Labor Protection and Leverage

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Abstract

This paper examines the effect of labor protection on firm financial structure. We exploit inter-temporal variations in employment protection laws across 21 OECD countries and find that labor friendly reforms are associated with a reduction in firm leverage. We also find that the negative effect of labor protection on leverage is more pronounced in firms that rely more on labor, are subject to more frequent hiring and firing, and have lower liquidation value. These results are consistent with the view that employment protection increases operating leverage and thus crowds out financial leverage. Furthermore, we find that increases in employment protection impact negatively firm investment and growth in sectors that are more dependent on external capital. These results indicate that firms' reduced ability to raise external capital, due to stronger labor protection, has negative real effects.

JEL classification: J31, J51, G32, G33, K31.

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I Introduction

There is a large literature that shows that frictions such as taxes, bankruptcy costs, asymmetric information, and agency conflicts have a first order effect on financial contracting decisions of firms. In this paper, we make an attempt to push this literature forward by taking a stakeholder perspective and examining how labor regulations affect the capital structure of firms.[1] Since labor regulations alter the ex-post division of firm's proceeds between different stakeholders, it is natural to expect that they should have a significant impact on the ex-ante financial decisions of firms.

Using firm-level data from 21 countries over the 1985-2004 period, we exploit inter-temporal variations in employment protection laws across countries, and adopt a difference-in-differences (DID) research design to investigate the impact of labor reforms on firm financial structure.[2] We find that a one-unit increase in the index of Employment Protection Legislation (EPL) is associated with a reduction of debt by 4% (in absolute terms) or of 14% (relative to the mean).[3]

These results are not driven by pre-treatment trends or business cycle effects, or even by the endogeneity of labor laws themselves.[4] Moreover, in addition to the firm

[1]In this respect we contributed to the growing literature on labor and finance. See Kim (2009) and Pagano (2010) for a survey.

[2]These changes in regulation represent a near-ideal setting since they are exogenous to the individual firm.

[3]Another way of interpreting this finding is that going from a country like Canada (EPL of 1) to a country like Italy (EPL of 3) leverage should decrease by 8% (in absolute terms) or 29% (in relative terms).

[4]Examining the dynamics of leverage around the passage of these laws, we find no statistically significant change in leverage prior to the passage of these laws but we find a change in leverage one and two years after the passage of the laws. This finding alleviates the concerns of reverse causality and/or pre-treatment trends that may confound the analysis.

and industry-year fixed effects, we contemporaneously control for firm profitability, size, investment opportunities and tangibility – variables that have been shown to affect capital structure of firms. In other words, we directly control for capital structure effects that come through changes in firm level variables, such as changes to firm level profitability or investment opportunities that is brought about by the labor regulation. Thus, the effect of labor regulation on capital structure that we document is independent of the traditional determinants of firms' capital structure.

What drives this effect? We rationalize these findings with the argument that employment protection leads to the "debtification" of labor costs: by increasing the rigidity of labor claims, pro-labor regulations make hiring a worker analogous to taking on debt where wages can be construed as coupon payment on debt. Further, because wages usually get paid before other creditors, they are *de facto* senior to creditors, in the spirit of Diamond (1993). We argue that this "debtification" of wages causes operating leverage to crowd out financial leverage. Consistent with this view, we find that these effects are stronger for more labor intensive firms and firms for which labor turnover is higher (firms more subject to creative destruction shocks).

The "debtification" channel alluded above, could affect leverage through the demand side and/or the supply side. On the demand side, the greater rigidity of labor costs may increase the probability of financial distress. To compensate, the firm may optimally reduce financial leverage. There can, however, be a supply side channel at work as well. The *de facto* seniority of labor claims reduces the amount of cash flows that can be pledged to outside investors, thereby reducing financing capacity of firms.

We propose a simple model to describe how pro-labor regulation may reduce the amount of capital that is pledgeable to creditors, or the firm's debt capacity. The model builds on the framework proposed by Hart and Moore (1989) and Bolton and Scharfstein (1990). The key assumption in the model is that debt can force the firm into liquidation in case of no repayment while dispersed equity cannot. The firm can thus raise equity only if it invests in a costly state verification technology (which is a deadweight cost for the firm), which makes cash flows pledgeable to dispersed shareholders. The firm's debt capacity is instead determined by the cash flows that the entrepreneur loses in case of liquidation. These cash flows are pledgeable to creditors because they can credibly threaten liquidation. The deadweight cost of raising equity generates a pecking order in financing choices: firms issue equity only if they have exhausted their debt capacity. Since an increase in labor protection reduces the cash flows from continuation (as it increases labor bargaining power), debt capacity decreases with labor protection. As labor protection increases (and debt capacity decreases), the firm is forced to raise equity to meet their investment needs. Therefore, the model predicts that leverage decreases with labor protection. A large increase in labor protection may even lead to underinvestment when the firm has not enough internal resources, or issuing outside equity is very costly.

The model delivers some interesting cross-sectional implications. First, the model predicts a differential effect of labor protection on leverage depending on how creditors fare in liquidation: labor-friendly laws should decrease leverage less in industries with more tangible assets and countries with stronger creditor protection, which are proxies for higher liquidation values. Consistent with this prediction, we find that

labor-friendly laws decrease leverage less in industries with more tangible assets and countries with stronger creditor protection, which are proxies for higher liquidation values. The effect of a one-standard deviation increase in tangibility on leverage is 1.6% higher in a country with an EPL of 3 (like Italy) compared with a country with an EPL of 1 (like Canada).

Second, consistent with the model, we show that the effects of employment protection on firms' leverage have the real consequence of reducing growth. We find that the increase in EPL is associated with a reduction in sales' growth and capital expenditure in firms dependent on external capital. These firms need to access external capital markets in order to invest and are identified following Rajan and Zingales (1998). The effect of a one-standard deviation increase in external dependence on sales growth is 2.8% higher in a country with EPL equal to 3 (like Italy) compared with a country with an EPL of 1 (like Canada). These findings that increases in EPL reduce investment only in firms with greater dependence on external capital is supportive of our supply side argument.

These cross-sectional results are also useful since they further address concerns about potential omitted variables. While our identification strategy (DID) mitigates some of the concerns about omitted variables, it is possible that our results may be due to other contemporaneous reforms (such as changes in taxation or corporate governance reforms). If this were the case, we would incorrectly attribute the changes in leverage to changes in labor laws. Such effects would be however differenced out in our cross- sectional heterogeneity specifications. Also, in such a setup we can control for interacted year and country fixed effects, therefore controlling for any differences

in the regulatory environment over time and across countries.

This paper connects several strands of literature, starting with the recent literature on labor regulations and economic growth. Using industry level data from India, Besley and Burgess (2004) find that more pro-worker regulation is associated with lower investment and economic growth. Botero et al. (2004) show that more stringent labor regulation is associated with lower labor force participation and higher unemployment. Contrarian evidence is offered by Acharya, Baghai and Subramanian (2009), who find that pro-labor laws can have an ex-ante positive effect on firms' innovation. This paper revisits the link between labor regulation and growth using micro-level evidence and identifies the mechanism through which labor stifles growth, namely labor crowds out external finance.

This paper also builds on the literature on labor bargaining and firm financing and real activity. Ruback and Zimmerman (1984), Abowd (1989) and Hirsch (1991) document that labor union coverage has a negative association with US firms earnings' and market values. Lee and Mas (2009) study the impact of firm-level union elections on firm performance and find that union wins are associated with stock price losses, decreases in firm profitability and growth. Chen, Kacperczyk and Molina (2011) find that the cost of equity is higher in more unionized industries. Atanassov and Kim (2009) provide international evidence that strong unions play an important role in firms' financial and economic restructuring. Benmelech, Bergman and Enriquez (2009) show that companies in financial distress extract surplus from workers by achieving substantial wage concessions.

Finally, the paper contributes to a broader literature which argues that firms'

input markets and product markets are important factors interacting with firms' capital structure decisions. Perotti and Spier (1993), Bronars and Deere (1991), Dasgupta and Sengupta (1993), Matsa (2010) have argued that firms use debt to lower the surplus workers can extract when bargaining with unions. Mackay and Phillips (2005) find that firms' position within their industries determine their financial structure. Leary and Roberts (2010) show that firms make decisions on their leverage responding to capital structure decisions by their peers. Kim (2011) shows that human capital specificity impacts negatively firms' debt. Agrawal and Matsa (2011) find that lower labor unemployment risk is associated with increases in firms' debt.

The remainder of the paper is organized as follows. Section II presents a simple model to motivate the empirical analysis. Section III describes the sample and the variables. In Sections IV and V we present the main results on the relation between EPL and leverage, investment and labor costs. Section VI concludes.

II Model

In this section, we develop a simple model to motivate our empirical analysis. The model has two main building blocks. First, financial contracts are incomplete and, as in Bolton and Scharfstein (1990) and Hart and Moore (1998), debt is the optimal contract. Second, as in Hart and Moore (1994), employees possess a critical input and can hold up the firm, for example by threatening to withdraw their essential labor input and going on strikes.

The timeline is as described in Figure 1.

At $t = 0$, a wealthless entrepreneur can start a project by investing F units of capital and hiring n workers. The project produces at $t = 1$ cash flows $\widetilde{C}_1 = C$ with probability θ and $\widetilde{C}_1 = 0$, otherwise.

At $t = 1$, after cash flows $\widetilde{C}_1$ are realized, the project can be liquidated for L. If the project is continued, the second period output $\widetilde{C}_2$ depends on whether new workers are hired. If the firm's assets are operated by the initial workers, $\widetilde{C}_2 = W$. If instead new workers are hired, $\widetilde{C}_2 = W_0 \in (0, W)$.

At $t = 1.5$, if the project is still running, the entrepreneur bargains with the initial workers over the surplus they generate. The parameter $\tau \in [0, 1]$ represents employees' bargaining power. If the entrepreneur chooses to hire new workers, he has to incur a cost $z \in [0, W_0]$ to hire new workers and fire the existing ones. Hence, the firm's outside option is $W_0 - z$ while workers' outside option is normalized to 0. The parameters τ and/or z are assumed to be increasing in employment protection.

