The Regressive Effects of Worker Protection: The Role of Financial Constraints

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Abstract

Employment protection laws (EPLs) are aimed to protect workers. However, if firms cannot easily adjust to EPLs, then their workers may not benefit from higher protection at all. I address this concern from both a theoretical and empirical perspective. In the model, EPLs crowd out external finance, discouraging firms' investment and employment. These distortions are larger in more financially constrained firms that have less room to accommodate EPLs. As a result, EPLs harm financially constrained firms and their workers, while they may only benefit unconstrained firms and their workers. I test the predictions of the model by exploiting the adoption of state-level US wrongful discharge laws. I find strong evidence that EPLs reduce labor earnings, firms' profits, investment, and employment in more financially constrained firms. This negative effect is decreasing in the level of financial constraints. Overall, EPLs have regressive effects as they only benefit the most unconstrained firms and their workers.

Keywords: EPLs, financial constraints, labor frictions.

1 Introduction

The primary motivation of employment protection laws (EPLs) is to protect workers from unfair dismissal. However, if firms cannot adjust to EPLs, then their workers may not benefit from stronger protection at all. Credit constraints limit firms' capacity to absorb unanticipated shocks[1], such as an exogenous increase in labor costs due to improved worker protection. Therefore, the extent to which workers benefit from better protection depends on their firms' adaptability to higher labor costs, which in turn is limited by the severity of financial constraints. The recent empirical literature on labor and finance has shown that the adoption of EPLs crowds out external finance (Simintzi et al., 2015; Serfling, 2016), discouraging investment and reducing firms' growth (Bai et al., 2020). However, the mechanisms through which these distortions are transmitted to workers and their impact on firms with different levels of financial constraints remain open questions. Do EPLs effectively protect workers? Do EPLs hurt all firms? Is there a role for firms' financial constraints?

This paper addresses these concerns from both a theoretical and empirical perspective. The main finding is that the effect of the adoption of EPLs on labor earnings and firms' profits depends on the severity of firms' financial constraints. EPLs, which supposedly protect workers, harm workers attached to credit constrained firms and only benefit those working for unconstrained firms. From firms' perspective, EPLs reduce investment, employment, and profits in more financially constrained firms. This negative effect is decreasing in the level of financial constraints. Eventually, unconstrained firms benefit from stronger EPLs. Overall, EPLs have unintended regressive consequences, as they benefit the unconstrained sector at a high cost for the most vulnerable firms and workers.

In the model, EPLs increase firms' operating costs crowding out external finance. Entrepreneurs adjust their operations by reducing leverage, investment, and employment. This adjustment is greater in financially constrained firms for which credit constraints become even tighter after an improvement of EPLs. Moreover, reduced labor demand and increased labor supply push down

[1] Benmelech et al. (2019); Mehrotra and Sergeyev (2021)

the equilibrium wage. In consequence, if the negative effects of reduced employment and wage predominate, then workers may not benefit from better protection at all. I show that this adverse effect is significantly higher in firms facing tighter credit constraints, that have less room to accommodate stronger EPLs. As a result, total workers' earnings in financially constrained firms decline after an improvement of EPLs, while they rise for those attached to unconstrained firms.

From firms' point of view, more financially constrained firms suffer more than unconstrained ones from improved EPLs. Financially unconstrained firms may even benefit from stricter EPLs. Reduced credit demand and increased capital supply coming from credit rationed firms lead to a lower interest rate at which unconstrained firms can obtain loans. Thus, unconstrained firms benefit from EPLs if their easier access to credit counteracts the increase in labor costs.

In order to test the theoretical predictions of the model, it is necessary to overcome the endogeneity concerns associated with the fact that a firm's labor costs are related to its decisions. Following Acharya et al. (2014), I exploit the quasi-natural experiment created by the adoption of Wrongful Discharge Laws (WDLs) by U.S states. I use the change in these laws to identify the effect of EPLs on labor earnings, profits, investment, and employment among firms with different levels of credit constraints. WDLs matured into three law exceptions to 'at-will employment' termination as a way to protect workers from wrongful discharge. Similarly to recent studies on firing costs and firms' corporate decisions (e.g. Bai et al., 2020), I focus on the good faith exception, which applies when a court considers that an employer discharged a worker out of bad faith, malice or retaliation. Of all the WDLs, this law is the largest deviation to at-will employment, since termination must always be for just cause (Dertouzos and Karoly, 1992; Kugler and Saint-Paul, 2004).

To test the theoretical results, I use firm-level US data from Compustat over the period 1965 to 1997 and implement a differences-in-differences research design. The treated and control groups consist of firms headquartered in states that have and have not passed the good faith exception, respectively. I use panel regressions techniques that control for firm, state, and industry-firm fixed effects. The results are also robust to the inclusion of state-year fixed effects. According to

Hadlock and Pierce (2010), firm size is one particularly useful predictor of financial constraints. Thus, I start by measuring financial constraints by firms' assets. The results are also robust when using alternative measures of financial constraints such as the Hadlock and Pierce (2010) index, Whited and Wu (2006) index and an indicator variable for whether a firm is a non-dividend payer.

The main empirical results are as follows. First, following the adoption of the good faith exception, labor earnings in firms with assets in the 25th percentile fall by 35% percent, while they increase by 1% percent in firms with assets in the 75th percentile. In terms of firms' earnings, the adoption of such law means a reduction of 27% percent for firms with a size in the 25th percentile and an increase of 4% percent for firms in the 75th percentile. All these magnitudes are statistically significant. These results hold after controlling for the traditional firm-level characteristics used in the literature, and state-level economic and political factors.

Secondly, I find compelling evidence that the decrease in labor earnings and firm profits following the adoption of EPLs is explained by EPLs limiting access to credit, forcing firms to reduce investment and employment. That is, after the adoption of EPLs, investment and employment decrease more in more financially constrained firms. Hence, consistently with the model, firms' financial constraints play a crucial role in defining firms' adaptability to EPLs, and thus, the economic consequences of EPLs across different groups of workers and firms.

The crucial assumption to give a causal interpretation to these results is that, in the absence of WDLs adoption, the average change of labor earnings, firms' earnings, investment, and firms' employment would have been the same for both treated and non-treated firms. Many features of WDLs identified in the literature and several robustness tests suggest that this common-trend assumption holds.

First, WDLs are based on common law, thus their recognition by judges is more likely to be driven by merits than political and economic factors. Hence, it is unlikely that lobbying activities influenced judges' decision to pass such laws (Walsh and Schwarz, 1995; Autor, 2003).

Secondly, a main concern is whether during periods where firms' profits are declining more than labor earnings, the at-will termination principle allows firms to adjust by dismissing more workers. In that case, courts may decide to adopt WDLs to protect workers from unfair dismissal. To test for pre-existing trends, I follow Bertrand and Mullainathan (2003) and explore the timing of the change in labor and firms' earnings relative to the passage of WDLs. Overall, earnings decline by more in more financially constrained firms only after the enactment of WDLs, suggesting that the main results of the paper do not suffer from reverse causality.

Third, the passage of the good faith exception and the movements of firm-level interest variables may be spuriously correlated with fundamental economic and political factors. While the main results are robust to controlling for states' per capita GDP and GDP growth, these variables are not comprehensive. Thus, I control for additional factors, such as a measure of political leaning, unionization rates, the adoption of other state-level labor laws, and the adoption of the good faith exception in states of the same federal circuit. This last measure controls for the fact that the adoption of WDLs may be influenced by whether states from the same federal court have passed the laws (Bird and Knopf, 2009).

Finally, the gradual and staggered adoption of WDLs over time implies that firms can be in both the treatment and control group in the time horizon considered, which alleviates concerns about large differences between treated and non-treated firms. To further address these concerns, I show that the results are robust to using a propensity score matching according to a large set of firm characteristics. Additionally, a limitation of Compustat is that it provides only the latest headquarters locations. To address this issue, I show that the results are robust to using data on historical headquarters locations. Overall, the main results are robust to addressing a variety of econometric concerns.

The contribution of this paper is threefold. First, it recognizes firms' financial constraints and their interaction with labor frictions as a channel that determines the effectiveness of the adoption of EPLs.

Secondly, this paper presents evidence that the adoption of EPLs have unintended regressive effects. The evidence shows that EPLs only benefit financially unconstrained firms and their workers, but hurt the most financially constrained sector. Thus, it suggests that the adoption of

EPLs leads to a conflict of interest between different groups of firms and workers.

Finally, these findings provide empirical support for the implementation of size-contingent EPLs across many countries. Under these policies, only larger firms are subject to stricter EPLs, while smaller firms face weaker regulations. Therefore, the evidence presented in this paper opens the door for a deeper understanding of the political determinants of firm-specific regulations. In a companion paper (Huerta, 2022), I formalize a political theory that rationalizes the existence of size-contingent EPLs. Overall, the distortions that originate in the interaction between financial and labor frictions provide a stepping-stone for future fruitful research on the political economy of EPLs.

1.1 Related literature

This paper relates to the recent empirical literature on the interplay between labor and financial frictions. A predominant stream of research studies how EPLs affect various corporate decisions. EPLs crowds out financial leverage (Simintzi et al., 2015; Serfling, 2016), discouraging investment and reducing firms' growth (Bai et al., 2020). To mitigate the impact of stricter EPLs, firms invest more in innovation (Acharya et al., 2014; Griffith and Macartney, 2014; Bena et al., 2021), increase share buybacks (Dang et al., 2021), reduce tax aggressiveness (Fairhurst et al., 2020), and increase cash holdings (Cui et al., 2018).

A different strand of the literature explores the impact of other labor regulations on firms' corporate decisions. Chava et al. (2020) studies right-to-work laws, Ellul and Pagano (2019) focus on employee' rights in bankruptcy, and Geng et al. (2022) examines minimum wage policies. This article is the first to provide theory and evidence that the interaction between labor and financial frictions gives rise to unintended regressive effects, as EPLs benefit only the unconstrained sector but at a high cost for the most vulnerable firms and workers.

My study also relates to the labor literature starting with Dertouzos et al. (1988) and Dertouzos and Karoly (1992), which studies the real effects of the adoption of WDLs. Miles (2000) and Autor (2003) study the effects on outsourcing jobs, Autor et al. (2006) explore the effect on state-employment, and Autor et al. (2007) focus on the impact on firms' productivity.

Finally, this paper links to literature on the political economy of labor policies. Botero et al. (2004) argue that labor regulations respond to the pressure of economic interest groups. Pagano and Volpin (2005), Perotti and von Thadden (2006), and more recently Fischer and Huerta (2021), formalize models in which the equilibrium employment regulations arise from a political process that aggregates different interests. This article contributes to this literature by providing empirical evidence of the existence of such interest groups, as EPLs have differential effects across groups of workers and firms. EPLs benefit the unconstrained sector but hurt the most vulnerable workers and firms. This evidence supports the adoption of size-contingent EPLs that are widespread across the world. Under these regulations, there is a size threshold above which stricter EPLs apply, thus smaller firms remain subject to weaker EPLs (Gourio and Roys, 2014; Garicano et al., 2016). In a companion paper (Huerta, 2022), I formalize a theory where size-contingent EPLs arise as a political equilibrium of aggregating similar economic interest groups to the ones identified in this paper.

The paper is organized as follows. Section 2 presents the model and derive the main testable predictions. Section 3 provides background information and history of WDLs. Section 4 describes the data and empirical methodology. Section 5 presents the main empirical results. Section 6 tests the mechanisms. Section 7 discusses the main econometric concerns and reports the robustness tests conducted to alleviate these concerns. Section 8 concludes.

2 The Model

The theoretical framework developed by Fischer and Huerta (2021) (FH hereafter) is adapted to study the effects of employment protection laws (EPLs) across different groups of workers and firms. The advantage of this framework is that it incorporates endogenous financial constraints, labor regulations and heterogeneity in a tractable way. This section outlines the baseline model.

Consider a one-good open economy where a continuum of agents are born differentiated by their wealth a and endowed with one unit of specific capital (a project, an idea). Thus, all agents could potentially form a firm and become entrepreneurs. The cumulative wealth distribution $G(a)$ has support in $\mathbb{R}_+$ and continuous density $g(a)$. Agents have access to a Cobb-Douglas production technology given by $f(k, l) = k^{\alpha} l^{\beta}$, $\alpha + \beta < 1$. They are price-takers in the labor and credit markets. The price of the single good is normalized to one. There is a competitive banking system that provides credit at the equilibrium interest rate r. There is a single period which is divided into four stages as illustrated in figure 1.

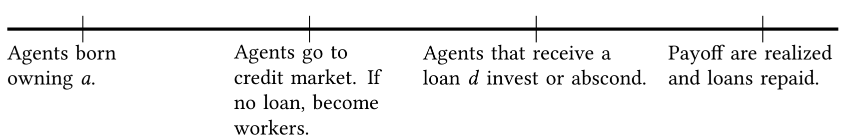

Figure 1: Time line.

