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Financial Development, Labor and Market Regulations and Growth

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Abstract

This paper investigates the importance that market regulation and financial imperfections have on firm growth. We analyse institutions affecting labor market as Employment Protection Laws (EP) and Product Market Regulation (PM). We show that together with the beneficial effects of financial development, a firm will get less financing, and thus invest less, in a weak financial market (finance effect), the strictness of product and labor market regulations also affect firm growth (labor effect). In particular, we show that the stricter the rules the more detrimental the influence on growth in sectoral value added for a large number of countries. We also show that the labor effect overcomes the positive finance effect.

JEL classification codes: G2, G32, J32, L10

Key words: Financial development, labor and product market institutions, growth.

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Starting with Schumpeter´s seminal paper (1911), the relationship between the financial system and economic growth has been extensively analyzed. Financial development is said to foster economic growth both at the macroeconomic and the microeconomic level (Levine 1997, Demirguç-kunt and Maksimovic 1999). Furthermore, Coase (1992) and North (1994) in their Nobel speeches emphasize the importance for economic growth of getting the institutional and legal environment right. La Porta et al. (1998) contribute to this debate, analyzing the relevance of the institutional framework in firm capital structure and financial development. In particular they find that common law countries enjoy more developed financial markets than continental Europe.The bulk of these studies analyze the financial development effects in an isolated way, not paying attention to product market competition and labor market flexibility are also considered to affect economic growth. However, there are large differences in product and labor markets across countries, in particular, OECD countries remain characterized by widely different approaches to their markets, Nicoletti and Scarpetta (2003).

Interactions between labor and product market regulations have received considerable attention in recent years. When we talk about labor regulation we are thinking about Employment Protection Legislation (EP), which encompasses any set of regulations, either legislated or written in labor contracts. EP is generally thought to affect firm cost structure; it leads to higher direct costs and thus lower employment (Blanchard and Tirole 2003 and Blanchard and Giavazzi 2003). Product Market Regulation (PM) are the burdens and administrative procedures to entry into an industry and are considered opportunity costs for the firm. Both EP and PM are costs that firms have to face and then discourage entrepreneurship. Nicoletti and Scarpetta (2003), according to the degree of strictness of these regulations identify two main groups. The common-law countries, on the one hand, which are characterized by a relatively liberal approach in both the labor and product markets and most continental European countries and Japan on the other, which share relatively restrictive product market policies and EP.

Despite the relation between firm finance, labor and market regulations and economic growth, these various branches of the literature have not been combined in investigating empirically the effects of financial and labor frictions on growth. The goal of this paper is shed some light on these relationships. We

expand the methodology developed by Rajan and Zingales (1998) (hereafter RZ) to assess the relationship between financial development, labor and product regulation and firm growth. We use UNIDO data from 29 industrial sectors across 15 developed countries.

The paper is structured as follows. Section 1 reviews the related literature. Section 2 presents the data used in our empirical application. Sections 3 and 4 present the model specification and main results respectively and Section 5 concludes.

1 Related literature and Hypothesis

Our work is related to several strands of the literature. The first one is the finance literature. There are several papers that have established an empirical link between financial development and firm behavior. In particular, well-developed financial markets have seen shown to make it easier for firms to attract external financing for their investment needs. Therefore, firm debt structure differs across institutional frameworks and financial market imperfections affect firm financing and investment decisions (Rajan and Zingales 1998, Demirguç-Kunt and Maksimovic 1999, Booth et al. 2000). Furthermore, King and Levine (1993) and Levine (1997) show that finance matters for economic growth.

The second strand we draw on is the labor market literature. This literature studies the impact of labor market regulation on employment. Specifically, entry regulation and EP are shown to affect job creation and entrepreneurship. If EP legislations were optimally set they could be considered as ways to provide insurance against job loss and internalize the social costs of dismissals (Lindbeck and Snower 1988, Pissarides 2001, Blanchard and Tirole 2003), with no effects on economic activity. In practice, however, they may affect the equilibrium level of employment. EP may enhance productivity performance, as workers will be more willing to cooperate with employers (Akerlof 1984). Moreover, to the extent that EP leads to long-lasting work relationships, it may encourage employers to provide training to workers. A better skilled workforce may also increase internal flexibility and thus lead to a better functioning of production activity (Piore 1986). However, if EP is very strict, as in many European countries, firms may become more cautious about adjusting their workforce with the ultimate effect of reducing labor turnover (Bertola 1992). Thus, EP provisions

that increase hiring and firing costs are likely to be particularly detrimental for employment and economic activity (OECD 2004).

