

# Economic Survey

Statistics Norway



Statistisk sentralbyrå

- Economic developments in Norway
- Forecasts 2018-2021

**1/2018**



# Economic developments in Norway

The Norwegian economic downturn bottomed out just over a year ago. According to preliminary seasonally adjusted figures from the quarterly national accounts (QNA), average quarterly mainland GDP growth through 2017 was 0.6 per cent. This is equivalent to annual growth of 2.6 per cent, which is somewhat higher than estimated trend growth of just under 2 per cent. Although growth has picked up globally and increased petroleum investment will boost the Norwegian economy going forward, there are also other impulses, such

as falling housing investment and a stronger krone, that are exerting a countering effect. The upturn for the next few years is therefore likely to be a moderate one.

Fiscal policy, which has been markedly expansionary since 2014, is shifting from expansionary to approximately cyclically neutral. In the period from 2013 to 2017, the increase in the structural, non-oil budget deficit (SNOBD) averaged just over NOK 20 billion per year in 2018 money. However, figures from the

**Table 1. Main macroeconomic aggregates. Accounts figures. Change from previous period. Per cent**

	2016*	2017*	Seasonally adjusted			
			17:1	17:2	17:3	17:4
<b>Real economy</b>						
Consumption by households etc.	1.5	2.3	0.7	0.8	0.6	0.8
General government consumption	2.1	2.0	0.6	0.5	0.7	0.5
Gross fixed capital formation	-0.2	3.5	1.9	1.4	-0.9	1.6
Extraction and pipeline transport	-16.9	-4.0	0.8	-0.1	-5.6	-1.0
Mainland Norway	6.1	5.9	2.7	1.3	0.3	2.0
Mainland demand <sup>1</sup>	2.6	3.0	1.1	0.8	0.6	1.0
Exports	-1.8	0.8	-0.9	2.0	-0.8	-2.6
Traditional goods	-8.2	2.2	6.8	1.7	0.9	0.7
Crude oil and natural gas	4.3	1.9	-1.8	4.1	0.3	-8.3
Imports	2.3	2.2	2.8	0.7	-3.3	3.2
Traditional goods	-0.4	3.2	3.0	0.7	-1.7	2.6
Gross domestic product	1.1	1.8	-0.2	1.1	0.8	-0.3
Mainland Norway	1.0	1.8	0.6	0.6	0.7	0.6
<b>Labour market</b>						
Man-hours worked	0.7	0.3	0.2	0.2	0.5	0.6
Number employed	0.2	1.1	0.4	0.3	0.4	0.4
Labour force <sup>2</sup>	0.3	-0.4	-0.1	0.1	-0.2	0.3
Unemployment rate (level) <sup>2</sup>	4.7	4.2	4.3	4.3	4.1	4.1
<b>Prices and wages</b>						
Annual wages	1.7	2.3	..	..	..	..
Consumer price index (CPI) <sup>3</sup>	3.6	1.8	2.6	2.1	1.4	1.2
CPI adjusted for tax changes and excluding energy products (CPI-ATE) <sup>3</sup>	3.0	1.4	1.9	1.6	1.1	1.1
Export prices traditional goods	3.5	5.0	0.4	1.6	-1.0	2.3
Import prices traditional goods	1.4	3.7	1.2	2.5	-0.5	2.6
<b>Balance of payments</b>						
Current account balance, billions of NOK <sup>4</sup>	118.3	168.3	57.6	54.4	21.2	35.0
<b>MEMO (unadjusted figures, levels)</b>						
Money market rates (3-month NIBOR)	1.1	0.9	1.0	0.9	0.8	0.8
Lending rate, credit loans secured on dwellings <sup>5</sup>	2.6	2.6	2.6	2.6	2.6	2.6
Crude oil price in NOK <sup>6</sup>	378	445	461	433	414	473
Import-weighted krone exchange rate, 44 countries, 1995=100	105.4	104.6	102.7	106.0	103.6	106.0
NOK per euro	9.29	9.33	8.99	9.38	9.35	9.60

<sup>1</sup> Consumption by households and non-profit organisations + general government consumption + gross mainland investment.

<sup>2</sup> LFS figures

<sup>3</sup> Percentage change from same period previous year

<sup>4</sup> Current account not adjusted for saving in pension funds.

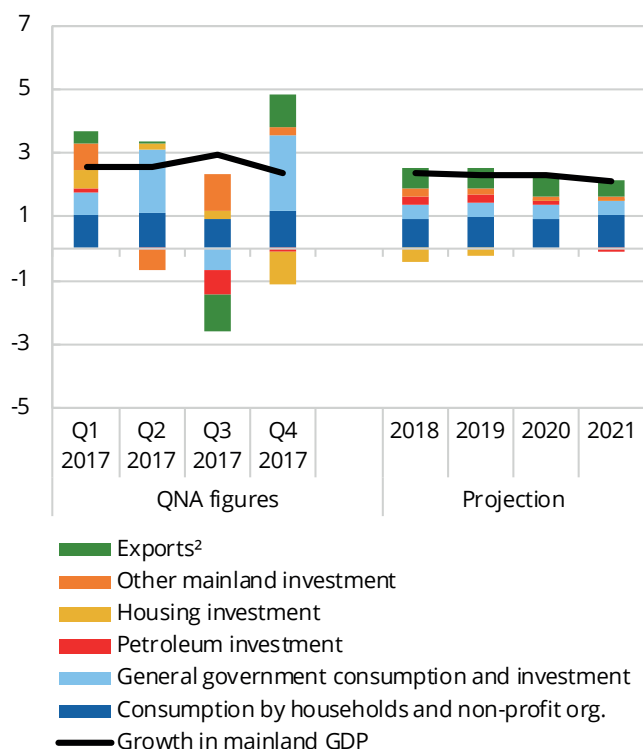
<sup>5</sup> Average for the period.

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

Source: Statistics Norway and Norges Bank.

National Budget for 2018 indicate that SNOBD will increase by only NOK 6 billion from 2017 to 2018. The fiscal scope for manoeuvre appears likely to increase appreciably less in the near term. This is implicit in the fact that fiscal policy will be approximately neutral on balance, as SNOBD as a share of trend mainland GDP is expected to remain almost constant through the projection period.

**Figure 1. Growth in mainland GDP and contributions from demand components.<sup>1</sup> Percentage points, annual rate**



<sup>1</sup> The demand contributions are calculated by finding the change in each variable, extracting the direct and indirect import shares, and then dividing by the mainland GDP level for the previous period. The import shares used are documented in Economic Survey 1/2018, Box 3. All figures are seasonally adjusted and in constant prices.

<sup>2</sup> The export variable is defined as total exports excluding exports of crude oil, gas and shipping.

Source: Statistics Norway.

Nor will the exchange rate have an equally expansionary effect in the years ahead. The depreciation of the krone from 2014, in pace with the falling oil price, has imparted positive impulses to the Norwegian economy. The krone has strengthened since the beginning of 2018, and we assume that it will continue to strengthen moderately for the next few years. The weakening of cost-competitiveness due to the appreciation of the krone will make the situation of exposed sector activities less favourable and moderate the cyclical upturn. In 2021, the last year of our projection period, we assume that a euro will cost around NOK 9.0.

In contrast to many previous cyclical upturns, housing market developments are now curbing the upturn. House prices measured by Statistics Norway's resale home price index began to fall in 2017 Q1. The fall has been most pronounced in the Oslo area. That house prices have fallen is due first and foremost to the fact that the supply of dwellings has been high, prices had reached a high level, wage growth has been moderate and immigration has slowed. The Housing Loan Regulations may also have contributed to the reversal, but it is on account of the aforementioned more fundamental factors that we believe that house prices will fall through most of 2018 as well. The fall will probably be modest, however. If our projections prove correct, house prices at the end of 2018 will be just under 5 per cent lower than the peak in 2017 Q1. Falling house prices make residential construction less profitable, and this is already reflected in lower housing investment. We forecast that housing investment will remain virtually unchanged from 2019 onward. Given this scenario, the level of housing investment will be about 10 per cent lower in 2021 than at the peak in 2017.

Petroleum investment continued to fall throughout 2017, but the decline in this investment appears to be over for now. An improved global economic situation, lower investment prices and an oil price that fluctuated around USD 65 per barrel this winter is making a number of petroleum investments profitable. Operators on the Norwegian continental shelf are planning to increase their investment by NOK 125 billion over the next few years, and a good portion of this increase will

**Table 2. Growth in mainland GDP and contributions from demand components.<sup>1</sup> Percentage points, annual rate**

	QNA				Projection			
	17:1	17:2	17:3	17:4	2018	2019	2020	2021
Consumption by households and non-profit organisations	1.0	1.1	0.9	1.2	0.9	1.0	0.9	1.0
General government consumption and investment	0.7	2.0	-0.7	2.4	0.4	0.5	0.5	0.5
Petroleum investment	0.1	0.0	-0.8	-0.1	0.3	0.2	0.1	-0.1
Housing investment	0.6	0.2	0.3	-1.0	-0.4	-0.2	0.0	0.0
Other mainland investment	0.8	-0.6	1.1	0.2	0.3	0.2	0.1	0.1
Exports <sup>1</sup>	0.4	0.0	-1.2	1.1	0.6	0.6	0.7	0.5
Growth in mainland GDP	2.6	2.6	3.0	2.4	2.4	2.3	2.3	2.1

<sup>1</sup> See footnotes to Figure 1.

Source: Statistics Norway.

come about in 2018 already. Field developments and fields in operation are forecast to account for the bulk of the growth. The expected upswing in petroleum investment in 2018 will be pronounced, but the increase, viewed in isolation, will only be strong enough to neutralise the negative impulses of the fall in housing investment in the projection period as a whole.

Mainland business investment will also pick up. The upturn in 2018 is expected to occur in oil refinement and chemicals and pharmaceuticals manufacturing in particular, in consequence of some large individual projects. Growth is also expected in the food products and the machinery and equipment industries. Power supply enterprises are planning further investment both in intensifying wind power development activities and in electricity distribution. Norges Bank's regional network also reports increased investment in services. All in all, a growth rate of around 5 per cent is forecast for the current year. Growth is then expected to fall back slightly as a result of higher interest rates and as the business cycle reaches maturity. This is a very moderate investment upswing compared with previous upturns, in which the business investment growth rate has typically been a percentage in double figures.

Household consumption growth continues to pick up. Consumption has generated positive growth impulses to the economy for six consecutive quarters, and is expected to continue to gather pace. Continued low interest rates and increasing growth in real income are contributing to this. Although the weak developments in house prices are curbing consumption growth, we expect it to increase by about 2.5 per cent annually in the near term. This will help to push mainland economic growth up over trend growth.

Wage growth will also increase somewhat. Annual wage growth in 2016 was only 1.7 per cent, which meant a 1.8 per cent decrease in real wages. This was the lowest wage growth in Norway for 70 years, and must be attributed partly to the decline in employment in petroleum-related industries, which depressed average wage growth. Wage growth rose again in 2017, however, and increased both nominally and in real terms, approximately as forecast. We expect nominal wage growth to rise further in pace with the improved economic situation. Given relatively stable inflation of just under 2 per cent, this is equivalent to average growth in real wages from 2018 to 2020 of just under 1.5 per cent.

The number of vacancies is increasing and unemployment continues to fall. After peaking at 5 per cent in mid-2016, it has now fallen back to 4.1 per cent according to Statistics Norway's Labour Force Survey (LFS). The decline in unemployment applies to large parts of the country. We expect unemployment as an annual average to be 3.9 per cent in 2018, and then to edge down gradually to 3.7 per cent in 2021. In a historic

perspective, this must be regarded as close to a normal unemployment level.

The participation rate has been falling in recent years. This trend can be ascribed partly to the ageing population and partly to the economic downturn, which led to many people withdrawing from the labour market. According to the LFS, the participation rate was 69.4 per cent in 2017 Q4. The fall in the participation rate is expected to come to a halt, mainly because of the improving economic situation, but also because the negative contribution from an ageing population is lessening.

The Government recently decided to amend the Monetary Policy Regulation by reducing the inflation target from 2.5 per cent to 2.0 per cent. Inflation measured by the rise in the CPI has fluctuated around 2 per cent since the introduction of the inflation target in 2001. Norges Bank has signalled that the new regulation will not result in significant changes in the conduct of monetary policy. Over the next four years, interest rates are expected to rise by just over one percentage point. Despite this rise, real interest rates will remain at historically low levels. Borrowing money will be almost free of charge, even when the cyclical downturn is over.

Thus the cyclical upturn we envisage appears likely to be moderate. It will be moderated by a neutral fiscal policy, reduced housing investment, a stronger exchange rate, rising wage growth and slightly increasing interest rates. However, these impulses will not stop the incipient recovery. A marked global upturn and increased petroleum investment are expected to boost activity, as will household consumption and mainland business investment. Given this scenario, the Norwegian economy will be in an approximately cyclically neutral situation in 2020.

### Fiscal policy

Fiscal policy has been providing a clear stimulus to the Norwegian economy since 2014. The National Budget 2018 (NB2018) estimates that the structural non-oil budget deficit (SNOBD) as a share of trend mainland GDP increased by 2.5 percentage points from 2013 to 2017. This is roughly the same stimulus as from 2006 to 2010, although most of that stimulus came in 2009 alone. If SNOBD as a share of the mainland economy is used as indicator, fiscal policy will only generate marginally increased impulses to the economy in 2018. We can therefore say that fiscal policy is roughly cyclically neutral this year.

General government consumption increased by a good 2 per cent annually in the period 2014–2017, with a slight slowing of the growth rate over time. Gross general government investment underwent little change between 2014 and 2015, but has since increased by close to 6 per cent in both 2016 and 2017. Some of the high growth was due to an increase in imported defence investment, but gross non-military investment

**Table 3. Main macroeconomic aggregates 2017–2021. Accounts and projections. Percentage change from previous year unless otherwise specified**

		Accounts 2017*	Projections								
			2018			2019			2020		2021
			SN	NB	FIN	SN	NB	FIN	SN	NB	SN
<b>Real economy</b>											
Consumption by households etc.	2.3	2.5	2.3	3.2	2.7	2.2	3.2	2.5	2.2	2.8	
General government consumption	2.0	1.5	1.5	1.2	1.7	1.5	..	1.7	1.4	1.7	
Gross fixed capital formation	3.5	2.5	..	2.5	2.1	..	3.0	1.9	..	0.4	
Extraction and pipeline transport	-4.0	8.4	6.0	2.2	6.6	6.0	7.7	3.0	3.0	-2.2	
Mainland Norway	5.9	0.5	..	..	0.8	..	..	1.6	..	1.2	
Industries	5.1	5.8	6.2	5.6	3.9	3.0	5.6	2.8	0.9	1.4	
Housing	7.1	-7.2	0.0	-0.2	-4.1	-3.0	-2.7	0.4	-0.5	1.0	
General government	5.8	1.5	..	1.5	1.2	..	..	0.9	..	0.9	
Mainland demand <sup>1</sup>	3.0	1.8	2.2	2.5	2.0	1.7	2.4	2.1	1.6	2.1	
Inventory changes <sup>2</sup>	-0.1	0.0	..	..	0.0	..	..	0.0	..	0.0	
Exports	0.8	2.0	..	0.9	2.0	..	1.9	4.5	..	3.7	
Traditional goods <sup>3</sup>	2.2	4.7	4.7	3.8	4.1	4.7	5.0	4.5	3.4	3.6	
Crude oil and natural gas	1.9	-0.5		-4.8	-0.7		-2.4	5.6	..	4.7	
Imports	2.2	2.2	2.9	3.3	2.8	2.3	3.0	2.5	2.3	2.2	
Traditional goods	3.2	3.2	..	..	3.6	..	..	3.3	..	2.8	
Gross domestic product	1.8	2.0	0.9	1.5	1.9	1.5	1.9	2.7	2.1	2.4	
Mainland Norway	1.8	2.4	2.3	2.5	2.3	2.2	2.6	2.3	1.9	2.1	
<b>Labour market</b>											
Number employed	1.1	1.2	1.0	1.1	1.1	1.0	1.1	0.9	0.8	0.8	
Unemployment rate (level)	4.2	3.9	3.7	4.0	3.7	3.4	3.8	3.7	3.3	3.7	
<b>Prices and wages</b>											
Annual wages	2.3	3.0	2.9	3.0	3.5	3.6	3.0	3.7	4.0	4.0	
Consumer price index (CPI)	1.8	2.0	1.9	1.6	1.6	1.8	1.7	1.8	2.1	2.0	
CPI-ATE <sup>4</sup>	1.4	1.7	1.7	1.8	1.7	1.9	1.9	1.7	2.1	1.8	
Export prices traditional goods	5.0	3.4	..	..	-0.2	..	..	0.1	..	0.2	
Import prices traditional goods	3.7	2.5	..	..	0.2	..	..	0.1	..	0.8	
House prices <sup>5</sup>	5.0	-2.8	-1.6	..	1.1	2.9	..	1.5	4.2	2.3	
<b>Foreign trade and current account</b>											
Current account balance, NOK bn <sup>6</sup>	168	231	..	137	227	..	..	271	..	311	
Current account balance, Per cent of GDP	-5.1	6.6	..	3.9	6.3	..	4.5	7.2	..	7.8	
<b>MEMO:</b>											
Household real disposable income	2.4	2.7			2.5			2.6		2.6	
Household saving ratio (level)	7.3	7.2	..	..	7.6	..	..	8.3	..	8.7	
Money market interest rate (level)	0.9	1.0	0.9	0.9	1.4	1.3	1.2	1.9	..	2.3	
Lending rate, credit loans secured on dwellings (level) <sup>7</sup>	2.6	2.7	..	..	3.1	..	..	3.4	..	3.7	
Crude oil price in NOK (level) <sup>8</sup>	445	486	..	438	456	..	441	464	..	472	
Export market indicator	4.6	5.3	..	..	5.2	..	..	4.9	..	4.6	
Import-weighted krone exchange rate (44 countries) <sup>9</sup>	-0.8	0.0	-0.1	1.0	-3.0	-2.2	0.8	-2.0	-1.0	-1.0	

<sup>1</sup> Consumption by households and non-profit organisations + general government consumption + gross mainland capital formation.<sup>2</sup> Change in inventories, percentage of GDP.<sup>3</sup> Norges Bank publishes projections for traditional goods, travel, and other mainland transport services.<sup>4</sup> CPI adjusted for tax changes and excluding energy products (CPI-ATE).<sup>5</sup> Norges Bank forecasts the housing price index published by Eiendom Norge.<sup>6</sup> Current account not adjusted for saving in pension funds.<sup>7</sup> Average for the year.<sup>8</sup> Average spot price, Brent Blend.<sup>9</sup> Positive figures imply a weakened krone. The Ministry of Finance publishes projections for the trade-weighted exchange rate index.

Sources: Statistics Norway (SN), Ministry of Finance, the National Budget (2016–2017), (FIN), Norges Bank, Monetary Policy Report 4/2017 (NB).



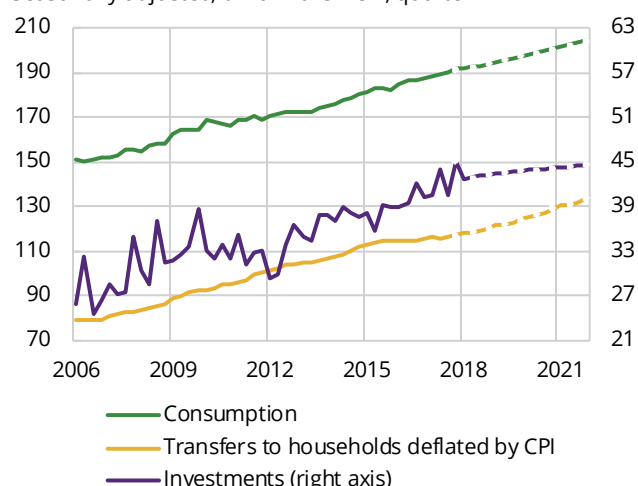
also increased appreciably. Public transfers to households increased by a nominal 3.9 per cent in 2016, so that real growth in transfers was only just positive as a result of the high inflation that year. Nominal growth in transfers was only 3.1 per cent in 2017, but real growth was 1.3 per cent as a result of moderate consumer price inflation last year. Real growth in consumption, gross investment and transfers combined was about 2 per cent in both 2016 and 2017, close to estimated trend growth in the mainland economy.

