Norges Bank's regional network

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The regional network was primarily established to provide up-to-date information about the economic situation and the outlook ahead through direct contact with enterprises. Regular communication with local contacts in Norway's business sector provides us with earlier and more frequent information than available official statistics can supply. The regional network also provides supplementary information about areas not covered by other statistical sources, and is a forum for exploring views on current issues. This article describes the organisation of the network and the kind of information collected from it. In the last section, information from the regional network is compared with official statistics. The network seems to be providing accurate and early signals about developments in key economic variables such as output, employment and investment.

1 Introduction

Norges Bank is responsible for the conduct of monetary policy in Norway. Monitoring cyclical developments and making projections for the domestic and the global economy provide important background data for Norges Bank's monetary policy decisions. The decisions are made on an uncertain basis. Uncertainty applies not only to the impact of monetary policy and the outlook for the economy, but also to the current economic situation. Official statistics and information are important sources for the bank's analyses and projections. Some statistics, however, are only published once or a few times a year. In addition, these statistics are often revised, so the final figures might only be available several years later. In order to reduce uncertainty, it is important to obtain as much and as accurate information as possible about the state of the economy and economic developments.

Norges Bank's regional network was established in autumn 2002 to strengthen the Bank's analytical base through direct dialogue with firms concerning their financial situation. Regular talks with local contacts from Norwegian business and community life provide Norges Bank with information earlier and more often than official statistics, adding to our knowledge of the actual state of the economy. The regional network also provides regular, supplementary information about areas not covered by other statistical sources, and through the talks with our network contacts, we also learn which issues are of particular current concern to enterprises. In addition, the regional network allows us to obtain information about the impact of particular events, or to examine other current issues, such as which factors have a decisive impact on enterprises' price-setting. The information obtained from the regional network, combined with other available information about economic developments, forms an important part of the basis for Norges Bank's projections for developments in the Norwegian economy, as for instance presented in Norges Bank's Inflation Report.

Norges Bank's regional network draws on other countries' experience. Central banks in many countries have various forms of regional network The Federal Reserve has established an extensive network of contacts all over the US. On the basis of regular talks with the contacts, eight reports about economic developments are written every year by each of the twelve regional Federal Reserve banks. The national summary of these reports is published in the "Beige Book". Central banks in the UK, Canada and Australia have their own agents employed at regional offices to conduct regular talks with contacts from business and community life. In New Zealand, central bank staff visit the regions to obtain information as part of the preparations for each inflation report. Norges Bank has delegated responsibility for the network to regional research institutions for all the regions except Region East.

2 Organisation

Norges Bank has divided Norway into seven regions: Region North (Finnmark, Troms, Nordland), Region Central Norway (Nord-Trøndelag and Sør-Trøndelag), Region North-West (Møre og Romsdal and Sogn og Fjordane), Region South-West (Hordaland and Rogaland), Region South (Aust-Agder, Vest-Agder, Telemark, Vestfold), Region Inland (Hedmark and Oppland) og Region East (Oslo, Akershus, Østfold and Buskerud).

We have engaged the following regional institutions to be responsible for the network in six of the regions:

- Kunnskapsparken Bodø (Region North)
- The Centre for Economic Research at the Norwegian University of Science and Technology (Region Central Norway)
- Møreforsking, Molde (Region North-West)
- Rogalandsforskning (Region South-West)
- Agderforskning (Region South)
- Østlandsforskning (Region Inland)

¹ We would like to thank our colleagues at Norges Bank, especially Leif Brubakk and Johannes Skjeltorp, for their useful comments

The last region, Region East, is covered by Norges Bank.

Five contact rounds are conducted in the course of a year. In each region, meetings are held with about 40 contacts in each round, giving a total of 280 contact meetings. There are currently about 1300 contacts in the network, and each contact takes part in meetings once or twice a year. Since there will always be some contacts who withdraw from the network, ongoing recruitment of new contacts is necessary.

