

# ECONOMIC COMMENTARIES

## How many are unemployed?

NO. 9 | 2016

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NORGES BANK

# How many are unemployed?

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HOW MANY ARE

UNEMPLOYED?

*The gap between the official unemployment measures in Norway has recently been unusually wide. In this commentary, we discuss possible explanations for this gap. Part of the difference can be attributed to the fact that the Labour Force Survey (LFS) has captured a marked rise in youth unemployment, a group that is less inclined to register at the Norwegian Welfare and Labour Administration (NAV), but besides that we do not find a full explanation of the gap. In the light of other information and historical relationships in Norway, the development in NAV unemployment appears fairly likely. As the LFS is a sample survey, there will always be a measure of uncertainty associated with the figures. At the same time, the threshold for being counted as unemployed is in practice somewhat lower in the LFS than in NAV.*

## 1 Introduction

In Norway, both Statistics Norway and NAV publish unemployment data. Statistics Norway's unemployment figures are based on the LFS, which is a questionnaire conducted among a sample population aged between 15 and 74 years. The LFS is designed according to international standards, and is therefore the statistic for use in comparisons of unemployment across countries. At the same time, the LFS is the only statistic that provides a complete picture of the population in terms of labour market status.

NAV's unemployment figures are based on how many persons are registered as job seekers at NAV offices at the end of each month. While LFS figures are estimated on the basis of a sample of 24 000 persons, whom are all contacted once a quarter, NAV unemployment represents a full count. NAV unemployment has shown smaller short-term fluctuations than LFS unemployment, most likely because there is no sample uncertainty linked to NAV unemployment. NAV unemployment has therefore been a useful cyclical indicator.

At the same time, there is little doubt that NAV underestimates actual unemployment. Not all job seekers register with NAV and renew registration every 14<sup>th</sup> day as is required to be included in the NAV figures. This applies not least to students seeking part-time work or a summer job. They are counted as unemployed in the LFS, but will be captured to a limited extent by NAV. As

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<sup>1</sup> The views and conclusions in this publication are those of the author and are not necessarily shared by Norges Bank. They should not therefore be reported as Norges Bank's views. The author thanks Kåre Hagelund, Andreas Hodne, Per Espen Lilleås, Nina Larsson Midthjell and Ida Wolden Bache for valuable input. Any errors or omissions are the sole responsibility of the author.

a result, NAV has systematically shown lower unemployment than the LFS, but developments in the two unemployment statistics have nevertheless been fairly similar over time.

This pattern has, however, been broken recently (Chart 1). On average, LFS unemployment has been 0.7 percentage point higher than NAV unemployment, but since summer 2015 the gap has been at least twice as wide. In July this year, the number of unemployed was 139 000, ie an unemployment rate of 5.0 percent, according to the LFS. According to NAV, the unemployment rate was 3.0 percent in the same month, bringing the difference between the number of unemployed to 56 000 persons.

In this commentary, we take a closer look at the gap. Among other things, we compare developments in LFS and NAV unemployment for different sub-groups. Unemployment developments are also considered in the light of other information, followed by an assessment of some possible explanations that have been advanced. First, however, we provide some background information on the LFS and NAV in the following section.

Chart 1 Unemployment. Percent

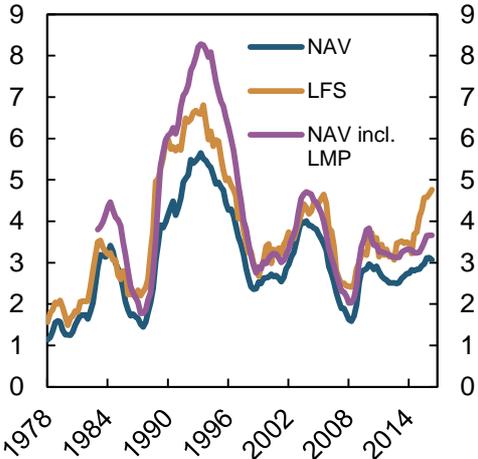
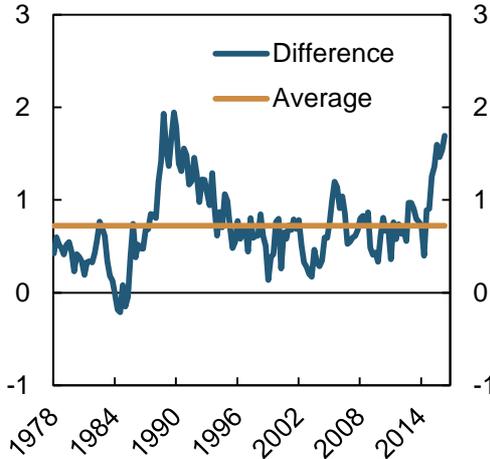


