

ECONOMIC COMMENTARIES

The fall in oil prices and the labour market

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EVEN C. HVINDEN
AND EINAR W.
NORDBØ

The views expressed in this commentary are those of the authors and do not necessarily reflect those of Norges Bank



NORGES BANK

The fall in oil prices and the labour market

By Even C. Hvinden and Einar W. Nordbø¹

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THE FALL IN OIL PRICES
AND THE LABOUR MARKET

The fall in oil prices since summer 2014 has dampened economic growth and led to higher unemployment in Norway. There are strong indications that the current decline experienced by oil-related firms in Norway will not be a temporary setback, but part of a permanent adjustment to a lower level of activity. If so, many of the workers who were previously employed in the oil industry will have to move to other industries. Such a situation could lead to an increase in labour market mismatch. So far, however, there is no clear evidence that this has occurred in Norway. At the same time, as many countries have experienced, employment can fall permanently after economic downturns, with unemployment becoming entrenched at a higher level or with high rates of drop out from the labour force. Previous downturns in Norway have led to substantial labour force withdrawal.

1 Introduction

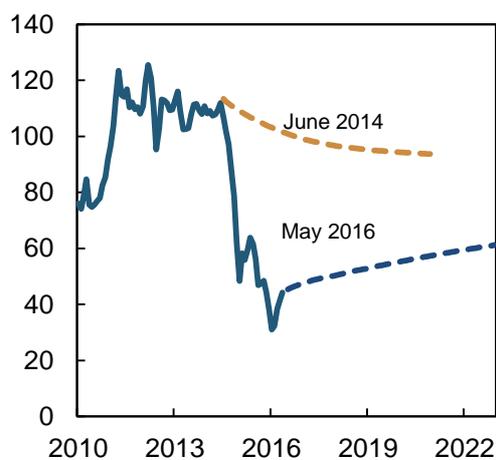
The fall in oil prices since 2014 has dampened economic growth and led to higher unemployment in Norway. Furthermore, low oil prices are expected to persist (Chart 1). If so, the current decline experienced by oil-related firms in Norway may also persist. In the Revised National Budget for 2016, demand from the oil industry is expected to fall from 13 percent of mainland GDP in 2013 to 9 percent in 2018 and continue to decline gradually to 7½ percent in 2030 (Chart 2). In the event, the oil industry will not provide the basis for as many as 1 in 9 jobs in Norway, as it did in 2014.² Workers made redundant by cutbacks will eventually have to find work in other sectors.

When some industries are rapidly scaled back and redundant workers have to find jobs in other industries, labour market mismatch may increase. This means that despite high numbers of unemployed workers, employers nevertheless find it difficult to recruit new workers. There may be several reasons for this: unemployed workers may not have the right qualifications – for example if there is high unemployment among engineers, but high demand for doctors and nurses. If unemployed workers are reluctant to relocate, the mismatch can also be regional – unemployment is high in some parts of the country, while the job vacancies are somewhere else.

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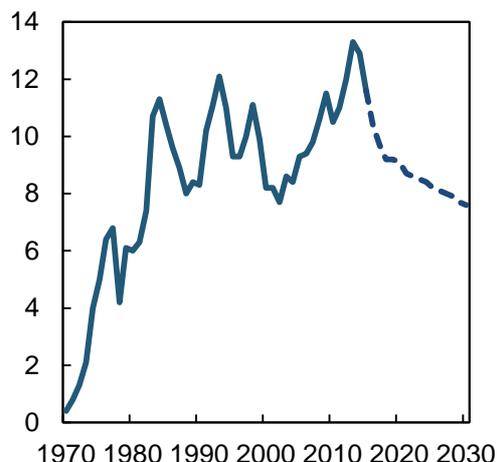
² A total of around 300 000 jobs (see Nordbø and Stensland, 2015).

Chart 1 Oil prices. Spot and futures. USD per barrel



Source: Thomson Reuters

Chart 2 Demand from oil industry. As a percentage of mainland GDP



Source: Ministry of Finance (RNB 2016)

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At the same time, as many other countries have experienced, employment can fall to a permanently lower level after economic downturns, with unemployment becoming entrenched at a higher level or with high rates of labour force withdrawal. In the literature, this is often referred to as hysteresis (see Blanchard and Summers, 1986). One mechanism generating this effect could be that workers who remain jobless lose their skills and that this loss increases the longer the jobless period lasts.

To what extent these factors occur in the labour market has implications for the orientation of economic policy. If the challenge is that unemployed workers do not have the skills employers want, retraining measures will presumably be more effective than countercyclical policy. In countries where hysteresis mechanisms are strong, there may still be good reason to conduct a policy that supports employment in the short term. Such a policy may delay necessary restructuring, but this risk must be weighed against the risk that a long period of low employment will result in persistently low employment.