The tax rate on ordinary income for companies (excluding the financial sector) and personal taxpayers has been reduced from 27 to 23 per cent in the period 2015–2018. The petroleum and electricity taxation system has been adjusted so that these two industries are not appreciably affected by the taxation change. Bracket tax on high personal income has been increased, so that most of the revenue loss on personal taxpayers due to reduced tax on ordinary income will be recouped through other income taxes. As a result of reduced tax rates in this period, fiscal policy has been expansionary on balance. At the beginning of 2017, SNOBD as a share of trend mainland GDP was 2.9 per cent as a share of the Government Pension Fund Global, which is close to the revised norm imposed by the fiscal rule.

The projections in NB2018, adjusted for changes as a result of the budget agreement between the conservative parties in the Storting, form the point of departure for 2018 assumptions. We now forecast that growth in both general government consumption and investment will be 1.5 per cent this year. The tax compromise based on the Scheel Committee's report means that the tax rate on ordinary income will be reduced further to 23 per cent in 2018. The resulting loss of revenue is projected to be just under NOK 3 billion in 2018. The Government proposed a number of minor adjustments of tax rules and rates that roughly offset one another, with the result that the overall (accrued) tax reduction was estimated at NOK 3 billion. The Storting budget agreement entails somewhat higher taxes, including higher taxes on CO2 emissions and excise duties on chocolate and sugar-containing products and on non-alcoholic beverages. The effect of the proposed tax changes is contractionary, and the net effect implies a revenue increase of some NOK 2 billion. We estimate that the overall effect of the budgeted tax changes will affect the difference between CPI and CPI-ATE inflation by 0.2 percentage point in 2018. Real growth in transfers to households is estimated at just over 2 per cent next year. Overall real growth in expenditure for consumption, investment and transfers can then be forecast as approximately equal to trend economic growth. As tax reductions next year are very moderate according to the Storting budget agreement, we can describe fiscal policy in 2018 as roughly cyclically neutral.

**Figure 2. General government**

Seasonally adjusted, billion 2015 NOK, quarter

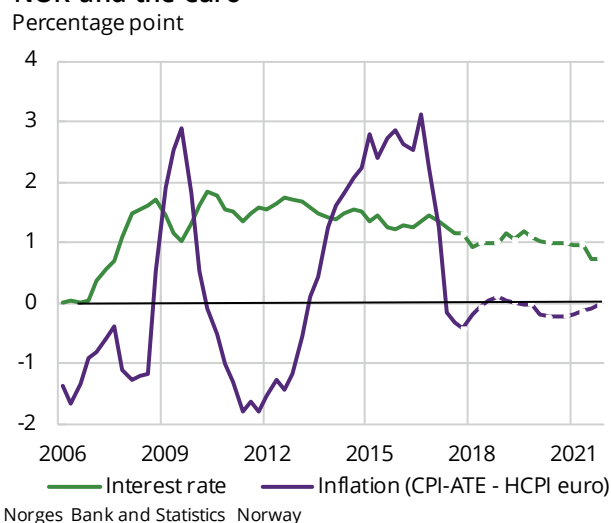


Source: Statistics Norway.

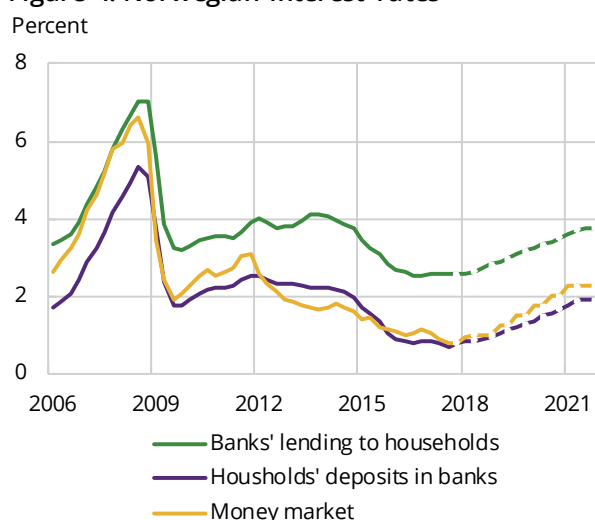
Projections for fiscal policy for the period 2019–2021 are based on a small increase in the level of indirect taxes, as in 2018. We assume that this will take the form of increased environmental taxes, which will contribute 0.2 percentage point per year of the difference between the CPI and the CPI-ATE. Growth in general government consumption and investment is moreover projected to be close to trend growth in the mainland economy, while transfers will increase slightly more in real terms. On balance, these projections imply a roughly cyclically neutral fiscal policy for the remainder of the projection period, in line with the fiscal rule. The recently entered into agreement on new public sector pension rules will affect all persons born after 1953. Pensions for persons born in 1963 and later will be as in the National Insurance Scheme, in that it will be possible to draw a pension while continuing to work. In principle the agreements will cause a fairly immediate increase in pension expenditure, but the increase will probably be modest. The consequences later in the 2020s will probably be greater, which will have implications for the formulation of fiscal policy going forward. Within our projection horizon, we have raised pension disbursements for 2020 and 2021 somewhat, on an uncertain basis.

The Government Pension Fund Global (GPF) is currently valued at about NOK 8 100 billion, which is higher than the projection in NB2018 of just under NOK 7 900 billion. The krone is weak at present, and on balance is expected to appreciate a little in the near term. Small changes in the krone exchange rate may cause major changes in fiscal scope for manoeuvre, and the same may happen if global equity prices should fall substantially. The fiscal rule is formulated in such a way that it is possible to ignore temporary changes, but it may be difficult to distinguish between random and permanent shocks.

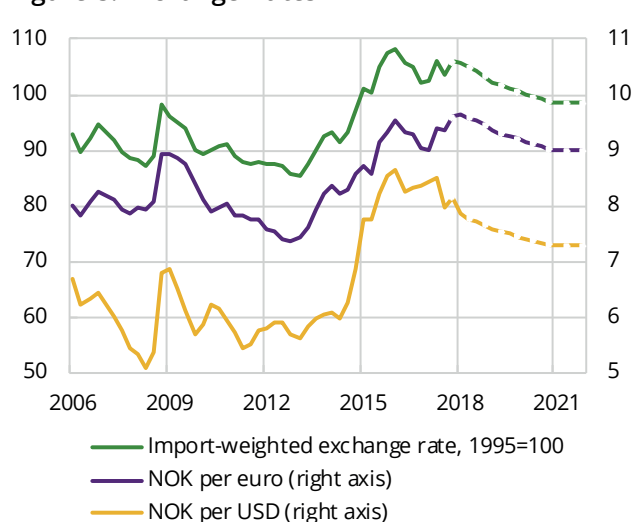
**Figure 3. Interest rate and inflation differentials  
NOK and the euro**



**Figure 4. Norwegian interest rates**



**Figure 5. Exchange rates**



Source: Norges Bank

## Monetary policy

The Government recently decided to amend the Monetary Policy Regulation by reducing the inflation target from 2.5 per cent to 2.0 per cent. Inflation measured by the rise in the CPI has fluctuated around 2 per cent since the introduction of the inflation target in 2001. Norges Bank has signalled that the new regulation will not result in significant changes in the conduct of monetary policy.

The key policy rate has now been at a record low 0.5 per cent for two years, since the last cut in March 2016. The money market rate as an annual average was less than 0.9 per cent in 2017, 0.2 percentage point lower than the previous year and 0.4 percentage point lower than the annual average in 2015. The money market rate fell consistently through 2017, from almost 1.2 per cent at the beginning to 0.8 per cent at the end of the year. Since the beginning of 2018, it has increased again, and was 1.0 per cent at the end of February.

After depreciating markedly for three years, the krone strengthened somewhat through 2016 and into 2017. In January 2018 the krone was again somewhat weaker than one year earlier; see also separate box for discussion of the import-weighted krone exchange rate and the trade-weighted krone exchange rate. The krone strengthened by an annualised 0.8 per cent from 2016 to 2017, measured by the import-weighted krone exchange rate. During this period, it appreciated against the US dollar in particular, from 8.40 to 8.26 kroner to the dollar. The krone depreciated slightly against the euro from 2016 to 2017.

Despite falling money market rates, the interest rates faced by households did not fall correspondingly through 2017. Whereas the average interest rate on loans secured on dwellings offered by banks and mortgage companies was 2.5 per cent at the end of 2016, this rate was 2.6 per cent at the end of 2017 Q1, before edging down marginally by 0.05 percentage point through 2017 Q4. Interest rates on bank deposits fell from 0.83 per cent at end-2016 to 0.77 per cent at end-2017. The increased lending rates and reduced deposit rates caused the interest rate margin to increase through 2017. Some of the lending rate increase in early 2017 must be viewed in light of the fact that these interest rates fell more than money market rates through 2016.

Interest rates on forward rate agreements, FRA rates, have risen in pace with money market rates. At the end of February, three-month FRA rates in June and September 2018 were around 1.1 per cent, while the three-month FRA rate in December this year is 1.3 per cent. This means that an interest rate increase at the end of 2018 is priced into the FRA market. Yields on Norwegian government bonds have also risen since the beginning of the year, from 0.2 percentage point for government bonds with a short maturity to 0.4 percentage point for those with a long maturity. However,



### Box 1 Contribution from increased petroleum investment

Petroleum investment began falling in 2013, and has continued to decline since then. Investment has fallen 37 per cent in all, from the peak in 2013 to the trough so far in Q4 of last year. The slump has created major knock-on effects for the Norwegian economy, with manufacturing particularly hard hit. Thus the fall in petroleum sector demand has been a key factor underlying the cyclical downturn we have recently put behind us. In our projections for the next few years we assume growth in petroleum investment. Our projections imply that investment is about to bottom out, and that impulses from investment on the Norwegian continental shelf will then reverse from negative into positive.

In this box we calculate the size of this positive contribution in the projection scenario for the next few years by means of the KVARTS macroeconomic model. We use the model to project an alternative scenario, in which petroleum investment remains constant and equal to the annual average for 2017. In other words, growth is equal to zero from 2018 onwards. The table below shows the percentage difference between the projection path and this alternative path. In order to isolate the effects, other exogenous variables are set as equal in the two alternative simulations. These include the oil price, global developments and the fiscal policy stance. Exchange rate and monetary policy changes are endogenous variables in the model, however.

The calculation shows that the increase in petroleum investment in our projection scenario will raise mainland GDP by 0.6 per cent this year and by a total of 1.2 per cent by 2021. The contribution for 2018 can be explained almost exclusively as a direct demand effect of increased investment, since petroleum investment is included when measuring GDP. As time goes on, however, the indirect effects become increasingly important. The increase in petroleum investment feeds through relatively rapidly and is reflected in increased activity in manufacturing segments that deliver services to the petroleum sector. The effects gradually spread to other industries as well, so employment and wages increase. This pushes up households' overall income, so that consumption and housing demand also rise. The increased production demands more real capital. Consequently, investment in mainland industry must increase, leading to a further rise in demand. In 2021, these combined indirect demand effects of the increase in petroleum investment account for around a fourth of the total contribution to mainland GDP of 1.2 per cent.

The calculations show that future petroleum investment according to our projections will not generate very strong impulses to the Norwegian economy, at least not compared with the upturn in the 2000s and from 2010 to 2013. The alternative scenario shows nonetheless that in the absence of the increase in petroleum investment, the upturn we are now experiencing would have been virtually put on hold. In the alternative scenario, the rate of mainland GDP growth

**Contribution from increased petroleum investment.**  
Percentage difference between an alternative scenario with constant petroleum investment and our projection scenario

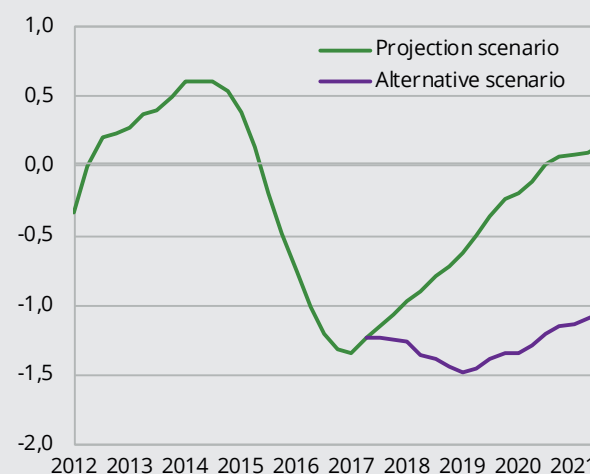
	2018	2019	2020	2021
Mainland GDP	0.6	1.0	1.2	1.2
Direct effect <sup>1</sup>	0.5	0.9	1.1	0.9
Indirect effect <sup>2</sup>	0.1	0.1	0.2	0.3
Value added, manufacturing	2.0	2.5	3.0	2.8
Business investment	0.2	0.6	1.0	1.4
Household consumption	0.1	0.2	0.5	0.8
Employment	0.1	0.3	0.4	0.6
Annual wages	0.1	0.2	0.5	0.7
Unemployment, percentage points	-0.1	-0.1	-0.2	-0.2
CPI	0.0	-0.1	-0.1	-0.1
Import-weighted krone exchange rate	0.0	0.0	-0.1	-0.3
Money market rate, percentage points	0.0	0.0	0.0	0.1
Memo:				
Petroleum investment	8.4	15.5	19.0	16.4

<sup>1</sup> Calculated by excluding the increase in petroleum investment from the projection scenario. The figures show the difference between this and the projection scenario.

<sup>2</sup> Calculated as the difference between the first two rows. The sums of direct and indirect effects are not exactly equal to the figures in the first row of the table because of rounding.

Source: Statistics Norway.

**Mainland GDP. Deviation from estimated trend in per cent**



Source: Statistics Norway.

remains below estimated trend growth of just under 2 per cent until the end of 2019, when it just edges up over 2 per cent. This means that the output gap would not have closed, and that we would have remained in a downturn through the whole projection period (see figure).

the yield on government bonds with a 10 year residual maturity is only 2.0 per cent.

In its December 2017 Monetary Policy Report, Norges Bank projected that the money market rate would rise to 1.9 per cent in the second half of 2020. This is close

to our projections. We believe the first increase in the key policy rate will come around the end of this year, half a year earlier than the forecast made in our previous economic report. There will be four further increases by 2021, bringing the money market rate up to 2.3 per cent by the end of the projection period. Growth

## Box 2. The import-weighted and trade-weighted krone exchange rates

Approximately 60 per cent of Norway's foreign trade in traditional goods (i.e. exports and imports of goods excluding oil, gas, ships and platforms) takes place with countries that are not members of the EU monetary union. The krone exchange rate as measured against the euro therefore provides limited information about the international value of the Norwegian krone. It is therefore important to supplement with alternative exchange rate indicators that provide a more accurate expression of the breadth of our trading pattern. The trade-weighted exchange rate index (TWI) and the import-weighted krone exchange rate (I44) are examples of these indicators.

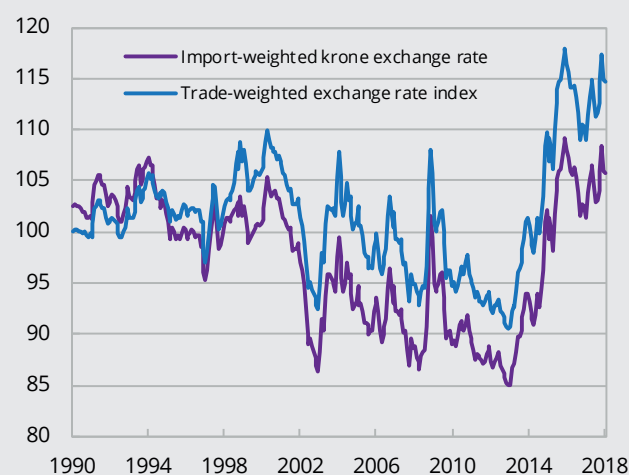
The trade-weighted exchange rate index is calculated from the exchange rates of the Norwegian krone against the currencies of Norway's 25 most important trading partners, and is a geometrical average based on the OECD's current trade weights. The weights in the import-weighted krone exchange rate are calculated on the basis of the composition of imports of traditional goods from Norway's 44 most important trading partners. Both indices are structured in such a way that high values mean a weak krone and low values a strong krone.

The figure shows that on both indices the krone was consistently considerably weaker in the 1990s than from early in the 2000s and up to 2013. The krone was record-strong in early 2013, then depreciated markedly, partly as a result of the decline in the petroleum industry. However, the paths of the two indices do not quite coincide. For example, in January 2013 the krone was around 17 per cent stronger than the average for the 1990s measured by the import-weighted exchange rate, whereas according to the trade-weighted index it was only 12 per cent stronger. This reflects the fact that the two indices are designed for slightly different purposes: the weights in the trade-weighted exchange rate index are intended to reflect the competitiveness of Norwegian manufacturing in both the export and the domestic market, and not merely have relevance for the domestic market and Norwegian prices. The different paths are due to the fact that the krone strengthened considerably

more in relation to countries from which Norway has substantial imports than in relation to countries to which it has substantial exports. The international purchasing power of the krone was accordingly strengthened more than the international competitiveness of Norwegian manufacturing, viewed in isolation, was weakened by the exchange rates. This trend was particularly pronounced from 1993 to 2004.

From January 2013 to January 2016, the krone depreciated by 28.4 per cent measured by the import-weighted exchange rate and by 30.2 per cent measured by the trade-weighted exchange rate index. This means that the international purchasing power of the krone weakened slightly less than the international competitiveness of Norwegian manufacturing strengthened. The krone appreciated quite substantially through 2016 before weakening again in 2017. In January 2018, the krone was 2.9 per cent stronger than in January 2016, measured in terms of the import-weighted krone exchange rate. Measured by the trade-weighted exchange rate, the krone's appreciation during this period was 2.6 per cent.

### Import-weighted krone exchange rate (I44) and trade-weighted exchange rate index (TWI) 1995 = 100



in mainland GDP has been higher than trend growth of just under 2 per cent for the past four quarters, and we expect growth to remain above trend this year and next, so that we enter an expansion in 2020. According to our projections, unemployment will fall from 4.1 per cent at the end of 2017 to 3.7 per cent in 2021. Given the interest rate hikes in our projections, inflation will on the whole remain close to the new inflation target of 2 per cent annually, while house prices will begin to rise again from next year. Interest rates are also rising abroad, so the interest rate differential between Norway and the EU will narrow over the next few years. Despite the interest rate hikes, real interest rates appear likely to remain at a low level for the next three years.

We project that the krone will strengthen somewhat in the near term. We assume the annualised value of the krone, measured by the import-weighted krone

exchange rate, will remain unchanged from 2017 to this year. We expect a 3 per cent appreciation in 2019, before the krone appreciates by 2 per cent and 1 per cent in 2020 and 2021, respectively. In 2021 the krone will then be back at about 9.00 against the euro. The weak level of the krone, and the fact that the oil price is expected to remain at above USD 60 per barrel, suggests a strengthening of the krone going forward, while a narrower interest rate differential points the other way.

## Household income, consumption and saving

The real disposable income of households and non-profit organisations increased by 2.4 per cent in 2017, after falling 1.5 per cent in 2016. If we exclude disbursements of share dividend, which fell from 2015 to 2016 because of increased taxation of this income, real disposable income increased by 2.5 per cent in

**Table 4. Real disposable income by households and non-profit organisations. Percentage growth compared with previous year**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total	6.0	3.4	3.2	2.3	4.1	4.4	3.9	2.9	5.5	-1.5	2.4	2.7	2.5	2.6	2.6
Excl. share dividends	4.8	2.6	3.4	1.8	4.1	4.3	3.8	2.4	2.4	0.6	2.5	2.7	2.6	2.5	2.6

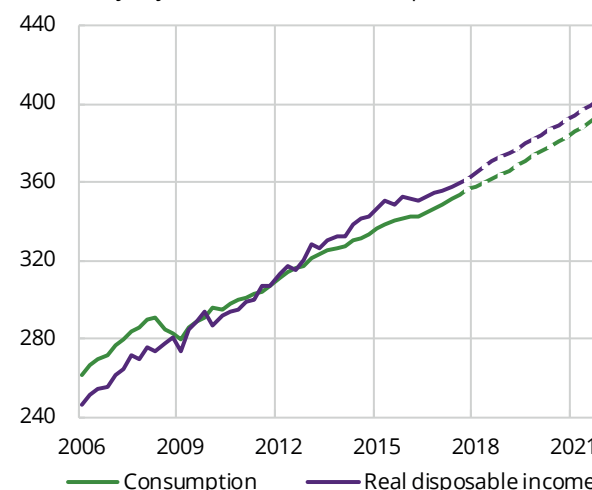
Source: Statistics Norway.

