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Who is claiming for fixed-term contracts?

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HEID Working Paper No: 07/2009

Who Is Claiming For Fixed-Term Contracts?

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Abstract

The present study aims to contribute to the debate concerning the effects on economic performance and the structure of the labor market of regulations that combine high Employment Protection Legislations (EPL) with consent for the use of fixed-term contracts (FTC). Using a Rajan and Zingales (1998) difference-in-difference empirical technique in a panel of 45 countries, we explore the response of industries that differ in their "intrinsic need" of worker turnover when they face different levels of EPL and how the possibility of using FTC might change the outcome. Our approach suggests an original demand side explanation of the claiming of FTC.

JEL Classification: J21, J33, J63

Keywords: employment protection legislation, labor turnover, fixed-term contracts

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1. Introduction

The effects of Employment Protection Legislations (EPL) on employment and overall economic performance are still a mystery, even after decades of theoretical and empirical research concerning this topic. Going further from the anecdotal comparison of higher unemployment in continental Europe (a high EPL environment) than in Anglo-Saxon countries (generally speaking low EPL economies), serious studies regarding this topic show mixed and usually contradictory results, a fact reflected in the changing and contradictory policy recommendations of International Institutions on this issue¹.

Even though the effects of EPL on the employment level are uncertain, a clear theoretical consequence is that labor turnover must be reduced (Bertola, 1990). Nevertheless, the empirical literature has not necessarily been successful in finding support for this prediction, such that only recent studies (Micco and Pages, 2006) that acknowledge sector heterogeneity have been able to provide evidence. One of the main explanations given for the apparent lack of negative correlation of EPL and labor turnover was that fixed-term contracts (FTC) could be used to avoid the effects of EPL.

In the present study we explore cross-country data to look for evidence for the idea that FTC can be used as a way to avoid the cost of firing insiders. Moreover, we recognize the heterogeneous response to EPL, differentiating industries according to their "intrinsic need" of worker turnover. We extend previous analyses in two ways. Firstly, we implement a Rajan and Zingales (1998) difference-in-difference empirical approach that allows us to compare a large set of developed and developing countries. Second, we provide a labor demand side explanation for the effects of FTC, related to the idea that industries where the "intrinsic labor turnover" is high will claim for the use of this type of contracts when the EPL are binding.

¹ For a detailed survey of this topic, Freeman (2005).

The rest of paper is organized as follows: In section 2 we summarize previous studies related to our work; in section 3 we present the empirical methodology and the data; section 4 presents the main results while section 5 concludes.

2. Previous Literature

Our study is related to the literature concerning the labor market, EPL and FTC, developed mainly in Europe in order to examine high unemployment rates and the labor market hysteresis phenomenon. The previous studies are mainly theoretical pieces or empirical analyses of particular country cases, focused on the use of FTC by some kind of “disadvantaged workforce”, such as the young, women or unskilled workers².

Early empirical studies failed to find any negative effect of EPL on job turnover, as predicted in most of the theoretical models. Trying to understand the lack of evidence, Boeri (1999) claims that the use of FTC’s in high EPL countries creates an intermediate labor market status of temporary workers that increase turnover but have negative implications for overall employment and welfare. This arises through the so-called “musical chair effect”, without permanent jobs created for ending FTC.

Blanchard and Landier (2002) analyze the impact of partial reforms on labor markets, taking the introduction of FTC as reductions in firing costs for entry-level jobs. If regulations for regular jobs are kept, they argue that the main effect may be high turnover that could lead to higher unemployment. And even if unemployment goes down, they say, the quality of jobs will be worse off. They study the case of France, with high EPL and increasing use of FTC, focusing particularly on the consequences for young workers, the group they say is the most affected.

Cahuc and Postel-Vinay (2002) find similar results to Blanchard and Landier (2002) in a framework of the simultaneous use of FTC and permanent jobs. They suggest that the distribution of firm ownership is likely to influence labor market regulations. If

² An example of a recent study in that vein is Kahn (2007).

the worker's share of profits is small (as in continental Europe), they are going to prefer labor markets with combinations of FTC and firing restrictions. If the opposite exists (as in Anglo-Saxon countries) workers may prefer very flexible labor markets.

