Exporters versus domestic wage adjustment during the Great Recession in Spain

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Abstract

During the Great Recession southern European economies belonging to the Euro area could not devaluate their domestic currency as they did in previous recessions. In the absence of an exchange rate devaluation policy option, they were forced to an internal devaluation (i.e. to reduce domestic prices and wages in order to stimulate exports and job creation). In this paper we document the extent of the wage adjustment and the differences in the adjustment patterns followed by exporter versus domestic firms in Spain during the Great Recession. We use linked employer–employee data to document that wages at exporter firms are higher than at domestic firms, due in part to a composition effect, and mainly to the existence of a wage premium. We show a significant reduction in the exporter wage gap between 2006 and 2010 due to changes in characteristics but more importantly to a sharp reduction of the wage premium paid by exporters. This finding suggests that exporter firms are showing a higher wage moderation than domestic firms.

Keywords: wage adjustment, international trade, quantile regressions, export wage premium, linked employer-employee data.

JEL codes: F12, F16, E24.

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1 Introduction

The Great Recession (2007–2010) is, for many European economies and in particular the Spanish economy, the first recession since the creation of the Euro. The adoption of the single currency has meant the transfer of monetary policy to the European Central Bank as well as the impossibility of resorting to devaluation of the national currency. These policy constraints pose a serious challenge to traditional market adjustment mechanisms in Spain. The internal –soaring unemployment– and external –current account deficit– imbalances require an intense adjustment –so-called internal or competitive devaluation– acting simultaneously to reduce unemployment and to boost exports. In this paper we document the extent of the wage adjustment and the differences in the adjustment patterns followed by exporter versus domestic firms in Spain during the Great Recession.

Exporters are exceptional performers when compared with domestic-oriented companies. They are more productive and pay higher salaries than domestic firms.¹ Most of the explanations on the exporter wage gap are based on Melitz (2003) model. Under this framework, firms differ in productivity and given the existence of fixed costs of serving foreign markets, only the most productive firms export. Wages could differ for similar workers among exporters and domestic firms due to the existence of frictions in the labor market. One strand of the literature assumes that frictions are caused by different rent-sharing mechanisms: efficiency wages, as in Amiti and Davis (2012), fairness consideration in the wage bargaining process, as in Egger and Kreickemeier (2012), or collective bargaining, as in Felbermayr, Prat, and Schmerer (2011). A common feature of these models is that workers are randomly allocated across firms and rents that firms share with workers vary with firm’s productivity or profits. Another strand of the literature assumes frictions in the labor market caused by search and matching costs, as in Davidson and Matusz (2004) and Helpman, Itskhoki, and Redding (2010). All these papers have in common that the worker-firm-specific match friction is ex-ante unobservable and that bargained wages vary with firm’s revenue.

In past recessions, the Spanish economy has gone through large exchange rate devaluations. For instance, during the 1992–1995 recession the peseta suffered four subsequent devaluations of 30% with respect to the DM.² The continued re-adjustment of the Spanish economy through currency devaluations reveals the rigidity of nominal variables (i.e. prices and wages) to reach their equilibrium levels. Instead, after the adoption of the Euro the traditional demand-sided policies are by far more limited, and the traditional adjustment via currency devaluation, as in previous recessions, is no longer a feasible option.³ The bottom line is that in the absence of the traditional adjustment mechanism, the Spanish economy is doomed to experience a sustained path of wage moderation to gain competitiveness with respect to the trade partners and to stimulate aggregate demand through exports. A necessary condition for this to happen is that wages paid by

¹Many papers have documented this and other facts. See, for example, Wagner (2012) for a survey of the literature.
²On 17 September 1992, the peseta was devalued by 5 percent. But soon after, on November 23, given the enormous losses of foreign exchange reserves, the Bank of Spain had to devalue it an additional 6 percent. There was a further devaluation of 8 percent in May 1993, and in March 1995 a final devaluation of 7 percent.
³Fiscal policy under the EMU is also severely constrained which forces individual countries to keep inflation levels close to those of trade partners’ within the Euro Area. Persistent inflation differentials generates competitiveness losses and cast doubts about the inappropriateness of the wage-setting process.
companies whose main market are in other countries show greater moderation, due, for instance, to avoid signing wage revision clauses in collective agreements or linking wages to performance.\textsuperscript{4}