At $t = 2$, if the project is still running, the final cash flows $\widetilde{C}_2$ are realized.

We assume that $(1-\theta)L+\theta(C+W) \geq F > L$, that is, the project has a positive NPV (provided that it is continued when $\widetilde{C}_1 = C$ and liquidated when $\widetilde{C}_1 = 0$). If $(1-\theta)L + \theta(C+W) < F$, the project is never undertaken; whereas, if $L \geq F$, the project will always be undertaken.

II.1 Financing options

Labor is hired on an ex-ante competitive market, where workers' outside option is normalized to 0. Capital can be raised from competitive markets in the form of debt or equity. We follow Bolton and Scharfstein (1990) and Hart and Moore (1998) by

assuming that cash flows $(\widetilde{C}_1, \widetilde{C}_2)$ are not verifiable.

Moreover, we assume that debt is a hard claim which cannot be renegotiated. Creditors provide debt D at $t = 0$ in exchange for a payment R at $t = 1$. If the promised payment R is not made, creditors liquidate the firm.

Outside shareholders instead have no control rights at $t = 1$. In other words, equity is sold to dispersed investors. Specifically, equity can be sold at $t = 0$ only if the firm invests in a costly state verification technology which makes cash flows verifiable but destroys a proportion $\eta \in (0, 1]$ of the value of equity. This cost can be interpreted as the cost of setting up a reliable information system for shareholders at the IPO stage and is assumed to be proportional to the amount of capital raised.

As we will see, these assumptions lead to the optimality of debt over equity.

II.2 Equilibrium

The subgame perfect equilibrium is found by backward induction.

At $t = 1.5$, current workers bargain with the firm. They receive a fraction τ of the surplus $(W - W_0 + z)$, while the firm obtains the remaining fraction $1 - \tau$ of the surplus plus its outside option $W_0 - z$. Thus, the firm's profit from continuation is

$$W_0 - z + (1 - \tau)(W - W_0 + z) \tag{1}$$

At $t = 1$, creditors liquidate if they are not paid the promised payment R. Hence, they liquidate if $\widetilde{C}_1 = 0$. If $\widetilde{C}_1 = C$, entrepreneur's incentive to pay investors at $t = 1$ (i.e., his incentive compatibility condition) requires that his expected utility from paying (which is $C - R + W_0 - z + (1 - \tau)(W - W_0 + z)$) exceeds his utility

from not paying (which equals C). Hence, the entrepreneur pays only if

$$R \leq W_0 - z + (1-\tau)(W - W_0 + z). \tag{2}$$

It follows that the debt capacity at $t = 0$ is:

$$\widehat{D} \equiv (1-\theta)L + \theta[W_0 - z + (1-\tau)(W - W_0 + z)], \tag{3}$$

which is strictly decreasing in the employment protection z and the employees' bargaining power τ. Hence, employment protection reduces firms' debt capacity as it reduces firm's profits from continuation.

At $t = 0$, the entrepreneur chooses the optimal mix of debt and equity, and whether to invest in the project. His problem is:

$$\max_{I \in \{0,1\}, D, R, E, \alpha \in [0,1]} \left[(1-\alpha)E + (1-\theta)\max(L-R,0)\right] I \tag{4}$$

subject to: (i) the budget constraint that the amount of capital raised (either in the form of debt or equity) exceeds the investment needs F: $D + \alpha(1-\eta)E \geq F$; (ii) the break-even condition for creditors $D = \theta R + (1-\theta)\min(R, L)$; (iii) the break-even condition for shareholders $E = \theta[C - R + W_0 - z + (1-\tau)(W - W_0 + z)] + (1-\theta)\max(L-R,0)$; and (iv) the constraint on the debt capacity $D \leq \widehat{D}$ as given in equation (3).

We can proof that the equilibrium is such that:

Proposition 1. *Leverage, investment and profits are (weakly) decreasing in employment protection; while wages are first increasing and then (weakly) decreasing in it.*

Proof: See Appendix.

Intuitively, because raising equity entails a loss of a fraction η of the value, there is a pecking order in financing: firms strictly prefer debt to equity.

Given that the debt capacity (3) is decreasing in employment protection, the project can be undertaken without using external equity (that is, $F \leq \widehat{D}$) only for a sufficiently low level of employment protection.

If instead $F > \widehat{D}$, the residual $F - \widehat{D}$ needs to be financed in the form of outside equity. Hence, the entrepreneur sells a fraction α^* (as derived in the Appendix) of the equity, which is strictly increasing in employment protection. The project can be undertaken only if $\alpha^* \leq 1$, which implies that the project cannot be undertaken for high levels of employment protection.

The predictions contained in Proposition 1 will be tested in the remainder of the paper together a further prediction derived in the proof in the appendix: the negative effect of an increase in employment protection on leverage should be smaller in firms with higher liquidation value L. The intuition for this finding is that in firms, where debt capacity with more collateralizable assets (i.e. in firms with a higher liquidation value), the reduction in pledgeable cash flows caused by an increase in employment protection has a weaker effect on leverage (since the latter is mainly affected by the value of the assets pledged as collateral).

III Data

We combine three sets of variables: (i) yearly, country-level data on labor regulation; (ii) yearly, firm-level financial data; and (iii) industry-level and country-level control variables. In Table I, we report the definition, source, number of observations, mean, median and standard deviation of the main variables used in the analysis.

III.1 Labor Regulation Indicators

As our indicator of labor regulation, we use the Employment Protection Legislation indicator. EPL covers 21 aspects of employment protection legislation grouped into three broad categories: (1) laws protecting workers with regular contracts (Regular Contracts), (2) those affecting workers with fixed-term (temporary) contracts or contracts with temporary work agencies (Temporary Contracts), and (3) regulations applying to collective dismissals (Collective Dismissals). The Regular Contracts indicator focuses on the procedural requirements that need to be followed when firing an employee with a regular employment contract, the notice and severance pay requirements, and the prevailing standards of (and penalties for) "unfair" dismissals. The Temporary Contracts indicator evaluates the conditions under which these types of contracts can be offered, the maximum number of successive renewals and the maximum cumulated duration of the contract. The Collective Dismissals index specifies what is defined as collective dismissal, the notification requirements provided by law and the associated delays and costs for the employers.[5]

[5]The original EPL indicator was constructed by OECD in 1985 as an equally weighted average of two sub-indicators, which take into account regulations on regular and temporary contracts respectively. Later on, the OECD redefined the indicator by adding also regulations on collective

The most important feature of the EPL indicator for us is that it provides both cross-sectional and within country time-variation of labor laws. Therefore, it allows for time-series as well as cross-sectional comparisons across different countries. The indicator ranges from 0 to 6. A higher EPL score indicates larger firing costs for firms and therefore stronger job security for workers, and vice versa. As shown in Table I, the average EPL score in our sample is about 2.3 and the standard deviation is quite large, at about 1. The summary statistics for the components of EPL show that there is large variation in all components. There is also a significant time-series variation in EPL. Figure 2 presents the plots of the EPL Indicator for each individual country. Our sample consists of 21 OECD countries for which the EPL indicator is available.[6]

III.2 Firm-Level Data

Our main data source is Worldscope. Our sample contains financial information on over 8,900 manufacturing companies in the 21 countries for which the EPL indicator is available. The sample spans the 1985-2004 period. Sample size varies over time

dismissals. This new version of EPL is available at an annual frequency since 1998 and it is constructed as a weighed sum of the three-sub-indicators. The weights for each of the sub-indicators are defined on the basis of the number of different items of employment protection grouped in each sub-indicator. There are 21 aspects related to employment protection covered in total. Allard (2005) reconstructed the OECD employment protection legislation providing a longer time-series of the three components included in the new OECD indicator. In our analysis we use this longer time series of the three individual EPL components provided by Allard (2005) and we construct the EPL index as an equally-weighted average of these three components. Attaching the same weights in the three components seems natural and it leads to giving a greater weight to the regulation of collective dismissals than in the OECD indicator. However, the results are robust to different weighting schemes as well as to the specific weights used by the OECD.

[6]They are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States.

because of missing information on some variables used in the analysis. We follow the 2-digit SIC classification to form our group of manufacturing companies. On average, the manufacturing sector comprises about 40% of total assets in the 21 countries.

Following the literature, our main proxy for leverage is market leverage, which is defined as the ratio of book value of debt over the market value of the firm (sum of book value of debt and market value of equity). Debt is the sum of long-term debt, short-term debt, and current portion of long-term debt. As a robustness check, we also consider alternative definitions of leverage: debt to total assets (also known as book leverage), where total assets refers to the book value of firms' assets; the ratio of net debt over market value of assets, where we subtract the cash and other marketable securities from total debt; and net debt over book value of assets. In our regression analysis, we include the standard, firm-level set of explanatory variables for leverage, as identified in the literature (see, for instance, Rajan and Zingales, 1995): tangibility (which is defined as net property, plant and equipment over total assets) as a proxy for the amount of collateral that a firm can pledge; size (which is defined as the logarithm of firms' real assets) as a control for the degree of diversification and thus the risk of default; profitability (as measured by the Return on Assets, which is the ratio of EBIT over total assets) as a proxy for the availability of internal funds; and the market-to-book ratio, or Q (that is, the ratio of the market value of equity plus book value of debt over the book value of debt plus equity), as an indicator of growth opportunities.

We use the ratio of capital expenditures to assets to proxy for firms' investment and the growth rate of firms' sales to proxy for firm growth. To focus on access to

finance as the channel through which labor regulation affects growth, we follow Rajan and Zingales (1998) and we measure the degree of firms' dependence on external sources of financing by using the ratio of firms' capital expenditures minus their cash flow from operations scaled by their capital expenditures.

III.3 Other Variables

To take advantage of cross-sectional heterogeneity, we produce several industry-level variables, where industries are defined at the 2-digit SIC codes. Labor intensity is defined as the median cost of staff normalized by sales at the 2-digit SIC industry level. Turnover is defined as the average job creation and destruction; it is measured at the 2-digit SIC industry level using data by Davis, Haltiwanger and Schuh (1996) for the US. Median Tangibility is the (2-digit SIC) industry median of tangibility, as defined above at the firm level.

