BUSINESS AND LABOR MARKET POLICIES

José Fernández-Albertos and Dulce Manzano

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José Fernández-Albertos is Junior Professor of Political Science at the Institut Barcelona d'Estudis Internacionals (IBEI), and *Doctor Miembro* of the Juan March Institute. Dulce Manzano is Postdoctoral Research Fellow and *Doctora Miembro* of the Juan March Institute, Madrid

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Abstract

Regulating the labor market to increase job security is just one possible way of addressing workers' demands for income protection against labor market risks. By acknowledging that other policies can be used to address the same political demand, this paper develops a simple framework to understand firms' preferences towards labor market regulation vis–a–vis a system of unemployment benefits, which can be understood as a political substitute. Two key empirical implications of the theoretical argument are tested and corroborated with data on firing costs and the generosity of the unemployment insurance system from OECD countries and the rest of the world. First, there seems to be a relation of substitution between the cost of firing and the generosity of unemployment subsidies across countries. And second, countries with more volatile economic conditions seem to prefer the latter policy to the former.

1 Introduction

The existence of labor market regulations has been traditionally interpreted as the result of either the political power of organized labor, as in the traditional power-resources literature (Esping-Andersen 1990, Pagano and Volpin 2001) or, in the more recent *varieties of capitalism* approach (Hall and Soskice 2001, Estevez-Abe *et al.* 2001), as an institutional device used by firms in coordinated market economies to secure workers' investments in firm- or industry-specific skills. This paper proposes a different logic in which both labor demands for protection against labor market-associated risks as well as context-dependent firm's policy preferences jointly explain the emergence of labor market regulation.

This paper concurs with the power resources' main proposition that labor market protection policies, either in the form of regulations that directly affect the costs of hiring and firing for employers, or in the form of social policies that indirectly affect the functioning of the labor market –such as the establishment of a system of subsidies for those unemployed– are the result of political demands from workers facing labor-market related risks. This assumption is largely consistent with historical accounts of the emergence of labor market institutions (Agell 2002), which emphasize precisely the role played by the new forms of unemployment brought about by the economic transformations of the 19th century. Unemployment, compounded by the erosion of traditional institutions of risk sharing, was what sparked the first modern demands for labor market regulation policies.[1] In principle, therefore, labor market regulation policies emerge as a demand of workers. Without such political demand from those

[1] "The observation that the origin of modern labour market institutions can be traced to periods of rapid change and modernisation, and to the aftermath of economic crisis," he writes,"is quite consistent with a social insurance interpretation of the birth of institutions. More generally, the lesson seems to be that people's demand for intervention to mitigate risk can be expected to increase in times of greater uncertainty" (Agell 2002: 9).

who suffer the risk of unemployment, labor market regulation will seldom emerge, as, in principle, firms inherently benefit from the freedom to hire and fire as their market conditions change.

The fact that the demand for labor market *protection* originates in workers does not imply that an anaysis of the relative political power of this group is sufficient to explain the emergence of the specific *policies,* such as labor market regulation, implemented to address that demand. We will argue that firms' preferences towards labor-market protection policies are key to understanding these policies. As workers care only about ends, not means, and labor market regulation is only but one policy aimed at satisfying these ends, politicians' resort to this policy tool (as opposed to other alternatives, most notably the establishment of a public unemployment insurance system) will happen not only when workers are powerful enough to obtain a certain degree of labor protection, but when, additionally, labor market regulation is preferred by employers to other policy alternatives that could be used to address the same political demand.

As we will show, when choosing between the different ways of addressing workers' demands, namely, between labor market regulation[2] and the use of a universal system of transfers to compensate workers falling into unemployment, firms face a trade-off. They must choose between solving the collective action problem they run into when a system of unemplyment transfers is in place, and insuring themselves against the risk of exogenous demand shocks and being unable to get rid of portions of their labor force. While labor market regulations, by increasing the costs of firing, help firms solve the collective action problem, a universal unemployment insurance system protects them against the latter concern i.e. the risk of suffering poor demand conditions in

[2] Although labor market regulation is in fact made up of many other different dimensions, in the context of this paper, labor market regulation is meant to imply merely the presence of firing costs.

the future.

The collective action problem consists in that, whenever workers are strong enough to obtain from the government welfare compensation for the unemployed, individual firms will not internalize the costs that firing excess workers creates for the whole economy –these layoffs must be paid for through social security contributions. The firing of excess labor under a system of transfers creates a net ineffiency: provided the productivity of every worker is always positive, it is always better to keep a worker on the job than to subdisize her in exchange for nothing. Labor market regulations, by increasing the cost of firing workers for individual firms (through a more generous severance pay, typically), force employers to internalize this cost. As a result, fewer workers will end up unemployed *and* inefficiently subsidized.

The attractiveness of the solution to this collective action problem has to be weighed against the cost that high firing costs imposes on firms' hire-and-fire flexibility, which turns out to be especially valuable under conditions of high exposure to shocks. The main argument of the paper is that, depending on the degree of exposure to shocks, employers will lean towards one type of policy over the other. As workers are always indifferent between certain combinations of these two policies (higher firing costs or more generous unemployment subsidies), employers' preferences will become determinant in explaining the choice of different labor market policies by governments.

The remainder of the paper is structured as follows. We first discuss the logic of substitutability between the two labor market policies: regulation in the form of firing costs versus unemployment benefits. Section three analyzes employers' preferences toward these policies in different contexts. Finally, section four presents some preliminary evidence that seems to corroborate the validity of the main arguments of the paper. A final summarizing section concludes.

2 Labor demands and the capitalists' dilemma

We start by assuming that there are two relevant actors in the economy: capital and labor. Workers only want to secure a stable flux of income, but face labor-market related risks. As a result, they are attracted by any policy that reduces their exposure to these risks, or offers them monetary compensation in case of falling into unemployment.[3]

Firms, on the other hand, want the total opposite: they prefer a very flexible labor market in which they can fire and hire with as much discretion as possible, and at the lowest economic cost. The reason is simply that the very existence of these policies, oriented to protect labor, imposes a net liability on employers. Given these preferences, whenever workers are politically weak and employers dominate the political process, we should not observe either of these policies.

Whenever workers are politically powerful to push for some kind of protection against labor-market related risks, a range of different policies are available to meet those demands. Let us see in a bit of detail what the consequences of two typical alternatives are for employers.

One first and obvious way of addressing workers' demands is through the creation of a public-based system of unemployment insurance. In such a system, social security contributions paid for by employers finance the monetary transfers that workers receive when they are unemployed. This policy, however, creates economy-wide ineffiencies as employers face a collective action problem when deciding how many workers to fire. Let us see why.

[3] Others (Saint-Paul 2000, Boeri *et al.* 2004) have modelled the emergence of different labor market policy-equilibria as the consequences of divisions within the labor force, most notably between unskilled vs. skilled workers, and insiders vs. outsiders. We abstract from these divisions, and exploit instead the different preferences that *employers* might develop towards labor market policies in different contexts.

In a world without social security transfers, firms should only keep employed workers whose productivity is higher than her wage.[4] But if the unemployed do not lose their salary (because they get unemployment transfers that substitute for their wage), then it is always efficient to keep their workers on their job, as idle workers are by definition less productive than employed workers (provided that their productivity is always positive). The problem is that firms cannot commit themselves not to fire their own excess of labor once the economic burden of subsidizing an individual worker who is out of the job is not borne out by the individual firm that fired her, but rather shared by all firms in the economy.[5] In short, a public program of unemployment transfer makes firing inefficiently cheap from an individual standpoint, which gives rise to an inefficient pool of unproductive subsidized workers.

To see this more clearly, it is useful to think of an economy consisting of a single firm. If that firm has to pay unemployment transfers to all workers that are unemployed, it will always choose to have all workers employed in the firm, because in that case the employer gets at least something in exchange for the monetary transfer he makes to all members of the labor force. It is in this sense that the existence of unemployment transfers are invariably inefficient: once a monetary transfer to a worker is made, it is always better to have her employed in a firm than unemployed. In sum, firms should always collectively prefer to protect workers against labor market risks by keeping them employed than by transferring them money when they are unemployed.

As the use of unemployment transfers targeted to the unemployed is an inefficient way of addressing the workers demands, it would seem that their mere existence 'off the equilibrium path' would secure workers' jobs by making it attractive to firms to

[4] Recall that in the logic of our argument, this will occur only when labor is politically weak.
[5] Specifically, by all social-security tax-payers.

Table 1: The Capitalists' Collective Action Problem

		Firm B: Fire	Firm B: Not Fire
Firm A	Fire	1,1	3,0
	Not fire	0,3	2,2

always employ them, and workers' concerns about job security would be successfully satisfied. But employers face a collective action problem: although they would be all better-off by keeping their workers in their jobs when a system of unemployment transfers is in place, individual firms have an incentive to deviate from the collectively optimal strategy, and will fire all workers whose wages are above their productivity. Table 1 represents the prisoner dilemma-like strategic situation that employers confront when they happen to have an "excess of labor."

