Norges Bank will reduce its rates by almost 1.5 percentage points in the period ahead and through 2002. In keeping with our assessment of the timing for a resumed upswing in the global economy, we assume that euro rates will edge up towards the end of next year. For 2003, our projections therefore imply that the interest rate differential between Norway and the euro area will be reduced from about 3 to a good 1 percentage point. Compared with our estimates in the previous report at the beginning of September, our projections for nominal Norwegian money market rates are reduced by half a percentage point in 2002 and  $\frac{3}{4}$  percentage point in 2003. According to our calculations, this is compatible with the inflation target of monetary policy.

### No strong growth impetus from petroleum activities

It appears that oil production will expand fairly moderately from 2000 to 2001, while gas production is expected to increase by a good 5 per cent. In 2002, gas production is expected to rise by as much as 10 per cent, while oil production is projected to increase by about 2 per cent. It is uncertain how long the approved oil production cuts will last. This depends on developments in the price of crude oil. If the oil price is again within OPEC's targeted range, it is likely that both OPEC and the countries that are now cutting production in consultation with OPEC will increase

### Investment, Mainland Norway

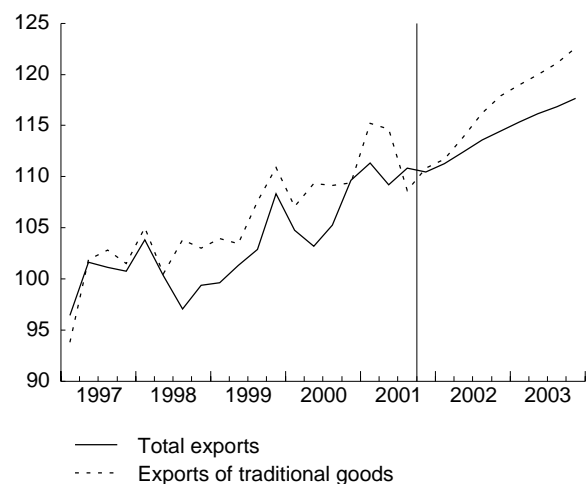
Seasonally adjusted volume indices, 1997=100



Source: Statistics Norway.

### Exports

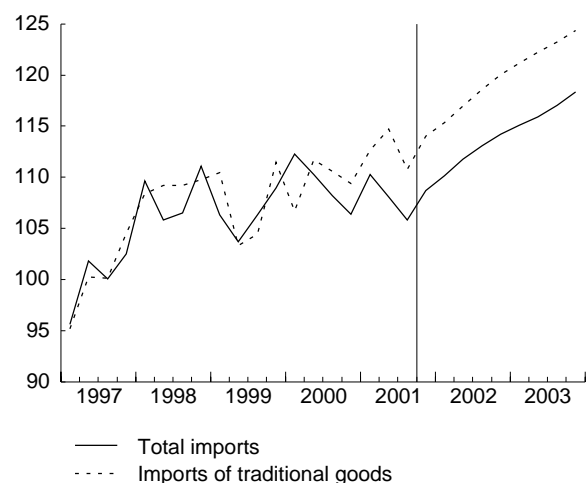
Seasonally adjusted volume indices, 1997=100



Source: Statistics Norway.

### Imports

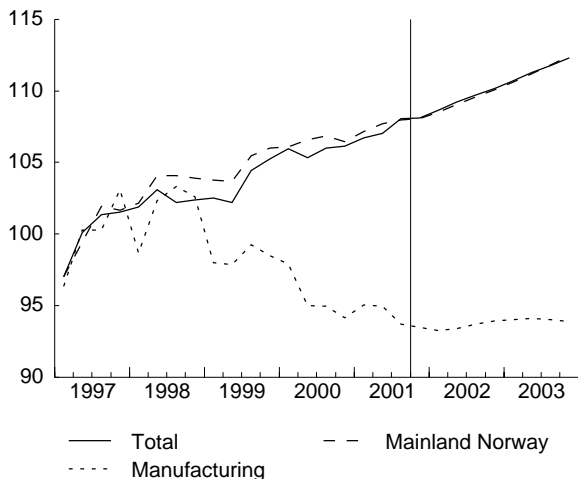
Seasonally adjusted volume indices, 1997=100



Source: Statistics Norway.

### Gross domestic product

Seasonally adjusted volume indices, 1997=100



Source: Statistics Norway.

production. Our estimates are based on the assumption that this will not occur until one year after an international cyclical upturn has clearly emerged. It now appears that the price for Brent Blend will be about USD 25 per barrel in 2001, equivalent to about NOK 220 per barrel. This is a decline in prices of 12 per cent from the previous year. For 2002, we assume that the oil price will fall further, to USD 22 per barrel, which results in a fall in prices of 13 per cent measured in krone terms. For 2003, however, we assume that the oil price will be in the middle range of OPEC's targeted interval for the oil price, which entails a price of Brent Blend of USD 25-26 per barrel. Measured in krone terms, we assume that the oil price in 2003 will be approximately the same as our estimate for 2001.

Measured at an annual rate, petroleum investment is projected to contract by 8 per cent from 2000 to 2001. The decline is related to the very high level of investment in the first quarter of 2000. However, this has its counterpart in extraordinarily high import-oriented investment in the same quarter, with the result that petroleum investment demand for goods and services from Norwegian suppliers appears to be roughly unchanged from 2000 to 2001. Petroleum investment has risen slightly through most of 2001. This is expected to continue into 2002 so that the level of investment on an annual basis will be about 3 per cent higher than this year. For 2003, investment is not expected to show substantial changes in relation to the average level in 2002. There is a tendency to reduce the development of new fields and to increase investment in fields that are already on stream. The recently approved cut in production is not expected to have a significant impact on petroleum investment.

Traditionally, there is considerable uncertainty associated with the level of petroleum investment one and a half years ahead. If the oil price falls substantially over the next six months, this may have a negative effect on petroleum investment in 2003, particularly for exploration drilling. However, even an oil price at the current level – about USD 19 and about NOK 170 per barrel – provides very high profitability for projects on the Norwegian shelf. It is not considered very likely that the oil price will fall so dramatically that current development projects will be shelved.

All in all, the petroleum sector's contribution to production and demand is thus expected to be moderate. As a result, the difference in growth rates for total GDP and for the mainland economy will be modest, although the petroleum sector will continue to push up total growth somewhat.

### Increasing consumption growth and high saving

Growth in household consumption appears to be about 2 per cent in 2001, on a par with earlier estimates. It appears that household real disposable income will increase at a somewhat faster rate, resulting in a slightly higher household saving ratio. There have been signs of slightly slower growth in transfers to households over the past year, not least due to the levelling off of the rise in sickness benefits. The high real after-tax interest rate is an important reason for the increase in the saving ratio.

The outlook for very low price inflation next year will probably have two effects on household consumption in the period ahead. First, subdued inflation will in isolation contribute to higher growth in real disposable income. Second, lower inflation will raise the real after-tax interest rate, which will place a damper on consumption growth and contribute to maintaining a high saving ratio. Lower nominal interest rates will also have an impact on households' financial income because interest income will fall less than interest expenses. An increase in real disposable income will boost the household saving ratio particularly the first year, and it will take several years before an increase in income has a full impact on consumption.

No substantial changes in nominal interest rates have been assumed through 2003. With slightly higher consumer price inflation that year compared with 2002, the real interest rate will decline. In isolation, this contributes to higher consumption and lower saving. In the short run, however, rising unemployment will result in higher saving because we assume that rising unemployment makes households in general more uncertain about their own earning capacity, thereby reducing their willingness to raise new loans and increasing their interest in accumulating financial reserves. This contributes to a continued rise in saving in 2003 despite the fall in real interest rates.

**Main economic indicators 2000-2003. Accounts and forecasts.**

Percentage change from previous year unless otherwise noted

	Accounts 2000	Forecasts							
		2001			2002			2003	
		SN	MoF	NB	SN	MoF	NB	SN	NB
<b>Demand and output</b>									
Consumption in households and non-profit organizations	2.4	2.0	1.9	2	2.9	2.7	2 3/4	2.8	2 3/4
General government consumption	1.4	2.0	2.1	2 1/2	1.6	1.5	2 1/4	2.3	2 1/2
Gross fixed investment	-1.1	-5.2	-1.0	0	1.9	0.5	-2	-0.6	-3/4
Petroleum activities	-17.1	-8.2	-5.4	0	2.8	-2.3	-5	-0.1	-5
Mainland Norway	1.4	-0.6	-0.6	0	-0.4	0.9	-1 1/2	-0.8	1/4
Firms	1.8	-2.4	-2.6	-1 3/4	-3.7	-0.5	-4 1/2	-2.5	3/4
Housing	12.2	8.8	7.6	8 1/2	5.4	0.8	2	2.8	0
General government	-7.9	-3.2	-1.6	-2 1/4	4.7	4.8	4 3/4	0.3	0
Demand from Mainland Norway <sup>1</sup>	1.9	1.5	..	1 3/4	2.0	..	2	2.0	2 1/4
Stockbuilding <sup>2</sup>	0.9	-0.8	..	..	0.0	..	..	0.0	..
Exports	2.7	4.3	3.8	2 3/4	2.5	3.8	2 1/4	3.0	2 3/4
Crude oil and natural gas	6.4	4.9	8.6	4	3.2	8.3	6	0.4	2
Traditional goods	2.1	2.8	1.6	2 3/4	2.7	1.4	-1	4.7	3 1/2
Imports	2.5	-0.3	1.9	0	4.1	1.9	1/4	3.4	3 1/4
Traditional goods	1.7	3.3	2.5	1	4.0	2.0	1/4	4.1	3 1/4
Gross domestic product	2.3	1.4	1.6	1 1/2	1.8	2.7	2 1/4	1.8	1 3/4
Mainland Norway	1.8	1.1	0.8	1 1/4	1.5	1.6	1 1/2	1.9	1 3/4
<b>Labour market</b>									
Employed persons	0.5	0.2	0.3	1/2	0.0	0.3	1/4	0.1	1/2
Unemployment rate (level)	3.4	3.6	3.5	3 1/2	3.9	3.6	3 1/2	4.1	3 1/2
<b>Prices and wages</b>									
Wages per standard man-year	4.3	4.5	4 1/2	4 3/4	4.1	4 1/4	5	3.6	5
Consumer price index (CPI)	3.1	3.0	3.1	3	1.0	1.5	1 1/2	1.6	2 1/2
CPI excluding energy products and changes in indirect taxes	..	2.5	..	2 1/2	2.4	..	2	1.9	2 1/2
Export prices, traditional goods	13.8	-1.8	..	-1	-4.7	..	-1 1/2	4.1	1/2
Import prices, traditional goods	6.0	1.2	..	..	-2.2	..	..	1.1	..
Housing prices	14.0	5.9	..	4 1/2	5.1	..	4	7.5	4
<b>Balance of payment</b>									
Current balance (bill. NOK)	203.6	212.0	189.1	200	167.3	159.4	170	197.7	170
Current balance (per cent of GDP)	14.3	14.5	..	14	11.4	..	11	12.9	11
<b>Memorandum items:</b>									
Household saving ratio (level)	7.7	7.9	7.5	8	9.2	8.2	8 1/2	10.2	8 1/2
Money market rate (level) <sup>3</sup>	6.8	7.3	..	..	6.0	..	..	5.6	..
Lending rate, banks (level)	8.1	8.7	..	..	7.4	..	..	7.0	..
Crude oil price NOK (level) <sup>4</sup>	252.0	221.2	220	224	192.5	185	177	217.6	177
Export markets indicator	10.3	1.6	..	..	4.3	..	..	7.7	..
Importweighted krone exchange rate (44 countries) <sup>3,5</sup>	2.6	-3.2	..	-3	0.7	..	-1 1/4	0.3	0.0

<sup>1</sup> Consumption in households and non-profit organizations + general government consumption + gross fixed capital formation in Mainland Norway.<sup>2</sup> Change in stockbuilding. Per cent of GDP.<sup>3</sup> NB technically assumes its rates to be constant through the forecast period.<sup>4</sup> Average spot price Brent Blend.<sup>5</sup> Increasing index implies depreciation.

Sources: Statistics Norway (SN), Ministry of Finance, St.prp. nr. 1 Tillegg nr. 4, 2001 (MoF), Norges Bank, Inflasjonsrapport 3/2001 (NB).

It appears that housing investment will show an increase of about 9 per cent in 2001, in line with the estimate in our previous report. The high level of housing starts in the first half of 2001 was largely associated with the construction of assisted living facilities for the elderly and cottages. Housing starts have fallen since the summer. However, the number of dwellings under construction has continued to show a rise up to now and is at a relatively high level. Housing investment may therefore increase somewhat for a period ahead, but level off through 2002. On an annual basis, housing investment is therefore still expected

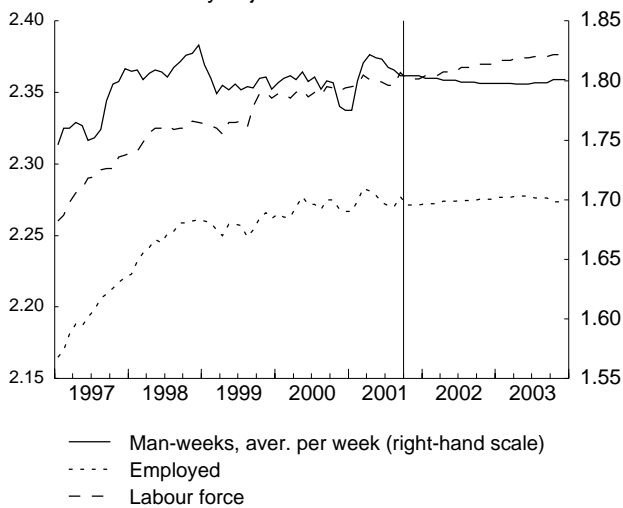
to rise in 2002. High growth in household income along with a fall in nominal interest rates may contribute to resumed growth in housing starts unless we record a stronger downturn with mounting unemployment and increased uncertainty for the household sector. Prices for existing dwellings have moved on an upward trend, and the same factors that are contributing to growth in housing investment will also contribute to boosting house prices. Historically, however, prices for existing dwellings are very sensitive to cyclical developments. A weak rise in these prices for a period ahead is therefore conceivable. With the pros-

**Productivity and output gap**



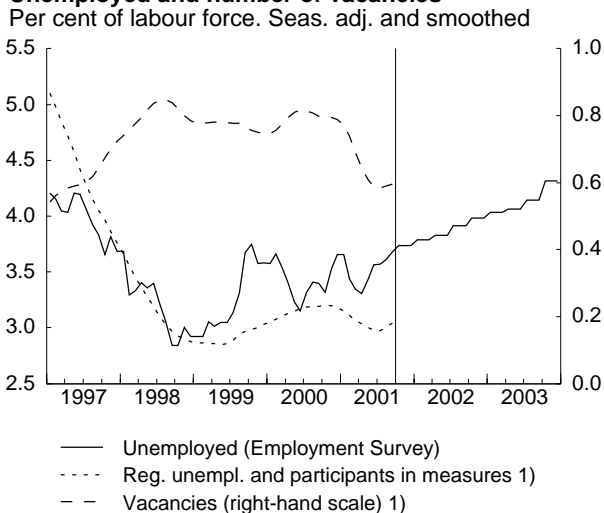
Source: Statistics Norway.