While the previous models find steady state solutions, Boeri and Garibaldi (2007) explore the transitional effects of the implementation of reforms imposing FTC in high EPL environments. The prediction is the existence of a "temporary honey moon", with employment growth in the beginning since in good times the new hiring conditions are used, but in bad times it is not possible to fire the insiders. Slowly, the firms start replacing the insiders with temporary workers, and in the long run the push in employment is reversed.

3. Methodology and data

Our empirical approach follows the kind of difference-in-differences technique first proposed by Rajan and Zingales (1998). Their study aims to analyze the impact of financial development on growth. In order to avoid the obvious endogeneity problem of naïve regressions of both variables, they exploit sector heterogeneity to create identification, using the fact that industries with intrinsically higher external financial dependence will suffer the most if financial market is underdeveloped. To measure the sectoral external financial dependence, they take as proxy the values for a frictionless market, the USA in their case.

A series of studies have extended this technique to analyze a very diverse range of issues. Of particular relevance to our study is Micco and Pages (2006). They explore the effects of EPL in different economic outcomes through sectors that differ in their intrinsic need for labor turnover, also using the USA as the frictionless benchmark market. We extend the methodology of Micco and Pages (2006) to analyze effects of combinations of EPL and permission for the use of FTC. This approach allows us to use country and sector fixed effects to control for all observable and unobservable characteristics in both dimensions. This technique also alleviates the potential endogeneity problem that

regulations present in cross-country analysis, because the use of sector level data and country fixed effects allow us to account for the feedback from employment outcomes to regulations.

We exploit country-sector variation, estimating a panel in both dimensions, where there is no time variability since we are using one period with a quinquennial average. Our main empirical specification will be:

$$\ln(Y_{ic}) = D_c + D_i + \beta_1 \text{SUM}_i \text{EPL}_c + \beta_2 \text{SUM}_i \text{FTC}_c + \beta_3 \text{SUM}_i \text{EPL}_c \text{FTC}_c + \delta C_c I_i + \mu_{ic} \quad (1)$$

where Y_{ic} denotes the employment level or other economic indicator in sector i of country c ; D_i and D_c are sector and country fixed effects; EPL_c measure the level of Employment Protection Legislation in country c ; FTC_c is a measure of the country-level consent for the use of fixed-term contracts; SUM_i is the intrinsic labor turnover requirements of sector I ; and $C_c I_i$ is a vector of controls taken for the previous literature that interact country and sector variables.

The parameters of interest in the estimation are β_1 , β_2 and β_3 . We expect β_1 to be negative indicating that, following Micco and Pages (2006), industries with larger flexibility requirements will have lower employment levels in countries with restrictive EPL. For β_2 , the sign is uncertain, since the presence of fixed-terms contracts has no clear effects on its own. In the case of the parameter associated to the triple interaction, β_3 , we anticipate a positive value, indicating that the presence FTC tends to mitigate the negative impact of EPL in the employment level for sectors with high flexibility requirements.

The data for country-sector employment and the other dependent variables are taken from the Industrial Statistics Yearbook produced by the United Nations Industrial Development Organization (UNIDO, 2006). This database provides observations at the industry level for 28 manufacturing sectors, at the three-digit level of disaggregation in the International Standard Industrial Classification (ISIC-rev2).

The data for country-level EPL and consent³ for the use of FTC is collected as of 1997 and comes from Botero et al. (2004)⁴. Table 1 shows this data for the countries in our sample. The EPL are small in China, Japan and countries with an Anglo-Saxon tradition, but high in continental Europe and most of the Latin-American countries. On the other hand, no clear cultural or regional pattern seems to explain the legislation regarding FTC⁵. The fact that these two variables are not spatially correlated is crucial for the statistical identification of our study. To better illustrate that this is the case, in Table 2 we show a matrix that shows the spatial distribution, assigning HIGH to countries over the median of the EPL and permission for FTC measures, and LOW for the opposite. We can see that all the cells in the matrix are well populated.