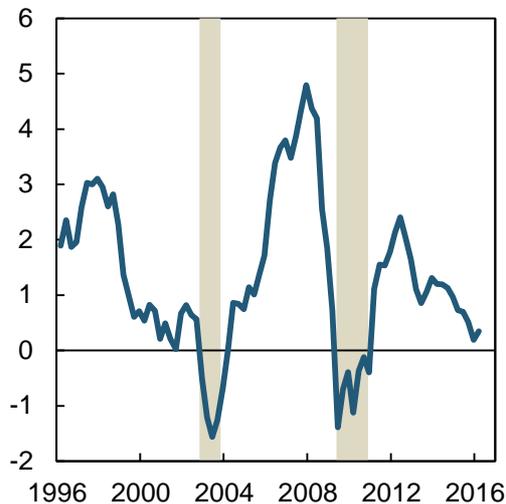
In this commentary, we discuss the situation in the Norwegian labour market with an emphasis on these issues. Before we discuss the two phenomena mismatch and hysteresis, we will provide a brief overview of trends in recent years.

2 Recent developments

Employment growth in the Norwegian economy has slowed in the wake of the fall in oil prices, but in contrast to the downturns in 2002-03 and in 2008-09, a fall in employment has so far been avoided (Chart 3). According to national

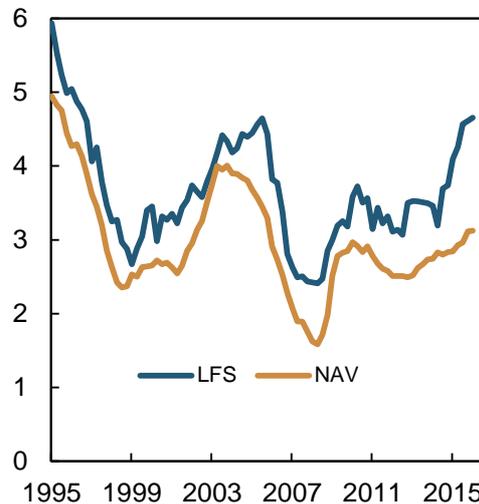
accounts figures, employment rose by 10 000 persons in 2016 Q1 compared with the same quarter in 2015, an increase of 0.3 percent.

Chart 3 Employment. Four-quarter change. Percent



Source: Statistics Norway

Chart 4 Unemployment rate. Percent



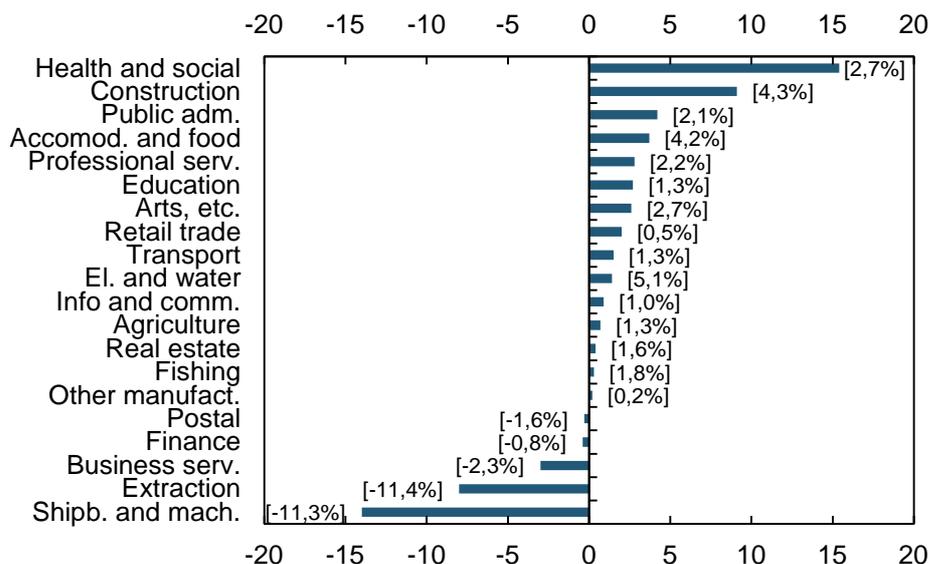
Source: NAV and Statistics Norway

The slowdown in employment growth has been driven by the fall in employment in some industries (Chart 5). In oil and gas extraction, including oil services, and in shipbuilding and machinery, a total of 22 000 jobs have been eliminated since summer 2014.³ Net employment in Norway nonetheless grew by 23 000 in the same period. This is primarily due to a rise in the number employed in health and social services and in construction, although employment has risen in most mainland industries. Electricity and water supply, construction, and hotel and restaurant have shown the strongest rise in percentage terms since 2014 Q2.

Lower employment growth is reflected in rising unemployment, but the two official measures of unemployment in Norway give different answers to the question of how much unemployment has increased (Chart 4). Both unemployment as measured by the Norwegian Labour and Welfare Administration (NAV) and in the Labour Force Survey produced by Statistics Norway (LFS) has recently been higher than during the financial crisis, but LFS unemployment has shown by far the strongest rise. LFS unemployment has not been as high since the 1990s. NAV-registered unemployment is still lower than it was in connection with the downturn in 2002 and 2003.

³ Value added in the shipbuilding and machinery industry is to a great extent related to the supply of goods and services to the oil industry, see Blix Prestmo, Strøm and Midsem (2015) and Nordbø and Stensland (2015).