In the first period, agents are born owing wealth a and one unit of specific capital. In the second stage, agents go to the credit market to obtain a loan in order to invest in a firm. Due to financial frictions, there is credit rationing and poorer agents are excluded from financial markets. Excluded agents become workers and supply l_s units of labor in response to the equilibrium wage w. They face a disutility cost of labor given by $\varsigma(l_s) = l_s^{\gamma}$, with $\gamma > 2$. Agents with enough wealth to access the credit market obtain a loan d from banks to invest in a firm and become entrepreneurs. In the third period, entrepreneurs may abscond with the loan. In that case, only a fraction $1 - \phi$ of capital is recovered by the legal system and the defaulter enjoys a private benefit given by ϕk.[2]

[2] Fischer et al. (2019) develop a model with a similar financial structure where the amount recovered by the legal system is a general function of ϕ and debt. The results would not change under this more general specification.

Hence, $1 - \phi$ is interpreted as the strength of creditor protection or as the loan recovery rate.

In the fourth period, firms pay a sunk cost $F > 0$ before operating a firm. They produce output $y = f(k, (1-s)l)$, where $k = a + d$ is the capital invested by an entrepreneur owning a who asks for a loan d, l represents the units of labor hired, and $s \in [0, 1]$ is the job separation probability. When a worker is fired, with probability s, entrepreneurs must pay a fraction $\varphi \in [0, 1]$ of the labor income owed to the worker given by $\varphi w l$. Thus, φ measures the strictness of dismissal regulations (EPLs). The utility of an entrepreneur investing k and hiring l units of labor is,

$$\begin{aligned} U^e(a) &= f(k, (1-s)l) - (1-s)wl - s\varphi wl - (1+r)d - F, \\ &= f(k, (1-s)l) - \bar{w}(\varphi)l - (1+r)d - F, \end{aligned} \tag{1}$$

where $\bar{w}(\varphi) \equiv (1-s)w + s\varphi w$ corresponds to the expected labor payment per unit of labor supplied.

The labor utility of a worker that supplies l_s units of labor is given by,[3]

$$U^w(l_s) = \bar{w}(\varphi)l_s - \varsigma(l_s). \tag{2}$$

2.1 Equilibrium

This section describes the equilibrium given a strength of EPLs measured by φ. In sections 2.1.1 and 2.1.2, I characterize workers' and entrepreneurs' decisions taking as given the factor prices w and r. In section 2.1.3, I obtain the conditions that define these factor prices.

2.1.1 Workers' decisions

To find individual labor supply l_s, each worker maximizes (2) to obtain,

$$\varsigma'(l_s) = \bar{w}(\varphi) \tag{3}$$

[3] She also obtains $(1+r)a$ from depositing her wealth in the banking system.

Thus, l_s is defined as the level of labor that equalizes the marginal labor benefit $\bar{w}(\varphi, \theta)$ with the marginal effort cost $\varsigma'(l_s)$.[4]

2.1.2 Entrepreneurs' decisions

The entrepreneur's problem is,

$$\begin{aligned} &\max_{d,l} U^e(a) \\ s.t.\;\; &U^e(a) \geq U^w(l_s) + (1+r)a, \quad (4) \\ &U^e(a) \geq \phi k, \quad (5) \end{aligned}$$

where (4) and (5) are the participation and incentive compatibility constraints respectively. That is, condition (4) asks that the agent prefers to form a firm instead of becoming a worker, while (5) states that the entrepreneur doesn't have incentives to abscond with the loan. The unconstrained problem leads to the firm's optimal size given by capital k^* and labor l^*,

$$f_k(k^*, (1-s)l^*) = 1 + r, \quad (6)$$

$$(1-s)f_l(k^*, (1-s)l^*) = \bar{w}(\varphi). \quad (7)$$

Note that (k^*, l^*) correspond to the operation level that any agent will reach if loans were not limited by financial frictions. However, only sufficiently wealthy agents will attain the efficient operation scale.

In section 9.1 in the Appendix, I characterize the optimal debt contract. There are two endogenous wealth thresholds that define credit constraints. First, there is a minimum wealth required to obtain a loan, $\underline{a} > 0$. Secondly, there exists a wealth threshold, $\overline{a} > \underline{a}$ such that an agent owing $\overline{a}$ is the first to obtain a loan to invest efficiently. Thus, in equilibrium there is an endogenous range of entrepreneurs, $[\underline{a}, \overline{a})$ who have restricted access to credit and operate at an inefficient

[4]Note that individual labor supply doesn't depend on a.

scale. Because in this range the marginal return to capital is larger then the marginal cost of debt, these agents decide to ask for their maximum allowable loan, d.

To sum up, agents are endogenously classified into four groups, i) those with $a < \underline{a}$ become workers and deposit their wealth, ii) financially constrained agents $a \in [\underline{a}, \overline{a})$ form inefficient firms, iii) those with $a \in [\overline{a}, k^*)$ obtain an optimal loan and form an efficient firm, and iv) rich agents with $a > k^*$ self-finance an optimal firm and deposit the rest of their wealth. Figure 2 summarizes these features.

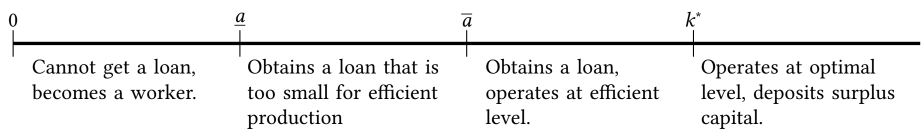

Figure 2: Agents' choices as a function of initial wealth.

2.1.3 Equilibrium prices

The labor market equilibrium wage w arises from,

$$l_s \cdot G(\underline{a}) = \int_{\underline{a}}^{\overline{a}} l \, \partial G(a) + l^*(1 - G(\overline{a})), \tag{8}$$

where the left-hand side is total labor supply and the right-hand side is labor demand. This condition uniquely defines the equilibrium wage w.

The equilibrium interest rate is defined by,

$$\mathbb{E}[a] = \int_{\underline{a}}^{\overline{a}} k \partial G(a) + k^*(1 - G(\overline{a})), \tag{9}$$

where the left-hand side is the aggregate capital in the economy which depends on the distribution of wealth, while the right-hand side is total capital demanded by firms.

2.2 Improving Employment Protection Laws

In this section I study the welfare effects of improving EPLs (i.e. increasing φ) across the different groups of workers and firms. Propositions 1 and 2 present the main theoretical predictions to be tested in the data. I impose the following assumption on the parameters of the model,

Assumption 1 $\frac{\alpha\phi}{\beta(1-s)^2(1-\alpha-\beta)} < 1$

This is a sufficient condition for propositions 1 and 2 to hold.

Proposition 1 *Consider the effect of a marginal increase of φ on entrepreneurs' utility, denoted as $\frac{\partial U^e(a)}{d\varphi}$. Then, there are two cases:*

1. $\frac{\partial U^e(a)}{\partial\varphi} < 0$ *for all* $a \geq \underline{a}$.

2. *There exists a threshold* $\hat{a} \in (\underline{a}, \overline{a})$ *such that:*

   i) $\frac{\partial U^e(a)}{\partial\varphi} < 0$ *if* $a < \hat{a}$.

   ii) $\frac{\partial U^e(a)}{\partial\varphi} \geq 0$ *if* $a \geq \hat{a}$.

   In either case the following holds: $\frac{\partial^2 U^e(a)}{\partial a \partial\varphi} > 0$.

Proposition 1 describes the effect of improving EPLs on entrepreneurs' utility. The last part of the proposition states that more financially constrained firms suffer more from EPLs than less financially constrained ones. Additionally, there are two possible cases. 1) All entrepreneurs are made worse off after an improvement of EPLs. 2) There is a size-threshold, $\hat{a}$ such that entrepreneurs with $a < \hat{a}$ are made worse off after an improvement of EPLs, while those with $a > \hat{a}$ are better off.

In what follows I explain the intuition for the results of proposition 1. First, raising φ means that firms face higher firing costs, i.e. higher operating leverage due to larger expected labor payments, $\bar{w}(\varphi)$. Therefore, entrepreneurs have more incentives to behave maliciously. In consequence, banks tighten credit requirements which constrain firms' operations. That is, the minimum wealth to obtain credit $\underline{a}$ increases and the maximum amount of credit that any firm can obtain decreases. Secondly, reduced credit demand and increased capital supply coming from credit rationed firms results in a lower interest rate. Hence, the net effect of increased EPLs on firms' utilities depend on these two opposing effects: i) higher labor costs and reduced access to credit, but ii) a decreased cost of debt.

In more financially constrained firms the first effect dominates. After an improvement of EPLs, these firms face considerably tighter restrictions on credit. Moreover, some of them lose access to credit and close. To continue operating, the firms that survive must shrink. Thus, they invest less capital and hire less labor, resulting in decreased output and profits.

On the other hand, after an improvement of EPLs, credit capacity of better capitalized firms is less deteriorated. In fact, many of them have unused credit capacity. Thus, they can more easily adapt to higher labor costs and continue operating at a more efficient scale (closer to k^*). Additionally, stricter EPLs reduce the interest rate at which firms obtain credit. Thus, less financially constrained firms may even benefit from EPLs if the reduced cost of debt can counteract the higher labor costs. Figure 3 illustrates cases 1) and 2) in the proposition. The red dashed line corresponds to case 1), while the solid blue line is case 2).

In order to analyze how workers of different firms are affected by an improvement of EPLs, define the total utility of workers attached to a firm that hires l units of labor,

$$\tilde{U}^w = n \cdot U^w \equiv n \cdot [\bar{w}(\varphi) \cdot l_s - \varsigma(l_s)] = \bar{w}(\varphi) \cdot l - \frac{l}{l_s}\varsigma(l_s), \tag{10}$$

where $n \equiv l/l_s$ is a measure of the 'number' of workers hired by the firm and l_s is given by (3).

Proposition 2 *Consider the effect of a marginal increase of φ on workers' utility, denoted as $\frac{\partial \tilde{U}^w(a)}{\partial \varphi}$. Then, there exists a threshold $\tilde{a} \in (\underline{a}, \overline{a})$ such that:*

i) $\frac{\partial \tilde{U}^w(a)}{\partial \varphi} < 0$ *if* $a < \tilde{a}$.

ii) $\frac{\partial \tilde{U}^w(a)}{\partial \varphi} > 0$ *if* $a > \tilde{a}$.

Additionally, the following holds: $\frac{\partial^2 \tilde{U}^w(a)}{\partial a \partial \varphi} > 0$.

Proposition 2 suggests the existence of interest groups of workers with diverging preferences

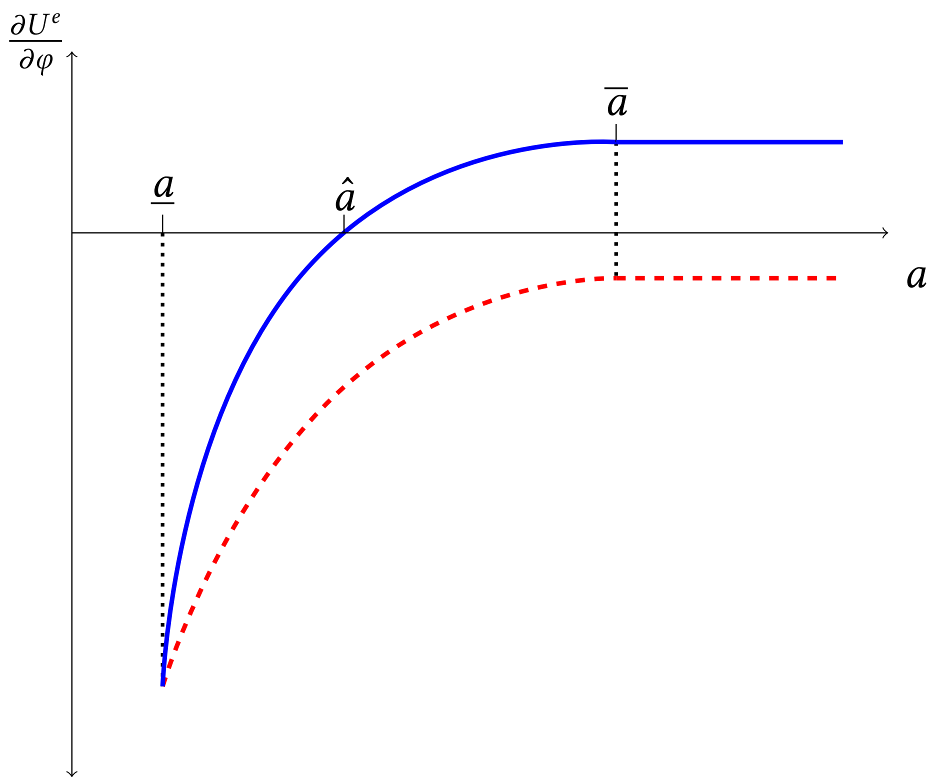

Figure 3: Marginal effect of an increase of φ on entrepreneurs' utility.

towards improvements of EPLs. Strengthening employment protection, which supposedly protects workers, has an ambiguous effect on their utility depending on the firm they are attached to. Mainly, two opposing effects determine the direction of the effect: i) higher expected labor payments, but ii) reduced employment.

The total workers' utility in more financially constrained firms ($a \in [\underline{a}, \tilde{a})$) declines. In some cases firms close down, because the entrepreneur does not obtain financing under the new conditions. Those firms that survive receive less credit, thus reduce investment and hire less labor. This negative effect is particularly pronounced in heavily under-capitalized firms, for which banks severely constraint loans. Hence, EPLs hurt workers in more financially constrained firms.