Chart 2 Difference between LFS and NAV. Percentage points



Sources: NAV and Statistics Norway

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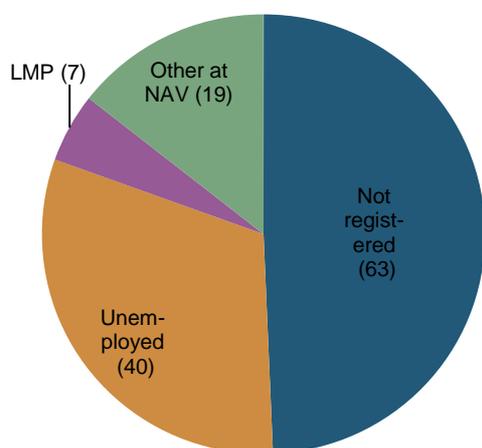
**2 More about the LFS and NAV**

Even if the LFS and NAV measure unemployment using different methods, they should in principle both produce estimates for the number of persons who are without work, actively seeking work and available to start work within a short period. As noted, the LFS captures more unemployed than NAV, but the difference has been fairly systematic. In the 20 years between 1995 and 2014, for example, the gap between these two measures of unemployment was

consistently one percentage point or less – with the exception of two quarters in 2005.

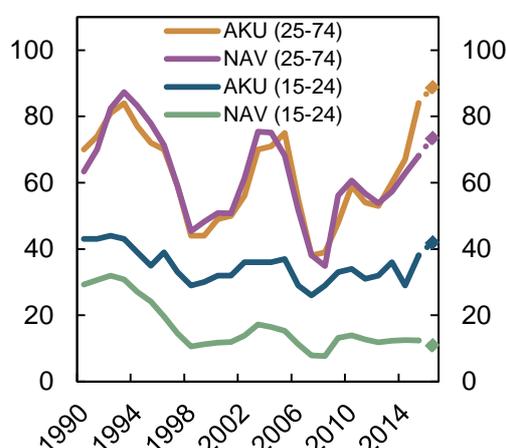
The gap between the two measures has only been as wide as recently in the period around 1990 (Chart 2). At that time, there were a substantial number of job seekers participating in labour market programmes (LMPs) with NAV and experience shows that some of them answer questions in a way that entailed being counted as unemployed in the LFS. In the past few years, LFS unemployment has also risen considerably more than NAV unemployment including persons participating in ordinary labour market programmes (Chart 1).

Chart 3 LFS unemployment by status at NAV. Average for the latest four quarters (In 1000s)



Sources: NAV and Statistics Norway

Chart 4 Unemployment by age. In 1000s<sup>2</sup>



Sources: NAV and Statistics Norway

Given the relatively similar developments in the two measures of unemployment, one might expect a high degree of accordance between the two measures in terms of who is counted as unemployed in the two statistics, but this is not indicated by register-based comparisons by Statistics Norway. It should be noted that there is some uncertainty related to these comparisons. LFS and NAV unemployment are measured on different dates, between which some people may have changed their labour market status.<sup>3</sup> At the same time, the comparisons have typically been made in situations where the difference between the LFS and NAV measures has been considerable. Figures for the past four quarters nevertheless show that just under one third of LFS unemployed were counted as fully unemployed by NAV (Chart 3).

<sup>2</sup> The figures for 2016 are based on the average of seasonally adjusted figures up to June 2016.