Chart 5 Change in employment since 2014 Q2. Seasonally adjusted. In 1000s. [Percentage change]

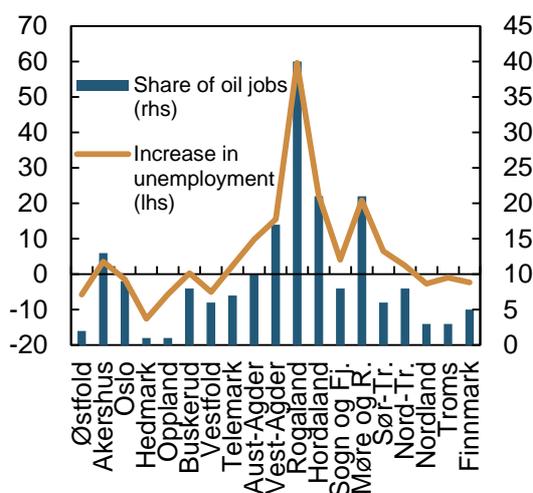


Source: Statistics Norway

NAV statistics show that unemployment developments have differed widely across Norway. Unemployment has increased markedly in the south and west of Norway, but has been fairly stable in the rest of the country. The strongest increase in unemployment in 2015 was in the county of Rogaland, followed by the Hordaland, Møre og Romsdal and Vest-Agder counties (Chart 6), reflecting the strong oil sector orientation of industries in these counties. According to Blomgren et al. (2015), as many as 2 in 5 jobs in Rogaland were related to oil activities in 2014. The share of oil jobs was also relatively high in the other three counties showing a particularly strong rise in unemployment (Chart 6). Apart from these counties, unemployment in 8 of Norway's 19 counties was lower in 2015 than in 2014, and the decrease in unemployment was most pronounced in the three counties with the lowest share of oil jobs – Hedmark, Oppland and Østfold.

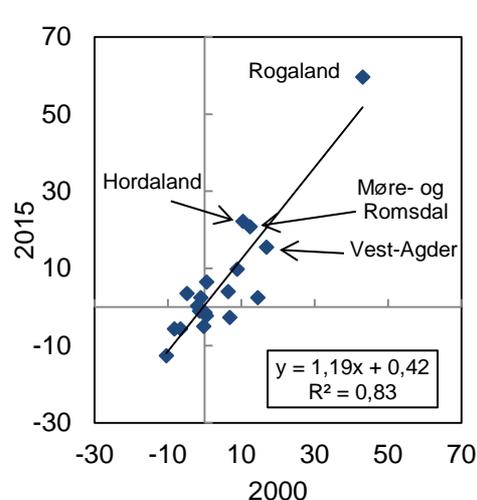
There are clear similarities between recent unemployment developments and the situation towards the end of the 1990s, when demand from the oil sector also fell markedly (Chart 2). Investment on the Norwegian continental shelf declined by 30 percent between 1998 and 2000. Unemployment rose in particular in Rogaland, although neighbouring counties also experienced rising unemployment. Unemployment developments were more stable in the rest of the country. The close similarity in regional developments between the late 1990s and now is illustrated in Chart 7.

Chart 6 Share of oil jobs and rise in unemployment in 2015. Percent



Source: Blomgren et al. (2015) and NAV

Chart 7 Change in unemployment by county. In 2000 and in 2015. Percent



Source: NAV

3 Labour market mismatch

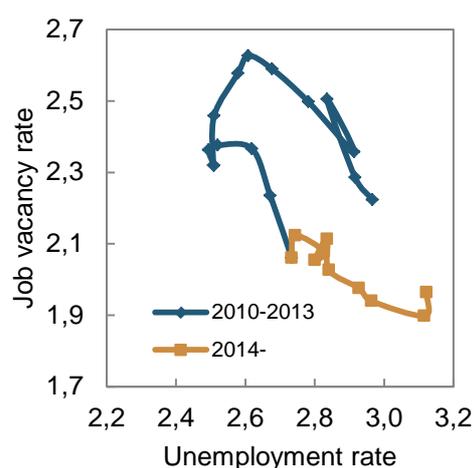
In an economy, a certain share of the labour force will always be unemployed. In the theoretical literature, the main explanation is that matching job-seekers to employers is a resource-intensive process (see, for example, Mortensen and Pissarides, 1999). Unemployment will vary with the business cycle, but unless changes occur that influence the underlying search process, it is assumed that unemployment will over time return to the long-term average.

Among the factors affecting the efficiency of the search and matching process is the degree of labour market mismatch. Shimer (2007) formalises this idea by assuming that the labour market actually consists of a large number of smaller labour markets. Segmentation can be regional or between industries, occupations or skills – or a combination of these. There are costs involved in searching for a job in each market, but the costs of finding a job in another market are assumed to be substantially higher than searching in the job-seeker’s original market. This may be because the job-seeker is reluctant to relocate, for example, or that the job-seeker’s skills are specific to one particular industry.

In a situation where the fall in labour demand is concentrated in some market segments, the costs of moving to another market may contribute to higher total unemployment than would otherwise have been the case. The benchmark here is an imagined situation without such mobility costs. In Şahin, Song, Topa and Violante (2014), the difference between actual unemployment and the unemployment that would have been realised in the absence of mobility costs is termed mismatch unemployment.