On the other hand, increased worker's protection benefits workers in less financially constrained firms ($a > \tilde{a}$). Despite the fact that some of these enterprises face tighter credit constraints and contract less labor after an increase of EPLs, this is compensated by the increase on workers' payment in case of dismissal. Thus, EPLs increase workers' welfare in the financially unconstrained sector. Figure 4 illustrates these features.

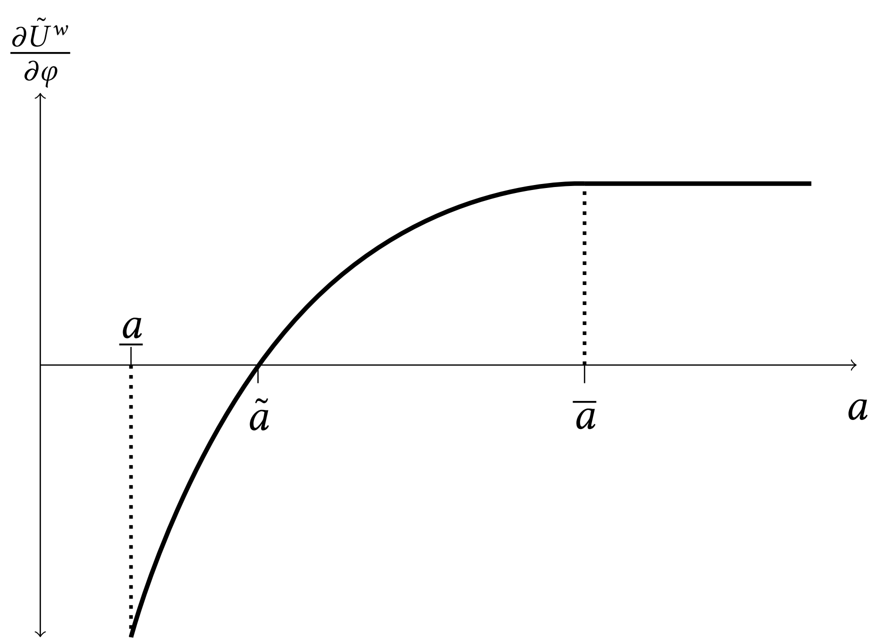

Figure 4: Marginal effect of an increase of φ on workers' utility.

2.3 Main testable hypotheses

To sum up, propositions 1 and 2 lead to the following testable hypotheses:

Hypothesis 1: *An improvement of EPLs hurts workers attached to financially constrained firms, while those working for more financially unconstrained firms benefit.*

Hypothesis 2: *An improvement of EPLs hurts financially constrained firms. This negative effect is decreasing in the level of financial constraints. Eventually, more financially unconstrained firms may benefit from EPLs.*

Hypothesis 3: *An improvement of EPLs crowds out external finance, discouraging firms' investment and employment. This distortion is greater in more financially constrained firms. Eventually, more financially unconstrained firms may increase investment and employment after an improvement of EPLs.*

In section 5, I test hypotheses 1 and 2 by exploring the effect of increasing EPLs on labor earnings and profits across firms with different levels of financial constraints. In section 6, I test hypothesis 3, which is the mechanism behind hypotheses 1 and 2. Overall, the model predicts that the interaction between labor and financial frictions has unintended regressive effects, as stricter EPLs may benefit the unconstrained sector at a high cost for the most vulnerable firms and workers.

3 Wrongful Discharge Laws

3.1 Institutional background

The ‘at-will’ employment rule in the United States allows employers to freely terminate any employee for any cause without the risk of legal liability. Thus, the presumption of employment at will shielded employers from legal challenges to their dismissal decisions. The at-will termination rule emerged from the case law in the late nineteenth century and became the generally accepted default rule for employment contracts by the early twentieth century (Morriss, 1994). Since the middle of the twentieth century, the history of American employment laws have been dominated by the emergence of exceptions to the the at-will rule, denominated as Wrongful Discharge Laws (WDLs).

WDLs are part of the common laws, that is, exceptions to the at-will termination principle created by state courts decisions. The at-will rule was first modified by a California court in 1959. Between the 1970s and the 1990s, an important shift in the legal environment came as many states courts recognized one or more of three basic exceptions to the at-will principle. The literature describes these three exceptions as (Autor et al., 2004): i) the *implied contract* exception, ii) the *public policy* exception, and iii) the *good faith* exception.

The implied contract exception protects workers from termination when the employer has implicitly promised that workers will not be discharged without good cause. Written statements in employee handbooks, oral statements, history of promotions, general company policies, and standard industry practices, all potentially become indicators of enforceable promises of job security (Walsh and Schwarz, 1995).

The public policy exception states that an employee has a cause of action against his employer when termination contravenes some established public policy. Hence, employers are prohibited from dismissing workers for actions supportive of public policy, such as refusing to violate the law or commit and illegal act. The public policy doctrine recognizes that employers’ interests may be in conflict with the public good, thus it is necessary that employees are prohibited from retaliating against workers for performing a public service.

The good faith exception is rooted in the basic principle of contract law that employers should not take actions that would deprive employees of the benefit of the contractual relationship. Thus, the good faith doctrine implies that employers treat workers in a fair manner. Termination cannot be out of bad faith, malice or retaliation. This doctrine also implies that employers cannot discharge workers before they receive the benefits and payments that they are entitled to. In the broadest sense, this law is interpreted to imply that dismissal decisions are subject to 'just cause' standards.

Of the three doctrines, the good faith is the largest deviation to at-will employment, since termination must always be for just cause (Dertouzos and Karoly, 1992; Kugler and Saint-Paul, 2004). This law should therefore create the largest impact on firms decisions and outcomes. In fact, Autor et al. (2007) show that the adoption of the good faith exception reduces employment volatility and entry, while the public policy and implied contract exceptions may not have material effects on firms. Thus, in this paper I focus on the adoption of the good faith exception which is expected to imply the greatest increase in firms' dismissal costs.

3.2 Wrongful Discharge Laws and firing costs

An important assumption in this paper is that the adoption of WDLs effectively increases employment protection and firms' firing costs due to an expected increase in litigations. Various studies in the literature suggest that the adoption of WDLs raised hiring and firing costs. Miles (2000) and Autor (2003) find evidence that in response to WDLs employers substituted from permanent to temporary workers, presumably in an effort to reduce litigation risks. Kugler and Saint-Paul (2004) build a matching model with asymmetric information to show that an increase in firing costs increases discriminations against unemployment job seekers. To test their theoretical prediction, they use the National Longitudinal Survey of Youth (NLSY) and show that the passage of the WDLS, especially the good faith exception, increased discrimination in hiring against the unemployed.

As second strand of the literature has focused on estimating the financial costs of wrongful terminations lawsuits. Dertouzos et al. (1988) study WDL trials in California from 1980 to 1986 and show that plaintiffs won in 68% of the trials and were awarded on average $0.66 million. These amounts are significant, since in their sample the annual average salary of a plaintiff amounts to $0.036 million. Similarly, Jung (1997) examines WDL jury verdicts in California and Texas between 1992 and 1996. They estimate that plaintiffs prevailed in 46.5% of wrongful dismissal cases brought to trial and won $1.29 million on average. Boxold (2008) reports average and maximum awards of $0.59 millions and $5.4 million between 2001 and 2007. Overall, the evidence suggests that WDL trials can create significant costs for employers.

3.3 Adoption of Wrongful Discharge Laws

In order to identify which court cases at each state set the precedent for the adoption of a particular WDL, I largely follow Autor et al. (2006). In practice, they search for the first major appellate-court decision that indicates the sustained adoption of a given exception. Thus, a lower court decision adopting a WDL that was reversed on appeal is not counted, while a lower court or supreme court decision not reversed is counted as the enactment of the law. However, in constrast with Autor et al. (2006), I follow Walsh and Schwarz (1995) and code Utah as recognizing the good faith doctrine in 1989.

Table 1 reports the dates each state adopted each particular WDL. The adoption of WDLs started in 1959 when California recognized the public policy exception. The majority of the states adopted WDLs between the 1970s and 1990s. As indicated in parenthesis, some states also reversed their positions. New Hampshire in 1980 and Oklahoma in 1989 reversed the good faith exception, while Arizona in 1984 and Missouri in 1988 reversed the public policy exception. Figure 5 shows the number of states that adopted each particular exception between 1959 and 1998. In total 43 states adopted the implied contract exception, 43 the public policy doctrine and 14 the good faith exception.

Table 1: Adoption of state-level Wrongful Discharge Laws (WDLs)

State	**Implied contract** *Month/year*	**Public Policy** *Month/year*	**Good faith** *Month/year*
Alabama	7/1987		
Alaska	5/1983	2/1986	5/1983
Arizona	6/1983 (Rev. 4/1984)	6/1985	6/1985
Arkansas	6/1984	3/1980	
California	3/1972	9/1959	10/1980
Colorado	10/1983	9/1985	
Connecticut	10/1985	1/1980	6/1980
Delaware		3/1992	4/1992
Florida			
Georgia			
Hawaii	8/1986	10/1982	
Idaho	4/1977	4/1977	8/1989
Illinois	12/1974	12/1978	
Indiana	8/1987	5/1973	
Iowa	11/1987	7/1985	
Kansas	8/1984	6/1981	
Kentucky	8/1983	11/1983	
Louisiana			1/1998
Maine	11/1977		
Maryland	1/1985	7/1981	
Massachusetts	5/1988	5/1980	7/1977
Michigan	6/1980	6/1976	
Minnesota	4/1983	11/1986	
Mississippi	6/1992	7/1987	
Missouri	1/1983 (Rev. 2/1988)	11/1985	
Montana	6/1987	1/1980	1/1982
Nebraska	11/1983	11/1987	
Nevada	8/1983	1/1984	2/1987
New Hampshire	8/1988	2/1974	2/1974 (Rev. 5/1980)
New Jersey	5/1985	7/1980	
New Mexico	2/1980	7/1983	
New York	11/1982		
North Carolina		5/1985	
North Dakota	2/1984	11/1987	
Ohio	4/1982	3/1990	
Oklahoma	12/1976	2/1989	5/1985 (Rev. 2/1989)
Oregon	3/1978	6/1975	
Pennsylvania		3/1974	
Rhode Island			
South Carolina	6/1987	11/1985	
South Dakota	4/1983	12/1988	
Tennessee	11/1981	8/1984	
Texas	4/1985	6/1984	
Utah	5/1986	3/1989	3/1989
Vermont	8/1985	9/1986	
Virginia	9/1983	6/1985	
Washington	8/1977	7/1984	
West Virginia	4/1986	7/1978	
Wisconsin	6/1985	1/1980	
Wyoming	8/1985	7/1989	1/1994

The table reports the month and year that each state adopted the implied contract, public policy and good faith exceptions. The month and year that some states reversed any of the three exceptions appear in parenthesis.

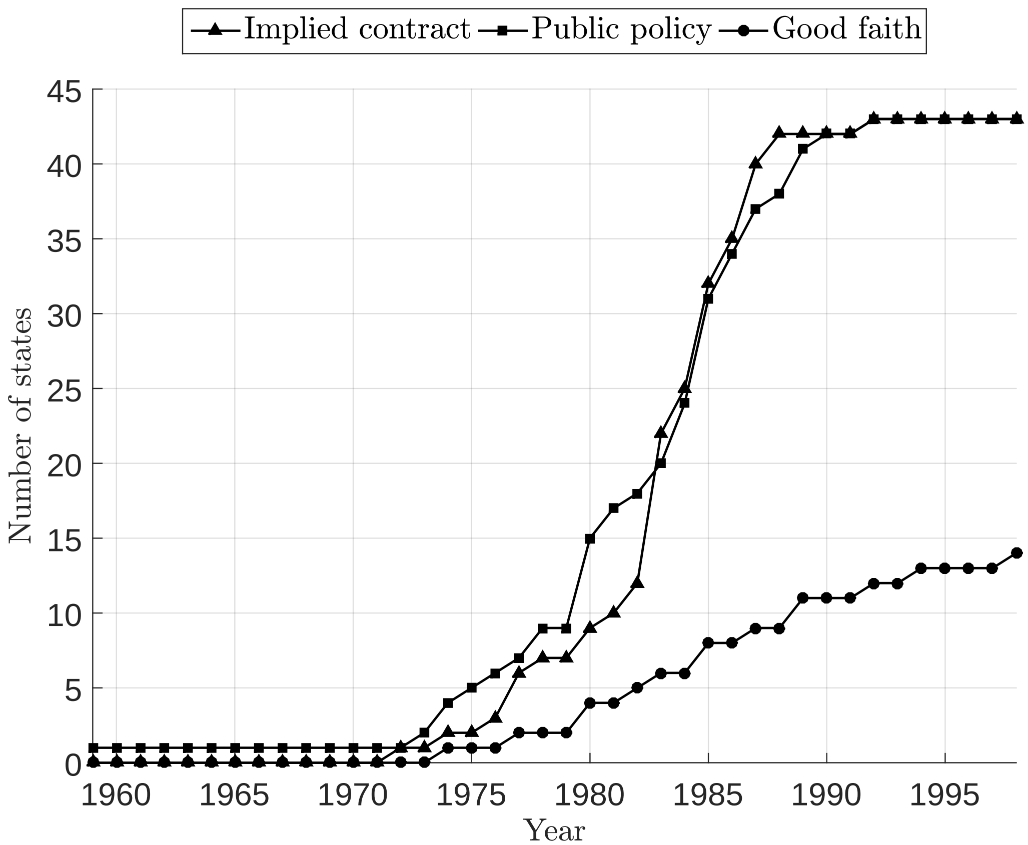

Figure 5: Number of states adopting Wrongful Discharge Laws (WDLs)

This figure shows the number of states that have adopted the implied contract, public policy and good faith exceptions between 1959 and 1998.