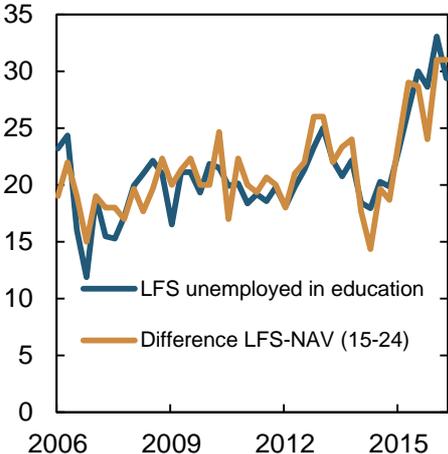
<sup>3</sup> NAV unemployment is measured at the end of the month, while LFS interviews are conducted continuously– but each respondent is only interviewed once a quarter.

Approximately half of LFS unemployed were not registered at NAV at all. Around one fifth of the LFS unemployed were registered in other NAV programmes. Some were registered as job seekers participating in labour market programmes, while the rest were programme participants found by NAV to have reduced work ability.<sup>4</sup>

### 3 Recent developments

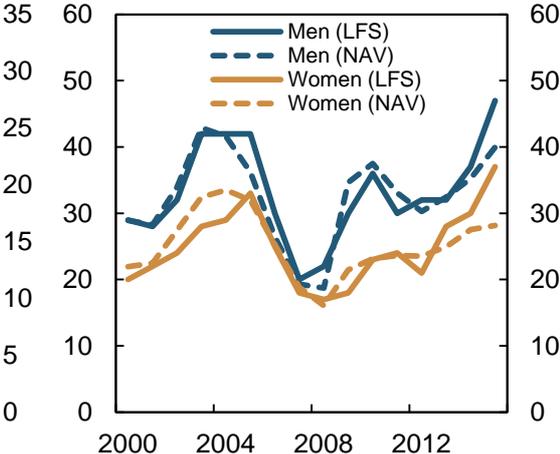
As mentioned, youth are likely to represent a considerable share of the LFS unemployed who are not registered in the NAV system. Chart 4 illustrates that the systematic difference between LFS and NAV unemployment is largely attributable to the fact that the LFS captures a far greater number of unemployed aged between 15 and 24. A portion of the unusually wide gap between LSF and NAV unemployment in recent months can also be explained by widening differences in youth unemployment figures. According to NAV – unlike in previous downturns - the number of unemployed aged below 25 has not increased in the past few years. By comparison, the LFS shows a clear rise in unemployment in this age group. If we compare average unemployment so far in 2016 with the average for the ten preceding years, approximately 40 percent of the unusually wide gap between the LFS and NAV measures is attributable to differences in the measurement of youth unemployment.

Chart 5 Difference in youth unemployment (aged 15-24) and LFS unemployed in education. In 1000s



Sources: NAV and Statistics Norway

Chart 6 Unemployed aged 25-74 by gender. In 1000s



Sources: NAV and Statistics Norway

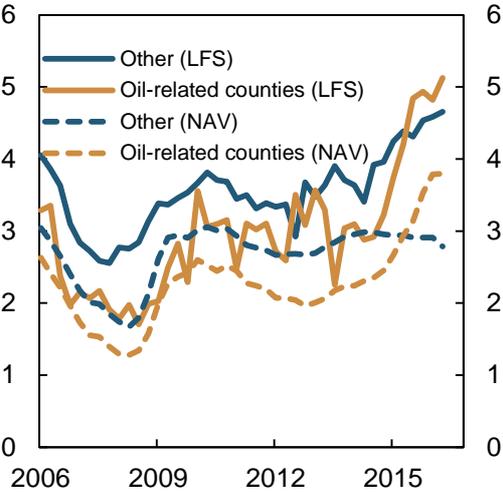
Much of the difference in youth unemployment is attributable to student job seekers. There has been a clear connection between youth unemployment in

<sup>4</sup> Similarly, only about half of NAV unemployed were classified as unemployed in the LFS. Some NAV unemployed also respond that they are employed in the LFS, and some respond that they do not desire to work.

the LFS and NAV and the number of LFS unemployed responding that their main activity status is education (Chart 5). Moreover, LFS youth unemployment has recently risen in tandem with a rise in unemployment among students. Some of them may have completed their education and desire a full-time job, but choose to continue studying in the absence of job offers. Working hour preferences among LFS unemployed have recently remained approximately unchanged, which indicates that the rise in unemployment is not dominated by those seeking part-time work. To qualify for unemployment benefits from NAV, a minimum wage income of NOK 139 000 (1.5 G where G is the basic amount) is required. Many recent students will likely fail to meet this requirement. This may also explain why NAV unemployment among those aged below 25 has not risen.

