AUSTRALIA ECONOMICS FOCUS

Has the natural rate of unemployment fallen?

- The unemployment rate may need to fall from 5.5% currently to around 4.0% before wage growth rises significantly. This is partly due to the existing excess capacity not captured by the unemployment rate, but also as the natural rate of unemployment may be notably lower than most estimates of 5.0%.

- In theory, wage growth should start to rise rapidly once the unemployment rate falls to the natural rate, which the RBA estimates is around 5%, as labour supply shortages force employers to pay higher wages. And some surveys suggest the unemployment rate could fall to 5.0% later this year.

- In reality, the high share of employees wanting to work longer, the “underemployed”, means that the unemployment rate will probably need to fall below 5.0% before capacity pressures start to bite. And there are a number of reasons to believe that the natural rate of unemployment may be lower than 5.0%.

- Admittedly, it is conceivable that the changing structure of the economy has increased the natural rate as the end of the mining boom has created a pool of workers whose skills no longer match those required. But this upward influence appears to have been more than offset by other factors. First, the growing importance of the so-called “gig economy”, where the barriers to finding work tend to be lower, is exerting a downward influence on the natural rate.

- Second, the ageing of the labour force is also having a downward impact as the greater skills and experience of older workers means they usually have a lower rate of unemployment. Third, the rising share of people with a tertiary education has probably reduced the natural rate as they tend to be more employable and are better able to adapt to changes in the labour market.

- Fourth, technological changes have made the matching process between employers and job seekers easier and have also made it simpler for employees to work remotely, thereby reducing geographical mismatches. Finally, government policies to incentivise work have probably reduced the natural rate, although the downward pressure from this factor may now be fading.

- So the natural rate of unemployment could be closer to 4.0% than the RBA’s current estimate of 5.0%, and it may still be falling. This means that wage growth will probably be lower for longer than most analysts, including the RBA, expect. This will weigh on underlying inflation and is a key reason why we doubt the RBA will raise interest rates from 1.5% until the second half of 2019.

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Has the natural rate of unemployment fallen?

The labour market was surprisingly strong last year, with the annual pace of employment growth reaching a decade high and the unemployment rate falling to a multi-year low. Despite this, wage growth remained stubbornly weak. One plausible explanation is that the so-called “natural” rate of unemployment is lower than most estimates of around 5%, which would mean that there is more slack in the labour market than widely believed. So in this Focus we examine how far the natural rate of unemployment may have fallen and what that means for the outlook for wages.

Where are we now?

The unemployment rate has been trending down since peaking at 6.4% towards the end of 2014 and it reached a five-year low of 5.4% in November. (See Chart 1.) Admittedly, it has nudged up since then to 5.5% in January, but that is only because the recent strength of the labour market appears to have attracted people back into the labour force.

![Chart 1: Unemployment Rate (%)](source: Thomson Reuters)

Looking ahead, if the current pace of growth in jobs and the labour force is sustained, the unemployment rate could fall to 5.0% by the first quarter of next year. And some leading indicators, such as the job vacancy rate, suggest it could fall well below 5.0% over the coming year. (See Chart 2.)

![Chart 2: Job Vacancies & Unemployment Rate](source: Thomson Reuters)

The key question is what this would mean for wage growth, which remains unusually low, and monetary policy. The answer largely depends on three factors. First, the evolution of spare capacity beyond the unemployment rate. Second, where the natural rate of unemployment lies. And third, how the relationship between the unemployment rate and wages has changed.

![Chart 3: Underutilisation & Unemployment Rate (%)](source: Thomson Reuters)

What’s more, even when all of the spare capacity in the labour market is used up, there will still be less upward pressure on wage growth than there has
been historically as a result of the effects of globalisation and technological change. (See our Australia & New Zealand Economics Weekly, “Better get used to slow wage growth” published 19th May 2017.) So in this Focus we address the second factor by exploring the key influences that may have affected the natural rate of unemployment.

Natural rate of unemployment
The natural rate of unemployment, also referred to as the non-accelerating inflation rate of unemployment (NAIRU), can be thought of as the unemployment rate below which the lack of remaining slack in the economy should start to driver wage growth higher. In other words, it strips out unemployment caused by cyclical factors and so provides some signal about when the labour market is operating at full capacity.

As Chart 4 shows, the unemployment rate is still some way above the RBA’s most recent estimate of the natural rate of 5.0%, but the gap has been narrowing since 2015.