2017, against 0.6 per cent the previous year. This rise is due largely to developments in wage income, the most important source of household income. As a result of growth in real wages, even though it was weak in a historical perspective, coupled with employment growth of just over one per cent, wage income contributed about 1.5 percentage points to growth in real disposable income excluding share dividends last year. Conversely, wage income made a negative contribution to growth in 2016 in consequence of a pronounced fall in real wages and close to zero employment growth. Last year, public transfers contributed around 0.5 percentage point to growth in real income, while net capital income made no contribution of any significance.

Following weak growth through the first half of 2016, consumption by households and non-profit organisations has picked up appreciably. According to the QNA, seasonally adjusted consumption increased by 0.8 per cent in Q4 of last year, approximately the same as or somewhat higher than growth in the previous five quarters. Goods consumption showed growth of as much as 1.2 per cent in Q4, mainly as a result of high purchases of vehicles. Growth was particularly high for purchases of hybrid and electric cars, and can be attributed to tax increases expected in 2018. The goods consumption index for January fell by a full seasonally adjusted 3.3 per cent. The sharp decline in vehicle purchases, which must be viewed in light of the very high purchases through the second half of last year, particularly in December, accounts for most of this fall. There was also a sharp rise in electricity consumption in Q4 of last year, while consumption of clothing and footwear declined appreciably. Overall, goods consumption increased by an annualised 1.6 per cent last year, following a slight fall the previous year. Quarterly growth in consumption of services has been relatively stable, however, remaining for the most part between 0.5 and 1 per cent for the past three years. Service consumption increased on a broad base by an annualised 3 per cent last year, approximately the same as the previous year, with particularly large contributions to growth from hotel and restaurant services, leisure services and passenger transport. Norwegians' consumption abroad increased by 2.4 per cent last year, a bare one percentage point less than the previous year. A further annualised weakening of the krone against the euro last year made it more expensive to shop in other countries compared with the recent past, when a strong krone resulted in double digit growth rates for Norwegians' consumption abroad. Consumption by households and non-profit organisations increased by an annual average of 2.3 per cent in 2017, compared with 1.5 per cent in 2016.

**Figure 6. Household income and consumption**

Seasonally adjusted, billion 2015 NOK, quarter



Source: Statistics Norway

Household saving, in the form of financial and real capital, increased substantially in the years following the financial crisis, probably as a result of precautionary saving and the pension reform that was introduced in January 2011. Saving as a share of disposable income increased from a level of just over 3.5 per cent in 2008 to over 8 per cent in 2014. Because of the high share dividend disbursements, the saving ratio increased further to a level of around 10.5 per cent in 2015. The saving ratio excluding share dividends increased by about 3.5 percentage points from 2008 to 2015. However, as a consequence of the fall in income and smoothing of consumption that year, the saving ratio both including and excluding share dividends fell through 2016, to annual averages of around 7 and 3 per cent, respectively. The saving ratio including and excluding share dividends was at about these levels in 2017 as well.

In the slightly longer term, developments in consumption are largely determined by changes in households' income, wealth and interest rates. We assume increased growth in real wages in the near term, and that the increase in employment through 2017 will continue as a result of higher production growth, so that wage income as an annual average will continue to push up growth in real disposable income. Government transfers, particularly old age pensions, may also push up growth in real disposable income through the projection period. The contribution of net capital income to growth will be more moderate for the next few years, as the interest rates facing households will not undergo large changes. In the near term, we now expect annual growth in real disposable income of just over 2.5

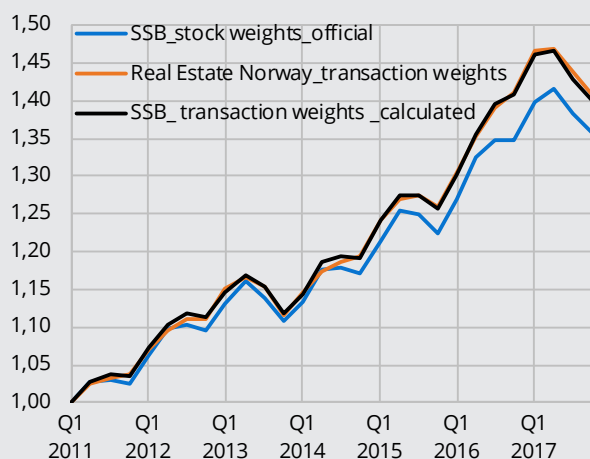
### Box 3. Why is there a discrepancy between the house price indices of Real Estate Norway and Statistics Norway?

The housing market plays an important part in the Norwegian economy. House price movements have a strong bearing on developments in household wealth, and accordingly on developments in private consumption, which accounts for more than half of mainland GDP. House price movements also have a strong bearing on developments in housing investment. In addition, house price movements affect general inflation and the financial stability of the economy, and may therefore be of significance for the conduct of monetary policy.

Real Estate Norway's monthly house price index and Statistics Norway's quarterly house price index measure developments in resale home prices for Norway as a whole. The underlying price data used for the indices are the same, and cover about 70 per cent of turnover in the housing market. However, the indices differ with respect to how developments in prices for different types of dwellings distributed among geographical regions are weighted. Whereas Real Estate Norway's house price index is based on transaction weights, i.e. the value of all transactions of each type of dwelling in each geographical area, Statistics Norway's index is based on stock weights, i.e. the value of all dwellings of each type in each geographical area.

If the purpose of the index is to measure movements in prices for dwellings that are sold and purchased by households, it will be relevant to use transaction weights. If the purpose of the index is to measure developments in the overall housing wealth of households, it will be relevant to use housing stock weights. Norges Bank uses Real Estate Norway's house price index as the point of departure for the house price projections in its Monetary Policy Report. Our projections are based on Statistics Norway's house price index, with stock weights, because we want a measure of developments in housing wealth. As dwellings can be used as security for household loans, it is developments in housing wealth that influence households' possibility of loan-financing consumption. Consequently, housing wealth in the KVARTS macro-economic model is based on Statistics Norway's house price index.

**The house price indices of Real Estate Norway and Statistics Norway. Unadjusted. 2011 Q1 = 1**



Source: Statistics Norway.

In the period from 2003 Q1 to 2014 Q2, the two price indices moved along very similar paths, and thus provided a virtually identical picture of house price inflation in Norway for a long time. After 2014 Q2, however, the indices moved differently, and Real Estate Norway's index shows an approximately 5 percentage points higher rise in house prices than Statistics Norway's index until the peak in 2017 Q2. At the same time, Real Estate Norway's index shows a fall in house prices of about 0.2 per cent from 2016 Q4 to 2017 Q4, while Statistics Norway's index shows a rise of about 0.7 per cent in the same period: a difference of almost one percentage point.

In order to find the cause of this discrepancy, we have calculated an alternative index using transaction weights. The alternative index is otherwise based on the same dataset and choice of method as Statistics Norway's index with stock weights.<sup>1</sup>

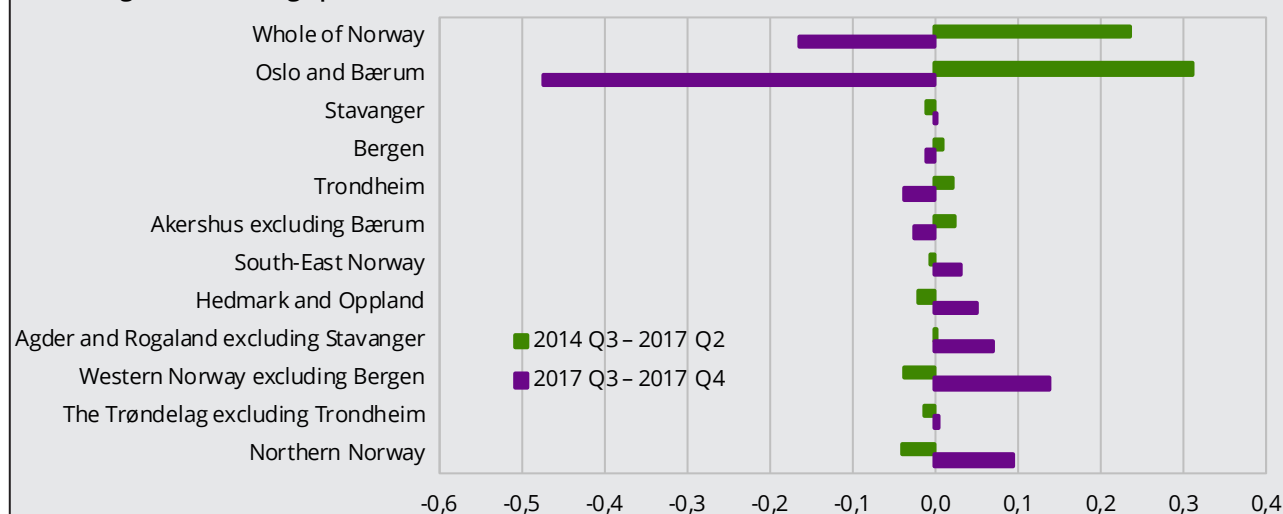
The alternative index with transaction weights coincides almost completely with Real Estate Norway's index through the whole period from 2011 Q1 to 2017 Q4.<sup>2</sup> The reason for the discrepancy between Statistics Norway's official house price index and Real Estate Norway's index is thus the choice of weights. We can therefore compare the alternative index with Statistics Norway's index based on stock weights in order to find out which regions and types of dwellings contribute most to the discrepancy between the indices for the last three or four years.

Turnover of dwellings in cities is higher than the stock of dwellings would suggest. This is because apartments, which change hands more frequently than detached houses, are the commonest type of dwelling in cities. When transaction weights are used instead of stock weights, cities therefore have a higher weight in the house price index for the country as a whole than more rural regions with lower turnover. If house prices in a region rise, this may increase the turnover of dwellings. An increase in regional house prices may therefore indicate higher house price inflation for the country as a whole if transaction weights are used than if stock weights are used. The reverse will as a rule apply in the event of a fall in house prices. These effects may be large if there are wide differences in house price movements across regions.

A comparison of the alternative index with Statistics Norway's stock weights index shows that the difference in average quarterly price inflation in the period 2014 Q3 to 2017 Q2 of just over 0.2 percentage point was very largely due to the strong rise in prices in Oslo and Bærum, which have a weight of over 30 per cent of total turnover of dwellings. In contrast to Oslo and Bærum, the sharp fall in prices in Stavanger in the wake of the plunge in oil prices in summer 2014 made a negative contribution to the difference in average quarterly price inflation. However, this contribution is small because of relatively low transaction weight. Because Hedmark and Oppland, Western Norway excluding Bergen and Northern Norway had higher stock weights than transaction weights these regions also made negative contributions totalling 0.1 percentage point in the period 2014 Q3 to 2017 Q2.<sup>3</sup> Similarly, albeit bearing the opposite sign,



### Contributions to differences between Statistics Norway's house price indices based on transaction weights and stock weights. Percentage points



Source: Statistics Norway.

the difference of just under -0.2 percentage point in average quarterly price inflation for the period 2017 Q3–Q4 can be largely attributed to price movements in those same regions. As a consequence of the sharp price fall in Oslo and Bærum, this region made a negative contribution of almost 0.5 percentage point to the difference in average quarterly price inflation through the last half of 2017. At the same time, price falls in Hedmark and Oppland, Western Norway excluding Bergen, Northern Norway and Agder and Rogaland excluding Stavanger made positive contributions totalling 0.4 percentage point in the same period, again because of higher stock weights than transaction weights.

The difference in average quarterly price inflation between the two indices doubles to 0.4 percentage point if the period from 2014 Q3 ends in 2017 Q1 and not 2017 Q2. Similarly, the difference in average quarterly price inflation is close to -0.5 percentage point when the last half of 2017 is extended to include Q2. This more than doubling of the difference in average quarterly price inflation is due largely to the fact that Oslo and Bærum experienced a price fall in 2017 Q2 - the only region to do so.

The discrepancy between the house price indices of Real Estate Norway and Statistics Norway since 2014 Q2 can thus be explained as solely attributable to the use of transaction weights as opposed to stock weights. Given the large regional differences in price developments, such as we have seen in recent years, different weight sets may give rise to different developments in the two indices. This is important to bear in mind when considering general house price inflation in Norway, or making house price projections based on one index or the other.

<sup>1</sup> The alternative index corresponds to Statistics Norway's house price index with transaction weights, which is reported to Eurostat in connection with international comparisons of house price developments. In calculating the alternative index, we chose to exclude developments in prices for small houses in the regions Hedmark, the Trøndelag excluding Trondheim and Northern Norway because of an unreliable dataset (few price observations). Our choice is of little practical significance for the alternative index, as there is only a limited share of small houses in these regions. The alternative index is calculated for the period from 2011 Q1 to 2017 Q4, since the Statistics Norway index that is reported to Eurostat is based on transaction weights starting from 2011 Q1.

<sup>2</sup> The fact that the two indices are not quite identical is probably attributable to some differences in both choice of method and division into regions in the calculation of the indices, in addition to the fact that the weights may be calculated at different times, and that one is a monthly index and the other quarterly.

<sup>3</sup> Sentence corrected 6 April 2018.

per cent, both overall and excluding share dividends. The stronger growth in real income will have the effect of stimulating consumption. However, weak developments in real house prices, with a clear fall for 2018 as a whole, will dampen consumption growth going forward. Increased real after-tax rates, albeit still at a low level, may also dampen consumption growth somewhat. All in all, we foresee fairly moderate consumption growth, with somewhat stronger growth in consumption of services than of goods, of around 2.5 per cent this year and slightly higher in the following three years. By way of comparison, consumption increased by around 5 per cent annually during the cyclical upturn prior to the financial crisis.

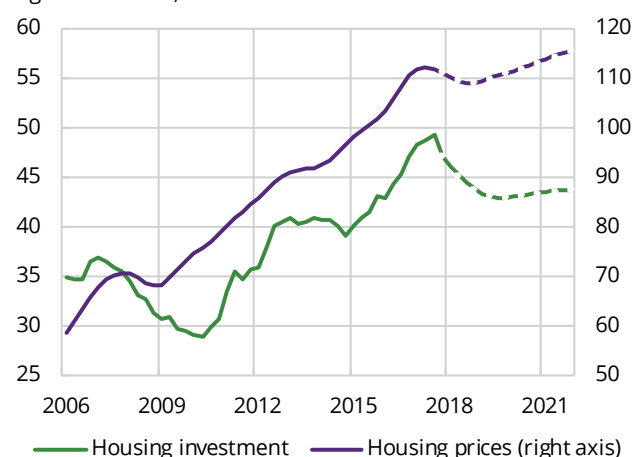
Given our projections for income, consumption and wealth, the saving ratio will rise gradually from just over 7 per cent as an annual average last year, to over 8.5 per cent in 2021, i.e. about 1.5 percentage points. The saving ratio excluding share dividends will also rise, by the same order of size. Higher real after-tax interest rates and weak growth in household wealth explain this development.

### House prices and housing investment

According to Statistics Norway's house price index, house prices as an annual average were 5 per cent higher in 2017 than in 2016. The rise in house prices last year was thus only 0.5 percentage point lower than

### Figure 7. Housing market

Seasonally adjusted. Left axis: billion 2015 NOK, quarter.  
Right axis: index, 2015=100



Source: Statistics Norway

the average annual rise in the period 2009 to 2017. However, house prices showed a clear turnaround through last year as a result of the record high level of housing investment and supply of dwellings. Demand was also curbed by the fact that house prices had reached a high level, and that population growth was slowing as a result of lower immigration. The tightening up of the Mortgage Regulations with effect from 1 January 2017 probably also contributed to the reversal in house prices last year.

Seasonally adjusted figures show that house prices rose by 1.3 per cent in 2017 Q1, compared with an average quarterly rise of 2.5 per cent in 2016. The slowdown in house price inflation in Q1 was followed by a fall in prices for the first time since 2013 Q4, of 0.5 per cent in Q2 and 1.0 per cent in Q3. In Q4, house prices rose again, by 0.9 per cent. There were fairly large regional differences in house price movements, with by far the largest fall in prices in Oslo through Q2 and Q3 last year. The overall rise in house prices in Q4 is due to Oslo, Akershus and Stavanger pushing up prices more than Bergen and Trondheim pushed them down. However, Real Estate Norway's monthly house price statistics show a continuous, seasonally adjusted fall in house prices from March 2017 to January this year, with the exception of October. The statistics for February show a 0.4 per cent rise in house prices. In Box 3 we take a closer look at historical developments in the house price indices of Statistics Norway and Real Estate Norway.

In our model, house prices are stimulated in the long term by an increase in household real disposable income and by lower real interest rates, and dampened by an increase in the supply of new dwellings. At the same time, household borrowing and house prices mutually influence one another, so that measures that curb borrowing also restrain house price inflation. In the short term, house prices are also influenced by changes in households' expectations regarding developments in

both their own financial situation and the Norwegian economy.

While growth in real disposable income will pick up going forward, lending rates will increase somewhat in pace with higher money market rates. This may check household borrowing for housing-related purposes. If the tightening of the Mortgage Regulations is maintained without major changes, this may also curb borrowing somewhat in the near term. We project that household gross debt will rise by just under 5 per cent in the near term, i.e. about one percentage point less than last year. The consumer confidence indicator of Kantar TNS and Finance Norway reveals increased optimism among households concerning their financial situation and the Norwegian economy. We assume that this indicator will remain approximately unchanged from the current level for the next few years.

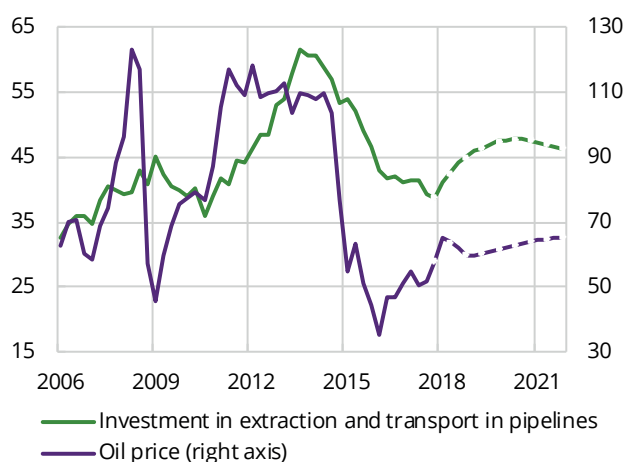
We now foresee that house prices will fall further through the first half of this year and then level off in the second half. Seasonally adjusted house prices will then fall by just under 5 per cent from the peak in 2017 Q1 to a trough in the second half of this year. By way of comparison, house prices fell by about 10 per cent in the course of two quarters during the financial crisis in 2008. Prices will subsequently rise again, albeit more moderately, through 2019 and for the remainder of the projection period. According to our projections, house prices as an annual average will fall by about 3 per cent this year and rise between 1 and 2.5 per cent in the period 2019 to 2021. In such case, the nominal peak house price level of Q1 of last year will not be reached again until well into 2020.

One important reason for a further price fall this year is that the level of housing investment and supply of dwellings is still very high. According to the QNA, housing investment rose 7.1 per cent as an annual average in 2017, compared with 9 per cent the previous year. However, seasonally adjusted figures show that growth in housing investment declined through 2017 in line with a slowing trend in housing starts, measured in terms of area, in the period March last year to January 2018. In 2017 Q4 housing investment fell by a full 4.5 per cent. A similar fall in housing investment has not been seen since the financial crisis in 2008. Given falling real house prices, particularly in 2018, and weaker developments in housing starts, a further fall in housing investment is likely through the current year and well into 2019. We now forecast a fall in housing investment of an annualised average of around 7 per cent this year and 4 per cent next year. Housing investment will then level off and edge up again through the last two years of the projection period. Our projections indicate that the level of housing investment in 2021 will be just under 10 per cent lower than the level in the peak year of 2017. Lower supply growth will contribute to reversing the fall in prices for resale homes in the course of 2018.