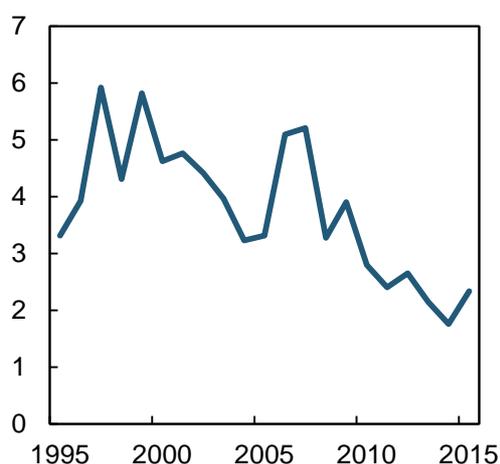
The question of whether the high level of unemployment following the financial crisis is the result of labour market mismatch and other more persistent developments has been widely discussed in recent years (see also, in addition to Şahin et al., 2014, studies such as Lazear and Spletzer, 2012, Daly, Hobijn, Şahin and Valletta, 2012, Levine, 2013, and Arpaia, Kiss and Turrini, 2014). An important indicator in these studies is the so-called Beveridge curve⁴, which shows the relationship between unemployment and job vacancies. In many countries, this relationship has been stable over time: high unemployment has been accompanied by a few vacancies and low unemployment by many vacancies. An outward shift in the Beveridge curve is a typical warning signal – i.e. unemployment increases without a decrease in vacancies. An increase in labour market mismatch is one of the factors that can generate an outward shift in the Beveridge curve.

Chart 8 Beveridge curve. Job vacancies and unemployed. Percent



Sources: NAV and Statistics Norway

Chart 9 Divergence in employment growth. Percent. 20 industries. Weighted standard deviation



Source: Statistics Norway

Chart 8 shows a Beveridge curve for Norway. The curve is based on NAV figures for the fully unemployed and Statistics Norway's statistics for job vacancies. The latter statistics start in 2010. It thus only covers a period of fairly limited business cycle fluctuations in Norway. It is therefore difficult to assess how stable the relationship between unemployment and vacancies has been over time in Norway.⁵ Nonetheless, recent developments have been as

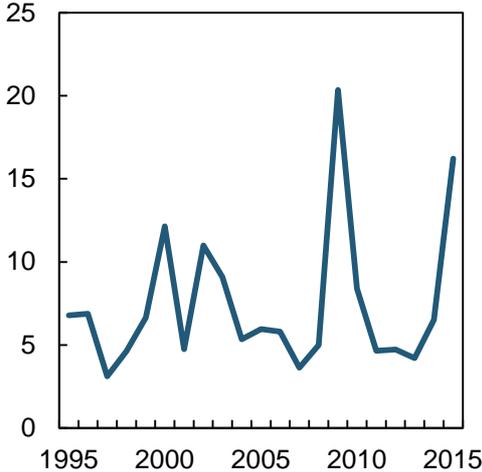
⁴ For an overview of theoretical and empirical studies about the Beveridge curve, see for example Elsby, Michaels and Ratner (2015).

⁵ Job vacancy figures were previously published by NAV, but this was discontinued in 2012. The statistics were based on job vacancy adverts recorded by NAV, but changes in data collection and in the recruiting platforms used by firms make it difficult to compare these statistics with Statistics Norway's job vacancy figures, which are based on surveys of firms.

would be expected in a demand-driven downturn. The increase in unemployment has been accompanied by a decline in the number of vacancies.

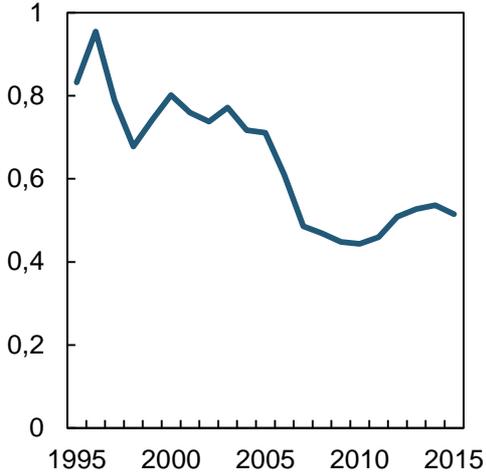
If finding a job in a new industry involves substantial costs, the divergence in employment growth across industries can be an indicator of the degree of labour market mismatch. This indicator has been used by for example Valetta and Kuang (2010). Chart 9 shows divergence in employment growth across 20 national accounts industries in Norway. Even though this divergence increased somewhat from 2014 to 2015, it remained at a relatively low level. This was because of fairly stable employment growth in most industries except the oil sector and the main oil service industries. No industry has shown particularly strong employment growth. Historical developments also indicate that the widest divergence across industries in Norway has occurred during upturns.

Chart 10 Divergence in change in unemployment rate across counties. Percent. Weighted standard deviation



Source: Statistics Norway

Chart 11 Divergence in level of unemployment across counties. Percentage points. Weighted standard deviation



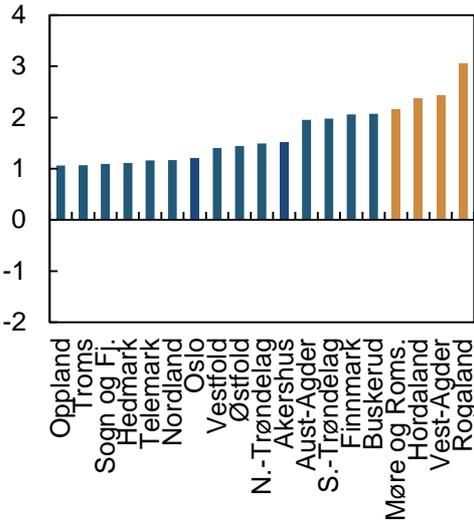
Source: Statistics Norway

Valetta and Kuang (2010) also examine regional labour market differences. Measured by the annual *change* in the unemployment rate in Norway’s 19 counties, differences across counties widened markedly in 2015 (Chart 10). But regional divergence was even higher in 2009, during the financial crisis.⁶ Regional divergence in unemployment also increased in connection with the downturn in the early 2000s. This illustrates that it is not unusual for economic downturns to have different effects across counties. At the same time, there was no appreciable increase in unemployment divergence across counties