The enterprises in the network have been selected to reflect the production side of the economy, in terms of both industry and geographical area. The agents select companies in the manufacturing and construction industries, services and retail trade according to each sector's share of GDP. We also include municipalities and regional health enterprises. The aim is to achieve a rep-

resentative distribution of small, medium-sized and large enterprises, although large enterprises are probably in the majority.

3 Information content

Information from the regional network is primarily of interest if its impact goes beyond the individual enterprise and region. In order to be able to sum up and compare the information across regions and industries, the themes discussed are identical for all contacts in the private sector. The regular themes included fall into four categories: a) issues related to demand and production, including capacity utilisation in production and demand prospects for the six months ahead; b) issues related to investment plans over the next 6-12 months; c) issues related to developments in employment and the labour

Box 1: Interview guide for the private sector

The bullet points below contain a brief description of the themes we primarily wish to discuss. We are interested in how actual developments compare with the budget/expectations, and whether important driving forces behind developments are specific to the enterprise or apply

1. Demand and production (volume)

- developments in demand/production over the past 3 months (seasonally adjusted)
 - o for manufacturing, as distributed between the export and domestic markets
 - o for services, as distributed between the business sector and households
- market prospects for the next 6 months
 - o driving forces
- capacity: Will the enterprise find it difficult to meet an (unexpected/expected) rise in demand? o If so, why?

2. Investment

- investment made, and plans for the next 6 to 12 months
- type of investment: what (expand capacity, maintenance, rationalisation) and where (abroad or in Norway)
- if no investment, why? (low demand, low utilisation of fixed assets, inadequate/expensive capital, high costs)

3. Employment/labour market

- change in number of person-years worked in the past three months
- plans to reduce/increase employment in the next three months
- labour supply: Will the labour supply be a limiting factor for production/turnover if there is an (unexpected/expected) rise in demand?

4. Costs and prices

- annual wage growth in the enterprise/industry for the current calendar year. This includes carry-over from the previous year, pay increases in the current year and wage drift through the year. It also includes bonuses.
- changes in other important input costs
- changes in selling prices over the past 12 months, expected price developments over the next 12 months, driving forces behind price developments (changes in input costs, margins, the competitive situation)
- developments in profitability (operating profits) over the past 3 months

5. 5. Other relevant themes

- other themes contacts feel are relevant to the discussion of their enterprise/industry
- other relevant themes Norges Bank wishes to be included

supply; and d) issues related to costs, prices and profitability. Box 1 contains the interview guide for the private sector.

In addition to the regular themes, a special theme is selected for each round. The choice of special theme is discussed and decided on by Norges Bank prior to each round. The theme may be related to extraordinary events or to the need to explore particular issues further. The following are examples of previously discussed special themes:

- the frequency of changes in enterprises' selling prices, and the most important factors behind these changes
- low employment growth in 2003 and 2004 and the extent to which this was due to cyclical or structural conditions
- effects of various shocks/disturbances in the economy, such as a krone appreciation and higher electricity prices

4 The working process

The agents have access to a register of all the enterprises in their region from which they select their contacts. The working process usually begins 4-5 weeks before the round is to be completed. Most meetings are conducted in person when agents visit their contacts. Some interviews are also carried out by phone. The agents write a summary of each interview.

Information from these meetings, and from any other sources used by the agents, is summarised in regional reports. The reports contain qualitative descriptions and assessments of the economic situation and assessments of the outlook ahead for the various industries. In addition to qualitative assessments in the regional reports, the agents fill out a cyclical development table, cf. Box 2. The agents rank developments in the various theme areas on a scale from -5 to +5, where -5 indicates a sharp fall and +5 indicates strong growth. In addition, three survey-like questions are asked, related to price expectations, capacity utilisation and labour supply. In section 5 of this article, developments in some of the indicators in the regional network cyclical development table are compared with official statistics.

A national report is written on the basis of the seven regional reports, each of which contains a cyclical development table. The national report comprises qualitative comments and an analysis of developments, as well as a national cyclical development table. The responsibility for preparing the national report is rotated across the regions.

