

MACROECONOMIC ANALYSIS

Labour aggregates, job search efforts and *Google trends*

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Real time monitoring of the population's job search efforts using the search statistics in *Google trends* enables us to anticipate, by one to two months, the evolution in the number of employed people who are job seekers as reported by official statistics. Consequently, this alternative information allows us to approach efficiently to the short-term evolution of labour aggregates.

As a broader indicator of job search, *Google trends* seem to provide valuable information on the population's transition between labour participation and inactivity. Furthermore, the changes in job search patterns that we have observed in the *trends* show a high correlation with changes in official unemployment levels, even higher than that deduced from the evolution of employed persons searching for new jobs.

There is no doubt that in the current business cycle of growth below potential, the unemployment rate has surprised everyone due to its resilience and stability at historically low levels. Indeed, there are various elements –some of which are temporary- behind this surprising jobless rate, such as the increase in self-employment, the strong contribution of both the public sector and construction in salaried job-creation, and the surge in labour inactivity.

Unfortunately, a naive reading of the unemployment rate level that underlies market dynamics can lead us to misinterpretation, both of the stance and direction of labour market slack, as well as the perspectives for household's income. In this context, the need for new and better analytical measures that enable us to explain -and even to *nowcast*- the dynamics of labour aggregates is growing.

Thus, in this document we attempt to contribute to those efforts, in particular regarding the prevalence of job search activities amongst population, broadening our analytical *toolkit* with new digital tools.

1. *On-the-job-search* and labour aggregates

The National Institute of Statistic (INE) does not publish overall information regarding the job search situation of the working-age population. However, within the analytical indicators available to the public, information is offered on the number of employed persons -on a national level- who are actively searching for a job, and which is known in the literature as *on-the-job-search* (Figure 1.1 and 1.2). This indicator is used as a thermometer to assess the degree of pressure on the labour market, precisely with respects to the share of employed population that is seeking for new jobs.

However, as a coincident indicator it does not necessarily anticipate the most probable evolution of labour aggregates. In short, the number of employed persons searching for new jobs does not help us to assess transitions between inactivity and labour participation of the population¹. For the foregoing we need a broader indicator of job search.

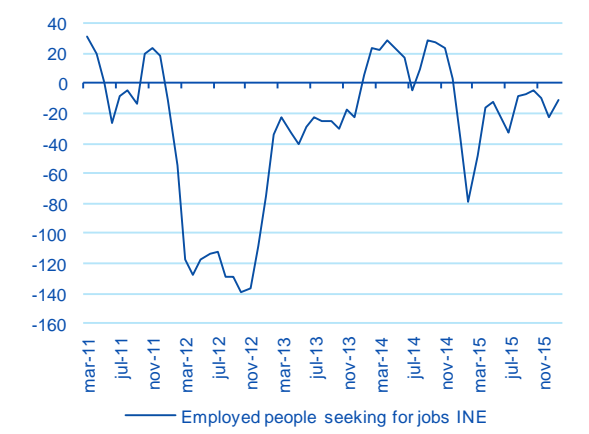
1: For practical purposes, INE's official statistics define the labour force or active population as the employed population plus the non-employed population that declares to be, simultaneously, available for work and actively seeking for vacancies. This last group is what we know as unemployed.

Figure 1.1
Employed people seeking for jobs INE (thousands of people)



Source: INE, BBVA Research

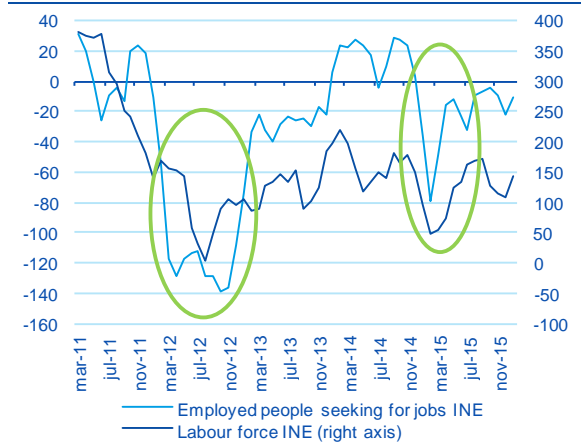
Figure 1.2
Employed people seeking for jobs INE (12 months absolute change)