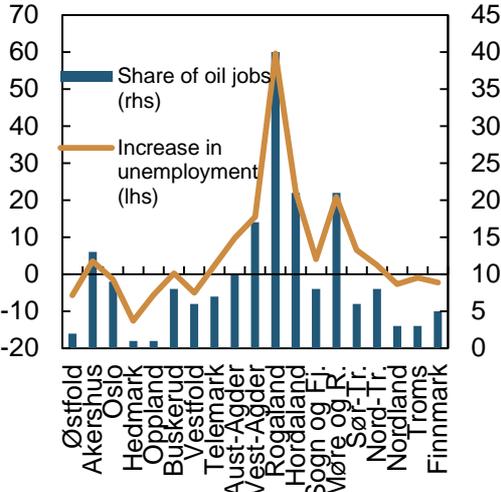
The most important explanation for the considerably higher rise in LFS unemployment than NAV unemployment in recent months is nevertheless that LFS unemployment has risen more among those aged over 25. There have also been gender-based differences in this age group between the two measures of unemployment. According to the LFS, the rise in unemployment has been approximately equal for women and men, while the rise has been more pronounced for men according to NAV (Chart 6). Developments in NAV unemployment are consistent with the fact that most sectors that have recently reduced employment are dominated by men. According to the national accounts, one fifth of jobs in oil and gas production have disappeared since summer 2014, and in shipbuilding and machinery, which is an important oil service industry, one in seven jobs have been lost. According to register-based employment statistics, women accounted for less than one fifth of those employed in these sectors in 2013 Q4.

Chart 7 Unemployment by county. Percent



Sources: NAV and Statics Norway

Chart 8 Share of oil jobs and rise in unemployment in 2015. Percent



Sources: Blomgren et al (2015) and NAV

The two unemployment measures also diverge across regions. According to NAV, unemployment has only risen in the most oil-dependent counties (Vest-Agder, Rogaland, Hordaland, and Møre and Romsdal) (Chart 7). NAV unemployment has fallen somewhat in the rest of the country. The county-specific NAV unemployment developments are closely linked to the share of the different counties' employment that could be related to the oil industry before the start of the downturn (Chart 8). By comparison, the LFS indicates that unemployment has also risen substantially in the counties that are less oil dependent (Chart 7). In fact, measured by the number of people, most of the increase in unemployment has taken place in the less oil-dependent regions according to the LFS.<sup>5</sup>

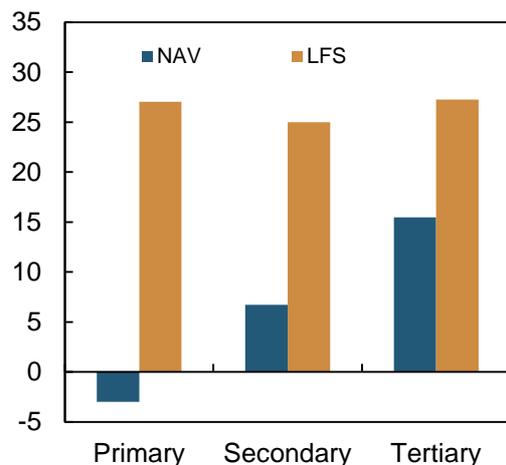
There have also been clear differences in the two statistics in terms of unemployment by education level. The LFS showed an equally sharp rise in unemployment for all levels of education between 2014 and 2015, while NAV showed that it is primarily those with tertiary education who were experiencing rising unemployment (Chart 9). At the same time, a comparison in terms of level in 2015 Q4 indicates that the highly educated are overrepresented in the LFS (Chart 10).<sup>6</sup> As indicated by the green bars in the chart, the share of unemployed with tertiary education was somewhat higher in the LFS at 27 percent than the NAV estimate of 19 percent. Measured as the number of people (in brackets in the chart), there were 31 000 unemployed with tertiary education according to the LFS, while NAV only captured 15 000 unemployed with this level of education. This suggests that the highly educated may have previously been even more overrepresented in the LFS figures, but unfortunately no reliable time series are available for these figures.

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<sup>5</sup> The aggregation of LFS figures at county level is complicated by the fact that Statistics Norway only provides county figures for employment and labour force to the nearest thousand.