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



Source: Statistics Norway.

**Unemployed and number of vacancies**



1) Backwards adjusted for breaks in the series from January 1999. Sources: The Directorate of Labour and Statistics Norway.

pect of a fall in interest rates and vigorous income growth, however, it is likely that real prices in the housing market will continue to rise in 2002, approximately on a par with developments in 2001.

**Decline in mainland corporate investment**

Total mainland corporate investment has edged down during 2001, although the picture varies considerably across industries. In manufacturing, investment showed a substantial increase after bottoming out around the end of 2000. Statistics Norway's investment intentions survey from December shows that manufacturing enterprises expect a noticeable increase in manufacturing investment again in 2002. This is related in part to ongoing modernization in the aluminium industry. Higher investment activity is now also being planned in the power supply sector in 2002. In service industries, where the level of investment has been at a historically very high level since 1997, investment has contracted through 2001, and the decline is expected to continue in both 2002 and 2003. Since the size of this component is equal to housing investment and general government investment combined, the sluggish trend in service industries is now expected to result in small changes in total investment in the mainland economy over the next two years.

The investment tax, which was originally scheduled to be removed with effect from 1 April next year, will now be eliminated on 1 October. It is likely that enterprises that have the opportunity to postpone the start of taxable investment will do so in order to avoid paying the tax. In isolation, this will contribute to reducing investment in the period ahead, but increasing investment temporarily from the autumn of next year. Non-residential building starts have exhibited a downward trend over several quarters after peaking about two years ago, while buildings under construction continue to move on a weak upward trend. This investment is therefore not expected to show a substantial decline in 2002.

**Cyclical downturn in the global economy results in low export growth**

Amplified by the terrorist attacks on the US, the cyclical downturn in the global economy has been pronounced in recent months. This has also contributed to a decline in international commodity prices, which have a considerable influence on Norway's disposable income. Our projections for market growth among Norway's trading partners have been revised downwards substantially for both 2001 and 2002 compared with our September report. Our projections for exports of traditional goods and some services have therefore also been lowered appreciably. Traditional exports are now expected to show an increase of about 3 per cent in both 2001 and 2002. Seasonally adjusted quarterly national accounts figures show a pronounced decline from the second to third quarter

### Effects of a more prolonged downturn in the US on the Norwegian economy

The uncertainty concerning future developments in the global economy is considerable, and in the section on the international economy we outlined possible effects of a more prolonged US downturn on the US and European economies. Such developments will influence the Norwegian economy in several ways. Both market growth and price inflation among our trading partners are reduced in relation to the baseline scenario, the euro appreciates against the US dollar and euro interest rates are lower. Moreover, we have assumed that the oil price falls by USD 8 and that international commodity prices decline by 10 per cent. We have assumed that the krone gradually depreciates against the euro as a result of this, in relation to the baseline scenario, so that the import-weighted krone exchange rate remains unchanged. The interest rate is assumed to shadow inflation, with real interest rates unchanged. The sharp fall in oil prices measured in krone terms entails reduced allocations to, and thereby total assets in, the Government Petroleum Fund, which may be amplified by negative effects on equity prices internationally. Fiscal policy is nevertheless assumed to remain unchanged as the fiscal policy guidelines allow the cyclical situation to be taken into account in the formulation of policy. Petroleum investment is also assumed to be unaffected. Some of the main results are summarized in the table. The calculations start in the third quarter of 2002, so that the effects in the second half of 2002 are twice the level shown (does not apply to the current account balance).

Percentage deviation from baseline scenario	2002	2003
Private consumption	0.1	0.7
Manufacturing investment	-0.4	-1.6
Traditional merchandise exports	-0.7	-1.4
Mainland GDP	-0.1	-0.1
Manufacturing output	-0.5	-1.3
Unemployment rate*	0.1	0.1
Consumer price inflation*	-0.3	-1.3
Rise in import prices, trad. goods	-1.0	-2.7
Current account balance, NOK bill.	-47.1	-123.7

\*Absolute deviation.

The calculations indicate that this delayed cyclical upswing in the US will not necessarily, under our assumptions, have strong effects on production and employment in Norway. However, the result is a clearer dichotomy in the economy. Whereas manufacturing and export industries are negatively affected by lower market growth, private consumption remains buoyant and gradually increases because lower interest rates and a higher operating surplus for households boost their consumption-inducing real income. This shift in demand also influences the current account balance, but the substantial deterioration here is primarily a result of lower oil prices.

How monetary policy will respond to this is uncertain. With a smaller decline in interest rates (i.e. higher real interest rates), the positive effects on consumption will be smaller and the negative effects on total production and unemployment greater.

of this year, with the result that the downward revision in export growth from the previous report is greatest for this year. A cyclical turnaround is still expected to take place early in 2002. The strong stimulus being generated by monetary policy in most OECD countries should contribute to this. However, the uncertainty concerning international developments is greater than earlier. We have therefore included a scenario with weaker international developments.

### Increasing demand from mainland Norway

With stronger growth in household consumption next year and approximately unchanged investment, total demand from households and mainland enterprises may increase somewhat in the period ahead compared with growth in 2001. However, growth in domestic demand has been revised downwards compared with our previous report. Part of the downward adjustment reflects weaker international developments that affect domestic activity and demand. Moreover, the orientation of economic policy differs from what we assumed in the September report. The approved programme from the current Government will generate a substantially smaller demand impetus to the domestic economy than was then assumed. This is because a policy that places emphasis on lower taxes and excise duties generates a smaller demand impetus in the short and medium term than a policy that places greater emphasis on public expenditure for consumption and fixed capital formation.

### Higher growth in mainland GDP in the period ahead

GDP continued to expand in the third quarter of 2001, but growth in the mainland economy tended to be slightly lower. For 2001 as a whole, total GDP is now expected to grow by 1.4 per cent, which is nearly a percentage point lower than in 2000. Mainland GDP growth is estimated at 1.1 per cent in 2001, which is only marginally lower than our previous projection. As discussed in earlier reports, low growth in 2001 is influenced by the fall in electricity production from 2000 to 2001. Underlying growth in the mainland economy is therefore somewhat higher.

Stronger growth in domestic demand is expected to boost growth in the mainland economy next year. However, our growth projections have been revised down substantially compared with our previous reports, which were then based on different assumptions concerning economic policy and international developments, cf. discussion above. In this respect, our projections for 2002 and 2003 are now more on a par with those provided at the beginning of this year before economic policy was revised. Sluggish developments in the international economy will have a negative influence on growth in manufacturing. As a result of the strong krone exchange rate, more of the overall demand impetus will be focused on imports. Growth

is primarily expected to take place in service industries. The negative impetus from the decline in petroleum investment now appears to be over for a while and this will make a positive contribution to some manufacturing sectors. The most export-oriented industries will probably be facing the greatest problems in the period ahead, with low market growth and weak profitability.

The Norwegian economy has now entered a downturn. However, an expansionary fiscal policy and a gradual revision of monetary policy, along with a resumed cyclical upswing in the international economy through 2002, will contribute to a pick-up in growth in the economy to nearly 2 per cent in 2003. However, this growth is not sufficient to allow the economy to approach a cyclically neutral situation. This is also reflected in the assumption that unemployment will rise.

### Rising unemployment

Unemployment has risen in recent months. The unemployment rate, measured by the Labour Force Survey, is now expected to be 3.6 per cent this year, compared with 3.4 per cent in 2000. With growth in the economy that is lower than trend growth, unemployment will continue to edge up in the period ahead. However, experience shows that the labour supply responds fairly quickly to a slacker labour market and that this will curb the increase in unemployment. Whereas it appears that the labour force participation rate will increase by about half a per cent this year, no increase is expected next year. This will result in an increase in the labour force of 6-8 000 persons. Taking into account that the number of working days will be fewer next year due to an increase in vacation days, employment will remain high even though the number of man-hours worked is assumed to fall. Stated simply, we thus expect unemployment to increase approximately in step with the increase in the labour supply next year, while the number employed will remain virtually unchanged.

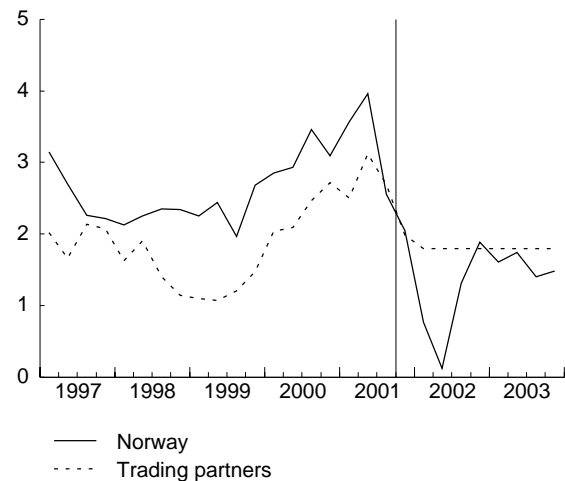
In 2003, when growth again picks up, both labour demand and supply will increase. The result of this is expected to be a moderate rise in unemployment.

### Moderate price inflation

The rate of price inflation has changed considerably over the past two years. The year-on-year rise in the consumer price index (CPI) was down to 1.9 per cent in August 1999, rising thereafter up to May 2001 when it reached 4.3 per cent. Increases in crude oil prices on the world market and electricity prices in the Nordic countries, along with changes in indirect taxes, were the main driving forces behind the acceleration. Over the last four months the rate of inflation has fallen markedly, and was down to 2.2 per cent in October. The halving of the VAT rate on food with effect from 1 July, lower petrol prices and a slight

### Consumer price indices

Percentage growth from the same quarter previous year



Sources: Statistics Norway, OECD and Eurostat.

decline in electricity prices (whereas they normally rise in the autumn) were the most important factors behind this fall. When the CPI is adjusted for changes in real taxes and energy prices (CPIATE), the rate of inflation has been very steady over the past 15 months, which is the period covered by these statistics. However, the rate of inflation has tended to move down this year, from 2.8 per cent in January to 2.5 per cent in October.

Energy prices are expected to contribute to reducing the year-on-year rise in the CPI towards the end of this year, with the annual rise reaching 3.0 per cent. Lower tax rates for electricity and beverages as well as the elimination of the 12-month effect of the general increase in the VAT rate on 1 January 2002 will probably contribute to a marked reduction in the inflation rate at the beginning of next year. Normal seasonal movements in electricity prices, with a decline in the spring, as well as the removal of the airline passenger tax from 1 April, will contribute to a further decline in inflation towards the end of the first half of 2002. Developments may be amplified by lower interest rates, which in the short term may reduce inflation because house rents will rise less than they otherwise would have. As from 1 July, the direct effect of changes in the VAT scheme from 1 July 2001 will be eliminated, a factor that will push up the rate of inflation. Towards the end of 2002 and into 2003, the year-on-year rise in the consumer price index may be about 2 per cent.

In the calculations, the indirect effects of a reduction in excise duties and lower energy prices contribute to reducing to some extent the underlying rate of inflation, measured by CPIATE, in the period ahead. A lower rise in import prices, reduced interest rates and somewhat lower wage growth point to the same. Reduced competition in air transport and telecom services may, however, have the opposite effect.



### Labour market pressures and inflation

According to the Labour Force Survey (LFS), unemployment in Norway fell from 6.5 to 3 per cent in the years 1993-1998 before stabilizing at about 3.5 per cent in 2000 and 2001 (see figure 1). In the early 1990s, this level was described as an equilibrium unemployment level in Norway. Wage growth has nevertheless remained at a very high level in recent years, a factor that has probably prompted many observers to maintain that the labour market remains tight.

On the basis of empirical work underlying the modelling of wage formation in Statistics Norway's macroeconomic models, there is no direct relationship between the level of unemployment and wage growth in the long term, i.e. no Phillips curve. Unemployment, on the other hand, determines the level of real wages in the long term. However, because a sustained fall in unemployment will increase the level of real wages, and because it takes time before real wages reach the new level, wage growth in the intervening period will remain high. This period may be long because higher wages result in higher prices, which curb the increase in real wages. The result is a wage-price spiral where both wage and price inflation may remain high even if unemployment remains unchanged. It is worth investigating to what extent the decline in unemployment from 1993 to 1998 is still generating an inflationary impetus in Norway.