Following one of the main assumptions in the Rajan and Zingales (1998) methodology, the sector specific intrinsic flexibility requirements have to be measured in reference to a “frictionless market”. Our baseline country is the United States, which according to many measures has one of the least restrictive EPL regimes in the world. In fact, our approach only requires the weaker assumption that the USA sector ranking is not affected by EPL. To show that this seems to be the case, in Figure 1 we use data from Micco and Pages (2004) to plot the distribution of the spearman rank correlation of job turnover for 10 industries in 18 countries, where a strong positive correlation can be observed⁶. The variable we use to measure the flexibility requirements is the sectoral job reallocation -the sum of job creation and job destruction- in the USA, averaged for the period 1973-93. The data is taken from Davis and Haltiwanger (1999) and the values for the 28 sectors in the sample are showed in Table 3.

³ We use a measure of “consent” for using FTC instead of the actual use of FTC, because the latter is endogenous to the EPL in the country. To facilitate the interpretation of results, the variable FTC was rescaled in order to allow higher values to imply more consent.

⁴ Specifically, to measure EPL, we use the sum of the *Cost of Firing Workers* and *Dismissal Procedures* indicators. In the case of the FTC, we take a variable that is the average of a measure of maximum cumulative duration of FTC and a dummy that indicates if those contracts only allowed for inherently temporary tasks. It is important to note that the definitions of EPL and FTC are independent, since the criteria used for the former are just related to the permanent labor force.

⁵ All different combinations of low/high FTC and EPL are observed in the countries in the sample, a characteristic that permits identification to study the joint effect of these policies.

⁶ The countries in the data sample are: Germany, Argentina, Brazil, Canada, Chile, Colombia, Finland, France, UK, Italy, Mexico, Norway, New Zeland, Portugal, Sweden, Uruguay, USA and Venezuela. The only negative correlations all correspond to Sweden.

In addition to our main explanatory variables, we use other country-sector controls taken from the existing literature. We use four of these interactions: (i) Following Rajan and Zingales (1998), the industry external financial dependency with a measure of a country's financial development (private credit over GDP). (ii) The Claessens and Laeven (2003) specification for sector dependency on intangible assets interacted with a country-level indicator of property rights taken from Heritage Foundation indicators. (iii) The Klapper et al. (2004) specification for sector firm entry rate in USA industries (constructed by Dunne et al., 1988) interacted with the World Bank's Doing Business indicator of country barriers to entry. (iv) Finally, we include the interaction of sector flexibility requirements and the GDP *per capita*, in order to be sure that EPL is not just a proxy for a country's economic development.

4. Results

4.1 Main results

For the main regression analysis the dependent variable is averaged for the period 1991-95 and the right hand side variables are averages with one quinquennium lag, when possible (as in credit over GDP and GDP *per capita*), in order to reduce possible simultaneity problems.

The sample consists of 1218 observations for 45 countries, 19 industrialized and 26 developing, as a result of eliminating from the final sample countries with observations for less than 20 industries and less than 3 years in the five year period⁷. The USA is not included in the sample either, since the methodology of construction for the industry-level variables may imply that the presence of this country could lead to endogeneity problems.

The results are summarised in Table 4. In the first column, we reproduce the main regression of Micco and Pages (2006), exploring the effects of labor regulations on employment according to industry needs for flexibility. Here, the interaction of the EPL measure and sector level “frictionless” turnover is used as the main explanatory variable, and we find the negative effect of the original study. Since our goal is to study the effects of FTC, in the next two columns we split the sample using the permission for FTC indicator displayed in Table 2. Interestingly, for the group of countries with high permission of FTC (Column 2), there seems to be no effect of the EPL, but for the countries with low permission (Column 3), the negative effects of EPL on employment are significant. This exercise provides preliminary evidence that under the presence of FTC the EPL seem to have no effects on the employment level, even when sector heterogeneity is addressed.