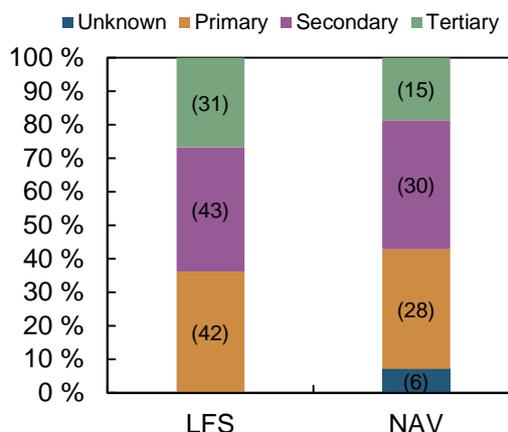
<sup>6</sup> Since NAV's unemployment data use the highest *starting* level of education, these figures are based on NAV unemployment figures published by Statistics Norway, which are only available for November 2014 and November 2015. We have compared the figures from November 2015 with the LFS figures for 2015 Q4.

Chart 9 Annual change in unemployment by education level. 2015. Percent



Sources: Statistics Norway and NAV

Chart 10 Unemployment by education level. Percent. 2015 Q4 (In 1000s)



Sources: Statistics Norway and NAV

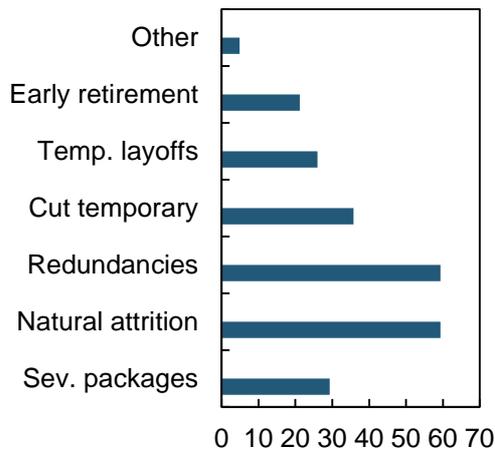
#### 4 Possible explanations for the gap

We have already highlighted differences in unemployment among youth as an important explanation for the gap between LFS and NAV measures. In the following section, other possible explanations for the gap are discussed.

Some have argued that the most recent downturn has had a greater effect than previous downturns on the *highly educated, who are less inclined to register at NAV*. If this is the case, it is conceivable that LFS unemployment will rise faster than NAV unemployment. There is some basis for this argument. As pointed out in the previous section, unemployment according to NAV has risen particularly among those with tertiary education and the highly educated seem to be underrepresented in the NAV figures. However, as shown in Chart 9, it is primarily among those among those with primary and secondary education that LFS unemployment has recently risen faster than NAV unemployment. This does not support the argument above.

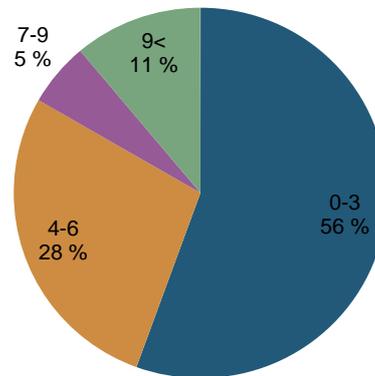
Another explanation could be enterprises that give extra termination benefits to those who quit voluntarily. People who have received *severance packages* are not eligible for unemployment benefits from NAV in the period covered by the package and will therefore have less incentive to register as unemployed at NAV and renew their registration every other week. Severance package recipients can however be counted as unemployed in the LFS.