In order to shed light on the problem, we have used Statistics Norway's macroeconomic model KVARTS to calculate the isolated effect of the fall in unemployment since 1993 on wage and price inflation, viewed in relation to a counterfactual path in which unemployment remains constant at the level in the third quarter of 1993 at about 6.5 per cent, while all other exogenous variables that influence price inflation (import prices, exchange rates, economic policy, etc.) evolve as was actually the case. The setting of interest rates is throughout in keeping with the earlier regime of fixed exchange rates. We also calculate the contribution of the fall from 6.5 per cent to wage and price inflation in the period ahead if unemployment were to remain at the current level of about 3.5 per cent up to

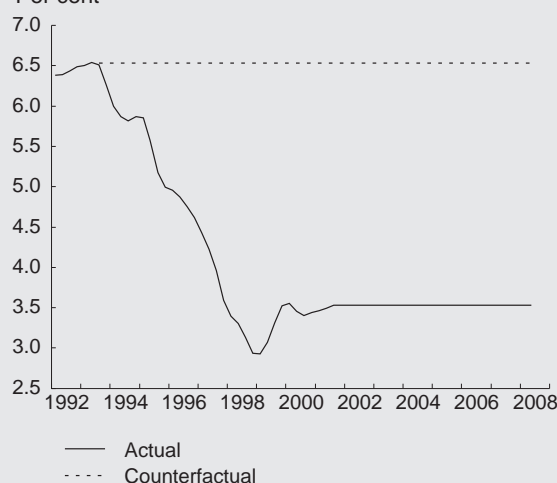
2008. The effects of the decline in unemployment on wage and price inflation are shown in figure 2.

The calculations show that even though the decline in unemployment rapidly contributed to higher wage growth, the contributions to price inflation were modest the first few years. This is precisely because the process of passing on higher costs to prices is slow, and it also means that the wage-price spirals contributed little to wage growth up to end-1995. The effect on price inflation then began to have an impact on wage growth, while falling unemployment continued to make a further contribution. The total contribution of the decline in unemployment to wage growth peaked in 1998, the year actual wage growth also reached a peak, with wages rising by 6.5 per cent.

Higher unemployment through 1999 contributed to reducing wage growth through 1999 and part of 2000. Unemployment has since showed little change, so that the estimated contributions to wage and price inflation in 2001 are generally a result of the wage-price spiral that was started by the previous fall in unemployment. The calculations show that this spiral will, in isolation, continue to generate higher wage and price inflation in coming years, contributing 1.5-2 per cent to wage growth and 1 per cent to price inflation. We do not see signs of a decline in the contributions to wage and inflation pressures until the end of the period.

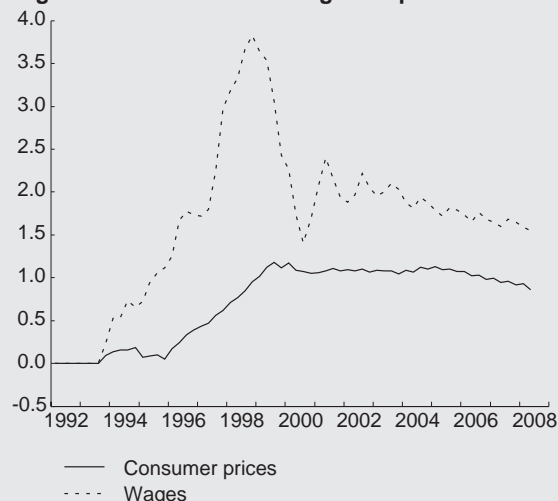
The main conclusion of the calculations is that it is not the current level of unemployment which, in isolation, contributes to developments in inflation in the period ahead, but that earlier falls in unemployment will continue to contribute to wage and price inflation in coming years (albeit with declining importance). This is a result of the relatively sluggish wage-price spiral. The analysis shows that even though no Phillips curve is incorporated in wage formation in KVARTS, there are still mechanisms in the model which over a long period create a similar relationship for the economy as a whole, known as hysteresis in wage formation.

**Figure 1: Unemployment**  
Per cent



Source: Statistics Norway

**Figure 2: Contribution to wage and price inflation**



Source: Statistics Norway

**Lower nominal, but higher real wage growth**

The main settlement next spring will take place in an environment characterized by weak profitability in internationally exposed sectors, very low consumer price inflation, falling interest rates and rising unemployment. It is therefore very likely that wage growth will fall in nominal terms from 2001 to 2002. Despite this, real wage growth will increase considerably because consumer price inflation will be more than halved from 2001 to 2002. This means that the purchasing power of employees will increase on an annual basis without large nominal pay increases, or even perhaps without any increase at all. Pressures in the labour market have not only subsided when measured by unemployment. The number of vacancies has also fallen considerably through 2001, but appears to have shown little change since the summer. It is likely, however, that mismatches in the labour market more generally will decline in the period ahead and thereby contribute to curbing wage drift.

**Large current account surpluses despite falling prices**

The current account of the balance of payments showed a very high surplus in the third quarter of 2001. The current account surplus will fall considerably in the fourth quarter due to lower export prices, not least for oil. The surplus on the current account is now expected to amount to about NOK 210 billion in 2001, entirely in line with our previous projection. As a result of lower estimates for export growth and lower prices, the current account surplus is now estimated at NOK 160 billion in 2002, which is slightly lower than assumed earlier. In step with the cyclical upturn in the global economy and the rise in prices for Norwegian export goods, we project that the current account surplus will again increase in 2003, to about NOK 200 billion. This implies that the Government Petroleum Fund will continue to increase at a brisk pace, which in turn will contribute to new impulses from fiscal policy in the period ahead.

**National accounts: Final expenditure and gross domestic product. 1999-2001**

At fixed 1997-prices. Million kroner

	Unadjusted		Seasonally adjusted							
	1999	2000	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3
Final consumption exp. of housh. and NPISHs	550 660	563 628	140 043	141 138	141 279	141 414	140 556	143 527	143 823	144 323
Household final consumption expenditure	524 625	537 524	133 475	134 591	134 760	134 860	134 074	136 852	137 173	137 645
Goods	295 110	300 716	75 008	75 949	75 773	75 460	74 347	76 530	76 589	76 493
Services	221 842	228 097	56 445	56 435	56 867	57 221	57 496	57 954	58 264	58 838
Direct purchases abroad by resident househ.	23 552	24 438	5 828	6 171	6 078	6 133	6 035	6 208	6 197	6 224
Direct purchases by non-residents	-15 879	-15 727	-3 806	-3 965	-3 958	-3 955	-3 804	-3 840	-3 876	-3 909
Final consumption exp. of NPISHs	26 035	26 103	6 567	6 548	6 520	6 554	6 482	6 676	6 650	6 677
Final consump. exp. of general government	234 026	237 296	59 078	59 059	59 129	59 413	59 682	60 013	60 246	60 545
Final consump. exp. of central government	92 406	93 204	23 220	23 267	23 158	23 311	23 463	23 424	23 331	23 501
Central government, civilian	68 040	69 820	17 148	17 444	17 282	17 467	17 623	17 771	17 641	17 797
Central government, defence	24 367	23 385	6 072	5 823	5 876	5 844	5 841	5 653	5 690	5 705
Final consump. exp. of local government	141 620	144 092	35 858	35 792	35 971	36 102	36 219	36 589	36 915	37 043
Gross fixed capital formation	255 945	253 099	61 973	69 282	64 056	60 157	59 661	62 303	58 818	57 139
Petroleum activities	62 443	51 791	11 547	17 423	11 830	11 402	11 125	11 425	11 793	11 818
Ocean transport	10 579	15 890	2 611	5 402	5 359	3 245	1 884	3 992	785	262
Mainland Norway	182 923	185 418	47 816	46 457	46 868	45 510	46 652	46 886	46 240	45 059
Mainland Norway ex. general government	143 503	149 110	37 723	37 403	37 408	36 584	37 658	37 641	37 566	36 523
Manufacturing and mining	16 089	14 782	4 183	3 754	4 378	3 546	3 278	3 837	4 018	4 035
Production of other goods	17 933	17 475	4 335	4 499	4 766	4 367	3 839	4 139	3 550	3 751
Dwellings	29 122	32 670	7 529	7 919	7 961	8 274	8 498	8 665	8 792	8 966
Other services	80 360	84 182	21 677	21 231	20 303	20 397	22 043	21 001	21 207	19 770
General government	39 420	36 308	10 092	9 054	9 459	8 926	8 994	9 245	8 674	8 537
Changes in stocks and stat. discrepancies	21 409	31 094	5 477	6 136	9 283	10 479	5 215	2 529	6 862	6 659
Gross capital formation	277 354	284 193	67 451	75 418	73 339	70 636	64 876	64 832	65 680	63 798
Final domestic use of goods and services	1062040	1085117	266 571	275 615	273 747	271 464	265 114	268 372	269 750	268 665
Final demand from Mainland Norway	967 609	986 342	246 936	246 654	247 276	246 338	246 890	250 427	250 309	249 926
Final demand from general government	273 446	273 605	69 170	68 112	68 588	68 339	68 677	69 258	68 920	69 081
Total exports	461 819	474 425	121 387	117 393	115 648	117 952	122 904	124 813	122 414	124 209
Traditional goods	180 361	184 228	46 959	45 335	46 313	46 210	46 324	48 804	48 551	46 003
Crude oil and natural gas	157 633	167 800	42 184	42 251	40 044	41 325	43 821	44 817	42 167	44 724
Ships and oil platforms	15 488	9 744	4 151	1 516	1 857	3 289	3 082	1 774	2 695	3 481
Services	108 338	112 653	28 093	28 291	27 434	27 128	29 676	29 418	29 001	30 001
Total use of goods and services	1523860	1559542	387 958	393 008	389 395	389 416	388 018	393 185	392 164	392 874
Total imports	389 111	399 014	99 582	102 624	100 788	98 883	97 210	100 765	98 796	96 751
Traditional goods	256 699	260 989	66 488	63 675	66 646	65 985	65 272	67 199	68 434	66 073
Crude oil	1 951	948	496	133	48	384	383	219	211	158
Ships and oil platforms	21 412	25 152	5 551	10 834	6 517	5 126	2 675	3 820	1 093	2 021
Services	109 049	111 924	27 047	27 981	27 578	27 388	28 879	29 527	29 058	28 498
Gross domestic product	1134749	1160528	288 376	290 384	288 607	290 534	290 808	292 420	293 368	296 123
Mainland Norway (market prices)	934 814	951 744	236 745	237 036	238 076	238 733	237 747	239 426	240 575	241 198
Petroleum activities and ocean transport	199 934	208 785	51 631	53 348	50 530	51 801	53 061	52 994	52 793	54 926
Mainland Norway (basic prices)	813 693	830 676	205 544	207 061	207 600	208 160	207 439	209 834	210 523	210 616
Mainland Norway ex. general government	639 520	654 998	161 711	163 409	163 821	164 128	163 232	165 635	166 166	166 082
Manufacturing and mining	120 964	117 804	30 309	30 136	29 233	29 222	28 974	29 249	29 220	28 832
Production of other goods	87 835	93 306	22 130	23 120	23 582	23 588	22 874	22 646	22 098	22 100
Service industries	430 721	443 889	109 271	110 153	111 006	111 319	111 384	113 740	114 848	115 150
General government	174 173	175 678	43 833	43 653	43 779	44 032	44 208	44 199	44 358	44 533
Correction items	121 121	121 068	31 201	29 975	30 476	30 573	30 307	29 592	30 051	30 582

Source: Statistics Norway.

**National accounts: Final expenditure and gross domestic product. 1999-2001**

At fixed 1997-prices. Percentage volume change from previous period

	Unadjusted		Seasonally adjusted							
	1999	2000	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3
Final consumption exp. of households and NPISHs	2.2	2.4	1.2	0.8	0.1	0.1	-0.6	2.1	0.2	0.3
Household final consumption expenditure	2.3	2.5	1.2	0.8	0.1	0.1	-0.6	2.1	0.2	0.3
Goods	1.2	1.9	0.9	1.3	-0.2	-0.4	-1.5	2.9	0.1	-0.1
Services	3.2	2.8	1.5	0	0.8	0.6	0.5	0.8	0.5	1.0
Direct purchases abroad by resident households	6.6	3.8	-0.6	5.9	-1.5	0.9	-1.6	2.9	-0.2	0.4
Direct purchases by non-residents	-0.6	-1.0	-3.5	4.2	-0.2	-0.1	-3.8	0.9	0.9	0.9
Final consumption exp. of NPISHs	0.1	0.3	0.3	-0.3	-0.4	0.5	-1.1	3.0	-0.4	0.4
Final consumption exp. of general government	3.3	1.4	0.2	0.0	0.1	0.5	0.5	0.6	0.4	0.5
Final consumption exp. of central government	3.5	0.9	-0.1	0.2	-0.5	0.7	0.7	-0.2	-0.4	0.7
Central government, civilian	4.7	2.6	0.2	1.7	-0.9	1.1	0.9	0.8	-0.7	0.9
Central government, defence	0.1	-4.0	-1.0	-4.1	0.9	-0.5	-0.1	-3.2	0.7	0.3
Final consumption exp. of local government	3.2	1.7	0.5	-0.2	0.5	0.4	0.3	1.0	0.9	0.3
Gross fixed capital formation	-8.2	-1.1	-8.6	11.8	-7.5	-6.1	-0.8	4.4	-5.6	-2.9
Petroleum activities	-19.9	-17.1	-24.2	50.9	-32.1	-3.6	-2.4	2.7	3.2	0.2
Ocean transport	-18.8	50.2	-57.2	106.9	-0.8	-39.4	-41.9	111.8	-80.3	-66.6
Mainland Norway	-2.6	1.4	2.9	-2.8	0.9	-2.9	2.5	0.5	-1.4	-2.6
Mainland Norway ex. general government	-3.3	3.9	3.2	-0.8	0.0	-2.2	2.9	0.0	-0.2	-2.8
Manufacturing and mining	-23.2	-8.1	8.1	-10.3	16.6	-19	-7.6	17.1	4.7	0.4
Production of other goods	7.3	-2.6	-17.9	3.8	5.9	-8.4	-12.1	7.8	-14.2	5.7
Dwellings	-2.5	12.2	3.2	5.2	0.5	3.9	2.7	2.0	1.5	2.0
Other services	-0.6	4.8	7.7	-2.1	-4.4	0.5	8.1	-4.7	1.0	-6.8
General government	-0.1	-7.9	2.0	-10.3	4.5	-5.6	0.8	2.8	-6.2	-1.6
Changes in stocks and stat. discrepancies	-14.1	45.2	87.2	12.0	51.3	12.9	-50.2	-51.5	171.3	-3.0
Gross capital formation	-8.7	2.5	-4.6	11.8	-2.8	-3.7	-8.2	-0.1	1.3	-2.9
Final domestic use of goods and services	-0.7	2.2	-0.6	3.4	-0.7	-0.8	-2.3	1.2	0.5	-0.4
Final demand from Mainland Norway	1.5	1.9	1.3	-0.1	0.3	-0.4	0.2	1.4	0.0	-0.2
Final demand from general government	2.8	0.1	0.5	-1.5	0.7	-0.4	0.5	0.8	-0.5	0.2
Total exports	2.8	2.7	5.3	-3.3	-1.5	2.0	4.2	1.6	-1.9	1.5
Traditional goods	3.2	2.1	3.1	-3.5	2.2	-0.2	0.2	5.4	-0.5	-5.2
Crude oil and natural gas	-0.1	6.4	9.2	0.2	-5.2	3.2	6.0	2.3	-5.9	6.1
Ships and oil platforms	38.7	-37.1	6.0	-63.5	22.5	77.1	-6.3	-42.4	51.9	29.2
Services	2.6	4.0	3.4	0.7	-3.0	-1.1	9.4	-0.9	-1.4	3.4
Total use of goods and services	0.4	2.3	1.2	1.3	-0.9	0.0	-0.4	1.3	-0.3	0.2
Total imports	-1.6	2.5	2.5	3.1	-1.8	-1.9	-1.7	3.7	-2.0	-2.1
Traditional goods	-1.3	1.7	6.7	-4.2	4.7	-1.0	-1.1	3.0	1.8	-3.4
Crude oil	9.3	-51.4	-5.9	-73.3	-63.8	702	-0.2	-42.8	-3.8	-24.9
Ships and oil platforms	-26.1	17.5	-21.9	95.2	-39.8	-21.3	-47.8	42.8	-71.4	84.9
Services	4.2	2.6	-0.7	3.5	-1.4	-0.7	5.4	2.2	-1.6	-1.9
Gross domestic product	1.1	2.3	0.8	0.7	-0.6	0.7	0.1	0.6	0.3	0.9
Mainland Norway (market prices)	1.0	1.8	0.5	0.1	0.4	0.3	-0.4	0.7	0.5	0.3
Petroleum activities and ocean transport	1.4	4.4	2.0	3.3	-5.3	2.5	2.4	-0.1	-0.4	4.0
Mainland Norway (basic prices)	1.3	2.1	0.3	0.7	0.3	0.3	-0.3	1.2	0.3	0.0
Mainland Norway ex. general government	0.8	2.4	0.4	1.0	0.3	0.2	-0.5	1.5	0.3	-0.1
Manufacturing and mining	-3.2	-2.6	-0.8	-0.6	-3.0	0.0	-0.8	0.9	-0.1	-1.3
Production of other goods	-1.1	6.2	-1.5	4.5	2.0	0.0	-3.0	-1.0	-2.4	0.0
Service industries	2.4	3.1	1.1	0.8	0.8	0.3	0.1	2.1	1.0	0.3
General government	2.9	0.9	0.2	-0.4	0.3	0.6	0.4	0.0	0.4	0.4
Correction items	-0.7	0.0	1.7	-3.9	1.7	0.3	-0.9	-2.4	1.6	1.8