⁶ Although total registered unemployment showed a far stronger increase in 2009, there was considerable divergence across counties. Rogaland experienced the sharpest increase in unemployment, with a rise of more than 90 percent, while unemployment in the northernmost county, Finnmark, rose by just over 10 percent.

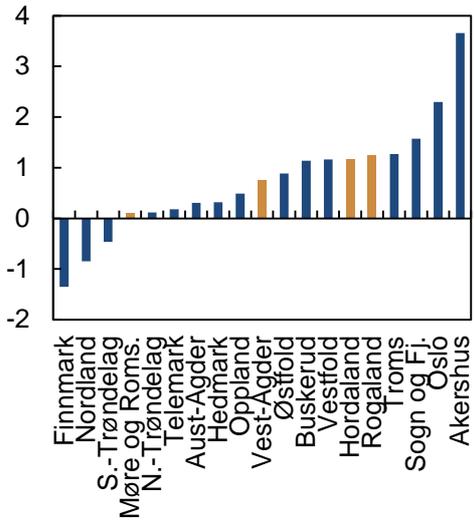
through 2015 measured by the *level* of unemployment (Chart 11) as unemployment was relatively low to begin with in the counties with a particularly sharp rise in unemployment. This applies not least to Rogaland, which had the lowest unemployment rate in 2012 and 2013, but has had the highest rate in the country in recent months.

Chart 12 Annual employment growth by county. Average 2003–2013. Percent



Source: Statistics Norway

Chart 13 Annual employment growth by county. Average 1995–2003. Percent



Source: Statistics Norway

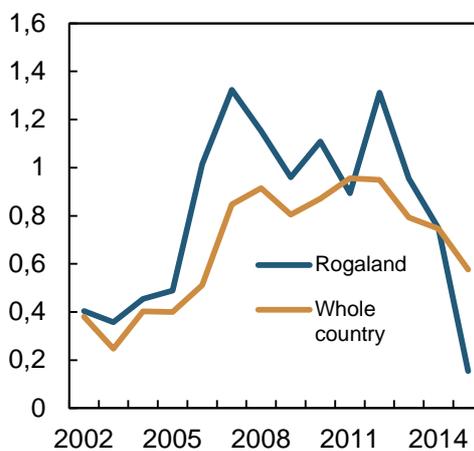
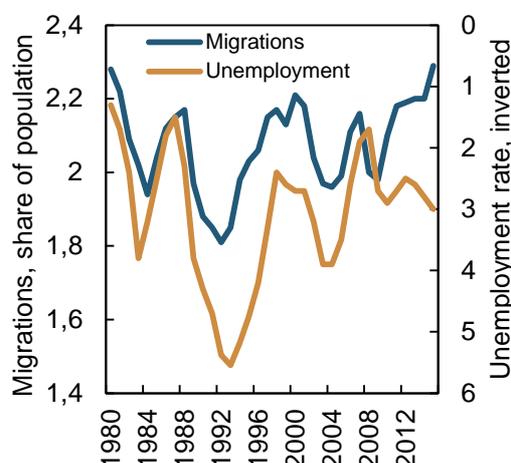
In sum, these indicators do not give clear signals of increased mismatch in the Norwegian labour market. It is nevertheless too early to conclude that the fall in oil prices will not lead to mismatch problems. The question is what will happen when labour demand picks up again. The four counties that experienced the highest increase in unemployment in 2015 also showed the strongest growth in employment during the more or less continuous oil boom from 2003 to 2013 (Chart 12). Job growth in these counties will probably not be as strong ahead. In comparison, Oslo and Akershus were clearly ahead of the other counties in job growth between 1995 and 2003 (Chart 13).

Unemployment will probably be reduced more rapidly if some of the unemployed in the worst affected counties relocate to other areas. From this point of view, the fact that the share of the population that moved to another county in 2015 was the highest since the 1970s is a positive trend (Chart 14). Net migration by county declined most in Rogaland compared with the previous year (Chart 15). Normally, internal migration decreases when

unemployment rises, but in recent years inter-county migration has picked up despite an increase in unemployment (Chart 14).⁷

Chart 14 Inter-county migration and unemployment. Percent

Chart 15 Net migration as a share of the population. Percent



Sources: NAV and Statistics Norway

Source: Statistics Norway

4 Hysteresis

The term hysteresis came into use in economics in the 1980s to refer to the marked and persistent increase in unemployment in a number of European countries in the 1970s and 1980s (see Blanchard and Summers, 1986). The rise in unemployment that followed in the wake of the financial crisis has brought renewed focus on these issues (see for example Ball, 2009, Ball, 2014, and Gali, 2015).