Chart 11 Workforce reduction methods. Share of enterprises. Percent



Source: Norges Bank’s regional network

Chart 12 Average duration of severance packages among enterprises. Months



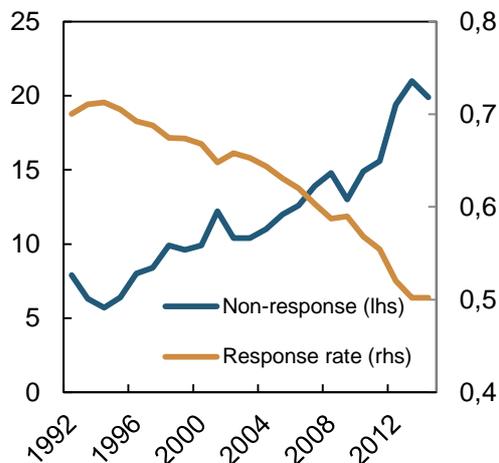
Source: Norges Bank’s regional network

Results of a survey among Norges Bank’s regional network contacts provide an indication of how widespread the use of severance packages has been. 288 enterprises with a total of 190 000 employees participated in the survey conducted in 2016 Q2. Contacts reported relatively limited use of severance packages. Only around 30 percent of the enterprises that had reduced staff in the past couple of years reported that they had offered severance packages (Chart 11). Approximately twice as many reported that they had dismissed staff or achieved staff reductions through natural attrition.

In the enterprises that did provide severance packages, the packages had relatively short durations. More than four-fifths reported that the average severance package in their enterprise was of a duration of six months or less (Chart 12). Results from this survey therefore do not support the proposition that severance packages are an important explanation of the unusually wide gap between LFS and NAV unemployment, which has now prevailed for more than one year.

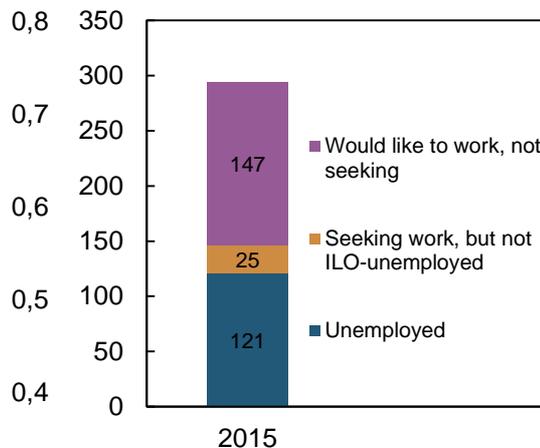
A third possible explanation is that the substantial gap is due to *bias and measurement errors in the LFS*. The 24 000 people included in the LFS are contacted by telephone once every quarter for eight consecutive quarters. An eighth of the sample is replaced each quarter. To the extent there is a substantial bias in a sample, it may become fairly persistent.

Chart 13 Share of LFS non-response and response in the population (15-74). Percent



Source: Statistics Norway

Chart 14 Non-employed seeking work in 2015 (LFS). 1000s



Source: Eurostat

At the same time, the share of the 24 000 that actually participate in the survey has declined over time. In the early 1990s, the percentage of non-response was down to 6 percent, but has risen to 20 percent in recent years (Chart 13).

According to Statistics Norway, the main explanation for the non-response is the inability to reach people by telephone (see Bø and Håland (2015)). The LFS sample size has been fixed since around 1990 and since then the population aged between 15 and 74 has risen by one fourth. Together with rising non-response, this has resulted in declining shares of the population that actually participate in the LFS. Between 1992 and 2014, the response rate fell by approximately 30 percent (Chart 13)<sup>7</sup>, which has added to increased uncertainty regarding LFS figures. Between 2007 and 2015 for example, the reported standard error for unemployment increased by 50 percent.

During periods when the gap between LFS and NAV unemployment is unusually wide, it cannot be ruled out that it is the result of LFS bias and measurement errors, and the declining LFS response rate makes a wider gap more likely. Changes to LFS and NAV that lead to a greater systematic difference than earlier could also have occurred, but we are not aware of any such changes. In this context, there may be reason to remember that there are relatively many outside the labour force in Norway. According to the LFS, there were 121 000 unemployed in Norway in 2015, but at the same time as many as 1.1 million people between the ages of 15 and 74 were neither

<sup>7</sup> Those participating in the LFS are to respond on behalf of their entire household, and not only on their own behalf, which means that the response rate can be higher than reported in this commentary. At the same time, the average household size has declined somewhat since 1990. There is therefore reason to believe that the real response rate has fallen by at least as much as reported in this commentary.

employed nor job seekers. 172 000 of them reported in the LFS that they wanted employment, but for various reasons were not counted as unemployed. For the majority of this group, the reason was that they had not actively sought employment (Chart 14). Relatively small changes in work preferences and job-seeking activity among those not considered part of the labour force could have a relatively sizeable impact on unemployment.