4 Sample Selection and Empirical Methodology

4.1 Sample selection

I use Compustat data for firms headquartered in the United States that have nonmissing data for the main variables of interest over the years 1967 to 1995. The sample period starts five years before the second-earliest enactment of a WDL, when California adopted the implied contract exception in 1972. The sample period ends five years after the enactment of the public policy exception in Ohio in 1990. I exclude utility firms (SIC code 49000-4999), financial firms (SIC codes 6000-6999), and quasi-public firms (SIC codes greater than 9900). Additionally, I require that firms have at least two years of data to estimate firm fixed effects. In order to estimate industry-year fixed effects, I require that 3-digit SIC industries have at least two observations in a given year.

Sample selection results in 89,852 observations, which is comparable to the sample size reported by Serfling (2016) (88,997 observations), who uses the Compustat to test the impact of WDLs on leverage. From this sample, I define the sub-sample of firms that disclose total labor earnings (item *XLR* in Compustat). This restriction leaves 8,613 observations, which correspond to the 9.6% of the initial sample. I refer to this sample as the *restricted sample*, while the unrestricted sample is named as the *full sample*.

That Compustat lacks of data on labor earnings is not new. Ballester et al. (2002) finds that only 10% of firms report labor earnings. Moreover, disclosing firms are disproportionally large and belong to more regulated industries. To fill in these missing pieces, Michaels et al. (2019) employs the Bureau of Labor Statistics (BLS)' Longitudinal Database of Establishments (LDE), which provides data on establishments' employment and wage bill. This data is available from 1992 to the present. Since my sample starts in 1967, I cannot use the same approach.

In Table 2 I report statistics of firms that disclose labor earnings (disclosing firms) and of those firms that do not disclose labor earnings (non-disclosing firms). The average assets, sales and employment of disclosing firms are about 4 to 5 times larger than that of non-disclosing firms.

Table 2: Sample statistics: disclosing and non-disclosing firms

	Disclosing firms	**Non-disclosing firms**
Number of observations	8,613	81,184
Number of firms	1,011	7,689
Means		
Assets (billion \$)	4.94	0.97
Sales (billion \$)	5.41	1.19
Employment (thousands)	20.2	5.6

The fact that the restricted sample is biased towards larger firms compromises the identification strategy. Larger firms tend to be less financially constrained, and thus can more easily adapt to stricter employment regulations. In order to identify the effect of WDLs on labor earnings across different firms, I require sufficient variation in financial constraints within the group of disclosing firms. The results presented in section 5.2 suggest that this is the case. I find statistically significant evidence that labor earnings of workers in more financially constrained firms decrease after the enactment of the good faith exception, while they increase in less constrained firms. Sample size is a constraint only when studying the impact of WDLs on labor earnings. In section 5.2, when I test the impact of worker protection on firm's earnings, I make use of the full sample. In section 6, when I test the main mechanism driving the results I also use the full sample.

4.2 Empirical methodology

I adopt a difference-in-difference (diff-in-diff) research approach to examine the relation between the passage of the good faith exception and four variables: i) labor earnings, ii) firms' earnings, iii) employment, and iv) investment. I estimate the following panel regression model:

$$y_{i,s,t} = \alpha_0 + \alpha_1 \text{ Good faith}_{s,t} + \alpha_2 \text{ Good faith}_{s,t} \times \text{FC}_{i,s,t-1} + \alpha_3 \text{ FC}_{i,s,t-1} + \text{X}_{i,s,t-1}\beta + \nu_i + \delta_s + \eta_k \times \omega_t + \varepsilon_{i,s,t} \tag{11}$$

where $y_{i,s,t}$ is one of the four variables i) to iv) for firm i in state s in year t. Good faith$_{s,t}$ is an indicator variable for whether the state in which the firm is headquartered has adopted the good faith exception as of year t. FC$_{i,s,t-1}$ corresponds to some measure of financial constraints for firm i in state s at the beginning of the year. In sections 5.1 and 5.2, I use the natural logarithm of the beginning of year book assets (Log Assets$_{t-1}$) as a proxy for firms financial constraints. According to Hadlock and Pierce (2010), firm size is one particularly useful predictor of financial constraints levels.

In section 6, I use four alternative measures of the severity of financial constraints: i) the SA index by Hadlock and Pierce (2010), ii) the Kaplan and Zingales (1997) index (KZ index) of constraints (Lamont et al., 2001), iii) the Whited and Wu (2006) index (WW index), and iv) an indicator variable for whether the firm is a non-dividend payer.

The interaction term, Good faith$_{s,t}$ $\times$ $FC_{i,s,t-1}$, captures the impact of the good faith exception across firms with different levels of financial constraints. According to the model presented in section 2, the effect of an improvement of employment protection (i.e. Good faith$_{s,t}$ = 1) on $y_{i,s,t}$ at different levels of financial constraints can be calculated as follows:

$$(y_{i,s,t}|\text{Good faith}_{s,t} = 1) - (y_{i,s,t}|\text{Good faith}_{s,t} = 0) = \alpha_1 + \alpha_2 \times FC_{i,s,t-1}. \tag{12}$$

Consider the case in which financial constraints are proxied by firm assets. Based on hypotheses 1 and 2, I expect that $\alpha_1 < 0$ and $\alpha_2 > 0$. In other words, the effect of the passage of the good faith exception on labor earnings, firm earnings, employment and investment is negative for firms facing more stringent financial constraints (e.g. Log Assets$_{t-1}$ $\leq$ 0), but this effect is larger or even positive for less financially constrained firms (Log Assets$_{t-1}$ >> 0).

The regression model includes a set of control variables, $X_{i,s,t-1}$ that has been used in the recent empirical literature on labor and finance (Bai et al., 2020; Serfling, 2016). I control for the natural logarithm of the beginning of year book assets (Log Assets$_{t-1}$), lagged profitability (Profitability$_{t-1}$), the proportion of assets that are fixed at the beginning of the year (Fixed assets$_{t-1}$), the lagged market to book ratio (Market to book$_{t-1}$), an indicator variable for whether the firm paid a common dividend (Dividend payer$_t$), the lagged modified Altman's z-score (Modified z-score$_{t-1}$), and the lagged book leverage (Book leverage$_{t-1}$).

In the case of the regressions on labor earnings and employment, I also use an alternative set of controls as proposed by Michaels et al. (2019). Their specification is motivated as a linear approximation to the policy functions arising from a dynamic model with costly financing frictions and wage bargaining. These controls include the log of sales (Log Sale$_t$), the lagged log capital (Log Sale$_{t-1}$) and lagged leverage (Book leverage$_{t-1}$).

To attenuate potential endogeneity biases associated with omitted variables, all the regressions include firm fixed effects (ν_i), state fixed effects (δ_s), and industry-year fixed effect defined at the 3-digit SIC level ($\eta_k \times \omega_t$). The firm fixed effects account for invariant omitted firm characteristics. The state fixed effects control for omitted state-level variables. The industry-year fixed effects control for omitted industry-level factors and transitory nationwide conditions that could affect the adoption of the good exception as well as firms' decisions.

To control for local economic conditions, I also include the lagged state-level log of GDP per capita (Log State per capita GDP$_{t-1}$) and the lagged state GDP growth (State GDP growth$_{t-1}$). Alternatively, I include state-year fixed effects to account for time-varying omitted variables that affect all firms headquartered within the same state in a given year.

Another concern is whether the adoption of WDLs were influenced by precedents from neighboring states. Bird and Smythe (2008) finds that precedents by other courts within the same federal circuit region were more influential in the dissemination of WDLs than precedents by courts in neighboring states. Walsh and Schwarz (1995) show that, in the case of the implied contract and public policy exceptions, the adoption of WDLs is related to precedent decisions in other states. However, this is not the case for the enactment of the good faith exception that is the focus in this paper. Nevertheless, to account for such affects, I control for the fraction of other states in the same federal circuit that have passed the good faith exception (Cicuit good faith$_t$).

A second possible source of endogeneity is whether the passage of WDLs systematically coincided with state-level political factors or lobbying activities that may have influenced the courts' decisions to adopt WDLs. However, since the recognition of WDLs is based on common-law, it is more likely to be driven by merits of the case rather than political economy considerations (Acharya et al., 2014). Nevertheless, to account for residual concerns about omitted variable bias, in section 7.2 I control for three political variables that may have influenced the adoption of WDLs (Serfling, 2016): i) the fraction of Democrats representing their state in the U.S. (Political balance$_{t-1}$), ii) an indicator variable for whether the state in which the firm is headquartered has passed the right-to-work laws (Right-to-work$_t$), and iii) the percentage of employees that belong to a union in a given year (Union membership$_t$).

In all regressions the estimated standard errors are clustered at state-level. Since the adoption of the good faith exception is at state-level, this methodology accounts for the possibility that residuals are serially correlated in a given firm and also between different firms headquartered in the same state (Bertrand et al., 2004).

Section 9.3 in the Appendix presents detailed variable definitions. Table 3 reports summary statistics for both the restricted and full sample. Compared to firms in the full sample, those in the restricted sample are larger in terms of assets, sales and employment. Moreover, firms in the restricted sample have higher profitability (a proxy for availability of internal funds), a larger proportion of fixed assets (a proxy for available collateral), a greater market to book ratio (a measure of growth opportunities), and more capital.

Table 4 compares the sample means of firm headquartered in states that eventually adopt the good faith exception (treatment firms) against those firms headquartered in states that do not adopt this exception (control firms). The table presents the statistics for both the restricted and full sample. In the case of the full sample, all variables means are significantly different across the treatment and control firms. In the case of the restricted sample, the control and treatment groups are slightly more similar, the mean values for EBIT$_t$, EBITDA$_t$, EBIT$_t$, Assets$_{t-1}$ and Capital$_{t-1}$ are not significantly different.

It would be ideal that treated and control firms are similar across all dimensions. Since they are not, I control for each variable in the regressions to account for these differences. Section 7.4 addresses this issue more directly by implementing a propensity score matching procedure.

Table 3: Summary statistics for restricted sample and full sample

	Restricted sample					Full sample				
	Mean	**Std. Dev**	**P25**	**Median**	**P75**	**Mean**	**Std. Dev**	**P25**	**Median**	**P75**
Dependent variables										
Labor earnings$_t$	1.23	1.95	0.08	0.35	1.50	-	-	-	-	-
Employment$_t$	20.2	33.4	1.64	6.26	25.3	7.02	22.2	0.26	1.12	4.30
EBIT$_t$	0.56	1.58	0.01	0.09	0.47	0.15	0.71	0.00	0.01	0.06
EBITDA$_t$	0.83	2.20	0.03	0.14	0.72	0.21	1.02	0.00	0.02	0.09
Book leverage$_t$	0.25	0.28	0.11	0.22	0.32	0.27	0.36	0.10	0.24	0.37
Market leverage$_t$	0.14	0.17	0.03	0.09	0.19	0.17	0.19	0.03	0.10	0.24
Main explanatory variable										
Good faith$_t$	0.08	0.27	0.00	0.00	0.00	0.16	0.37	0.00	0.00	0.00
Control variables										
Implied contract$_t$	0.35	0.48	0.00	0.00	1.00	0.49	0.50	0.00	0.00	1.00
Public policy$_t$	0.33	0.47	0.00	0.00	1.00	0.44	0.50	0.00	0.00	1.00
Assets$_{t-1}$	4.77	11.3	0.17	0.82	4.61	1.30	5.43	0.04	0.15	0.57
Profitability$_{t-1}$	0.02	0.18	0.02	0.03	0.05	0.01	0.23	0.01	0.02	0.05
Fixed assets$_{t-1}$	0.45	0.22	0.28	0.43	0.63	0.33	0.21	0.17	0.29	0.45
Market to book$_{t-1}$	4.65	6.96	1.73	2.63	4.80	4.41	9.82	1.58	2.42	4.46
Dividend payer$_t$	0.75	0.43	1.00	1.00	1.00	0.48	0.50	0.00	0.00	1.00
Modified z-score$_{t-1}$	2.13	2.73	1.63	2.40	3.09	1.89	8.32	1.38	2.36	3.13
Book leverage$_{t-1}$	0.24	0.19	0.11	0.22	0.32	0.26	0.38	0.09	0.23	0.37
Sale$_t$	5.40	13.1	0.27	1.10	5.50	1.60	6.09	0.05	0.22	0.84
Capital$_{t-1}$	0.48	1.22	0.01	0.06	0.38	0.12	0.57	0.00	0.01	0.04
Employment$_{t-1}$	19.9	32.7	1.57	6.00	25.0	6.89	21.93	0.25	1.08	4.16
State per capita GDP$_{t-1}$	36.8	5.0	33.4	36.5	40.2	38.2	5.3	34.6	38.1	41.8
State GDP growth$_{t-1}$	0.02	0.04	0.00	0.03	0.05	0.02	0.04	-0.01	0.02	0.05
Circuit good faith$_{t-1}$	0.07	0.16	0.00	0.00	0.00	0.12	0.20	0.00	0.00	0.25
Political balance$_{t-1}$	0.62	0.16	0.51	0.59	0.71	0.61	0.15	0.52	0.59	0.69

This table reports summary statistics for the restricted and full sample. The full sample corresponds to Compustat firms (excluding financials and utilities) over the period 1967 to 1995 and consists of 89,795 observations. The restricted sample consists of all firms from the full sample that disclose information on total labor earnings (8,613 observations). EBIT is earnings before interest and taxes. EBITDA is earnings before interest, taxes and depreciation. Labor earnings, EBIT, EBITDA, Assets, Sale, Capital and State per capita GDP are in billion dollars. Employment is in thousands of workers. Dollar values are expressed in 2009 dollars. Section 9.3 in the Appendix provides variable definitions.

