



# Labor market rigidities and economic efficiency: Evidence from Spain <sup>☆</sup>

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## HIGHLIGHTS

- ▶ We assess the impact of Spanish labor reforms that restricted the use of temporary workers.
- ▶ We study the gap between an input's value of marginal product and its price.
- ▶ Our results suggest a positive and significant impact of these reforms on the permanent labor gap.

## ARTICLE INFO

### Article history:

Received 9 September 2010

Received in revised form 30 July 2012

Accepted 18 August 2012

Available online 1 September 2012

### JEL classification:

J23

J38

J41

L20

### Keywords:

Productivity

Dismissal costs

Temporary contracts

Labor market reforms

## ABSTRACT

In the 1990s, Spain approved two labor reforms aimed at reducing the unemployment level and its volatility. Overall, these reforms involved two measures designed to induce firms to meet their labor needs via adjustment of permanent positions: restricting the use of temporary workers and reducing the amount of severance payments. This paper empirically assesses the impact of these reforms on the allocative efficiency of the labor input employing Petrin and Sivadasan's (2011) value of the marginal product-marginal cost gap methodology. We find a statistically significant increase in within-firm permanent labor gaps following the reforms. These results suggest that restrictions on the use of temporary workers (increasing the probability of hiring *fragile* workers for permanent positions), when coupled with uncertainty about enforcement of reduced severance payments, could more than offset the reduction in severance payments; hence, the net effect of the reforms could be to increase adjustment costs for permanent positions.

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## 1. Introduction

Traditional economic theory suggests that firms adjust employment to equate the marginal revenue product of labor with its

marginal cost. In practice however, firms are confronted with several rigidities that may prevent them from adjusting employment to its optimal level. Job security provisions, such as dismissal costs and severance payments, raise the firm's adjustment costs; hence firms might find it optimal not to hire workers when a positive shock pushes the marginal revenue product of labor above its wage (Bertola, 1990; Hopenhayn and Rogerson, 1993). When dismissal costs are high, firms might even choose to retain workers whose wages exceed their marginal product (Blanchard and Portugal, 2001). Moreover, hiring could diminish if job security provisions increased the power of incumbent workers, resulting in higher wages for insiders (Caballero and Hammour, 1997).

The effect of employment protection laws (EPLs) on economic performance has sparked a vigorous debate among economists (see Freeman, 2005). Beginning with the seminal work of Lazear (1990), there is a broad and growing literature that explores the consequences of job security provisions on labor market performance and

<sup>☆</sup> We are grateful to Jaime Alonso-Carrera, Alicia Barroso and Consuelo Pazó, as well as to the referee and the editor for their valuable comments. We are also grateful to the seminar participants at the NBER Productivity Lunch Seminars; the Econometric Workshop at the University of Alicante; and the Departament Seminary at the University of Murcia; as well as to the audiences of the XXIII Jornadas de Economía Industrial; the XXIV Simposio de Análisis Económico; EARIE and the XIII Encuentro Economía Aplicada. All errors remain our own responsibility. The financial support from the Spanish Ministry of Science and Innovation through grant ECO2011-25661 is gratefully acknowledged.

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productivity.<sup>1</sup> Addison and Teixeira (2003) and Heckman and Pagés (2004) summarize some of the findings obtained by different papers that analyze the effect of job security regulations on employment, unemployment, turnover, and so forth.<sup>2</sup>

Believing that employment protection laws had had a negative effect on economic performance, several countries reformed their labor markets during the 1980s.<sup>3</sup> These reforms were mostly at the margin, liberalizing the use of temporary workers (fixed-term contracts, FTCs, with low dismissal costs) but leaving essentially unchanged the laws that applied to permanent workers with indefinite-term contracts (ITCs; see Boeri and Garibaldi, 2007).

Following this trend, Spain introduced a two-tier reform in 1984 that relaxed the labor market by allowing employers to hire fixed-term workers with practically no restrictions (Bentolila et al., 2008). In particular, this reform created two types of labor inputs in terms of their flexibility: temporary workers, a nondynamic but totally variable input based on a short-term labor contract (three-year maximum) with no guarantee of renewal and little or no termination costs; and permanent workers, a dynamic input that is costly to adjust because of the significant associated dismissal costs. Despite the reforms, Spain continued to have some of the most stringent regulations for permanent contracts among developed countries.<sup>4</sup>

A nearly immediate consequence of the 1984 reform was a substantial increase in the use of temporary workers: to fully one third of all workers in the labor market, the highest proportion of the OECD countries. This hike in the use of temporary workers may indicate that firms sorely needed to adjust their total labor input to its desired levels but were unwilling to do so through the use of permanent workers. Moreover, there was a significant increase in the volatility of labor market outcomes, characterized by a practically instantaneous adjustment of temporary workers in response to positive or negative demand shocks.

In order to reduce the unemployment level (24% in 1994) and labor market volatility, the Spanish government approved two labor reforms in the 1990s—one in 1994 and another in 1997. These reforms sought to diminish the use of FTCs by inducing firms to fulfill their labor needs through the adjustment of permanent positions (these intentions are evident in preliminary statements of the 1994 and 1997 labor laws; see also Dolado et al., 2002).