Hysteresis embodies the idea that the long-term level of unemployment in an economy is not determined solely by underlying economic structures, as assumed in many theoretical studies, but is also a function of actual developments in unemployment. A period of high unemployment can thereby lead to a persistently higher unemployment rate.

A number of mechanisms can give rise to hysteresis. Blanchard and Summers (1986) emphasised unions that do not give sufficient weight to non-members that are unemployed in the wage negotiations, but hysteresis can also occur through the detrimental effects of unemployment itself. In a period of

⁷ This may partly be explained by the marked increase in the share of immigrant workers in the labour force in Norway in recent years and their greater mobility compared with Norwegian-born workers. Røed and Schøne (2012) found that people who migrate to Norway have a tendency, when they migrate internally, to move to where unemployment is low and wage levels are high. They did not find a similar systematic internal migration pattern for Norwegians.

unemployment, skills may be lost, making it increasingly difficult to be reemployed (see for example Pissarides, 1992). And even if the loss of skills is limited in real terms, the consequences may be the same if employers are less inclined to employ the long-term unemployed because they assume that job-seekers' skills have atrophied or because they view long-term unemployment in a job-seeker as an indication of low productivity.⁸

After a long, but unsuccessful, search for a job, job-seekers may become discouraged and some may eventually give up. They will then no longer be classified as unemployed in the official labour market statistics, but as outside the labour force. In the literature, hysteresis has mainly been used to refer to persistent changes in unemployment as a result of economic downturns, but if those downturns lead to permanent withdrawals from the labour force, this could also reasonably be regarded as hysteresis.⁹

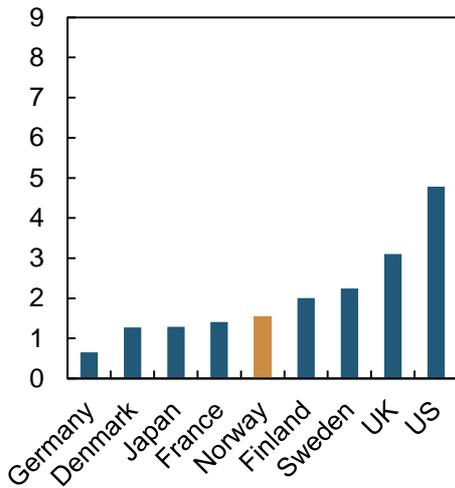
Comparing with the situation in the 1960s, Norway has also experienced rising unemployment, but the increase has been far more modest than in other European countries (Charts 16 and 17). In isolation, this may imply that hysteresis has not been a major problem in Norway. At the same time, large numbers have exited the labour force, not least in connection with the marked downturn around 1990 when employment fell for five consecutive years. The level of employment never reverted to the trend in the 1970s and 1980s (Chart 18). Strong growth in employment in the 1970s and 1980s was related to women's entry into the labour force, and developments would probably have gradually levelled off in any case. But it is difficult to exclude that the pronounced downturn around 1990 had negative long-term effects.

This is also illustrated in Chart 19, which shows labour market attachment for men in the age group 25–54, which traditionally has the highest labour force participation rate. In recent years, the share of this group that is outside the labour force has been about twice as high as in the 1980s, and the withdrawal has occurred in periods of rising or high unemployment. When unemployment has fallen, the share of this group that is outside the labour force has edged down again, but the decrease has consistently been smaller than the preceding increase. In recent years, 1 in 9 men in this age group have been outside the labour force.

⁸ This is often referred to in the literature as scarring. Kroft, Lange and Notowidigdo (2013) study this phenomenon through a field experiment using US data. Eriksson and Rooth (2014) conduct a similar study using Swedish data.

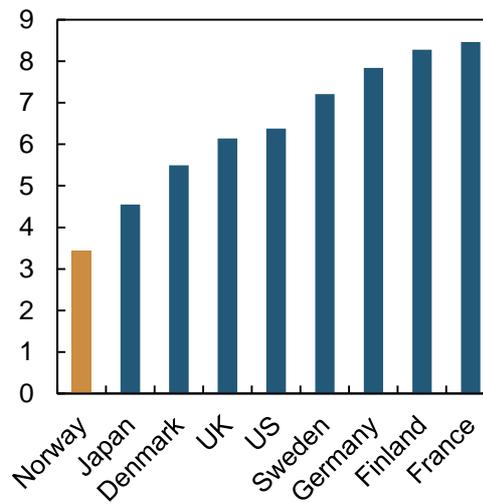
⁹ For international studies finding that job loss leads to withdrawal from the labour force, see for example Tatsiramos (2007) and Duval, Eris and Furceri (2008).