Table 4: Sample means, treatment and control firms

	Restricted sample				Full sample			
	Treatment		Control		Treatment		Control	
	Mean	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**	**Mean**	**Std. Dev**
Dependent variables								
Labor earnings$_t$	0.82***	1.75	1.26	1.96	0.76***	1.64	1.21	1.93
Employment$_t$	15.2***	34.2	20.6	33.3	3.89***	13.6	7.64	23.5
EBIT$_t$	0.48	1.31	0.56	1.60	0.07***	0.40	0.16	0.76
EBITDA$_t$	0.78	2.03	0.83	2.22	0.12***	0.62	0.23	1.08
Book leverage$_t$	0.27***	0.32	0.24	0.27	0.25***	0.50	0.27	0.32
Market leverage$_t$	0.16***	0.18	0.14	0.17	0.16***	0.19	0.17	0.19
Control variables								
Implied contract$_t$	0.73***	0.44	0.32	0.47	0.80***	0.40	0.43	0.50
Public policy$_t$	0.94***	0.23	0.28	0.45	0.96***	0.18	0.34	0.47
Assets$_{t-1}$	4.59	11.63	4.78	11.29	0.75***	3.69	1.41	5.70
Profitability$_{t-1}$	-0.01***	0.47	0.02	0.12	-0.02***	0.35	0.01	0.19
Fixed assets$_{t-1}$	0.43**	0.26	0.45	0.22	0.27***	0.20	0.34	0.21
Market to book$_{t-1}$	3.92***	6.31	4.71	7.01	4.04***	7.37	4.48	10.23
Dividend payer$_t$	0.46***	0.50	0.78	0.42	0.27***	0.44	0.52	0.50
Modified z-score$_{t-1}$	1.18***	4.19	2.21	2.55	1.14***	5.26	2.03	8.78
Book leverage$_{t-1}$	0.25***	0.28	0.23	0.18	0.23***	0.35	0.26	0.39
Sale$_t$	4.41**	11.43	5.49	13.22	0.92***	4.09	1.73	6.39
Capital$_{t-1}$	0.52	1.45	0.47	1.20	0.07***	0.43	0.13	0.59
Employment$_{t-1}$	15.1***	33.4	20.3	32.6	3.82***	13.5	7.50	23.2
State per capita GDP$_{t-1}$	41.4***	5.07	36.4	4.82	42.5***	4.71	37.3	5.00
State GDP growth$_{t-1}$	0.02	0.04	0.02	0.04	0.02***	0.04	0.02	0.04
Circuit good faith$_{t-1}$	0.45***	0.19	0.04	0.11	0.44***	0.19	0.05	0.13
Political balance$_{t-1}$	0.6***	0.12	0.62	0.16	0.62***	0.12	0.61	0.15

This table compares the mean values and standard deviations for treatment (firms headquartered in states that adopt the good faith exception) and control firms (firms headquartered in states that do not adopt the good faith exception). It considers both the restricted and full sample. In the columns labeled 'Treatment', *, **, and *** correspond to significance at the 10%, 5%, and 1% levels, respectively, for a t-test of whether the means of the treatment and control groups are equal. The full sample corresponds to Compustat firms (excluding financials and utilities) over the period 1967 to 1995 and consists of 89,795 observations. The restricted sample consists of all firms from the full sample that disclose information on total labor earnings (8,613 observations). EBIT is earnings before interest and taxes. EBITDA is earnings before interest, taxes and depreciation. Labor earnings, EBIT, EBITDA, Assets, Sale, Capital and State per capita GDP are in billion dollars. Employment is in thousands of workers. Dollar values are expressed in 2009 dollars. Section 9.3 in the Appendix provides variable definitions.

5 Empirical Results

5.1 Employment protection and labor earnings

I first investigate the impact of an increase in employment protection arising from the passage of the good faith exception on labor earnings. The measure used for labor earnings is item *XLR* from Compustat. This item represents wages, pensions, incentive compensations and other employee benefits.

According to hypothesis 1 of my model, employment protection, which supposedly protects workers, can have a detrimental effect for those workers in more financially constrained firms. In contrast, those workers in less financially constrained firms should benefit from higher protection. Thus, the effect of the adoption of the good faith exception on labor earnings depends on the severity of financial constraints. In credit constrained firms this effect is negative. This negative effect decreases as credit constraints become less biding. Eventually, in less financially constrained firms this effect becomes positive, i.e. workers benefit from higher protection. This is the theoretical prediction to be tested in this section.

The theoretical explanation for this result is that financially constrained firms have less room to accommodate stricter labor regulations. Greater employment protection worsens the agency problem between banks and smaller firms. As a result, banks impose stricter credit constraints on the financially constrained sector. To continue operating, constrained firms must shrink and thus hire less labor. There are two opposing forces that determine the net effect of higher employment protection on total labor earnings: i) an increase in the expected workers' payment per unit of labor supplied, and ii) a decrease in employment. If the second effect dominates, then total workers' compensation in credit constrained firms may decrease after an increase in worker protection.

I start by presenting a graphical analysis of the adoption of the good faith exception and labor earnings. Figure 6 depicts the effect of the passage of the good faith exception on labor earnings in adopting states relative to non-adopting states. Labor earnings are normalized by their sample mean. Thus the change in coefficients can be interpreted as the percentage change (in decimal form) relative to the mean of labor earnings. I construct this graph by following Autor et al. (2006) and Acharya et al. (2014). I regress labor earnings on dummy variables indicating the year relative to the good faith adoption and year fixed effects. The y-axis presents the coefficient of each indicator variable. The x-axis corresponds to the ±5 years around the adoption of the good faith exception. The dashed lines are the 90% confidence intervals for the estimated coefficients. Standard errors are clustered by state.

Prior to the adoption of the good faith exception, labor earnings of treated and control firms are not statistically different. However, in the years after the adoption, labor earnings are on average lower for treated firms. This suggests that treated and control firms share similar pre-treatment trends, a condition needed for the differences-in-differences estimators.

I turn next to explore the effect of the adoption of the good faith exception across firms with different levels of financial constraints. I estimate equation (11) by using Log $\text{Assets}_{i,s,t-1}$ as a proxy for financial constraints. Intuitively, larger firms in terms of book assets are expected to be on average less financially constrained. In fact, according to Hadlock and Pierce (2010), firm size is one particularly useful predictor of financial constraints. In section 6, I use four alternative measures of the severity of financial constraints: i) the SA index by Hadlock and Pierce (2010), ii) the Kaplan and Zingales (1997) index (KZ index) of constraints (Lamont et al., 2001), iii) the Whited and Wu (2006) index (WW index), and iv) an indicator variable for whether the firm is a non-dividend payer.

Table 5 reports the results from estimating equation (11) by OLS. The dependent variable is labor earnings as measured by item *XLR* from Compustat. The values are normalized by the sample mean. Thus, the coefficients can be interpreted as the impact of the adoption of the good faith exception on labor earnings in terms of the percentage change (in decimal form) relative to the mean.

Column (1) includes the indicator variables for the adoption of the good faith, implied contract and public policy exceptions as well as firm, state and industry-year fixed effects. It also includes

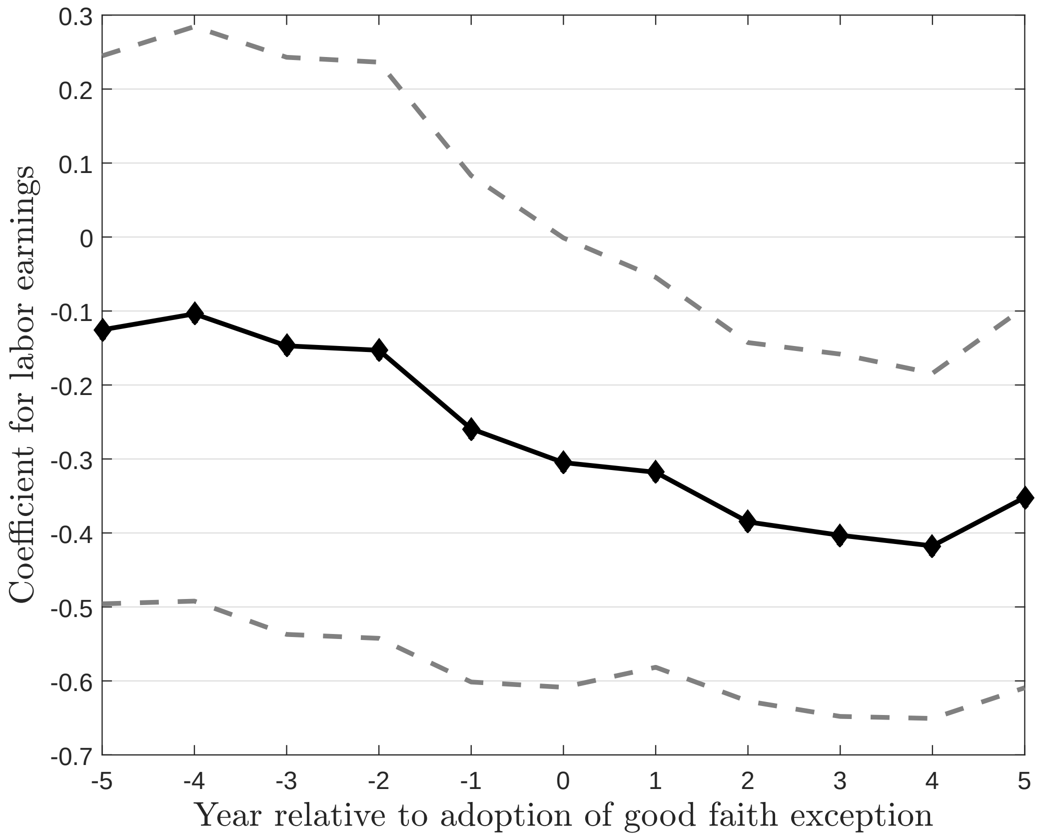

Figure 6: Effect of the passage of the good faith exception on labor earnings

This figure shows the effect of the passage of the good faith exception on labor earnings. Labor earnings were normalized by their sample mean. The y-axis presents the coefficients from regressing labor earnings on dummy variables indicating the year relative to the good faith adoption and year fixed effects. Dummies are for up to 5 years before and after the good faith adoption. The x-axis shows the years relative to the good faith adoption. The dashed lines are the 90% confidence intervals for the estimated coefficients. Standard errors are clustered by state. The graph shows the point estimates and 90% confidence intervals of the the parameters β^{τ} from the following regression:

$$y_{i,s,t} = \omega_t + \sum_{\tau=-10}^{10} \beta^{\tau} \times \text{Good faith}_{s,t}^{\tau} + \varepsilon_{i,s,t},$$

where $y_{i,s,t}$ are labor earnings in year t in firm i in state s. Good faith$_{s,t}^{\tau}$ is a dummy variable indicating the year relative to the enactment of the good faith exception in state s and year t.