Reports from the regional network are presented to Norges Bank's Executive Board prior to monetary policy meetings and form part of the Board's decision-making basis. The main points from both the regional and national reports are published on Norges Bank's website following the Board's monetary policy meetings. In addition, a summary of the information from the network is included in an annex to the *Inflation Report*.

5 Comparison with official statistics

Norges Bank has collected information through the regional network about developments in demand and production, investment, employment, costs, prices and profitability since autumn 2002. One important objective in establishing the regional network is to obtain earlier and more frequent information than provided by available official statistics. With the approximate quantifications in the table on cyclical developments, cf. Box 2, information from the network can be compared with time series from official statistics.

A comparison with official statistics can give an indication of how well the network reflects and predicts developments in the Norwegian economy. One of our aims, for example, is to ascertain to what extent, and how early, the network captures actual developments in output and employment. Does the information we receive correspond with official statistics, and if so, do we receive this information more quickly from the network? We also want to examine to what extent contact enterprises' expectations coincide with official statistics, for example how accurately market expectations 6 months ahead and investment plans 6 to 12 months ahead are reflected in production and investment statistics respectively.

It should be emphasised that the regional network has only been in operation for just over two years, and as of March 2005, 14 rounds of interviews have been completed. Consequently, the time series are short. In addition, official statistics are revised up to three years after their initial publication. The comparison with official statistics in this article must therefore be regarded as a preliminary assessment.

5.1 About the comparison

On the basis of the questions above and the agents' assessments in the cyclical development table, we have compared the following time series from the regional network with relevant official statistics:

- Demand and production over the past three months in manufacturing, the construction sector, retail trade and the corporate and household service sectors.
- Market prospects for the next six months for manufacturing and the construction sector.²
- Investment plans for the next six months for manufacturing, retail trade and services.³
- Employment developments over the past three months and employment plans for the next three months for all sectors.

² The question about market prospects for retail trade and services was included in the interview guide and cyclical development table for the first time in round 1 in 2004. 3 The question about investment plans in the public sector was included in the cyclical development table for the first time in round 3 in 2004.

Box 2: Cyclical development table

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Services	-3 -2 -1 -3 -2 -1 -3 -2 -1 -3 -2 -1 -3 -2 -1 -3 -2 -1	1 0 1 1 0 1 1 1 0 1 1 1 0 1 1 1 0 1	1 2 1 2 1 2 1 2 1 2	3 4 3 4 3 4 3 4 3 4	5 5 5 5	Selling prices - change next 12 months TOTAL (number of firms) Manufacturing for domestic market Export industry
Manufacturing for domestic market	-3 -2 -1 -3 -2 -1 -3 -2 -1 -3 -2 -1	1 0 1	1 2 1 2 1 2	3 4 3 4 3 4	5 5	Selling prices - change next 12 months TOTAL (number of firms) Manufacturing for domestic market Export industry
Manufacturing for domestic market -5 -4 -3 Export industry -5 -4 -3 Construction -5 -4 -3 Retail trade -5 -4 -3 Services for the business sector -5 -4 -3 Profitability - change last 3 months Manufacturing for domestic market -5 -4 -3 Export industry -5 -4 -3 Offshore industry -5 -4 -3 Construction -5 -4 -3 Retail trade -5 -4 -3 Other services -5 -4 -3 Part 2: Output for the firm have difficulty in meeting an unexpected/expected) growth in demand? No difficulty in meeting an unexpected/expected growth in demand? No difficulty in meeting an unexpected for the part of	-3 -2 -1 -3 -2 -1 -3 -2 -1 -3 -2 -1	1 0 1	1 2 1 2	3 4 3 4	5	TOTAL (number of firms) Manufacturing for domestic market Export industry
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Retail trade Services for the business sector Services for households -5 -4 -3 Services for households -5 -4 -3 Profitability - change last 3 months Manufacturing for domestic market Export industry -5 -4 -3 Offshore industry -5 -4 -3 Other services -5 -4 -3 Other services -5 -4 -3 Part 2: Output Ability to meet growth in demand Will the firm have difficulty in meeting an unexpected/expected) growth in demand?) Total	-3 -2 -1 -3 -2 -1	1 0 1			5	Construction
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Manufacturing for domestic market		1 0 1	1 2	3 4	5	Services for households
Manufacturing for domestic market						
Offshore industry Construction Retail trade Other services -5 -4 -3 Other services -5 -4 -3 Other services -5 -4 -3 Other services Part 2: Output Will the firm have difficulty in meeting an unexpected/expected) growth in demand?) Total	-3 -2 -1	1 0	1 2	3 4	5	
Construction	-3 -2 -1		1 2	3 4	5	
Retail trade Other services -5 -4 -3 Part 2: Output Will the firm have difficulty in meeting an unexpected/expected) growth in demand? Numb Total	-3 -2 -1 -3 -2 -1		1 2	3 4	5 5	
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Vill the firm have difficulty in meeting an difficulty in meeting an Numb otal		ity utilisa	ition			
unexpected/expected) growth in demand?) Numb otal	0	Some		Substantia	l	No problems: The firm is operating at well below capacity
otal	ifficulties umber of firms	difficultie Number of		difficulties Number of fire	ne	Some problems: The firm is operating at or close to capacity Considerable problems: The firm is already operating at over capacity
Manufacturing		Trainbor or		varibor or in		
			4			
Construction Retail trade						
Services			1			
						