PM are generally motivated on public interest grounds. The effects of some regulatory provisions often drift away from the original public interest, resulting in the protection of special interest groups. As a result, existing regulations are likely to be unnecessarily restrictive of market mechanisms. PM regulations may include restrictions on firm decisions over entry, exit, the use of inputs, the quantities and the types of output produced as well as prices. Entry regulations create fixed costs of entry that generate rents (Fonseca et al. (2001), Spector 2002; Blanchard and Giavazzi 2003), reducing the number of competing firms and output in the long-run. Empirical analysis helps to gauge the relevance of interactions between product and labor markets. Using a standard Layard-Nickell-Jackman framework, Boeri et al. (2000) and Nicoletti et al. (1999) find that various measures of product market regulation are negatively related to employment rates. Messina (2003) relates negatively a measure of entry costs to the overall employment rate. Scarpetta and Tressel (2002) find that anti-competitive product market regulations are negatively associated with productivity performance. Nicoletti et al. (1999) argue that labor institutions and firm structure matter to growth. Koeniger (2002) finds that EP decreases incentives to innovate and thus productivity growth depends on the degree of labor market competition. Therefore, PM and EP have an influence on job creation and industry performance, the more detrimental the stricter the regulations.

The third strand of literature is related to studies which combine financial and labor markers. Wasmer and Weil (2004) develop a matching model and introduce labor market institutions and financial markets imperfections and they conclude that financial restrictions are important in explaining growth when there are frictions in the labor market. Blanchflower and Oswald (1998) show that difficulties to access external finance discourage entrepreneurship and employment. Furthermore, there are papers that relate financial constraints to the duration of employment contracts. Rendon (2000) shows that liquidity constraints restrict job creation even when the labor market is flexible.

In this paper we link the strands of literature just commented to analyze the relationship between the financial development and the rigidity of labor markets on growth. We claim that it may be efficient for a firm operating in a rigid labor market to employ few workers compared to a firm operating in

an environment with a flexible labor markets. Several papers in the law and finance literature have shown that firms operating in more developed financial markets are able to attract more external finance to realize investment projects and have more possibilities to grow. Rigidities in product and labor market have shown to reduce job creation and firm size. Therefore, firm growth is affected by the capacity to attract external funds to invest and the possibility to adapt workforce to business cycle. We identify two different aspects of the growth drivers: the finance effect and the labor and product effect

Figure 1 develops the difference between the finance effect and the labor effect. We assume that the optimal production point entails combinations of assets and labor force that lay along the line from the origin through point A. Imagine that there is an increase in demand and that the firm wants to expand in order to attend this demand increase. If the firm operates in a well developed financial market, the firm would be able to raise enough external funds to finance the desired expansion (in terms of assets and workforce) in point D. If the supply of external financing is limited, the firm may only be able to reach point C. The difference between point C and D could then be entitled to a more limited supply of external funds, the finance effect. However, it may be efficient for the firm to choose point B rather than point C. This would be the case if the firm has high labor cost. The firm will choose few workforce than optimal in order to avoid facing high firing costs when demand decrease. This may be the case of many European countries, where the high dismissal impede firms adapt rapidly to business cycle. With labor rigidities, it will be less attractive for a firm to increase labor force. Similarly, we can argue for the product market restrictions, if a firm wants to initiate activity in a industry different where it is at present to take advantage of knowledge, synergies or economies of scale. The more product restriction or barriers to entry may cause underinvestment problems (a lower combination of assets and labor force than optimal).

[Insert Figure 1 here]

If it was the case that there are no frictions in financial markets but there were rigidities in labor or product market, firms would choose a point like E. Thus, point E illustrates the case where the finance effect is absent and the deviation from the optimal allocation (point D) can be contributed fully to the

labor effect that arises from rigidities in the labor and product market.

The discussion above suggests that firm growth is affected by financial development but also by labor and product market regulations. In particular, firms operating in developed financial development will have easier access to external funds that in turn will be reflected in higher growth rates. However, labor and product restrictions may affect negatively future investment decisions. To empirically test which effect will dominate we propose to extend RZ methodology to include the labor effect. We add to the basic model in RZ a term that accounts for the typical size for each industrial sector and an index of the country labor and product market regulation. We then test whether industrial sectors that typically present larger size grow faster (slower) in countries with more (less) flexible product and labor market regulations. Claessens and Laeven (2003) use the same methodology for analyzing property rights. Accordingly, Fisman and Sarria-Allende (2004) study the effect of entry regulation in industry structure. In contrast to the latter study, we are interested in sector growth. Moreover, we introduce EP and PM with financial development.