Although, as discussed earlier, firms are collectively better-off by not firing any worker and thus avoiding the inefficiencies generated by unemployment transfers (2,2), both firms' dominant strategy is to fire its excess of labor. Whether the other firm keeps its excess of labor or not, it is always best to fire one's own: in the former case, to externalize the costs of the firm's excess of labor; in the latter, to avoid subsidizing other firms' layoffs. If both players play their dominant strategies, they end up in the suboptimal situation of inefficient unemployment (1,1), the typical result of standard Prisoners-dilemma games.

As a result, the establishment of a system of unemployment benefits to satisfy workers' demands produces inefficient results for employers: workers would get protection from labor market-associated risks, but collective action problems make cap-

italists incur deadweight losses.

One evident policy alternative that might be used to satisfy workers' demands is to offer them labor market regulation. To overcome the collective action problem, labor market regulation must translate to individual firms the costs of paying idle workers, so that firing becomes less attractive for them. The usual form of this type of policy is the introduction of a severance pay that the employer must redeem to every employee she fires.

For employers, this institutional solution, in contrast with the system of unemployment transfers, involves no collective action problem and, accordingly, no inefficiencies for the collectivity (but, as we discuss in the next section, this will not imply that it will be always desirable). The collective action problem vanishes because employers now cannot externalize the cost of compensating redundant workers: under a severance pay-based scheme, each firm must pay for the social cost of its unemployed. Layoffs now will occur not when wages are above productivity as before,[6] but when wages *plus the cost of the severance pay* are above productivity. Put differently, firing becomes less attractive to employers and, accordingly, it will be used less often. The reduction in layoffs reduces the efficiency cost created by the existence of paid idle workers.[7] In short, a system of employment protection based on the institutionalization of severance pay solves the collective action problem that employers face when they try to commit to their collective preferred solution (not to fire any worker) under a system of unemployment subsidies.

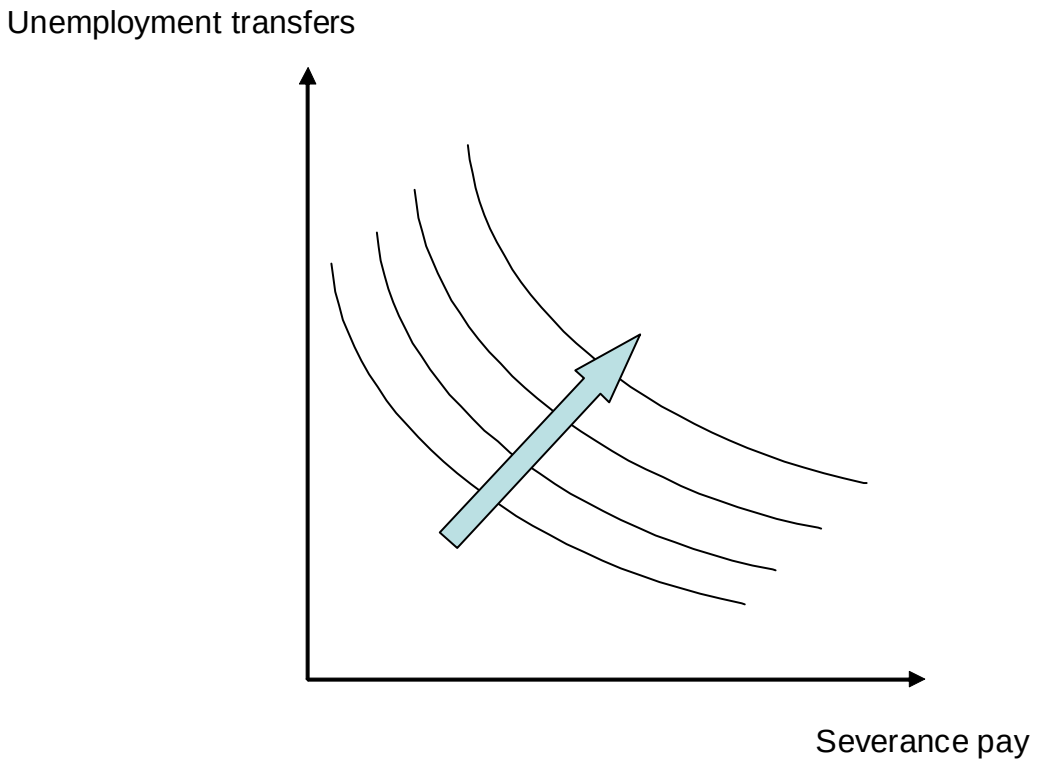
How would workers react to this alternative policy? In principle, workers might see this policy as a substitute for the existence of unemployment benefits. There are

[6]It is assumed that the cost of the transfer for an individual firm is neglible under an universal unemployment insurance system.

[7]In the limit, when severance pay equals infinity (i.e. when there is total job protection), idle paid labor force equals zero, and the inefficiencies we were referring to disappear completely, just as in the case of a one-firm economy discussed above.

two reasons for this: first and foremost, the two are monetary substitutes: it must be necessarily the case that, for some value of the severance pay, workers are indifferent between this payment and a given unemployment monthly benefit. Second, if they value job stability *per se* (i.e. beyond monetary considerations), as long as they are aware that a system based on labor market regulation solves the employers' collective action problem, workers might find this solution more attractive, as it de-incentivates layoffs, by making them more costly to individual firms. In short, workers' indifference curves towards these two alternative policies should look like the ones shown in Figure 1.

Figure 1: Workers' Indifference Curves (Higher Curves=Higher Utilities Imply Stronger Power of Labor)



The graph represents the idea that workers are willing to trade generosity of

the unemployment transfer scheme for higher amounts of compensation in the form of severance payments. Certainly, labor always wants more of the two policies so that indifference curves further to the right yield more utility to workers. But their power resources will determine how much they get in the aggregate. If workers are politically weak, they will only be able to reach those indifference curves close to the origin. As their political leverage increases, they can reach higher-utility curves, in the direction indicated by the arrow. In any case, however, *for a given level of workers' political strength*, they will be indifferent between combinations of the two types of labor market protection policies that represent movements along the same indifference curve.[8]

Given this structure of workers' interests and the different policies that could be used to addressed their demands, the next task is to understand firms' preferences towards different combinations of policies that render workers indifferent (that is, points *along* a single indifference curve).

3 Choosing over policies: the role of shocks

Although increasing the cost of firing may seem to be, according to the previous discussion, the best option for firms (so that they can avoid financing an inefficient public unemployment transfers system), it has also detrimental side-effects on capital. Employment protection policies impose nontrivial losses on the degree of flexibility firms enjoy in the management of their workforce. As the severance pay rises, it is

[8] Although Boeri *et al.* (2004) and Algan and Cahuc (2005) make a case also for a negative relationship between unemployment generosity and the cost of firing, they propose however different explanations. Briefly, Boeri et al develop a model of conflicting preferences over these policies between different types of workers. In their model, as employment protection regulation benefits low-skilled insiders, this policy will arise only in economies with compressed wage structures. Algan and Cahuc, on the other hand, argue that the unemployment subsidies model, which they associate with the Danish system, is only available for countries with high levels of public spiritedness in which individual workers will not cheat on the universal unemployment insurance system.

more costly to individual companies to dismiss redundant workers and thus the excess of labor they may have to bear in the workplace increases. In short, the presence of a job protection system curtails companies' freedom in adjusting their human resources to different economic circumstances.

These flexibility costs associated with labor regulations, however, are not the same across economies. In relatively stable economies where future market terms are fairly well known, employers will be more able to take their hiring decisions in accordance with their production plans so that the expected excess of labor (and the cost of regulation) will be small. On the contrary, when the economy is very unstable and exposed to abrupt changes in demand or in other market conditions, firms will be worse at forecasting their future labor demand and therefore the risk of supporting a large number of redundant workers will be higher. When the likelihood of suffering a very negative shock is high enough, they may prefer to reduce the degree of regulation so they can fire unnecessary employees at a lower cost even if that implies more unemployment security in the form of higher replacement rates.

As discussed before, to solve the collective action problem, firms agree to introduce an individually-paid sanction (the severance pay) that makes employers internalize the social cost of their layoff choices. By increasing firing expenses, unemployment shrinks and so does the inefficiency caused by the need to subsidize idle workers. Yet, addressing workers demands through a company level protection scheme implies that firms must bear unilaterally the costs of negative shocks: they will have to cope with the structure of economic risks by themselves. Under very volatile economic conditions, and assuming employers are risk averse, capital may find it enormously expensive to respond to labor requests in this way.