Source: INE, BBVA Research

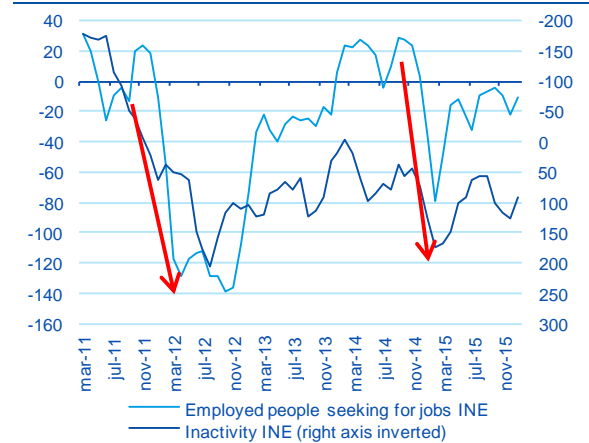
Despite the analytical limitations of the information on employed persons searching for a job, we can identify two episodes in which the decline in the number of these group -as that observed during 2012 and at the beginning of 2015- were related to both a lesser growth in the labour force and greater inactivity (Figure 1.3 and 1.4); being more acute during the period of low search efforts in 2012. Thus, to some extent the population's job search efforts –given the current definitions for labour aggregates in the National Employment Survey (NES)- coincide with the short and medium-term dynamics observed in official statistics of the labour force and inactivity².

Figure 1.3
Employed people seeking for jobs and labour force, INE (12 months absolute change)



Source: INE, BBVA Research

Figure 1.4
Employed people seeking for jobs and inactivity, INE (12 months absolute change)*



Source: INE, BBVA Research
* Right axis inverted

Overall, we notice that the number of employed persons searching for a job decreased from levels of around 655 thousand during 2010 and 2011, to a figure closer to 515 thousand as of 2013, showing a lower level of pressure on the labour market since then.

2: For the long-term, however, demographic trends and the permanent effects of public policies continue to be more relevant drivers for labour-force participation.

2. Real-time job search efforts

By definition, the job seeking activity of those employed only gives us a partial idea of the search efforts in the economy. In this context, we have built a broader real-time job search index, using to this end the statistics provided by *Google trends* (Figure 2.1)³.

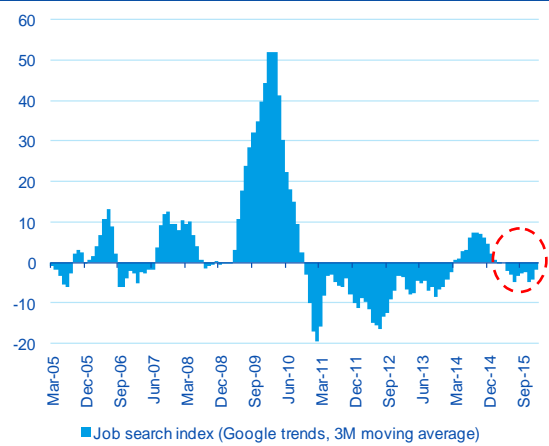
The evolution of the indicator shows year-on-year declines in search efforts since the end of 2010, after which it offers a weak recovery cycle at the beginning of 2014 (Figure 2.2). However, we can see that job search efforts started recently another year-on-year contraction phase as from the beginning of 2015 (Figure 2.2). Thus, in general terms our search indicator not only would support the lower growth of the labour force and greater inactivity recently reported by INE, but would also enable us to interpret other cycles of greater inactivity in the short history of the NES, as that observed in 2012.

Figure 2.1
Job search index, *Google trends* (level)



Source: *Google trends*, BBVA Research

Figure 2.2
Job search index, *Google trends* (12 months absolute change)

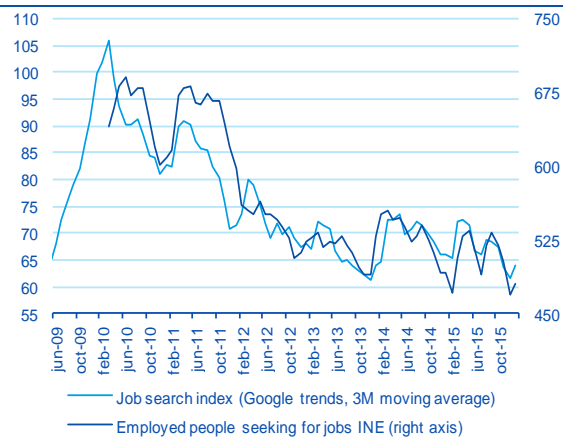


Source: *Google trends*, BBVA Research

Furthermore, when considering a three-month moving average, we can observe high levels of correlation with the series of employed persons seeking for jobs according to INE’s data (Figure 2.3 and 2.4). **In short, the advantage of having this new indicator is that it enables us to obtain advanced information, of one to two months, of the labour aggregates that the NES publishes with a one month lag.**