The last relationship we will highlight here is that even if the criteria for being considered unemployed by the LFS and NAV are in principle fairly similar, *in practice less is required to be considered as a job seeker by the LFS*. In the LFS, this means answering yes when asked whether attempts have been made at acquiring work in the past four weeks. Recipients of unemployment benefits from NAV must be willing to accept a job offer anywhere in the country and document that they are active job seekers. It is possible that many have decided to forego registering at NAV in this downturn but have nevertheless responded to the LFS in such a way that they are considered as job seekers. What we are unable to adequately explain is why a similar impact has not been observed in previous downturns.

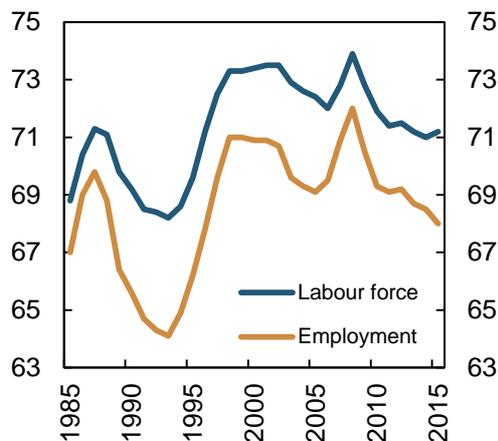
## 5 Labour force developments

In the past, the labour force in Norway has proved to be fairly cyclically sensitive. In periods with weak developments in employment, many have stopped seeking employment and thus exited the labour force only to return when economic conditions have improved (Chart 15). This has dampened the impact on measured unemployment. In other countries, for example the US, people have to a greater extent remained in the labour force during downturns (Chart 16).<sup>8</sup> So far in this downturn, however, labour force participation in Norway has remained fairly high, which is an important explanation for the strong rise in LFS employment.

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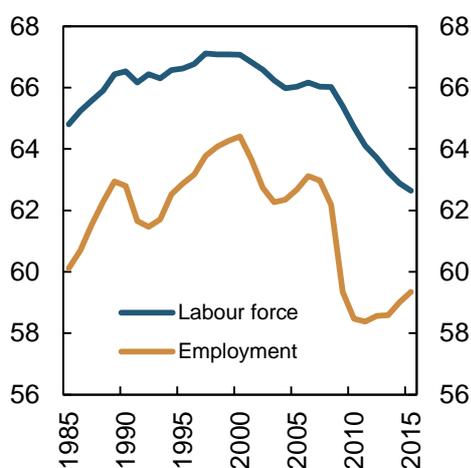
<sup>8</sup> Labour force participation has, however, fallen substantially in the US following the financial crisis. This may be due to the large post-war cohorts reaching retirement age, but many may also have given up the search for employment as a result of the weak labour market.

Chart 15 Labour force participation in Norway (LFS). Percentage of population (aged 15 – 74)



Source: Statistics Norway

Chart 16 Labour force participation in the US. Percentage of population (aged over 16)



Source: Bureau of Labor Statistics (BLS)

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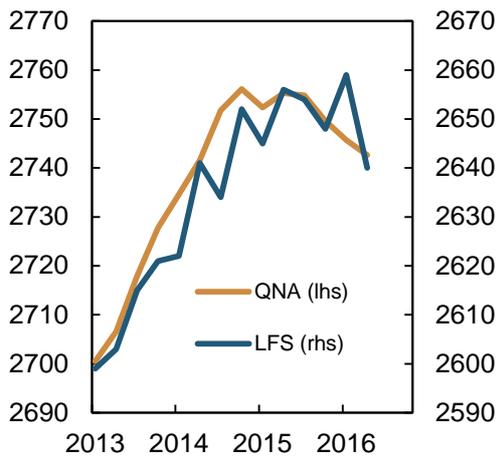
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The LFS is the only statistic that provides figures for the labour force in Norway. But since the labour force is defined as the sum of those who are unemployed and those who are employed, it is possible to construct an alternative measure of the labour force based on NAV unemployment and employment in the quarterly national accounts (QNA). QNA employment figures are based on the LFS but also on other information. Since 2015, current register data has also been used in the calculation of the number of employed in the QNA.