We use US industry data to construct proxies for the average size for a particular industry. The presumption here is that the well developed financial markets and the flexible labor and product markets in the US should allow US firms to achieve the desired financial and size structure. The underlying hypothesis is that US labor markets adapt better to the business cycles than other economy.

Following RZ, the regressions include the industry´s market share in total manufacturing in the specific country to control for differences in growth potential across industries. Industries with large market shares may have less growth potential than industries with small initial market shares when there is an industry-specific convergence. The initial share may also help to control for other variations between countries, such as in their initial comparative advantage among certain industries based on factors other than financial development and EP and PM regulations.

2 Data

2.1 Data Set

This study uses a data set that combines industry level information on firm size, number of firms, number of employees, investment and access to external finance with country-level institutional variables, namely data on labor market. Industry data come from the UNIDO data base. We include data from 15 developed countries. Table 1 presents an overview of the variables used in the empirical analysis and their sources. Most of the variables are self-explanatory and have been used in previous studies of firm financing and firm structure. Together with this data, we have included information on external financial needs collected by RZ (1998). The period considered is 1981-1998, although the country coverage is not uniform.

[Insert table 1 here]

2.2 Country-level data

Together with industry data, we introduce institutional data to account for the nature of capital labor and product markets. It is very hard to classify legal institutions and compress their description into indicators that are the essential input to statistical analysis (Giannetti et al., 2002). This difficulty is even greater in the case of the labor market because of its dynamics and complexity. However, different papers have recently introduced such measures successfully. We will focus on two different types of regulation: employment protection (EP) and product market regulation (PM).

2.2.1 Financial Development

Ideally, financial development should measure the ease with which borrowers and savers can be brought together, RZ (1998). Therefore, financial development should be related to the variety of intermediaries and markets available. We use two different measures of financial development: stock capitalization and domestic credit over gdp. Both have been widely used in the financial literature.

2.2.2 Employment protection index

The index used describes the strength of the legal framework governing hiring and firing of employees. The total employment protection index is developed

by Blanchard and Wolfers (2000). This series was built chaining OECD data with data from Lazear (1990) and is increasing in the strictness of employment protection. This index is then enlarged and used by Nickell and Nunziata (2001) and Nickell et al. (2001) among others, providing an employment protection time varying variable (EP) from 1960 to 1995. The larger the index, the more employment protection.

2.2.3 Product market regulation

Recently, several measures and indexes have been developed to proxy for market regulations. As proxies for the level of product market regulation, we use three different measures of entry regulation that come from different sources, each having advantages and disadvantages. The first two indexes are developed by Djankov et al. (2002); "*time*" accounts for the time required to start business activity and procedures measures the numbers of procedures needed to start a business. A "*procedure*" in the start-up process is a separate activity when the entrepreneur has to interact with outside entities. The third index we use is "*barr*" and it is developed by LOGOTECH, S.A. (1997). This index provides information about barriers to competition. All three indexes present higher values when there exist more restrictions to market competition.

[Insert table 2 here]

As it can be observed, the indicators of financial development are not correlated with the measures of EP and PR. Table 2 presents the summary statistics of the country-specific variables. It seems that countries with more developed financial sector present more flexible labor and product markets. This is coherent with the evidence reported by La Porta et al. (1998), and Nicoletti and Scarpetta (2003) although the correlation is not perfect, such that there are countries that are financially developed but present highly regulated labor and product markets such as Germany or Japan.

The main disadvantage of these measures is that they are valid for the last part of the nineties. The growth regressions, however, cover the period 1980 to 1998. Ideally, one would want to use proxies for market regulation for the whole period, but due to data availability, this is not possible. Furthermore, the fact that PM regulations do not account for the whole period may raise concerns in our specifications, basically because PM may have evolved in response to

economic performance. However, measures of institutional frameworks have been found to be quite stable over long periods of time, Rajan and Zingales (1998) and Claessens and Laeven (2003). The stability also seems to apply to the PM measures. Another possible concern is the different sources of the data. However, we do not think this is a relevant issue such that all measures appear quite related and are highly positively correlated (table 3).