In this paper, we evaluate how this mechanism has worked in Spain between 2006 and 2010. First, we compare individuals' wages of workers at exporting and domestic companies along the wage distribution, before and after the Great Recession, in a period where labor market institutions remained largely unaltered.\textsuperscript{5} Using a Oaxaca-Blinder type decomposition, we are able to decompose the wage gap paid by exporter versus domestic firms in three components: differences in characteristics of the workforce, differences in returns of those characteristics, and differences in residuals. After that, we analyze how those components have evolved during the crisis. Our findings show a reduction in wage differences between exporters and domestic firms for most parts of the distribution mainly due to changes in the wage structure (i.e. returns), although changes in characteristics play also an important role. This finding highlight the enormous difficulty to reduce labor costs for domestic-oriented firms, and it helps to understand why companies resort to layoffs when they face negative demand shocks. Moreover, these results suggest that exporters are more flexible setting wages than domestic firms. This finding highlight a novel issue in the literature of the exporter wage premium: exporters pay higher wages than domestic firms, but they also face more volatile wages along the business cycle.

The paper is organized as follows. In Section 2 we describe the data and the methods used in the empirical analysis. In Section 3 we present the results, and in Section 4 we conclude.

2 Data and method

To evaluate how wages evolve in the Spanish labor market we use data from the Wage Structure Survey–WSS (\textit{Encuesta de Estructura Salarial}) collected by the Spanish National Statistics Institute (INE) and in collaboration with Eurostat. The WSS is a public data set that contains detailed information of salaries, workers, and job characteristics for a large sample of wage-earners and establishments representing the whole economy. We select the 2006 and 2010 waves to compare the previous and final years of the Great Recession affecting the world economy.

The variable of interest is the log hourly wage in constant 2006 Euros. Wages comprises the real gross monthly salary plus any extraordinary payments made by the firm during the month of October.\textsuperscript{6} The hours of work are calculated as the amount of hours actually worked with the information of regular and irregular hours, and discounting non-paid days for each employee. In our sample, we only consider full-time workers and establishments

\textsuperscript{4}Most collective agreements in Spain include clauses of wage indexation based on the forecast inflation rate and include a wage revision clause when actual inflation exceeds the government forecast. Increasing competition poses the question whether wage indexation should use as reference individuals’ productivity and firm performance.

\textsuperscript{5}On September 2010 the socialist Government passed a first labor market reform to facilitate job dismissals. Given that we use wage data for October 2010 their effects are highly unlikely to be reflected immediately. On February 2012 the conservative Government designed a more ambitious labor market reform to facilitate wage cuts.

\textsuperscript{6}The surveys only include workers who were on payroll during the whole month of October. Eurostat and National Agencies use this month because it is less affected by seasonality and other effects than other months of the year.
from the manufacturing private sector. Therefore, the final results are conditional to the sample selected.

We describe the level of the exporter versus domestic wage gap in a year prior to the world recession – in 2006 – and at the end – in 2010 – along the wage distribution. In either period, the exporter wage differentials paid to individuals can be attributed to differences in characteristics (i.e. quantities), differences in returns of those characteristics (i.e. prices), and differences in unobserved prices and skills (i.e. residuals). We follow a similar approach than Juhn, Murphy, and Pierce (1993) to decompose wages between two distributions. However, instead of assuming that the residuals are independent from the covariates, we follow the approach from Melly (2005) and Chernozhukov, Fernández-Val, and Melly (2013) and estimate the distribution of the residuals by a family of quantile regressions.

The specification of the wage equation follows the human capital model. The dependent variable is the (log) hourly wage measured in 2006 Euros, as previously explained. The explanatory variables contain as regressors the conventional human capital controls plus dummies for eight industries, eight occupations, and seven regions. The variables that control for individuals characteristics are dummy variables of sex, three age categories, three educational levels, and four tenure levels. With this specification we are controlling for all the relevant sources of observable worker heterogeneity and for the potential changes in the returns to skill.

We estimate the model of log wages for two separate group of workers, those who work in exporting firms and those working in domestic companies. An exporter is an establishment whose main market is a foreign one, and a domestic firm is an establishment selling mainly within the country. Importantly, this approach fits the Melitz-type of models of firm heterogeneity, where the most productive firms self-select into export markets, that is, the export status of the firm reveals the single source of plant heterogeneity: the productivity level. According to the theory, firms with higher productivity become larger and simultaneously engage in export activities. That is, the Melitz (2003) model features an exporter wage premium conditional of firm productivity. Hence, given the systematic relationship between firm characteristics and the export participation present in all the models based on Melitz (2003), the exporting status summarizes in one single statistic the basic causal channel at work.