Chart 16 Average unemployment. Percent. 1960–69



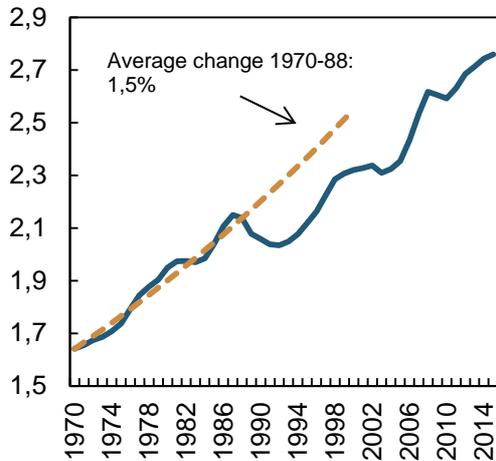
Source: OECD

Chart 17 Average unemployment. Percent. 2000–14



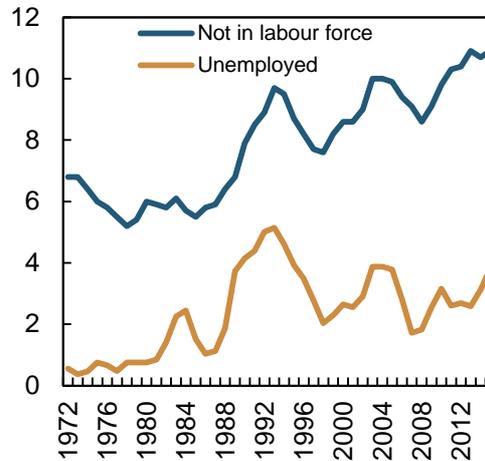
Source: OECD

Chart 18 Number of employed. In millions



Source: Statistics Norway

Chart 19 Share of men aged 25–54 by labour market status. Percent

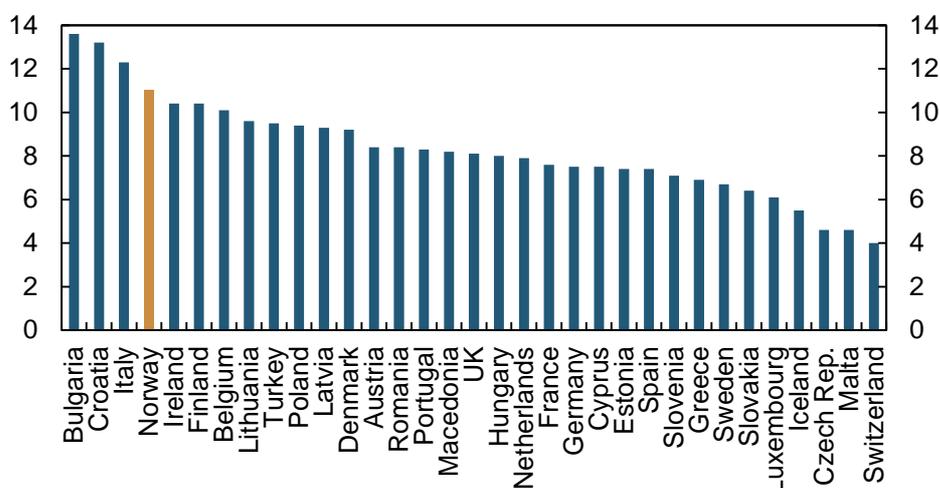


Source: Statistics Norway

To the extent hysteresis has been a real problem in the Norwegian labour market, it seems to have mainly occurred in the form of withdrawal from the labour force. At the same time, we do not know whether the economic downturns are the real cause of the decline in labour force participation among men aged 25–54. Labour market withdrawal in this group might have been as high even if economic developments over time had been smoother. The share of this group that is outside the labour force has increased in a number of

countries, but there are very few European countries where this share is higher than in Norway (Chart 20).¹⁰

Chart 20 Share of inactive men aged 25–54, 2015. Percent



Source: Eurostat

A number of studies using Norwegian registry data have shown that the mechanisms which lead to withdrawal from the labour force can be strong. Bratsberg, Fevang and Røed (2013), for example, find that the likelihood of dropping out of the labour force is approximately twice as high for workers made redundant. Many end up as disability benefit recipients. The effects of losing a job are more negative in a situation of generally high unemployment. Similar findings are reported in Huttunen, Møen and Salvanes (2011) and Rege, Telle and Votruba (2009).

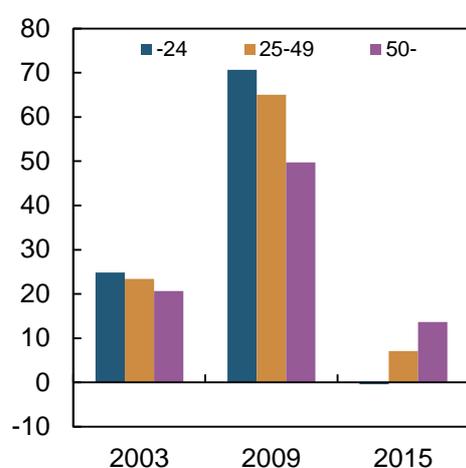
The above studies point out that the likelihood of dropping out of the labour force following job loss is higher for older workers and for low-skilled workers. In terms of the risk of exit, the fact that unemployment increased most through 2015 for workers over 50 years of age was a negative trend (Chart 21). The fact that a relatively large share of those who became unemployed (Chart 22) had higher education may reduce the overall risk of exit.

Other studies using Norwegian data have shown that job loss can have a negative effect on health (see for example Black, Devereux and Salvanes, 2015), which is in line with the premise that unemployment may have detrimental effects. Dagsvik, Kornstad and Skjerpen (2013) identify discouragement as an important reason for withdrawal from the Norwegian

¹⁰ In most of these countries, unemployment is significantly higher than in Norway. Only Iceland recorded lower unemployment than Norway in 2015. At the same time, the employment rate among men in the 25–54 age group was higher than in Norway in 14 out of 33 European countries.