[Insert table 3 here]

3 Model specifications and estimation

The dependent variable is the average annual growth in value added (number of establishments) in a particular sector j in a particular country k, with one observation per sector in each country. The specification for the first set of regression is as follows:

$$\begin{aligned} Growth_{j,k} &= \alpha + \psi_1 * industry\ dummies_j + \\ &+ \psi_2 * country\ dummies_k \\ &+ \psi_3 * industry\ share\ of\ manufacturing\ value\ added_{j,k} \\ &+ \psi_4 * (external\ dependence_{US,j} * financial\ development_k) \\ &+ \psi_5 * (average\ size_{US,j} * product\ or\ labor\ regulation_k) \\ &+ \varepsilon_{j,k} \end{aligned} \tag{1}$$

In order to estimate equation (1), we drop the benchmark country, the United States. We use the RZ data for external financial dependence, but we construct the typical industry size on US industry basis. The assumption is that US industry average size is a good proxy because US labor markets adapt better to the business cycles than other economy.[1] Similarly, Claessens and Laeven (2003) use US intangible intensity to proxy for the typical financial external dependence and the typical ratio of intangible to fixed asset, respectively.

This approach overcomes identification problems encountered in standard cross-country growth regression by interacting a country feature (financial development) with an industry characteristic (external financial dependence of a

[1] It is well known that the labor turnover and the exit and entry of firms in the market adapt better to the business cycles in US than in other countries. This is directly related in the literature with EP and PM.

particular industry). This approach is less subject to criticism regarding an omitted variable bias or model specification than traditional approaches and allow to isolate the desired effect. It assumes that there are technological and economic reasons why some industries present larger size than others do, and that these differences, to a large extent, persist across countries. This does not mean that we assume that a sector in two countries with the same level of employment protection have the same size, we only assume the similarities across industries. We are conscious, however, that there are other local factors that can affect firm decisions and therefore, these factors are allowed to differ across countries in the analysis.

Firm size is computed in terms of the number of employees. The simple average size (total employment divided by total number of firms per sector) is not an appropriate measure for two reasons. First, it ignores the richness of the data on the distribution of firm size. Second, as pointed out by Kumar et al. (2001) it could give a number that has little bearing on the size of the firm that have the greatest share in the sector's production. Davis and Henrekson (1999) suggest the co-worker mean as a way to emphasize the number of employees at the average worker's place of employment. By squaring the number of employees, this measure emphasizes larger firms. We adapt this measure to our data. We first compute the simple average in each sector, then we multiply for the proportion of employment in that sector.

Table 4 presents the typical average size for US firms in the sectors of the sample. The variation of size across industries is large: it ranges from the minimum for the petroleum and coal products to the maximum of the transport equipment. These differences capture the distinct nature of those sectors more working-force intense versus those industries that rely less in working force.[2]

[Insert table 4 here]

The basic model is estimated using OLS. To avoid possible biases caused by any omitted country-specific regressors, we have included country dummies to capture any institutional or other differences affecting growth, such as comparative advantage or general level of development. Since we are less interested in the importance of general country differences, we use this approach rather than

[2] We could not find any systematic study that documented these patterns at an industrial level.

a vector of specific country control variables. Industry dummies (not reported) are also included in all regressions. Another concern is that EP legislation and PM regulations are affected by firm strategic competition and the resulting growth patterns. Therefore, there exist a potential endogeneity problem.

In order to discard this issue we use instrumental variable (IV) estimation. Following previous literature we use three variables as instruments for the country structures: the origin of the legal system, gdp and average years of schooling (Rajan and Zingales, 1998; Cetorelli and Gambera, 2001 and Carlin and Mayer, 2003). La Porta et al. (1997) argue that legal systems have a long history and have shaped the development of accompanying institutions. Legal origin can therefore be treated as exogenous variables in analyzing modern economic regulation. In the presence of economies of scale in financial institutions and systems, the average years of schooling and the economic level (gdp) will affect labor and product market regulations and financial structure respectively. The instruments have been used to construct interaction terms with the industry financial feature. We perform a Durbin-Wu- Hausman (DWH) test of overidentifying restrictions. The test verifies the null hypothesis that the introduction of IVs has no effects on the estimates of the regression's coefficients. DWH test is reported for each specification. If the p-value is below the 10 per cent, then IV estimates are reported. Otherwise, OLS are reported. When the test fails to reject the null hypothesis IV do not particularly alter the result of the OLS estimations and EP and PM regulations are robust to the issue of endogeneity.