3 Results

In Figure 1 we describe the magnitude of the wage disparities paid at exporter versus domestic firms and each component along the distribution. In each plot, we represent for every year the estimated unconditional exporter wage gap as a solid line, the coefficients effect (the wage premium) in short-dashed line, the characteristics effect in dashed-dotted line, and the residuals in long-dashed line. Notice that given the type of decomposition adopted, the total wage gap (solid line) is the sum of the remaining (dashed) effects. For comparisons, we also represent the conditional mean effect as a horizontal solid line.

\footnote{Using industry, occupation, and region dummies we account for unobserved wage differentials such as a wide range of compensatory wages.}

\footnote{The theory does not feature an exporter wage premium conditional on firm size or any other arbitrary characteristic. Hence, in a structural estimation there is no room for considering any other variable apart}
Figure 1: Wage gap decompositions. The solid horizontal line represents the least squares conditional mean estimate. Shades represent 95% confidence intervals for coefficients and residuals differences.

The total estimated –unconditional– exporter wage gap has an inverted-U shape in all the years and its magnitude has been reduced in the period. The coefficients effect is quite constant in 2006 along all the quantiles –slightly over 0.15 log points– but turns decreasing –below 0.15– in 2010 for the whole distribution.\textsuperscript{9} The characteristics effect was increasing along the distribution in 2006 and became decreasing in 2010. On the other hand, the residuals effect has an inverted-U shape that is replicated in the estimate of the total exporter wage gap. The differences in residuals are non-different from zero for most parts of the distribution in both years, but they are small and positive at the center and negative at the extremes.

The total wage gap of exporters versus domestic firms can be largely attributed to differences in wages and to a lower extent to differences in workers characteristics. This is not a novelty in the literature, for example, empirical studies using linked employer-employee data sets show that the wage differences is only partially explained by observed and unobserved individuals characteristics (see Schank, Schnabel, and Wagner 2007; Munch and Skaksen 2008; Frias, Kaplan, and Verhoogen 2009).

To explore further the relative wage changes occurred during the period, we simply from the export status to differentiate the two groups of firms.

\textsuperscript{9}It is noticeable that the quantile effects are above the mean effect in 2006. This is due to the sensitiveness of the conditional mean to the outliers. In this case, located at the extremes of the distribution. Note that the method exclude estimates for the lower –below 0.1– and upper –above 0.9– quantiles due to lack of precision.
represent the difference between 2006 and 2010 of each component along the wage distribution. Figure 2 shows how the exporter wage gap has evolved and the sources of the differences. First, the wage gap has lowered for almost all the workers implying that labor costs at exporter and domestic firms are converging. Labor costs cuts are larger as we move up through wages, for instance, the wage gap is 0.05 log points lower in the lower queue and, of about 0.10 for the upper queue of the distribution. Second, the sources of the labor costs adjustments are similarly attributed to both changes in characteristics and changes in wages, although the drop of wages are more pronounced than the drop of characteristics. Again, we find for both coefficients and characteristics a negative slope. Third, regarding the residuals changes, there is a positive change in residuals in the lower part of the wage distribution but a negligible change in the upper part of wages.

It is noticeable that wage changes at exporter firms in comparison to domestic companies are negative for all the quantiles, and that they are more intense as we move up through the wage distribution. This fact has also some implications regarding the contribution of exporting to the recent rise in wage inequality (e.g. OECD, 2011). Interestingly, exporting is commonly associated to rising wage dispersion (see Bernard and Jensen 1997; Baumgarten 2013; Klein, Moser, and Urban 2013); however, our findings suggest that although this can be the case in the long run, the cyclical position of the economy can moderate, or even invert, the contribution of exporting to wage inequality.
4 Conclusion

After the Great Recession, Spain and other southern European countries belonging to the EMU must regain export competitiveness through a wage devaluation process. Ruled out the possibility of devaluing the currency, a necessary condition for this to occur is that wage developments in the export sector show a greater moderation, for instance, due to a closer linkage to wage developments trade partners experience. Using a large sample wage earners in Spain between 2006 and 2010 we show that exporter firms pay higher wages than domestic firms due mainly to the existence of a wage premium. However, there has been a reduction in this gap during the crisis. The decomposition analysis performed shows that this decrease is mainly due to uneven growth of wages in the export sector, even though the changes of composition of the labor force also operate in the same direction, although to a lesser extent.
References