Publicly supported unemployment transfers may be, under some circustances, an optimal institutionalized instrument for dealing with company-associated risks when

workers ask for some kind of protection. Since all employers contribute to financing unemployment subsidies, this income replacement program may be conceived as an *insurance* employers buy to protect themselves against eventual negative shocks. In other words, instead of each firm bearing the whole cost of its redundant workers during bad conditions, a system of public transfers to compensate the unemployed makes it possible to pool risks and to share the burden of firing workers among firms (as long as the severance pay is subsequently cut down).[9] We argue below that the attractiveness of this protection policy increases with the degree of exposure to exogenous shocks.

Putting all pieces together, when facing a strong labor, capital has to choose between resolving a collective action problem and protecting itself against production risks. This is what the capital dilemma consists of. The final combination of policies capital offers to workers will depend upon the structure of risks they face. As the probability of confronting strong negative shocks increases, a system of unemployment transfers becomes more desirable to employers compared to labor regulations. When production is subjected to a higher degree of volatility, it is harder to determine the future needed level of employment within firms and so the likelihood of holding a great number of superfluous employees may rise accordingly. As a result, they may prefer pooling risks together through a system of unemployment transfers and be freer to fire when necessary. Solving the problem of collective action turns out less attractive relative to providing insurance (that is, sharing the burden of the unemployed) when economic perspectives are very unstable.

In more formal terms, suppose that the distribution of shocks has a normal density function $f(x)$ with zero mean and standard deviation σ. We interpret the argument

[9] Mares (2003) develops a similar argument to explain variability in firms' social policy preferences as a result of different market conditions.

of the function, that is the particular shock x, as the change in the labor demand associated with the shock. A positive value of x means that firms are exposed to an exogenous positive shock and thus they will need more workers. Negative values of x, on the other hand, indicate the occurrence of bad shocks generating a certain level of unnecessary employees. Therefore, the expected excess of labor (EEL) is merely a weighted sum of all negative x's where the weights are equal to the probability of each negative shock:

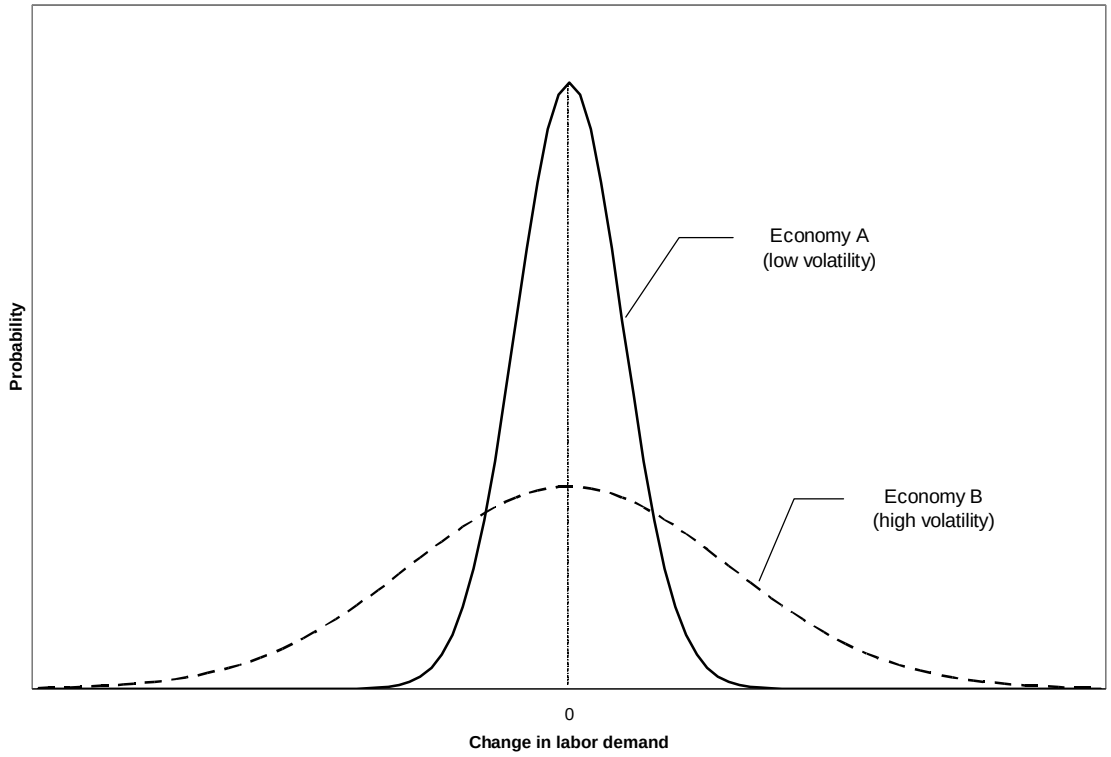
$$EEL = \int_{-\infty}^{0} f(x) \cdot x dx + \int_{0}^{\infty} f(x) \cdot x 0 dx$$

$$= \int_{-\infty}^{0} f(x) \cdot x dx$$

The second term in the previous equation is equal to zero since all companies facing good conditions (positive changes in their labor demand x) will not have to reduce their workforce and so we equate positive values of x as a zero excess of labor. Thus, the expected excess of labor corresponds to the mean of the negative part of the x distribution (when shocks are negative and there exists in fact redundant workers).

To see more clearly how the degree of economic volatility affects the cost of labor market regulations from the capital viewpoint, imagine two economies (A and B) characterized by different dispersion levels of their shocks distributions as shown in Figure 2. Consider first the less volatile economy A, represented by the solid curve. This curve represents the distribution of shocks that each employer faces under a relatively stable economy. The area below the curve measures the density of occurring a shock associated with a certain change in the labor demand x, indicated in the horizontal axis.

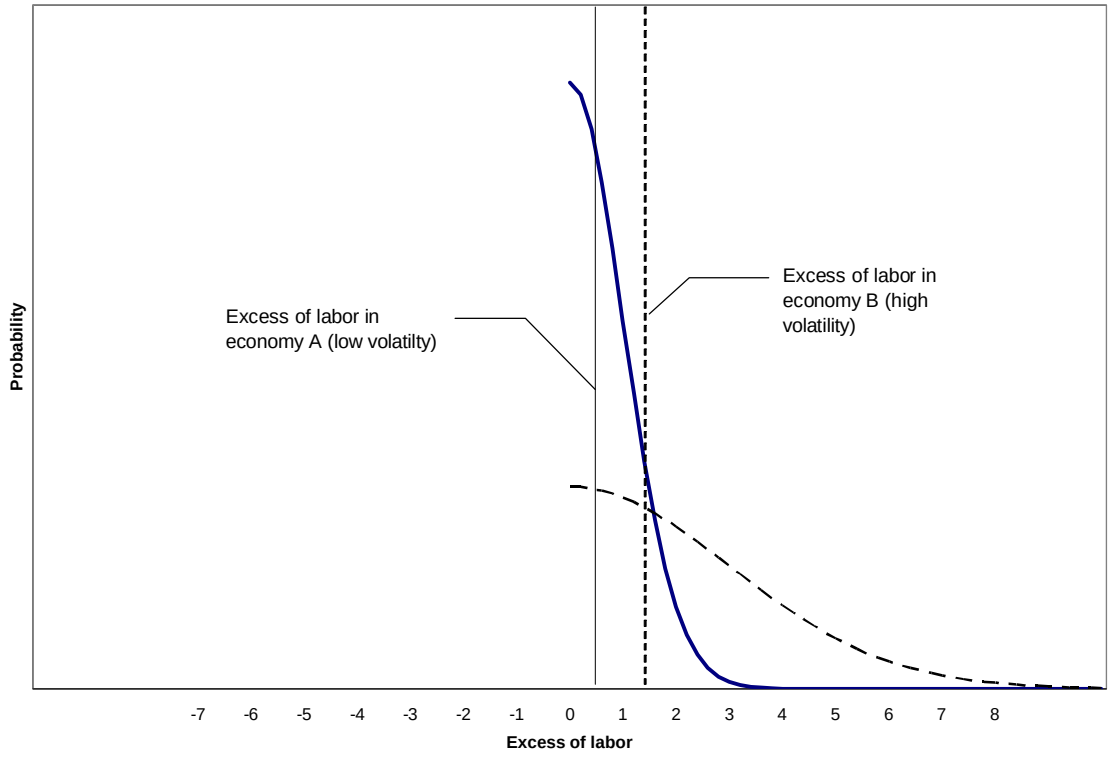
Figure 2: Shocks and Changes in Labor Demand in Two Economies



Suppose that the mean of this distribution is zero, that is, firms expect on average identical economic conditions to the previous period so that their labor demand are the same and they do not have to modify in any direction the number of their workforce. However, after the realization of shocks, some employers will experience favorable market conditions (positive x) while others will go through a period of economic recession (negative x). Although labor market regulation is valued differently ex-post by firms –only those confronting bad shocks prefer lower firing costs as they need to adjust downward their staff-, ex-ante the cost of regulation is the same for all employers since they do not know if they will confront good or bad shocks.