**Figure 8. Petroleum investments and oil price**

Seasonally adjusted. Left axis: billion 2015 NOK, quarter.  
Right axis: USD per barrel



Source: Statistics Norway

### Petroleum investment

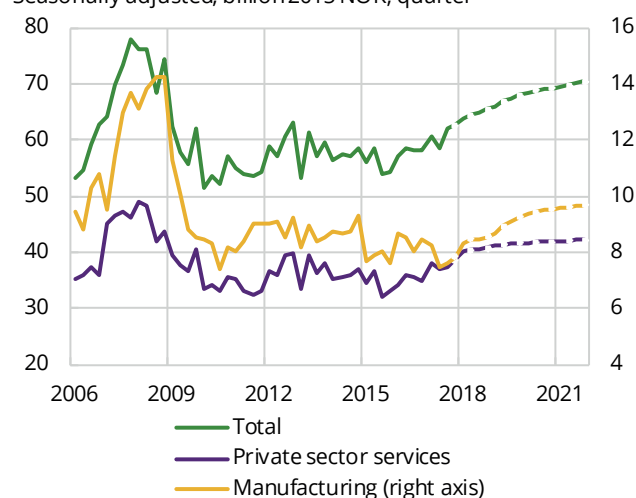
Seven new plans for the development and operation of oil and gas fields were submitted in December 2017. The largest project is Johan Castberg in the Barents Sea, with projected investment of NOK 50 billion, the bulk of which is expected to come in 2019 and 2020. In all, plans for new investments for a total of NOK 125 billion were submitted in 2017. This means that we are now at a turnaround point following the decline in petroleum investment seen since the end of 2013.

In 2017, about NOK 150 billion was invested in the industries pipeline transport and oil and gas extraction, while investment for about NOK 160 billion is expected in 2018, according to Statistics Norway's investment intentions survey. This is an increase of 6.6 per cent in current prices. The oil companies and the supplier industry have taken steps to improve their profitability through improved efficiency and cost cuts. The Norwegian Petroleum Directorate reports that the costs of development projects have been cut by from 30 to 50 per cent in the last few years, while operating costs have been cut by about 30 per cent. Lower costs can be partly attributed to altered plans and partly to the fact that projects have become less expensive. According to the national accounts, investment prices have fallen by around 10 per cent since 2014. We expect development costs in the petroleum industry to continue edging down in 2018, so that the increase from 2017 to 2018 in constant prices will be around 8.4 per cent. After 2018, however, we expect prices to rise.

Several large projects in fields in operation, including Snøhvit and Troll, along with new field developments will contribute to increased investment in the next few years. In the period 2018–2020, investment in new field developments will increase most. Plans for over NOK 40 billion for the Johan Sverdrup field will make a particularly large contribution. Investment in operating fields is assumed to remain at roughly the same level as in 2017, while somewhat increased investment is

**Figure 9. Investments in mainland industries**

Seasonally adjusted, billion 2015 NOK, quarter



Source: Statistics Norway

expected at the end of the projection period in connection with shutdown, onshore activities and pipeline transport. Investment will probably peak in 2020 but, according to our projections, still be 18 per cent lower than the level in 2013. We expect nonetheless that Norwegian suppliers will then have a larger market share than they had in 2013. Exploration activities have not resulted in findings that imply increased investment after 2020 even though there were a record number of allocations for pre-defined areas (TFOs) on the Norwegian continental shelf in the last licensing round.

In 2017, five new fields began operating: Flyndre, Gina Krog, Maria, Sindre and Byrding. Challenges associated with the start-up of Gina Krog, coupled with periods of maintenance work on Goliat, resulted in a decline in oil production in 2017. However, gas production increased by just under 6 per cent, which marked another record year for gas sales. Gas production is expected to remain stable for the next few years, while oil production is expected to increase in the years ahead and peak in 2023, according to the Petroleum Directorate. The main reason for this is the anticipated production from Johan Sverdrup, which starts in just under two years.

### Business investment

Mainland business investment has been at a lower level than prior to the financial crisis for several years. This investment increased by just over 4 per cent in 2016 and by 5 per cent last year. Investment in 2017 Q4 was 6.3 per cent higher than in the same period the previous year. Growth was broad-based, with services contributing most, but other goods production was also important. Manufacturing investment slumped, and was an annualised 8 per cent lower in 2017 than the previous year. The reduction occurred mainly in the food industry and in chemical and pharmaceutical products.

The manufacturing investment projections for 2018 in Statistics Norway's investment intentions survey, made

## Box 4 Import shares

Consumption of goods and services can be decomposed into final deliveries – i.e. for consumption, investment and exports – and intermediate inputs, which constitute a production factor. Some of the final deliveries come directly from imports. The remainder are delivered by Norwegian manufacturers, who use imported intermediate inputs to varying degrees.

In this box, we calculate import shares for the Norwegian economy by studying how the imports are affected by the various final delivery components. We use a static input-output model for the purpose. The analysis takes account of imported intermediate inputs, also through subcontractors, in addition to direct imports of final deliveries. However, the static input-output model does not take account of factors such as changes in relative prices, the knock-on effects of changes in earnings, changes in production capacity (investment) and changes in interest and exchange rates. The import shares in the table have been calculated for 2015, which is the last year for which final national accounts figures are available. For purposes of comparison, we also show import shares for 2013 and 2014 from previous calculations.

Of the main groups of final delivery categories, investments have by far the highest share of imports. Consumption has a share approximately equivalent to the average of all final deliveries combined, while exports have the lowest import share. There are generally relatively small changes in import shares from year to year.

We decompose total new investments by both type and industry. The import share in construction investment is relatively modest, while it is high for ships. Other types of investment also have a considerable share of imports. Shipping has by far the highest import share of the industries. The share of petroleum-related imports rose somewhat in both 2014 and 2015 and is markedly higher than the average for other investments.

Consumption accounts for about half of total final deliveries and a somewhat lower share of imports than the rest of the Norwegian economy. However, there is wide variation among the various consumption subgroups. Norwegians' consumption abroad is regarded in its entirety as imports. The subgroup 'miscellaneous goods' – which consists of clothing and footwear, furniture and electronics – has the highest import share in domestic consumption, but the category 'vehicles' also has a significant import content since very few cars are manufactured in Norway. The reason this last import share is not even higher is that mark-ups and taxes account for about two thirds of the costs of vehicle purchases. Energy products are largely produced in Norway, but despite Norway's high oil production, a substantial amount of petrol and diesel fuel is imported. In periods of low electricity production, power is also imported from neighbouring countries. On average, energy products consumed by households have an import share of around 15 per cent. Apart from dwellings, public consumption, which consists largely of labour costs, is the consumption component with clearly the lowest total import share.

There are also major variations among the different export subgroups. Exports of shipping and traditional goods have a high import content because a large proportion of the intermediate inputs are purchased outside Norway. Exports of oil and gas are distinguished by the low share of imports involved. This is because most of the production value consists of petroleum rent.

### Import shares

	Share 2015	Import share		
		2013	2014	2015
Total final deliveries <sup>1, 2</sup>		23.4	24.0	24.8
<b>Consumption</b>	<b>0.524</b>	<b>22.4</b>	<b>22.8</b>	<b>23.2</b>
Consumption by households and non-profit org. <sup>3</sup>	0.358	29.4	30.2	30.2
Food and beverages	0.050	29.9	31.2	30.4
Energy products etc.	0.019	16.4	15.5	15.1
Vehicles	0.015	36.8	39.0	40.4
Misc. goods	0.062	47.8	49.1	51.7
Housing	0.059	6.2	6.1	4.9
Other services	0.116	17.8	17.7	17.5
Norwegians' consumption abroad	0.027	100.0	100.0	100.0
Public consumption	0.183	9.2	9.2	9.4
<b>New investments</b>	<b>0.187</b>	<b>35.2</b>	<b>34.8</b>	<b>35.4</b>
By type:				
Buildings and infrastructure	0.077	20.7	20.4	21.6
Ships	0.003	67.9	54.5	64.2
Other types	0.096	44.2	44.7	45.7
By industry:				
Mainland Norway	0.136	32.2	30.5	34.0
General government	0.038	28.0	26.9	32.6
Manufacturing	0.008	44.7	42.4	45.2
Other goods-producing industries	0.013	41.9	39.3	40.5
Housing	0.042	20.7	20.4	21.6
Other service industries	0.034	40.5	37.4	40.3
Extraction and pipeline transport	0.052	40.3	43.2	45.3
Shipping	0.000	63.8	52.3	51.1
<b>Exports</b>	<b>0.284</b>	<b>18.3</b>	<b>19.5</b>	<b>20.9</b>
Traditional goods	0.101	32.2	31.4	31.9
Oil and gas	0.115	3.4	3.9	3.6
Other goods	0.001	30.9	30.7	26.7
Shipping etc.	0.021	55.1	55.5	53.0
Total final deliveries <sup>1, 2</sup>	0.046	23.9	25.3	22.3

<sup>1</sup> Share of the value of final deliveries

<sup>2</sup> Shares in column 1 do not add up to exactly 1 because changes in stocks are excluded.

<sup>3</sup> Household consumption is corrected for Norwegians' consumption abroad. Sale of used fixed assets is excluded from exports.

Source: Statistics Norway

in February, are about 12 per cent higher than the corresponding projections for 2017 made in February the same year. The projections are in current prices, so the survey implies somewhat lower growth in manufacturing investment measured in constant prices. The upturn in 2018 is largely due to an investment surge of a full 37 per cent in the industrial grouping refined petroleum products, chemicals and pharmaceuticals manufacturing. Some of the growth must be seen in conjunction with large individual projects among some dominant players. In addition, the food industry and the rubber, plastic and minerals segment are making a positive contribution. However, growth in 2018 is being depressed by lower investment projections for basic metals.

The investment intentions survey for power supply also indicates a sharp increase in investment. The projections for this year are 21 per cent higher than the projections for 2017 made one year ago. Growth in electricity production is contributing particularly to the upswing, but growth is also expected in the distribution segment in 2018. Growth in the production segment is due to further intensification of wind power development.

Norges Bank's regional network surveys economic developments in Norway, including expected investment, by compiling information from businesses throughout Norway. The report published in March supports Statistics Norway's investment intentions survey with regard to increased manufacturing investment. It also indicates investment growth in the service industries.

Growth in overall investment in mainland industries is expected to increase to just under 6 per cent this year, driven mainly by the cyclical upturn among our most important trading partners and continued low interest rates in Norway. As the business cycle in Norway reaches maturity, investment growth is expected to slow to around 1.5 per cent in 2021. The level of business investment in 2021 will then be about 3 per cent lower than the level in the peak year of 2008.

### External trade and current account

The volume of traditional goods exports fell from 2015 Q2 and through 2016. A strong growth rebound into 2017 gradually waned through the year, to less than 1 per cent in Q4, according to seasonally adjusted QNA figures. Export volumes in Q4 were the same as in 2016 Q1, but well below the peak in 2015 Q2. Annualised growth in 2017 is estimated to be 2.2 per cent.

Basic chemicals, chemical and mineral products are a major group of export goods that contributed substantially to growth in traditional goods exports in 2017. Growth through 2017 in exports of traditional goods excluding refined petroleum products was considerably weaker, and negative for the year as a whole compared with 2016. The decline can be attributed to a sharp reduction in exports of engineering products, which are by far the largest group of mainland export products. A

prolonged decline in exports of engineering products in 2015 and 2016 came to a temporary halt in 2017 before continuing in Q4 of last year. Exports of electricity have also moved on a weak trend for the last three years, and with a decline in 2017.

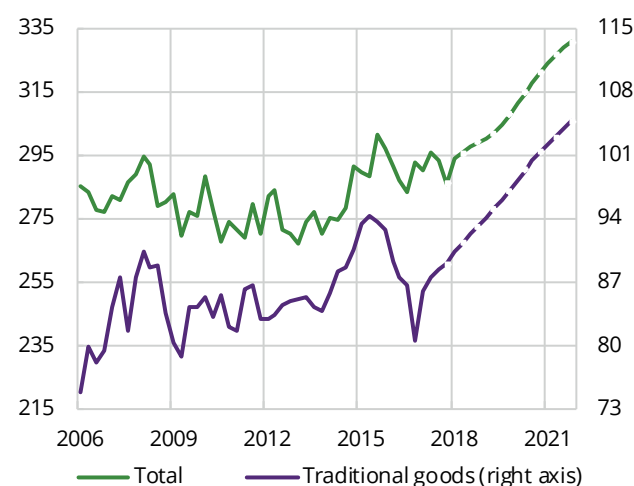
The volume of oil and gas exports combined has fluctuated around a rising trend and increased by over 10 per cent over the past four years. A pronounced decline in 2017 Q4 may appear to break the trend, but the decline can be largely attributed to lower oil and gas production due to temporary maintenance work. While oil exports fell by nearly 3 per cent in 2017, gas exports increased by 7 per cent. The value of the gas exports was almost as large as that of the oil exports. The value of oil and gas exports combined accounts for over a third of the value of all exports, while service exports account for somewhat less than a third. In 2017, overall exports of services fell both in volume and price by just over 1 per cent. This is less than the decline in 2016, nonetheless. The weak developments in volume in the past two years were broad-based. Exports of services associated with transport and communications, the hotel and restaurant industry and in particular financial and business services declined in both years. The level of exports of petroleum-related services was considerably higher through 2017 than in 2016. This contributed substantially to curbing the decline in total service exports in 2017. On the other hand, a sharp decline in prices through 2016 and 2017 caused a lowering of the price index for total service exports both years.

A weak krone and improved competitiveness are expected to boost mainland exports to an annual growth for 2018 that is substantially higher than the carry-over from the slowing growth through 2017. Exports of goods and services associated with international petroleum activities will derive particular benefit from an anticipated rising oil price and significant cost-effectiveness measures in the petroleum sector. Slightly upward revised growth forecasts for Norwegian export markets from this year already are pushing up projections for mainland exports through the projection period. Only when production begins on the large Johan Sverdrup field in 2019/2020 are export volumes of oil and gas expected to increase significantly.

Imports of traditional goods have fluctuated round a rising trend, and increased by about 7 per cent in volume from 2014 Q4 to 2017 Q4. Growth in 2017 was broad-based, the largest contributions being from imports of basic chemicals, chemical and mineral products, and vehicles. Imports of food and beverages and clothing and footwear also showed solid growth in 2017, as in the previous two years. Imports of fighter aircraft will remain stable at six aircraft annually during the projection period, and hence not contribute to further growth in imports. Imports of services are difficult to forecast precisely, and are often revised subsequently in light of new information. The figures for 2016 as a whole show solid growth, while preliminary

**Figure 10. Exports**

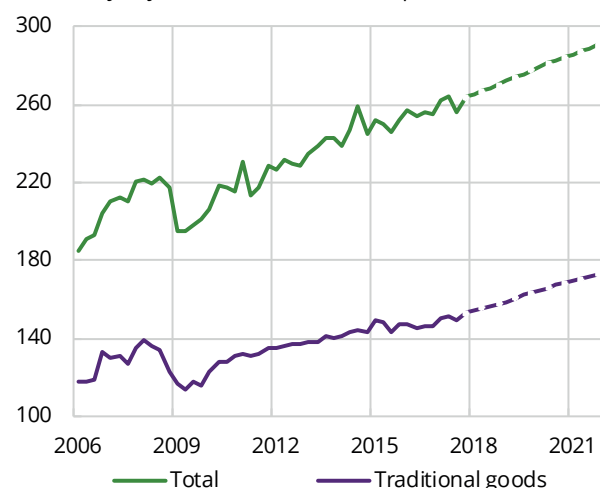
Seasonally adjusted, billion 2015 NOK, quarter



Source: Statistics Norway

**Figure 11. Imports**

Seasonally adjusted, billion 2015 NOK, quarter



Source: Statistics Norway

projections for 2017 show a slight decrease, primarily in business services. Norwegians' consumption abroad increased through 2017 and in relation to 2016. Weak domestic demand growth and a weak Norwegian krone will contribute to moderate growth in imports this year. Stronger demand growth and an appreciation of the krone are subsequently expected to stimulate growth in imports for the remainder of the projection period.

The trade surplus was substantially reduced in 2015 and 2016 as a result of the sharp fall in the oil price. Weaker developments in net mainland exports in 2016 and in the terms of trade in 2015 also detracted significantly from the surplus. In 2017, the rising oil price and terms of trade gains on traditional goods trade resulted in the trade surplus increasing by over 140 per cent, admittedly from a relatively low level. We expect a further marked increase in the trade surplus this year, to well over NOK 100 billion. An anticipated appreciation of the krone might then bring the rise in both export and import prices to a halt and reduce the value of oil

and gas exports. The trade surplus is only expected to increase again when oil and gas exports pick up at the end of the projection period.

The balance of income and current transfers has increased markedly in recent years. A weak krone led to increased returns from a steadily expanding Government Pension Fund Global, while weak developments in the Norwegian (oil) economy curbed disbursements to other countries. We expect these impulses to reverse during the projection period, and that the value of the GPFG will continue to grow. The current account surplus may thus continue to receive contributions from the balance of income and current transfers of the order of size of the trade surplus for the next few years. The surplus expressed as a share of GDP is expected to be between 6 and 8 per cent in the projection period.

### Developments in economic activity

Mainland GDP increased by an annualised average of 1.8 per cent in 2017 following growth of 1 per cent in 2016. Seasonally adjusted quarterly figures show that economic growth picked up at the beginning of last year, following close to zero growth in the last half of 2016. The underlying growth rate has since remained fairly stable, at an average quarterly rate of about 0.6 per cent. This is equivalent to an annual growth rate of 2.6 per cent, which is somewhat higher than estimated trend growth of just under 2 per cent. Thus the Norwegian economy was in an upturn through the whole of last year.

The downturn that started in 2013 was driven by a fall in demand from petroleum-related activities. The fall in demand had broad knock-on effects, and manufacturing was particularly hard hit. Manufacturing value added fell by over 11 per cent from the peak in 2014 to the trough in 2016. However, downturn reversed into upturn last year, and annualised average value added rose by 1.8 per cent compared with 2016. The upturn was dampened by the continued decline in petroleum-related industries such as shipbuilding and installation and repair of machinery and equipment. There are nonetheless signs of a turnaround for these manufacturing segments too. Most industries experienced growth from the third to 2017 Q4, including petroleum-related industries, and seasonally adjusted value added increased by as much as 1.6 per cent overall. Growth in the manufacture of textiles and industrial chemicals was particularly strong.

Value added in other mainland goods production increased by 3 per cent from 2016 to 2017, thereby pushing up the level of activity in the Norwegian economy. The construction industry made a particularly strong contribution, with growth of as much as 4.3 per cent as an annual average – following on high growth rates also in 2015 and 2016, at 2.9 and 4.2 per cent, respectively. The industry has thus been a central driving force behind the current Norwegian economic upturn.



### Box 5 Underlying growth in the Norwegian economy

It is usual in analyses of the economic situation to describe developments in the real economy with the aid of the so-called output gap. In Norway, this is usually expressed by how much mainland GDP differs from an estimated cyclically neutral situation, usually measured by trend development in output. This trend is not directly observable, but is estimated by “smoothing” the actual GDP figures. If variations in the trend are considered to be largely in line with actual developments, the output gap will be small, but if the trend is fairly inflexible and there is extensive smoothing, the output gap becomes larger, all else being equal.

The method used by Statistics Norway to arrive at trend GDP involves extensive smoothing. This means that it is not possible to say what trend GDP is in 2018 without having estimates for GDP both forward and backward in time, since the trend level for 2018 is centred around this year. When we contend in this report that the Norwegian economy will emerge from a cyclical downturn in 2020, the statement is conditioned on a projection for the Norwegian economy extending many years after 2020. The actual and trend mainland GDP levels in our calculations depend on developments in the economy six years forward (and six years backward) in time. The projected output gap in 2021, which is the last year for which we are publishing projections this time, thus depends on a scenario for the Norwegian economy extending up to and including 2027.