4 Empirical Results

Table 5 presents the main results when total capitalization proxies for financial development. Panel A collects the results with EP and panel B the results with PM. In all specifications, industry´s market share is included. Market share presents a negative sign, in line with RZ suggesting that there is some industry-specific convergence. The first column includes only the financial interaction term. The sign is positive and significant, that is, those sectors more financially dependent grow faster in more financially developed markets. The channel of this enhancing effect is the greater availability of external financing. This is consistent with the findings of RZ and Cetorelli and Gambera (2001) and Claessens and Laeven (2003) among others.

[Insert table 5]

Column 2 in panel A introduces the interaction with EP. The sign of the interaction is negative and significant. Therefore, industrial sectors using relatively more working force develop more slowly in countries with tighter labor protection. In other words, more flexible labor regulation foster economic growth as they facilitate the adaptation to the business cycle. Moreover, it will be more important for industries which require more labor turnover. The most of real growth comes from growth in size of the existing firms and from new firms (RZ). Then, industries with a larger need of job creation will be affected negatively by a strictness EP. Column 3 presents the two interaction effects together. Both maintain the signs and significance found in previous realisations. Financial development and EP enter with different sign, furthermore, the coefficient of labor is significantly larger than that of the EP, hence, strict labor regulation overcomes the positive effect of financial development. Therefore, governments that want to promote economic activity should pay attention not only to frictions in financial markets but also to rigidities in labor markets.

Panel B presents the results for PM regulation. In column 1, it appears the financial interaction alone. Column 2 introduces the interaction with the "*time*" variable. The financial interaction presents a positive and significant coefficient and the "*time*" interaction is significant but negative. Therefore, the more time needed to establish a corporate or sole proprietor business the more detrimental effects for growth in those sector more labor intense. Column 3 presents the results for the "*procedure*" interaction. The number of procedures has a significant and negative effect on growth. In this case, however, financial development interaction presents a positive but insignificant coefficient. Hence, there is a hindering effect associated with the number of procedures but not a positive effect derived from a developed financial environment. Finally, column 4 includes the interaction with *barriers to entry* that presents a negative and significant coefficient. Therefore, the more barriers to entry the lower growth for sectors with more working force demand. In this case, financial interaction is positive and significant again. Both the coefficient of "*time*" and "*barriers*" interactions are greater than the financial interaction term coefficient. But being all significant, financial development alleviates the detrimental effects that PM originates on growth. However, the coefficient of "*procedures*" is not compensated by the financial interaction term.

As we have seen for the EP, industries with a more job creation need, i.e. existing firms which growth in size or start ups firms, are negatively affected by more PM regulations.

5 Robustness tests

We next present evidence that results are robust to different measures of financial development and economic growth (see Table 6). In panel A, we use a different measure of financial development: domestic credit over gdp instead of the stock market capitalization over gdp. Both of them have been widely used in the financial literature. Results are qualitatively similar to those explained above in terms of signs and significance. In panel B, we use an alternative dependent variable definition. We use growth in the number of establishment. Around two third of real growth comes from growth in the average size of the existing establishments and one third comes from growth in the number of the new establishments. Our results are confirmed. The only differences are the non significant financial interaction when EP interaction is introduced (column 2). And the non significant procedures interaction (column 4). Henceforth, results maintain with alternative measures of financial development and economic growth.

[Insert table 6]

6 Conclusions

Countries differ in their labor and product market regulations. This paper shows empirically the relationship between finance market, labor and market regulations and economic growth. These regulations affect firm growth significantly. Our estimation results show that the interaction between external financial needs and financial development is positive and significant. Industrial sectors that are in need of external finance are larger in countries with more developed financial markets. This is a well known result. What we find of interesting is that strictness EP legislation and PM regulation overcome the positive effect of financial development. These regulations have a negative effect on growth of those sectors more labor intensive.

Therefore, the main insights of our results are that reforms in financial

sectors are important to help performance, but reforms in product and labor markets are also relevant. Hence, politicians should turn attention to market regulations that impede the normal market mechanism, which hinder growth significantly, especially to those sectors that are more labor intensive. More development in financial markets together with new EP and PM regulation should be implemented. There is evidence of the evolution and development of European financial markets in the nineties although there still exists a gap with the US financial market, but differences in labor and product markets continue to be very significant. Further comparative research at institutional level should be done across these both economies.