In column 4 we use the whole sample to estimate the complete model of equation 1. The double interaction of sector flexibility requirement with FTC permission dummy (taken value 1 if high) and the triple interaction including EPL are now added. The results are as expected. For the original Micco and Pages (2006) interaction, the associated parameter (β_1) keeps the negative sign, and augments its magnitude with respect to column 1. In the case of the triple interaction, the estimated parameter (β_3) is positive, significant and of similar magnitude than β_1 . We take this result as evidence that in countries with labor legislation that combines high EPL with the use of FTC, industries with high flexibility requirements tend to “compensate” the adverse effects on employment levels. In the case of β_2 , the parameter estimated is statistically insignificant by itself, a sign that FTC only have effects when labor regulations are present. In column 5, the dummy for EPL (1 if high) is used instead of the continuous variable, and the results are unchanged.

⁷ We also dismiss two outliers countries, Jamaica and Nigeria, that significantly changed the results if included. Nevertheless, the main results hold even if these countries are included (a result available upon request)

It is relevant to note that in the four regressions we have analyzed, as well as in all the other regressions, all the controls have the expected results: (i) The Rajan and Zingales (1998) interaction of external financial requirements and financial development is positive and significant, indicating higher employment level in sectors that need external financing and are located in countries with credit availability. (ii) The Claessens and Laeven (2003) interaction have the expected sign, but no significance. Employment level seems to be not affected by lax property rights when industry is dependent of intangible assets. (iii) The interaction of firm entry rate and entry regulations is negative and significant, meaning less employment in sectors with high firm turnover located in countries with restrictive entry regulations. (iv) The interaction of flexibility requirements and GDP per capita is negative and significant, meaning that industrialized economies will use technologies less intensive in labor when intrinsic turnover is high.

In columns 6 and 7 we explore whether the effects of combining EPL and FTC hold for different economic outcomes. In the first we use the county-sector value added as the dependent variable, and the main results are very similar, which can be considered as an indication that what we are really capturing with the effect is the long-term sector size. In column 8 we test the effects on wages, and find evidence of a decrease when FTC are combined with EPL. This provides support to theoretical models that predict worse jobs when these two elements are present in the labor market. On the other hand, the sole effect of EPL is positive and significant, providing evidence that in countries with high EPL, sectors with high flexibility requirements have higher wages, a result in line with insiders-outsiders like models.

4.2 Robustness check

The remaining three columns of Table 4 are robustness checks using the specification in column 4 as the benchmark. One important concern for the validity of the results is possible multicollinearity, since the interaction terms are likely to be highly correlated. In fact, simple pairwise correlation between the uncentered values of the triple interaction and the double interactions of flexibility requirements interacted with EPL and

permission FTC are positive and significant⁸. Acknowledging the potential problems of collinearity of the interacted terms, all the regressions we have analyzed so far use mean centered values for the variables. When variables are centered, the simple correlations of the triple and double interactions are deeply reduced, going close to zero with no statistical significance. More importantly, a variance inflation factor (vif) analysis show that coefficients in regression with uncentered values for the three variables of interest are all around 15, while in the regression for centered values are reduced to values between 1 and 2. Another way to deal with multicollinearity is to create orthogonal values for the variables. This is what we do in column 8, where the modified Gram-Schmidt procedure is used to orthogonalize the three main regressors. It is possible to see that main results remain unchanged.