In this box, we present a scenario for the Norwegian economy up to 2040 which is an extrapolation of the projection scenario in this economic report. The scenario may be of interest in itself, but readers may also be interested in knowing the basis for the cyclical assessments we make, and which are also conditioned on a longer projection scenario than we normally publish. The long-term projection scenario is based on the following assumptions:

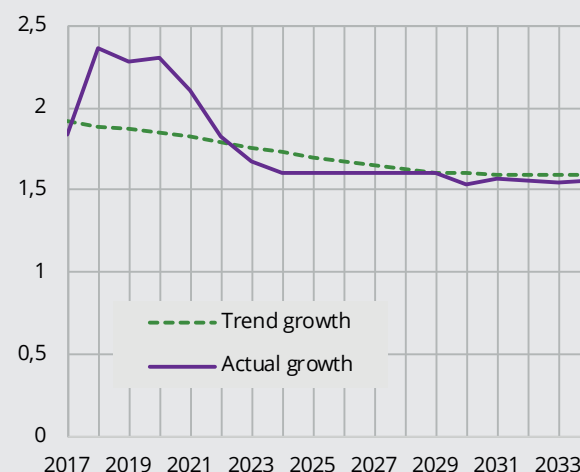
1. Statistics Norway's population projection (MMMM) from 2016, adjusted for lower immigration.
2. Somewhat dampened economic growth among trading partners, resulting in market growth of 4 per cent for Norwegian exports. Inflation of about 2 per cent annually in the euro area.
3. Norwegian petroleum activities reach a new production peak in 2023 and then fall, in accordance with the Petroleum Directorate's latest projection.
4. Fiscal policy adheres to the fiscal rule, where transfers are increasing in real terms as a result of the ageing population, while other expenses are increasing at roughly the pace of trend economic growth.

5. Monetary policy contributes to an inflation rate close to the new inflation target, which means a money market rate slightly higher than that in the euro area. We calculate that the result could be a roughly stable exchange rate measured from 2022.

If we apply these background factors, plus many other assumptions at a detailed level, KVARTS yields a projection for mainland GDP growth as shown in the figure. Growth falls from rates of just over 2 per cent for the next few years to about 1.5 per cent annually from 2024 onwards. The main reasons for the trend are the decline in petroleum investment and business cycle maturity abroad, coupled with low population growth, but slightly higher real interest rates will also have the effect of curbing economic growth. Given population growth of about half a per cent annually in the 2030s, this means that mainland per capita GDP growth will be about 1 per cent annually. The same applies to labour productivity in the mainland economy and consumer real wages, but later in the 2030s, when restructuring due to the decline in petroleum activities gathers pace, productivity growth will gradually increase again, to 1.5 per cent in 2040.

The trend for mainland GDP growth shown in the figure has a smoother course by design, and is 1.8 in 2022, falling to 1.6 per cent in the early 2030s. Note that the last year in the trend figure is 2034, because the calculation method also uses the years 2035–2040 to estimate the trend.

**Trend growth and actual growth, mainland GDP. 2017-2034. Per cent**

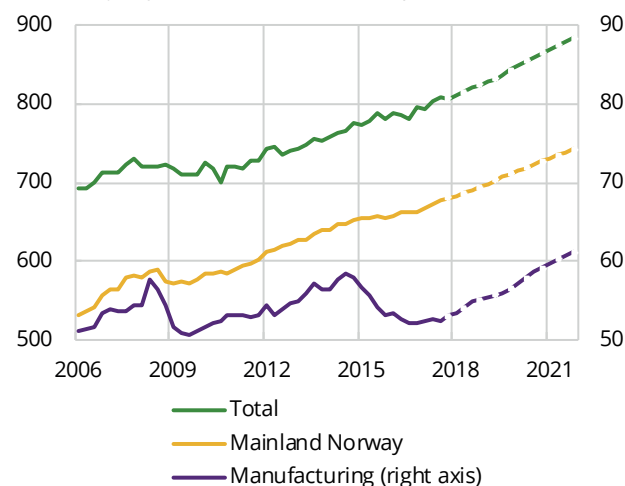


The upturn must be viewed in light of the fact that persistently low interest rates have stimulated residential construction, and that there has been extensive public investment in buildings and infrastructure. Growth appeared to be slowing slightly at the beginning of 2017, but according to the QNA, picked up again towards the end of the year. From Q3 to Q4, value added increased by 1.4 per cent. Thus the activity level has climbed by more than 12 per cent in the course of three years.

The other goods-producing industries are largely governed by naturally occurring factors, and thus do not reflect the underlying economic situation to any particular degree. Electricity production fell by 0.8 per cent as an annual average in 2017, following relatively wide fluctuations through the year. Production was low early in the year and high in the summer half year, before again falling back somewhat in Q4. Growth in agriculture and forestry followed almost the same

**Figure 12. Gross domestic product**

Seasonally adjusted, billion 2015 NOK, quarter



Source: Statistics Norway

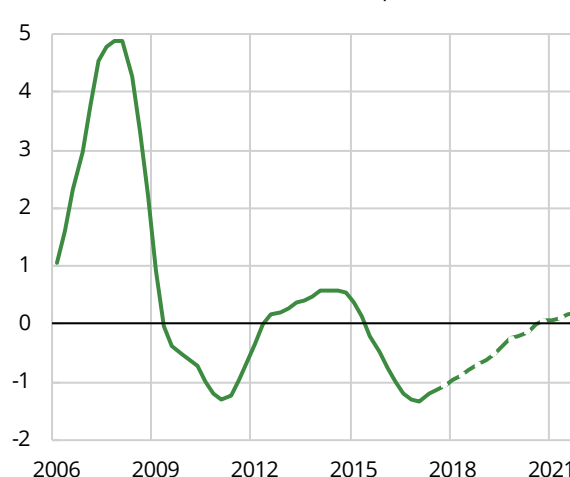
course, with an overall fall of 0.6 per cent compared with the previous year. From Q3 to Q4, however, value added fell by as much as 1.8 per cent after adjustment for the usual seasonal variations. Conversely, value added in fishing and aquaculture rose by 2.8 per cent in 2017, after especially strong growth in the second half of the year.

Value added in service industries excluding general government increased by 1.5 per cent from 2016 to 2017, measured as an annual average. Seasonally adjusted growth from Q3 to Q4 was 0.6 per cent, fully consistent with average quarterly growth for the year as a whole. Growth in service industries was also fairly broad-based throughout 2017. Growth in business services was particularly strong, closely followed by information and communications and the hotel and restaurant industry. Growth in the latter must probably be viewed in light of the weak krone exchange rate, which not only encourages foreign tourists to visit Norway, but also leads to many Norwegians dropping holidays abroad and rather taking them in Norway. Value added in general government rose by only 0.2 per cent from Q3 to Q4 last year. Growth for 2017 as a whole was 2 per cent, however, roughly equal to estimated trend growth in the Norwegian economy.

We expect the moderate cyclical upturn that the Norwegian economy has been in since the beginning of 2017 to persist in the years immediately ahead. However, the forces driving the upturn will change. The fall in petroleum sector demand was an important factor underlying the economic downturn that started in 2013, while the construction industry has played an important part in the upturn this past year. In the near term, we expect the negative impulses from the oil and gas industry to reverse, and fairly rapidly generate positive growth impulses to the economy through increased investment. This, coupled with a weak krone exchange rate and several years of relatively moderate wage growth, portends a continuing upswing for

**Figure 13. Output gap. Mainland Norway**

Deviation from estimated trend GDP in percent



Source: Statistics Norway

manufacturing. Large manufacturing segments will also benefit from the fact that petroleum investment will probably also increase abroad.

The opposite tendency is likely for construction. Residential construction is falling back from record high levels, while growth in public infrastructure investment is likely to be very moderate in the years ahead. As a result, the surge of construction growth in recent years will be considerably moderated, and may even ebb out completely. Activity growth in mainland service industries is expected to remain firm, however, as the cyclical upturn begins to take hold. Growth in general government is expected to remain stable at slightly below the trend growth rate for the Norwegian economy, as a consequence of fiscal policy becoming more cyclically neutral.

Overall, we project mainland GDP growth to be 2.4 per cent in 2018, and marginally lower after that – but still higher than projected trend growth of just under 2 per cent – for the following three years. Thus our projections imply that the moderate cyclical upturn we are in now will persist through the projection period. In Box 5 we take a closer look at underlying growth in the Norwegian economy.

### The labour market

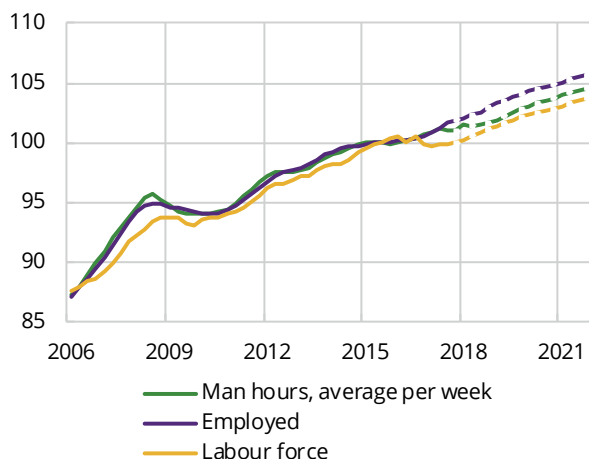
Following moderate employment growth of less than 0.5 per cent in 2015 and 2016, employment increased by an annualised 1.1 per cent through 2017. Unemployment fell from a peak of 5.0 per cent in summer 2016 to an average of 4.1 per cent for the period November last year to January this year. Both employment growth across industries and a decline in unemployment in most counties in 2017 point to a continued improvement in the labour market going forward.

In the second half of 2017, slightly higher petroleum-related activity helped to stop the fall in employment in crude oil and natural gas extraction, including services.



**Figure 14. Labour force, employment and man-hours**

Seasonally adjusted and smoothed indices, 2015=100



Source: Statistics Norway

On average, however, employment in crude oil and natural gas recovery still fell in the course of 2017. Employment in manufacturing segments that primarily supply the petroleum industry, such as the shipbuilding and other transport equipment industry, and metal goods and installation and repair of machinery and equipment, also contributed to this development. The fall in employment came to a halt towards the end of 2017, however. Manufacturing employment increased in the second half of last year for the first time since the beginning of the downturn in the 2014 Q2. The decline in manufacturing employment showed signs of abating early in 2017 already because of higher demand for labour in manufacturing segments that are less strongly associated with the petroleum sector.

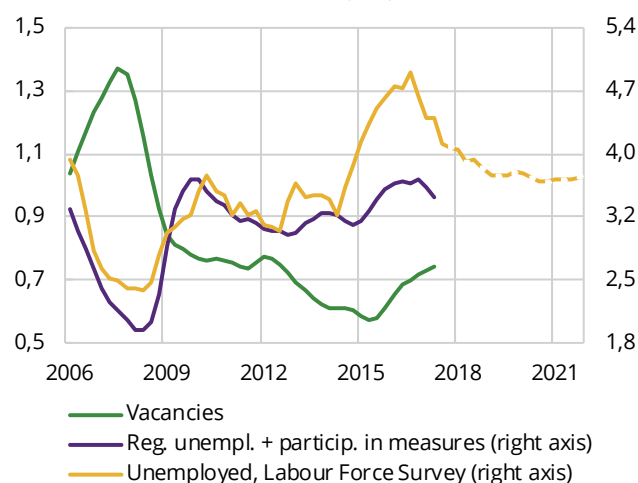
Positive contributions to overall employment from construction, business services and the hotel and restaurant sector continued in the Q3 and Q4 of 2017. Employment in business services has been positive for seven consecutive quarters, and accounted for one sixth of employment growth in 2017. However, this also reflects higher temporary employment in recruitment companies, which may indicate an uncertain, but also steadily increasing demand for labour in the rest of the economy. General government employment also increased in 2017.

Job prospects for the unemployed are improving. According to Statistics Norway's vacancy statistics, the number increased by about 2 per cent per quarter in 2017. Such a steady rise in vacancies has not been seen since the economic upturn prior to the financial crisis. This tendency indicates increased growth in demand for labour. Lay-offs are also decreasing.

Unemployment measured by the LFS remained fairly stable through the first half of 2017 and has since fallen. The unemployment rate was 4.3 per cent in the first two quarters of 2017, and fell to 4.1 per cent in the last two quarters. Unemployment is falling more for

**Figure 15. Numbers unemployed and vacancies**

Percent of labour force, seasonally adjusted and smoothed



Source: The Norwegian Labour and Welfare Service and Statistics Norway

men than for women, which may reflect the fact that more men work in internationally exposed industries.

Net immigration has been more moderate in recent years than in the period 2005 to 2014, but is still high in a historical perspective. In 2017 Q4, both immigration and emigration were somewhat lower than in 2016 (asylum-seekers without a residence permit are not included in these statistics). The more moderate inward labour migration can be attributed to the fact that job prospects were somewhat better in earlier years, and that the fall in the krone exchange rate has reduced the wage differentials with other countries. On the other hand, immigration is being maintained at a high level by more citizens from countries in conflict being registered as immigrants, but it takes time before they enter the labour force. On balance, we expect growth in the labour force to be somewhat higher than population growth in the projection period, resulting in a slight rise in labour force participation.

According to seasonally adjusted figures from the Norwegian Labour and Welfare Organisation (NAV), the number of individuals registered as fully unemployed and the sum of those registered as fully unemployed and on labour market programmes declined through the period January–October last year. In February 2018, 2.4 per cent of the labour force was fully unemployed, and the total of these persons and those on labour market programmes amounted to 3.0 per cent. Unemployment figures by county and by occupation show that the decline through 2017 in the number of fully unemployed applies to almost all counties and all occupations.

The NAV statistics from April last year and up to December 2017 also show a reduction in the number of long-term unemployed, i.e. persons who have been fully unemployed for over six months. However, the annualised average number for 2017 of those who had been unemployed for 53 weeks or more increased, and

in December 2017 and January 2017 the number of the longest-term unemployed (from 104 weeks and over) increased somewhat. NAV's definition does not include persons who have been on labour market programmes for a period and who remain unemployed after the programme is over. Thus it may be more difficult to find work than developments in long-term unemployment according to NAV's definition may indicate. According to the LFS, there were more persons than previously with long periods of unemployment in Q4 of last year, when 19 000 persons had been continuously unemployed for over 1 year. This was 3 000 more than in the same quarter in 2016. An increase in the long-term unemployed may indicate that some employees have more difficulty in finding jobs, and remain outside working life.

We forecast that employment growth will remain at around 1 per cent in the near term. We project an increase in consumption of private services, which will prompt an increase in service production. Employment in private services production will accordingly increase as a share of total employment during the projection period. Conversely, the shares of those employed in general government and in retail trade will fall. The decline in general government employment must be viewed bearing in mind that fiscal policy is cyclically neutral in the projection period, which means that, on balance, general government will lay claim to less resources during the economic upturn. Employment in retail trade is likely to fall as a consequence of more automation and more e-commerce. Employment growth in construction will slow, reducing the share of employees in this industry slightly towards 2021. The improvement in the economic situation will lead to the labour force increasing, but less so than employment. According to our projections, annualised unemployment will dip to 3.9 per cent this year, and fall further to 3.7 per cent in 2019.

## Wages

Nominal annual wage growth has been low since 2014. Preliminary estimates of annual wage growth show average wage growth of only 2.3 per cent in 2017. The Technical Reporting Committee on Income Settlements (TBU) has calculated average wage growth for some major negotiating areas as about 2.5 per cent from 2016 to 2017, and there are small variations across areas. This is very close to last year's norm for the wage leader, which was 2.4 per cent. The decline in employment in petroleum-related industries in particular has pushed down average wage growth in recent years. We assume that the composition effects will wane going forward, and that wage growth will be higher, but still moderate, both this year and next; see Box 6. As the

**Table 5. Average wages in the overall economy. Growth on previous year in per cent, differences in growth and estimated contributions in percentage points**

	2014	2015	2016	2017
Wages per hour worked	2.7	2.5	1.3	3.0
Annual wages, full-time equivalents	3.1	2.8	1.7	2.3
Difference and estimated contributions due to changes in:				
Number of business days	-0.4	-0.3	-0.4	0.7
Sickness absence	0.0	0.0	0.0	0.0
Overtime	0.0	0.0	0.0	0.0
Contractual weekly working hours for full-time jobs	0.0	0.0	0.0	0.0
Payment in kind	0.0	0.0	0.0	0.0
Labour costs per hour worked	3.0	2.6	0.9	2.8
Wages per hour worked	2.7	2.5	1.3	3.0
Difference and estimated contributions due to changes in:				
Pension expenses	0.3	0.1	-0.4	-0.2
Employer's social insurance contribution	0.2	0.1	-0.3	-0.2
	0.1	0.0	-0.1	0.0

Source: Statistics Norway.

**Table 6. Wages. Percentage growth compared with previous year**

	Annual earnings, full time equivalents			Wages per hour worked			Labour costs per hour worked		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
<b>Total</b>	<b>2.8</b>	<b>1.7</b>	<b>2.3</b>	<b>2.5</b>	<b>1.3</b>	<b>3.0</b>	<b>2.6</b>	<b>0.9</b>	<b>2.8</b>
Petroleum and shipping	0.1	0.0	-0.4	-0.4	-1.0	0.1	-0.4	-1.4	0.5
Mainland Norway	2.9	1.8	2.4	2.6	1.3	3.1	2.7	1.0	2.9
Mainland Norway excl. general government	2.8	1.5	2.3	2.5	1.1	3.0	2.5	1.1	2.7
Goods-producing industries	2.7	1.9	2.3	2.6	1.3	3.2	2.7	1.6	2.9
Manufacturing and mining	2.7	1.6	2.2	3.0	1.0	3.0	3.1	1.8	2.6
Building and construction	2.8	2.4	2.7	2.4	1.8	3.6	2.4	1.7	3.3
Other goods production	3.2	2.4	2.6	2.9	1.8	4.1	3.0	1.9	4.0
Service industries	2.8	1.3	2.2	2.5	1.1	2.9	2.4	0.9	2.6
Retail trade and repair of motor vehicles	3.1	2.1	2.5	2.8	2.2	3.6	2.5	2.1	3.3
Hotel and restaurant	2.7	1.8	2.3	2.3	3.1	1.2	2.0	2.9	0.9
Finance and insurance	3.8	3.2	2.8	3.2	3.4	4.0	3.0	3.1	2.4
Other services	2.8	0.9	2.2	2.5	0.4	2.9	2.4	0.1	2.7
General government	3.1	2.4	2.6	2.8	1.8	3.1	3.1	0.8	3.3
Central government	2.8	2.4	2.7	2.5	1.8	3.5	3.6	0.1	3.7
Local government	3.3	2.4	2.5	3.1	1.9	2.9	2.7	1.3	3.1

Source: Statistics Norway.

### Box 6 Compositional changes among industries depressed growth in average annual wages by 0.1 percentage point in 2017

Annual wage growth is an important indicator of economic trends, and forms the basis for regulation of the basic amount in the Norwegian National Insurance Scheme. Wage formation should normally contribute to a close relationship between developments in annual wages among the wage leader and the other industries over time. In the event of major changes in the economy, this relationship may be altered by structural factors. This is the subject of this box.

Composition effects depressed annual wage growth<sup>1</sup> last year, although the effect was considerably less than in 2016. In this box we show how changes in employment between industries affect average annual wages. The average annual wage is a weighted sum of annual wages in each industry. The weights are the shares each industry accounts for of the total number of full-time equivalents (FTEs).

Average annual wages increase over time as a consequence of collective or individual wage settlements, but growth in average annual wages is also affected by people changing jobs within and between industries, and by new workers entering working life and others leaving. Changes in the amount of shift work and in the composition of the labour force, for example in terms of age, amount of inward labour migration and gender ratio are all changes that normally affect the wage level in the industry and hence growth in annual wages. When there are small changes in employment in and between industries, wage settlements will normally dominate developments in annual wages, although some industries have bonuses that are affected by the business cycle, and not everyone works in areas with collective wage agreements.