Source: Statistics Norway.

**National accounts: Final expenditure and gross domestic product. 1999-2001**

Price indices. 1997=100

	Unadjusted		Seasonally adjusted							
	1999	2000	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3
Final consumption exp. of households and NPISHs	104,6	107,9	105,1	106	107,8	108,6	109,2	109,3	111,3	110,7
Final consumption exp. of general government	108,8	114,2	110	111,1	113,2	115,7	116,7	119,3	120,4	121,6
Gross fixed capital formation	105,7	111,4	107,4	107,4	110,6	112,9	115,3	116,2	116,1	116,2
Mainland Norway	106	111,2	107,7	108,5	110,5	112,4	113,4	115,9	115,2	115,4
Final domestic use of goods and services	105,8	110	107	108,8	109,9	109,6	111,2	114,7	114,4	112,8
Final demand from Mainland Norway	105,9	110	106,8	107,7	109,6	111	111,8	112,9	114,2	114,2
Total exports	101	139,9	113,6	126,5	135,2	148,1	149,5	140,5	143,4	137,1
Traditional goods	101,2	115,1	104	109,8	115,2	117,1	118,9	115,9	114,7	112,5
Total use of goods and services	104,4	119,1	109,1	114,1	117,4	121,3	123,3	122,9	123,5	120,5
Total imports	101	108,6	102,5	104,3	108,1	110,5	111,3	112,6	112,3	109,3
Traditional goods	99,2	105,1	100,9	103,2	103,8	105,9	106,8	109,9	108,6	104,8
Gross domestic product	105,5	122,7	111,3	117,6	120,6	124,9	127,4	126,4	127,2	124,1
Mainland Norway (market prices)	106,8	110,8	108,1	108,3	110,6	111	113,1	113,8	114,5	114,7

Source: Statistics Norway.

**National accounts: Final expenditure and gross domestic product. 1999-2001**

Price indices. Percentage volume change from previous period

	Unadjusted		Seasonally adjusted							
	1999	2000	99.4	00.1	00.2	00.3	00.4	01.1	01.2	01.3
Final consumption exp. of households and NPISHs	2.0	3.1	0.4	0.9	1.7	0.8	0.5	0.1	1.8	-0.5
Final consumption exp. of general government	3.5	4.9	1.0	1.0	1.9	2.2	0.9	2.2	0.9	1.0
Gross fixed capital formation	1.8	5.5	3.1	0.0	3.0	2.1	2.1	0.7	-0.1	0.1
Mainland Norway	2.2	4.9	2.8	0.8	1.8	1.7	0.9	2.2	-0.6	0.2
Final domestic use of goods and services	2.4	3.9	2.0	1.7	1.0	-0.2	1.5	3.1	-0.3	-1.4
Final demand from Mainland Norway	2.4	3.9	1.0	0.9	1.8	1.3	0.7	1.0	1.1	0.0
Total exports	10.2	38.5	6.3	11.4	6.8	9.5	0.9	-6.0	2.1	-4.4
Traditional goods	0.0	13.8	1.5	5.6	5.0	1.6	1.5	-2.5	-1.1	-1.9
Total use of goods and services	4.5	14.1	3.4	4.6	2.9	3.3	1.7	-0.4	0.5	-2.4
Total imports	-0.5	7.5	1.3	1.7	3.6	2.2	0.7	1.2	-0.3	-2.7
Traditional goods	-2.3	6.0	2.3	2.3	0.6	2.0	0.8	2.9	-1.2	-3.6
Gross domestic product	6.3	16.3	4.1	5.6	2.6	3.6	2.0	-0.7	0.6	-2.4
Mainland Norway (market prices)	2.7	3.7	1.5	0.2	2.1	0.3	1.9	0.6	0.6	0.2

Source: Statistics Norway.

**Technical comments on the quarterly figures**

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

*Base year and chain linking of the data:* In the quarterly national accounts (QNA) all volume measures are currently calculated at constant 1997 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 1997 as the base year (common year of recalculation). The recalculation of prices is carried out at the sectoral level of the quarterly national accounts.

# The Norwegian Economy 1900-2000: From Rags to Riches

A brief history of economic policymaking in Norway<sup>1</sup>

Erling Røed Larsen

*A hundred years ago, nobody would have guessed that Norway would finish the century among the richest countries in the world. Norway started the century poor and ended up wealthy. How did it happen? Why were Norwegians so successful? Luck is part of the explanation. However, there is more to the Norwegian performance than fortunate coincidence. In this article we propose and examine essential elements of Norwegian policymaking and development. We first present a description of the coordinated market economy, the mixture of market and government that is prominent in Norway. We go on to look at and compare past and present scores on key measures of the economy. The core of the discussion is then centered on whether progress was inevitable or the result of replicable policy decisions. We inspect the background for policy success, and the perils of policy failure. Moreover, we attempt to demonstrate that Norwegian policy is a conglomerate of many wise, and some unwise, institutional arrangements and economic regulations. We conclude that only with merit added to providence could Norway have become so wealthy.*

## 1. Introduction

No observer standing at the doorstep of the twentieth century would have dared make the guess that Norway would reign as a world-class economic performer a century later. Despite its modest beginnings, Norway today is second to none on well-established economic measurements of achievements. How did this come about? Why did it happen? Is it an achievement of policy or is it a result of luck? We propose to approach these questions by using economic rationale. We do so because economics offers tools with which to think abstractly and compactly about complex issues such as policymaking, growth and prosperity. Of course, any attempt at decomposing interwoven effects risks simplifying too much and leaving out paramount features. We accept the risks involved because the rewards in the form of potential insights are great.

Readers may be quite relieved to learn that we do not intend to overwhelm them with statistics. Moreover, we shall not attempt to say the final word on why the Norwegian economy is performing well. We leave out many details because economics is less about numbers, and more about ideas. Indeed, economics is a way of arranging thoughts rather than numbers in

order to study aspects of exchange in a society. We will provide some general ideas of what the engines of growth are and how they have been put to work in the Norwegian economy. Here, we are going to present some key words that—hopefully—will provoke thought and contemplation.

The story we want to tell is simple. We shall argue that Norwegians could have been poorer than they are today. They could perhaps have been richer, but probably not much richer. The argument involves suggesting that in the past some individuals with foresight made several smart decisions. In addition, Norwegians were downright lucky. The decisions can be imitated by others. Happenstance is unlikely to be replicated. Thus, some parts of the story can be repeated and other parts cannot. Naturally then, learning about the decisions and the framework they construct is highly interesting because decisions comprise a major part of the economic organization of society, and they put the emulation of well-functioning economies within the reach of other economies. Such stories contain essential points and claims about which institutions and ways of interaction contribute to efficiency, productivity, and welfare. Thus, looking at some aspects of how the Norwegian economy came about and how it works today may reveal one or two things about economics in general. Additionally, we shall also see that possibilities for improvement are plentiful in today's Norway. We shall inspect sugges-

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tions put forward by critics and skeptics. The lessons from all decisions are well worth contemplating, but some decisions are best not repeated.

It may be useful to state in advance in some detail where we are headed. We want to say some broad things about what we believe is important in an economy. They will be general in nature and we will present them without trying to prove them, and thus with some fanfare we will make claims that are subjective and not necessarily characteristic of the most widespread opinion or even the absolute truth. We start out by describing the 'luck' component in Norwegian prosperity. In the following section, we describe briefly the workings of a coordinated market economy. It is important to see why Norway has chosen a combination of market solutions and governmental interventions. Then, in the subsequent part, we will compare the past with the present and the present Norway with contemporary international economies. In the description we attempt to identify those facets of the Norwegian economy that are particularly good. In the following section, we will ask how Norway got there. Then, we will ask if Norway could have gotten even further and this will in turn illuminate the potential for improvement in the contemporary economy. Finally, we will sum up how the policies implemented thus far have put Norway on an economically sound trajectory.

## 2. The Luck Component

Let us turn briefly to the uncontrollable part. Luck is neither necessary nor sufficient for economic development. Nevertheless, it helps. Perfectly identical actions undertaken elsewhere in the world might not have had as fortunate outcomes – or they might have led to even higher growth. The problem of distinguishing the lucky from the laudable is a difficult one. Despite the difficulties, let us try to enumerate the lucky strikes. Most important, Norway has enjoyed nice and friendly neighbors. Second, the neighbors became rich before Norway ever did. That usually improves the whole neighborhood. Chance placed Norway close to neighbors and trading partners like the earliest industrializers England and Germany. They built, got rich, and purchased from us. We developed by associating with them through trade and by acquiring some of their ideas. We saw how they did it, and copied it. Third, we are—and have been historically – close to the easy agriculture of Denmark. During the war against Britain in the period of the Napoleonic wars, when Denmark-Norway sided with Napoleon, supplies from Denmark were cut off. Norwegians experienced famine, and came to realize the importance of fertile soils and effective agriculture – or at least how important they were. Since then, attempts at making the rocks and mountains of Norway as fruitful as the huge fields of Denmark have been only moderately successful. Indeed, some commentators argue that Norwegians might have overdone their attempt to emulate

the agricultural-intense Denmark. We shall have a look at that notion later.

Fourth, we realize that before air travel became commonplace, Norway belonged to the European periphery. Norway sat on the edges of civilization, and was not all that interesting for military conquests. While there have been many huge wars elsewhere, Norway has mostly stayed out of trouble's way. What we built stayed built. Without the need to rebuild, Norwegians could dedicate themselves to other tasks. Fifth, the sociologist Max Weber believed that a work ethic of "living to work instead of working to live" prevailed in Northern Europe. That too, then, was not our own doing but something that was handed to us from neighbors. The attitude was a part of a greater cultural heritage, not due to deliberate Norwegian policies.

There is more to be said about geography. Thanks to our geographical coordinates, we avoid the extremely serious disruptions to economic life that come from tropical diseases. Furthermore, it used to be – up until around 1850-1900 or so – that low temperatures were, perhaps, more difficult to deal with than high, or at least medium temperatures. We believe that factor was reversed or diminished during the last century. Modern inventions make external temperature less of a hindrance to the workings of an economy. Our latitude may also have had consequences for nutrition. We were few people, probably because not many wanted the cold, the mountains, the snow, and the hardship. But since there were large quantities of fish and game to be caught, much food could be shared among few inhabitants. Of course, that begs the question of why Norway was a latecomer and why Norwegians starved when the grain supply from Denmark was cut off. The food explanation may not amount to much. However, some economists and others, e.g. professor Jared Diamond (1997), have suggested that there may be a connection between latitude and the ease of economic exchange. There seems to be a loose association between latitude and economic development. We do not know why that is; nobody really does. Until further research, people are left with conjectures and speculation. We all know—from languishing up here when there are only two hours of daylight and it is far below freezing – that Norway is not a hot place. While that is to be lamented in many other ways, it may not be an unlucky arrangement economically. High latitude may come with fewer natural difficulties such as disease, dangerous animals, and hurricanes.

Finally, Norwegians were lucky to find the black gold – oil. By extracting oil from the reserves in the North Sea, Norway has grown financially wealthy. However, the whole oil story involves more than luck. The extraction process is complicated and requires sophisticated technology and expertise. Moreover, the management of oil wealth – as any wealth arising from

natural endowments – is a complex social question. Norway has done well on all accounts, and that is not a story of pure providence. That is a story of deliberate and clever utilization of an opportunity.