To determine regulation costs, employers look at the expected excess of labor for a particular distribution of shocks. In economy A, this is given by the solid vertical

Figure 3: Shocks and Excess of Labor



line of Figure 3. The expected excess of labor corresponds, as indicated before, to the left-side mean of the shock distribution (those experiencing *negative* shocks). Since Figure 3 represents excess of labor in the horizontal axis (instead of change in the labor demand), that part of the shock distribution (negatives x) is drawn on the positive side of the excess of labor distribution.

Now consider a more unstable economy (B), represented by the dash curve in Figure 2. The greater standard deviation of its distribution of shocks, compared to country A, means that the probability of very negative and positive shocks occuring has increased. This higher economic volatility is translated, as indicated by the dash line of Figure 3, into a higher expected excess of labor. Hence the cost of regulation rises with the degree of volatility in the economy. Under this structure

of risk, company-level employment protection where individual firms must bear an increased burden of the superfluous workforce becomes a very risky lottery. As capital is assumed to be risk averse, they will be more willing to reduce the severance pay and favor an income protection policy where all employers contribute to subsidize unemployed workers.[10]

4 Data Analysis

We divide the empirical tests into two parts. First, we evaluate whether the logic of substitutability between the two policies can be detected in the data. More precisely, we analyze whether, for similar levels of labor power, there exists a negative association between the strictness of labor market regulations and the generosity of the unemployment insurance scheme. Secondly, we develop an index of labor market policy preference for each country based on our data on these two policies, and try to explain the observed variation in this index as the result of the theoretical explanations we have put forward in the previous section.

4.1 Testing for indifference curves

In order to analyze whether, for a given strength of labor, there is in fact a trade-off between the use of firing costs and unemployment benefits as means to protect against labor market risks, we need data both on the employers' costs of firing workers, and about the generosity of unemployment compensation programs. For the first indicator, we rely on a survey of labor market regulations conducted by the World

[10] These prediction for the business sector as a whole are in line with Mares' (2003) expectations for preferences over social policies at the firm level. She argues (and finds supporting evidence) that high-risk firms prefer more universal social policies, whereas low-risk producers prefer instead policies of social protection characterized by a lower redistribution of risks across sectors.

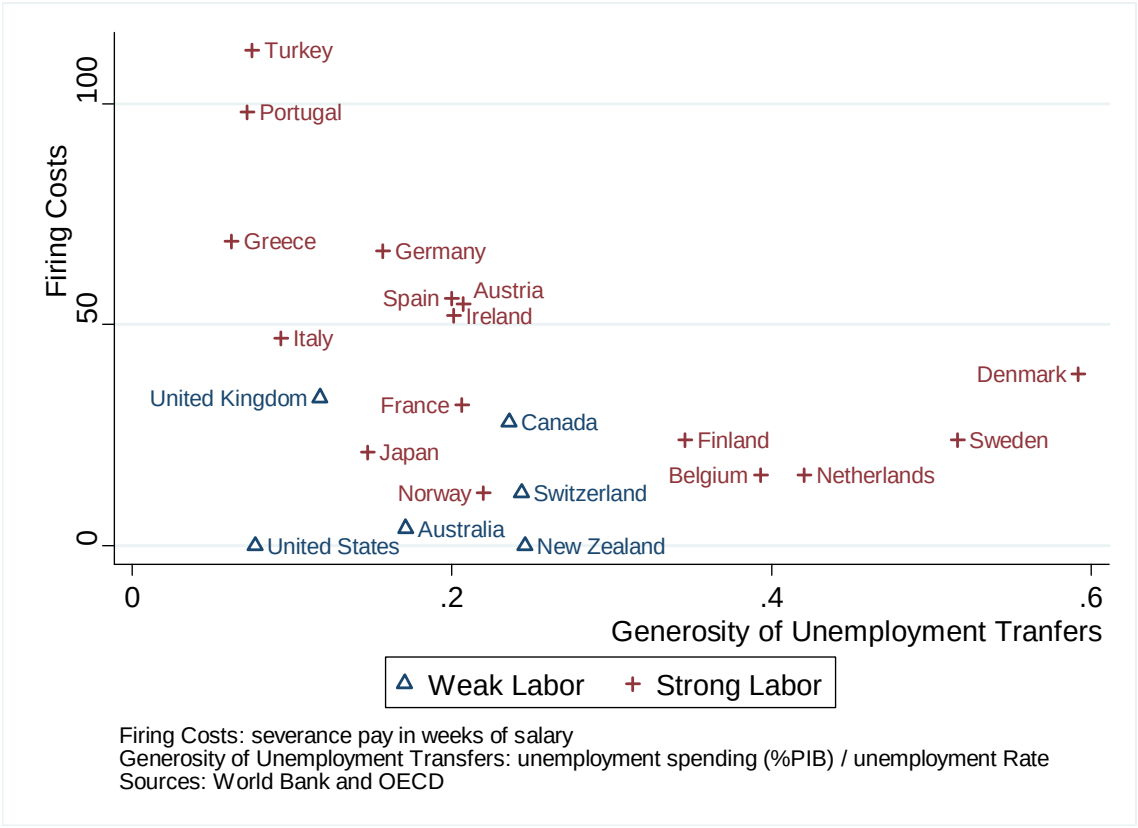
Bank Group in 2005.[11] Based on this survey, the World Bank calculates the costs of firing a standard worker measured in weeks of wages.

For our second variable (the generosity of the unemployment insurance scheme), we rely on two indicators. For OECD countries, we create an index of "unemployment benefits generosity" based on high-quality data on social expenditures, taken from the OECD Social Expenditure database. We calculate the 1990-2000 average of unemployment compensation spending as a percentage of GDP and divide it by the proporion of unemployed over the same period in each country. High values of this index, therefore, imply a higher proportion of the GDP dedicated to unemployment compensation per unemployed. For non-OECD countries for which similar and comparable data exist, we use a somewhat less reliable "unemployment coverage index" developed from the comprehensive Botero's *et al.* (2004) global database on labor market regulations. From that database, we use the percentage of the net salary covered by the net unemployment benefits in case of a one-year unemployment spell (normalized, from 0 to 1), for countries in which the social security system covers the risk of unemployment. For countries in which unemployment insurance is not included in the social security system, our "unemployment coverage index" takes the value of 0.

Figure 4 plots the relationship between firing costs and the generosity of unemployment compensation using the data for OECD countries. The graph suggests the existence of a negative relationship between the cost of firing (the severance pay measured in the number of weeks of wages), and the generosity of the unemployment insurance (measured as the total spending in unemployment benefits divided by the unemployment ratio in the 1990s). However, this graph should be hiding the exis-

[11] Details about the survey and its methodology can be found in the Private Sector Resources section of the World Bank Group website: http://www.doingbusiness.org/ExploreTopics/HiringFiringWorkers/

Figure 4: Firing Costs and Unemployment Benefits in OECD Countries

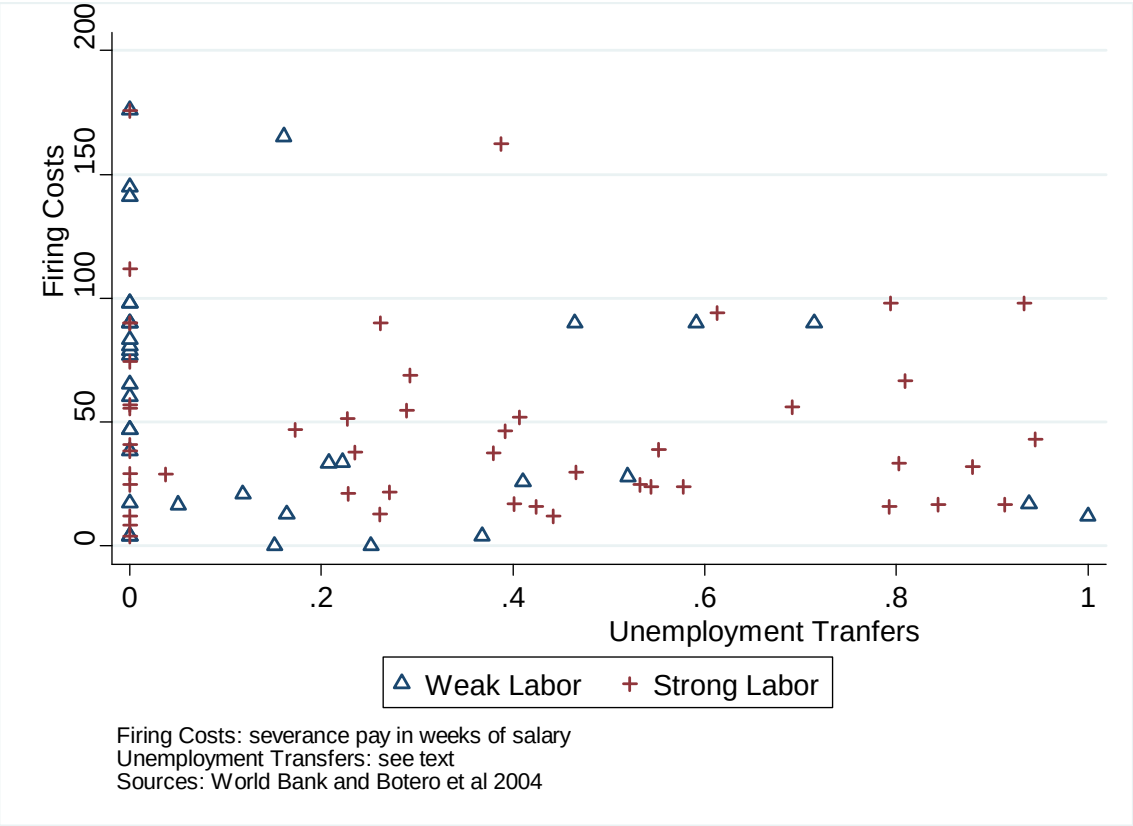


tence of several indifference curves as the ones represented in Figure 1. In fact, when we differentiate between countries with high and low levels of labor power,[12] one can easily note that, as expected, workers' political leverage is related with imaginary indifference lines further away from the origin.

