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Real wage cyclicality in the Eurozone before and during the Great Recession: Evidence from micro data

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ABSTRACT

We study the response of real wages to the business cycle in eight major Eurozone countries before and during the Great Recession. Average real wages are found to be acyclical, but this reflects, in large part, the effect of changes in the composition of the labour force related to unemployment variations over the cycle. Using longitudinal micro data from the ECHP and SILC panels to control for composition effects, we estimate the elasticities of real wage growth to unemployment increases between −0.6 and −1 over the period 1994–2011. Composition effects have been particularly large since 2008, and they explain most of the stagnation or increase in the average wage observed in some countries from 2008 to 2011. In contrast, at a constant labour force composition in terms of education and experience, the figures indicate a significant decrease in average wages during the downturn, particularly in countries most affected by the crisis. Overall, there is no evidence of downward nominal wage rigidity during the Great Recession in most countries in our sample.

1. Introduction

In the first years of the Great Recession in the Eurozone, aggregate real wages did not react significantly to the downturn, particularly in countries most affected by the crisis. These developments raised serious concerns about the long-term viability of the Eurozone. Wage flexibility is viewed as crucial in a currency union where internal migrations until now have been too low to ensure a significant macroeconomic adjustment (Anderton et al., 2012; Krugman, 2013). A combination of fixed exchange rates, low inflation and downward nominal wage rigidity creates real rigidities (Schmitt-Grohe and Uribe, 2013). As the labour market does not clear, involuntary unemployment increases following patterns originally described by Keynes (1925) or Friedman (1953). According to this narrative, downward nominal wage rigidity might thus be partly responsible of the current unemployment crisis in the periphery of the Eurozone.

However, most of the evidence that wages were relatively rigid during the Great Recession relies on aggregate data from national accounts. These figures are the only comparable cross-country data that are rapidly available, but they are not

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without limitations. An important shortcoming is the difficulty in interpreting their evolution, particularly during exceptional crisis periods, if the composition of the labour force changes significantly over the cycle.

Cyclical changes in the composition of the labour force reflect the fact that, empirically, unemployment disproportionately concerns low-wage workers.[2] When unemployment increases, the labour force becomes older and more skilled. This affects the average wage in a counter-cyclical way; the average increases mechanically because the share of low-wage workers in the population diminishes. When these composition effects are large, they may mask the response of wages to the cycle in the aggregate series.

Many studies have shown that compositional biases are quantitatively important in aggregate data since Bils (1985) and Solon et al. (1994). This issue is also discussed in standard macroeconomic textbooks (Romer, 2006 p. 264) as understanding whether wages are rigid is quite important to discriminate between theoretical models of macroeconomic fluctuations (Swanson, 2004). [3]

Surprisingly, composition effects during the Great Recession in continental Europe have received relatively little attention despite the fact that unemployment changes have been particularly dramatic.[4] From 2007 to 2012, unemployment increased by 16 p.p. in Spain, 7.8 p.p. in Portugal, and 4.6 p.p. in Italy. Unemployment has affected unskilled and young workers in a particularly severe way, and as a result, the characteristics of employees changed dramatically. In Spain, the share of less educated workers among employees decreased by 8 p.p. from 44% to 36% between 2007 and 2012, while the share of university graduate workers increased symmetrically by 8 p.p.[5] Because of these large changes, it is unclear how much the evolution of aggregate wages during the Great Recession in these countries reflects a change in the price of labour or in the composition of the labour force.

More generally, whether wages are relatively more rigid in Europe than in other countries remains an open question. While some important and recent works using micro data to estimate the cyclicality of wages are now available for several major European countries,[6] comparisons are difficult, as the construction of the sample, data source and period vary in potentially significant ways across studies. Most of these studies were also conducted before the recent crisis, and the importance of wage rigidity in the recent period remains an open question.

In this paper, we use harmonised panel micro data from the period 1994–2011, covering eight major countries of the Eurozone, to examine the relationship between real wages and the business cycle before and after the Great Recession. As in previous work, we find that aggregate real wage series are not cyclical. However, when we account for changes in the composition of workers using individual data, we find that this acyclicality reflects the consequences of compositional changes in the labour force. We obtain statistically significant elasticities of real wage growth to unemployment changes of between -0.6 and -1.[7] These values are quite close to those reported in the existing literature for the US but are nevertheless lower than those for the UK in recent studies.

However, panel data is not always available, and even when they are, they might not be rapidly released which prevent the analysis of recent periods. To test the importance of relying on panel data, we assess whether using cross-sectional data, which is more easily available, affects the estimates in our sample. Instead of using individual fixed effects to account for composition effects, we use flexible controls for education and potential experience through the interaction between eight cells of potential experience and three levels of education. While far from perfect, we find that such method is able to account for a large share of the composition biases. The estimated coefficient is found to be negative and is measured relatively precisely, but it is slightly smaller, close to -0.42.

During the Great Recession, we find that the apparent rigidity of average real wages in the aggregate data has been substantially exaggerated by composition biases. Most of the increase or stagnation in real wages in aggregate series can be explained by composition effects, particularly in countries most affected by the downturn. When we control for composition, we observe that real wages responded significantly to the downturn.

Some evidence suggests that the adjustment is heterogeneous over the distribution of wages. We find a much higher elasticity of wage growth for workers in the first decile than in the rest of the distribution. Consistent with the existing literature, the elasticity of job changers is found to be double that of job stayers. On the other hand, there is little evidence that wages adjust additionally to region-specific unemployment shocks. This implies that within countries, most of the adjustments to a negative regional labour demand shock will depend on internal labour mobility.

In the second part of the paper, we examine in detail the distribution of individual wage changes in order to study the interplay between inflation and wage adjustments. A particularly interesting aspect of our dataset is that half of the

[2] See Chirinko (1980), who shows that low-wage workers are more affected by unemployment than high-wage workers during recessions.

[3] While modern approaches are less clear-cut, the real business cycle models initially proposed by Kydland and Prescott (1982) posit that economic fluctuations reflect exogenous shocks to the economy's technology. These models are consistent with a procyclical relationship between real wages and employment, as wages adjust to shocks. In contrast, for classical or traditional Keynesian models, wage stickiness explains the cyclical volatility of employment.

[4] A recent exception is provided by Blundell et al. (2014) on the UK. Because unemployment in the UK did not increase as much as in continental Europe, they find little difference between aggregate wage series and series adjusting for composition effects.

[5] Figures from aggregate LFS data obtained from Eurostat website.

[6] See Anger (2011) for Germany, Peng and Siebert (2008) for Italy, Verdugo (2013) for France and Carneiro et al. (2012) for Portugal. For non-European countries, see also Shin (2012) for Korea, Devereux (2000) for the US and Devereux and Hart (2006) for the UK.

[7] In practice, as we regress changes in log wages on changes in the unemployment rate in percentage point (and not in log), we estimate "semi-elasticities". We use the term "elasticity" in preference to the "semi-elasticity" for simplicity and brevity.