To control for the differences in macroeconomic conditions and income across countries, we include in our set of control variables country-level GDP growth and GDP per capita. An important variable for our analysis is creditor protection, which is measured as the creditor rights indicator from Djankov, McLiesh and Shleifer (2007). The creditor rights index takes values from 0 to 4, with higher values indicating stronger creditor rights and it provides time variation in creditor protection. Another institutional factor we take into account is the countries' tax systems, using a variable defined as in Fan, Titman and Twite (2006) which describes how dividends and interest payments are taxed in each country. We also use indicators provided by La Porta et al (1998) to characterize the countries' legal origin, indicating whether

a country's commercial laws follow French, German, Scandinavian or English law. Further, based on the Demirguc-Kunt and Levine (1999) classification, we identify which economies are bank-based and which are market-based.

IV EPL and Leverage

In this section we start by investigating the relation between EPL and leverage in our data. By employing a DID methodology that exploits the inter-temporal variations in employment laws across countries, we find that firms reduce their use of debt following legal changes that increase employment protection. Then, we take advantage of the cross-sectional heterogeneity in our sample to provide further tests. Finally, we discuss the potential endogeneity of labor laws.

IV.1 DID Approach

Using firm level data, we estimate the following specification:

$$y_{it} = \gamma_t + \lambda_i + \delta \cdot EPL_{k,t-1} + \beta \cdot X_{it} + \epsilon_{it}, \tag{5}$$

where i denotes a firm, t denotes a year, j is an industry, and k is a country. The dependent variable y_{it} is debt to market value of assets; λ_i and γ_t are firm and year fixed effects respectively. X_{it} is the vector of control variables and ϵ_{it} is the error term. X_{it} includes the contemporaneous effect of profitability, investment opportunities, size and tangibility, which are the controls typically used in leverage regressions. The vector of controls also includes macroeconomic variables and in some specifications country-level controls, taking into account countries' different legal origins, tax systems and development of their financial markets (market based versus bank based

economies). We cluster the standard errors at the country level, since the labor laws are changing at the country level.[7]

A similar research design has been used in several studies, particularly in labor economics. The multiple pre-intervention and post-intervention time periods take care of many threats concerning validity. This methodology is best illustrated by the following example.[8] Suppose there are two countries, A and B, undergoing legal changes at times $t = 1$ and $t = 2$, respectively. Consider $t = 0$ to be the starting period in our sample. From $t = 1$ to $t = 2$, country B initially serves as a control group for legal change; and after that it serves as a treated group for subsequent years. Therefore, most countries belong to both treated and control groups at different points in time. This specification is robust to the fact that some groups might not be treated at all, or that other groups were treated prior to 1985, which is our sample's beginning date.

The results are reported in Table II. In column 1, besides controlling for all usual determinants of leverage, we have industry/year ($\alpha_j * \gamma_t$) fixed effects to control for industry-level dynamics. The coefficient of interest (δ in specification (1) above) is negative and statistically different from zero at the 1% level. In column 2, we add country fixed effects to the previous specification to control for country time-invariant characteristics. The results are unchanged: δ is negative and statistically different

[7]It is important to note that clustering at the country level generates the most conservative standard errors, that is, the standard errors become much smaller when we cluster them at the firm or industry level. The results can be obtained upon request.

[8]In this example, we assume, for simplicity, that the labor variable is a 0-1 binary variable to provide the basic intuition. The discussion generalizes when the labor variable (e.g. EPL) is an index, as is the case in this paper. Essentially, the DID strategy identifies out of differences.

from zero at the 1% level. In columns 3 and 4 we add firm fixed effects, as a way to control for time-invariant, firm-specific characteristics. Column 3 adds the firm fixed effects to the specification estimated in column 1, which controls for industry/year fixed effects and other country-level variables. In column 4, we estimate the same specification as in column 3 with the addition of country/industry ($\alpha_k * \alpha_j$) fixed effects, which allow for differences across countries within the same industry.

Across all specifications reported in Table II, the coefficient of the EPL indicator is negative, always strongly statistically significant (at 1% or 5% level), and has a similar magnitude. Notice that the coefficients on Tangibility, Size, ROA and Q have the expected sign and are all strongly statistically significant. To gauge the economic significant of the findings, consider a two-unit increase in EPL: this change is associated with an approximately 8% reduction in market leverage or with a reduction by 29% relative to its mean.

The negative relation between leverage and our measure of employment protection is consistent with our model. An increase in employment protection is associated with a reduction in the firm's debt capacity.

In Table III, we use different definitions of leverage to check the robustness of our results. In columns 1-3, we use the book value of leverage as the dependent variable: book value of debt over the book value of assets. In column 1, besides controlling for all usual determinants of leverage, we have country and industry/year fixed effects. In column 2 we include firm fixed effects together with industry/year fixed effects, while in column 3, we estimate the same specification as in column 2 with the addition of country/industry fixed effects. The results are very similar to those in

Table II: throughout our specifications, increases in labor protection are associated with decreases in leverage. Using the results in column 3, the book leverage of a firm falls by approximately 2.7 percentage points as EPL increases by 1 unit.

In columns 4-6, we test if our previous finding is robust when leverage is defined as net debt (which is defined as debt minus cash) over market value of assets. We find that the coefficient of the EPL Indicator is negative and statistically different from zero. The magnitude of the effect is also economically significant. Using the results in column 6, on average, net debt over asset falls by 2.9 percentage points as EPL increases by 1 unit. In columns 7-9, we consider net debt over book value of assets and find that on average, net debt over assets falls by 4.8 percentage points as EPL increases by 1 unit (column 9). Hence, we can conclude that the negative relation between EPL and leverage is robust to different definitions of leverage.

IV.2 Cross-Sectional Heterogeneity

In this section, we explore the cross-sectional heterogeneity in our sample and we find that the negative effect of labor protection on leverage is more pronounced for sectors that rely more on labor and that are subject to more frequent hiring and firing or more "creative destruction". We also find that the negative effect of labor protection on leverage is more pronounced for firms that have fewer tangible assets and in countries with weaker creditor rights.

IV.2.1 Creative Destruction and Labor

It is intuitive that labor protection should affect leverage more in firms where labor is a more important production input. We thus expect to observe a greater negative correlation between EPL and leverage in sectors with greater labor costs. To test this prediction, we estimate the following regression specification:

$$y_{it} = \gamma_t + \lambda_i + \delta \cdot EPL_{k,t-1} + \zeta \cdot E_{it} + \theta \cdot (EPL_{k,t-1} \times E_{it}) + \beta \cdot X_{it} + \epsilon_{it} \qquad (6)$$

Here E_{it} denotes the relative use of employment in the production function in a given firm and our variable of interest is θ. All the other variables and subscripts are defined as in the previous specification. The specification above essentially represents a difference-in-difference-in-differences analysis. This specification has the added benefit that it allows us to control for country specific shocks as it allows us to include a fixed effect of each country/year pair ($\alpha_k * \gamma_t$). This addresses concerns that there might be changes at the country level, such as changes in the tax rates for example, which can have an impact on firms' leverage and which coincide with the labor regulation changes.

In columns 1-4 of Table IV, we measure E_{it} as the median of the ratio of labor costs over sales for each 2-digit SIC industry in our sample. In column 1, besides the usual determinants of leverage, we control for firm fixed effects and industry/year fixed effects. In this specification we can see that EPL is negatively correlated with leverage only to the extent that firms operate in labor-intensive industries. In fact, the direct effect (coefficient δ in specification 2) is negative but statistically insignificant, while the coefficient on the interaction term between EPL and employment intensity

E (coefficient θ in specification 2) is negative and statistically significant. In column 2, we estimate this specification by including firm fixed effects and country/ year fixed effects. The parameter of main interest is the coefficient θ on the interaction term of EPL and labor intensity E_{it}, which remains negative and is statistically different from zero at the 10% level. The estimate of θ is negative and statistically different from zero at the 1% level in column 3, where we estimate the same specification as in column 2 with the further addition of industry/year fixed effects to control for differences in industry dynamics. In column 4, we further augment our specification by adding industry/country fixed effects to the specification estimated in column 3. The estimate of θ is negative and statistically different from zero at the 5% level.

If an increase in EPL makes it more costly for firms to fire workers or make use of flexible temporary contracts we expect to observe a more negative impact on leverage in industries where labor flexibility is more important. Using data on employment creation and destruction at the industry level, we construct a measure of labor turnover for industries as a proxy for π.[9] Higher values of this variable mean that these industries require higher labor turnover for their operation and, therefore, increases in employment protection would impact these industries more negatively.

Hence, in columns 5-8 of Table IV, we measure E_{it} as the labor turnover at the 2-digit SIC industry level. As before, this analysis allows us to control for different combinations of fixed effects. In column 5, besides the usual determinants of leverage, we control for firm fixed effects and industry/ year fixed effects. In this specification

[9]This data is available for the US by Davis, Haltiwanger and Schuh (1996) and we use them, making the assumption that industries share common characteristics (eg. technological) across countries.

we can see that EPL is negatively correlated with leverage only to the extent that firms operate in high labor-turnover industries. In fact, the direct effect is positive and statistically insignificant, while the coefficient on the interaction term between EPL and employment intensity E is negative and strongly statistically significant (at 1% level). In column 6, we control for firm fixed effects and country/year fixed effects. The parameter of main interest is the coefficient on the interaction term of EPL and labor turnover, which remains negative and statistically different from zero at the 1% level. The estimate of θ is negative and statistically different from zero at the 1% level in column 7, where we estimate the same specification as in column 2 with the further addition of industry/year fixed effects to control for differences in industry dynamics. In column 8, we once again augment the specification by adding industry/country fixed effects to the specification estimated in column 7. The estimate of θ is negative and statistically different from zero at the 1% level. These results indicate that firms reduce debt more in sectors which are more likely to become effectively more constrained in their needs to restructure their labor force.