We hope to show that – or at least to give indications of why – the Norwegian economy is functioning well thanks to a nice mixture of good organization and luck. Having said much about luck, we will focus the remainder of the article on Norway's policy achievements and lack thereof.

### 3. The Coordinated Market Economy

The Norwegian economy is a combination of two types of economic systems. In the economic literature, they have been called centralized and decentralized economies. In this respect, the Norwegian economy is similar to the other Scandinavian economies and to the German economy. Indeed, it would be difficult to understand the developments in Norway during the last one hundred years without an account of the interplay between private initiative and public enterprise that has shaped and been shaped by economic policies. In fact, economies of this type have received widespread attention and therefore a name of their own. An economy that is set up as a mixture of markets yet contains governmental intervention or centralized institutions to a substantial degree may be called a *coordinated market economy* (see Hall and Soskice 2001).

It is easily shown that market solutions are inefficient in the presence of phenomena involving third parties and non-market features. The efficiency of an economy may then be improved through governmental intervention or legislation. More specifically, market failures exist because markets cannot coordinate all relevant information. In the presence of externalities (e. g. pollution), natural monopolies (e.g. railways), market power (e.g. dominating companies), asymmetrical information (e.g. market for used cars), common goods (e.g. national defense), and in the absence of bidders from the future, the market solution is inefficient. Additionally, even when the market solution is efficient, it may be perceived as unjust, and a sense of injustice may affect the productivity of the economy. Put differently, even when the market economy performs at its best, the members of the society may not be satisfied with the outcome. Efficiency and fairness are two separate goals, and economists are concerned with how to achieve the first; they generally leave the second to politicians, philosophers, and public opinion. Governmental intervention, when done right, can enhance efficiency and correct distribution injustice. For our purpose, let it suffice here to say that in all likelihood much of the performance of the Norwegian economy is due to the institutional arrangement of markets and government working together.

Market features in Norway are many. Norwegian society allows companies to go bankrupt. Producers set prices. Goods – private goods, rather – are only made when someone has decided to make them. People find the vocation they want, without anybody ordering them what to study or what to specialize in. Means of production are privately owned. Profits befall owners. Contracts between private parties are allowed, encouraged, and enforced. Private solutions and production prevail.

It is a good thing that Norwegian authorities look positively on – and have looked positively on – the market place since it can convey valuable communication. Markets coordinate information by delegating decisions to people who are in good positions to know what to do. For example, consumers buy something if both the quality and price are attractive. Firms produce if the combination of costs and market price allows them to make a profit. Thus, the market is an ingenious device that leaves it up to the participants who have the most information about costs and needs to make use of that information. Producers minimize costs and relay the results to a market. Buyers shop around and reveal their willingness to pay. Thus, costs and desires are combined and put forward by the experts on each. It requires access to large amounts of information and formidable computational facilities for someone else, or a board of strangers, to know production costs and people's desires and to find the most efficient quantities to produce and prices to charge to clear the market. In Norway today, the prevailing attitude is that the majority of such decisions should be left to private individuals.

On the other hand, there are many areas in which individual agents do not know all the relevant details. The Norwegian economy is set up to disallow private enterprises from making all-powerful decisions on their own when the goods involved have certain attributes, for example when they affect others. What people care about may be a 'public good' like defense or a 'public bad' like climate change. Private provisions to supply these goods may be difficult, impossible, or inefficient. There may be negative externalities like pollution or positive externalities like hygiene. Consequently, there are many public institutions in Norway today set up to supplement or correct private enterprise. Although the health care system sees some private entities, it is mostly a collective endeavor paid for by mandatory taxes. The social security system is financed by taxes. It is run by the government and encompasses everything from sickness to disability insurance. Unemployment benefits are public payments to jobseekers. Pension schemes are state-run and mandatory payments must be made toward them. Further, non-private companies, guaranteed by state or public charters, operate railroads, trams, and the metro system. There is a big, national television broadcasting system, financed by a combination of



**Table 1: Past and Present of the Norwegian economy**

Statistic	The Past	The Present	Source
Gross domestic product (GDP), 1990-prices	38 534 mill. (1900)	978 692 mill (1999)	Statistical Yearbook (SY) 2000, Table (T) 355
Household Consumption, in Percent of GDP	92.7%	48.0%	
Government Final Consumption	10.7 %	19.5%	
Investments Physical Capital	24.2%	21.7%	
Exports	13.9%	46.4%	
Imports	27.3%	37.4%	
Population	2 217 971 (1900)	4 503 436 (2001)	SY-01, T 47
Infant mortality, dead w/in 1 <sup>st</sup> year per 1000 b.	80 (1901-05)	3.9 (1999)	SY-01, T 73-74
Height, Military recruits	170.0 (1900)	179.6 (2001)	Historical Statistics (HS) 1994, T 4.22; SY-01, T 102
No. University Students	1479 (1900)	78 969 (2000)	HS, T 5.16; SY-01, T 174
High School Diploma, General Subjects, Prep. for studies	436 (1901-05)	23 967 (1992)	HS, T 5.11
Av. Budget Share, Food, in Percent	39.9 (1958)	10.8 (1997-1999)	HS, T 12.1; SY-01, T 223
Number of Passengers, transport	454 mill. (1946)	4 196 mill. (1999)	HS, T. 20.1; SY-01, T 481
Life Expectancy at 0	53.99 (m) and 56.88 (w), 1901-05	75.6 (m) and 81.1 (w), 1999	HS, T 3.23; SY-01, T 624

Source: Statistics Norway (1995, 2001), NOS National Accounting 1865-1960 and NOS Historical Statistics. Notes: The identity  $GDP+Imports=Consumption+Investment+Export$  is an accounting relationship, and true by definition. When it appears not to hold it is due to technical issues of accountancy. Confer with *Statistical Yearbook 2000*, Oslo: Statistics Norway, Table 355.

mandatory fees on owning TV sets and budget transfers. The school system is public, financed by taxes through transfers. Hospitals are public, and so are all universities and most colleges.

Moreover, governmental agencies monitor the economic exchange, implement legislation, and intervene in the market economy. For example, ministries set standards, and make demands on how, when, and by what means production can be made. Opening hours are regulated. Labor laws require firms to comply. Overtime is restricted. There are taxes on polluting goods such as gasoline, and fees on health damaging goods such as alcohol and cigarettes. Economists see such taxes as attempts to correct the gap between private costs and social costs, exactly like the externality literature prescribes. One prominent example is the labor market and how wages are set, see Barth and Moene (2000). Large coalitions of employers and employees meet to negotiate, in manners and ways set up by a public framework. Authorities monitor negotiations and have the power to intervene. Thus, in the Norwegian economy there is a complex mix of markets and interventions. The economy is partly left to itself and private agents, and partly managed collectively by governmental interventions.

An economy that does not correct market failures will be inefficient. Economic outcomes will be left to robber barons, polluters, and monopolies. Distorted prices will not ensure optimal resource allocation. Historically, laissez-faire economies have been victims of

powerful movers and shakers. So, there is a positive role for surveillance and intervention. For that reason, the Norwegian economy has a competition surveillance agency, *Konkurransetilsynet*, which ensures that firms compete. Governments, when they are at their best, correct the markets and improve economic efficiency. Moreover, governments – as representatives of our combined effort and collective will – can redistribute means according to what society deems just. The rules and arrangements of the Norwegian economy are designed to mirror all the goals described above. We will see below to what extent they have succeeded and continue to do so.

#### 4. The Past and the Present

A hundred years ago, Norway was among the poor countries of Europe (Klette, 2000). Today, it is one of the richest in the world. Indeed, the United Nation's Human Development Index puts Norway in the first place in its latest ranking, see Table 2. The differences between then and now are striking. Let us examine some of the evidence.

We see from Table 1 that many facets of society are different today compared to what they were a hundred years ago. We see that although the population merely doubled, gross domestic product increased 25-fold. That fact mirrors profound changes in the economy. It is indicative of a nation's transformation from a position of need to one in which citizens may bask in an abundance of goods and services. Admittedly, some of the increase in gross domestic product is mislead-

ing since it is only a transfer of non-counted non-market activities to counted market activities.<sup>2</sup> The inclusion of formerly uncounted activities may overestimate the growth in gross domestic product. After all, these goods and services were produced in the past even though they were not counted in the statistics. On the other hand, Nordhaus (1997) demonstrated in an entertaining article on the price of light how the value of quality improvement is hard to capture and may entail underestimation of growth. As a result of underestimation and overestimation, effects may cancel out. Regardless of how skeptical we are, the growth of GDP estimates does reflect an enormous increase in standards of living.

The increase in the gross domestic product is mind-boggling. The changes seen during the last century probably surpass the accumulated changes of the millennium before. During the last century, Norwegians escaped the tyranny of necessity and entered the land of plenty, in hordes. This is seen, for example, by the fact that the average budget share for food has fallen from a very high two-fifths to an easily accommodated one tenth. There are few Norwegians today who cannot get by fairly decently in their lives. Overall, Norwegians live better and longer. That is demonstrated by the increase of life expectancy at birth. It is up from 57 years to 81 for women, see Table 1. It means that life expectancy for women soared by almost one half over the century. Such a number, implicitly, tells a story of welfare, of enjoyment, of longevity, of security, and of decades of greater satisfaction. Further, we see that military recruits have gained 10 centimeters on their former peers. Stature reflects general conditions in hygiene and nourishment. Thus, access to food and the quality of foodstuff have improved greatly over the century. Crippling illnesses have been eradicated or successfully treated in modern hospitals. Infant mortality is down from 80 per thousand to less than four. Any parent would subscribe to the opinion that such a reduction entails an enormous increase in welfare. The loss of a newborn is a tragedy, and many such sorrows are hinted at by the statistics of a century long-gone. A society that finds ways to prevent lives from ending before they even started has managed to contribute greatly to the general well-being of its population. It is not an understatement to say that economic development has opened up a whole new window into the joy of life. While people in the past had to spend much of their time working and worrying over how to fill hungry mouths, today people may visit friends, watch TV,

read books, hike in the mountains, or ponder the meaning of it all.

Moreover, we see from Table 1 that the number of students has increased during the last hundred years. It reveals how Norway has transformed its resource allocation from primary to tertiary industries. Before, Norwegians were fishermen, loggers and farmers. Now, Norwegians work in services, with technology, and in sectors that are factor-intense on human capital. We see in Table 1 that the number of passengers transported each year has gone up dramatically. Norwegians today travel for business and pleasure, and they travel frequently and long-distance. There can be no doubt that the Norwegian economy has improved remarkably over the last century.

But so has every other Western economy. What is remarkable in Norway's progress towards prosperity is its speed. Klette (2000) shows how Norway caught up with and overtook OECD GDP per capita over the last century. He pinpoints three stages: 1900-1920, 1920-1970, and 1970-today. In the first and the third stage, Norway gained much ground, relatively speaking. In the second, the catching-up was markedly slower. In the third, there was an acceleration in closing the gap and taking the lead. Many commentators focus on oil as the single most important explanatory factor for the rapid expansion in the third stage. Unfortunately, commentators have been less concerned with the sources of growth in the first stage. Nevertheless, Hodne and Grytten (1992) try to explain the early stage of growth. They say the emergence of electricity and an electricity-based industry comprised a basis for the development during the first decades of the twentieth century. Interestingly, then, we see that each time Norway's growth accelerated relative to other countries, it was due to, or associated with, a valuable combination of technology with a natural resource (water and oil).

In the third stage, GDP per capita grew fast and overtook many other countries. Klette (op. cit.) conjectures that the growth in GDP per capita has less to do with access to labor and capital and more to do with productivity. He goes on to say that it is unclear which were the most important factors in understanding productivity, and suggests education, research, and a fertile mix of private and public enterprise. Below, we will return to this question.

Let us dwell a bit more on the economic indicators. We see in Table 1 that exports and imports are relatively more important today than they were a century

<sup>2</sup> For example, when you and I cut our own wood, our effort is not included or registered in the Gross Domestic Product (GDP) because it has not gone through market transactions. But if you and I swapped, so that I cut yours and you cut mine, both services would be included in the gross domestic product as long as we paid each other for the trade. Since modern economies rely on specialization, services are filtered through an exchange system of markets. Service exchanges between individuals are registered as production and sales, and they are counted in the gross domestic product. Earlier, many services were rendered but not counted because they did not go through a market channel. Instead, they were labor arrangements between man and wife, sister and brother, or farmer and neighbor.

**Table 2: International comparisons today**

Statistic	Norway	Sweden	Great Britain	Germany	Italy	United States	Australia
Unemployment, 2000	3.5	5.9	6.3 (1998)	6.5	11.3 (1999)	4.0	6.6
Work Force % of Population 15-64, 1999	80.6	78.5	76.3	71.2	59.6	77.2	73.6
TVs per 1000 citizens, 1997	462	519	521	567	528	806	554
Visits to Movie Theaters per citizen	2.6 (1999)	1.8 (1998)	2.3 (1998)	1.8 (1998)	2.1 (1998)	4.6 (1994)	3.9 (1995)
GDP/cap, (PPP) relative to OECD=100, 1999	121	99	98	102	99	145	-
Cars per 1000 citizens, 1998	400	426	443	507	543	485	478
Taxes % of GDP, 1998	43.6	52.0	37.2	37.0	42.7	28.9	29.9
People per sq. km, last population size	14	20	244	230	191	29	2
Life Expectancy at Birth	78.4	79.6	77.5 (UK)	77.6	78.4	76.8	78.8
UN Human Development Index	939	936	923 (UK)	921	909	934	936

Source: Statistical Yearbook, Tables 636, 647, 648, 649, 650, 654, 665, 676 and Human Development Indicators, UNDP.

ago, at least in terms of their size compared to gross domestic product. Exports are up from 14 percent of GDP to 46 percent.<sup>3</sup> One might be tempted to believe that Norway has become more open simply because the rest of the world has become more open. However, the reader is encouraged to recall that in year 1900 the world was already an open place, in terms of trade. It was not until the inter-war period and subsequent Bretton Woods arrangement that restrictions were enforced internationally, which curtailed trade and capital movements, see e.g. Eichengreen (1996b). Not until quite recently has the world become as open a place as it was on the eve of WWI. Thus, we realize that the fact that Norway engaged in relatively little trade may hint of its being in the first stages of modernizing, industrializing, and specializing. It hints that Norway was less industrially developed. One may quite correctly think of Norway a hundred years ago as a pretty backwards country. It was closed, almost hostile in its preoccupation with its own things. Norway did not amount to much. It was poor, it belonged to the periphery of European nations, its inhabitants were uneducated, and it was not even a country of its own. However, Norway soon became one. In 1905, it separated from the union with Sweden. In the years to come, Norway would make good choices.