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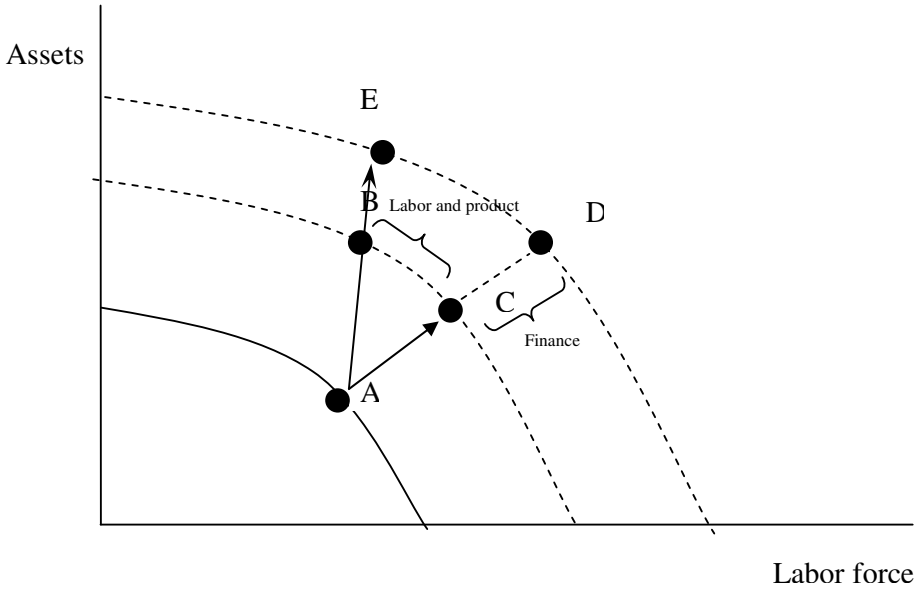
Figure 1: Finance and Labor and Product Effect



Inspired in Claessens and Laeven (2001)

TABLE 1: DEFINITION AND SOURCE OF THE VARIABLES

Variable Name	Description
Fraction of sector In value added	Fraction of NACE three-digit industry in value added of total manufacturing sector in 1980. Source: UNIDO Database on Industrial Statistics.
Market cap (CAP)	Stock market capitalization divided by GDP in 1980. Source RZ (1998)
Domestic credit (Dcredit)	Domestic credit divided by GDP in 1980. Source International Financial Statistics of the International Monetary Fund.
Fin Dependence	External financial dependence of U.S. sectors averaged over 1980 - 1989. Source RZ (1998).
EP	Employment Protection Law data. This index captures the strictness of employment protection laws. Sources: OECD, Blanchard and Wolfers (2000)and Nickell et al. (2003)
Time	Product Market Regulation data. This varible measures the days needed to the creation of corporate and sole proprietor businesses. Source: Djankov et al. (2001)
Procedures	Number of procedures to set a firm. Source: Djankov et al. (2001)
Weeks	Number of weeks to set a firm. Source: LOGOTECH, S.A. (1997)
Barriers (BARR)	Barriers to competition. Source: LOGOTECH, S.A. (1997) and Nicoletti.et at. (1999).
Index	The index is defined as (no. of weeks + no. of procedures/average procedures per week)/2 Source: Fonseca et al. (2001)
Start-up costs	Administrative burdens on startups Source: LOGOTECH, S.A. (1997)
Regulation	Regulatory and administrative opacity.Source: LOGOTECH S.A. (1997)
Growth in number Of establishment	Average growth in number of establishment by ISIC sector over the period 1981 to 1998. Source: UNIDO Database on Industrial Statistics.
Growth in value added	Average annual real growth rate of value added in a particular sector by ISIC in a particular country over the period 1981 – 1998. Source: UNIDO Database on Industrial Statistics.
Corruption	Source: La Porta et al. (1999).
Legal origin	Source: La Porta et al. (1998).

TABLE 2: DESCRIPTIVE STATISTIC OF INSTITUTIONAL VARIABLES

This table reports summary statistics of the variables used in our study. For each variable, we report the mean of the period for each country. The definition and sources of the variables are reported in table 1.