In next column we address a different concern. A possible source of endogeneity in the model might come from the fact that sectors that face high EPL and have high intrinsic labor turnover dependence will lobby for the permission to use FTC, and the sectors with biggest employment share will be more successful in doing this. Then the positive value of the triple interaction will be contaminated by simultaneity. In order to reduce this possibility, in column 9 we drop from the sample sectors in the highest quintile of the labor share of each country that also are in the highest quintile of intrinsic need of labor turnover⁹. In column 10 we take a different approach to tackle the possible endogeneity issue of influential sectors inside a country. We take advantage of the disaggregation of the data and use country-sector fixed effects, where sector is defined at the two-digits level ISIC, and also the previously used sector fixed effects at three-digits level. This eliminates idiosyncratic effects that are common to groups of very related industries within a country. Our results are robust to both changes in the specification.

In order to be sure that the results do not depend exclusively on the chosen time period, in column 11 we perform the same regressions as in column 4 but now using as dependent variable the five years average employment level during the 1996-2000

⁸ With values of 0.456 and 0.846 respectively.

⁹ This is also the case when all the sectors in the highest quintile of each country are dropped from the sample, a result not detailed in the tables available upon request.

quinquennium, and for 1991-1995 for the controls (when necessary). Using the data for this more recent period implies a reduction in the number of countries, now just 36, and, therefore, the number of observations, now 300 less than in the original regressions. Nonetheless, the main findings remain unaffected.

4.3 Quantification of the results

While the foregoing empirical results support the expected signs for the relevant variables in equation 1, the coefficient magnitudes in the regressions cannot be given a direct economic interpretation. Because of the nature of the Rajan and Zingales (1998) technique, more than between or within country or sector comparisons, the result have to be understood as the difference-in-difference effect at the country-sector level.

Column 4 of table 4 provides us with an adequate benchmark to quantify the effect. When the dummy for FTC is 0 (low permission of FTC), the heterogeneous effect of EPL will be given by β_1 and when FTC is 1 (high permission for FTC), the effect will be by $\beta_1 + \beta_3$.

In our sample, the 25th percentile of EPL is the UK and the country in the 75th percentile is Philippines. In terms of industry - level labor turnover requirements, the sector in the 25th percentile is Beverages (ISIC 313) and the one in the 75th percentile is Furniture, except metal (ISIC 332). Given $\beta_1 = -9.657$, the estimated difference in employment level due to the effect of EPL between the Beverage and Furniture sectors will be 30% higher in the Philippines compared with the UK¹⁰. How big is this effect? As a means of comparison, a similar calculation for the heterogeneous effect of financial development yields that the different in employment level will be around 21%. If instead of comparing 25th to 75th percentiles the 10th to 90th are taken, the difference in

¹⁰ EPL for UK is 0.63 and for Philippines 1.15. Labor turnover dependence is 0.166 for Beverages and 0.219 for furniture. Then the effect is calculated as: $(-9.657)*[(1.15*0.219 - 1.15*0.166) - (0.623*0.219 - 0.623*0.166)] = -0.297$

employment level due to EPL will increase to 117%, compared with 103% of the financial development effect.

Whilst the aggregated results for the whole economy cannot be predicted (employment might increase in some sectors and decrease in others), the reallocation process between industries in countries with high EPL suggested by the evidence is considerable, and it is likely to affect long-term efficiency. Since the sum of β_1 and β_3 is statistically not different from zero, we might expect that this process of reallocation of labor from high to low intrinsic turnover sectors will not happen when EPL are combined with the use of FTC. Nevertheless, this not necessarily a good thing, a fact that will be analyzed in more detail in the concluding section.

5. Conclusions

Most of the studies concerning the effects of FTC on the labor market and economic performance are purely theoretical or only provide empirical evidence related to specific country cases. Additionally, concerning the question posed in the title of this paper - *'Who is claiming for fixed-term contracts?'* - previous studies mainly focus on a labor supply explanation related to the “disadvantaged workforce” (those such as the young, women or unskilled workers). We extend the analysis in two ways. First, we use a difference-in-difference empirical technique that allows us to expand the study to a broad panel of developed and developing countries and control for fixed effects in country and industry level. Second, we show that not only some sectors in the workforce might be claiming for FTC, but, on the demand side, some industries will be more eager to use this type of contracts when facing inflexible labor markets.