In the table and the figure, annual wage growth is decomposed into contributions from composition and wage effects. Composition effects show how changes in employment across industries affect developments in average annual wages. The wage effect shows how wage growth within individual industries contributes to changing average annual wages. The wage effect is virtually identical to the effect calculated with the aid of an ordinary price index like the Laspeyres index.

The composition effects in 2017 were generally small, and with different signs. In both 2016 and 2017, growth in average annual wages was pushed down by there being fewer employees in petroleum-related industries. The effect in 2017 was half that in 2016, and this must be viewed in light of the fact that the decline in employment in 2017 was just over 5 per cent, as against about 12 per cent in 2016. In 2016, average annual wages were also depressed as a result of an increase in

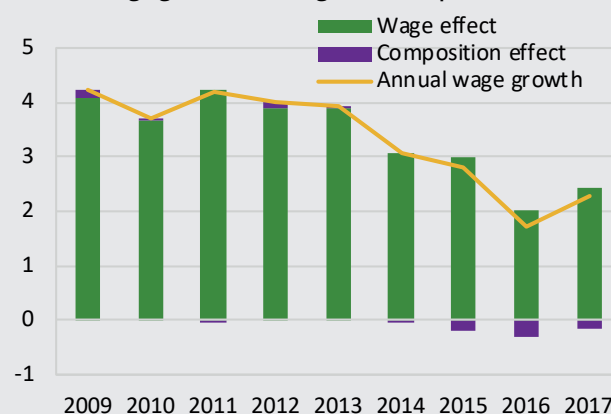
the number of FTEs in industries where the wage level is lower than the average, such as the hotel and restaurant industry and commercial services. This was partly offset by an increase in the number of FTEs in professional, scientific and technical services, where the wage level is high.

The figure shows developments in annual wage growth and contributions from composition and wage effects in the period 2008 to 2017. In 2017, changes in employment across industries depressed average annual wages by 0.1 percentage point, while wage effects within industries pushed up average annual wage growth by 2.4 percentage points. The result was average annual wage growth of 2.3 per cent. The figure shows that composition effects have depressed wage growth since 2014, which must be attributed to reduced petroleum sector employment in this period. With the exception of 2011, the composition effect in the period 2009 – 2013 was positive.

Composition effects as described above can also influence annual wage growth within an industry; see NOU 2017: 10 Grunnlaget for inntektsoppgjørene 2017 [Official Norwegian Report: The basis for income settlements 2017 – final main report]. The table and figure only consider composition effects across industries.

<sup>1</sup> 1In the national accounts, annual wages are defined as the pay a wage-earner will normally receive in the course of the calendar year, given that he or she works full time, has no absence and has no paid overtime.

Annual wage growth and wage and composition effects



Annual wages, growth in FTEs and annual wage growth, and industries' contributions to annual wage growth, decomposed into composition and wage effect. 2017

	Annual wages, in 1000s of NOK	FTEs, percentage change	Annual wages, percentage change	Contribution from industry in		
				Combined contributions	Wage effect	Composition effect
<b>Total for industries</b>	<b>540.8</b>	<b>1.22</b>	<b>2.3</b>	<b>2.3</b>	<b>2.4</b>	<b>-0.1</b>
Agriculture, forestry, fishing	466.0	4.9	2.9	0.02	0.03	-0.01
Mining and petroleum extraction	852.8	-5.2	0.6	-0.05	0.02	-0.08
Manufacturing	547.2	-2.3	2.2	0.20	0.20	0.00
Electricity, gas and hot water supply	691.3	0.0	3.2	0.02	0.02	0.00
Water supply, waste water and sanitation	526.4	3.3	2.5	0.02	0.02	0.00
Building and construction	521.4	5.2	2.7	0.20	0.22	-0.02
Retail trade and repair of motor vehicles	486.9	0.5	2.5	0.27	0.28	-0.01
Transportation and storage	480.2	-1.4	2.0	0.13	0.12	0.01
Hotel and restaurant	380.7	3.5	2.3	0.02	0.05	-0.03
Information and communication	720.1	0.9	2.7	0.14	0.13	0.01
Finance and insurance	799.2	-1.3	2.8	0.07	0.08	-0.01
Sale and operation of real property	676.0	3.5	2.8	0.04	0.03	0.01
Professional, academic and technical services	710.0	2.2	2.1	0.16	0.13	0.03
Business services	460.4	5.3	2.5	0.06	0.10	-0.04
Public administration and defence	551.5	0.8	2.6	0.22	0.22	0.00
Education	544.2	1.9	2.0	0.16	0.16	0.00
Health and care services	506.0	1.2	3.0	0.54	0.55	-0.02
Cultural services	500.4	4.1	2.0	0.05	0.05	-0.01

economic upturn takes hold, wage growth is expected to rise towards 4 per cent in 2021.

Growth in average annual wages can be decomposed into three parts: The carry-over reflects the difference between the annual wage level at the end of the previous year and the average annual wage level for the previous year; the negotiated wage increase includes the increase arising from central negotiations; and wage drift is the sum of all other factors that influence annual wage growth.

The TBU has estimated the carry-over into 2017 for several areas of negotiations. The average carry-over for manufacturing is approximately the same as last year, at 1.1 percentage points. The carry-over in the other areas varies from 0.6 to 1.4 percentage points. The carry-over for retailers in the Enterprise Federation of Norway (Virke) is 0.8 percentage point, and the carry-overs in central and local government are 0.7 and 1.4 percentage points, respectively. The carry-over for the past two years has been relatively low compared with previous years, which is attributable to the low wage growth.

The Norwegian Confederation of Trade Unions (LO) has decided that this year wage settlements will be coordinated, with adaptations to the various unions. One reason for coordinated wage settlements is that contractual pensions (AFP) are to be renegotiated. LO's General Council demands increased purchasing power for all, which means that wage growth must be higher than inflation. The TBU projects inflation of 2 per cent in 2018. The AFP scheme was adopted at the last coordinated wage settlement, in 2008, and the settlement resulted in relatively high wage growth for manufacturing workers. However, the Norwegian economy was still in a strong economic upturn that spring, prior to the financial crisis which ensued in the autumn. LO has decided that the profile of the wage settlement must contribute to equal wages, combat low wages and safeguard the guarantee schemes. The Confederation of Norwegian Enterprise (NHO) maintains on the other hand that competitiveness was somewhat weakened last year, and that this year's wage settlement cannot cause a further weakening. The OECD estimates wage growth among trading partners at 2.7 per cent. We project somewhat higher wage growth this year compared with the last two years, partly because unemployment is lower and business sector profitability has increased.

As the economic situation improves and unemployment falls, wage growth is expected to increase further. On the other hand, higher employment will also mean that more low-paid job-seekers will be employed in the near term. A counter-effect is that after a period of unemployment, highly qualified workers who previously worked in the petroleum sector secure jobs in other industries. The labour market is expected to become tighter in pace with the cyclical upturn, and real wage growth is forecast to rise towards 2 per cent

in the projection period. The wage developments imply a somewhat higher wage share towards the end of the projection period, but the share represented by labour costs is still moderate viewed in a historical perspective.

Developments in wages and labour costs per hour worked are affected by changes in overtime, sickness absence and contractual working hours. Annual variations in the number of business days also lead to developments in hourly wages differing from annual earnings for full-time equivalents. Growth in hourly wages was 0.7 percentage point higher than annual wage growth in 2017. Table 5 shows that this increase corresponds to the effect of there being two fewer working days in 2017 than in 2016. Labour costs reflect the amount employers have to pay for each hour worked. This payment differs from hourly wages in that employer's social insurance and pension contributions are also included in this wage concept. The rise in hourly labour costs was 0.2 percentage point lower than hourly wage growth in 2017, and was due to reduced pension expenses. This is in contrast to the last four years before 2016, where this expense pushed up growth in labour costs.

Table 6 shows developments in annual wages, hourly wages and hourly labour costs in the various industries from 2015 to 2017. The different measures of wage growth vary across industries, but with the exception of petroleum activities and shipping, annual wage growth was approximately the same in the different industries in 2017. Annual wage growth was considerably lower than wages per hour worked in other goods production, retail trade and repair of motor vehicles and finance and insurance. The opposite was the case for the hotel and restaurant industry. Although annual wage growth was negative in petroleum and shipping, wages and labour costs per hour worked increased in 2017. Growth in wages per hour worked in finance and insurance increased more than annual wages and labour costs per hour worked.

## Inflation

The consumer price index (CPI) rose by 1.8 per cent in 2017, and inflation was accordingly halved compared with 2016, when the CPI increased by a full 3.6 per cent. Underlying inflation measured by the consumer price index adjusted for tax changes and excluding energy products (the CPI-ATE) rose by 1.4 per cent in 2017, a decline of 1.6 percentage points compared with annual inflation in 2016. The tax changes in 2017 had a virtually neutral effect on CPI inflation, while increased energy prices brought CPI inflation up to an appreciably higher level than the CPI-ATE.

The depreciation of the krone from early 2013 and up to January 2016 was reflected in an increasing rise in the CPI-ATE, which peaked in July 2016 at a 12-month rise of 3.7 per cent. The krone appreciated through 2016 and into 2017. Lower imported inflation and reduced wage growth in the wake of the fall in the oil



price led to inflation falling sharply and almost continuously from July 2016 to August 2017, when it levelled off. Average CPI-ATE inflation was 1.1 per cent higher in the second half of 2017 than in the same period the previous year, and underlying inflation was thus back at the same low level as in spring 2013. Nor, as yet, has a weakening of the krone at the end of 2017 translated into higher inflation. The year-on-year rise in the CPI-ATE was as low as 1.1 per cent in January 2018.

Whereas the CPI-ATE measures underlying inflation, it is the CPI that is relevant for developments in household purchasing power. The crude oil price rose appreciably in 2017 after falling in previous years, thereby pushing up fuel prices by almost 7 per cent last year. Electricity prices including grid charges rose from a low level in 2015 by annual averages of 22.2 per cent and 9.3 per cent, respectively, in 2016 and 2017. The consumer price index excluding energy products (CPI-AE) increased by 1.5 per cent in 2017, so that these combined energy prices pushed CPI inflation up by 0.3 percentage point.

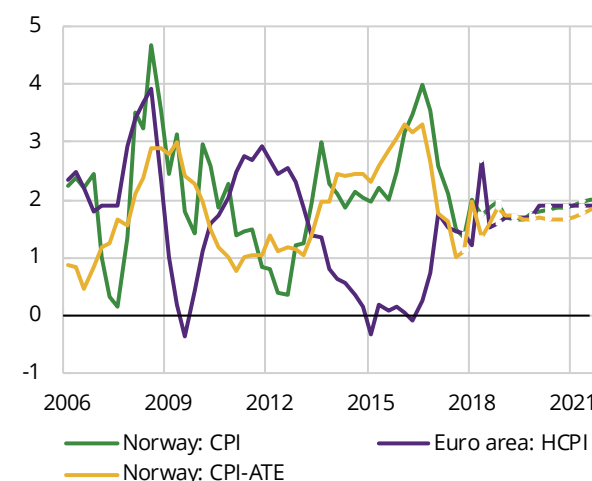
Year-on-year CPI inflation was 1.6 per cent in January 2018, and hence 0.5 percentage point higher than CPI-ATE inflation. Prices for electricity including grid charges and fuel rose by 11.1 and 1.9 per cent, respectively, compared with January 2017. Developments in prices for energy products accounted for 0.2 percentage point of the difference between the CPI and the CPI-ATE compared with the same period the previous year, while 0.3 percentage point was attributable to tax increases.

A decomposition of the sub-indices in the CPI-ATE by delivery sector shows that it was consumption of goods, both Norwegian and imported, that pushed down the inflation rate appreciably from 2016 to 2017. The annual rise in prices for goods was 0.5 per cent, while prices for services increased by 2.2 per cent. According to the CPI, inflation was negative for broad product groups such as food, clothing and footwear, and furniture and household items from 2016 to 2017. Price developments in service groups such as hotel and restaurant and holiday travel and package tours pushed inflation up appreciably last year. The rise in prices for services in which production is dominated by labour tends largely to shadow wage developments, which have been moderate.

The very low rise in prices in goods retailing is due to exchange rate movements, lower wage growth and reduced margins. Growth in labour costs increased a little from 2016 to 2017, but labour productivity in the economy increased at the same time, thereby reducing the growth in unit labour costs. However, retailers meet competition on many fronts, with the establishment of low-price shops and increasing e-commerce helping to squeeze prices. In the struggle for market shares, mark-ups will be reduced initially, through postponement of the price increases that normally follow from

**Figure 16. Consumer price indices**

Percentage growth from the same quarter previous year



Source: Statistics Norway

an increase in costs. In the long term, enterprises must either increase their prices or make their operations more efficient, in order to stay in business.

Our projections point to an increase in underlying inflation through 2018 for both goods and services. This is indicated by a number of factors. There is a considerable time lag in the repricing of import goods and services following a weakening of exchange rates. Imported goods and services make up a significant share of the intermediate inputs of Norwegian producers of goods and services for consumption; see Box 4. Thus a depreciation of the krone affects all consumer categories to a greater or lesser extent, through increased unit costs. Time-lagged effects of increased energy prices last year and into 2018 point the same way. Although energy prices are not included directly in the CPI-ATE, the unit costs of all Norwegian producers of goods and services are affected.

Given a further improvement in the economic situation, increased labour costs will push up production costs even if increased productivity growth, which is usual early in a cyclical upturn, curbs the effects of the wage growth. For goods that are classified as import products in the consumer price index, there are generally significant inputs of Norwegian production through logistics, transport margins and retail margins, from the time the product crosses the border until it is sold. Prices for imported consumer goods are accordingly affected by domestic inflationary impulses.

In the period 2019 to 2021, wage growth will increase further, while productivity growth will slow. In isolation, this will push inflation up further. However, the strengthening of the krone further along the projection pathway will substantially weaken import price inflation, despite rising inflation abroad. Direct and indirect effects of low import price inflation will contribute to CPI-ATE inflation remaining at a stable, low level through the projection period.

**Table 7. The consumer price index. Goods and services by consumption group**

	Weight <sup>1</sup>	Change on previous year, per cent <sup>2</sup>				
		2014	2015	2016	2017	Jan. 2018
<b>Total</b>	<b>1 000.0</b>	<b>2.0</b>	<b>2.1</b>	<b>3.6</b>	<b>1.8</b>	<b>1.6</b>
Food and non-alcoholic beverages	124.9	3.0	2.9	2.6	0.0	2.6
Alcoholic beverages and tobacco	40.6	3.4	3.0	3.3	2.0	2.1
Clothing and footwear	50.9	-0.6	0.4	5.0	-0.6	-4.4
Housing, water, electricity and other fuels	240.2	1.3	1.3	4.5	3.0	2.8
Of which: Electricity including grid charges	35.5	-6.9	-3.7	22.2	9.3	11.1
Furniture, household equipment and routine maintenance	64.0	3.2	5.2	5.4	-1.2	-1.0
Health	32.1	2.5	1.7	2.0	2.0	0.8
Transport	155.6	2.3	1.3	2.5	2.5	1.6
Of which: purchase of vehicles	57.5	1.4	1.4	2.2	1.7	3.3
Communications	23.2	-0.8	1.1	4.1	1.1	0.4
Recreation and culture	114.7	2.1	3.4	4.5	2.8	1.5
Education	4.6	3.3	2.1	3.4	4.9	6.0
Restaurants and hotels	61.7	2.5	2.4	3.3	3.6	2.4
Misc. goods and services	87.4	2.5	1.9	1.9	2.2	2.2

<sup>1</sup> The weights apply from January 2018 to December 2018.

<sup>2</sup> With effect from 2017, the reference year is 2015 = 100. Change figures calculated from 2015 = 100 series may differ from previously published change figures with different reference years. Differences are largely due to rounding effects.

Source: Statistics Norway.

**Table 8. The consumer price index adjusted for tax changes and excluding energy products (CPI-ATE), by supplier sector<sup>1</sup>**

	Weight <sup>2</sup>	Change on previous year, per cent <sup>3</sup>				
		2014	2015	2016	2017	Jan. 2018
<b>Total</b>	<b>1 000.0</b>	<b>2.4</b>	<b>2.7</b>	<b>3.0</b>	<b>1.4</b>	<b>1.1</b>
Agricultural products	..	2.7	2.4	..	..	..
Fish products	..	5.2	4.6	..	..	..
Norwegian products	142.3	3.3	3.6	4.1	0.3	0.3
Imported goods	326.3	1.4	3.0	3.8	0.7	0.2
Rent	216.2	2.8	2.4	1.8	1.9	1.7
Services excluding rent	315.1	2.8	2.4	3.0	2.4	1.8
with wages as a dominant price factor	96.0	3.6	3.0	2.8	2.8	3.0
with other important price components	219.1	2.6	2.2	3.0	2.3	1.2

<sup>1</sup> The decomposition by supplier sector was changed with effect from January 2016. In the new classification, agricultural and fish products are distributed between Norwegian and imported products.

<sup>2</sup> The weights apply from January 2018 to December 2018.

<sup>3</sup> With effect from 2017, the reference year is 2015 = 100. Change figures calculated from 2015 = 100 series may differ from previously published change figures with different reference years. Differences are largely due to rounding effects.

Source: Statistics Norway.

Actual and imputed rent have a combined weight of over 20 per cent in the CPI-ATE, and with a stable price rise of just under 2 per cent in recent years, have contributed to smoothing the fluctuations in the CPI-ATE. We have assumed in our calculations that the price indices for rents shadow general inflation through 2019, but that this inflation rises to 2.5 per cent at the end of the projection period as a result of an assumed increase in interest rates.

The cold winter in Norway and neighbouring countries caused a substantial increase in electricity prices on the Nordic power exchange in January and February. Spot prices in February were more than 30 per cent higher than the previous year. In household electricity prices, grid charges and excise dues account for a larger share of the electricity bill than the price of the electricity itself, which dampens fluctuations in underlying electricity prices in the CPI. Grid charges and excise duties are expected to rise by an annualised average of 3 per cent compared with last year. Given prospects of continued cold weather, the rise in price for electricity including

grid charges in Q1 may rise to 12 per cent higher than in the same period last year. The price rise will gradually ease in the course of the year. On the basis of forward prices in the power market, we expect the price of electricity, including grid charges, to increase by just over 6 per cent as an annual average from 2017 to 2018, but that some of the price rise will be reversed in 2019. For the remainder of the projection period, we assume that electricity prices will shadow CPI inflation.

Changes in taxes accounted for 0.4 percentage point of the rise in the CPI from December 2017 to January 2018. Increases in excise duties on sugar-containing products and non-alcoholic beverages and an increase in the lowest VAT rate contributed in particular to the rise in the CPI. A shift in vehicle sales from cars using fossil fuel to electric cars will probably reduce the overall tax add-on for vehicle purchases, given the way in which they are weighted in the CPI. We assume in our projections that special taxes increase by 0.2 percentage point of CPI inflation in 2018, and assume a continuation of the increase in special taxes equivalent



to 0.2 percentage point of the CPI for each of the years 2019 to 2021. We have assumed for these years that it is special taxes associated with greenhouse effects and the environment that will be raised, while other tax rates will be adjusted according to general inflation.

Given our assumptions concerning developments in energy prices and special taxes, CPI inflation will be 0.3 percentage point higher than CPI-ATE inflation in 2018. According to our projections, CPI-ATE inflation will be 1.7 per cent as an annual average in 2018, while CPI inflation will be equal to the new inflation target of 2.0 per cent. In the following years, we project CPI-ATE inflation of about 1.7 per cent. In view of the assumptions made about developments in special taxes and energy prices, CPI inflation varies more than CPI-ATE inflation in the projection scenario, and increases from 1.6 per cent in 2019 to 2.0 per cent in 2021.

### Uncertainty surrounding the projections

Statistics Norway presented its first quantified projections for the Norwegian economy in 1988, and since 1990 has with few exceptions published projections for at least two years ahead in February/March, May/June, September and November/December each year in Economic Survey. The following is an evaluation of our forecasting activities. The evaluation considers three important macroeconomic variables: growth in mainland gross domestic product (mainland GDP), inflation measured by the consumer price index (CPI), and unemployment as a percentage of the labour force (LFS unemployment). The focus is on whether the projections have deviated systematically from the ex post outcome, and on the spread of the deviations. The analysis is also used to say something about the uncertainty surrounding Statistics Norway's projections for 2018 and 2019.

