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Wage rigidity and employment adjustment at the firm level: Evidence from survey data[☆]

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HIGHLIGHTS

- We investigate how firms adjust labour costs in the presence of wage rigidities.
- Portuguese firms adjust labour costs by adjusting the quantity and cost of labour.
- Firms with more flexible base wages are 20 pp. less likely to reduce employment.
- By cutting labour costs, firms are 35 pp. less likely to reduce employment.

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ABSTRACT

This paper uses firm level survey data from Portugal to investigate how firms adjust their labour costs in the presence of wage rigidities. We document that Portuguese firms, besides reducing employment or freezing nominal base wages, also make frequent use of other cost-cutting strategies, like freezing or cutting bonuses and other monetary or non-monetary benefits, slowing down or freezing the rate at which promotions are filled, or recruiting new employees at wages lower than those received by the employees that have left the firm. We show that the utilisation of these different adjustment strategies is affected by workers' and firms' attributes, as well as by some indicators of the economic environment in which firms operate. More importantly, we provide evidence that firms with more flexible base wages are less likely to reduce employment, and that such effect may be significantly strengthened by the availability of alternative labour-cost adjustment margins that firms can use in bad times.

1. Introduction

Understanding the interaction between wage and employment adjustments is very important for the design of monetary or fiscal policies aiming to stabilise the economy. This paper contributes to this literature by analysing how firms, in the presence of wage rigidity, combine different channels of labour-cost adjustment in response to adverse shocks.

Wage rigidity is expected to have implications for unemployment because, in the face of negative shocks, employment adjustment is likely to be larger when wages are rigid downwards. Wage rigidity is also thought to have important implications for monetary policy, as it may condition the inflation target that monetary authorities should pursue. If nominal wages were perfectly flexible it would be optimal to aim at zero inflation but, in the presence of downward nominal wage rigidity, a certain amount of inflation may be required to "grease the wheels" of the labour market by easing reductions in real wages.[1]

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[1] For a discussion, see, among many others, Akerlof et al. (1996), Gordon (1996), Mankiw (1996), Dwyer (2003), Fehr and Goette (2005), Carlsson and Westermark (2007), Elsby (2009), Messina and Sanz-de Galdeano (2011) and Stüber and Beissinger (2012).

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The bulk of the empirical literature aimed at assessing the extent and the effects of nominal wage rigidities has focused on base wages or permanent wages (base wages plus other components that are paid on a permanent or regular basis, such as meal allowances, tenure-related components, etc.), leaving aside potentially more flexible pay components, such as performance-related bonuses, commissions and other benefits, which may strongly attenuate the negative impact on employment of strict downward base-wage rigidity.[2] Exceptions are the contributions by Lebow et al. (2003), Dwyer (2003) and Oyer (2005) who look at the role played by benefits in reducing nominal wage rigidity. They conclude that firms seem to be able to partly circumvent wage rigidity by varying benefits so that total compensation displays less rigidity than do wages alone.

This paper extends the existing literature by discussing the implications of wage rigidity in a context where several labour-cost adjustment margins are available to firms. Since firms are primarily concerned with total compensation per employee, the assessment of the importance of these alternative labour cost adjustment strategies is crucial to evaluate the overall degree of labour cost flexibility and its implications. Based on firm-level survey data for a sample of Portuguese firms, this paper investigates whether these alternative margins of labour cost adjustment have been used as substitutes or complements to base wages and, most importantly, whether their utilisation has significantly reduced the detrimental impact on employment of base-wage rigidities in the Portuguese labour market.

Overall, the analysis carried in the paper shows that base-wage flexibility has a strong positive impact on employment in the face of negative shocks, and that such impact is significantly reinforced by the existence of alternative margins of labour cost adjustment. In particular, the availability of compensation components (bonuses, benefits and promotions) that firms can freeze or cut in bad times, and the possibility of recruiting new employees at a wage lower than the one of those who have recently left the firm contribute to partly offset the negative impact of base-wage rigidities on employment.

The rest of the paper is organised as follows. Section 2 describes the dataset. Section 3 provides the institutional and theoretical background for the econometric model used in the empirical section of the paper. Section 4 presents some preliminary analysis of the data. Section 5 discusses the econometric methodology, presents the estimated models and discusses the main results. Section 6 provides some concluding remarks. Finally, Appendix A describes how the different variables were constructed.