Country	EP	Procedures	Time	Barr	Dcredit	Cap
Austria	1.293	9	3.610	1.6	0.77	0.89
Belgium	1.461	8	3.496	2.55	0.29	0.651
Canada	0.3	2	0.693	0.8	0.45	0.98
Denmark	0.956	3	1.098	1.32	0.42	0.56
Finland	1.152	5	3.178	1.93	0.48	0.52
Germany	1.447	10	3.737	2.1	0.78	1.08
Ireland	0.503	3	2.772	1.2	0.5	0.5
Italy	1.911	16	4.127	2.74	0.42	0.98
Japan	1.4	11	3.25	2.33	0.86	1.31
Netherlands	1.311	8	3.433	1.41	0.6	0.91
New Zeland	0.8	3	1.098	1.21	0.49	0.85
Norway	1.485	4	2.890	1.33	0.34	0.63
Portugal	1.933	12	4.330	1.46	0.52	0.82
Spain	1.811	11	4.406	1.77	0.76	1.02
Sweden	1.68	6	2.564	1.8	0.42	0.79
UK	0.35	5	1.386	0.48	0.25	0.78

TABLE 3: CORRELATIONS BETWEEN EP AND PM VARIABLES

This table reports the correlations between the main institutional variables used in our study. The definition and sources of the variables are reported in table 1.

	EP	Procedures	Time	Barr	Dcredit	Cap
EP	1					
Procedures	0.7818*	1				
Time	0.8200*	0.8216*	1			
Barr	0.7234*	0.7011*	0.6701*	1		
Dcredit	-0.0859	0.0311	0.1188	0.0295	1	
Cap	0.0291	0.3986	0.1936	0.1523	0.6999*	1

*significant at 5%

TABLE 4: INDUSTRY SIZE

The table reports the coworker mean for size for each sector based on US sector-level data. The data are averages for the period 1982-1992.

SIC Code	Industrial Sector	Coworker mean
311	food products	8.99
313	beverages	1.55
314	tobacco	2.14
321	textiles	6.01
322	wearing apparel	5.48
323	leather products	0.25
324	footwear except rubber or plastic	1.67
331	wood products, except furniture	0.88
332	furniture, except metal	1.15
341	paper and products	5.04
342	printing and publishing	2.59
351	industrial chemicals	3.93
352	other chemicals	2.15
353	petroleum refineries	2.14
354	misc. Petroleum and coal products	0.07
355	rubber products	1.80
356	plastic products	1.52
361	pottery, chine earthenware	0.11
362	glass and products	0.96
369	other non metallic mineral products	0.64
371	iron and steel	6.45
372	non-ferrous metals	1.39
381	fabricated metal products	3.66
382	machinery, except electrical	6.36
383	machinery electrical	13.81
384	transport equipment	16.04
385	professional ans scientific equipment	2.75
390	other manufactured products	0.48

TABLE 5: GROWTH EQUATIONS

PANEL A: Employment protection

The dependent variable, growth, is the average rate of growth of real value added for each industrial sector in each country between 1980-1998. The interaction terms are US financial dependence times national financial development (proxied by stock market capitalisation over gdp in 1980) and US typical size times national employment protection laws. Standard errors and t-statistics are corrected for heteroskedasticity. Last line reports D-W-H test for the endogeneity of interaction terms. Provided the null hypothesis of exogeneity is rejected, IV estimations are presented. Instruments are legal origin, gdp and average years of schooling.

	(1)	(2)	(3)
	ggva8098	ggva8098	ggva8098
Industry's market share	-0.3506***	-0.3571***	-0.3565***
	[0.06233]	[0.06162]	[0.06217]
Financial dependence*			
financial development	0.00015***		0.00016***
	[0.00005]		[0.00005]
EP*typical average size		-0.01782***	-0.0179***
		[0.00478]	[0.00482]
Constant	0.15713***	0.15166***	0.15487***
	[0.00606]	[0.00625]	[0.00621]
Observations	3500	3500	3500
R-squared	0.39	0.38	0.40
D-W-H	0.28089	1.51324	4.71101

* significant at 10%; ** significant at 5%; *** significant at 1%

TABLE 5: GROWTH EQUATIONS

PANEL B: Product market regulation

The dependent variable, growth, is the average rate of growth of real value added for each industrial sector in each country between 1980-1998. The interaction terms are US financial dependence times national financial development (proxied by stock market capitalisation over gdp in 1980) and US typical size times national product market regulations, namely time to start activity, number of procedures and barriers to competition. Standard errors and t-statistics are corrected for heteroskedasticity. Last line reports D-W-H test for the endogeneity of interaction terms. Provided the null hypothesis of exogeneity is rejected, IV estimations are presented. Instruments are legal origin, gdp and average years of schooling.