There are often differences between the preliminary GDP figures published in February the year after the accounting year and the final figures, which are normally only available almost two years later. The "final" figures may also be revised in connection with periodic revisions when new statistics are incorporated or when the calculation principles are changed. We nevertheless use provisional GDP figures from the preliminary accounts as ex post outcome for three reasons: First, the final accounts figures are not available for the years after 2015. The projections for these years must therefore be compared with preliminary accounts figures under any circumstances. Second, the projections are made on the basis of preliminary – not final – accounts figures for the recent past. Third, changes were made in definitions in connection with the main revisions in 1995, 2002, 2006 and 2014, which means that projections and final figures are not associated with the same measuring system. For example, our projections for mainland GDP in 2013 made before the main revision in 2014 would have been different if we had used the new definition at the times of making the projections.

Figure 17. **Projection for percentage change in mainland GDP. Absolute deviation from preliminary accounts**

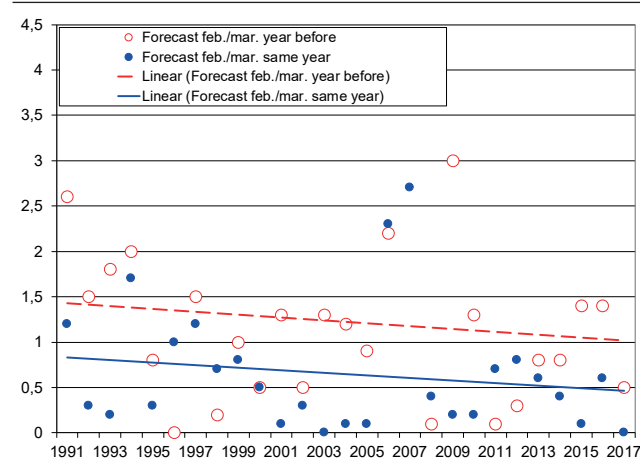


Figure 18. **Projection for percentage change in the CPI. Absolute deviation from published figures**

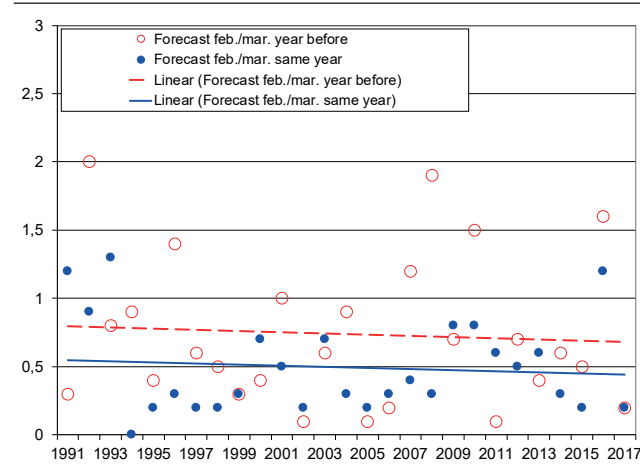


Figure 19. **Projection for unemployment (LFS). Absolute deviation from published figures**

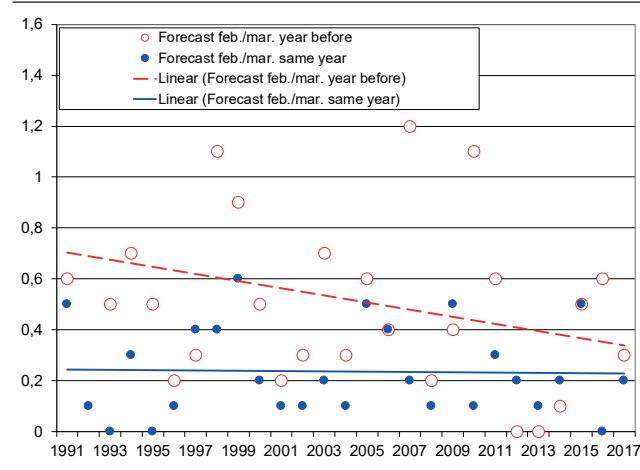


Figure 20. **Projected percentage change in mainland GDP. Absolute deviation from preliminary accounts figures and the spread of deviations. The intervals show 50, 80 and 90 per cent confidence intervals**

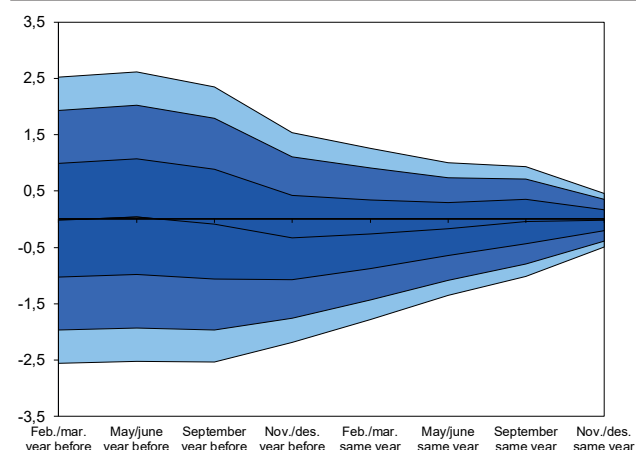


Figure 21. **Projection for percentage change in the CPI. Absolution deviations and spread of deviations The intervals show 50, 80 and 90 per cent confidence intervals**

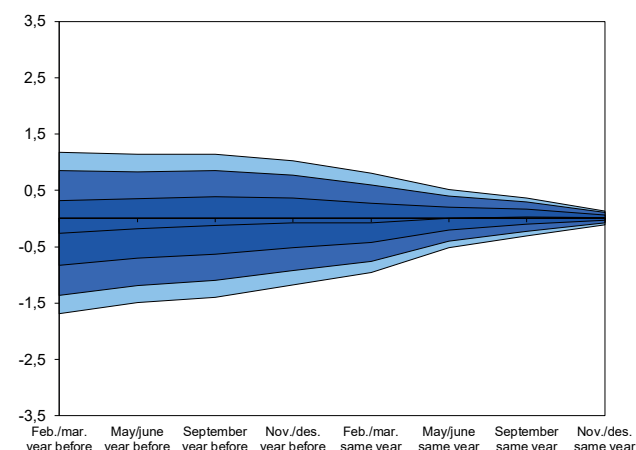
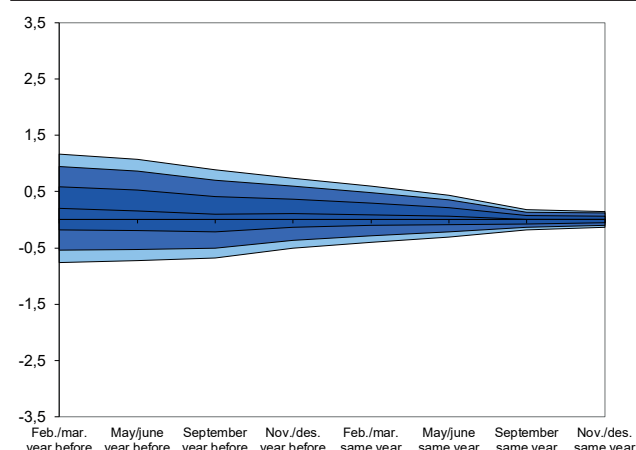


Figure 22. **Projection for unemployment (LFS). Absolution deviations and spread of deviations The intervals show 50, 80 and 90 per cent confidence intervals**



Final figures for the CPI and for LFS unemployment are available shortly after the end of the year.

### How accurate have our projections been?

Figures 17, 18 and 19 show developments over time in the absolute deviations between projections and preliminary accounts figures for mainland GDP growth, CPI inflation and LFS unemployment. Projections for LFS unemployment made the year before the projection year have improved over time, while the projections for GDP growth have improved for both projection horizons.

Figures 20, 21 and 22 show the average differences between projections made at different times and accounts figures for growth in mainland GDP, CPI inflation and unemployment. The figures also provide an indication of the spread in the deviations, by including three intervals around the average. These intervals are calculated against the background of the historical spread. They do not say anything about how many of the deviations actually lie within the intervals. Under given conditions, the probabilities that the difference between forward projections and accounts figures lies within these intervals are 50, 80 and 90 per cent, respectively. We have only used the projections for the years from 1995 onwards when calculating the intervals.

### Have there been systematic deviations?

The projections for GDP growth have often been slightly too low from September, and in particular November/December, the year before the projection year, but this deviation is reduced as the projections are updated through the projection year. On average, the GDP growth projections published in the first half of the year prior to the projection year have been approximately the same as the actual outturns. However, the projections made in September and November/December the year before the projection year are on average 0.1 and 0.3 percentage point, respectively, lower than the ex post outturn. The discrepancy then decreases gradually in the last three projections made in the projection year.

The average difference in the CPI inflation projection is reduced from -0.3 percentage point in February/March of the year prior to the projection year to almost zero in February/March of the projection year.

In line with our overly low GDP projections, we find that our unemployment projections have had a tendency to be systematically somewhat too high. The projections made in February/March in the year prior to the projection year are 0.2 percentage point too high. The average difference subsequently is approximately 0.1 percentage point up to and including the projections made in February/March the same year. After this the deviations are virtually zero on average. In view of the large spread in these projections, the results indicate that there are no large systematic errors in our projections for the three main variables.

Figure 23. **Projected percentage change in mainland GDP. The intervals show 50, 80 and 90 per cent confidence intervals**

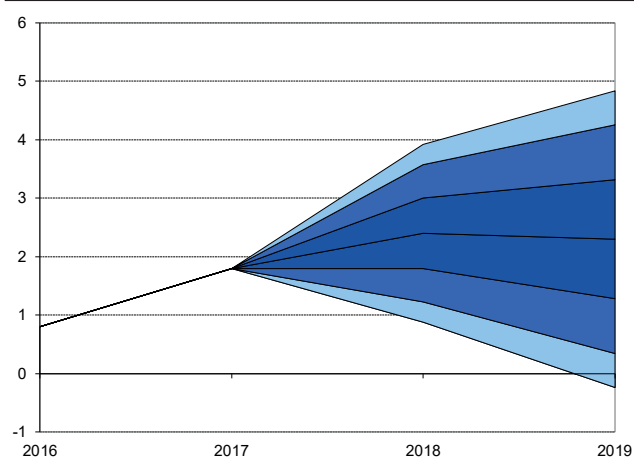


Figure 24. **Projection for percentage change in the CPI. The intervals show 50, 80 and 90 per cent confidence intervals**

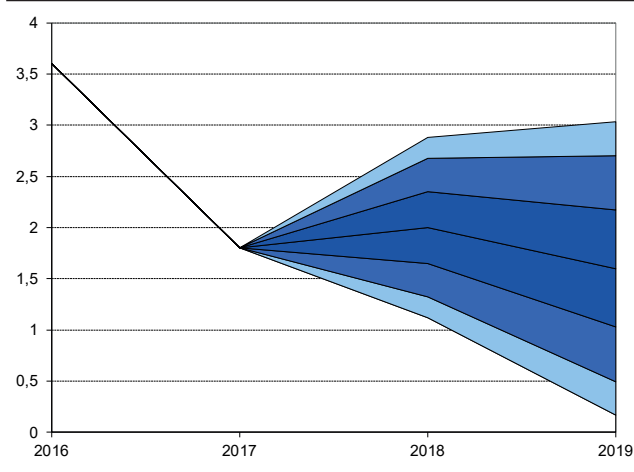
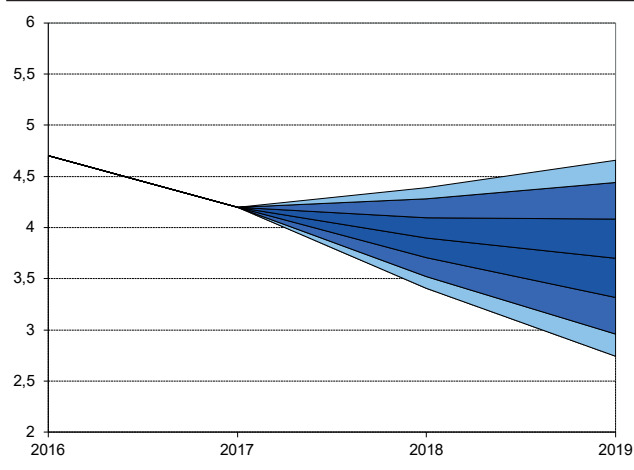


Figure 25. **Projection for unemployment (LFS). The intervals show 50, 80 and 90 per cent confidence intervals**



### The spread in the projections

There has been a relatively large spread in the differences between the projections for GDP growth made in the first three analyses the year prior to the projection year and the preliminary accounts figure. Of the 23 projections we have made up to the present, from and including the 1995 projection, 10 differ by more than 1 percentage point from the preliminary accounts figure. Once the projection was absolutely accurate – in 1996. The projections in 1998, 2008, 2011 and 2012 were also very accurate, differing by only 0.1–0.3 percentage point. The variation in the differences is considerably less, on average, in the projections made in December the previous year, but 7 of 23 projections are still more than 1 percentage point off the mark. Despite possessing a steadily growing amount of information about economic developments in the year for which projections are made, the spread in the deviations is therefore only a little less right up to and including the projections in September the same year. One important reason for this is that the quarterly GDP figures have often been revised quite considerably through the projection year. Only the last projection we make before the ex post outturn is available again shows a distinct decline in the spread of the deviations.

We find a similar pattern in the projections for annual CPI inflation. There is substantial variation between the first three projections and the outturn, then the spread decreases gradually. As the CPI is not revised, this reflects the fact that uncertainty lessens through the year as the actual development of the CPI gradually emerges.

The spread in the deviation between the unemployment projection and the outturn shows a steadier decline as the projection horizon shortens. The average absolute deviation is 0.6 percentage point in February/March the preceding year and 0.3 percentage point in February/March of the same year. After that the spread narrows gradually. The projection error for unemployment also decreases considerably in the last two projections before the outturn is available. As in the case of the CPI, this is because the figure is not revised but gradually emerges in the course of the year.

### Projections for 2018 and 2019 are uncertain

The uncertainty associated with our projections for 2018 and 2019 is illustrated in Figures 23, 24 and 25. Mainland GDP growth is now projected at 2.4 per cent in 2018 and 2.3 per cent in 2019. In light of the above analysis, there is a 50 per cent probability that mainland GDP growth will be between 1.8 and 3.0 per cent in 2018 and between 1.3 and 3.3 per cent in 2019. Intervals of a total of 3.0 percentage points in 2017 and 5.1 percentage points in 2018 cover the ex post growth with a 90 per cent probability.

CPI inflation was 1.8 per cent in 2017. In 2018 and 2019 it is projected to rise to 2.0 and 1.6 per cent, respectively. There is an 80 per cent probability that the projections for 2018 and 2019 will not be more than 0.7 and 1.1 percentage point, respectively, off the mark.

The unemployment level is projected to fall from 4.2 per cent in 2017 to 3.9 per cent in 2018 and then further to 3.7 per cent in 2019. Whereas historical forecast errors indicate that the projection for 2018 can be regarded as relatively certain, there is more uncertainty attached to the projection for the following year. For example, there is an 80 per cent probability that the accounts figure will not differ more than 0.4 percentage point from our projection for 2018. In 2019, on the other hand, there is an 80 per cent probability that unemployment will lie within an interval of 0.8 percentage point above and below the projection.

### **How accurate were Statistics Norway's projections for 2017?**

The first time we published projections for 2017 as part of our ordinary quarterly monitoring of the economic reports was at the beginning of 2014. The table shows the projections made then, one year later, and thereafter all the projections published through 2016 and 2017.

The first projections for 2017 were based on assumptions about global impulses that were quite different from the actual outturn. Although we assumed before the summer of 2014 that the oil price would fairly rapidly move to a lower level than had been seen for a while, the decline was substantially larger. The slump in oil prices is an important factor underlying the far too optimistic projections for investment in the petroleum industry from 2014 onward. In 2016, conversely, the decline in petroleum investment in 2017 was overestimated as a result of too low projections for the oil price.

Developments in the global economy were also overestimated in 2014, as we assumed that the normalisation of the global economic situation would proceed faster than later proved to be the case. The situation from the end of 2016 was the reverse, when global economic developments were underestimated. Petroleum investment projections were also too low, and unemployment projections too high.

Projections for the global economy were revised upwards through 2017. Employment was also revised upwards, in keeping with a stronger global upturn, and unemployment was revised downwards. The downturn in the housing market was more pronounced than foreseen. Both house prices and housing investment were forecast somewhat too high through most of 2017, as was inflation, measured by both the CPI and

the CPI-ATE. The reversal into an economic upturn was captured relatively well from the 2016 Q4 already, and the deviation for forecast mainland GDP has been two tenths or less since then. However, the decline in unemployment was not well captured until a little way into 2017.

Table 9. Projections for 2017 published at different times. Percentage growth unless otherwise specified

	ES 1/14	ES 1/15	ES 1/16	ES 2/16	ES 3/16	ES 4/16	ES 1/17	ES 2/17	ES 3/17	ES 4/17	ES 1/18
<b>Real economy</b>											
Consumption by households etc.	3.3	2.4	2.8	2.2	2.0	1.9	2.2	2.2	2.4	2.5	2.3
General government consumption	2.1	1.8	2.1	1.9	1.9	1.7	1.7	1.9	1.9	1.9	2.0
Gross fixed capital formation	2.3	3.5	2.5	1.7	2.4	1.5	3.4	2.4	4.2	4.2	3.5
Extraction and pipeline transport	-2.0	-2.3	-3.7	-4.2	-8.0	-11.8	-7.0	-7.1	-0.3	-3.4	-4.0
Mainland Norway	4.4	5.3	4.4	3.4	5.1	5.0	6.0	5.4	5.7	6.7	5.9
Business	3.6	4.5	5.4	1.6	1.3	3.6	4.2	3.3	4.0	6.6	5.1
Housing	1.9	4.1	1.0	2.5	9.1	6.9	9.2	8.4	8.4	8.2	7.1
General government	8.9	7.9	6.7	6.7	6.2	5.0	5.1	5.1	5.0	5.0	5.8
Mainland demand <sup>1</sup>	3.2	2.9	3.0	2.4	2.6	2.5	2.9	2.8	2.9	3.2	3.0
Change in stocks <sup>2</sup>	0.0	-0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	-0.4	0.0
Exports	2.8	1.6	1.4	1.7	1.2	1.2	0.5	1.0	1.6	2.5	0.8
Traditional goods	0.6	-0.2	0.1	-1.0	-1.0	0.0	2.2	1.6	2.1	2.6	2.2
Crude oil and natural gas	5.7	3.8	3.2	4.4	3.3	3.0	0.4	0.1	1.4	4.5	1.9
Imports	4.3	1.3	2.8	2.7	2.3	1.8	2.5	2.3	4.9	2.5	2.2
Traditional goods	4.2	4.0	2.8	2.5	2.5	1.3	1.5	3.0	5.5	3.7	3.2
Gross domestic product	2.2	1.9	1.9	1.6	1.6	1.4	1.5	1.6	1.8	2.2	1.8
Mainland GDP	2.8	2.4	2.3	2.1	2.1	1.7	1.8	1.9	2.0	1.9	1.8
Manufacturing and mining	3.7	3.4	3.3	1.8	1.2	1.0	0.7	0.8	0.8	-0.1	0.3
<b>Labour market</b>											
Number of man-hours worked, mainland Norway	1.1	0.5	0.9	0.6	0.2	0.3	0.1	0.4	0.8	0.7	0.8
Number employed	1.6	1.0	1.4	1.1	0.7	0.8	0.6	0.6	1.0	1.1	1.2
Labour force <sup>3</sup>	1.5	0.9	1.2	1.1	0.5	0.6	0.3	0.1	0.1	-0.3	-0.4
Participation rate (level) <sup>3</sup>	71.0	70.0	71.1	71.2	70.2	70.6	70.4	70.1	70.0	69.9	69.8
Unemployment rate (level) <sup>3</sup>	3.8	3.9	4.5	4.5	4.5	4.5	4.4	4.3	4.2	4.2	4.2
<b>Prices and wages</b>											
Annual wages	3.6	3.1	2.4	2.7	2.7	2.6	2.3	2.3	2.4	2.4	2.3
Consumer price index (CPI) <sup>4</sup>	2.1	1.7	2.0	2.2	2.0	2.3	2.0	2.1	2.1	1.8	1.8
CPI-ATE <sup>4</sup>	2.0	1.7	1.8	2.0	1.9	2.0	1.7	1.7	1.6	1.5	1.4
Export prices traditional goods	2.5	1.8	2.1	4.2	2.7	1.9	2.9	5.4	5.6	4.9	5.1
Import prices traditional goods	1.7	1.4	2.4	1.7	1.6	0.8	0.9	2.3	4.3	3.2	3.5
House prices	2.5	1.9	5.1	5.9	5.4	7.2	6.5	6.8	5.0	4.6	5.0
<b>Income, interest and exchange rates</b>											
Household real disposable income	3.5	2.6	2.4	2.5	2.2	2.1	2.0	1.9	2.2	1.8	2.4
Household saving ratio (level)	10.0	9.0	8.9	9.2	6.3	6.6	7.4	6.4	6.5	6.1	7.2
Money market interest rate (level)	2.6	1.2	0.5	0.8	1.0	1.0	1.0	0.9	0.9	0.9	1.0
Lending rate, credit loans (level) <sup>5</sup>	4.1	3.1	2.2	2.5	2.5	2.6	2.6	2.5	2.6	2.6	2.7
Real interest rate after tax (level)	0.9	0.5	-0.4	-0.3	0.0	-0.3	-0.1	-0.2	-0.1	0.0	0.1
Import-weighted krone exchange rate (44 countries) <sup>6</sup>	0.0	-0.2	-1.5	-1.6	-1.3	-3.2	-3.2	-0.7	-1.7	-0.9	-0.8
NOK per euro (level)	8.0	8.3	9.2	9.2	9.2	9.0	8.9	9.3	9.2	9.3	9.3
<b>Foreign trade and current account</b>											
Current account balance, billions of NOK <sup>7</sup>	266.6	200.8	153.9	252.3	220.5	201.3	228.9	208.9	170.9	215.0	168.3
Current account balance as a percentage of GDP	7.7	5.9	4.7	7.6	6.7	6.2	6.9	6.3	5.2	6.5	5.1
<b>Abroad</b>											
Export market indicator	6.3	5.6	4.7	4.6	4.1	4.1	3.8	4.0	4.9	4.9	4.6
Consumer price euro area	1.9	1.3	1.1	0.7	0.7	1.2	1.6	1.6	1.6	1.6	1.6
Money market rate, euro (level)	1.4	0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3
Crude oil price in NOK (level) <sup>8</sup>	584	525	378	411	419	451	469	454	433	445	445