	Lobe	our mark	ot			
Vill the supply of labour be a limiting factor YES		NO NO	-			
or output/turnover in the event of an						
(unexpected/expected) growth in demand?) Numb	umber of firms	Number of	firms			
Manufacturing						
Construction		-	_			
Retail trade						
Services Public sector						
			-			

In the interviews, questions about recent developments focus on the previous three months. We usually try to capture developments adjusted for seasonal variations. In our comparison with official statistics, we have therefore used seasonally adjusted quarterly figures when available. For some production statistics, however, there are also wide fluctuations in the seasonally adjusted series. We have therefore constructed trend series in order to prevent too much "noise". This means that the seasonal component and irregular components are removed from the series so that only the trend component remains.⁴

Because the time series based on observations from the regional network is short, we have restricted the comparison to two simple methods:

- Graphical comparison: The network series is plotted against relevant official statistics. This provides us with a visual impression of the relationship between series as regards direction, turning points and level.
- Correlation tests: For series based on reliable and comparable data, we have conducted simple correlation tests between pairs of series. Correlation calculations give an indication of whether there is a relationship between the series from the regional network and relevant official statistics. With five rounds each year, we have a total of 14 observations in the network. We have periodised these into 12 quarterly observations. With so few observations, the basis for drawing clear conclusions about the relationship is limited. The following rough scale is used to rank the strength of the correlations:

-1 - 0.8 : Strong

-0.8 - 0.6: Relatively strong

-0.6-0.4: Moderate

-0.4 - 0.2: Weak

-0.2 - 0: None

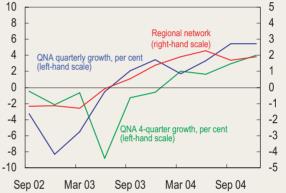
We have calculated the correlation between the series from the regional network and official statistics in the context of leading, simultaneous and lagged correlation. Leading correlation means that the series from the network leads the statistics by one or more quarters (the correlation is highest for the quarter t+n, where t is the quarter in which information is collected from the regional network and n is adjacent quarters, n = 1,2,...,N). Simultaneous correlation means that the series is synchronised (correlation is highest for quarter t). Lagged correlation means that the series from the network trails behind the statistics (correlation is highest for quarter t-n, n = 1,2,...,N).

Table 1. Correlation between results from the regional network in quarter t and figures from the national accounts¹. Demand and production. Quarterly growth, trend series.