Despite wide quarterly fluctuations in LFS unemployment, the LFS and QNA have shown fairly similar developments in employment over time (Chart 17).<sup>9</sup> The deviation between developments in in LFS and NAV unemployment therefore implies a difference in labour force developments. Chart 18 shows labour force developments according to the LFS and the alternative measure, calculated as the sum of QNA employment and NAV unemployment. Measured by the LFS, the labour force has recently risen much faster than the alternative labour force. Developments in the alternative labour force are mostly in line with labour force developments in previous downturns.

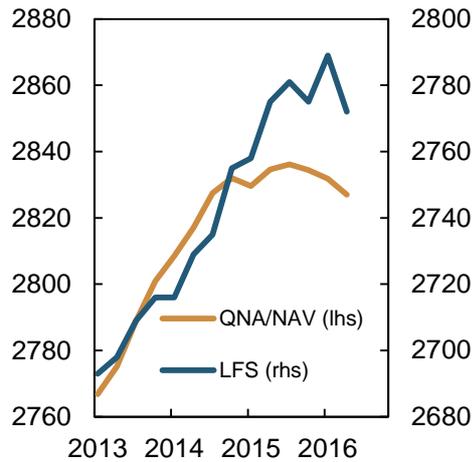
<sup>9</sup> In terms of level, QNA employment is higher than LFS employment. This is because QNA also includes the employed who are not registered as residing in Norway.

Chart 5 Employment. In 1000s



Source: Statistics Norway

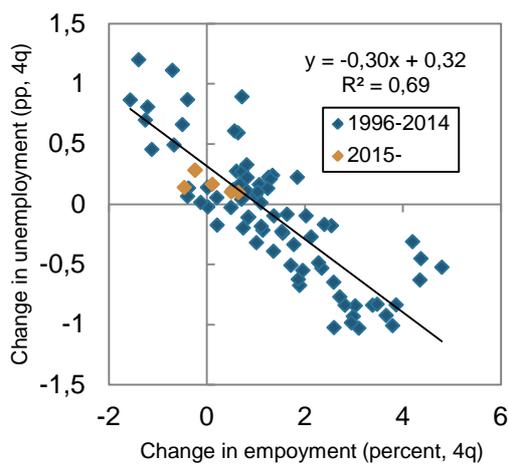
Chart 6 Labour force. In 1000s



Sources: Statistics Norway and NAV

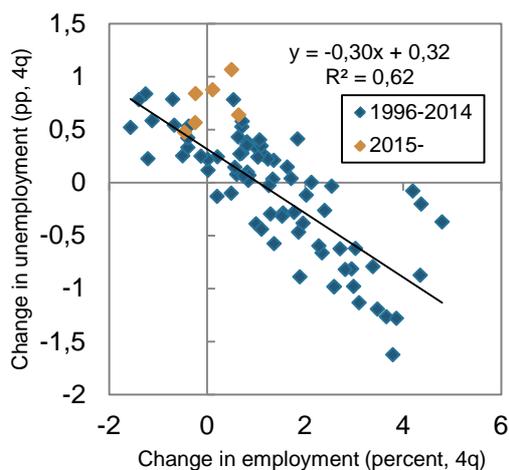
This is also reflected in the correlation between employment and unemployment. Over time there has been a close relationship between QNA employment growth and the change in unemployment, measured both by the LFS and NAV (Charts 19 and 20). The curves in the two charts indicate that a four-quarter change in employment of 1 percent on average has resulted in approximately unchanged unemployment, both for the LFS and NAV. QNA employment has fallen by 0.5 percent over the past four quarters. Based on the historical correlation, one might expect a 0.5 percentage point rise in unemployment since the same quarter one year ago.

Chart 19 Employment (QNA) and unemployment (NAV). Four-quarter change



Sources: Statistics Norway and NAV

Chart 20 Employment (QNA) and unemployment (LFS). Four-quarter change



Source: Statistics Norway

Developments in NAV unemployment in recent years have been fairly closely in line with the historical pattern, but unemployment has recently risen

somewhat less than this relationship would suggest (Chart 19). By comparison, LFS unemployment has deviated considerably from this pattern, especially through 2015 (Chart 20). In this downturn, LFS unemployment has actually risen faster than at any time in the past 20 years, compared with both the financial crisis and the marked downturn in 2002-2003.

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