<sup>1</sup> Consumption by households and non-profit organisations + general government consumption + gross mainland investment.<sup>2</sup> Change in inventories, percentage of GDP.<sup>3</sup> LFS figures.<sup>4</sup> Percentage change on same period previous year.<sup>5</sup> Average for the period.<sup>6</sup> Negative sign means appreciation.<sup>7</sup> Current account balance without adjustment for saving in pension funds.<sup>8</sup> Average spot price Brent Blend.

Source: Statistics Norway.



**Table 10. National accounts: Final expenditure and gross domestic product. At constant 2015 prices. Millions NOK**

	Unadjusted		Seasonally adjusted							
	2016*	2017*	16.1	16.2	16.3	16.4	17.1	17.2	17.3	17.4
Final consumption expenditure of households and NPISHs	1 374 069	1 405 931	342 296	342 263	344 093	346 154	348 611	351 297	353 555	356 382
Household final consumption expenditure	1 300 126	1 331 209	324 460	323 375	325 486	327 565	329 805	332 810	334 868	337 675
Goods	591 644	600 873	148 950	147 666	147 588	148 505	148 912	150 927	151 738	153 497
Services	641 144	660 355	158 344	159 190	161 215	162 069	163 622	164 386	165 596	166 594
Direct purchases abroad by resident households	109 815	112 438	27 408	27 137	27 650	27 586	27 430	28 201	28 444	28 246
Direct purchases by non-residents	-42 477	-42 458	-10 242	-10 618	-10 968	-10 596	-10 158	-10 704	-10 911	-10 661
Final consumption expenditure of NPISHs	73 943	74 722	17 837	18 889	18 607	18 590	18 806	18 487	18 687	18 707
Final consumption expenditure of general government	744 881	759 437	184 896	186 175	186 811	187 028	188 210	189 200	190 524	191 522
Final consumption expenditure of central government	377 100	381 601	94 034	94 186	94 469	94 442	94 934	95 232	95 532	95 926
Central government, civilian	333 554	338 067	83 075	83 274	83 632	83 605	84 077	84 346	84 649	85 017
Central government, defence	43 546	43 534	10 960	10 912	10 837	10 838	10 857	10 886	10 882	10 909
Final consumption expenditure of local government	367 781	377 836	90 862	91 989	92 342	92 586	93 276	93 969	94 992	95 596
Gross fixed capital formation	739 701	765 896	182 179	183 028	187 184	185 976	189 581	192 267	190 531	193 570
Extraction and transport via pipelines	167 624	160 894	42 898	41 605	42 002	41 172	41 502	41 475	39 156	38 762
Ocean transport	-1 698	-2 671	260	-707	-456	-758	-1 378	-629	-520	-141
Mainland Norway	573 776	607 673	139 021	142 131	145 637	145 562	149 457	151 421	151 895	154 949
Industries	232 305	244 086	57 165	58 476	58 193	58 093	60 596	58 672	62 024	62 700
Service activities incidental to extraction	2 010	2 721	891	387	234	498	654	330	815	922
Other services	138 859	148 356	33 261	35 662	35 502	34 343	37 419	36 526	36 596	37 764
Manufacturing and mining	33 794	31 077	8 674	8 545	8 004	8 485	8 214	7 482	7 576	7 827
Production of other goods	57 642	61 932	14 338	13 882	14 453	14 767	14 308	14 333	17 038	16 188
Dwellings (households)	180 689	193 544	42 943	44 251	45 255	47 157	48 384	48 780	49 343	47 138
General government	160 783	170 042	38 913	39 404	42 190	40 312	40 477	43 969	40 528	45 111
Acquisitions less disposals of valuables	358	368	87	92	85	94	94	90	86	97
Changes in stocks and statistical discrepancies	162 296	159 669	45 446	42 622	35 761	39 245	39 991	38 129	36 269	42 927
Gross capital formation	902 355	925 933	227 625	225 650	222 944	225 221	229 571	230 395	226 800	236 497
Final domestic use of goods and services	3 021 305	3 091 301	754 817	754 088	753 848	758 403	766 393	770 892	770 879	784 401
Final demand from Mainland Norway	2 692 726	2 773 041	666 214	670 569	676 541	678 745	686 278	691 918	695 974	702 853
Final demand from general government	905 663	929 479	223 810	225 578	229 001	227 341	228 687	233 170	231 051	236 633
Total exports	1 154 865	1 164 653	291 341	287 076	283 335	292 674	290 186	295 921	293 690	285 998
Traditional goods	343 695	351 122	89 378	87 606	86 686	80 650	86 115	87 583	88 407	89 013
Crude oil and natural gas	464 491	473 442	117 053	115 183	111 972	119 605	117 434	122 231	122 619	112 440
Ships, oil platforms and planes	16 755	14 047	2 044	2 743	2 932	9 018	7 379	2 896	1 767	1 994
Services	329 923	326 042	82 866	81 543	81 745	83 402	79 258	83 211	80 897	82 552
Total use of goods and services	4 176 169	4 255 954	1 046 159	1 041 163	1 037 182	1 051 078	1 056 579	1 066 813	1 064 568	1 070 398
Total imports	1 024 020	1 046 639	257 679	254 303	256 342	255 548	262 637	264 373	255 711	263 800
Traditional goods	585 418	604 011	147 624	145 410	145 880	146 168	150 485	151 563	148 937	152 869
Crude oil and natural gas	9 793	11 858	3 027	2 248	2 634	1 865	2 665	3 395	2 891	2 950
Ships, oil platforms and planes	44 122	47 358	8 598	10 445	13 231	11 860	15 504	12 918	9 233	9 724
Services	384 688	383 412	98 431	96 200	94 597	95 655	93 985	96 497	94 650	98 258
Gross domestic product (market prices)	3 152 149	3 209 315	788 479	786 861	780 841	795 530	793 941	802 440	808 857	806 598
Gross domestic product Mainland Norway (market prices)	2 646 221	2 694 905	658 817	661 617	662 128	663 328	667 559	671 798	676 709	680 721
Petroleum activities and ocean transport	505 928	514 411	129 663	125 244	118 713	132 202	126 382	130 643	132 148	125 877
Mainland Norway (basic prices)	2 295 067	2 333 980	571 991	573 649	574 314	575 135	578 295	581 748	585 460	589 331
Mainland Norway excluding general government	1 715 599	1 743 109	427 898	429 165	429 021	429 530	431 515	434 238	437 340	440 873
Manufacturing and mining	210 217	210 773	53 467	52 677	52 131	52 082	52 564	52 741	52 433	53 140
Production of other goods	284 358	292 882	71 390	70 609	70 971	71 357	72 102	72 671	73 501	74 592
Services incl. dwellings (households)	1 221 024	1 239 454	303 041	305 879	305 920	306 092	306 849	308 826	311 406	313 141
General government	579 468	590 871	144 093	144 485	145 293	145 605	146 780	147 510	148 120	148 458
Taxes and subsidies products	351 154	360 925	86 826	87 968	87 814	88 193	89 264	90 050	91 249	91 390

Source: Statistics Norway.



**Table 11. National accounts: Final expenditure and gross domestic product. At constant 2015 prices. Percentage change from previous period**

	Unadjusted		Seasonally adjusted							
	2015*	2016*	16.1	16.2	16.3	16.4	17.1	17.2	17.3	17.4
Final consumption expenditure of households and NPISHs	1.5	2.3	0.2	0.0	0.5	0.6	0.7	0.8	0.6	0.8
Household final consumption expenditure	1.5	2.4	0.4	-0.3	0.7	0.6	0.7	0.9	0.6	0.8
Goods	-0.1	1.6	0.0	-0.9	-0.1	0.6	0.3	1.4	0.5	1.2
Services	3.1	3.0	0.6	0.5	1.3	0.5	1.0	0.5	0.7	0.6
Direct purchases abroad by resident households	3.6	2.4	1.6	-1.0	1.9	-0.2	-0.6	2.8	0.9	-0.7
Direct purchases by non-residents	8.1	0.0	2.0	3.7	3.3	-3.4	-4.1	5.4	1.9	-2.3
Final consumption expenditure of NPISHs	1.9	1.1	-2.6	5.9	-1.5	-0.1	1.2	-1.7	1.1	0.1
Final consumption expenditure of general government	2.1	2.0	1.7	0.7	0.3	0.1	0.6	0.5	0.7	0.5
Final consumption expenditure of central government	2.3	1.2	2.1	0.2	0.3	0.0	0.5	0.3	0.3	0.4
Central government, civilian	2.6	1.4	2.4	0.2	0.4	0.0	0.6	0.3	0.4	0.4
Central government, defence	-0.1	0.0	0.2	-0.4	-0.7	0.0	0.2	0.3	0.0	0.2
Final consumption expenditure of local government	2.0	2.7	1.3	1.2	0.4	0.3	0.7	0.7	1.1	0.6
Gross fixed capital formation	-0.2	3.5	-0.2	0.5	2.3	-0.6	1.9	1.4	-0.9	1.6
Extraction and transport via pipelines	-16.9	-4.0	-8.0	-3.0	1.0	-2.0	0.8	-0.1	-5.6	-1.0
Ocean transport	95.9	57.2	-159.1	-372.2	-35.5	66.3	81.7	-54.4	-17.3	-72.9
Mainland Norway	6.1	5.9	1.9	2.2	2.5	-0.1	2.7	1.3	0.3	2.0
Industries	4.1	5.1	5.0	2.3	-0.5	-0.2	4.3	-3.2	5.7	1.1
Service activities incidental to extraction	-58.0	35.4	19.1	-56.6	-39.6	113.0	31.3	-49.5	146.6	13.2
Other services	5.3	6.8	2.3	7.2	-0.4	-3.3	9.0	-2.4	0.2	3.2
Manufacturing and mining	8.1	-8.0	13.8	-1.5	-6.3	6.0	-3.2	-8.9	1.2	3.3
Production of other goods	4.5	7.4	5.8	-3.2	4.1	2.2	-3.1	0.2	18.9	-5.0
Dwellings (households)	9.0	7.1	-0.3	3.0	2.3	4.2	2.6	0.8	1.2	-4.5
General government	5.9	5.8	0.2	1.3	7.1	-4.4	0.4	8.6	-7.8	11.3
Acquisitions less disposals of valuables	2.8	2.8	-2.9	5.0	-7.7	10.6	0.6	-4.2	-4.8	12.9
Changes in stocks and statistical discrepancies	37.6	-1.6	52.7	-6.2	-16.1	9.7	1.9	-4.7	-4.9	18.4
Gross capital formation	5.0	2.6	7.2	-0.9	-1.2	1.0	1.9	0.4	-1.6	4.3
Final domestic use of goods and services	2.7	2.3	2.6	-0.1	0.0	0.6	1.1	0.6	0.0	1.8
Final demand from Mainland Norway	2.6	3.0	1.0	0.7	0.9	0.3	1.1	0.8	0.6	1.0
Final demand from general government	2.8	2.6	1.4	0.8	1.5	-0.7	0.6	2.0	-0.9	2.4
Total exports	-1.8	0.8	-1.9	-1.5	-1.3	3.3	-0.9	2.0	-0.8	-2.6
Traditional goods	-8.2	2.2	-3.8	-2.0	-1.0	-7.0	6.8	1.7	0.9	0.7
Crude oil and natural gas	4.3	1.9	3.4	-1.6	-2.8	6.8	-1.8	4.1	0.3	-8.3
Ships, oil platforms and planes	45.6	-16.2	-30.0	34.2	6.9	207.6	-18.2	-60.8	-39.0	12.8
Services	-4.4	-1.2	-5.7	-1.6	0.2	2.0	-5.0	5.0	-2.8	2.0
Total use of goods and services	1.4	1.9	1.3	-0.5	-0.4	1.3	0.5	1.0	-0.2	0.5
Total imports	2.3	2.2	2.4	-1.3	0.8	-0.3	2.8	0.7	-3.3	3.2
Traditional goods	-0.4	3.2	0.4	-1.5	0.3	0.2	3.0	0.7	-1.7	2.6
Crude oil and natural gas	-10.2	21.1	10.7	-25.7	17.2	-29.2	42.9	27.4	-14.8	2.0
Ships, oil platforms and planes	26.4	7.3	18.7	21.5	26.7	-10.4	30.7	-16.7	-28.5	5.3
Services	4.8	-0.3	4.0	-2.3	-1.7	1.1	-1.7	2.7	-1.9	3.8
Gross domestic product (market prices)	1.1	1.8	1.0	-0.2	-0.8	1.9	-0.2	1.1	0.8	-0.3
Gross domestic product Mainland Norway (market prices)	1.0	1.8	0.4	0.4	0.1	0.2	0.6	0.6	0.7	0.6
Petroleum activities and ocean transport	1.8	1.7	3.8	-3.4	-5.2	11.4	-4.4	3.4	1.2	-4.7
Mainland Norway (basic prices)	0.7	1.7	0.5	0.3	0.1	0.1	0.5	0.6	0.6	0.7
Mainland Norway excluding general government	0.2	1.6	0.2	0.3	0.0	0.1	0.5	0.6	0.7	0.8
Manufacturing and mining	-4.1	0.3	0.3	-1.5	-1.0	-0.1	0.9	0.3	-0.6	1.3
Production of other goods	2.7	3.0	3.6	-1.1	0.5	0.5	1.0	0.8	1.1	1.5
Services incl. dwellings (households)	0.4	1.5	-0.6	0.9	0.0	0.1	0.2	0.6	0.8	0.6
General government	2.3	2.0	1.2	0.3	0.6	0.2	0.8	0.5	0.4	0.2
Taxes and subsidies products	2.5	2.8	0.2	1.3	-0.2	0.4	1.2	0.9	1.3	0.2

Source: Statistics Norway.

**Table 12. National accounts: Final expenditure and gross domestic product. Price indices. 2015=100**

	Unadjusted		Seasonally adjusted							
	2016*	2017*	16.1	16.2	16.3	16.4	17.1	17.2	17.3	17.4
Final consumption expenditure of households and NPISHs	103.2	104.9	102.3	103.3	103.3	103.4	104.0	104.7	104.7	105.2
Final consumption expenditure of general government	101.7	104.1	100.6	100.7	101.5	104.0	103.4	103.0	103.9	106.2
Gross fixed capital formation	101.5	102.4	100.7	101.6	101.5	101.9	101.3	102.6	102.3	103.3
Mainland Norway	102.4	104.9	101.1	102.2	102.7	103.3	103.5	105.1	105.0	105.9
Final domestic use of goods and services	102.3	103.9	101.8	102.1	102.2	102.7	103.3	104.1	103.5	104.8
Final demand from Mainland Norway	102.6	104.7	101.6	102.4	102.6	103.5	103.7	104.3	104.5	105.7
Total exports	92.1	98.6	88.6	91.6	92.6	95.0	100.2	97.2	96.7	100.8
Traditional goods	103.5	108.7	99.2	103.3	104.2	107.0	107.4	109.1	108.0	110.5
Total use of goods and services	99.5	102.5	98.1	99.2	99.5	100.6	102.4	102.2	101.6	103.7
Total imports	101.3	103.4	102.0	101.8	101.2	100.5	102.1	104.1	103.7	104.6
Traditional goods	101.4	105.1	101.2	101.5	101.5	101.6	102.8	105.4	104.9	107.6
Gross domestic product (market prices)	98.9	102.2	96.9	98.3	99.0	100.6	102.5	101.6	101.0	103.4
Gross domestic product Mainland Norway (market prices)	102.7	104.0	101.3	102.3	102.6	103.9	103.8	103.8	103.8	104.7

Source: Statistics Norway.

**Table 13. National accounts: Final expenditure and gross domestic product. Price indices. Percentage change from previous period**

	Unadjusted		Seasonally adjusted							
	2016*	2017*	16.1	16.2	16.3	16.4	17.1	17.2	17.3	17.4
Final consumption expenditure of households and NPISHs	3.2	1.6	1.2	1.0	0.0	0.1	0.5	0.7	0.0	0.5
Final consumption expenditure of general government	1.7	2.4	0.4	0.1	0.7	2.5	-0.6	-0.4	0.9	2.3
Gross fixed capital formation	1.5	0.9	-1.2	0.9	-0.1	0.4	-0.6	1.3	-0.3	1.0
Mainland Norway	2.4	2.5	-0.3	1.2	0.4	0.6	0.2	1.5	-0.1	0.9
Final domestic use of goods and services	2.3	1.6	1.3	0.3	0.1	0.5	0.5	0.8	-0.5	1.2
Final demand from Mainland Norway	2.6	2.0	0.7	0.8	0.3	0.9	0.1	0.6	0.2	1.1
Total exports	-7.9	7.0	-7.1	3.4	1.1	2.6	5.4	-3.0	-0.5	4.3
Traditional goods	3.5	5.0	-1.5	4.2	0.8	2.7	0.4	1.6	-1.0	2.2
Total use of goods and services	-0.5	3.0	-0.9	1.1	0.4	1.0	1.8	-0.2	-0.5	2.1
Total imports	1.3	2.1	0.8	-0.2	-0.6	-0.7	1.7	1.9	-0.4	0.9
Traditional goods	1.4	3.7	-0.1	0.3	-0.1	0.2	1.2	2.5	-0.5	2.6
Gross domestic product (market prices)	-1.1	3.3	-1.4	1.5	0.7	1.6	1.9	-0.9	-0.6	2.4
Gross domestic product Mainland Norway (market prices)	2.7	1.3	1.1	1.0	0.3	1.3	-0.1	0.1	0.0	0.9

Source: Statistics Norway.



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