

## Will greater wage growth lead to higher inflation in Spain?

During 2018, core inflation has remained stable despite the buoyancy of the labour market. This has been partly due to wages still not seeing significant growth. For the next few years, however, all the indicators suggest that the recovery in wages will gain momentum, which could put pressure on inflation. With this in mind, below we explore the link between wage recovery and inflation.

### Recent inflationary dynamics

Spain will end 2018 with an inflation rate of around 2%, in a year marked by a rise after starting at around 1% in Q1. However, much of this increase is due to the trend in energy prices, which are highly volatile as well as highly dependent on the price of oil. On the other hand, core inflation, which excludes the volatile components (energy and unprocessed foods) and better reflects the underlying inflationary trends, has remained relatively stable and at contained levels (around 1% for most of the year).

The stability of core inflation at these low rates contrasts with the buoyancy of the labour market. Between 2013 and 2018, the unemployment rate has been declining steadily at a rate of 2 pps per year, such that today there are nearly 2 million more people in employment than in 2013. The Phillips curve, which shows the relationship between the labour market and inflation, provides a good illustration of the contrast between these two dynamics in recent years. As shown in the second chart, the Phillips curve of the Spanish economy suggests that, given the current level of unemployment, we should see notably higher core inflation (slightly above 1.5%).

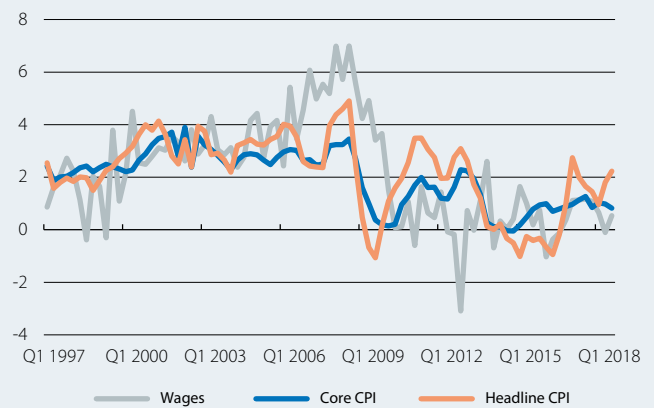
### The decoupling between the labour market and inflation

This apparent decoupling between inflation and the labour market is a widespread phenomenon among the world's major economies. Academic studies indicate three major types of explanations for this trend: the stability of inflation expectations, structural changes related to globalisation and new technologies, and measurement issues.<sup>1</sup> In greater detail, one possible explanation is that inflation expectations (which are

1. See J. Stock and M. Watson (2018), «Slack and Cyclically Sensitive Inflation», Working Paper. In terms of the Phillips curve, these are factors that cause a flattening of the curve or its inward displacement. Another explanation for this apparent decoupling between inflation and the labour market is the non-linearity of the Phillips curve (i.e. the fact that inflation's sensitivity to the labour market increases as unemployment declines, as shown, for instance, by L. Donayre and I. Panovska (2016), «Nonlinearities in the U.S. Wage Phillips curve», Journal of Macroeconomics). As reflected in the second chart, this can also be observed in the case of Spain.

### Spain: trend in prices and wages

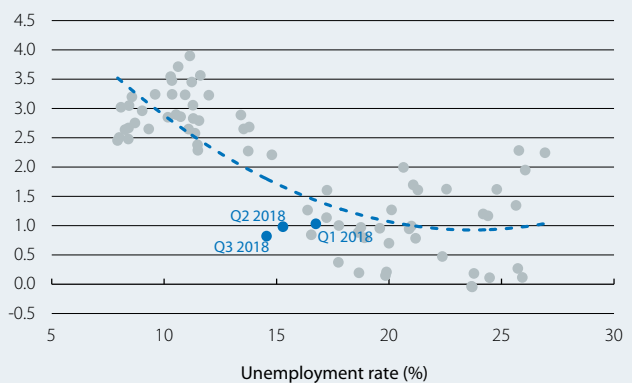
Year-on-year change (%)



Source: CaixaBank Research, based on data from the National Statistics Institute.

### Spain: Phillips curve

Core inflation (%)



Note: Each point marks a different quarter from Q1 2002 to Q3 2018. In blue are the first three quarters of 2018.

Source: CaixaBank Research, based on data from the National Statistics Institute.

an important factor in determining the inflation that is subsequently observed) have become more stable (and, therefore, less sensitive to the business cycle) thanks to the credibility of monetary policy in achieving inflation objectives. Secondly, globalisation<sup>2</sup> and digital technologies facilitate the relocation of production and increase the global component of the price formation chain. Therefore, domestic inflation becomes more sensitive to the global business cycle and less sensitive to the domestic one. In addition, both the increase in companies' market power observed in recent decades<sup>3</sup> and technological advances that incentivise a

2. See S. Wei and Y. Xie (2018), «On the Divergence between CPI and PPI as Inflation Gauges: The Role of Supply Chains», NBER Working Paper n° 24319.