		Period	
	t-1	t	t+1
Manufacturing for domestic market	0.87	0.75	0.45
Export industry	0.91	0.90	0.83
Retail trade	0.81	0.63	0.36
Services for the business sector	0.79	0.58	0.37
Services for households	0.74	0.29	-0.05
Construction industry	0.96	0.96	0.88

¹ Manufacturing production is weighted by the share of export deliveries to obtain a division between manufacturing for the domestic market and for the export industry. Production in service industries is weighted by an estimated share of deliveries to the corporate and household sectors respectively.

Chart 1 Demand and production in the export industry, regional network, and manufacturing output in the QNA for export¹. Annualised quarterly growth (trend²) and 4-quarter growth



¹ Each industry in the national accounts is weighted with the share of deliveries to the export market, in order to obtain total export production

Source: Statistics Norway and Norges Bank

5.2 Results

Demand and production

The enterprises in the regional network are asked about growth in demand and production over the past three months compared with the previous three months. We have compared the answers with figures for production in the quarterly national accounts. Since the question is retrospective, we would hope to see high simultaneous correlation between the series. Table 1 shows the result of the correlation calculations, and Chart 1 shows developments in demand and production for the export industry.

Table 1 shows a strong correlation for manufacturing, retail trade and the construction industry. The correlation is also relatively strong for both corporate and household services. The results indicate that the regional network to a large extent captures production developments in mainland industries. The correlations are strongest throughout for t-1, i.e. lagged by one quarter.

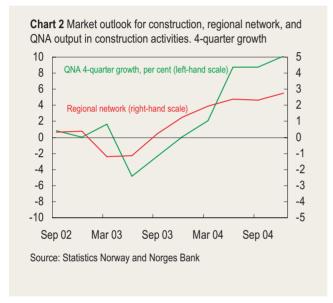
⁴ This is achieved by means of the FAME 9.0 software program.

² Seasonal component and irregular components are removed from the series by means of FAME 9.0 software

Table 2. Correlation between results from the regional network in quarter t and figures from the national accounts¹. Market prospects and investment plans compared with production and investment respectively. Four-quarter growth, unadjusted

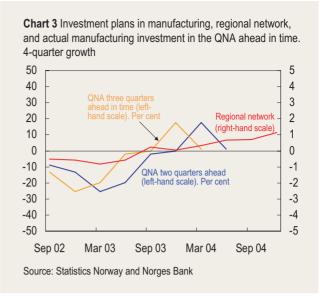
			Period		
	t	t+1	t+2	t+3	t+4
Market prospects:					
Construction industry	0.82	0.96	0.81	-	-
Export industry	0.62	0.76	0.76	-	-
Manufacturing for domestic market	0.51	0.56	0.66	-	-
Investment plans					
Manufacturing	0.05	0.50	0.85	0.71	0.60
Retail trade	0.76	0.90	0.84	0.56	0.28
Services	0.78	0.88	0.75	0.37	-0.04

¹ Manufacturing production is weighted by the share of export deliveries to obtain a division between manufacturing for the domestic market and for the export industry



This is illustrated in Chart 1, where the lowest point in the series from the regional network is reached one quarter after the lowest point in the quarterly national accounts. The lag is probably due to the difficulty some contacts have in estimating seasonally adjusted growth on a quarterly basis, leading them to estimate growth from the same period last year. Four-quarter growth in the series from the national accounts has also been included in Chart 1 and compared with this, the regional network provides leading information.

Due to a shorter processing time for the regional network, it will in most cases provide information about demand and production earlier than the quarterly national accounts, even with a lag of one quarter. It usually takes two months from the collection of data to the publication of the quarterly national accounts. The regional network also collects information more frequently than every quarter, and an indication of developments is thus available before the end of the quarter.