Table 5: The good faith exception and labor earnings

	Labor earnings						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Good faith	-0.668**	-0.719**	-0.912	-0.726**	-0.825**	-0.861	-0.838**
	(0.331)	(0.317)	(0.587)	(0.322)	(0.366)	(0.578)	(0.377)
Good faith x Log Assets	0.105*	0.111*	0.159**	0.120**	0.126*	0.164**	0.136**
	(0.0600)	(0.0578)	(0.0680)	(0.0557)	(0.0635)	(0.0703)	(0.0609)
Log Assets	0.358***	0.388***	0.462***	0.377***	0.0804	0.116	0.0744
	(0.0765)	(0.0770)	(0.0890)	(0.0760)	(0.0836)	(0.105)	(0.0826)
Implied contract	-0.0369	-0.0684	0.0266	-0.0920	-0.0126	0.0745	-0.0462
	(0.197)	(0.195)	(0.198)	(0.200)	(0.226)	(0.216)	(0.229)
Public policy	0.352**	0.352**	0.352**	0.352**	0.303*	0.244*	0.333**
	(0.158)	(0.158)	(0.158)	(0.158)	(0.161)	(0.137)	(0.159)
Profitability		-0.00708	-0.0452	-0.00642			
		(0.0422)	(0.0489)	(0.0414)			
Fixed assets		0.0723	0.168	0.0722			
		(0.133)	(0.122)	(0.129)			
Market to book		-0.00521*	-0.00346	-0.00521**			
		(0.00260)	(0.00227)	(0.00253)			
Dividend payer		-0.0236	-0.0118	-0.0195			
		(0.0798)	(0.0939)	(0.0797)			
Modified z-score		-0.0277***	-0.0294***	-0.0262***			
		(0.00687)	(0.00737)	(0.00677)			
Book leverage		-0.186*	-0.205**	-0.160	-0.0792	-0.0648	-0.0583
		(0.103)	(0.0935)	(0.102)	(0.102)	(0.102)	(0.104)
Log Sale					0.166**	0.196**	0.164**
					(0.0644)	(0.0734)	(0.0656)
Log Capital					0.00537	-0.00728	0.00407
					(0.0196)	(0.0203)	(0.0193)
Log Employment					0.247**	0.326**	0.245**
					(0.114)	(0.137)	(0.113)
State per capita GDP				0.691**			0.752**
				(0.339)			(0.363)
State GDP growth				-0.425			-0.575
				(0.385)			(0.395)
Circuit good faith				-0.285			-0.293
Observations	8,613	8,613	8,374	8,613	8,089	7,813	8,089
Adjusted R-squared	0.929	0.930	0.931	0.930	0.930	0.933	0.931
Firm fixed effects	YES	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES	YES
Industry x Year fixed effects	YES	YES	YES	YES	YES	YES	YES
State x Year fixed effects	NO	NO	YES	NO	NO	YES	NO

This table presents the results from OLS regressions relating labor earnings to the adoption of the good faith exception for Compustat non-financial firms from 1967 to 1995. Labor earnings are measured by item *XLR* from Compustat. Labor earnings were scaled by their sample average. Good faith$_t$ is an indicator variable set to one if the state at which a firm is headquartered has enacted the good faith exception by year t and zero otherwise. Dollar values are expressed in 2009 dollars. Section 9.3 in the Appendix provides variable definitions. Columns (2) to (4) use the control variables from Serfling (2016), columns (5) to (7) use the controls from Michaels et al. (2019). All regressions include firm fixed effects, state-level fixed effects and industry-year fixed effects. Columns (3) and (6) also include state-year fixed effects. Standard errors are clustered at the state-level (standard deviations in parenthesis). *, **, and *** correspond to significance at the 10%, 5%, and 1% levels, respectively.

the lagged Log of assets and its interaction with the good faith indicator which is the main interest coefficient. Consistently with the theoretical predictions of the model, the interaction term Good faith$_t$ × Log Assets$_{t-1}$, is positive and the coefficient on Good faith$_t$ is negative. Therefore, the passage of the good faith exception has a negative impact on labor earnings for firms more likely to face tighter financial constraints (with fewer assets). This negative effect decreases as credit constraints become less binding.

Columns (2) to (4) add the control variables from Serfling (2016). Columns (5) to (7) use the controls from Michaels et al. (2019). Columns (4) and (7) are the primary model specifications which include state-level control variables. Alternatively, columns (3) and (6) include state-year fixed effects to account for time-varying state-level omitted factors. The state-year fixed effects do not completely absorb Good faith$_t$ since this variable is defined on the basis of calendar month-ends, which do not exactly correspond to fiscal year ends. However, the estimated coefficients on Good faith$_t$ in columns (3) and (6) are not very informative. In any case, the main interest coefficient is that on Good faith$_t$ × Log Assets$_{t-1}$, which remains informative even when including state-year fixed effects.

The results under all specifications remain similar to those in column (1). The inclusion of state-level variables or state-year fixed effects strengthens the statistical significance of the interaction term, which is the main interest coefficient.

The interpretation of the results is as follows. For instance, consider a firm that has average assets, Log Assets$_{t-1}$ = 4.74. Based on column (4), the effect of the enactment of the good faith exception on labor earnings is given by $-0.726 + 0.120 \times 4.74 = -0.16$ (see equation (12)). That is, in a firm with average assets, the passage of the good faith exception reduces labor earnings by 16%. This number becomes -0.19 in the case of using the coefficients from column (7). That is, a 19% decrease in labor earnings. These results are in line with the magnitude of the change of the coefficients presented in figure 6 after the passage of the good faith exception.

To illustrate hypothesis 1, figure 7 presents the marginal effect of the adoption of the good faith exception (Good faith$_t$ = 1) on labor earnings conditional on the log of the beginning of year book assets (Log Assets$_{t-1}$). Calculations are based on the results of column (4) of Table 5. The graph remains quantitatively similar when using the estimated coefficients of column (7). The black solid line corresponds to the marginal effect of Good faith$_t$ on labor earnings according to expression (12). The dashed lines are the 90% confidence intervals. The black dots indicate the marginal effect of good faith on labor earnings as a function of assets percentiles.

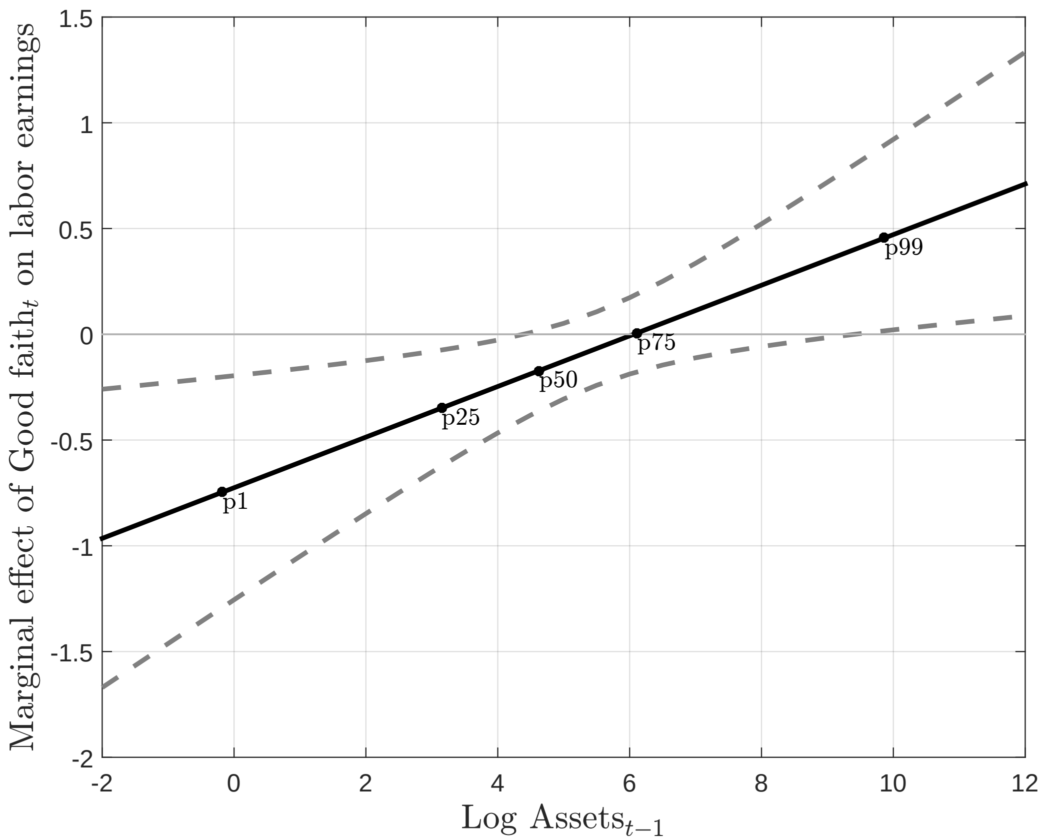

Figure 7: Effect of the passage of the good faith exception on labor earnings as a function of assets

The figure shows the marginal effect of the adoption of the good faith exception (Good faith$_t$ = 1) on labor earnings conditional on the log assets at $t-1$ (Log Assets$_{t-1}$). Calculations are based on the estimated coefficients presented in column (4) of Table 5. The black solid line presents the marginal effect of Good faith$_t$ = 1 on labor earnings according to expression (12). The dashed lines correspond to the 90% confidence intervals obtained from applying the delta method. The black dots indicate the effect of Good faith$_t$ on labor earnings for the 1st, 25th, 50th, 75th and 99th percentiles of log assets. The effects on labor earnings are in terms of the percentage change (in decimal form) relative to the mean.

The passage of the good faith exception reduces labor earnings by 35% and 17% for a firm in the 25th and 50th percentile of assets, respectively. Based on the statistics of Table 3, this means a reduction of \$430 and \$209 million in labor earnings for a firm in the 25th and 50th percentiles, respectively. On the other hand, the adoption of the good faith exception increases labor earnings by 1% in a firm with assets in the 75th percentile. This amounts to an increase of labor earnings of \$12 million.

The data supports the prediction of the model that there is a size threshold at which labor earnings increase when employment protection improves (see figure 4). In contrast, to the left of that threshold the effect of improved worker protection on labor earnings is negative. Based on figure 7 such threshold is approximately at Log $\text{assets}_{t-1} = 5.8$, i.e. for a firm with about \$330 million in assets.

5.2 Employment protection and firm earnings

In this section I study the effect of the adoption of the good faith exception on firm earnings. I use Earnings Before Interest and Taxes (EBIT) from Compustat to test hypothesis 2 of my model. I also present the results when using EBITDA.

According to the theoretical predictions of my model, financially constrained firms struggle to absorb higher labor costs. Thus, those firms must shrink their operations to adapt to stricter labor regulations. That is, they reduce hiring and invest less capital. As a result, they produce less and their profits decrease after an increase of worker protection. Less financially constrained firms can more easily adapt to tighter labor regulations, therefore this negative effect on profits is fainter for those firms.

As in section 5.1, I start by presenting a graphical analysis of the passage of the good faith exception and firm earnings. Figure 8 presents the effect of the adoption of the good faith exception on EBIT in adopting states relative to non-adopting states. The graphs is similar when using EBITDA instead.

Before the adoption of the good faith exception, EBIT of treated and control firms is not statistically different. In the years after the passage of the good faith exception, EBIT is on average

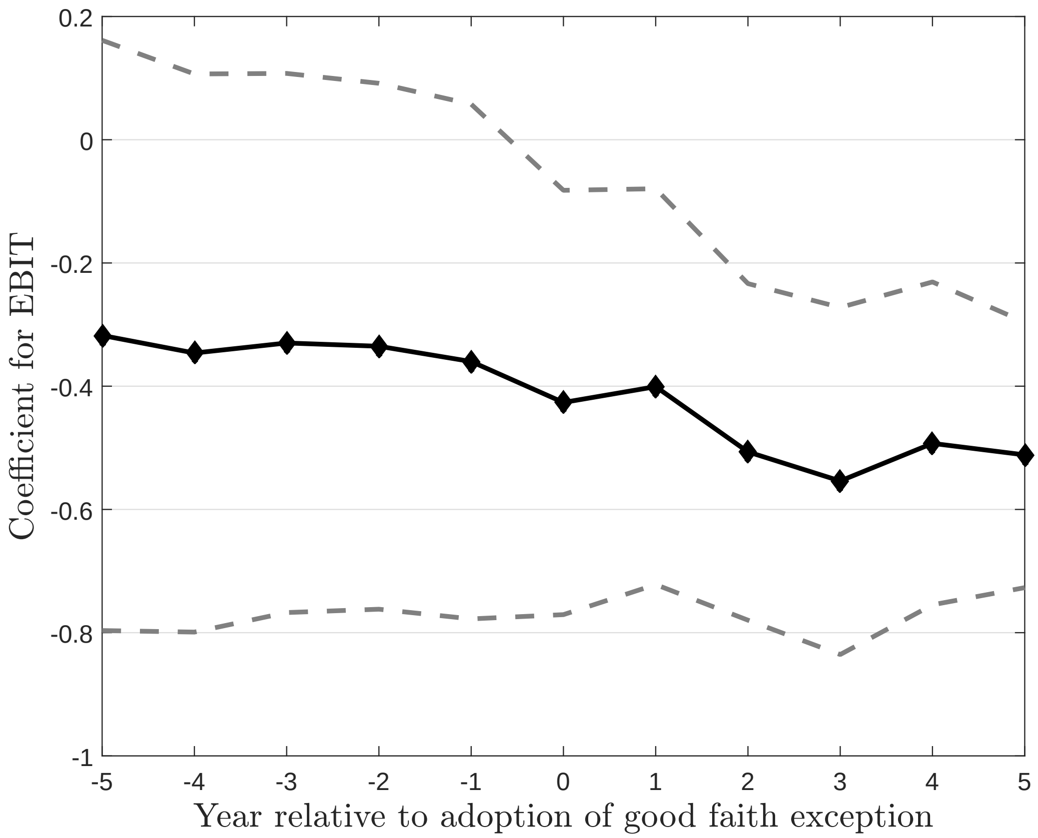

Figure 8: Effect of the passage of the good faith exception on EBIT

This figure shows the effect of the passage of the good faith exception on EBIT. EBIT was normalized by its sample mean. The y-axis presents the coefficients from regressing EBIT and capital expenditures on dummy variables indicating the year relative to the good faith adoption and year fixed effects. Dummies are for up to 10 years before and after the good faith adoption. The x-axis shows the years relative to the good faith adoption. The dashed lines are the 90% confidence intervals for the estimated coefficients. Standard errors are clustered by state. The graph shows the point estimates and 90% confidence intervals of the the parameters β^{τ} from the following regression:

$$y_{i,s,t} = \omega_t + \sum_{\tau=-10}^{10} \beta^{\tau} \times \text{Good faith}_{s,t}^{\tau} + \varepsilon_{i,s,t},$$

where $y_{i,s,t}$ is EBIT in year t in firm i in state s. Good $\text{faith}_{s,t}^{\tau}$ is a dummy variable indicating the year relative to the enactment of the good faith exception in state s and year t.

lower for treated firms. These results serve as evidence that treated and control firms share similar pre-treatment trends.