3. See J. Loecker and J. Eeckhout (2017), «The Rise of Market Power and the Macroeconomic Implications», NBER Working Paper n° 23687.

relatively greater use of capital also reduce the influence of the labour factor in the formation of prices. Finally, some economists argue that this loss of sensitivity between inflation and the labour market is a statistical illusion, caused by the problems of accurately measuring real levels of unemployment and inflation.<sup>4</sup>

**The sensitivity of inflation to wages**

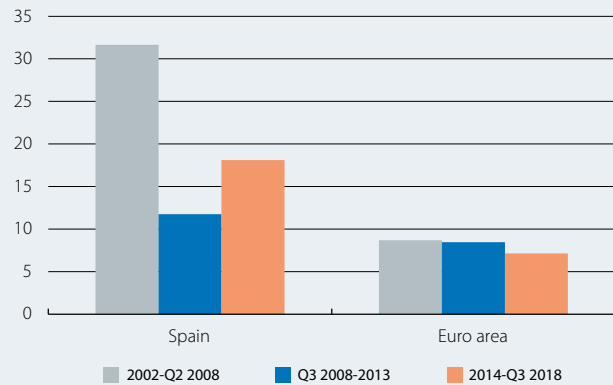
To analyse the relationship between the labour market and inflation in greater depth, below we study one of the channels through which the recovery of the labour market is transmitted to inflation: wage growth. So far, the reduction in unemployment has translated into wage growth only discreetly. Specifically, according to the national accounts, the remuneration per full-time employee has increased at an average rate of 0.5% per year between 2013 and 2018. Nevertheless, the wages agreed through collective agreements have shown more buoyancy, with year-on-year growth increasing from 0.4% at the beginning of 2013 to 1.7% at the end of 2018. Thus, the collective agreements suggest that wage growth in the economy as a whole could be a little stronger over the coming quarters.

Will this have a notable impact on inflation? The group of benchmark prices, i.e. the consumer price index (CPI), includes a diverse range of products which, therefore, have different sensitivities to the domestic business cycle (for example, some of them are highly integrated into the global production chain, hence their prices are determined internationally). Therefore, to answer our question, we disaggregated the CPI<sup>5</sup> into nearly 100 components, both for Spain and for the euro area as a whole, before analysing the historical sensitivity of each of these components in relation to the trend in wages.<sup>6</sup>

Thus, based on the historical relationships between prices and wages, we identified the components of CPI whose prices respond positively to an increase in wages. In line with the loss of inflation’s sensitivity to the labour market discussed earlier, our exercise shows that, in Spain, the weight of prices that are sensitive to wage growth has substantially reduced.

**Sensitivity of inflation to wages**

*Weight of the prices that are sensitive to wage growth as a proportion of the HICP as a whole (%)*



Source CaixaBank Research, based on data from Eurostat.

Specifically, these components have gone from representing around 30% of the total of all the prices in the index in the period between 2002 and Q2 2008 (the previous expansionary phase) to slightly less than 20% in the most recent period (see the third chart). In fact, with this trend, Spanish inflation’s sensitivity to wages has moved closer to that of inflation for the euro area as a whole (where components sensitive to wage growth represent slightly less than 10% of the total), although it remains notably higher than that of the other major euro area economies.<sup>7</sup>

In conclusion, our analysis highlights a loss of sensitivity of Spanish inflation to wage growth. This is consistent with the decoupling between the trends in inflation and the labour market that has been observed across the major international economies. However, the loss of sensitivity of Spanish inflation has brought it closer to that of its main European partners. Therefore, the greater buoyancy in wages that is expected over the next few years is likely to have a moderate impact on Spain’s inflation, especially in comparison to the previous expansionary phase. Furthermore, the pace of recovery of the underlying inflationary pressures is likely to be gradual and relatively in line with that of the euro area as a whole.

4. See, for example, the Focus «Beyond the unemployment rate», in the MR12/2017.  
 5. We focused the analysis on the harmonised index of consumer prices (HICP) in order to make the results comparable between different euro area economies.  
 6. For each component of the HICP, and in each region, the relationship is estimated as follows:  $\pi_{it} = a + \rho \pi_{it-1} + \beta wages_{it-1} + \Omega oil_t + \varepsilon_{it}$ , for  $j = 0, 1, \dots, 4$ .  $\pi$  is the inflation of the component;  $wages$  refers to wage growth, and  $oil$ , the growth in the oil price. This analysis is performed using quarterly data starting from 2002 and for three different periods: 2002-Q2 2008, Q3 2008-2013 and 2014-Q3 2018. Within each sample period, we consider a component to be sensitive to wage growth when the coefficient  $\beta$  is highly positive in at least one of the five estimates (i.e.,  $j = 0, 1, \dots, 4$ ).

7. The same exercise applied to Germany and France shows that the components of these economies’ HICP that are sensitive to wage growth make up around 10% of the total.