Figure 5 plots the same relationship, but for the global sample, using the unemployment coverage index instead of the OECD unemployment generosity indicator. A similar picture emerges, although less neatly: the points tend to gather in the south-west corner (as the negative slope of the indifference curves would indicate), and

[12] The labor power index is also taken from the Botero *et al.* database (2004). See the Appendix to see how this index has been constructed. We use the mean value of the distribution to differentiate countries in terms of the political strength of their labor.

Figure 5: Firing Costs and Unemployment Transfers. Global Sample



countries in which labor is politically more powerful seem to lie in welfare-superior indifference curves.[13]

To test more rigorously for the idea that labor power should *move* the negative correlation between firing costs and social security transfers towards the north-east, we regress the level of firing costs on an indicator of labor power and an index of the

[13] One possible reason why countries with a politically strong working class are not always in higher indifference curves, as shown in Figures 4 and specially 5, is that there may be other context-specific variables affecting the desirability of labor protection policies in the first place. Belot (2007), for instance, argues that the demand for labor protection is partly a function of the geographical mobility of labor. This explains, in her view, the different preference for labor market policies between Europe and the United States. In light of our argument, this may imply that the utility associated with a particular indifference curve changes across-countries so that they may have distinct indifference curve *maps*.

Table 2: Dependent Variable: Firing Costs (Severance Pay Measured in Weeks of Salary)

	(1)	(2)	(3)	(4)
	OECD	Global	OECD	Global
Unemp. Generosity	-97.42	-29.72	259.72	23.20
	(-2.77)	(-2.16)	(2.86)	(1.26)
Labor power	66.84	18.98	30.23	6.96
	(2.84)	(0.87)	(1.52)	(21.21)
Protection Comprehensiveness			182.09	106.61
			(3.69)	(4.06)
Protection Compre.*Un.Gen.			-523.13	-91.81
			(-3.68)	(-3.80)
Constant	28.74	53.75	-77.61	6.93
	(2.43)	(5.01)	(2.61)	(0.47)
R^2	.41	.04	.64	.21
N	22	82	22	82
Prob > F	.01	.09	<.01	<.01
t-values in parentheses				

generosity of the unemployment insurance system. The expectations are that the first explanatory variable should enter the regression with a positive sign while the latter with a negative one. For OECD countries (model 1), we use the generosity index described above. For the global sample (model 2), we use instead the unemployment coverage index. The first two columns in table 2 present the results.

While our indicator of labor power does seem to move the indifference curve in the north-eastern direction for OECD countries (the postive sign indicates that, *for a given value of the unemployment generosity*, countries with higher values in the labor power index tend to have higher firing costs), it does not work in the global sample (the coefficient, although positive, is not statistically significant). Most importantly, the coefficient on the unemployment generosity variable is negative and statistically significant both in the OECD and in the global sample (even though

models 1 and 2 use different indicators), corroborating the existence of a negative relationship beteween the two labor protection policies. In OECD countries, for instance, the severance pay increases by 9.7 weeks of salary for every 0.1 increase in the level of 'generosity' of the unemployment system (for instance, a change from the American to the Australian level).

It could be argued that labor market regulations in the form of high firing costs for standard workers are attractive to employees only insofar as these regulations apply to a large fraction of the labor force. In other words, if a significant number of workers are not affected by the level of firing costs (because they cannot be considered *standard* workers), then the policy of establishing high firing costs will become less appealing for workers. The empirical implication would be that the negative relationship between firing costs and unemployment benefits –again, for a given degree of labor power– should only show up when these firing costs cover a large proportion of the labor force.[14] To test for that possibility, we include (in models 3 and 4), an indicator of the degree of segmentation of the labor market (protection comprehensiveness) taken also from the Botero *et al.*'s (2004) database, which measures the extent to which the benefits of standard workers are extended throughout the labor force (it ranges from 0 to 1, with low values meaning *higher* segmentation, see Appendix). We interact this variable with the unemployment benefits variable to see whether the negative association between firing costs and the generosity of the unemployment insurance scheme is in fact stronger at higher values of comprehensiveness –we expect the interacted variable to be negative and stastistically significant. The coefficients of models 3 and 4 in Table 2 show that this is in fact the case in the two samples.

[14]The segmentation of the labor market is a phenomenon typical not only of countries with a large informal economy. In some advanced countries, partial labor market deregulations have de facto created a dual labor force. See Polavieja (2003) for a thorough analysis of the paradigmatic case of Spain.

Table 3: Effect of Unemployment Benefits on Firing Costs (Measured in Weeks of Wages) under Different Degrees of Labor Market Segmentation

			Unemployment Benefits			
			Predicted Values			Marginal effect
			Low	Medium	High	(t-values)
Labor Market Conditions	OECD	Segment. High	23.12	25.13	27.12	13.85 (0.42)
		Segment. Low	68.28	45.01	21.75	-153.54 (-4.26)
	Global sample	Segment. High	55.19	50.41	45.62	-15.37 (-1.12)
		Segment. Low	96.65	81.07	65.49	-50.26 (-3.32)

Medium, high and low stand for the mean and one s.d. above and below the mean

Interestingly enough, the inclusion of this control improves significantly the overall fit of the model: the R^2 increases from .41 and .04 to .62 and .21, respectively.

Interpreting the coefficients in interactive models is not straightforward. To make sense of their substantive implications, we use the coefficients from models 3 and 4 to obtain the predicted values of the dependent variable (firing costs) under different values of unemployment benefits under segmented and non-segmented labor markets, along with the marginal effect of a one-unit change in the unemployment benefit variable under different values of the segmentation variable (labor power is kept fixed in its sample mean). These predicted values and marginal effects are presented in table 3.

As these numbers clearly show, a higher level of unemployment benefits is associated with significantly lower costs of firing, both in the OECD and in the global sample, but *only when the segmentation of the labor market is low*, that is, when non-standard workers enjoy the same level of protection as standard workers. Moving from one standard deviation below to one standard deviation above the mean of the unemployment benefit variable reduces, on average, the cost of firing a standard worker in 46.53 weeks of wages (in OECD countries), and 31.16 weeks, if we use the global sample. If, on the contrary, the degree of protection enjoyed by a standard

worker does not apply to other sectors of the labor force, the generosity of unemployment benefits is not related in any substantial way with the cost of firing (the marginal effect of a change in benefits, as shown in the last column, is not statistically different from zero).[15]

All in all, this evidence suggests that there is in fact a relation of substitutability between the level of generosity of unemployment transfers and the cost of firing. Also, and in line with our theoretical framework, this relation seems to be influenced by the political power of labor (at least in the OECD data), and by the degree to which the protection afforded to *standard* workers by labor market laws are representative of the general degree of workers' protection across the economy. The next task is to explain why some countries choose to protect workers by labor market regulations, while others prefer to use unemployment subsidies.