From Table 1 we also see that public spending increased tremendously during the twentieth century. Governmental consumption doubled in the period 1900-2000, from one tenth to one fifth of GDP. Of course, that reflects Norwegians' increasing reliance on collective solutions and services from an ever-increasing public sector. It is important to ponder the ramifications of this. Fruits of growth are channeled through and distributed by a governmental sector, which offers necessary services such as education and health, but also redistributes income. Dani Rodrick (1994) has shown how governments and governmentally targeted investments helped South Korea and Taiwan industrialize. In Norway, an earlier story of

collective investments into schooling and health is quite similar and we will discuss the underlying policies in the next section.

By now, the reader will point out that it is clear that Norway today is much different than it was, but that it remains to be seen how Norway compares to other countries today. In Table 2 we tabulate some comparisons.

From the last row in Table 2 we see that Norway scores highest on the *United Nations Human Development Index*. One factor contributing to the high Norwegian standards of living is the fact that Norway utilizes much of its work force, as is shown by the first two rows. In the countries we list, it has the lowest unemployment rate. In other words, most people work. That is fortunate, because every single little effort, every hour, counts towards the size of the pie at the end of the day. However, in many other respects Norway does not stand out. Life expectancy is not the highest. Norway lags behind leading countries in modern day technology-level indicators such as TVs and cars per thousand citizens. On the other hand, remember that these are average numbers. The distribution of goods and pleasures matters too. Notice that if some households have many TV sets and several cars, it will increase the average, but the average will not report the inequity of distribution. Indeed, Barth and Moene (2000) show that Norway has a remarkably compressed distribution of income. Equality of means may add to the welfare of all. Naturally, any cross-country measure of standards of living is bound to be controversial, as is the Human Development index from the United Nations. Nevertheless, let us agree that Norway today has improved compared to historical times and has managed to become at least on a par with the most advanced economies in the world.

Was it inevitable? Could it have gone otherwise? Yes. Economic history teaches us that prosperity is fragile.

<sup>3</sup> Do not be confused if the numbers do not add up. For technical reasons of accounting, the net percentages do not sum to one hundred. See details on national accounting in e.g. Statistics Norway (2001).

It can be found by patient exploration of options available, but it can also be lost easily through rivalries and suppression. Progress is by no means automatic. Progress may be hindered, torpedoed, and reversed. It may also be fostered, stimulated, and encouraged. It all depends on policy, culture, and people's inclination. Consider some historical centers of knowledge and invention. The Chinese dynasties around the year 1000 were world leaders and produced scientific results that Western thinkers only reached ages later. Yet Landes (1998) argues that Chinese policies stifled growth. Its science stagnated and regressed. Later, in the Renaissance, Northern Italy took the lead. It produced spectacular fine art, novel science, and philosophy. Then Spain and Portugal, Antwerp and Amsterdam took over and led the world in navigation and commerce. In the end of the eighteenth century, England played host to the Industrial Revolution, only to be overtaken by Germany, the United States, and Japan in the two following centuries. What is the lesson? Nothing lasts forever. Progress is sensitive to institutional set-up, incentives, cultural allowance for free thinking and initiative, governmental intervention and support, and the regulation of markets. In order to achieve, society must be arranged such that its inhabitants seek to deliver. So, when we observe that Norway caught up with the big performers during the 1900s, it is necessary to disentangle the choices Norwegians made so that other countries may emulate them if they wish to do so.

Everybody likes finding a single explanation for a phenomenon. As humans, we tend to avoid complex stories. So, when we say there is no one sole factor behind Norwegian standards of living, we challenge our inclination for one-liner solutions. Here are some candidates for the explanation of the high standards of living. The truth, unfortunately, is a combination of factors. The list below describes some advantageous facts about the state of the Norwegian economy. In the next section, we will deal with the policies that achieved those states.

1. Knowledge. Norwegians are highly educated. Everybody reads and writes. They can do the math. They speak languages, read books, and study newspapers. When the Ford Motor Company, a maker of automobiles, changes the fuel injection system in their cars, mechanics can easily adjust to new instructions. In many parts of the world, that is not the case. In Norway, knowledge is utilized everywhere and at all times. Knowledge improves the accuracy, the speed, and the quality and quantity of output.
2. Technology. Behind each Norwegian is a multiplicity of machines. Machines amplify human effort. They enhance the power and effectiveness of the human finger. In Norway, things are automated. For the economy, it means we are highly productive. The

more machines a nation uses, the higher the output. When man tamed nature in the Industrial Revolution and learned how to use inanimate energy to assist wind, wave and muscle, humans became powerful. When inventors came up with the transistor and the chip people could add power to their brains. Communication and calculation took seconds, not months. Computations are now done instantaneously, not laboriously. Then hands and heads are put to work elsewhere, and that is what is done in Norway.

3. Law. There is a rule of law. There are property rights. There is contractual enforcement. If an entrepreneur breaks a contract she will be pursued and potentially sued. Therefore, she keeps the contract. That is a highly effective way of doing business. In many parts of the world, business(wo)men do not expect contracts to hold, so they do not make any contractual agreements, or they make them with the expectation that they will not be kept. Oftentimes then, nothing is done. No deal is struck or bad deals are made. Alternatively, huge efforts are exerted to avoid being cheated.
4. Incentives. In Norway, there are opportunities and incentives. If you apply yourself, you get ahead, at least modestly. Economic history shows it is an effective way of enticing people to achieve, perform, and pull out all their talents, see Landes (1998).
5. Equity. There is an implicit social contract in Norway between inhabitants and the nation. It says that if you try to excel, but fail, you will be taken care of. In fact, no matter why you experience hard times you will receive support. There is a tacit agreement of cooperation. There exists a so-called *dugnad*-spirit of comradeship, collective effort, and community. The economic system fosters solidarity between groups of workers and empathy between people. There is, as always, a flip side. In Norway, there are strong forces of conformity and homogeneity. In the short run, likeness induces team spirit. In the long run, however, likeness may preclude invention and adaptation. We turn to these issues below.
6. Culture. Nobel laureate Robert Solow allegedly said that all debates in economics about the sources of growth dissolve into sociology. Max Weber pointed to the importance of the so-called 'Protestant Work Ethic' in understanding the Northern European mentality. Some people have said Norwegians are less fun-driven and more guilt-pushed than many other people. The culture instills that people should do their duty and deliver the goods. Moreover, cultural forces strongly favor honesty, cooperation, and acceptance. As a result, there might be less of a tendency to employ the judicial system to settle disputes. Potentially, there are gains to be reaped from that. Additionally, a social arrangement based on trust and honesty is effective because it utilizes little resources in avoiding and preventing theft and unlawful expropriations. As one example, Zak and

Knack (2001) study the relationship between trust and investment across countries, and find—not unexpectedly—that social and economic environments with high level of trust come with high rates of investment. Ultimately, they find an association between cultural indicators of trust and economic growth.

7. Opportunity. Philosophers believe society ought to strive towards the place in which people are responsible only for actions of will and should bear the consequences only from such actions. Factors outside their reach and control ought not to impede them from living a fulfilling life. It is fair to say that when you are born in Norway today you are given a fair chance. It may perhaps be added that that chance is less affected than elsewhere in the world by who your parents are, what color is your skin, what faith you endorse, or what capacities you possess.
8. Gender equality. Encouraging women to participate in the production process stimulates the economy by making available a higher percentage of the population's labor hours and by allowing entrepreneurs to tap into the total pool of talent. In Norway, the appearance of women on the job market has greatly increased the nation's capacity. A prerequisite for that to happen was the emergence of an attitude of gender equality.
9. Resource endowment. Norway is fortunate to have many waterfalls, large forests, considerable stocks of fish, and a generous amount of oil and natural gas. If used wisely, natural resources will be exactly that – resources.

We do not know which of these nine factors are necessary or sufficient conditions for good standards of living. Unfortunately, economists have not yet been able clearly to identify the preconditions of growth and prosperity. Probably, a healthy mix of the nine would get any society far. Some claim the mix is a good one in Norway. But we need to study how the conditions and states came about since they are hard fought for.

### 5. Getting It Right or: Was It Inevitable?

The Norwegian performance relative to other countries and the policies that shaped it are two main themes of this article. One way to describe the inherent surprise in this performance is to ask the reader to imagine the already mentioned guess put forward in the year 1900. If you asked informed observers which countries would be among the top three richest in the world a hundred years hence, nobody would have suggested Norway. In fact, if somebody had suggested Norway they would likely have been asked if they were of sound mind or if Norway was a part of England. Indeed, one of the most likely candidates might have been England. England—at the time—was a dominant, innovative force and had many good chan-

nels for financing novel ideas for innovative contraptions. England had a well-educated populace and one of the longest traditions in the world for democracy and meritocracy. In addition, England led a huge empire, from which it extracted resources and from which it benefited economically, however unjustly. Yet, after the problems of gold parity of the 1920s, England never really recuperated. (That is another story altogether.)

Another likely candidate might have been Germany. It was rapidly expanding, had industries which emerged rapidly thanks to a close connection between the finance sector and corporations, benefited from an impressive work ethic, and Germans were educated and high-achievers. Germany was booming, in chemicals and mechanics. Germany had world-class mathematicians, authors, philosophers, and scientists. Yet another likely candidate might have been the United States. The young nation was performing well and was expanding. Observers were impressed. They saw new industries and contagious enthusiasm generated by innovators. It had centers of finance, it had completed transcontinental railways, and people immigrated by the millions.

One would have been strangely inclined to pick Norway as a candidate. It was poor, had few entrepreneurs, and had an immature financial sector in which money did not chase good ideas with much energy or frequency. It had few educated people. Its towns were small and inconsequential. In addition, the towns were spread far apart from each other. There were few centers of knowledge and few rich investors to sponsor upcoming entrepreneurs. In fact, good ideas did not even chase money because ideas were few and the available money insufficient. There was a shortage of highly educated leaders, bad infrastructure in a hostile nature, and no system for transforming newly acquired knowledge into novel production. In fact, Norway's economy was based less on the value added to raw materials by applying humans knowledge and clever manipulation, and more on simply shipping raw materials. Norwegians dealt in timber, minerals, fish, and agriculture. Norwegians did not know much about the technology frontier abroad and contributed little to expanding knowledge. Admittedly, Norway had a powerful commercial fleet and an impressive knowledge of the seas and of navigation. Norway did have world-class authors who made their marks on world literature. But overall, Norway was a backwards place a hundred years ago. If the UN had existed and it had issued a human development index, Norway would have been a long way from the top. What happened?

Let us conjecture. We believe the following policies and decisions —put forward at different times during the last one hundred years—contributed to twentieth century Norwegian growth:

- Political solutions were implemented to meet strong labor movements. Rights were admitted, security guaranteed, and votes granted to all adults. It created a sense of comradeship and common goals.
- There was cooperation between workers and employers to avoid internal strife. Institutions were established that encouraged people to pull together in collective effort. There were few strikes and disruptions of production—especially in the second half of the century. Norway enjoyed the power of accumulated exertion. Slowly, but surely, modern production methods came to substitute for manual labor.
- Political decisions were made to invest heavily in education. Mass education, as well as higher- and specialist-education grew. Schools, colleges, and universities multiplied. The nation's human capital grew solidly and was put to efficient use.
- Investments were directed to accumulate physical capital. Machines were acquired, electric generators built, and power lines put up. This enabled labor to produce more output per unit.
- Norway imported a catch-up of technical expertise. Norwegians copied the inventors and emulated the innovators. Norway tapped into existing knowledge. This was an inexpensive way to progress.
- Powerful political parties, movements, and coalitions established a consensus for reducing inequality. An attitude of sharing the fruits of growth spread through the spectrum of political convictions and income brackets. This contributed to creating healthy and harmonious people who were willing to work hard.
- Public hospitals, health institutions, and governmental agencies were founded to increase individual health, nourishment, and hygiene. All citizens were given treatment, access to vaccination programs, and participation in public insurance schemes. This meant that more people could participate more often, with more energy, and even into older age, in the production of what the nation needed.
- The country's physical infrastructure was constructed. Roads, railways, pipelines, sewage systems, telephone lines, and tunnels were built. Non-naval and non-muscle transportation of people and commodities became widespread, affordable, reliable, quick and safe. The result was mobility, flexibility, and quick diffusion of state-of-the-art techniques.
- The bureaucracy was staffed with efficient and educated public servants. The staff was expanded throughout the century. The public sector delivered public goods necessary or useful for the production of private goods, welfare, and security. Vital public goods stimulated the growth processes.
- A trade policy was put in place. It was one that aimed at maintaining openness in the Norwegian economy and allowed Norway to reap the benefits of international specialization and exchange. The policy may also have stimulated a cultural affinity for foreign ideas, and contributed to make Norway not only import goods but also ideas, knowledge, and insights of any kind.
- Policies to handle the oil wealth efficiently and equitably were implemented. Resources and the ensuing financial wealth might have been difficult to deal with because of the temptation to use it immediately, regardless of the long-term consequences for society and the short-term effects on the business cycle. Prudent policies and sound strategies may have turned the resource gift into a blessing, rather than a curse in disguise.
- Policies towards gender equalization were introduced. Legislation and surveillance agencies were established to prohibit discrimination and monitor adherence. As a result, attitudes changed. The reward was a leap in production capacity by putting female talent to work where it contributed the most.

The list is not exhaustive. It is of course difficult, if not impossible, to summarize century-long versions of policies and development plans in a few words. Growth and progress still puzzle economists (see Clark (1987)). Some would say it is foolish to even attempt. Others would say any attempts are surely false by default; you cannot capture several hundred million human years lived in a few sentences. However, we believe it is possible – maybe even imperative – to attempt to construct the list.