IV.2.2 Liquidation Value

As shown in the model, we expect that the reduction of debt following an increase in EPL should be larger in firms with lower liquidation value. The reason is that the debt capacity of firm's with higher liquidation value is less dependent on the payoffs from continuation, which are those affected by the increase in EPL.

We investigate the differential impact of strengthening employment protection on capital structure of firms that differ in the liquidation value of their assets by

estimating the following regression specification:

$$y_{it} = \gamma_t + \lambda_i + \delta \cdot EPL_{k,t-1} + \zeta \cdot L_{it} + \theta \cdot (EPL_{k,t-1} \times L_{it}) + \beta \cdot X_{it} + \epsilon_{it} \quad (7)$$

Here L_{it} denotes the liquidation value of the assets and our variable of interest is θ. All the other variables and subscripts are defined as in the previous specification. As a difference-in-difference-in-differences analysis, this specification allows us to include a fixed effect of each country/year pair ($\alpha_k * \gamma_t$).

The results are reported in Table V, where we consider three alternative proxies for the liquidation value of a firm. In columns 1-4, we use median asset tangibility, which is computed as the median 2-digit SIC industry ratio of net property, plant and equipment to total assets. In columns 5 and 6, we use the country-level indicator of creditor rights provided by Djankov et al (2007). In columns 7-10, we proxy liquidation value in an industry/country as the product of median assets tangibility in the industry and the creditor rights in the country. This latter measure may be the most accurate proxy of the three as the creditors' proceeds from liquidation are affected both by the tangibility of the assets and creditor rights in bankruptcy.

In column 1 we start from a basic specification in which we control for firm and industry/year fixed effects. It is worth mentioning that we cannot estimate a coefficient for our proxy for liquidation value (L1) because it is absorbed by the industry/year fixed effects, given that it does not vary within a given industry/year. We confirm that EPL is negatively correlated with leverage, while the coefficient θ on the interaction term of EPL and L1 is positive and statistically significant. In column 2, we exclude the industry/year fixed effects and add the country/year fixed effects. Thus, we can now estimate the effect of L1 on leverage but we can no longer

estimate the direct effect of EPL on leverage. The coefficient θ is positive but not statistically significant, while L1 has a negative effect on leverage but is also not statistically significant. In column 3, we add the industry/year fixed effects to the specification estimated in column 2: in this case we can only estimate θ and we find that it is positive and statistically significant at the 10% level. In column 4, we also add industry/country fixed effects: the estimate of θ is positive and statistically significant at the 5% level. Across all specifications, we find that an increase in EPL is associated with a smaller decrease in leverage in sectors that have more tangible assets. The effect of a one-standard deviation increase in tangibility on leverage is 1.6% higher in a country with EPL equal to 3 (like Italy) compared with a country with an EPL of 1 (like Canada).

In columns 5 and 6 we use a country-level proxy for the liquidation value, namely the indicator of creditor rights proposed by Djankov et al (2007), labeled L2 in the Table. The idea is that creditors can extract a higher value in case of liquidation in countries in which they have stronger rights in case of bankruptcy. We thus expect that the correlation between leverage and EPL should increase with the quality of creditor rights. We test this prediction adopting the same specification used before: in column 5, we include both EPL and the interaction term of EPL and creditor rights while controlling for firm and industry/year fixed effects, firm and country level variables. In column 6, we also include industry/country fixed effects.[10] As can be seen, the interaction coefficient is positive and statistically different from zero at the 1% level in both specifications. The coefficient on EPL is negative and

[10]It is important to note that we cannot include country/year fixed effects in this specification because creditors rights do not vary across firms within the same country.

statistically significant at the 1% level; while creditor rights (L2) have by themselves a negative effect on leverage.

These results are even stronger when we consider the third proxy for liquidation value, L3, which is the product of industry median tangibility and creditor rights. As we do in column 1 of Table V, in column 7 we start from a basic specification in which we include firm and industry/year fixed effects. We confirm that EPL is negatively correlated with leverage, while the coefficient θ on the interaction term of EPL and L3 is positive and statistically significant at 1% level. In this case, we can also estimate the coefficient on L3 because the latter proxy of liquidation value varies across countries, year and industry. A positive (and highly statistically significant) θ is also found in column 8, where we control for firm and country/year fixed effects. A similar result is found in column 9, where we add industry/year fixed effects to the previous specification; and finally, in column 10, where we also control for industry/country fixed effects. Across all specifications, the estimate of θ is statistically different from zero at the 5% or 1% level. The effect of a one-standard deviation increase in tangibility and a one-standard deviation increase in creditor rights is 1.5% higher in a country with EPL equal to 3 (like Italy) compared with a country with an EPL of 1 (like Canada).

In summary, across all specifications, we find that an increase in EPL is associated with a greater decrease in leverage in sectors with less tangible assets and in countries with lower protection of creditor rights. In those sectors or countries with lower liquidation values, increases in employment protection legislations will have a greater negative effect on leverage. These results follow from the theoretical predictions of

our model as shown in the Section II.

We then plot (Figure 3) the net effect of employment protection on firms' leverage for different levels of creditor rights in the 21 countries of our sample. In low creditor protection countries, higher EPL reduces the equilibrium use of debt by firms. France is the extreme case with creditor rights equal to zero. There, we observe the biggest negative impact of labor-friendly laws on leverage. UK and New Zealand, on the other hand, enjoy the maximum creditor protection (4 out of 4). In these countries, where creditor rights are very strong, our supply side story would predict that leverage is crowded out less when employment protection increases.

This is consistent with the discussion in Section II. In case of bankruptcy, and to the extent that they are protected by the law, secured creditors have a greater control over the collateral than over the remaining firm assets and cash-flows. Therefore, the supply channel would predict that the debt capacity of a firm in a country with stronger creditor rights is relatively less affected by changes in employment protection.

IV.3 The Political Economy of EPL and Capital Structure Dynamics

The results so far suggest that labor laws have a causal impact on the financial structure of firms. Specifically, we document a negative relation between increases in labor protection and financial leverage. One concern with this causal interpretation is that EPL changes may be associated with other regulatory reforms, like changes in taxation or corporate governance, which may happen at the same time as changes in

EPL. In such case, the worry is that the uncovered relation between employment protection and leverage may be spurious: in other words, we would incorrectly attribute the changes in leverage to changes in labor laws.

A second concern with respect to a causal interpretation of our findings is that changes in labor regulation may be endogenous to firms' financial decisions. This concern is likely to be less severe than in the case of changes in variables that are directly affected by the choice of an individual firm, like the unionization rate. This is because, changes in EPL reflect changes in laws and thus are not directly affected by the decisions of individual firms. However, there may still be some concerns about the political economy of changes in labor protection. After all, firms or unions may lobby politicians to change labor regulations when it is in their interest to do so.

The existing empirical studies on the political economy of labor regulation do not find much support for a lobbying explanation. Botero et al (2004) show that legal origin and economic development are the most important determinants of labor regulation, with ideology being of secondary importance. Moreover, existing political economy models have highlighted several potential determinants of employment protection which are exogenous to firms' decisions: Saint-Paul (2002) indicates that greater employment protection is likely to emerge in countries with less competitive labor markets; Pagano and Volpin (2005) predict that lower employment protection is likely to emerge as a political outcome in countries with majoritarian (as compared to proportional) electoral rules; Perotti and Von Thadden (2006) argue that when financial wealth is more concentrated, labor rents and labor protection are higher.

The specification in Table II (Column 1) already controls for legal origin, eco-

nomic development and creditor rights, as suggested by Botero et al (2004). In unreported regressions, we also find that our basic results in Table II are unchanged when we control for a measure of the rigidity of the labor market (whether wage bargaining is centralized or decentralized) as suggested by Saint-Paul (2002), the degree of proportionality of the electoral system in a country, as suggested by Pagano and Volpin (2005), and income inequality as a proxy for wealth inequality, as suggested by Perotti and Von Thadden (2006).

However, we should emphasize that the cross-sectional heterogeneity tests presented above partially address concerns of reverse causality and endogeneity. Importantly, controlling for country/year ($\alpha_k * \gamma_t$) fixed effects, as we did in the specifications presented above, addresses all these concerns.

To further address reverse causality, we examine the dynamic effects of EPL changes on firms' capital structure in greater detail. In Table VI, we replace the EPL indicator with four variables: EPL (+1) is the 1-year-forward value of EPL, EPL (0) is the contemporaneous value of EPL, EPL (-1) is the 1-year-lagged value of EPL and EPL (-2) is the 2-year-lagged value of EPL. We estimate similar specifications to those presented in Table II: in column 1, besides controlling for all usual determinants of leverage, we have country fixed effects to control for country time-invariant characteristics and industry/year fixed effects to control for industry-level dynamics. In column 2 we control for firm fixed effects and for industry/year fixed effects and in column 3, we estimate the same specification as in column 2 with the addition of country/industry fixed effects, which allow for differences across countries within the same industry.

The coefficient on EPL (+1) allows us to assess whether any leverage effects can be found prior to the passage of labor laws (EPL). Finding such an effect of the legislation prior to its introduction could be symptomatic of some reverse causation. Across all specifications, we find that the estimated coefficient on EPL (+1) is economically and statistically insignificant. This rejects any support for a reverse causality story. Moreover both EPL (-1) and EPL (-2) are statistically and economically significant in all specifications. This confirms that changes in EPL cause changes in firm leverage, supporting our causal interpretation of the results. It is worth mentioning here that these results suggest that it takes 2 years for the capital structure to adjust following the employment protection legislation changes and the effect remains thereafter.

V Other Results

In this section, first we examine the effect of stricter employment protection on firms' real activities. Then, we consider the effect of EPL on profitability and wages.

V.1 Investment and Growth

As stated in Proposition 1, we expect employment friendly reforms to be associated with a reduction in overall firm growth since they restrict firms' ability to access external finance.[11] In particular, we expect that this effect is stronger when firms do not have enough internal resources or issuing outside equity is very expensive.

