



# How flexible are real wages in EU countries? A panel investigation <sup>☆</sup>



Desislava Rusinova <sup>a</sup>, Vilen Lipatov <sup>b,\*</sup>, Frigyes Ferdinand Heinz <sup>a</sup>

<sup>a</sup> European Central Bank, 60311 Frankfurt am Main, Germany

<sup>b</sup> Goethe University Frankfurt and CESifo, Germany

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## ABSTRACT

We estimate the degree of real wage flexibility in 19 EU countries in a wage Phillips curve panel framework. We find evidence for a reaction of wage growth to unemployment and productivity growth. The degree of real wage flexibility tends to be larger in the central and eastern European (CEE) countries than in the euro area; weaker in downturns than during upswings. There exists an inflation threshold, below which real wage flexibility is low. We also find that a part of the heterogeneity in real wage flexibility and unemployment may be related to differences in the wage bargaining institutions.

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## 1. Introduction

Our objective is to estimate the degree of real wage flexibility in EU member states, where real wage flexibility is defined through the responsiveness of real wages to shocks in unemployment and productivity (throughout the paper, we use terms productivity and productivity growth, wages and wage growth interchangeably, though, strictly speaking, our empirical strategy is to look at growth rates only). While the EU countries in our sample are at very different levels of economic development, labour market flexibility is an extremely important structural factor for all of them. In a monetary union, where independent monetary and exchange rate policy is not available, real wage flexibility is a crucial adjustment channel to asymmetric shocks, especially if cross-border labour mobility and fiscal flexibility is limited.<sup>1</sup> In addition, sufficient real wage flexibility is also desirable in the CEE countries during their convergence process, in particular to cope with external shocks and structural adjustments that may temporarily cause a decrease in aggregate demand. Those economies, where a flexible

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\* Corresponding author at: Grüneburgplatz 1, 60323 Frankfurt am Main, Germany. Tel.: +49 69 798 34793.

E-mail address: [Lipatov@em.uni-frankfurt.de](mailto:Lipatov@em.uni-frankfurt.de) (V. Lipatov).

<sup>1</sup> See for example Chapter 4 in [European Commission \(2007\)](#): European Economy No. 6/2003; The EU Economy: 2003 Review.

downward adjustment of real wages is possible, tend to have a better chance to withstand adverse economic shocks with lower adjustment costs (e.g. unemployment) than economies that are characterized by rigid real wages.

In principle, there are two major approaches measuring real wage flexibility: the wage curve and the Phillips curve approaches. While the wage curve approach (e.g. [Blanchflower, 2001](#)) mainly uses microeconomic data (large datasets of individual data), the Phillips curve approach (e.g. [Blanchard and Katz, 1999](#)) measures aggregate wage flexibility relying on macroeconomic data (aggregate wages, inflation, unemployment). The conceptual difference between the two approaches is that the wage curve approach relates the level of wages to the unemployment level and therefore represents an equilibrium concept, while the wage Phillips curve relates wage growth to the unemployment level and hence reflects an adjustment process towards equilibrium. Consequently, real wage flexibility is also defined differently: the wage curve approach implies that under higher unemployment, the wage level should be lower, while the Phillips curve approach argues that wages should keep decreasing. Given the availability only of macroeconomic data, we opt for the Phillips curve approach.

We are interested in comparing real wage flexibility across countries and country groups in a broad sense, taking into account its multi-dimensional nature. Hence, we conceptualize real wage flexibility in a broad way, using two indicators. In the first place, similarly to [Babetskii \(2006\)](#), we assume that real wage flexibility is defined through a significant negative link between unemployment and wage growth. Conversely, real wage rigidity implies either an absence of such effect, or a considerably retarded one. As a second indicator of real wage flexibility, we assess the responsiveness of wages to changes in productivity, which has attracted substantially less empirical research than the link with unemployment. For each of these indicators, we compare not only the coefficient sizes, but also the speed and lag structure of the response: as [Kittel \(2001\)](#) argues, it is important to consider not only the differences in the flexibility outcomes, but also in the way these outcomes have been achieved. The timeliness of the wage response to economic developments is also relevant, since if it is strongly delayed, then the adjustment might not be optimal any longer in the presence of new shocks.

The empirical literature has found some evidence of real wage flexibility in the EU economies, with substantial heterogeneity across countries (e.g. [Arpaia and Pichelmann, 2007](#); [Babetskii, 2006](#), etc.). However, the literature is often inconclusive about the nature of the factors behind country heterogeneity and the magnitude of their impact. Comparison with existing studies is often hindered by differences in model specifications, time periods and different sets of dependent and control variables. In particular, in many cases only contemporaneous variables and not lag structures are considered, hence the estimation does not capture the dynamic nature of the wage response.

In order to determine the country groups, we consider four factors which we expect to have an impact on real wage flexibility: the cyclical position of the economy, proxied by the sign of the gap between cyclical unemployment and NAIRU, the CEE countries vs. euro area division, the labour market institutions and the level of inflation. For each of the factors, there is a body of previous research which provides some expectations about the way they would affect real wage adjustment.

Regarding the dependence of real wage flexibility on the phase of the cycle, the available evidence suggests that it is substantially higher in downturns than in upswings (e.g. [Woitek, 2004](#); [Arpaia and Pichelmann, 2007](#); [Messina et al., 2009](#)). We confirm these findings on the sample restricted to observations no later than 2008, revealing that overall rigidity of wages with respect to unemployment changes in downturns comes from the lagged response of wage growth after 3 quarters that neutralizes the initial response. Upturns, to the opposite, are characterized by the lack of any delayed response. At the same time, for the sample including recent years, i.e. observations up to 2013, we do not find such a differential response. This may be due to the policies and reforms following the debt crisis, suggesting that wage flexibility was improved even for downturns.

As for the comparison between CEE countries and the euro area, there are only a few recent studies which tackle this issue. The results of [Babetskii \(2006\)](#), which are based on macroeconomic data, do not seem to support the argument that the degree of wage adjustment in three EMU members is higher than in the CEE countries. [Van Pooeck and Veiner \(2007\)](#) finds, however, that wages in the four selected CEE countries are more responsive to unemployment than in most EU countries. His finding is associated with differences in labour market institutions, showing that on average institutions are more flexible in the 4 CEE countries in their sample than in the 9 other EU countries. Our results are in line with his, suggesting higher responsiveness of wages in CEE countries both to productivity and unemployment shocks.

Much of the empirical literature concentrates on the centralization of wage bargaining, but it is generally inconclusive about its effect on economic outcomes ([Du Caju et al., 2008](#)). Some authors find supportive evidence for the Calmfors–Driffill hypothesis, which postulates a hump-shaped relationship between the level of coordination in the wage negotiations and the degree of real wage moderation. According to the hypothesis, centralized bargaining produces moderate results because of internalizing the negative effects of excessive wage growth on the entire economy, and the company level bargaining – since wage growth is limited by competitive forces ([Calmfors, 1993](#)). We cannot reject this hypothesis with our data.

[Alesina and Perotti \(1997\)](#) find support for the hump-shaped relationship between the level of wage bargaining this indicator and wages. [Nunziata \(2005\)](#) suggests that wage growth moderates with higher level of coordination: while there is no significant effect in countries where coordination remained stable over the period, the increasing level of wage bargaining coordination in the 1990s has been particularly relevant for moderating labour costs in Ireland, France and Italy. [Kittel \(2001\)](#) finds that countries with uncoordinated labour markets tend to respond less flexibly to shocks than those that rely on some kind of coordination, especially pattern setting and peak-level coordination.

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