Our findings suggest that the presence of EPL will mainly harm the industries that, due to technological factors, have higher “intrinsic labor turnover”, an intuitive result since those are the ones that will “use” the labor market more. However, in countries with employment laws that combine EPL and the use of FTC, these negative effects tend to be neutralized, something that we interpret as the result of the existence of

an alternative mechanism that allows the affected sectors to use this type of contract to confront the inflexibilities.

Usually the legislation on EPL tends to change slowly in most of the countries, and seems to be related to persistent historical and institutional characteristics¹¹. But the regulations concerning FTC are more dynamic, with several reductions in restrictions on its use in the last two decades, particularly in continental European countries¹². Because of this, it is not possible to directly interpret our results as long run or steady state effects. Therefore, and considering the period covered by the sample, it is more likely that we are capturing some transitional effects in line with the predictions of Boeri and Garibaldi (2007).

Even if stable over the time, the results must be treated with caution. To conclude that the use FTC is a good thing is not the aim of the present study. The aggregated welfare effects are unclear, and are very likely to be in line with the theoretical literature which generally predicts negative impacts. The fact that total employment levels can be unaffected when EPL are combined with fixed-term contracts could just be the consequence of a second best policy, where the quality of jobs may be worse, the time to find a position can be larger and/or salaries may be poorer¹³. The study of this idea constitutes a fruitful avenue for future research.

¹¹ Botero et al. (2004)

¹² Booth et al. (2002a)

¹³ Empirical evidence concerning this, using micro panels in developed countries, has been provided by Booth et al. (2002b) and Kahn (2007).

References

- Bertola, G. 1990. Job Security, Employment and Wages. *European Economic Review* 34 (4): 851–886.
- Blanchard, Olivier and Augustin Landier, 2002. “The Perverse Effects of Partial Labour Market Reform: Fixed-Term Contracts in France,” *The Economic Journal*, 112 (June)
- Boeri, Tito, 1999. "Enforcement of employment security regulations, on-the-job search and unemployment duration," *European Economic Review*, Elsevier, vol. 43(1), pages 65-89, January.
- Boeri, Tito and Pietro Garibaldi. 2007. “Two Tier Reforms of Employment Protection: a Honeymoon Effect?”. *The Economic Journal* 117 (521) , F357–F385.
- Booth, Alison, Juan Dolado and Jeff Frank. 2002a. “Symposium on Temporary Work: Introduction”. *The Economic Journal* 112 (480), F181–F188.
- Booth, Alison, Marco Francesconi and Jeff Frank. 2002b. “Temporary Jobs: Stepping Stones or Dead Ends?” *The Economic Journal* 112 (480), F189–F213.
- Botero, Juan, Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2004. “The Regulation of Labor.” *Quarterly Journal of Economics* 119 (4): 1339–82.
- Cahuc, Pierre and Postel-Vinay, Fabien, 2002. “Temporary Jobs, Employment Protection and Labor Market Performance” *Labour Economics*, Elsevier, vol. 9(1), pages 63-91, February.
- Claessens, Stijn, and Luc Laeven. 2003. “Financial Development, Property Rights, and Growth”. *The Journal of Finance* LVIII (6): 2401–36.
- Davis, Steven, and John Haltiwanger. 1999. “Gross Job Flows.” In *Handbook of Labor Economics*, Orley Ashenfelter and David Card, Editors Volume 3B: 2711-2805. Elsevier/North-Holland.Amsterdam.
- Dunne, Timothy, Mark Roberts, and Larry Samuelson. 1988. “Patterns of Firm Entry and Exit in U.S. Manufacturing Industries.” *Rand Journal of Economics* 19 (4): 495-515.
- Freeman, Richard. 2005. "Labour market institutions without blinders: The debate over flexibility and labour market performance," *International Economic Journal*, Korean International Economic Association, vol. 19(2), pages 129-145, June.
- Kahn, Lawrence. 2007. “The Impact of Employment Protection Mandates on Demographic Temporary Employment Patterns: International Microeconomic Evidence” *The Economic Journal* 117 (521) , F333–F356.