Table VII reports the results of a difference-in-differences analysis, which examines

[11] A similar prediction also follows, however, from a demand channel argument described by Besley and Burgess (2004): an increase in employment protection may reduce investment opportunities.

the effect of changes in employment protection legislations on firms' growth, measured as firms' sales growth (Columns 1-3). Column 1 includes country fixed effects to control for country time invariant characteristics and industry/year fixed effects to control for industry specific shocks. Column 2 includes firm fixed effects instead of the country fixed effects in column 1, to control for firm time-invariant characteristics, while column 3 adds country/industry fixed effects in addition to the controls in the previous specification. Consistent with our model, the estimated coefficients are negative throughout all specifications and statistically significant at 5% (Column 1) or 10% (Columns 2-3) levels of significance. These results are also economically significant. A two-unit increase in EPL is associated with a 7.8% reduction in firms' sales growth (Column 3).

In columns 4-7 of Table VII, we exploit cross-sectional heterogeneity in the firms taking into account firms' dependence on external capital. Thus, columns 4-7 present the results of a difference-in-difference-in-differences estimation, where we test whether more financially dependent firms on external capital grow less following EPL increases. We interact the EPL variable with a time-invariant measure of firms' financial dependence at the firm level. All columns include firm fixed effects. Column 4 also includes industry/year fixed effects, while column 5 includes country/year fixed effects to control for country specific shocks. Column 6 includes both industry/year and country/year fixed effects in addition to the firm fixed effects and Column 7 adds country/industry fixed effects to the previous specification which allow for differences across countries within the same industry. Consistent with our model, across all specifications, we find that the interaction coefficient is negative

and statistically significant at the 1% level. The effect of a one-standard deviation increase in firms' dependence on external capital on sales growth is 2.8% higher in a country with EPL equal to 3 (like Italy) compared with a country with an EPL of 1 (like Canada).

We next examine the effect of EPL on capital expenditures undertaken by firms. According to our model, an increase in EPL would result in a reduction in capital expenditures. This is true to the extent that capital and labor are complements. In reality, however, labor and capital might be substitutes. In such a scenario, we would expect firms to change their production technology away from the input that has become more expensive (labor) and towards the relatively cheaper one (capital). This substitution effect may lead to an increase in the capex/asset as EPL increases. Thus, the effect on capital expenditures is ambiguous and depends critically on the degree of complementarity between labor and capital.

However, the prediction for the cross-partial of capital expenditures with EPL and financial dependence on external capital is independent of whether capital and labor are substitutes or complements: capital expenditures should decrease more for those firms that are more dependent on external capital.

We test these implications in Table VIII and we find results consistent with this view. Columns 1-3 show the effect of EPL on capital expenditures over assets. The results are not statistically significant, which can be rationalized on the basis of the argument explained above. Similarly to Table VII, in columns 4-7 we exploit cross-sectional heterogeneity in the firms taking into account firms' dependence on external capital. The interaction coefficients in columns 4-7 of VIII are negative and

statistically significant at the 1% level throughout all specifications. It is also worth emphasizing here that the estimates are robust to the inclusion of industry/year fixed effects, which take care of any concerns relating to the fact that the degree of complementarity between labor and capital might be correlated with our measure of financial dependence.

These results support a supply channel explanation: the increase in employment protection restricts firms' access to capital, and thus reduces investment and growth relatively more in financially dependent firms. The demand channel instead would have no such prediction and therefore these results rule out demand side effects.

V.2 Profitability and Labor Costs

The economic mechanism behind our analysis is the idea that an increase in employment protection, i.e. an increase in firing costs or more restrictions to firing employees, increases the operating leverage of the firm and thus crowds out financial leverage. According to this view and as predicted by our model, an increase in EPL should be associated with a decrease in firms' profitability and is also likely to be associated with an increase in their labor costs (although this prediction is less clearcut in Proposition 1).

In Table IX, we show that indeed changes in EPL are associated with a decrease in firms' profitability and an increase in labor costs. We estimate a difference-in-differences specification similar to the one in Table II, where the dependent variable is ROA in columns 1-3 and Cost of Staff scaled by Assets in columns 4-6. Columns 1 and 4 include country and industry/year fixed effects; columns 2 and 5 include firm

and industry/year fixed effects; while columns 3 and 6 also include country/industry fixed effects.

Across specifications, we find that firms' profitability decreases as EPL increases. Using the specification reported in column 3, a two-unit increase in EPL is associated with a reduction by about 3% in ROA. These findings are consistent with the idea in our theoretical model that stricter employment protection limits firms' access to finance and this may result in firms being unable to take advantage of investment opportunities.

The results on profitability confirm also findings in a large literature in labor economics. Ruback and Zimmerman (1984), Abowd (1989) and Hirsch (1991) find that labor unionization has a negative effect on firms' earnings and market values; Lee and Mas (2009) show a negative effect of union elections on firm performance.

The results in columns 4-6 show instead that across all specifications labor costs increase as EPL increases. Relying on the estimates in column 6, a two-unit increase in EPL is associated with an increase by approximately 5.6% in staff cost over assets.[12] These findings indicate that employment protection is costly for the firms.

VI Conclusion

The recent financial crisis and the subsequent global recession have once again brought the contentious topic of employment protection at the forefront of the policy debate. Policymakers around the world are contemplating how to reform the rules

[12]This variable is available however only for a sub-sample of firms. Because of the large drop in the number of observations, one needs to interpret the results on labor costs with some caution.

that govern industrial relations. While some countries, such as the US and the UK, are moving towards greater labor protection,[13] Continental European countries are discussing how to amend their current labor laws in an attempt to boost potential growth.[14] These recent developments demonstrate the need to revisit the role of labor in shaping corporate behavior and pin down the economic channel through which labor may affect firms' economic activities.

Using firm-level data from 21 OECD countries over the 1985-2004 period, we show that firm leverage decreases when employment protection increases. We also find that increases in employment protection have more negative effects on firms' leverage for firms where labor is a more important input of production, and where hiring and firing are more frequent. Further, the negative effect of labor-friendly legislation on firms' leverage is more pronounced when the liquidation value of firms' assets is lower. We also examine the effect of employment protection legislations on firms' investment and sales' growth. We find that increases in EPL dampen firms' growth and that the effect is more pronounced for firms which depend more on external capital. This paper thus identifies a channel through which labor regulation hinders growth: labor crowds out external finance.

Our findings provide supporting evidence for the critics of employment protection laws by showing that labor friendly regulation has negative real effects via a finance channel. This indicates that the transmission channel through which labor regulation

[13]The concern among some commentators and policymakers is that the flexible labor laws in the U.S. may have exacerbated the crisis, as the U.S. may have become a dumping ground for multinational firms unemployment.

[14]For instance, a comprehensive labor market reform is one of the main requirements that were imposed on the Greek government to receive financial support from their European counterparties.

impacts growth is through the supply of external capital.

Appendix

Proof of Proposition 1: The entrepreneur is able to invest without raising equity only if $F \leq \widehat{D}$, or if

$$\tau \leq \frac{(1-\theta)L + \theta W - F}{\theta(W - W_0 + z)} \equiv \widehat{\tau}.$$

Notice that $\widehat{\tau}$ is increasing in L and decreasing in z.

If instead, $F > \widehat{D}$, the residual capital $F - \widehat{D}$ needs to be raised in the form of outside equity. Hence, the entrepreneur sells a fraction α^* of the equity so that:

$$\alpha^* = \frac{F - \widehat{D}}{\theta C(1-\eta)} = \frac{F - (1-\theta)L - \theta[W_0 - z + (1-\tau)(W - W_0 + z)]}{\theta C(1-\eta)},$$

which is strictly increasing in z and τ and decreasing in L. The project can be undertaken only if $\alpha^* \leq 1$, which can be written as

$$\tau \leq \frac{(1-\theta)L + \theta W + \theta C(1-\eta) - F}{\theta(W - W_0 + z)} \equiv \widehat{\widehat{\tau}}$$

Notice that $\widehat{\widehat{\tau}}$ is strictly increasing in L and decreasing in z and η.

Therefore, outside equity equals $F - \widehat{D}$ and debt is $D = \widehat{D}$ provided that $\tau \in \left(\widehat{\tau}, \widehat{\widehat{\tau}}\right]$. Notice that $\widehat{\tau} < \widehat{\widehat{\tau}}$. If $\tau > \widehat{\widehat{\tau}}$, the project cannot be taken.

Hence, in equilibrium we have that the investment decision is weakly decreasing in z and τ:

$$I^* = \begin{cases} 1 & \text{if } \tau \leq \widehat{\widehat{z}} \\ 0 & \text{if } \tau > \widehat{\widehat{z}} \end{cases}$$

Leverage is also weakly decreasing in z and τ:

$$\left(\frac{D}{D+E}\right)^* = \begin{cases} 1 & \text{if } \tau \leq \widehat{\tau} \\ \frac{(1-\theta)L + \theta[W - \tau(W - W_0 + z)]}{F} & \text{if } \tau \in \left(\widehat{\tau}, \widehat{\widehat{\tau}}\right] \\ 0 & \text{if } \tau > \widehat{\widehat{\tau}} \end{cases}$$

Moreover, firm's profits are weakly decreasing in z and τ:

$$P^* = \begin{cases} (1-\theta)L + \theta[C + W - \tau(W - W_0 + z)] - F & \text{if } \tau \leq \widehat{\tau} \\ (1-\alpha^*)\theta C & \text{if } \tau \in \left(\widehat{\tau}, \widehat{\widehat{\tau}}\right] \\ 0 & \text{if } \tau > \widehat{\widehat{\tau}} \end{cases}$$

Labor compensation (wages) are first increasing and then decreasing in employment protection:

$$w^* = \begin{cases} \tau(W - W_0 + z) & \text{if } \tau \leq \widehat{\widehat{\tau}} \\ 0 & \text{if } z > \widehat{\widehat{\tau}} \end{cases} .$$

Besides the predictions stated in Proposition 1, the model generates one further prediction. Because $\widehat{\tau}$ and $\widehat{\widehat{\tau}}$ are increasing in L, the negative effect of an increase in τ or z on leverage and investment should be smaller in firms with higher liquidation value L. Q.E.D.