Market prospects and investment plans

Market prospects are covered through questions about expected growth in demand and production six months ahead. We have made a comparison with four-quarter growth in production in the quarterly national accounts for the construction sector and manufacturing. As regards investment, the enterprises in the network are asked about their investment plans (machinery, equipment and buildings) for the next 6-12 months. We compare the series with actual developments in corporate investment in the quarterly national accounts. Since investment plans and market prospects reflect expectations, we would generally want to see high leading correlation between information from the national network and the quarterly national accounts. Table 2 shows the result of the correlation calculations, and Chart 2 shows market prospects and four-quarter growth in production for the construction sector.

As regards market prospects, Table 2 indicates that the network provides information about production developments in both manufacturing and the construction industry one to two quarters ahead. The correlations are strong for the construction industry and relatively strong for manufacturing. Chart 2 illustrates the close relationship. The results are reinforced by the fact that the level of activity in these industries has shown both decline and growth in the course of the period.

Investment developments are often a difficult variable to capture in surveys such as the regional network survey. Figures in the official statistics vary widely and individual enterprises have a considerable impact. It can also be difficult for the interviewees to distinguish investments from ongoing operating costs. In Chart 3, which shows investment plans (regional network) and developments in manufacturing investment (quarterly national accounts), we see that movements in actual investment are somewhat larger than in the network series. The chart also indicates that the network captures

Table 3. Correlation between results from the regional network in quarter t and figures from the national accounts. Employment. Quarterly growth. Seasonally adjusted.

		Period	
	t-1	t	t+1
Manufacturing	0.85	0.90	0.95
Construction industry	0.94	0.71	0.39
Retail trade	0.37	0.63	0.66
Services	0.70	0.84	0.58
Public sector ¹	0.26	040	0.04

Health and social services and education. Excluding public administration

Chart 4 Employment in services, regional network, and personhours in service industries¹ in the QNA, seasonally adjusted. Quarterly growth and 4-quarter growth



¹ All service industries except pipeline transport, shipping and public sector services Source: Statistics Norway and Norges Bank

whether investment is falling or rising, and also to some extent the turning points in investment developments. The correlations in Table 2 show that the network provides leading information about developments in fixed investment in the corporate sector, even though the correlations are generally stronger one to two quarters ahead than three to four quarters ahead (and the question put to the enterprises is in fact about the latter).

Employment

Up to round 1 in 2005, the contacts were asked about employment developments over the previous three months and plans for the next three months. The answers were weighted into one indicator, with 50 per cent weight on each of the three-month periods. With this combination of retrospective and forward-looking focus, we would want to see high simultaneous or leading correlation between information from the regional network and the quarterly national accounts. A comparison has been made with seasonally adjusted personhours worked. Table 3 shows the result of the correlation calculations, and Chart 4 shows employment developments for service industries as captured by the regional network and the quarterly national accounts.

The results indicate that the regional network to a large extent captures employment developments in the private sector and provides information earlier than the quarterly national accounts. Table 3 shows that simultaneous correlation is strong for manufacturing and private services. It is also relatively strong for the construction sector and retail trade. Chart 4 shows that the regional network so far has been accurate in capturing employment developments in private services as regards level, direction and turning point.

For the local government and health sector, however, the correlations are weak. This sector has consistently reported plans to reduce employment to our regional network, but these plans do not seem to have been implemented. We expect higher correlation ahead, since as from round 1 in 2005 the employment issue has been split into two and been assigned two indicators: one for developments in the past three months and one for plans for the next three months.

6 Summary

For the past two years, the regional network has provided a considerable amount of detailed information about enterprises and organisations all over the country. A comparison with official statistics indicates that the network provides both accurate and early signals about developments in key economic variables such as production, employment and investment. The analysis can be updated as the number of observations from the regional network increases. This will increase the validity of the results. A greater number of observations will also make it possible to compare information about developments in nominal variables such as prices, wages and profitability with official statistics.

In conclusion, we would like to emphasise that the value of Norges Bank's regional network goes beyond a simple quantification of developments in the Norwegian economy. The network provides valuable information that can be used in projections, reports and speeches, which we hope will lead to more varied and insightful communication. The value in this area is, however, difficult to quantify.