Klapper Leora, Luc Laeven, and Raghuram Rajan. 2004. "Business Environment and Firm Entry: Evidence from International Data." NBER Working Paper No. 10380. National Bureau of Economic Research, Cambridge, Mass.

Micco, Alejandro and Carmen Pagés, 2004. "Employment Protection and Gross Job Flows: A Difference-in-Difference Approach" Inter-American Development Bank Research Department Working Paper N. 508

Micco, Alejandro and Carmen Pagés, 2006. "The Economic Effects of Employment Protection: Evidence from International Industry-Level Data," IZA Discussion Papers 2433, Institute for the Study of Labor (IZA).

Rajan, Raghuram, and Luigi Zingales. 1998. "Financial Dependence and Growth." *The American Economic Review* 88 (3): 559–86.

TABLE 1: Employment Protection Legislation (EPL) and Fixed-Term Contracts (FTC) for countries in the sample.

COUNTRY	EPL	FTC	COUNTRY	EPL	FTC
Argentina	0.5591	1	Japan	0.0796	0.6875
Australia	0.6738	0.0625	Kenya	0.9747	1
Austria	0.5026	1	South Korea	0.9023	0.6875
Bolivia	0.5207	1	Sri Lanka	1.3414	1
Canada	0.3374	1	Mexico	1.2826	1
Chile	1.0977	0.1875	Malaysia	0.1949	0.5625
Colombia	0.8345	0.1875	Netherlands	1.4023	0.625
Germany	1.0561	0.5	Norway	1.2414	1
Denmark	0.7907	0.5	Pakistan	0.7707	0.5
Ecuador	0.8917	1	Panama	1.4891	1
Egypt	0.9162	1	Peru	1.462	0.6875
Spain	1.0725	1	Philippines	1.1461	1
Finland	1.1026	0.6875	Poland	1.0581	0.3125
France	1.2896	0.5625	Singapore	0.6037	0.1875
United Kingdom	0.6296	1	Sweden	1.2432	0.8125
Greece	0.8521	0.625	Thailand	0.9177	1
China	0.1784	1	Turkey	0.7001	1
Indonesia	1.399	1	Tanzania	1.362	0.125
India	1.48	0.625	Uruguay	0.2438	0.5
Ireland	0.8314	0.25	Venezuela	0.6663	0.0625
Israel	0.5358	0.25	South Africa	0.6537	0.6875
Italy	0.881	0.5	Zimbabwe	0.5053	0.625
Jordan	1.0409	0.625			

Note: EPL is the sum of the *Cost of firing workers* and *Dismissal procedures* indicators and FTC, is the average of maximum cumulative duration of FTC and a dummy that indicates if those contracts are only allowed for inherently temporary tasks, both as in Botero et al. (2004). The data is collected as of 1997.

TABLE 2: The spatial distribution of EPL and FTC allowance.

		Employment Protection Legislation	
		HIGH	LOW
Fixed-Term Contracts Permission	HIGH	EGY, ESP, IDN, KEN, LKA, MEX, NOR, PAN, PHL, SWE, THA	ARG, AUT, BOL, CAN, ECU, GBR, HKG, TUR
	LOW	CHL, DEU, FIN, FRA, IND, JOR, KOR, NLD, PER, POL, TZA	AUS, COL, DNK, GRC, IRL, ISR, ITA, JPN, MYS, PAK, SGP, URY, VEN , ZAF, ZWE

Note: Country codes from ISO3166

TABLE 3: Intrinsic Flexibility Requirements (SUM) for industries in the sample.