This “unemployment gap” has historically been a fairly good leading indicator of wage growth. (See Chart 5.) However, the relationship has broken down recently and wage growth has stayed at around 2.0% rather than rising to 2.5%-3.0% in line with the unemployment gap. We think this is partly due to the other two factors mentioned above, namely underemployment and the weakening in the relationship between capacity and wages. But it may also be because estimates of the natural rate of unemployment are too high, which would mean that the true unemployment gap is larger.

So what is the current natural rate of unemployment? Given it is a theoretical concept, and so isn’t observed directly, it is notoriously difficult to estimate. For example, while the RBA’s central estimate is 5.0%, it can only say with 90% confidence that it is somewhere between 3.3% and 6.6%. (See Chart 6.)

What’s more, the RBA consistently makes notable revisions to its estimate as new information comes to light. And in the past it has almost always had to revise it down. (See Chart 7.) At least the RBA is in good company. For example, the US Federal Reserve has regularly lowered its estimate of the natural rate in recent years. (See Chart 8.) Given all this, it seems worth looking at the evidence to see if the RBA is once again overestimating the natural rate, and if so by how much.
When attempting to estimate the natural rate, economists typically break it down into its two components – frictional unemployment and structural unemployment. The frictional component captures those people who are unemployed because of a short-term dislocation as people move between jobs. And the structural component captures longer-term unemployment that arises from a fundamental mismatch between the skills supplied by the labour force and those required by employers.

We’ve taken a more top-down approach by considering how the changing structure of the economy, demographics, education, technology and labour market reforms have influenced the natural rate. This avoids double counting as some of these factors influence both structural and frictional unemployment.

1. Structure of the economy

The structure of the economy has changed markedly in recent decades and this will have affected the natural rate of unemployment in a myriad of ways. The two changes we believe are particularly important are the end of the investment phase of the mining boom and the rise in the so-called “gig economy”.

At the peak of the mining boom in 2012 just shy of 280,000 people were employed in the mining sector. Since then, on net, around 60,000 jobs have been shed in the mining sector alone, with job losses also occurring in other sectors that were dependent on mining. (See Chart 9.) As a consequence there is likely to be a fairly large pool of workers who have mining skills that no longer match those required by employers (i.e. a rise in structural unemployment). If all of those workers became structurally unemployed this would have raised the natural rate of unemployment by around 0.45 percentage points (ppts). Of course, the impact won’t be quite this large as some people will have found new jobs and others may well have left the labour force altogether. Nonetheless, the end of the investment phase of the mining boom will have placed some upward pressure on the natural rate.

That said, any effect from the end of the mining boom appears to have been more than offset by other factors. If there had been a rise in the structural rate of unemployment, then we would have expected the Beveridge curve to shift outward. The Beveridge curve captures the relationship between the unemployment rate and the number of job vacancies in an economy. So if there is a sustained rise in the share of the labour force who are unemployed because of a skills mismatch, then this curve should have shifted to the right. As the grey markers on Chart 10 show, this hasn’t occurred.
Indeed, growth in the so called gig economy has probably exerted a downward influence on the natural rate of unemployment as barriers to finding jobs in this area tend to be lower than for full-time employment. Digital labour market platforms such as Uber, Deliveroo and Airbnb have provided greater flexibility and reduced entry barriers. And with further growth in the gig economy likely, this should continue to exert a downward influence of the natural rate.

2. Demographics

The ageing of the labour force is by no means a new trend, but the ageing of the baby boomers (those born between 1946 and 1964) has generated a notable rise in the share of the labour force that is over the age of 55. At the turn of the century, just over 10% of the labour force was older than 55. Now just under 20% of the labour force falls into this age range. (See Chart 11.)

This tends to reduce the natural rate of unemployment as older workers usually have a lower rate of unemployment. Indeed, while the unemployment rate for those aged 15-24 years is around 12%, for those aged over 55 it is just below 4%. (See Chart 12.) This difference can be explained by a range of factors, but perhaps most importantly older workers are likely to have more work experience. As a result, they are more likely to have the skills and knowledge that are required by employers.

To gauge how much these demographic trends have influenced the natural rate, we’ve constructed a series that multiplies the long-run average unemployment rate for each age group by its changing share of the labour force overtime. As Chart 13 shows, this measure has declined by 0.2ppt since 2005. And while the speed of decline has slowed, it is still falling. This suggests that demographic influences will continue to drag the natural rate lower.

3. Education

A related factor that has probably also contributed to a decline in the natural rate is the rising share of the labour force who are tertiary educated. In 2000 just 28% of the population aged 25-64 had a tertiary education, but now that has risen to almost 45%. (See Chart 14.) This is significant given that people with higher levels of education tend to be more employable and have the skills to better adapt to
changes in the labour market. Indeed, the average unemployment rate for those people who don’t have a secondary education is around 7%, whereas for those with a tertiary education it is closer to 3%.

