MACROECONOMIC ANALYSIS

Growth and unemployment: the worst is yet to come

Chile Unit

- We review the historic relationship between activity and unemployment, using surveys from the University of Chile and the INE (National Institute of Statistics)
- This exercise suggests that, despite the recent resilience of the unemployment rate, it is a matter of time before we see more increases
- Above all, this exercise shows a simple lesson: Chile needs to grow at least 4% to stabilise the unemployment rate, which looks possible for late 2015 or 2016, according to the surveys available. In this scenario, we expect unemployment to rise during 2015, at a moderate rate
- The greater proportion – structural and cyclical – of self-employment may add a note of optimism to this view, but we need to recognise the fragility and volatility in wages intrinsic to this category of employment

While current figures are showing a noticeable deceleration in output growth, with the third quarter posting a variation of 0.8% YoY, the lowest since 3Q09, the unemployment figures are showing some resilience. For the third quarter, both INE and University of Chile (UCH) records show QoQ falls. In the case of the latter, the unemployment rate has not changed in annual terms. The argument that there is a lag between the unemployment rate and activity performance is the most reasonable explanation. And this is particularly so since we know that, after the mining investment boom, these were the regions which suffered the greatest pressure on labour. It could be precisely these reverse migrations towards the Metropolitan region which will start to make themselves felt in the next few quarters.

In general, what we see in the data is a negative correlation between growth and unemployment, known as Okun's Law. Strictly speaking, this is not exactly a law, but rather a statistical ratio and as such is subject to revision in the light of different changes in the economy. However, it is a very useful and simple relationship, insofar as it includes just two variables which are important at a macroeconomic level.

After that, this paper will corroborate the relationship between unemployment and growth in Chile, and particularly whether it is possible to see a stable negative correlation between the two. We will also analyse whether the current scenario of low growth with low unemployment is sustainable over time.

Unlike other countries where this calculation has been made[1], Chile has two exceptional factors. First, the quarterly figures have extreme seasonal variations, for both growth and unemployment. Hence, in order to establish Okun's law we have used annual, instead of quarterly, variations[2]. Second, in Chile there are two surveys for measuring unemployment: that published by INE, the national statistics institute, which covers the entire country, and that run by UCH, which only covers greater Santiago[3]. The methodology used by INE for measuring employment was overhauled in 2010; this means that the National Employment Survey (ENE in the Spanish acronym), which has quarterly data starting in 1986, only has data up to 2009, and the new employment survey (NENE) only has more recent information. For this reason, the unemployment estimates

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1: For the US, see Edward S. Knotek (2007), "How useful is Okun's law?", Economic Review Q IV, Federal Reserve Bank of Kansas City, p. 73 – 103.
2: Another option is to calculate quarterly variations with seasonally adjusted variables, which has also been done with similar results. This Watch paper does not include information about these forecasts in order to maintain clarity both in the estimates and in the transfer of information.
3: We have only been able to recover quarterly data since 1997 from the central bank for the UCH survey, although older data exists in semester segments.

have been arrived at using three sources: with ENE up to 2009, with the UCH for all the years during which there is quarterly information, and by splicing together ENE and NENE from 1986 to date[4].

The estimate is very straightforward: *percentage change in the unemployment rate = a + b * (real product growth)*. Although gaps can be introduced for potential output and the natural rate of unemployment, to keep things simple and avoid working with variables that cannot be observed, we opted for this more straightforward and direct method. **Thus, the ratio "-*a/b*" gives the rate of output growth consistent with a stable rate of unemployment.**

Figures 1, 2 and 3 illustrate the annual variations in unemployment and output, depending on the type of survey used. Real output growth is annualised, while the difference in the unemployment rate is given in percentage points (pp). In all cases a negative correlation between growth and unemployment is verified, which tends to confirm this relationship in the case of Chile.

Figure 1
Unemployment and growth, quarterly data from ENE survey, 1986–2009

Source: INE, UCH, central bank, BBVA Research

4: The splice uses the annual variation in the unemployment rate, taken from the NENE as of 2010, in percentage points, thus completing the ENE for the years in which the latter no longer has data.

Figure 2
Unemployment and growth, quarterly data from the UCH survey, 1997 – 2014
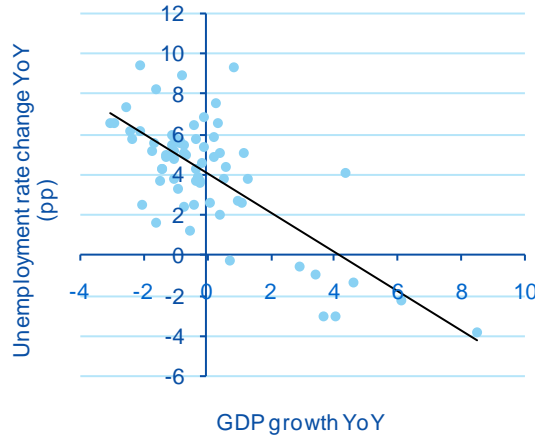
Source: INE, UCH, central bank, BBVA Research

Figure 3
Unemployment and growth, quarterly data from spliced ENE-NENE survey, 1986 – 2014
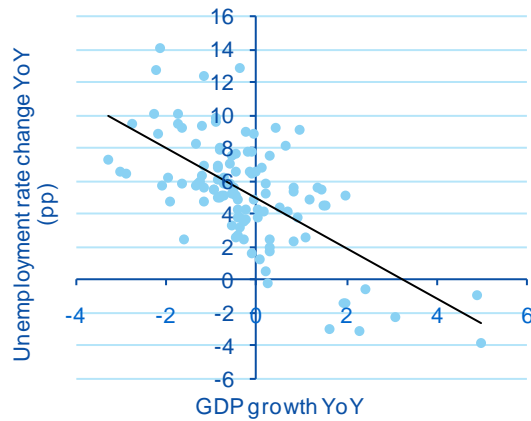
Source: INE, UCH, central bank, BBVA Research

In all cases, the Figures contain a line which represents the simplest relationship. For this type of estimates lags can also be included for both the output and the unemployment. Table 1 summarises the estimates in their simple and dynamic versions.