In what follows I estimate equation (11) by using EBIT or EBITDA as the dependent variables. As before, I normalize these measures by their sample means. Table 6 presents the results. Columns (1) to (6) are the estimations obtained when using the full sample, while columns (7) to (12) correspond to the restricted sample. Columns (2) to (6) and (8) to (12) use the controls from Serfling (2016). Columns (4) and (10) are the primary regressions where I include state-level controls and the dependent variable is EBIT. Alternatively, columns (3), (5), (9) and (11) use state-year fixed effects to account for unobserved time-varying factors at state-level. Standard errors are clustered by state.

As expected, the coefficient for the interaction term Good $\text{faith}_t \times$ Log Assets_{t-1}, which is the main interest estimate, is positive and significant at least at the 90% under all specifications, for both samples and either using EBIT or EBITDA. Furthermore, the coefficient for Good faith_t is negative and statistically significant at the 90% for almost all specifications. Therefore, the data supports hypothesis 2 of the model: EPLs negatively affect profits of more financially constrained firms. This negative effect decreases as financial constraints become less binding. Moreover, financially unconstrained firms benefit from EPLs.

Using expression (12) and the coefficients of column (4), the marginal effect of Good faith_t on EBIT for a firm with average assets (Log $\text{Assets}_{t-1} = 4.74$) is given by: $-0.756 + 0.170 \times 4.74 = 0.05$. That is, in a firm with average assets, the adoption of the good faith exception reduces firm earnings by 5%. From table 3, this amounts to an increase in profits of $8 millions.

Figure 9 shows the marginal effect of Good faith_t on EBIT conditional on firm assets. The adoption of the good faith exception reduces EBIT by 27% for a firm with assets in the 25th percentile. This amounts to a decline of $40 million. On the other hand, the effect of Good faith_t on EBIT for a firm in the 50th and 75th percentiles are 4% and 35%, respectively. These changes correspond to an increase in profits of $6 and $52 million, respectively.

In conclusion, the data supports the prediction of the model regarding the effect of an improvement of labor protection on firm profits. These policies hurt more under-capitalized firms that are more likely to face tighter financial constraints and struggle more to adapt to higher labor costs. On the other hand, this negative impact on profits is fainter or even positive for firms less likely to face binding credit constraints.

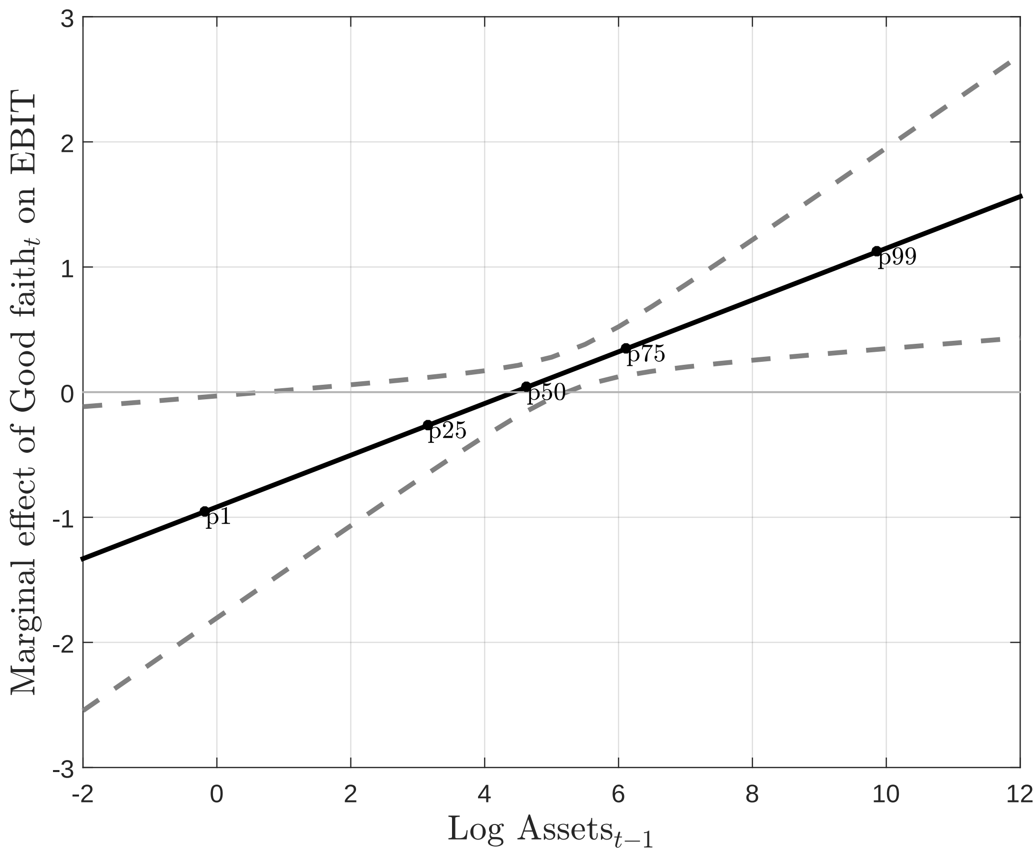

Figure 9: Effect of the passage of the good faith exception on EBIT

The figure shows the marginal effect of the adoption of the good faith exception (Good faith$_t$ = 1) on employment conditional on the log assets at $t-1$ (Log Assets$_{t-1}$). Calculations are based on the estimated coefficients presented in column (4) of Table 6. The black solid line presents the marginal effect of Good faith$_t$ = 1 on EBIT according to expression (12). The dashed lines correspond to the 90% confidence intervals obtained from applying the delta method. The black dots indicate the effect of Good faith$_t$ on employment for the 1st, 25th, 50th, 75th and 99th percentiles of log assets. The effects on EBIT are in terms of standard deviations.

Table 6: The good faith exception and firm earnings

	Full sample						Restricted sample			
	EBIT				EBITDA		EBIT		EBITDA	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Good faith	-0.804*	-0.809*	-0.858	-0.756*	-0.722	-0.677*	-3.078*	-2.059*	-2.200**	-1.538*
	(0.451)	(0.448)	(0.520)	(0.444)	(0.435)	(0.365)	(1.561)	(1.181)	(1.085)	(0.783)
Good faith x Log Assets	0.166*	0.167*	0.177*	0.170**	0.154**	0.153**	0.387*	0.339*	0.299*	0.252**
	(0.0844)	(0.0838)	(0.0910)	(0.0831)	(0.0758)	(0.0664)	(0.223)	(0.169)	(0.154)	(0.111)
Log Assets	0.422***	0.423***	0.426***	0.425***	0.347***	0.344***	0.471***	0.427***	0.433***	0.377***
	(0.0770)	(0.0798)	(0.0852)	(0.0810)	(0.0550)	(0.0519)	(0.136)	(0.112)	(0.109)	(0.0914)
Implied contract	0.396	0.393	0.461	0.400	0.0155	-0.0906	0.657	0.436	0.281	0.113
	(0.608)	(0.611)	(0.538)	(0.609)	(0.380)	(0.432)	(0.626)	(0.683)	(0.455)	(0.491)
Public policy	0.913	0.909	0.781	0.897	0.351	0.413	1.370***	1.458**	0.945***	1.025***
	(0.559)	(0.559)	(0.560)	(0.555)	(0.344)	(0.344)	(0.380)	(0.555)	(0.240)	(0.366)
Profitability		-0.0158	-0.00720	-0.0174	-0.0232	-0.0300*	-0.167*	-0.00223	-0.105	0.0165
		(0.0212)	(0.0240)	(0.0210)	(0.0198)	(0.0178)	(0.0923)	(0.0762)	(0.0691)	(0.0536)
Fixed assets		0.0130	0.0566	0.0152	0.335**	0.312**	-0.264	-0.410	-0.0456	-0.183
		(0.187)	(0.206)	(0.187)	(0.141)	(0.131)	(0.496)	(0.377)	(0.321)	(0.241)
Market to book		0.00287***	0.00298***	0.00284***	0.00115*	0.00112*	-0.00228	-0.00360	-0.00286	-0.00412
		(0.000891)	(0.000916)	(0.000902)	(0.000634)	(0.000667)	(0.00365)	(0.00474)	(0.00267)	(0.00378)
Dividend payer		0.0907*	0.109**	0.0921*	0.0827**	0.0722**	-0.0121	-0.0303	-0.0212	-0.0239
		(0.0503)	(0.0528)	(0.0502)	(0.0369)	(0.0356)	(0.0810)	(0.0627)	(0.0701)	(0.0526)
Modified z-score		-0.000870	-0.000883	-0.000866	-0.00224	-0.00219	-0.00429	-0.0140	-0.0125	-0.0187**
		(0.00186)	(0.00197)	(0.00184)	(0.00177)	(0.00169)	(0.0163)	(0.0113)	(0.0118)	(0.00854)
Book leverage		-0.0342	-0.0355	-0.0352	-0.0306	-0.0300	-0.0917	0.0186	-0.0781	0.0172
		(0.0373)	(0.0381)	(0.0370)	(0.0277)	(0.0269)	(0.191)	(0.180)	(0.146)	(0.134)
State per capita GDP				-0.380		-0.387		0.898		0.673
				(0.397)		(0.313)		(0.997)		(0.737)
State GDP growth				0.398		0.300		-0.233		-0.553
				(0.481)		(0.301)		(0.670)		(0.494)
Circuit good faith				-0.238		-0.315**		0.0779		-0.0311
				(0.172)		(0.145)		(0.559)		(0.395)
Observations	89,852	89,852	89,794	89,852	89,737	89,795	8,374	8,613	8,372	8,611
Adjusted R-squared	0.828	0.828	0.827	0.828	0.891	0.891	0.848	0.851	0.915	0.915
Firm fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry x Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
State x Year fixed effects	NO	NO	NO	YES	YES	NO	YES	NO	YES	NO

This table presents the results from OLS regressions relating EBIT and EBITDA to the adoption of the good faith exception for Compustat non-financial firms from 1967 to 1995. EBIT and EBITDA are normalized by their sample mean. Good faith$_t$ is an indicator variable set to one if the state at which a firm is headquartered has enacted the good faith exception by year t and zero otherwise. Dollar values are expressed in 2009 dollars. Section 9.3 in the Appendix provides variable definitions. Columns (1) to (6) use the full sample, columns (7) to (10) were obtained using the restricted sample. All regressions include firm fixed effects, state-level fixed effects and industry-year fixed effects. Columns (3),(5), (7) and (9) also include state-year fixed effects. Standard errors are clustered at the state-level (standard deviations in parenthesis). *, **, and *** correspond to significance at the 10%, 5%, and 1% levels, respectively.

6 Testing Mechanisms

Theoretically, improved EPLs distort firms decisions through a financial channel. Higher labor costs worsen the agency problem between banks and borrowers. Thus, following an increase in worker protection, banks constraint credit forcing firms to shrink, that is, to invest less capital and to hire less labor. As a result, production declines and firms obtain lower profits.

These distortive effects of EPLs are more pronounced in more financially constrained firms, as they have less room to accommodate higher labor costs. On the other hand, less financially constrained firms can more easily adapt to tighter EPLs as they have easier access to credit. Thus improved employment protection reduces profits by more in more financially constrained firms.

From the point of view of workers, total labor earnings may go down if the decrease in employment is sufficiently large to offset increased dismissal compensation. This decrease is expected to be larger in more financially constrained firms that suffer more from labor regulations.

This section tests whether there is evidence of such financial mechanism. If greater employment protection makes it more difficult for firms to raise capital to finance investment, then following the adoption of the good faith exception, the decrease in profits, labor earnings, employment, and investment should be larger for more financially constrained firms. Section 6.1 estimates the impact of the good faith exception on labor and firm earnings conditional on four alternative measures for financial constraints. Section 6.2 explores the impact of EPLs on employment and investment to assess the validity of the financial mechanism.

6.1 Financial constraints and earnings

Table 7 presents the results when using labor earnings as dependent variable and for the four measures of financial constraints. Columns (1)-(2) correspond to the Hadlock and Pierce index (SA index), columns (3)-(4) consider the Kaplan and Zingales index (KZ index), columns (5)-(6) use the Whited and Wu index (WW index), and (7)-(8) define constrained firms as those that do not pay dividends. A higher value of any of these measures implies stricter financial constraints.

Therefore, the signs of the interest coefficients in regression (11) are expected to be reversed relative to section 5, i.e. $\alpha_1 > 0$ and $\alpha_2 < 0$. That is, the adoption of the good faith exception reduces labor earnings by more in more financially constrained firms.

The upper table in table 7 uses the firm-level controls as in Serfling (2016), while the bottom table uses the controls from Michaels et al. (2019). Columns (1), (3), (5) and (7) include state-year fixed effects. Columns (2), (4) and (8) include state-level controls which correspond to the preferred specification. As predicted by the model, the interaction term is statiscally significant and negative when using the SA index and an indicator variable for whether a firm is a non-dividend payer. In case of using the controls from Michaels et al. (2019) and the WW index, the interaction term is also negative and significant. These results are consistent with the theoretical prediction that an increase in labor protection reduces labor earnings by more in more financially constrained firms. Columns (3) and (4) show no effect when using the KZ index. This is consistent with the findings of Hadlock and Pierce (2010) that cast serious doubt on the validity of the KZ index as a proxy for financial constraints. Similar results are reported by Bai et al. (2020) that find no effect of the good faith exception on investment when using the KZ index in a similar econometric specification.

