VI. MACROECONOMIC FORECASTS OF THE NORWEGIAN ECONOMY
By Professors Gunnar Bardsen and Ragnar Nymoen

Forecasts are presented for the second quarter of 2011 until the end of 2016 of important macroeconomic variables, using The Norwegian Aggregate Model (NAM). Information about the model and a disclaimer are in the box at the back of the document. The forecasts are presented in Figures 1-4 below, each consisting of four graphs. Starting from upper left, going to upper right and then to lower left, and ending at lower right, the four panels of each Figure are referred to as a)-d).

Figure 1 shows NAM forecasts of four headline variables: CPI inflation, the rate of unemployment, the average nominal interest rate on loans in Norwegian banks, and real credit growth. The distance between the dashed (red) lines represents the approximate 70% prediction intervals. Hence, future realizations within the intervals are regarded by the model as more likely events than realizations outside the intervals.

Inflation is projected to increase to around 2 % from 2013. CPI inflation, which is 1.4 % in the second quarter of 2011, is forecasted to rise slightly in the third quarter before a period with markedly lower inflation takes over. Inflation is projected to increase to around 2 % from 2013. The forecast reflects three assumptions. First, the relatively high inflation rates now seen abroad are expected to be temporary, and that inflation rates at around 2.0 % will characterize the period as a whole. Second, electricity prices will start to fall late in 2011, and then to drop markedly in 2012. Finally, unit labour costs are forecasted to grow moderately, meaning that there is little cost-push on inflation in 2011 and 2012.

The rate of unemployment (panel b) is forecasted to stabilize with normal seasonal variation around 2.5%. Panel c) shows the domestic interest rate, represented by the average bank loan rate. The bank lending rate is forecasted to increase during the period, towards 7% at the end of 2016. According to the model, most of the increase takes place after 2013 though. The final panel in Figure 1 shows real credit growth, which is projected to increase towards a representative growth rate of roughly 10%.

Headline variables. NAM forecasts for the period 2011q2-2016q4 with 68% prediction intervals (represented by the dotted lines). Data for the period 2009q1-2011q1 are included for reference.
Figure 2 gives an overview over the development in prices by showing inflation adjusted for energy and taxes (CPI-AET), so-called core inflation, in panel a), CPI inflation and wage cost growth in panels b) and c), and import price growth (panel d). Core inflation is forecasted to be low (sometimes below 1 %) until 2013. The forecasted rate of wage inflation is moderate in 2011, and very low in 2012. This is a reflection of the wage-price spiral which is part of NAM. Over the forecast horizon, wage equilibrium correction brings the forecasted wage inflation up to 4 %. In the last graph in Figure 2, we see that import price inflation is forecasted to increase somewhat during 2011, but for the period as whole also this part of the inflation process is stabilizing at around 2%.

Prices and wages. NAM forecasts for the period 2011q2-2016q4 with 68% prediction intervals (represented by the dotted lines).
Four important real variables are shown in Figure 3. Panel a) shows real GDP growth for the mainland economy. The point forecast gives 3% growth for the year 2011, and closer to 4% later in the period. Panels b) and c) of Figure 3 show two important explanatory variables for mainland GDP: the real exchange rate and the domestic real interest rate. According to the evidence contained in NAM, the real currency appreciation that has taken place after 2009, has pushed the real exchange rate below its equilibrium level. Therefore, the forecast is showing moderate real depreciation over the period. (graph b). The forecasted real interest rate on bank loans is increasing over the period, which is consistent with the overall “normalization” of the performance of the Norwegian economy after the financial crisis. Growth is a main factor behind the stabilization of the unemployment rate shown in Figure 1 above, and in graph d) in Figure 3 which contains the Labour Force Survey measure of the rate of unemployment.

Figure 3

a) MAINLAND GDP year-on-year rates

b) REAL EXCHANGE RATE IN NORWAY

c) REAL BANK INTEREST RATE IN NORWAY

d) UNEMPLOYMENT RATE Labour force survey

Real variables. NAM forecasts for the period 2011q2-2016q4 with 68% prediction intervals (represented by the dotted lines).
Figure 4 takes a closer look at some financial variables: interest rates, the exchange rate and domestic real credit growth. Panel a) shows the rate of nominal currency depreciation (the four quarter rate of change in the trade weighted nominal exchange rate). The international value of the krone is projected to depreciate at the beginning of the period, reflecting the estimated "overvaluation" already mentioned above.

The money market interest rate (panel b) is forecasted to increase steadily over the period. This is due to the forecasted increase in sight deposit rate (Norges Bank’s monetary policy instrument), see panel c). According to the model, the low interest rate level induces credit growth to continue to increase for most of the period (panel d). In this connection, we note that GDP growth is also related to credit growth, which is captured by NAM in two important ways. First, the easing of credit supply affects the GDP growth rate positively. Second, higher GDP growth increases the demand for loans.

Exchange rates, interest rates and credit growth. NAM forecasts for the period 2011q2-2016q4 with 68% prediction intervals (represented by the dotted lines).
References


About NAM and disclaimer

Model developers are Gunnar Bårdsen (http://www.svt.ntnu.no/iso/gunnar.bardsen) and Ragnar Nymoen (http://folk.uio.no/rnymoen/).

Norwegian Aggregate Model (NAM) is an econometric model project which extends from the early econometric assessment of wage- and price-inflation in Nymoen (1991), further developed in Bårdsen, Fisher, and Nymoen (1998), Bårdsen and Fisher (1999), and the monetary transmission model of Bårdsen and Klovland (2000).

Earlier versions of the model are documented in Bårdsen and Nymoen (2001), Bårdsen, Jansen, and Nymoen (2003) Bårdsen, Eitrheim, Jansen, and Nymoen (2005) and Bårdsen and Nymoen(2009). NAM is used for both research purposes and for teaching. The macroeconomic data is from the model databases of Statistics Norway (KVARTS model) and Norges Bank (FPAS database).

Earlier forecasts can be found at http://www.svt.ntnu.no/iso/gunnar.bardsen/nam/forecasts/forecasts.html http://folk.uio.no/rnymoen/NAM/Forecasts.html

NAM relies on data provided by the macroeconomic research unit in Statistics Norway, and on data from the macroeconomic database of The Norwegian Central Bank.

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