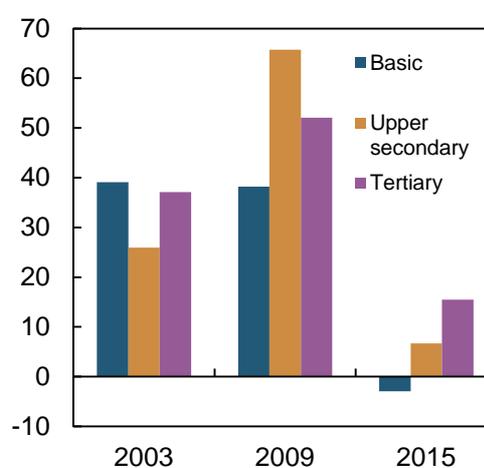
labour force. Raaum and Røed (2006) find that a cohort that experienced higher unemployment in the years they normally complete lower and upper secondary school also had a higher unemployment rate as adults.¹¹ Liu, Salvanes and Sørensen (2016) show that those who complete higher education during a downturn experience both persistently higher unemployment and lower wages later in their careers. Having to settle for jobs where their skills are under-utilised is identified as an important reason why they lag behind. In sum, the results of these studies illustrate that the costs of economic downturns can extend far beyond the immediate loss in output.

Chart 21 Change in unemployment by age. Percent



Source: NAV

Chart 22 Change in unemployment by level of education. Percent



Source: NAV

5 Summary

This commentary discusses whether the fall in oil prices has increased mismatch in the Norwegian labour market and to what extent the labour market is affected by hysteresis. Both of these factors may contribute to lower employment over time, but have different policy implications. Mismatch means that employers struggle to recruit staff despite high unemployment, for example because job-seekers do not possess the right skills. An expansionary monetary or fiscal policy will have limited scope to resolve the underlying challenges in this context.

The picture changes if the labour market is characterised by hysteresis, i.e. that a period of low employment in itself may lead to lower employment in the long term. One mechanism generating hysteresis may be the detrimental effects of

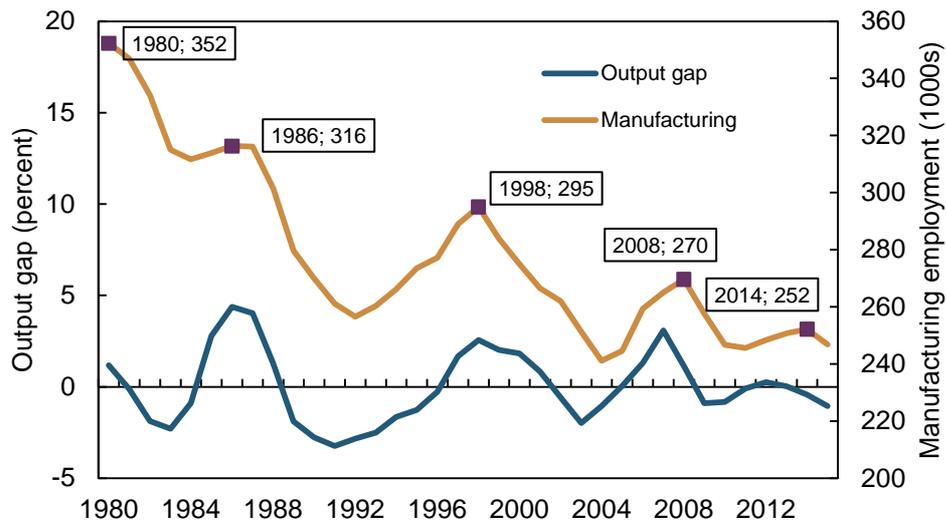
¹¹ For similar experiences in the German and US labour markets, see Stevens (2008), Kahn (2010) and Oreopoulos, von Wachter and Andrew (2012).

remaining jobless for a long period, which make it increasingly difficult to return to working life. In this case, policy measures to curb the short-term decline in employment could also result in substantial gains in the longer term (see also Gali, 2015).

Our review of the relevant indicators for the Norwegian labour market has not provided clear evidence that the current level of mismatch is abnormally high, but it is too early to conclude that the fall in oil prices will not lead to mismatch problems. At the same time, employment has fallen on a permanent basis following previous economic downturns. In contrast to many other countries, unemployment in Norway has remained relatively low, but there has been substantial labour market withdrawal. Several studies using Norwegian registry data have shown that many of those made redundant eventually drop out of the labour force. This indicates that hysteresis mechanisms may have been relatively strong in the Norwegian labour market.

Recently, employment has fallen primarily in oil-related manufacturing. Redundant workers will probably have to find new jobs in other industries. Somewhat higher unemployment is difficult to avoid in a period of restructuring. At the same time, the elimination of manufacturing jobs is not a new trend in the Norwegian economy. Since the end of the 1970s, all downturns have been accompanied by a marked and persistent fall in manufacturing employment (Chart 23). From 1998 to 2004, for example, over 50 000 jobs were lost in manufacturing. Although employment picked up somewhat up to 2008, there were 25 000 fewer employees in manufacturing than ten years earlier. By comparison, manufacturing employment has so far fallen by 14 000 since summer 2014. This illustrates that also previous downturns in the Norwegian economy have been characterised by substantial restructuring.

Chart 23 Manufacturing employment and output gap



Sources: Statistics Norway and Norges Bank

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