	(1)	(2)	(3)	(4)
	ggva8098	ggva8098	ggva8098	ggva8098
Industry's market share	-0.3506***	-0.3537***	-.4673***	-0.3427***
	[0.06233]	[0.06152]	[0.1720]	[0.06298]
Financial dependence* financial development	0.00015***	0.00015***	.002020	0.00015***
	[0.00005]	[0.00005]	[0.00133]	[0.00005]
Time* UStypical average size		-0.0181***		
		[0.00619]		
Procedures* UStypical verage size			-0.37739**	
			[0.1609]	
Barriers competition* UStypical average size				-0.0332***
				[0.00715]
Constant	0.15713***	0.09360***	.55331***	0.09976***
	[0.00606]	[0.00544]	[0.1749]	[0.00540]
Observations	3500	3500	1970	3500
R-squared	0.39	0.39	0.0748	0.40
D-W-H	0.28089	1.69434	9.16731**	0.05021

* significant at 10%; ** significant at 5%; *** significant at 1%

TABLE 6: ROBUST ANALYSIS

Panel A: Alternative measure of financial development

The dependent variable, growth, is the average rate of growth of real value added for each industrial sector in each country between 1980-1998. The interaction terms are US financial dependence times national financial development (proxied by domestic credit over gdp in 1980) and US typical size times national employment protection laws and national product market regulations, namely time to start activity, number of procedures and barriers to competition. Standard errors and t-statistics are corrected for heteroskedasticity. Last line reports D-W-H test for the endogeneity of interaction terms. Provided the null hypothesis of exogeneity is rejected, IV estimations are presented. Instruments are legal origin, gdp and average years of schooling.

	(1)	(2)	(3)	(4)	(5)
	ggva8098	ggva8098	ggva8098	ggva8098	ggva8098
Industry's market share	-0.3355***	-0.3408***	-0.3385***	-0.3369 ***	-0.3272***
	[0.06316]	[0.0630]	[0.06234]	[0.0628]	[0.0638]
Financial dependence* financial development	0.0210***	0.0208***	0.0221***	0.0217***	0.0223***
	[0.0074]	[0.00751]	[0.0075]	[0.0075]	[0.00761]
EP* UStypical average size		-0.02036***			
		[0.00536]			
Time* UStypical average size			-0.02076***		
			[0.00690]		
Procedures* UStypical verage size				-0.0202**	
				[0.00967]	
Barriers competition* UStypical average size					-0.03494***
					[0.0079]
Constant	0 .1557***	0.15281***	0.11811***	0.16374***	0.0999***
	[0.00615]	[0.00635]	[0.0056]	[0.0072]	[0.0055]
Observations	3410	3410	3410	3410	3410
R-squared	0.3877	0.3903	0.3901	0.3893	0.3914
D-W-H	0.0000	2.5145	0.01678	0.08700	1.4812

* significant at 10%; ** significant at 5%; *** significant at 1%

TABLE 6: ROBUST ANALYSIS

PANEL B: Growth in the number of establishment

The dependent variable, growth, is the average rate of growth in the number of establishments for each industrial sector in each country between 1980-1998. The interaction terms are US financial dependence times national financial development (proxied by stock market capitalisation over gdp in 1980) and US typical size times national employment protection laws and national product market regulations, namely time to start activity, number of procedures and barriers to competition. Standard errors and t-statistics are corrected for heteroskedasticity. Last line reports D-W-H test for the endogeneity of interaction terms. Provided the null hypothesis of exogeneity is rejected, IV estimations are presented. Instruments are legal origin, gdp and average years of schooling.

	(1)	(2)	(3)	(4)	(5)
	ggestb8098	ggestb8098	ggestb8098	ggestb8098	ggestb8098
Industry's market share	-4.6160***	-3.3293*	-4.6284***	-4.6215***	-4.6055***
	[1.06896]	[1.92837]	[1.07476]	[1.07232]	[1.06572]
Financial dependence* financial development	0.00105***	-.01507	0.00105***	0.00108***	0.00105***
	[0.00040]	[0.01102]	[0.00040]	[0.00040]	[0.00040]
EP* UStypical average size		-.34185*			
		[0.1759]			
Time* UStypical average size			-0.06246*		
			[0.03716]		
Procedures* UStypical verage size				-0.03763	
				[0.03169]	
Barriers competition* UStypical average size					-0.04423*
					[0.02958]
Constant	0.00058	-.14344	0.04864	0.04587	0.03187
	[0.01649]	[0.11389]	[0.03153]	[0.04052]	[0.02786]
Observations	3500	2000	3500	3500	3500
R-squared	0.14	0.13	0.14	0.14	0.14
D-W-H	1.2604	8.2421**	0.09862	0.86481	1.10805

* significant at 10%; ** significant at 5%; *** significant at 1%

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