4.2 Shocks and the choice of employment protection

To analyze country preferences along the "labor market regulation vs. unemployment protection" trade-off, we first have to create our dependent variable. To do so, we create an index of the relative preference for these policies. This index is given by the following expression:

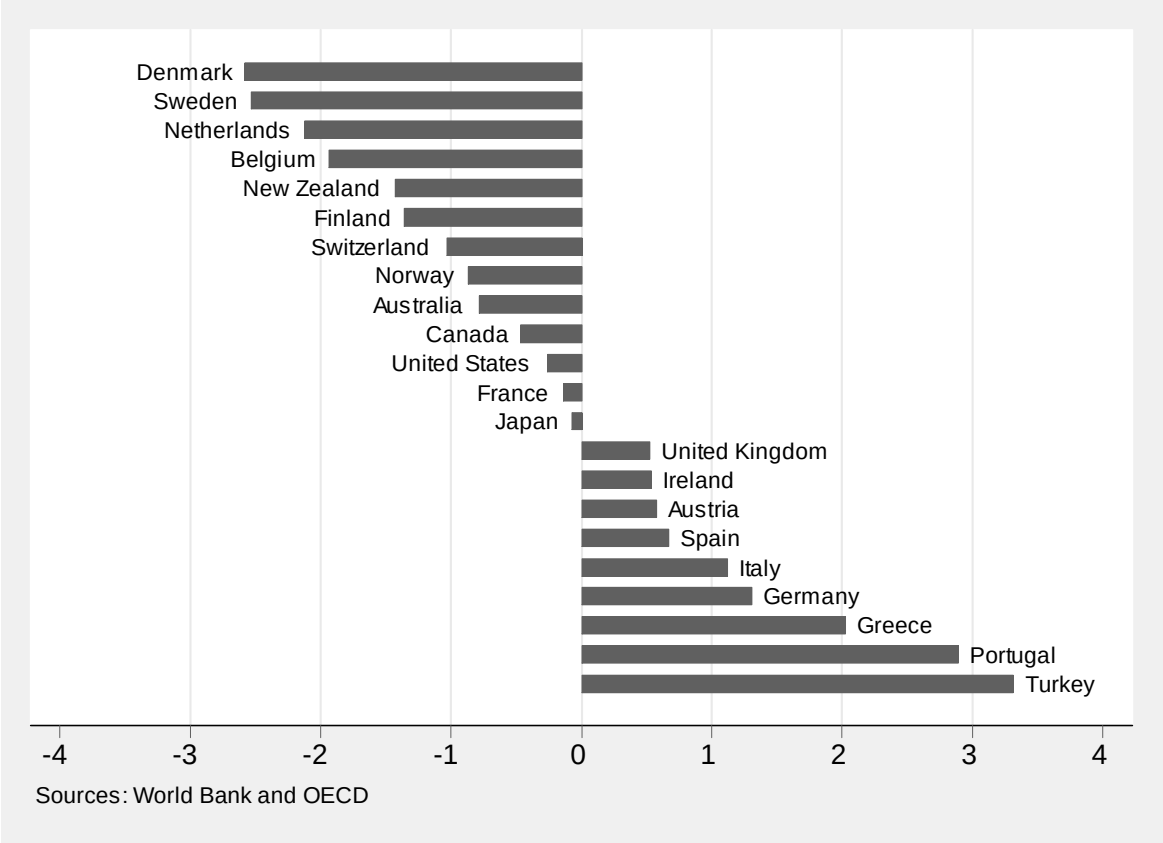
$$PREF_i = \frac{f_i - mean(f)}{sd(f)} - \frac{u_i - mean(u)}{sd(u)}$$

where f stands for the cost of firing, and u for the value of the unemployment generosity variable.

[15] Following the procedure suggested in Greene (2000: 326), the marginal effect of unemployment benefits at different values of the segmentation variable is equal to the regression coefficient of unemployment benefits (β_1) plus the coefficient of the interaction term (β_2) times the value of segmentation. The variance of this marginal effect is, according to Greene, $Var(\beta_1) + S^2 Var(\beta_2) + 2SCov(\beta_1, \beta_2)$, where S is the particular value given to segmentation.

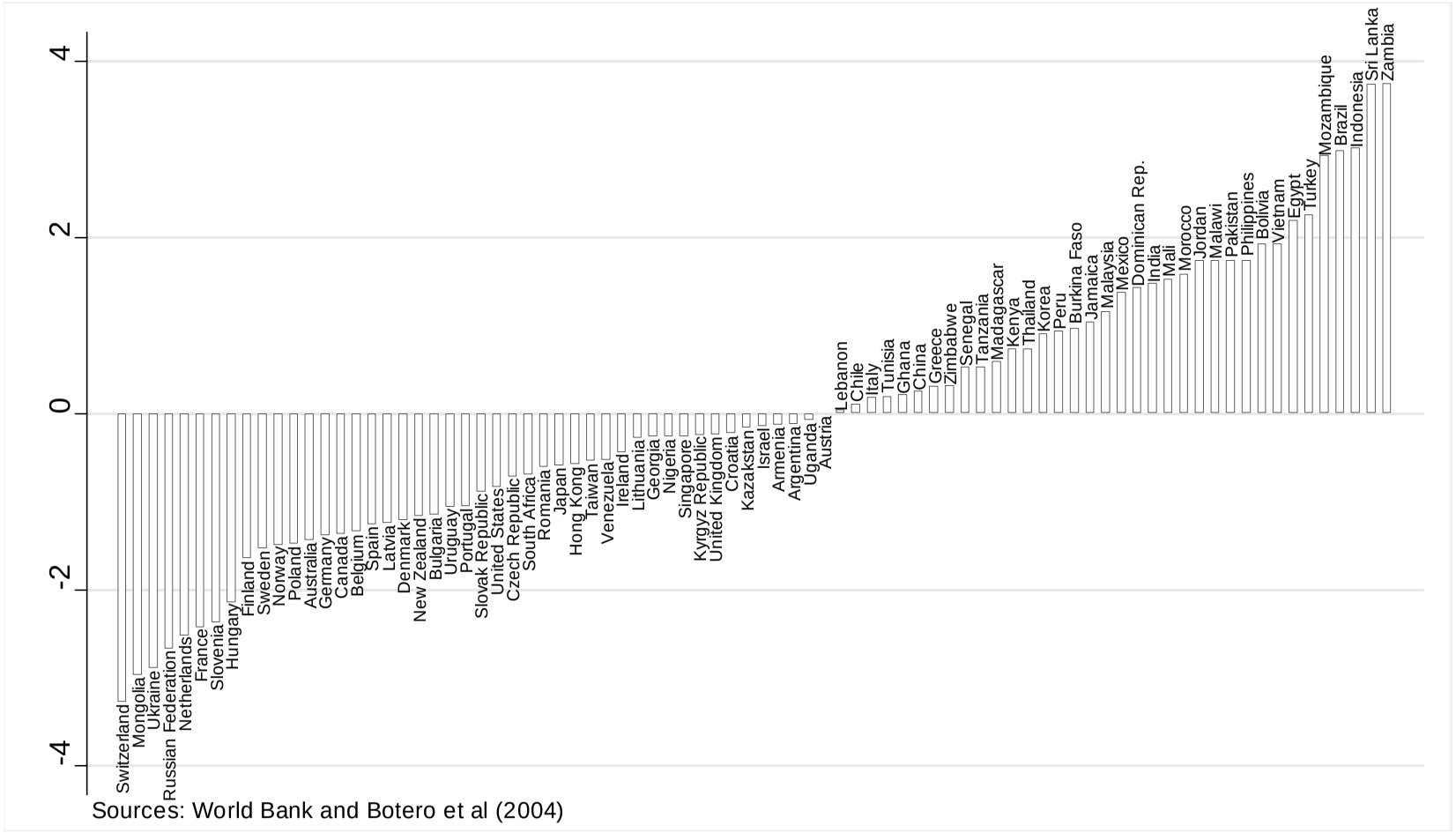
The index simply subtracts the normalized value of the unemployment benefit variable from the normalized value of firing cost variable. Positive values of this new index therefore represent a preference for firing costs as a way of protecting workers, where negative values represent a relative preference for a system of unemployment subsidies instead. Figures 6 and 7 show the distribution of this variable for OECD countries and the global sample, respectively.[16]

Figure 6: Preference for Firing Costs vs. Unemployment Transfers, OECD Countries



[16]Note that we actually create two different preference indexes: one for the restricted OECD sample, using the data on unemployment generosity from the OECD Social Expenditure database, and another for the global sample, using the data of unemployment coverage from the Botero's *et al.* database.

Figure 7: Preference for Firing Costs versus Unemployment Transfers, Global Sample



After having defined the dependent variable, we want to test whether this policy preference can be explained as a result of the volatility of shocks, as implied by our theoretical discussion. Two indicators are used to operationalize this variable: the volatility of growth (measured as the standard deviation of the growth rate from 1990 to 2000) and the degree of trade openness (the average of imports plus exports as percentage of GDP during the same time-span),[17] under the assumption that more internationalized economies are more exposed to exogenous shocks.

In our baseline model, we include two additional controls. First, since developed countries have less organizational constraints to set up comprehensive universal unemployment schemes, we control for per capita income. Second, expectations of *positive* shocks should move curves in Figure 2 to the right. This would in turn reduce the expected excess of labor, making countries more prone to the use of firing costs vis-a-vis unemployment transfers as a way to protect labor. Therefore, we expect GDP per capita to have a negative coefficient (greater preference for unemployment benefits) and growth to have a positive one (greater preference for firing costs). Model 1 in Table 4 shows the OLS results for our baseline model for OECD countries.