Table 1
Unemployment and growth, simple and dynamic version, for each employment survey (quarterly figures)

	ENE		UCH		ENE-NENE spliced	
	1987-2009		**1997-2014**		**1987-2014**	
constant	1.34**	0.66**	2.16**	0.59	1.15**	0.34**
GDP	-0.26**	-0.13**	-0.53**	-0.41**	-0.26**	-0.13**
GDP (-1)				0.26**		
GDP (-2)						0.06**
U(-1)		0.89**		0.64**		1,01**
U(-2)		-0.27**				-0.31**
n	92	92	67	67	110	110
-α/β	**5.07**	**5.19**	**4.10**	**3.94**	**4.39**	**4.36**

**\ significant at 5%

Note: number of lags chosen by information criteria (Akaike)

Source: INE, UCH, central bank, BBVA Research

According to table 1, the parameters are verified as being significant, with the exception of the constant in the case of the dynamic equation using the UCH survey. Although the ratio "-*a/b*" varies from one estimate to the next, the different specifications show us that, **in order to the unemployment to remain stable, output has to grow at rates of between 4% and 5%, that is, around its potential.**

What can we infer from this exercise about the current situation of low unemployment? The current situation, while positive, will not last long. **Although there are drops in the monthly unemployment rate, this will continue to grow in annual terms in a context in which the economy continues to grow at well below 4%**. What is more, in order to return to a stable unemployment rate, we will have to wait until 2015 or beyond, given that even **an output growth rate close to 3% would not succeed in stabilising unemployment. Growth will have to return to growing at close to its potential in order to reach that target.**

Given this reality, why are unemployment rates still surprising to the downside, while output deceleration has been faster than expected? This question is being asked, not only in Chile, but in most countries in the region. In fact, in the IMF's most recent update of the regional outlook[5], dynamic estimates of Okun's Law were used to resolve this concern. Following these estimates, Figures 4 and 5 compare the estimated results and effects on the annual variation in pp in the unemployment rate. We use the UCH estimates and the spliced series for the data from 3Q13 onwards. Furthermore, the third quarter of 2014 is calculated using an output growth rate of 0.8% YoY, which is marked in the figures by a red diamond.

As both Figures illustrate, there is an angle of 45°. Data falling above the line indicate a lower-than-expected variation in unemployment, while the data below the line indicate a greater variation. Thus, as long as the data are close to the line, the unemployment rates are fairly well explained by Okun's Law. When we look at Figure 4, **we notice that according to the INE survey, the unemployment figures published over the last year have been in line with estimates, that is, unemployment is not "abnormally low".** Although in the case of the UCH survey there are a couple of points which are well away from the line, we should bear in mind that this latter survey does not cover the whole country, so there are attenuating factors in its interpretation. In any event, **both estimates, with GDP growing on average at around 3% in 2015, are bound to provoke increases in employment over the next year.**
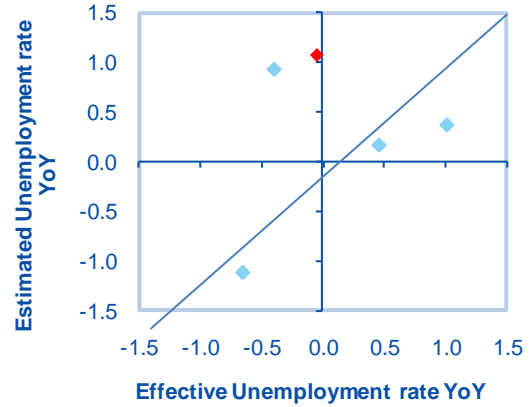
5: See IMF (2014), "Regional economic outlook update – Western Hemisphere Department", October, Box 2

Figure 4
Annual variation in the unemployment rate, spliced ENE-NENE survey 3Q13-3Q14, pp
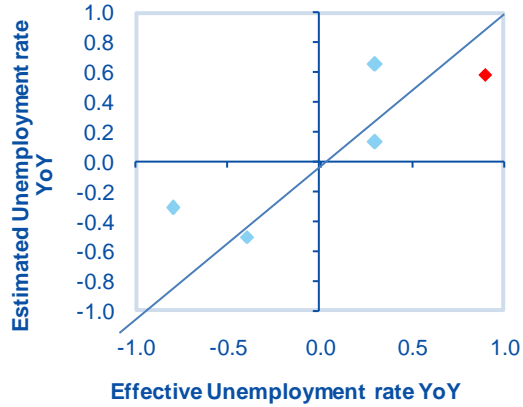
Source: INE, central bank, BBVA Research

Figure 5
Annual variation in the unemployment rate, UCH 3Q13-3Q14, pp

Source: UCH, central bank, BBVA Research

We should add a note of caution, or rather optimism, to the former conclusion as to the rate of unemployment. Self-employment appears to be a growing phenomenon for reasons both cyclical and structural. Weakened growth in all branches of activity is usually associated with increased self-employment. It is nothing new, and we have already seen this phenomenon in previous cycles. The structural factors with the most robust growth are in the area of low pensions, a greater rate of dependency and an ageing population which remains very active after retirement. This is more so when the entrepreneurial vision has started to take root and is supported by government policies. **It would not be odd if we found ourselves with a slightly lower unemployment rate than our estimates, one which would be largely accounted for by self-employment.**