Part of it is trivial. The short answer in explaining Norwegian growth is identical to all short answers for rapid development: productivity. A difference of one or two percent of productivity growth for a century may be the difference between affluence and squalor. To help fix ideas, let us do some simple calculations. If we take a production total of 100 units and let it grow by 1 percent for a hundred years, we end up with 270 units. Not bad, really. If we let it grow by 2 percent for a hundred years, then we might be impressed. We get 724 units. If we had managed to increase production by 4 percent annually, we would have ended up with 5050 units. The intermediate answer for Norwegian economic growth lies in the power of accumulated productivity growth. It is the “answer” because productivity invariably coexists with and causes prosperity. This answer is “intermediate” because the relation between productivity and prosperity is so close that what we say is a cause may simply be a part of the result. The power of accumulated productivity will yield prosperity but it begs the question of why productivity itself developed as it did if it did not do so in other countries.

If a country keeps growing, accumulating, investing, reinvesting, and learning it will eventually become one to be reckoned with. Norway has not done much that was spectacular for a hundred years, yet it is one of the richest countries in the world. It has never been a star miracle economy like Japan or South Korea, the envy of the whole world. It has not spurred inventions nor has it seen particularly big leaps, although the oil boom has been considerable. It has grown steadily and equitably. If you share responsibility and benefits, good things will eventually happen. If you are patient and work, you will succeed. While some countries have developed in explosions of growth and productivity, Norway grew steadily.

### Norwegian Productivity

We said that to name productivity as a cause of economic prosperity was not really to explain progress. Productivity growth itself must be understood. There is a long-standing debate in the literature about whether or not development, and therefore productivity growth, can be projected down to stages. The economic historian Rostow (1960) put forward the theory that every process of growth goes through the same stages. His suggested stages were: 1. The traditional society. 2. Preconditions for take-off. 3. Take-off. 4. Drive to maturity. 5. The age of high mass-consumption. In a somewhat related spirit, the economic historian Douglass North (1981) tried to capture the essence of industrialization when he offered the generalization that the Industrial Revolution was due to two important factors: a) property rights and b) markets. Potentially, then, those two conditions could and can be repeated to yield similar effects in many countries. Recipes for growth have received much criticism because growth stories in different countries seem so distinct. For recent accounts of the insights to prosperity and problems with growth and its theories, see Dornbusch (2000) and Easterly (2001). For a long time, authors have focused on the disparities between countries. The economic historian Alexander Gerschenkron (1962) claimed that every development process was unique and had idiosyncrasies, depending on the country's history, culture, and resource endowment. According to his theory, each country will find its own path to industrialization. For example, the financial structure in England made it a suitable host to the industrial revolution. The financial structure in Germany was different from the onset, but made Germany ideal for a catch-up country. In Russia, sociological patterns and culture made the path to development altogether different. Gerschenkron's key terms are substitutions of prerequisites and spurts of late-comers.

The United States saw its development coming from abroad, financially and in terms of manual labor. Japan grew by way of a culture for hard work and achievement, education and performance. South Korea grew in what experts have called export-led

growth by combining education and governmental hands-on investments, see Rodrik (1994). The Norwegian growth was quite unique also, as we have suggested by the policies above. However, the Norwegian experience shares some features with the South Korean experience. For example, education and the role played by the government were core elements.

The sources and paths of growth are nebulous and explanations for them are tenuous. Authors have investigated a wide range of factors possibly related to progress. One example is a recent article by Fölster and Henrekson (2001) who study the growth effects of government expenditure and taxation in rich countries. There seems to be a positive association. Of course, which way causation works is open for debate. Nevertheless, a plausible story involves the interaction between growth and governmental assistance in the form of services and provision of growth enhancing public goods. The idea is relevant to our study since the investments Norway undertook by expanding the services rendered by the public, fertilized the soil in which private initiative could grow. The policy choice to construct the Norwegian economy as a coordinated market economy – with many and far-reaching governmental companies and collective solutions – may have suited the Norwegian disposition and culture well. One lesson is that it is wise to arrange the way the economy work in tandem with the historical background and cultural heritage, much in line with Gerschenkron's thinking.

Economists disagree, of course, on the relative contribution of the different factors. The timing of growth is another puzzle. Implemented policies and technological development in Norway during the 1900s seemed well timed. Or perhaps not timed at all, if it is the case that they simply could not happen earlier. Before the 1900s, the means of transportation were slow and resource-intensive. During the 1900s, easy energy led to highly efficient ways of moving people, goods, and even ideas around. In the Netherlands, for example, that would not have been such a huge gain since people and goods were already closely knit together. In contrast, the construction of a transportation network in, say, America amounted to a huge gain, and many economic historians have made the point that without the transcontinental railway, the US would not have developed as rapidly as it did – or in the way that it did. Similarly, we believe transportation is important to understanding the Norwegian development. Ships and horses were not sufficient means of transportation in such a long and mountainous country. Railways, roads, cars, and telephones made connections easier, faster, and more frequent. Transportation was a necessary and an important, but not a sufficient, precondition. It opened up the possibility of overcoming geographical distance, which had previously been a large hurdle. Before the age of mass communication, countries with easy travel were at an advantage. After

the introduction of cheap and accessible transportation, the advantage shrank. Notice that the transportation infrastructure was put in place as a result of deliberate policy decisions and immense collective efforts.

The observant reader will notice that, in a way, we are saying that Norway did what Europe did. In order to understand how Norway could catch up with Europe and eventually surpass its European neighbors, we may hypothesize that Norway simply did more of a good thing. It copied Europe and did so zealously. Thus, if we come to understand what Europe did, we are positioned to understand the Norwegian development also. Many authors have sought to understand the European development after World War II. For example, Abramovitz (1986) hypothesizes that Europe caught up with America because of what he calls *social capabilities*. These are, first of all, institutions of education. But they are also a special profile of political, commercial, industrial, and financial institutions that pull together. Our line of explanatory factors is similar to those suggested by Abramovitz.

Education does play a leading role among the institutions that an economy can set up to foster growth (for interesting empirical growth accounts, see for example investigations by Makiw et al. 1992, and Barro 1996). Democracy is another. In fact, there is usually a strong association between the two. For example, Tavares and Wacziarg (2001) investigate the relationship between democracy and economic growth. They find that democracy improves growth through accumulation of human capital and by lowering income inequality. DeLong and Schleifer (1993) offer a fascinating historical investigation into centralization and decentralization of power. They study the historical connection between growth, distribution of power, and taxation in Europe for several hundred years. Not surprisingly, they find that concentrations of power hinder growth through excessive taxation. Economic policies in Norway during the twentieth century were focused on democracy, education, and public rather than private power. In fact, the sharing of responsibility and the distribution of control were policy goals.

Those ideas lead us to a core issue: equality. Norway has the most compressed wage structure in the world, according to Barth and Moene (2000). It is an interesting coincidence that Norway focuses much attention on equity and at the same time is so rich. Coincidence is not causation, although there is research investigating possible causal structures, starting with Kuznets (1955) original research into the relationship between economic growth and income distribution. Here, we will dwell on the relationship between the size of the slice each person in an economy has at her disposal and the total size of the pie.

During the last century, Norwegians focused on the total size of the pie, not the individual size of each slice. They did so knowing that the size of each individual slice did not vary much. Economic history shows that when a society pulls together to increase the pie, good things happen. Conversely, when members of a society become more concerned with increasing the size of their own slice at the expense of the size of another's slice, bad things happen. There is likely to be social unrest, strikes and fights. There may even be revolutions. Labor strife, corruption, beggary-neighbor strategies, and disruption of production often have roots in perceived inequality and a desire to rectify the injustice with physical confrontation if necessary. The economic historian Barry Eichengreen (1996a) argued that European countries, perhaps especially Scandinavian countries, struck a deal between workers, factory owners, and the government. He claims that Europe entered into a social pact in which everybody did his and her part. The government controlled prices, owners reinvested profits, and workers abstained from destructive work conflicts in a commitment mechanism to ensure growth. The deal was that workers should not strike or disrupt production in attempts to get higher wages and owners should not take all profits and run away with them for private indulgence. Profits should be reinvested into expanding and improving the production structure. That way workers and owners both enjoyed the fruits of growth. Eichengreen proposes that large investments were made possible by a post-war recipe: wage moderation and export growth. That may explain the Abramovitz hypothesis of European catch-up of America in general, and the Norwegian catch-up and overtaking in particular. In fact, Barth and Moene show measurements that indicate the reason why Norway has been in a position to create equity: coordination of pay. The way wages are set in Norway is highly centralized. They demonstrate by pointing to empirical studies of the wage-setting process in other countries. In Norway wage formation involves large unions of workers and employers meeting to negotiate, and it attains the highest degree of centralization by the OECD scale. The claim that equity is closely associated with growth may also be testable, in principle. Norway may have gotten more equal over the century and such a tendency could be associated with growth. Unfortunately, we do not have all the data we would need to construct a test, so we shall have to await further research.

After World War II, Norway was still not at the forefront. It was half-decent at best. In Klette's (2000) terminology, Norway was in the second stage and only very slowly closing the gap between it and the rest of the industrialized world. If anything, Denmark and Sweden were the Scandinavian performers. What happened? Oil was found. Add the ingredients of the above to a goblet of oil and things happen. A highly valuable export commodity can buy you state-of-the-



art technology abroad. You can confidently micro-manage the business cycle and watch the effect of having all people work all the time. Oil gives you an opportunity to secure valuable means for import regardless of disturbing business cycles abroad. And when all people work every year, it adds up. In comparison, Sweden had to go through a painful readjustment of its welfare state. The Swedes suffered from high unemployment rates and tough burdens on the generous welfare economy. Norway did not. Thus, oil obviously plays a leading role in the Norwegian success story.

We must pay some attention to the implemented policies to manage the oil wealth. After all, stories about resource gifts do not always turn out for the better. Sachs and Warner (2001) study whether countries excel or not when natural resources are discovered. They find that natural endowments are not observed with a plethora of consumption possibilities for all of the citizens in suddenly rich countries. Oftentimes, this national wealth is a cause for competition and disagreement and a source for private enrichment among the elite (see Auty 2001). Cappelen et al. (2000) study the Norwegian experiences with oil and how it may have done without it. Fortunately, Norway avoided some of the pitfalls of *nouveau riches*, and has now instituted rules for how much to spend of its natural and financial wealth, when, and in what ways. Norway has managed the oil wealth quite well, so far. They were lucky to find it, and smart in dealing with it properly and prudently.

A somewhat neglected component in accounts of Norwegian growth is the emergence of female labor. The significance of the fact that Norwegian women showed up on the job market in great numbers and offered their skill in the production of the nation's total sum of goods and services cannot be overstated. Possibly, and for the benefit of all, Norwegian women showed up in greater numbers than in many other places. Imagine the loss to society when great talent remains undiscovered and unused because it was granted a person who traditionally (and arbitrarily) does not participate in production. It is essential that societies allocate scarce skills and knowledge to positions where they make an impact. Norway did just that.

Making conjectures and stating refutations are essential elements in generating knowledge. Above, we conjectured that the presented elements were probably necessary and possibly sufficient in understanding the tapestry with which Norwegian economic prosperity was woven. Our claims may not easily be refuted because there are general in nature. The result of such generality is that the policies examined are not readily operational for other countries to use. We regret that.

Further, we must ask how the agreement to pursue the policies came about? At what times did what people decide to implement what suggestions for arranging the institutions that created the elements of growth? We cannot answer that satisfactorily. The answer – when or if it comes – will involve a story of how Norway, in a combination of deliberate actions and good luck, was able to hit just the right mixture of policy, culture, resources, neighbors, and pure providence.

## 6. Getting It Wrong or: What Can Be Improved?

Probably, Norway did not get everything right. We do not possess a counterfactual trajectory of the perfect development, so investigations into what could have been improved upon must be hypothetical. And critique has been launched. Claims about ill-designed policies have been put forward. Here, we will list proposals from critics, then comment upon the economic content. The following comprise a bouquet of critical remarks recently suggested.

- The business climate is inhospitable to private initiative and there are few incentives to excel
- The infrastructure needed to support our pattern of spread-out residence is too resource demanding given what the populace really want
- The level of agricultural production is above the optimum, given what people would prefer if they knew the costs
- Grants to research and development are small, infrequent, and misdirected
- The welfare system is too generous to be sustainable
- The ongoing de-industrialization is precarious
- There is too little reliance on market solutions, and thus too little competition
- There exists an environment of hostility towards ambitions and achievement

Such claims are heard from politicians, commentators in media, economists, journalists, or business leaders. Let us shed light on them. First, observers often maintain that Norway has failed to establish laws for business that welcome initiative and innovation. Some business leaders say the business climate in Norway is tough and inhospitable. Politicians are eager to equalize outcomes, not outsets, they say. In the desire to create equality, a penalty has been put on performance, critics warn. As an example of this position we can point to the international consultancy *Jones Lang LaSalle*.<sup>4</sup> The consultancy ranks Oslo only the 50<sup>th</sup> most attractive city in Europe for investment purposes, down 14 notches from last year, ending far behind sister cities in Scandinavia among the 85 surveyed.

<sup>4</sup> Dagens Næringsliv, September 28th 2001, p. 18.

They cite little research and development, uninviting framework for business, and non-membership of the EU as reasons for their low ranking. Further, critics are not only skeptical of taxes on effort, they also say there are subsidies of shirking. Performance based pay is discouraged, uncommon, or non-existing, it has been said. The picture drawn is one consisting of powerful unions that block desires to link pay with results. Unfortunately, the apparatus with which to measure these claims is imprecise. However, the claims may be made plausible or implausible, possible or unlikely. Regardless of the empirical content, economists do acknowledge and emphasize the importance of mechanism design and the existence of incentives. People will adapt to penalty and reward schemes. So, in order to extract talent, encourage effort, discourage exploitation of the welfare system, and avoid social losses by too strict demands on the unfortunate or the unwilling—in order to reach acceptable levels of well-being for all—policymakers must thoroughly contemplate the regulations and requirements they impose on business. It is legitimate to believe that Norway can improve.