All four covariates' coefficients have the right signs, and are statistically significant. Economic backwardness and high rates of growth are associated with preferences for firing costs. More important for our purposes, the two indicators of economic volatility are negatively associated with the use of firing costs as a way of protecting labor. Both growth volatility and economic internationalization, on average, tend to make countries more likely to choose unemployment benefits relative to firing costs.

In model 2 we include two additional controls. Following the previous discussion, the existence of a segmented labor market that makes firing costs a less attractive

[17] These variables have been created using yearly data from 1990 to 2000, from the Penn World Tables, version 6.1.

Table 4: Dependent Variable: Preference for Firing Costs vs. Unemployment Transfers, OECD Countries

	(1)	(2)	(3)	(4)	(5) BEL ex	(6) FIN ex
GDP per capita /1000	-.25	-.21	-.15	-.24	-.25	-.26
	(-5.80)	(-3.74)	(-1.51)	(-4.61)	(-5.82)	(-4.59)
Growth	58.54	66.11	55.19	49.67	61.20	60.27
	(3.15)	(2.90)	(2.77)	(3.23)	(2.50)	(2.60)
Growth Volatility	-47.92	-45.63	-44.08	-45.93	-47.18	-53.20
	(-2.33)	(-2.10)	(-1.64)	(-2.56)	(-2.26)	(-1.48)
Openness	-.03	-.03	-.02	-.02	-.03	-.03
	(-4.34)	(-4.26)	(-3.10)	(-3.46)	(-2.74)	(-3.98)
Export concentration		-1.54				
		(-0.98)				
FT Contracts		1.49				
		(0.84)				
Employers Centralization			.10			
			(0.16)			
Govt ideology				-.05		
				(-2.11)		
Constant	6.73	5.00	4.12	9.05	6.74	6.93
	(5.82)	(2.35)	(1.54)	(6.84)	(5.73)	(1.64)
R^2	.69	.70	.39	.76	.67	.68
N	22	22	18	21	21	21
Prob > F	<.01	<.01	.08	<.01	<.01	<.01
t-values in parentheses						

option for workers could be expected to lead to greater preferences towards the use of unemployment benefits. The coefficient, however, points in the opposite direction, but is not statistically significant. Secondly, one could argue that less diversified economies should be particularly concerned with the risks of exogenous shocks – and would opt for systems of unemployment transfers accordingly. To test for that possibility, model 2 includes a variable measuring the degree of export concentration[18] of the economy, but no significant effect is detected. However, the inclusion of these

[18] This indicator is for 2001, as has been taken from the United Nations Conference for Trade and Development. See Appendix for details.

two variables affects neither the coefficients nor the statistical significance of the four basic covariates.[19]

Model 3 adds another control: the degree of institutional coordination of capital. When capitalists are strongly coordinated, then a system of unemployment transfers should be less costly for employers, since they can more easily solve the collective action problem that this policy creates. We use an index developed by Kenworthy (1999), only available for 18 OECD countries. This reduction in the number of cases causes the coefficient on growth volatility to lose some significance. The coefficient for the coordination of capital, however, is largely insignificant.

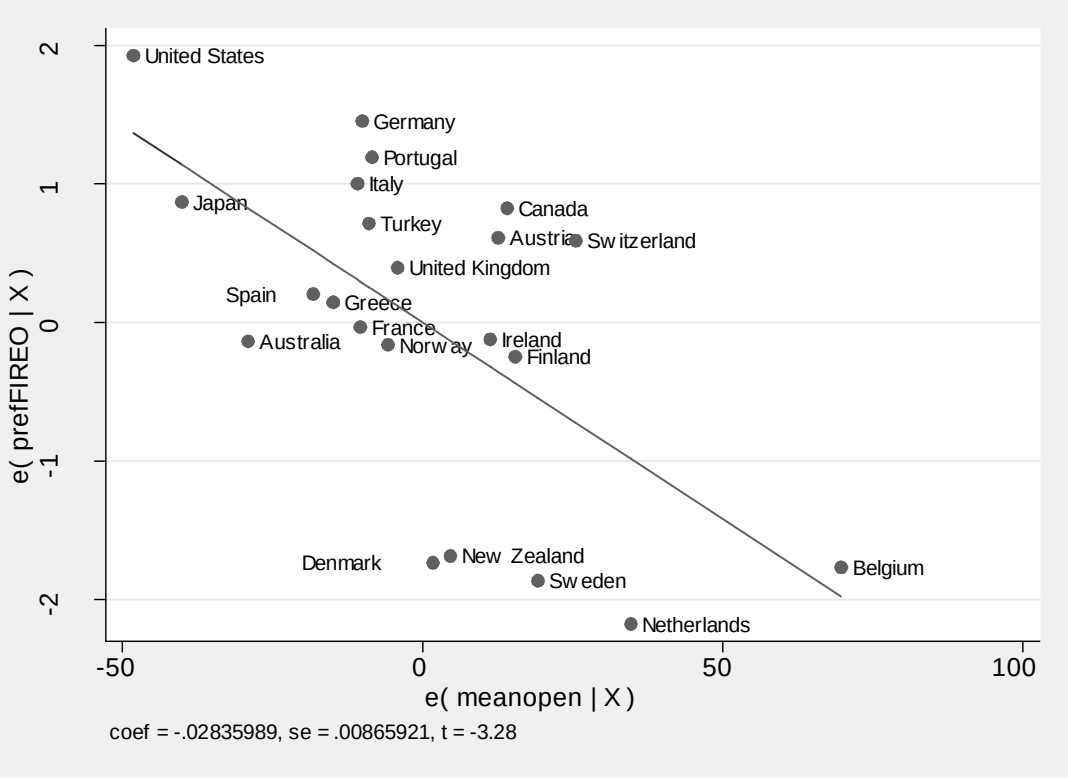
Finally, in model 4 we evaluate whether the ideology of the government is related with a particular policy preference.[20] It does seem that for the 21 countries for which available data on the ideology of government is available, a large proportion of left-wing cabinet members is associated with a preference for unempolyment benefits over firing costs.

Figures 8 and 9 show the partial correlations of economic openness and growth volatility with the dependent variable. An inspection of these graphs suggests that maybe the Belgian case (in the economic openness plot) and the Finnish one (in the growth volatility one) are driving the results for these two variables. Models 5 and 6 in Table 4 run the baseline model without one of these two countries, respectively. The result for economic openness is robust to the exclusion of Belgium: the economic openness variable remains negative and highly significant. The result for standard

[19] There is another reason why export concentration could be associated with a preference for a system of unemployment benefits. If the ownership of capital is more concentrated in economies specialized in one or a few exports, then solving the collective action problems created by a system of unemployment benefits would become easier.

[20] In principle, insofar as the government ideology variable can be interpreted as a measure of the power of labor, we expected this variable to affect positively firing costs in the first set of regressions (just as the labor power index included in Table 2). However, government ideology was not related in any significant way with firing costs in those regressions (not shown).

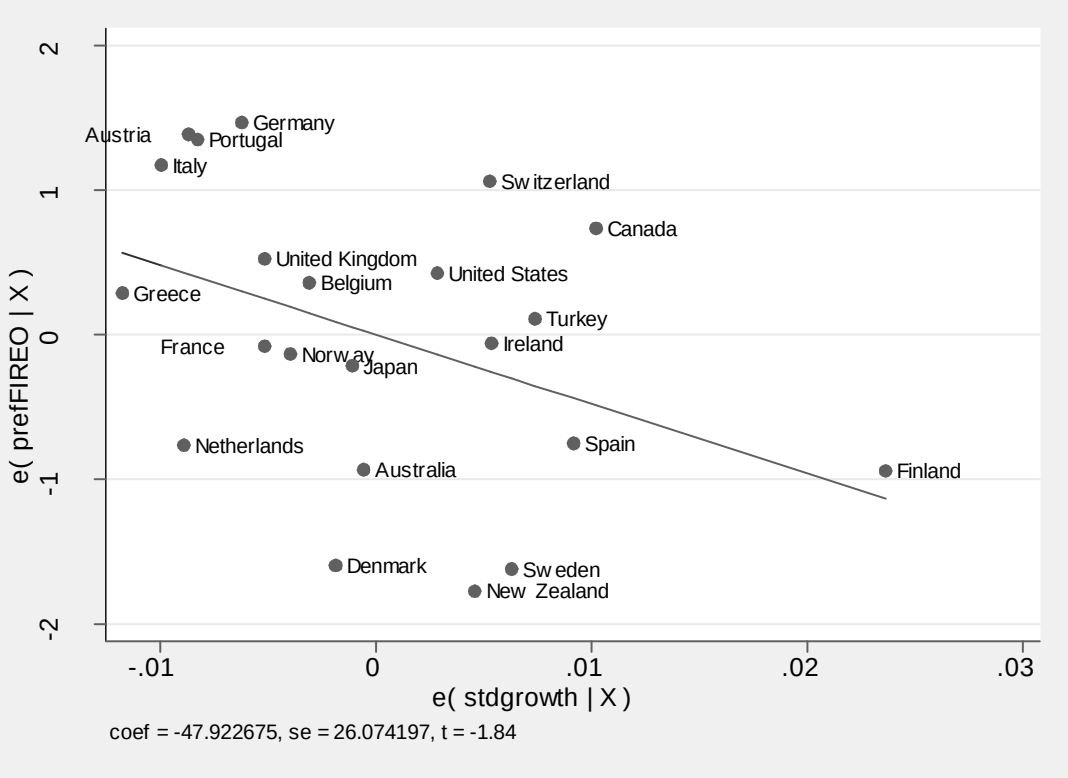
Figure 8: Partial Correlation between Economic Openness and Preference for Firing Costs