INDUSTRY	SUM	INDUSTRY	SUM
Petroleum refineries	0.081	Other chemicals	0.184
Industrial chemicals	0.118	Transport equipment	0.185
Paper and products	0.123	Misc. petroleum and coal products	0.187
Tobacco	0.137	Machinery, electric	0.194
Iron and steel	0.152	Machinery, except electrical	0.197
Rubber products	0.153	Fabricated metal products	0.206
Glass and products	0.153	Furniture, except metal	0.219
Beverages	0.166	Footwear, except rubber or plastic	0.220
Non-ferrous metals	0.168	Other non-metallic mineral products	0.223
Printing and publishing	0.168	Plastic products	0.225
Professional & scientific equipment	0.172	Wood products, except furniture	0.232
Pottery, china, earthenware	0.178	Leather products	0.239
Food products	0.179	Other manufactured products	0.240
Textiles	0.180	Wearing apparel, except footwear	0.253

Note: SUM is the average job reallocation (sum of job creation and job destruction) for USA during the period 1973-93, using data from Davis and Haltiwanger (1999). For more details, Micco and Pages (2004)

TABLE 4: Main Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	M&P	HIGH FTC	LOW FTC	TRIPLE	DUMMIES	VA	WAGE	ORTHOG	QQ	ISIC2	1996
Sector flexibility requirements * EPL	-3.993* (2.103)	-1.696 (2.744)	-8.684*** (1.982)	-9.657*** (2.051)	-5.609*** (1.973)	-6.245*** (2.055)	3.134*** (0.625)	-1.035*** (0.237)	-8.463*** (2.269)	-7.117*** (1.986)	-7.650** (2.887)
Sector flexibility requirements * FTC				0.936 (1.328)	-1.398 (1.438)	0.473 (1.414)	-0.717 (0.437)	0.0266 (0.038)	0.273 (1.246)	0.151 (1.237)	-0.0229 (1.434)
Sector flexibility requirements * EPL * FTC				9.685*** (3.448)	5.736** (2.804)	6.738** (3.267)	-2.044* (1.151)	0.133*** (0.048)	8.415** (3.283)	9.772*** (3.544)	6.911* (3.978)
External financial dependency * financial development	1.274*** (0.251)	1.113*** (0.193)	2.197*** (0.547)	1.295*** (0.251)	1.303*** (0.251)	1.181*** (0.249)	-0.0543 (0.052)	1.295*** (0.251)	1.301*** (0.241)	0.833*** (0.211)	1.171*** (0.287)
Dependency on intangible assets * property rights	0.291 (0.300)	0.167 (0.409)	0.409 (0.415)	0.307 (0.297)	0.305 (0.298)	0.433 (0.331)	0.0115 (0.071)	0.307 (0.297)	0.278 (0.301)	0.221 (0.258)	0.542** (0.223)
Sector flexibility requirements *GDP per capita	-1.264** (0.560)	-2.269** (0.866)	-0.284 (0.453)	-1.139** (0.537)	-1.147** (0.560)	0.122 (0.551)	0.718*** (0.151)	-1.139** (0.537)	-0.798 (0.497)	0.150 (0.480)	-1.648*** (0.586)
Firm entry * barriers to entry	-1.402*** (0.215)	-1.376*** (0.229)	-1.772*** (0.516)	-1.369*** (0.211)	-1.370*** (0.212)	-1.399*** (0.235)	-0.0413 (0.122)	-1.369*** (0.211)	-1.398*** (0.202)	-0.625** (0.295)	-1.667*** (0.211)
Observations	1218	658	560	1218	1218	1218	1218	1218	1186	1218	929
Countries	45	24	21	45	45	45	45	45	45	45	36
Sample	ALL	HIGH FTC	LOW FTC	ALL	ALL	ALL	ALL	ALL	SMALL	ALL	ALL
Period	91-95	91-95	91-95	91-95	91-95	91-95	91-95	91-95	91-96	91-95	96-01
R-squared	0.671	0.680	0.700	0.675	0.673	0.623	0.639	0.675	0.680	0.758	0.672

Standard errors clustered at the country level in parentheses. * significant at 10%; ** significant at 5%;

*** significant at 1%

FIGURE 1: Sectoral Labor Turnover Rank Correlation in Different Countries