<sup>1</sup> Lazear (1990) suggests based on a panel of OECD countries that dismissal costs lead to lower rates of employment and activity rates and to increase unemployment. Bentolila and Bertola (1990) and Bertola (1990) calibrate theoretical models and find that EPLs have negligible effects on employment. Using US data, Hopenhayn and Rogerson (1993) establish that introducing dismissal costs would reduce employment significantly and Autor et al. (2007) find that employment protection reduce productivity. Blanchard and Portugal (2001) analyze the differences in employment protection legislation in the United States and Portugal as well as their consequences for unemployment duration and Micco and Pagés (2006), using data from more than sixty countries, demonstrate that more stringent legislation slows job turnover and that this effect is more pronounced in sectors that are intrinsically more volatile. These authors also report the employment and value added decline in the most affected sectors. Botero et al. (2004) find that heavier regulation of labor is associated with lower labor force participation and higher unemployment. Messina and Vallanti (2007) analyze the impact of dismissal restriction on job flow dynamics in fourteen European countries. Their results indicate that stricter EPLs reduce both the creation and destruction of jobs.

<sup>2</sup> Heckman and Pagés (2004) point out that “while the aggregate evidence on the effects of job security on the level of employment is inconclusive, the microstudies assembled here find a large and negative effect of job security on employment.”

<sup>3</sup> A number of papers evaluate how changes in EPLs have affected labor market outcomes in different countries; Hunt (2000) in Germany; Boeri and Garibaldi (2007) in Italy; Eslava et al. (2004, 2009) in Colombia; Besley and Burgess (2004) in India; Petrin and Sivadasan (2011) in Chile or and Kugler et al. (2003) and Aguirregabiria and Alonso-Borrego (2010) in Spain. The general conclusions of these papers indicate that economic performance improves in response to labor market flexibility.

<sup>4</sup> Bentolila and Dolado (1994) find wide differences in mandatory dismissal payments among European countries for fair and unfair dismissals. France, Greece, Portugal, and Spain are the countries with the most stringent regulations; Denmark and the United Kingdom have the least stringent.

The reforms increasingly restricted the use of temporary workers—either by eliminating some type(s) of fixed-term contracts, restricting the age or other requirements for using an FTC, or removing the fiscal incentives for using FTCs. Yet in a dual labor market, the adjustment of permanent workers is through transforming temporary workers from FTC to ITC status; for example, highly productive temporary workers may be offered an ITC (Goux et al., 2001; Portugal and Varejao, 2009). Hence any restrictions on the firm's use of FTCs shrinks its choice set and affects the adjustment of permanent labor.

In order to encourage firms to adjust labor needs through permanent positions while extending restrictions on the use of temporary workers, Spain's 1997 reform proposed for all new hires a new ITC with a lower severance payment.<sup>5</sup> But the reform also included two other, possibly countervailing, measures: it removed the possibility of hiring new FTC workers; and the labor conditions regulating the new ITCs were to be those currently obtaining in the collective bargaining agreements of permanent workers (see Gomez et al., 2008).

The probability of hiring a low-productivity ITC worker increases when the FTC option is removed (or severely restricted). Such workers must be laid off, at a positive firing cost, as soon as it is learned that their productivity is below the firm's threshold. Moreover, the ITC status increases the worker's bargaining power when the firm would prefer not to retain the worker just hired—in response to low worker productivity or even to the arrival of a small negative shock (Caballero and Hammour, 1997; Blanchard and Portugal, 2001; Portugal and Varejao, 2009; Costain et al., 2010). Finally, the employer's expected adjustment costs depend not only on the nominal severance payments but also on the employer's beliefs about the future path of negative demand shocks (the Spanish economy was recovering from a profound negative demand shock), the possibility of further labor reforms (the new contract structure was proposed to last only four years), and the perceived likelihood that the legislated reductions in severance payments will be strictly enforced (the evidence suggests that most of the unfair dismissals during the fifteen years after the 1997 reform were settled at 45 days of wages per year worked—this despite a reform-approved reduction to only 33 days). As a result, a firm's post-reform expected adjustment costs could actually increase if the above facts dominate the legislated reduction in severance payments. Costain et al. (2010) argue that, unless this reduction exceeds 85% firms will not be induced to adjust labor through permanent positions; however, the actual reduction was about 25%. In sum, these facts suggest that firms' expected adjustment costs probably increased after the two labor reforms.

Our aim in this paper is to assess the issue empirically while following the methodology proposed by Petrin and Levinsohn (2011) and Petrin and Sivadasan (2011). That methodology relies on studying the gap between an input's value of marginal product and its price. An increase in labor adjustment costs should affect the allocative efficiency of the permanent labor input—the possibility of reallocating labor from lower-gap to higher-gap firms (i.e., those with greater labor needs). We assess the impact of these reforms on allocative efficiency by studying how they affected the gap between the labor's value of marginal product and its marginal cost; this gap captures the potential output gains if labor were reallocated optimally. Our analysis here basically focuses on the permanent labor input gap because the reforms encouraged firms to adjust labor through permanent positions. That being said, we understand that rejecting the null hypothesis—that the reforms were allocatively efficient in terms of the permanent labor input gap—indicates that the labor reforms introduced some degree of inefficiency into the Spanish labor market.

The data used to conduct this analysis are from a 1990–2001 panel of Spanish manufacturing firms provided by the Firms Strategies Survey (Encuesta Sobre Estrategias Empresariales, ESEE). This survey reports the total number of workers by type of worker, the annual

<sup>5</sup> The reforms are discussed more extensively in Section 4.

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