Second, critics point out that the infrastructure needed for spread-out and scattered residence is demanding in resources, and that Norway has probably not found a sustainable solution. While a spread-out pattern of residency may be good for defense purposes and even desirable from a standard of living point of view, there is no avoiding the fact that it is costly. Transporting parts of cities into the woods and mountains—which is basically what having villages there amounts to—requires labor, time, fuel, roads, electricity gates, schools, administrations, and additional infrastructure. There are economies of scale to be reaped from urbanization. Still, Norway subsidizes people who decide not to live in cities.

Third, Norwegian agriculture is expensive. The argument is essentially that by transferring resources to other sectors and purchasing the products abroad, Norway would improve efficiency of resource allocation given the preferences of the population. Obviously, some places are better suited for agricultural activities than others. Critics say Norway is not one of them. However, the cost of production per unit is only one aspect of agriculture. There are others. For example, people derive pleasure from knowing that Norway can deliver some of its own food. People find comfort in knowing—or believing—that a certain quality of the food is assured. These are externalities not computed in cost analysis and often neglected by critics. It is difficult from an economic point of view to identify the optimum level of agricultural activity.

Fourth, critics put forward the observation that Norwegians spend a small share of the gross domestic product on research and development. Thus, Norwegians do not generate new ideas, acquire familiarity with international research results, or maintain the knowledge they once gained to the same extent others do. Historically, nations that focus on knowledge do well. Naturally then, Norwegian policymakers must contemplate the future benefits of investing into knowledge acquisition and generation. Economically, it is difficult to assess the validity of the criticism. Let it suffice to say that research is a cornerstone activity in any modern society. Lack of funding of research will have consequences later.

Fifth, critics say the welfare system is too generous. It is a long-standing claim in the literature that welfare schemes neither encourage effort nor discourage free-riding. Critics point to Sweden, and its welfare system reforms that became necessary in the early 90s because of unsustainable benefits. So far, Norway may have avoided some of the uncomfortable realities about budget constraints because of the escape offered by oil revenues. In the long term, warning voices ask of us to understand that Norway may not be able to escape reforms either. The demographic composition of the Norwegian population develops in a way such that fewer people produce for a growing number of other—mostly older—people. Norwegians spend more and longer time as students and Norwegians allow themselves an increasing number of years as retirees on public pensions. In addition, Norwegians want shorter hours and longer vacations. Moreover, they want to have paid leaves of absence when ill. Critics, of course, make legitimate points. There is an—already voluminous—expanding list of desires, and the weight of it will be felt.

Sixth, although not suffering from the so-called Dutch disease<sup>5</sup>, Norway is dismantling industry in order to allow the growing public sector to acquire labor. Imports are financed by the sale of the natural resource wealth. The question the skeptics demand answered is what might happen if—or rather, when—revenues from oil shrink. Another point is that the present consumption displaces future consumption. However, it is no trivial task to distribute wealth over generations. Ultimately, it must depend on what the future is expected to hold, and expectations are frail. Neither the present nor the future should make sacrifices for the other. Economically, it is difficult to know whether or not Norway has relied too much on a public sector in a world that becomes more interconnected and competitive.

<sup>5</sup> The Dutch disease refers to the experience the Netherlands made some decades ago. In the Netherlands, decision-makers let industry be dismantled as nature resource revenues flowed in. When the resource flows dried up, they were left with little industry to support imports.

Seventh, market reliance is too low and too infrequent, say commentators. As a result, the economy may become inflexible and stagnant. A recent example may be found in the magnesium plant at Herøya. Because of high labor costs, Norwegian companies cannot meet Chinese sale prices. Thus, the Norwegian companies are not competitive on international markets in this industry. Still, demonstrators protest against closure and there is political resentment towards reallocation of production resources. Instead of transferring labor to sectors in which Norwegians can compete, people wish to keep the structure of status quo. If the Norwegian strategy is too inflexible, Norway may forgo income in the long run. Such a view is valid since plants and industries in a vibrant and efficient economy must be closed down when they no longer compete successfully. On the other hand, retraining costs and job switching costs are real costs faced by the workers. They comprise the necessary investments any economy must make in order to enjoy the productivity that comes from flexibility. However, there is an asymmetry of burden. It is perceived to be unfair that a few must make sacrifices for the many. Granted, one way of sharing the burden is to redistribute income through taxes and subsidies. Economists say it is an efficient way. The economic rationale prescribes two instruments when one has two goals: one for flexibility, another for distribution. On the other hand, only so much financial redistribution is politically feasible. An alternative way is to look for possible second-best solutions. An example is to accept some losses in flexibility by allowing firms to phase out more slowly instead of forcing prompt closures. That would ease the burden of superfluous workers in transit to retirement or new work, and it would be less politically straining. In practice, politicians must balance competing goals, see Røed Larsen (2001) for a contemporary example on the dilemmas facing public interest in both stimulating innovation and spreading the results when there may be a trade-off. Balancing external and internal goals when international competition is at odds with national employment is both an intricate and a delicate task politicians face. For an account of competing and non-competing sectors and the relation to employment, see Rødseth (2000).

Eighth, there is, reportedly, a culture of mistrust of getting ahead. This is a popular view, but hard to demonstrate. Economics can contribute little to answering this question, and quantitative illumination is hard. Allegedly, Norwegians believe the overachiever is eccentric, irritating, or unlikable. Writers have pointed towards the desire in Norway that everybody walks at the same pace. To some extent, such comments ring true for Norwegian society. The question is, however, whether this is anything unique. Granted, there exist strong forces of conformity and homogeneity in Norway. For historical reasons, Norwegians are not ethnically diverse or culturally various. And ho-

mogeneity may hinder acceptance of diversity, a paucity of which does not foster innovation and novelty. Historically, places with many cultures and variegated attitudes have been centers of invention because people learn new ways when they meet those who are different. So, if there exists a Norwegian tendency of forcing sameness there would be a price-tag on it. Additionally, mistrust of achievement may prohibit a healthy variance of pay. Paradoxically, in Norway it is accepted that soccer players and skiers, rock stars, and lottery winners enjoy large incomes. Large salaries are less acceptable for business leaders. Public resentment runs deep when the media reports seven digit incomes in the business sector. Paradoxically, it does not when sport heroes obtain large incomes.

Such is the thinking of the economic skeptic. Along these lines critique is fired against Norwegian orthodoxy. As we see, some of the forces behind Norwegian development and prosperity are among the forces of friction as well. How can that be? After all, equity cannot both be good and bad for economic progress. Well, it may. The point is that a good thing might not be good in large dosages. One pill a day may save the patient, ten will kill him. Economics is all about identifying optimum levels. Another point is that what is desirable today, might be undesirable tomorrow. An arrangement of institutions, say taxes and subsidies, that is designed for an era of little mobility may not be suited for times of widespread relocation and globalization. In other words, Norwegians may have been sheltered against realities that now come into effect because it used to be the case that culture, language, and geography were barriers to exit. Now, Norwegians may move if they find policy mixes too hostile and threatening. This is part of the argument made by the critics. Time will show.

## 7. Concluding Remarks

The Norwegian economy is performing well, and on measurable parameters Norwegians are among the richest in the world. It was not always thus. Less than a century ago, Norway lagged behind the rest. Yet, despite a modest outset Norway has become a modern, fully-fledged industrialized economy. In this article, the claim has been that success is due to a good portion of luck. However, deliberate institutional arrangements and the implementation of core policies have also played their part. Without them, Norway might still have been relatively poor. The existence of relatively non-advanced countries in Europe today bears testimony to that claim. The Norwegian catching-up and overtaking of other industrialized OECD countries can be understood only by scrutinizing the policies that were implemented. We have mentioned education and investments in physical capital. Another factor, the mentality of sharing prosperity in the form of wage moderation and modest capitalists, as realized in a tacit social pact as the economy marched forward, has played a leading role. Interestingly,

mentality and policy are interdependent. For example, the income distribution and school policies have contributed to a desire for equality. The existence of equality in turn may have led to policies to maintain, or even increase, equality of pay and the homogeneity of the school system, see Barth and Moene for perspectives on the propensity for equality.

Pre-requisites to Norwegian growth were law and order, property rights, incentives, a tradition — written in legal code — that encouraged parties to enter into contracts, and a system that allowed contractual enforcement. The natural resource gift, oil, was a lucky strike. However, the prudent way Norwegians handled the riches, was not. It was a feat of well-targeted decisions.

Norway successfully put itself on a trajectory towards economic progress and prosperity. When the essential ingredients were in place, the economy grew slowly, but surely. Identifying the ingredients does not constitute a recipe for others to copy and imitate. But getting the ingredients ready and putting them within reach is a start. In Norway, the pie grew larger each year and — fortunately — each slice was cut equitably for each inhabitant. That, in turn, probably affected the size of the following year's pie. Thus, a core lesson of Norwegian economic policy is that sharing the fruits of prosperity establishes an atmosphere of security, identity and belonging, and ensures that an individual believes in the *opportunity* to make use of her energy and talents. Instead of fighting over the distribution of the pie, people then cooperate to increase the pie. The good thing with this good thing is that it is replicable.

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# Research publications in English

## New titles

### Statistical Analyses

**Natural Resources and the Environment 2001. Norway.** SA 47, 2001. 293 pages. ISBN 82-537-4995-3

Statistics Norway compiles statistics on important natural resources and the state of the environment, and develops methods and models for analyzing trends in the extraction and use of natural resources and changes in the state of the environment, focusing particularly on relationships between these factors and other economic developments. The annual publication *Natural Resources and the Environment* gives an overview of this work.

An important objective is to ensure that this publication presents the environmental situation so that it can be readily understood while at the same time including considerable detail. *Natural Resources and the Environment 2001* starts with an updated presentation of key figures or indicators (Chapter 1). This is followed by detailed descriptions of the various topics, which include both statistics and analyses. Finally, the appendix provides more detailed statistics in the form of tables.

### Discussion Papers

*Knut R. Wangen and Erik Biørn:* **Prevalence and substitution effects in tobacco consumption: A discrete choice analysis of panel data.** DP no. 312, 2001. 38 pages.

This paper analyzes tobacco demand within a discrete choice framework. Using binomial and multinomial logit models with random effects, and an unbalanced panel data set of Norwegian households over a twenty year period, we first consider the decisions a) whether to smoke or not, and b) given the choice is to smoke, whether to smoke hand rolled or manufactured cigarettes. Next, we consider a multinomial logit framework, in which the households choose between no tobacco, only manufactured cigarettes, only hand rolled cigarettes, and a combination of manufactured and hand rolled cigarettes. In this process, we utilize the potential offered by panel data to investigate unobserved heterogeneity, which is crucial for commodities where con-

sumers have different tastes and where users tend to become addicted. Using Maximum Likelihood in combination with bootstrap estimation of standard errors, we find that income and prices influence the 'type of tobacco choice probabilities' at least as strongly as the 'smoking/non-smoking probabilities'. *Cet.par.*, an increase in the price of manufactured cigarettes could lead consumers to switch to hand rolled cigarettes, rather than quit smoking. Socio-demographic variables seem to be at least as important in explaining the discrete aspects of tobacco consumption as income and prices. Finally, we find significant unobserved household specific effects in the smoking pattern.

*Mari Rege and Kjetil Telle:* **An Experimental Investigation of Social Norms.** DP no. 310, 2001. 25 pages.

Several economists have maintained that social and internalized norms can enforce cooperation in public good situations. This experimental study investigates impacts of social and internalized norms for cooperation among strangers in a public good game. The experiment has two treatment effects. First, it reveals each person's identity and his contribution to the public good. Second, it presents the public good game in a language which suggests associations to social and internalized norms for cooperation. Both treatment effects increase voluntary contributions significantly. These results suggest two important policy tools to crowd in social and internalized norms in a public good situation.

*Håvard Hungnes:* **Estimating and Restricting Growth Rates and Cointegration Means. With Applications to Consumption and Money Demand.** DP no. 309, 2001. 23 pages.

The parameters in the cointegration vector and the loading parameters are not the only interesting parameters in a vector cointegration model. With a reformulation of the model the intercept parameters can be decomposed into growth parameters and cointegration mean parameters. These parameters have economic interpretations and are therefore also important. We show how these pa-

rameters can be estimated and restricted. The latter can be achieved by using a linear switching algorithm. Consumption and money demand applications illustrate the method.

### Reprints

*Hilde Christiane Bjørnland:* **Identifying domestic and imported core inflation.** Reprints no. 210, 2001. 13 pages.

Reprint from *Applied Economics*, Vol. 33, 2001, 1819-1831.

*Rolf Aaberge and Yu Zhu:* **The pattern of household savings during a hyperinflation: The case of urban China in the late 1980s.** Reprints no. 207, 2001. 22 pages.

Reprint from *Review of Income and Wealth*, Series 47, No. 2, 2001, 181-202.

*Randi Kjeldstad and Jan Erik Kristiansen:* **Constructing a regional gender equality index: Reflections on a first experience with Norwegian data.** Reprints no. 205, 2001. 9 pages.

Reprint from *Statistical Journal of the United Nations ECE*, Volume 18, 2001, 41-49.

*Turid Noack:* **Cohabitation in Norway: An accepted and gradually more regulated way of living.** Reprints no. 203, 2001. 16 pages.

Reprint from *International Journal of Law, Policy and the Family*, Vol. 15, 2001, 102-117.

### Documents

*Helge Brunborg, Ian Bowler, Abu Yusuf Choudhury and Mahbuba Nasreen:* **Appraisal of the Birth and Death Registration Project in Bangladesh.** Documents 2001/13, 2001. 44 pages.

The background for the appraisal is an application from the Ministry of Local Government, Rural Development and Cooperatives of Bangladesh for Norwegian funding of birth and death registration. The report reviews the current system, which was instituted in the 1873 but never widely implemented. The human rights perspective is an important motivation

for the new initiative, which is strongly supported by UNICEF. It is particularly important that children have documents that can prove their name, age and citizenship, which are essential in the fight against child labour, prostitution and marriage.

The report gives a number of recommendations for modernising the system, including legislative changes, administrative structure, data flows, and the introduction of identification numbers.

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