![Chart 14: Share of Pop. 25-64 Years (By Education, %)]

Source: OECD

To gauge the magnitude of the effect of education on the natural rate ideally we would construct a similar series to the one we constructed to quantity the effect of demographics. Data restrictions mean this isn’t possible. Instead we use the current rate of unemployment for each level of education as a guide to the long-run average level, this suggests that the rising share of the labour force with a tertiary education may well have reduced the natural rate of unemployment by as much as 0.7ppts since 2005. And given that the share of the population with a tertiary education has accelerated, this effect is likely to continue to push the natural rate lower.

4. Technology

Technological advances have also probably reduced the natural rate. For a start, the internet has made the matching process between employers and potential employees easier thereby reducing the frictional rate of unemployment. While it is difficult to isolate frictional unemployment, the unemployment rate of workers who have been out of work for less than four weeks provides a useful proxy as it best captures workers who are likely to be unemployed only temporarily as they leave one job and find a new job. And as Chart 15 shows, this unemployment rate has fallen steadily over the past two decades, from an average of 1.4% between 2000 and 2005 to just 1.1% since 2015. Of course, some of this decline is likely to be cyclical and so the effect on the natural rate may well be slightly less than 0.3ppts.

![Chart 15: Less than 4 Weeks Unemp. (% Labour Force)]

Source: Australian Bureau of Statistics

But advances in technology have had other downward influences on the natural rate. For example, technological advances have made it easier for employees to work remotely. Data from the Australian Bureau of Statistics suggest that whereas in 2005 three quarters of employees worked no hours at home, now around a third of employees say they “usually” work from home. This increased flexibility should reduce instances of a geographical mismatch between employers and jobseekers, thereby contributing to a lower rate of natural unemployment.

5. Labour market reforms

Government policies to incentivise work can also reduce the natural rate. To assess how the incentives to work have changed overtime, the OECD produces an annual “participation tax” rate which calculates the average effective tax for a person who transitions from unemployment into full-time work. If the participation tax is high this means that when an unemployed person gets a job a significant portion of their earnings are effectively taxed away through higher income tax or reduced benefits. In other words, a higher participation tax suggests that there is less incentive for an unemployed worker to seek employment.

As Chart 16 shows, the participation tax in Australia has been on a downward trend over the past 15 years. And since the financial crisis it has remained well below the OECD average. But while this will have attracted more people into employment and put downward pressure on the natural rate of unemployment, the participation tax has edged higher in recent years so the downward pressure from this factor may be fading.
Conclusion

Overall, the evidence suggests that the natural rate is probably lower than the RBA’s estimate of 5.0% and is still trending down. While it is difficult to quantify how these various factor have contributed to a change in the natural rate, Table 1 provides a rough guide. Altogether, while the RBA’s central estimate for the natural rate has fallen by 0.7 ppts since 2005, we suspect the fall has been closer to 1.5 ppts. As a result, the natural rate may be closer to 4.0%.

Table 1: Contribution to Change in the Natural Rate of Unemployment Since 2005 (ppts)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Contribution (ppts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>-1.5</td>
</tr>
<tr>
<td>Structure of the economy</td>
<td>0.0</td>
</tr>
<tr>
<td>Demographics</td>
<td>-0.2</td>
</tr>
<tr>
<td>Education</td>
<td>-0.7</td>
</tr>
<tr>
<td>Technology</td>
<td>-0.3</td>
</tr>
<tr>
<td>Labour market reforms</td>
<td>-0.3</td>
</tr>
</tbody>
</table>

Source: Capital Economics

Implications for monetary policy

The implication is that the unemployment rate probably needs to fall lower than policymakers currently think, perhaps below 4.0%, before wage growth rises significantly. In fact, unless the underemployment rate falls much further, the unemployment rate would need to fall below the natural rate to generate much wage growth. And even when all the spare capacity is used up, we suspect that wages will not rise sharply because the relationship between unemployment and wages has probably weakened.

All told, we expect that there will be a modest cyclical up-tick in wage growth over the next 18 months as the labour market continues to improve. We expect wage growth will rise from 2.1% currently to 2.5% by the end of 2019. (See Chart 17.) But we doubt wage growth will return to its pre-crisis average of around 3.5% anytime soon. This is a key reason why we expect underlying inflation to remain lower for longer than the RBA currently expects. And, as a result, why we expect that the RBA will keep interest rates on hold at 1.5% throughout 2018 and for a good chunk of 2019 too.
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