2. Data sources

Most of the data used in this study come from a survey on wage and price setting practices carried out by Banco de Portugal in 2008 on a sample of Portuguese firms.[3]

In this survey, firms were asked two questions pertaining to the different margins of labour cost adjustments, including base-wage freezes, reduction or elimination of other compensation components and reduction of employment.

As regards base-wage freezes firms were asked the following question: "*Over the last five years, has the base wage of some workers in your firm ever been frozen*?". Under the assumption of a common negative shock, and in the absence of nominal wage cuts, wage freezes identify those firms in the sample where base wages exhibit the lowest degree of real downward rigidity. Thus, for the purposes of the present paper, we look at base-wage freezes as a measure of downward wage flexibility.[4]

In the second question, firms were asked if they had ever used ways of cutting labour costs other than changing their base wages. In particular, they were asked the following question: "*Have you ever used any of the following strategies to reduce labour costs*?" Firms participating in the survey were allowed to choose as many options as they wished from the list below:

1) *Reduce or eliminate bonus payments and other monetary benefits*;
2) *Reduce or eliminate non-monetary benefits*;
3) *Slow or freeze the rate at which promotions are filled*;
4) *Recruit new employees at a wage lower than the one of those who left the firm*;
5) *Reduce the number of employees*.

These five strategies together with wage freezes summarise the main labour cost-cutting strategies available to Portuguese firms in the face of negative shocks.[5] Wage freezes and strategies 1 to 4 may be seen as affecting the average price of labour. Further below, for estimation purposes and tractability reasons, strategies 1 to 3 (the reduction or elimination of monetary and non-monetary benefits and the slowdown or freezing of promotions) will be aggregated in a single margin and denoted together as "flexible margins" as they are usually seen as more flexible than base wages. The reduction in the number of employees affects the quantity of labour and will be denoted simply as "reduce employees".

Besides the questions on base-wage freezes and on the alternative margins of labour cost reduction, the survey also contains information on a large set of firms' characteristics. These include information on the composition of the labour force (share of white collar vs. blue collar workers; share of low skilled vs. high skilled workers; share of workers with permanent contracts), the percentage of workers covered by collective wage agreements, the share of exports in firms' total sales, and the relevance of some factors as obstacles to wage cuts/freezes in a context where firms may desire to reduce their labour costs, such as the constraints imposed by collective wage agreements, the negative impact on firms' reputation or the difficulties in attracting new workers in the future.

After excluding from the sample those firms that have not fully answered the two questions on the alternative strategies to reduce labour costs, we were able to obtain detailed information on 1319 firms from different branches of activity. More specifically, our sample includes firms with 10 or more employees, covering manufacturing (38%), energy (3%), construction (11%), retail and wholesale trade (17%), and other business services (31%).

However, for estimation purposes, and for reasons that will become clear further below, we restrict the analysis to firms that have reduced costs, i.e., that have used at least one cost-cutting strategy. This reduces the original sample to 757 firms. Also for estimation purposes, the information from the survey was supplemented with data from *Quadros de Pessoal*, a large administrative database collected by the Ministry of Employment and Social Security, which, among other, includes information about all the Portuguese firms with wage earners (size,

[2] For empirical evidence on downward wage rigidity see, for instance, Altonji and Devereux (2000), Knoppik and Beissinger (2006), Dickens et al. (2007), Goette et al. (2007), Holden and Wulfsberg (2008, 2009), Behr and Pötter (2010) and Messina et al. (2010).

[3] Details on the sample selection method, as well as a copy of the full questionnaire can be found in Martins (2011).

[4] Information on wage freezes has been used in the literature as a measure of the degree of downward nominal wage rigidity (see, for instance, Babecký et al. (2009, 2010)). In our view, however, wage freezes can be seen as a measure of downward nominal wage rigidity only if the analysis is restricted to the population of firms where wages have been frozen or cut (see for instance, Holden (2004), Dickens et al. (2007) and Holden and Wulfsberg (2008)). Radowski and Bonin (2008) have also used the frequency of wage freezes or wage cuts as a proxy for wage flexibility in Germany.

[5] The original question in the survey included also the option "*Change the policy of shifts* (*reducing the number of hours and or shift premia*)". The answers to this option are not analysed in the paper because they involved a small number of firms and because we also believe that such option is basically used by firms whose product has very specific characteristics, making it difficult to find a meaningful set of regressors capable of explaining why some firms use that option with higher probability than others.