volatility, in contrast, does seems to be affected by the exclusion of Finland. The t value for the growth volatility coefficient drops to 1.48. Note however that the coefficient does not change significantly in magnitude, and the lower significance might be due to the relatively small amount of variability in the growth volatility variable in the remaining OECD countries. Within this group of countries, only Finland exhibits a very high level of output volatility in the 1990s (a consequence of the strong dependence of the Finnish economy on the Soviet market prior to the collapse of the Communist bloc). Precisely because of this reason, we should expect Finland to choose protection through unemployment benefits –exactly what we see in Figure 9.

After discussing the results for the OECD sample, we now analyze the results for

Figure 9: Partial Correlation between Growth Volatility and Preference for Firing Costs



the global sample. Table 5 presents the results. As in the OECD table, we start by running a baseline regression (model 1), with the four main covariates. Income per capita, growth, and growth volatility are, as in the OECD subsample, correctly signed and statistically significant. Economic openness, in contrast, although correctly signed, is not statistically significant.

Models 2 and 3 control for the effect of export concentration, segmentation in the labor market, and the degree of democracy. While no significant effect for either of these variables can be detected, the magnitude and the significance of the coefficients for growth, per capita GDP and growth volatility remain unaltered.

Summing up, we find quite supportive results for our main argument: the two variables aimed at capturing the degree of exposure to shocks of the economy do

Table 5: Dependent Variable: Preference for Firing Costs vs. Unemployment Transfers, Global Sample

	(1)	(2)	(3)
GDP per capita/1000	-.14	-.13	-.14
	(-8.41)	(-6.89)	(-4.36)
Growth	16.12	12.65	13.08
	(2.72)	(1.70)	(1.71)
Growth Volatility	-12.42	-10.08	-10.10
	(-3.23)	(-2.82)	(-2.77)
Openness	-.002	-.001	-.001
	(-0.62)	(-0.50)	(-0.45)
Export concentration		1.44	1.42
		(1.37)	(1.32)
Segmentation		.26	.33
		(0.35)	(0.39)
Democracy			.01
			(0.25)
Constant	1.70	1.15	1.08
	(4.47)	(1.93)	(1.61)
R^2	.49	.50	.50
N	80	71	71
Prob > F	<.01	<.01	<.01
t-values in parentheses			

seem to exert a positive impact on the preference for unemployment insurance-based systems of labor market protection. The effect of growth volatility is statistically significant both in the OECD and in the global sample. Trade openness, however, seems to be robustly associated with such a policy only in the OECD sample. In line with the theoretical expectations from the argument put forward in this paper, when faced with labor demands for protection against labor market-related risks, governments in economically volatile environments prefer to buy insurance against exogenous shocks. In contrast, in countries less affected by these exogenous shocks, the solution to the collective action problem becomes more important in relative

terms, and thus their governments opt for higher levels of labor market regulations, in the form of high firing costs for individual firms.

5 Conclusions

This paper has advanced an explanation for preferences toward different types of policies aimed at protecting workers against labor market risks. In this explanation, the political power of labor determines the demand for protection, but because workers are indifferent between different combination of policies that protect them equally against such risks, power resources arguments alone cannot answer why some policies are preferred in some contexts, but not in others.

To explain the choice between policies aimed at protecting labor, we have argued, an understanding of firms' preferences towards the different policy alternatives that could be used to meet workers' political demands is crucial. When choosing between high firing costs or unemployment benefits, firms must choose between insuring themselves against the possibility that they might need to fire some of their workers and have to pay the cost of their unemployment, and solving the collection action problem that a unemployment system entails. As prospective economic conditions become more unpredictable, the value of the former vis-a-vis the latter should increase. Therefore, we should observe a greater preference for systems based on transfers to the unemployed in more open and volatile economies.

Although much more empirical work is needed to test systematically the hypotheses that follow from this theoretical framework, preliminary evidence from the degree of labor market regulation and the generosity of social security transfers in OECD countries seems to roughly corroborate the most important conjectures: i) there is a relation of substitution between the use of unemployment transfers and labor mar-

ket rigidity for equivalent levels of labor strength, and ii) countries' preferences over these policy tools depend upon the degree of exposure to exogenous shocks: countries with higher levels of economic openness and greater income volatility tend to prefer unemployment subsidies over labor market regulation, where the opposite seems to be true for countries with higher levels of economic *predictability*.

Appendix: Data Description

Definitions and Sources

Firing costs Cost of firing a standard worker measured in weeks of wages, 2005. Source: World Bank. Details about the survey methodology can be found in http://www.doingbusiness.org/ExploreTopics/HiringFiringWorkers/Firing costs.

Unemployment benefits generosity (OECD sample) Unemployment expenditure (as % of GDP) divided by unemployment rate, 1990-2000. Source: OECD Social Expenditure Database.

Unemployment coverage (global sample) Equals zero if the social security system does not cover the risk of unemployment, and the percentage of the net salary covered by net unemployment benefits in the case of a one-year unemployment spell, otherwise. Source: Botero *et al.* (2004).

Labor power Measures the statutory protection and power of unions as the average of the following seven dummy variables which equal one: (1) if employees have the right to unionize; (2) if employees have the right to collective bargaining; (3) if employers have the legal duty to bargain with unions; (4) if collective contracts are extended to third parties by law; (5) if the law allows closed shops; (6) if workers, or unions, or both have a right to appoint members to the Boards of Directors; and (7) if workers' councils are mandated by law. Source: Botero *et al.* (2004).

GDP per capita Per capita income, 1990-2000, measured in 1996 US dollars, constant PPP. Source: Penn World Tables version 6.1.

Growth Economic Growth, 1990-2000 average. Source: Penn World Tables version 6.1.

Growth Volatility Standard deviation of the growth rate, 1990-2000. Source: Penn World Tables version 6.1.

Openness Economic openness measured as imports plus exports as % of GDP. Source: Penn World Tables version 6.1.

Export concentration Herfindahl-Hirschmann export concentration index, ranging from 0 to 100 (maximum concentration). Source: United Nations Conference on Trade and Development (UNCTAD) *Handbook of Statistics*, 2001.

Protection Comprehensiveness Measures the existence and cost of alternatives to the standard employment contract, computed as the average of: (1) a dummy

variable equal to one if part-time workers enjoy the mandatory benefits of full-time workers; (2) a dummy variable equal to one if terminating part-time workers is at least as costly as terminating full time workers; (3) a dummy variable equal to one if fixed-term contracts are only allowed for fixed-term tasks; and (4) the normalized maximum duration of fixed-term contracts. Source: Botero *et al.* (2004).

Capital centralization Subjetive measure of business organization, combining the degree of concentration among business organizations and the degree of centralized authority of confederations over their members (higher values: more concentration). Source: Hicks and Kenworthy (1998).

Government ideology Mean of government ideology from 1945-97, based on party manifesto data. Ranges from 0 (right) to 100 (left). Source: Kim and Fording (2002).

Democracy A measure of the degree of democracy in a given country based on: (1) the competitiveness of political participation; (2) the openness and competitiveness of the chief executive recruitment; and (3) the constraints on the chief executive. The variable is measured as the average from 1950 or independence through 1995. Source: Botero *et al.* (2004) own calculations using the Polity IV dataset.

Descriptive statistics

Variable	Mean	S.D.	Min	Max	N
Firing Costs	54.17	42.78	0	176	85
Unemployment Benefits (OECD)	.23	.14	.06	.59	22
Unemployment Coverage (global sample)	.28	.31	0	1	82
Labor Power	.42	.18	0	.71	85
GDP per capita/1000	9.21	7.82	0.47	28.9	84
GDP Growth	.017	.023	-.076	.073	83
Growth Volatility	.039	.027	.008	.138	83
Economic Openness	70.12	40.89	15.03	321.13	84
Export Concentration	.22	.14	.06	.67	76
Protection Comprehensiveness	.61	.19	0	.97	85
Capital Centralization	.48	.43	0	1	18
Government Ideology	52.20	8.76	41.34	75.61	22
Democracy	4.88	3.76	0	10	84

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