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Table I: Main Variables: Descriptive Statistics

This table reports summary statistics for the main variables used in the analysis. The EPL Indicator is time-varying and its value range is 0-6. Its three components are Regular Contracts (which focuses on the laws protecting workers with regular contracts), Temporary Contracts (which focuses on laws affecting workers with fixed-term, temporary contracts) and Collective Dismissals (which focuses on regulations applying to collective dismissals). Total debt/Market Value is the ratio of total debt (which is the sum of long-term and short-term debt) and the market value of assets. Total debt/Assets is the ratio of total debt and the book value of assets. Net Debt/Market Value is the ratio of total debt net of cash and the market value of assets. Net Debt/Assets is the ratio of total debt net of cash and the book value of assets. Tangibility is the ratio of net property, plant and equipment and total assets. Size is measured as the logarithm of firms' real assets. Q is the ratio of market value of assets over book value of assets. ROA is calculated as earnings before interest and taxes (EBIT) over total assets. Cost of staff/assets is the ratio of the total labor costs over total assets. Capex/Assets is the ratio of firms' capital expenditures over total assets. Sales' Growth is the growth rate of firms' sales. Financial Dependence is a constant variable at the firm level which captures the degree of firms' financial dependence on external capital. This is proxied by the average ratio of capital expenditures minus cash flow from operations over capital expenditures. Worldscope variables are winzorized at the 1% tails. Labor intensity is the median ratio for each 2-digit industry of the cost of staff normalized by firms' sales. Median Tangibility is the median tangibility ratio for each 2-digit level industry. Turnover is a variable defined at the 2-digit industry level using data from Davis, Haltiwanger and Schuh (1996). It is defined as the average of the employment creation and destruction variables provided by Davis, Haltiwanger and Schuh (1996) for the US industries. GDP per Capita is the logarithm of GDP per Capita expressed in current prices. Creditor Rights takes values from 0-4. The sample period is from 1985 to 2004.

	Source	Observations	Mean	Median	Std. Dev.
Labor Law Indicators					
EPL Indicator	Allard (2005)		2.336	2.393	0.918
Regular Contracts	Allard (2005)		2.213	2.250	1.097
Temporary Contracts	Allard (2005)		1.818	1.630	1.386
Collective Dismissals	Allard (2005)		2.976	3.130	1.203
Firm-level Variables					
Total Debt/Market Value	Worldscope	73,065	0.284	0.241	0.218
Total Debt/Assets	Worldscope	80,022	0.245	0.228	0.164
Net Debt/Market Value	Worldscope	77,476	0.120	0.111	0.317
Net Debt/Assets	Worldscope	79,299	0.121	0.132	0.227
Tangibility	Worldscope	84,037	0.300	0.287	0.152
Size	Worldscope	82,222	7.853	7.757	1.757
Q	Worldscope	76,839	1.199	0.931	0.903
ROA	Worldscope	82,235	0.063	0.069	0.105
Cost of Staff/Assets	Worldscope	17,231	0.276	0.262	0.151
Capex/Assets	Worldscope	70,050	0.059	0.049	0.044
Sales' Growth	Worldscope	74,595	0.078	0.047	0.253
Financial Dependence Firm	Worldscope	83,755	-0.562	-0.635	3.200
Industry-level Variables					
Labor Intensity	Worldscope		0.278	0.291	0.061
Turnover	Worldscope		9.622	9.346	1.622
Median Tangibility	Worldscope		0.301	0.302	0.066
Country Factors					
GDP Growth (%)	IMF, WEO		2.466	2.673	1.762
log (GDP Per Capita)	IMF, WEO		10.126	10.150	0.317
Creditor Rights	Djankov et al (2007)		2.151	2.000	1.182

Table II: DID Analysis: Employment Protection Legislation

This table reports the results of regressions of leverage on the EPL Indicator and a set of controls. Leverage is defined as total debt over market value of assets. EPL is lagged by one year. Columns 1 and 2 include interacted year times two-digit industry fixed effects; column 2 also includes country fixed effects; column 3 includes firm and year times two-digit industry fixed effects and column 4 adds country times two-digit industry fixed effects. Other Control variables refer to macro factors (GDP Growth, log (GDP per Capita, Creditor Rights). In Column 1, these also include indicators characterizing countries' legal origin, tax system (using an indicator used by Fan, Titman and Twite (2006)) and countries' financial development, namely whether a country is a bank-based or a market-based economy. In the rest of the specifications these country-level controls are absorbed by the fixed effects. All variables are defined in Table I. Robust standard errors are reported in parentheses. *, **, ***, indicates significance at the 10%, 5% and 1% respectively. Standard errors are clustered at the country level. Firm-level variables are winsorized at the 1% tails. The sample consists of manufacturing firms in 21 countries. Coverage: 1985-2004.

	(1)	(2)	(3)	(4)
EPL	-0.0325	-0.0456	-0.0409	-0.0409
	(0.0068)***	(0.0134)***	(0.0162)**	(0.0163)**
Tangibility	0.166	0.168	0.251	0.253
	(0.0585)**	(0.0604)**	(0.0436)***	(0.0437)***
Size	0.0110	0.0110	0.0608	0.0608
	(0.0019)***	(0.0019)***	(0.0080)***	(0.0080)***
ROA	-0.555	-0.554	-0.499	-0.497
	(0.097)***	(0.100)***	(0.047)***	(0.046)***
Q	-0.0941	-0.0935	-0.0650	-0.0647
	(0.0044)***	(0.0045)***	(0.0041)***	(0.0040)***
Other Control Var.	X	X	X	X
Country*Industry FE				Yes
Country FE		Yes		
Ind*Year FE	Yes	Yes	Yes	Yes
Firm FE			Yes	Yes
Observations	61,248	61,248	61,248	61,248
Adjusted R^2	0.34	0.34	0.78	0.75

Table III: DID Analysis: Employment Protection Legislation

This table reports the results of regressions of alternate definitions of leverage on the EPL Indicator and a set of controls. Leverage is defined as Total Debt over Book Value of Assets in columns 1-3, as Net Debt (total debt minus cash) over market value of assets in columns 4-6, and as Net Debt over book value of Assets in columns 7-9. EPL and its component are lagged by one year. Columns 1, 4 and 7 include country and interacted year and two-digit industry fixed effects. Columns 2, 5 and 8 include firm and interacted year and two-digit industry fixed effects and columns 3, 6 and 9 add interacted country and two-digit industry fixed effects. Other Control variables refer to macro factors (GDP Growth, log (GDP per Capita, Creditor Rights). All variables are defined in Table I. Robust standard errors are reported in parentheses. *, **, ***, indicates significance at the 10%, 5% and 1% respectively. Standard errors are clustered at the country level. Firm-level variables are winsorized at the 1% tails. The sample consists of manufacturing firms in 21 countries. Coverage: 1985-2004.

	Total Debt/Assets			Net Debt/Market Value			Net Debt/Assets		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EPL	-0.0273	-0.0261	-0.0265	-0.0493	-0.0478	-0.0285	-0.0281	-0.0283	-0.0481
	(0.0094)***	(0.0120)**	(0.0122)**	(0.0158)***	(0.0167)***	(0.0157)*	(0.0116)**	(0.0155)*	(0.0167)**
Tangibility	0.146	0.129	0.131	0.514	0.653	0.507	0.383	0.504	0.656
	(0.0492)***	(0.0240)***	(0.0242)***	(0.1060)***	(0.0697)***	(0.0269)***	(0.3830)***	(0.0283)***	(0.0693)***
Size	0.0120	0.0528	0.0531	0.0183	0.0775	0.0588	0.0124	0.0585	0.0776
	(0.0021)***	(0.0066)***	(0.0068)***	(0.0027)***	(0.0084)***	(0.0071)***	(0.0025)***	(0.0069)***	(0.0084)***
ROA	-0.374	-0.358	-0.356	-0.503	-0.499	-0.413	-0.387	-0.414	-0.497
	(0.0912)***	(0.0362)***	(0.0362)***	(0.1490)***	(0.0482)***	(0.0424)***	(0.1380)***	(0.0427)***	(0.0477)***
Q	-0.0098	0.0024	0.0025	-0.0398	0.0028	-0.0091	-0.0423	-0.0092	0.0031
	(0.0083)	(0.0047)	(0.0048)	(0.0127)***	(0.0112)	(0.0066)	(0.0113)***	(0.0065)	(0.0113)
Other Control Var.	X	X	X	X	X	X	X	X	X
Country*Industry FE			Yes			Yes			Yes
Country FE	Yes			Yes			Yes		
Ind*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE		Yes	Yes		Yes	Yes		Yes	Yes
Observations	61,512	61,512	61,512	64,050	64,050	64,050	61,188	61,188	61,188
Adjusted R^2	0.14	0.76	0.72	0.19	0.76	0.76	0.19	0.79	0.73