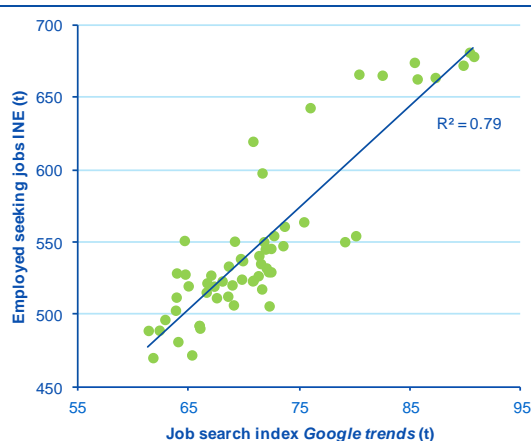
3: This indicator is constructed by weighing in a simplified manner the various job search entries in Chile from the *Google* search engine. This engine provides search results for a specific term on a scale from 0 to 100. If during any period there is a new historical maximum in the number of searches of a term, the results are rescaled in accordance with the new maximum. The following terms are used: *empleo / trabajo / laborum.com /abajando.com / laborum.cl /abajando.cl / laborum.com chile /abajando.com chile / laborum chile /abajando chile / trabajo en chile / trabajos en chile / empleos públicos / bolsa de empleo / empleo en chile / chile trabajo / ofertas trabajo.*

Figure 2.3
Job search index and employed people seeking for jobs INE (level, thousands of people)



Source: *Google trends*, INE, BBVA Research

Figure 2.4
Contemporary correlation (level, thousands of people)*



Source: *Google trends*, INE, BBVA Research
*For the search index a three-month moving average is used

3. What to expect from unemployment? Lets google it!

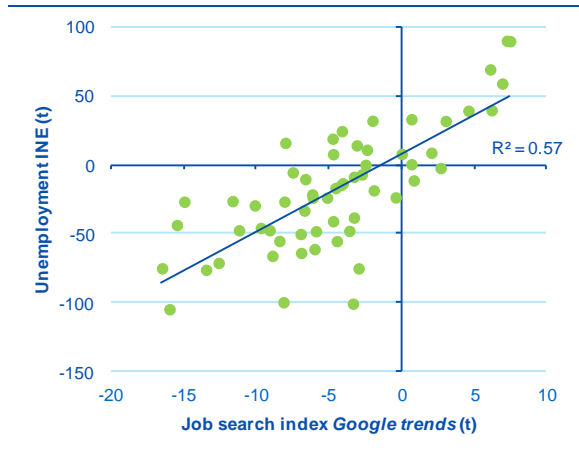
For time being we have only introduced the new job search index and carried out an in-depth analysis of its analytical properties. We have not interpreted the macroeconomic fundamentals that could explain the changes in the intensity of job search level efforts. In this context, there are potential issues regarding the possible predictive capacity that the *Google trends* information may provide on the dynamics of unemployment, elements that we hope to be consider in greater detail of future research.

However, a simple check allows us to assert that the information of *trends* seems to be more valuable than it appears, at least for the short-term. To this end, and although it is not conclusive given the limited history of the NES, we observe that changes in the job search efforts as measured by our indicator shows a strong correlation with the changes in INE's unemployment levels (Figure 3.1), even much higher than that shown with employed folks that are seeking for new jobs (Figure 3.2). Furthermore, year-on-year changes with a one to two month lag of the job search index correlate in greater intensity with the annual change in INE's unemployment level (Figure 3.3).

These results stand out, but like all analytical indicators, the information provided by *Google trends* has its own limitations. Indeed, as we have shown in detail in this report, changes in job search intensity is a good thermometer for the dynamics observed in the labour force and inactivity, however, this do not allow us to clearly explain the evolution of employment, which is ultimately the result of pairing -or matching- job seekers with job vacancies.

This limitation is relevant especially when we account that self-employment has taken on greater protagonism during the current business cycle. In this context, it is still imperative that we undertake a full analysis of the labour market, that allow us an in-depth insight of the drivers, characteristics and quality of job-creation, the ongoing trends in employment flows among sectors, the levels of labour force underutilization, and the evolution of unemployment duration, amongst other relevant aspects of the market.

Figure 3.1
Job search index vs. unemployment INE
 (12 months absolute change)



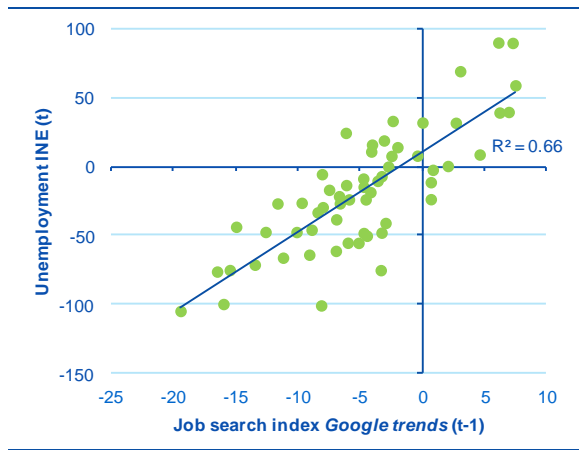
Source: Google trends, INE, BBVA Research

Figure 3.2
Employed people seeking for jobs vs. unemployment INE
 (12 months absolute change)



Source: Google trends, INE, BBVA Research

Figure 3.3
Job search index vs. unemployment INE
 (12 months absolute change)



Source: Google trends, INE, BBVA Research

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