Table IV: Cross-sectional Heterogeneity: Labor Intensity and Turnover

This table reports the results of regressions of cross-sectional heterogeneity. Total debt over market value of assets is regressed on the interaction of EPL with a proxy of Labor intensity at the industry level and a set of controls. Labor intensity is computed as the median cost of staf over sales for each industry defined at the 2-digit level. Turnover is a proxy for employment turnover calculated using data by Davis, Haltiwanger and Schuh (1996). All columns include firm fixed effects. Columns 1 and 5 include firm and year times two-digit industry fixed effects; columns 2 and 6 include firm and country times year fixed effects; Columns 3 and 7 include firm, year times two-digit industry fixed effects and country times year fixed effects and Columns 4 and 8 add country times two-digit industry fixed effects to the previous specification. Other Control variables refer to macro factors (GDP Growth, log (GDP per Capita, Creditor Rights). All variables are defined in Table I. Robust standard errors are reported in parentheses. *, **, ***, indicates significance at the 10%, 5% and 1% respectively. Standard errors are clustered at the country level. Firm-level variables are winsorized at the 1% tails. The sample consists of manufacturing firms in 21 countries. Coverage: 1985-2004.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EPL	-0.0160				0.0029			
	(0.0240)				(0.0241)			
EPL*Labor Intensity	-0.0904	-0.0742	-0.0844	-0.0874				
	(0.0486)*	(0.0397)*	(0.0315)***	(0.0369)**				
Labor Intensity		0.0450						
		(0.048)						
EPL*Turnover					-0.0049	-0.0033	-0.0042	-0.0062
					(0.0015)***	(0.0006)***	(0.0009)***	(0.0014)***
Turnover						0.0101		
						(0.0031)***		
Tangibility	0.251	0.229	0.213	0.215	0.251	0.228	0.215	0.212
	(0.0435)***	(0.0438)***	(0.0412)***	(0.0419)***	(0.0436)***	(0.0438)***	(0.0412)***	(0.0419)***
Size	0.0608	0.0594	0.0628	0.0632	0.0607	0.0593	0.0632	0.0627
	(0.0080)***	(0.0081)***	(0.0081)***	(0.0082)***	(0.0081)***	(0.0082)***	(0.0082)***	(0.0082)***
ROA	-0.499	-0.518	-0.512	-0.510	-0.499	-0.518	-0.512	-0.510
	(0.0467)***	(0.0506)***	(0.0483)***	(0.0480)***	(0.0467)***	(0.0505)***	(0.0482)***	(0.0480)***
Q	-0.0649	-0.0567	-0.0554	-0.0552	-0.0650	-0.0567	-0.0555	-0.0553
	(0.0041)***	(0.0031)***	(0.0030)***	(0.0029)***	(0.0041)***	(0.0030)***	(0.0029)***	(0.0029)***
Other Control Var.	X				X			
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind*Year FE	Yes		Yes	Yes	Yes		Yes	Yes
Country*Year FE		Yes	Yes	Yes		Yes	Yes	Yes
Country*Industry FE				Yes				Yes
Observations	61,248	61,248	61,248	61,248	61,248	61,248	61,248	61,248
Adjusted R^2	0.78	0.79	0.76	0.77	0.78	0.79	0.76	0.77

Table V: Cross-sectional Heterogeneity - Liquidation Values

This table reports the results of regressions of cross-sectional heterogeneity. Total debt over assets is regressed on the interaction of EPL with a proxy for the liquidation value of firms' assets (L) and a set of controls. The first proxy L1, is the median tangibility in the industry, L2 is a measure of creditor rights and L3 is the product of the two measures (L1*L2). All columns include firm fixed effects. Columns 1, 5 and 7 include also year times two-digit industry fixed effects. Column 6 controls for year times two-digit industry and country times two-digit industry fixed effects in addition to firm fixed effects. Columns 2 and 8 add year times country fixed effects to the firm fixed effects, Columns 3 and 9 add country times year and year times two-digit industry fixed effects to the firm fixed effects and Columns 4 and 10 control for firm, year times two-digit industry, country times year and country times two-digit industry fixed effects. Other Control variables refer to macro factors (GDP Growth, log (GDP per Capita, Creditor Rights). All variables are defined in Table I. Robust standard errors are reported in parentheses. *, **, ***, indicates significance at the 10%, 5% and 1% respectively. Standard errors are clustered at the country level. Firm-level variables are winsorized at the 1% tails. The sample consists of manufacturing firms in 21 countries. Coverage: 1985-2004.

Table V *Continued*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
EPL	-0.093				-0.105	-0.104	-0.087			
	(0.0158)***				(0.0214)***	(0.0204)***	(0.0164)***			
EPL*L1	0.171	0.088	0.103	0.125						
	(0.0675)**	(0.0548)	(0.0588)*	(0.0541)**						
L1		-0.162								
		(0.102)								
EPL*L2					0.0426	0.0423				
					(0.0113)***	(0.0111)***				
L2					-0.0618	-0.0621				
					(0.0177)***	(0.0174)***				
EPL*L3							0.0980	0.0690	0.0841	0.1000
							(0.0259)***	(0.0337)**	(0.0252)***	(0.0252)***
L3							-0.116	-0.140	-0.078	-0.022
							(0.0397)***	(0.0659)**	(0.0809)	(0.0843)
Tangibility	0.251	0.229	0.213	0.215	0.247	0.249	0.249	0.229	0.213	0.215
	(0.0432)***	(0.0439)***	(0.0412)***	(0.0419)***	(0.0412)***	(0.0413)***	(0.0413)***	(0.0440)***	(0.0410)***	(0.0416)***
Size	0.0608	0.0593	0.0627	0.0632	0.0609	0.0609	0.0609	0.0593	0.0627	0.0633
	(0.0080)***	(0.0081)***	(0.0081)***	(0.0082)***	(0.0080)***	(0.0080)***	(0.0079)***	(0.0080)***	(0.0081)***	(0.0081)***
ROA	-0.499	-0.518	-0.512	-0.055	-0.498	-0.496	-0.499	-0.518	-0.512	-0.510
	(0.0468)***	(0.0505)***	(0.0482)***	(0.0479)***	(0.0465)***	(0.0462)***	(0.0469)***	(0.0505)***	(0.0484)***	(0.0480)***
Q	-0.0650	-0.0567	-0.0554	-0.0552	-0.0645	-0.0643	-0.0647	-0.0567	-0.0554	-0.0553
	(0.0041)***	(0.0031)***	(0.0030)***	(0.0029)***	(0.0038)***	(0.0037)***	(0.0039)***	(0.0031)***	(0.0030)***	(0.0030)***
Other Control Var.	X				X	X	X			
Ind.*Country FE				Yes		Yes				Yes
Country*Year FE		Yes	Yes	Yes				Yes	Yes	Yes
Ind.*Year FE	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	61,248	61,248	61,248	61,248	61,248	61,248	61,248	61,248	61,248	61,248
Adjusted R^2	0.78	0.79	0.76	0.77	0.79	0.76	0.79	0.79	0.76	0.77

Table VI: Dynamics of Leverage

This table reports the results of regressions of leverage on the one-year lagged, the contemporaneous and the one-year and two-year forward values of the EPL indicator and a set of controls. Leverage is defined as total debt over Market Value of Assets. Column 1 includes interacted year times two-digit industry fixed effects and country fixed effects; column 2 includes firm and year times two-digit industry fixed effects and column 3 adds country times two-digit industry fixed effects. Other Control variables refer to macro factors (GDP Growth, log (GDP per Capita, Creditor Rights). All variables are defined in Table I. Robust standard errors are reported in parentheses. *, **, ***, indicates significance at the 10%, 5% and 1% respectively. Standard errors are clustered at the country level. Firm-level variables are winsorized at the 1% tails. The sample consists of manufacturing firms in 21 countries. Coverage: 1985-2004.

	(1)	(2)	(3)
EPL(+1)	0.0111	0.0037	0.0050
	(0.0106)	(0.0109)	(0.0110)
EPL(0)	-0.0061	-0.0037	-0.0042
	(0.0098)	(0.0105)	(0.0010)
EPL(-1)	-0.0203	-0.0148	-0.0139
	(0.0052)***	(0.0072)**	(0.0073)*
EPL(-2)	-0.0272	-0.0290	-0.0298
	(0.0068)***	(0.0086)***	(0.0084)***
Other Control Var.	X	X	X
Country*Industry FE			Yes
Country FE	Yes		
Ind*Year FE	Yes	Yes	Yes
Firm FE		Yes	Yes
Observations	49,171	49,171	49,171
Adjusted R^2	0.35	0.80	0.77

Table VII: Growth and Financial Dependence

This table reports the results of regressions of firms' sales growth on the EPL indicator and a set of controls (Columns 1-3) and on the interaction of EPL with a proxy for firms' financial dependence on external capital (constant at the firm level) and a set of controls (Columns 4-7). Column 1 includes country and interacted year and two-digit industry fixed effects; columns 2 and 4 include firm and interacted year and two-digit industry fixed effects; column 3 adds country times two-digit industry fixed effects. Column 5 controls for firm and country times year fixed effects. Column 6 adds industry times two-digit industry fixed effects to the previous specification and Column 7 adds also country times two-digit industry fixed effects to the specification in Column 6. Other Control variables refer to macro factors (GDP Growth, log (GDP per Capita, Creditor Rights). All variables are defined in Table I. Robust standard errors are reported in parentheses. *, **, ***, indicates significance at the 10%, 5% and 1% respectively. Standard errors are clustered at the country level. Firm-level variables are winsorized at the 1% tails. The sample consists of manufacturing firms in 21 countries. Coverage: 1985-2004.

	Growth of Sales			Growth of Sales			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
EPL	-0.0037	-0.0388	-0.0386	-0.0429			
	(0.018)**	(0.023)*	(0.023)*	(0.0224)*			
EPL*Financial				-0.00575	-0.00399	-0.00495	-0.00442
Dependence				(0.00156)***	(0.00121)***	(0.0014)***	(0.0010)***
ROA	0.334	0.639	0.638	0.636	0.6545	0.6256	0.6253
	(0.048)***	(0.043)***	(0.044)***	(0.0452)***	(0.0369)***	(0.03797)***	(0.03807)***
Q	0.044	0.024	0.024	0.0251	0.0292	0.0287	0.0285
	(0.006)***	(0.007)***	(0.007)***	(0.00706)***	(0.0061)***	(0.0062)***	(0.0063)***
Other Control Var.	X	X	X	X			
Firm FE		Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes						
Ind*Year FE	Yes	Yes	Yes	Yes		Yes	Yes
Country*Year FE					Yes	Yes	Yes
Country*Industry FE			Yes				Yes
Observations	66,456	66,456	66,456	64,973	64,973	64,973	64,973
Adjusted R^2	0.14	0.34	0.25	0.34	0.27	0.28	0.28

Table VIII: Capital Expenditure and Financial Dependence

This table reports the results of regressions of firms' investment measured as capital expenditures over assets on the EPL indicator and a set of controls (Columns 1-3) and on the interaction of EPL with a proxy for firms' financial dependence on external capital (constant at the firm level) and a set of controls (Columns 4-7). Column 1 includes country and interacted year and two-digit industry fixed effects; columns 2 and 4 include firm and interacted year and two-digit industry fixed effects; column 3 adds country times two-digit industry fixed effects. Column 5 controls for firm and country times year fixed effects. Column 6 adds industry times two-digit industry fixed effects to the previous specification and Column 7 adds also country times two-digit industry fixed effects to the specification in Column 6. Other Control variables refer to macro factors (GDP Growth, log (GDP per Capita, Creditor Rights). All variables are defined in Table I. Robust standard errors are reported in parentheses. *, **, ***, indicates significance at the 10%, 5% and 1% respectively. Standard errors are clustered at the country level. Firm-level variables are winsorized at the 1% tails. The sample consists of manufacturing firms in 21 countries. Coverage: 1985-2004.

	Capex/Assets			Capex/Assets			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
EPL	0.0002	-0.0009	-0.0008	-0.00183			
	(0.002)	(0.003)	(0.003)	(0.00310)			
EPL*Financial				-0.00115	-0.00105	-0.00115	-0.00116
Dependence				(0.0003)***	(0.00027)***	(0.00029)***	(0.00028)***
ROA	0.044	0.028	0.028	0.0279	0.0258	0.0243	0.0242
	(0.004)***	(0.004)***	(0.004)***	(0.0037)***	(0.0029)***	(0.0031)***	(0.0031)***
Q	0.004	0.003	0.004	0.00335	0.0043	0.0042	0.0042
	(0.001)***	(0.001)***	(0.001)***	(0.0006)***	(0.00047)***	(0.00049)***	(0.0005)***
Other Control Var.	X	X	X	X			
Firm FE		Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes						
Ind*Year FE	Yes	Yes	Yes	Yes		Yes	Yes
Country*Year FE					Yes	Yes	Yes
Country*Industry FE			Yes				Yes
Observations	56,723	56,723	56,723	56,641	56,641	56,641	56,641
Adjusted R^2	0.15	0.55	0.48	0.55	0.49	0.49	0.49

Table IX: Firms' Profitability and Cost of Labor

This table reports the results of regressions of net firms' profitability (columns 1-3) and labor costs (columns 4-6) on the EPL indicator and a set of controls. Columns 1 and 4 include country and interacted year and two-digit industry fixed effects; columns 2 and 5 include firm and interacted year and two-digit industry fixed effects; columns 3 and 6 add country times two-digit industry fixed effects. Other Control variables refer to macro factors (GDP Growth, log (GDP per Capita, Creditor Rights). All variables are defined in Table I. Robust standard errors are reported in parentheses. *, **, ***, indicates significance at the 10%, 5% and 1% respectively. Standard errors are clustered at the country level. Firm-level variables are winsorized at the 1% tails. The sample consists of manufacturing firms in 21 countries. Coverage: 1985-2004.

	ROA			Cost of Staff/Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
EPL	-0.0091	-0.0140	-0.0147	0.0525	0.0281	0.0277
	(0.0060)	(0.0059)**	(0.0057)***	(0.0168)***	(0.0132)**	(0.0130)**
Tangibility	0.027	-0.099	-0.099	0.123	0.125	0.125
	(0.017)	(0.011)***	(0.011)***	(0.036)***	(0.033)***	(0.032)***
Size	0.0100	0.0156	0.0157	-0.0229	-0.0608	-0.0617
	(0.0021)***	(0.0037)	(0.0037)***	(0.0013)***	(0.0044)	(0.0044)***
ROA				0.0219	-0.1030	-0.1040
				(0.0209)	(0.0100)	(0.0102)***
Q	0.0262	0.0307	0.0305	-0.0164	-0.0034	-0.0036
	(0.0038)***	(0.0041)***	(0.0041)***	(0.0030)***	(0.0018)*	(0.0018)**
Other Control Var.	X	X	X	X	X	X
Country*Industry FE			Yes			Yes
Country FE	Yes			Yes		
Ind*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE		Yes	Yes		Yes	Yes
Observations	64,732	64,732	64,732	13,461	13,461	13,461
Adjusted R^2	0.16	0.61	0.55	0.38	0.90	0.88

Figure 1: Timeline

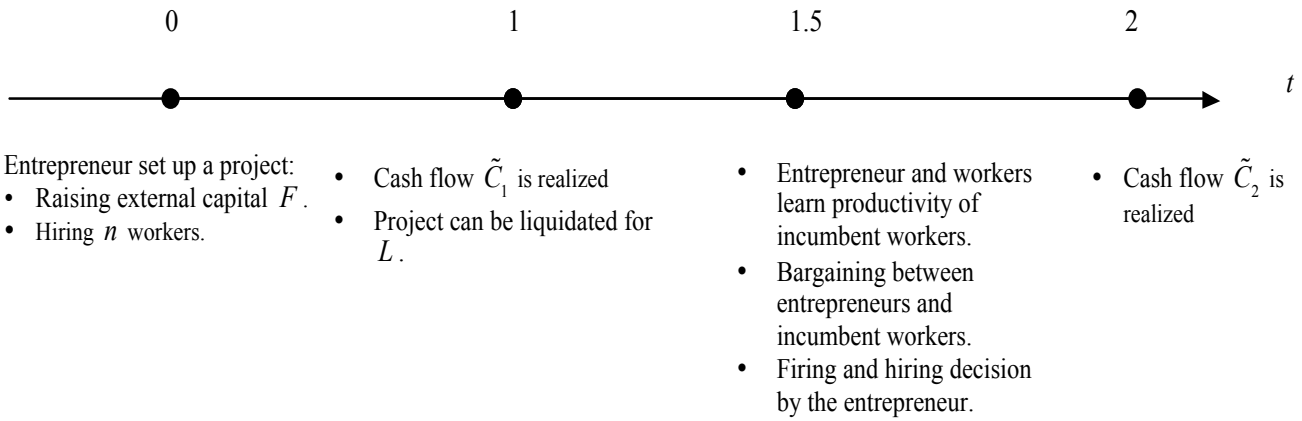

Figure 2: EPL

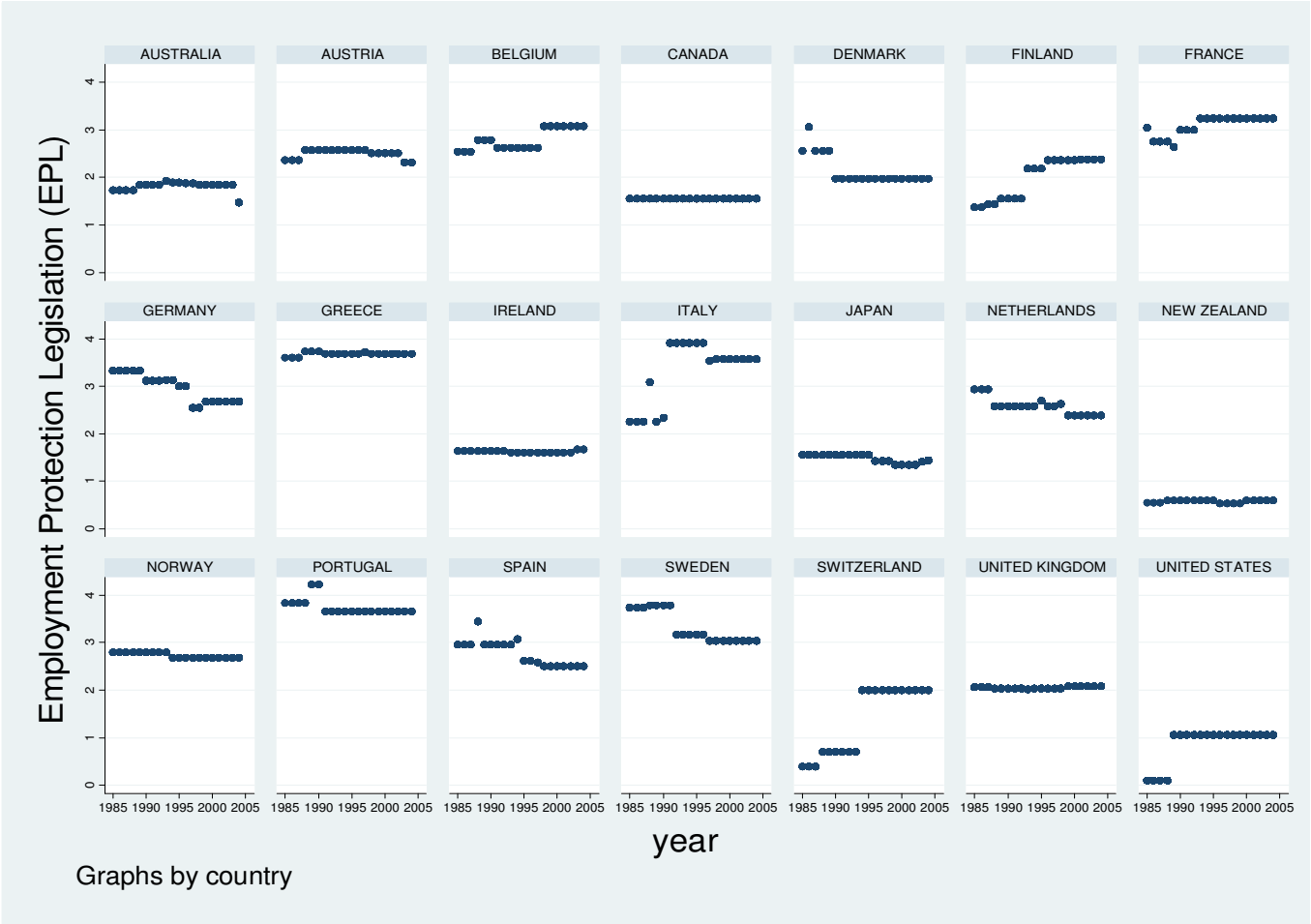
AUSTRALIA
AUSTRIA
BELGIUM
CANADA
DENMARK
FINLAND
FRANCE
GERMANY
GREECE
IRELAND
ITALY
JAPAN
NETHERLANDS
NEW ZEALAND
NORWAY
PORTUGAL
SPAIN
SWEDEN
SWITZERLAND
UNITED KINGDOM
UNITED STATES
Employment Protection Legislation (EPL)
0
1
2
3
4
1985 1990 1995 2000 2005
year
Graphs by country

Figure 3: Differential Effect of EPL on Leverage for different degrees of Creditor Protection