Table 8 repeats the analysis using firm earnings. The upper table uses EBIT as dependent variable, while the bottom table uses EBITDA. Consistent with the model, the interaction term is negative and highly significant when using the SA index to measure financial constraints. The interaction terms is also negative and significant at least at the 90% when I define constrained firms as those that do not pay dividends. The interaction with the WW index is also negative and significant when the dependent variable is EBITDA. The evidence suggests that an improvement of labor regulations reduces firm earnings by more in more financially constrained firms.

Overall, I find evidence consistent with the financial channel: greater worker protection reduces labor and firm earnings by constraining firms' access to finance. Thus, the reduction in earnings is more pronounced in more financially constrained firms.

Table 7: Financial constraints and labor earnings

	Hadlock and Pierce (2010)		**Kaplan and Zingales (1997)**		**Whited and Wu (2006)**		**Non-dividend payer**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
	Controls: Serfling (2016)							
Good faith	-0.438	-0.646	0.0258	0.154	0.0287	0.150	0.104	0.251
	(0.549)	(0.388)	(0.314)	(0.116)	(0.313)	(0.112)	(0.336)	(0.166)
Financial constraint	0.391***	0.345**	-0.00103***	-0.000406	-0.174**	-0.130**	0.0163	-0.00419
	(0.0915)	(0.133)	(0.000364)	(0.000318)	(0.0800)	(0.0595)	(0.0885)	(0.0806)
Good faith x Financial constraint	-0.165	-0.207*	-0.000510	-0.000802	0.00408	-0.00364	-0.239	-0.334**
	(0.116)	(0.122)	(0.000770)	(0.000869)	(0.0455)	(0.00413)	(0.211)	(0.156)
Observations	6,761	7,030	7,004	7,195	6,741	6,945	8,374	8,613
Adjusted R-squared	0.931	0.929	0.938	0.937	0.939	0.938	0.925	0.925
	Controls: Michaels (2019)							
Good faith	-0.0131	-0.622	0.128	0.170	0.134	0.166	0.258	0.257
	(0.482)	(0.376)	(0.270)	(0.119)	(0.267)	(0.117)	(0.280)	(0.165)
Financial constraint	0.797***	0.807***	-0.00550***	-0.00647***	-0.0896	-0.0381	0.0460	0.0412
	(0.179)	(0.251)	(0.00188)	(0.00196)	(0.0670)	(0.0517)	(0.0948)	(0.0869)
Good faith x Financial constraint	-0.0958	-0.208*	0.00627	0.00183	0.00989	-0.0244***	-0.328	-0.369*
	(0.102)	(0.117)	(0.00425)	(0.00121)	(0.0515)	(0.00686)	(0.255)	(0.207)
Observations	6,523	6,808	6,562	6,784	6,430	6,658	7,813	8,089
Adjusted R-squared	0.941	0.939	0.942	0.941	0.943	0.942	0.932	0.930
State control variables	NO	YES	NO	YES	NO	YES	NO	YES
Firm fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Industry x Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
State x Year fixed effects	YES	NO	YES	NO	YES	NO	YES	NO

This table presents the results from OLS regressions relating labor earnings to the adoption of the good faith exception for Compustat non-financial firms from 1967 to 1995. Labor earnings are measured by item *XLR* from Compustat. Labor earnings were scaled by their sample average. Good faith$_t$ is an indicator variable set to one if the state at which a firm is headquartered has enacted the good faith exception by year t and zero otherwise. Dollar values are expressed in 2009 dollars. The upper table uses the firm-level controls as in Serfling (2016), while the bottom table uses the controls from Michaels et al. (2019). Section 9.3 in the Appendix provides variable definitions. Financial constraint$_{it-1}$ is a firm-level measure of the degree of financial constraints at year $t-1$. In columns (1) to (6) Financial constraint$_{it-1}$ is measured by the indexes in Hadlock and Pierce (2010), Kaplan and Zingales (1997) and Whited and Wu (2006). In columns (7) and (8) Financial constraint$_{it-1}$ is an indicator variable set to one if a firm is not paying common dividends in year $t-1$ and zero otherwise. Columns (1), (3), (5) and (7) include state-year fixed effects. Columns (2), (4), (6) and (8) include state-level controls. Standard errors are clustered at the state-level (standard deviations in parenthesis). *, **, and *** correspond to significance at the 10%, 5%, and 1% levels, respectively.

Table 8: Financial constraints and firm earnings

	Hadlock and Pierce (2010)		Kaplan and Zingales (1997)		Whithed and Wu (2006)		Non-dividend payer	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				EBIT				
Good faith	-1.434***	-0.957**	-0.00189	0.201*	-0.0180	0.196*	0.241*	0.455***
	(0.495)	(0.411)	(0.113)	(0.110)	(0.118)	(0.115)	(0.123)	(0.163)
Financial constraint	0.0608	0.0804	-0.000102	-1.96e-05	-0.0349	-0.0349	-0.257**	-0.228**
	(0.186)	(0.174)	(0.000191)	(0.000146)	(0.0223)	(0.0220)	(0.100)	(0.0960)
Good faith x Financial constraint	-0.490***	-0.393***	-0.000168	-8.88e-05	-0.00976	-0.0134	-0.452*	-0.485**
	(0.163)	(0.140)	(0.000102)	(6.43e-05)	(0.0133)	(0.0121)	(0.236)	(0.207)
Observations	75,700	75,753	80,472	80,506	77,983	78,019	89,794	89,852
Adjusted R-squared	0.857	0.854	0.867	0.865	0.867	0.865	0.857	0.855
				EBITDA				
Good faith	-1.404***	-1.106***	0.0431	0.183**	0.0282	0.180**	0.218**	0.398***
	(0.442)	(0.317)	(0.0731)	(0.0765)	(0.0761)	(0.0802)	(0.0893)	(0.108)
Financial constraint	0.248*	0.261**	-3.06e-05	5.94e-05	-0.0158	-0.0160	-0.113**	-0.0958*
	(0.132)	(0.127)	(0.000128)	(8.75e-05)	(0.0129)	(0.0127)	(0.0528)	(0.0524)
Good faith x Financial constraint	-0.497***	-0.422***	-0.000153*	-8.18e-05	-0.0140*	-0.0161**	-0.360*	-0.395**
	(0.138)	(0.102)	(8.62e-05)	(6.36e-05)	(0.00798)	(0.00704)	(0.193)	(0.162)
Observations	75,681	75,734	80,421	80,455	77,932	77,968	89,737	89,795
Adjusted R-squared	0.887	0.887	0.910	0.910	0.909	0.909	0.890	0.890
Control variables	NO	YES	NO	YES	NO	YES	NO	YES
Firm fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Industry x Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
State x Year fixed effects	YES	NO	YES	NO	YES	NO	YES	NO

This table presents the results from OLS regressions relating EBIT and EBITDA to the adoption of the good faith exception for Compustat non-financial firms from 1967 to 1995. EBIT and EBITDA are normalized by their sample average. Good faith$_t$ is an indicator variable set to one if the state at which a firm is headquartered has enacted the good faith exception by year t and zero otherwise. Dollar values are expressed in 2009 dollars. The upper table uses EBIT as dependent variable, while the bottom table uses EBITDA. The firm-level control are the ones used in Serfling (2016). Section 9.3 in the Appendix provides variable definitions. Financial constraint$_{it-1}$ is a firm-level measure of the degree of financial constraints at year $t-1$. In columns (1) to (6) Financial constraint$_{it-1}$ is measured by the indexes in Hadlock and Pierce (2010), Kaplan and Zingales (1997) and Whited and Wu (2006). In columns (7) and (8) Financial constraint$_{it-1}$ is an indicator variable set to one if a firm is not paying common dividends in year $t-1$ and zero otherwise. Columns (1), (3), (5) and (7) include state-year fixed effects. Columns (2), (4), (6) and (8) include state-level controls. Standard errors are clustered at the state-level (standard deviations in parenthesis). *, **, and *** correspond to significance at the 10%, 5%, and 1% levels, respectively.

6.2 Financial constraints, employment and investment

This section investigates whether the decrease in labor and firm earnings following the adoption of the good faith exception is explained by labor protection limiting access to credit, forcing firms to reduce investment and hire less labor. If this is the case, then the decrease in employment and investment should be more pronounced in more financially constrained firms.

In order to test the mechanism, I estimate specification (11) by using two dependent variables: i) item *EMP* from Compustat to measure employment in each firm, and ii) *CAPX* (capital expenditures) to measure investment. To measure financial constraints, I use the four proxies used in tables 7 and 8, as well as the lagged Log of assets.

Table 9 presents the results when using employment and investment as dependent variables and for the five proxies of financial constraints. Columns (1)-(2) correspond to the Log of assets, columns (3)-(4) use the SA index, columns (5)-(6) consider the KZ index, columns (7)-(8) use the WW index, and (9)-(10) define constrained firms as those that do not pay dividends. The interaction term is expected to be negative for the last four proxies, while it is expected to be positive when using Log of assets. The upper table reports the results when using employment as dependent variable, while the bottom table uses investment. All specifications include the firm-level controls used by Serfling (2016). Odd columns include state-year fixed effects. Even columns use state-level controls.

The findings are consistent with the predictions of the model, the interaction term is highly statistically significant and negative when using the SA index, which is the preferred measure of financial constraints. In the case of investment, the interaction term is also significant when using the Log of assets to proxy financial constraints or when defining constrained firms as those that do not pay dividends. Thus, there is evidence that greater employment protection reduces investment and employment by crowding out firms' access to capital. The decrease in investment and employment is larger for more financially constrained firms, while unconstrained firms can more easily adapt to stricter labor regulations and may even increase investment and employment.

Figure 10 presents the marginal effect of the Good faith$_{t-1}$ on employment conditional on the

SA index. Higher values of the index mean stricter financial constraints. The adoption of the good faith exception increases employment by 23% and 11% in a firm with an SA index in the 25th and 50th percentiles, respectively. In a firm with an SA index in the 75th percentile this effect amounts to an reduction of 1.2% in employment.

Figure 11 shows the effects on investment conditional on the SA index. For firms with an SA index in the 25th and 50th percentiles, the pass of the good faith exception leads to an increase in investment of 46% and 22%, respectively, while this effect amounts to a reduction in investment of 2% for firms with an SA index in the 75th percentile.

Table 9: Financial constraints, employment and investment

	Log Assets		Hadlock and Pierce (2010)		Kaplan and Zingales (1997)		Whited and Wu (2006)		Non-dividend payer	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Employment					
Good faith	-0.0750	0.0280	-0.728***	-0.617**	0.107	0.154*	0.125	0.166*	0.165	0.244*
	(0.264)	(0.336)	(0.235)	(0.252)	(0.114)	(0.0853)	(0.122)	(0.0832)	(0.138)	(0.134)
Financial constraint	0.529***	0.545***	-0.0895	-0.0841	0.000296*	0.000277*	-0.00661	-0.00363	-0.164***	-0.140***
	(0.0613)	(0.0644)	(0.0990)	(0.108)	(0.000166)	(0.000145)	(0.00791)	(0.00781)	(0.0466)	(0.0423)
Good faith x Financial constraint	0.0388	0.0258	-0.295***	-0.245***	1.95e-06	0.000237*	0.00922	0.0155	-0.101	-0.114
	(0.0630)	(0.0693)	(0.0883)	(0.0912)	(0.000267)	(0.000139)	(0.0162)	(0.0183)	(0.112)	(0.110)
Observations	85,952	86,013	73,411	73,469	78,030	78,059	75,720	75,751	85,952	86,013
Adjusted R-squared	0.895	0.891	0.898	0.893	0.904	0.899	0.905	0.900	0.892	0.887
					Capital expenditures					
Good faith	-1.050	-0.815	-1.637**	-1.189**	0.0440	0.225***	0.0375	0.228***	0.212**	0.513***
	(0.630)	(0.553)	(0.632)	(0.510)	(0.0670)	(0.0733)	(0.0671)	(0.0730)	(0.0910)	(0.142)
Financial constraint	0.487***	0.487***	-0.00679	0.0276	5.25e-05	0.000133	-0.0241	-0.0262	-0.190***	-0.176***
	(0.0774)	(0.0728)	(0.141)	(0.127)	(0.000156)	(0.000153)	(0.0187)	(0.0164)	(0.0617)	(0.0575)
Good faith x Financial constraint	0.217*	0.206*	-0.584***	-0.473***	-0.000114	-7.23e-05	-0.00675	-0.00680	-0.391*	-0.387*
	(0.110)	(0.106)	(0.203)	(0.168)	(0.000105)	(8.07e-05)	(0.00983)	(0.0111)	(0.224)	(0.202)
Observations	88,691	88,752	75,701	75,754	79,598	79,633	77,143	77,180	88,691	88,752
Adjusted R-squared	0.869	0.869	0.862	0.862	0.887	0.887	0.887	0.886	0.867	0.867
State control variables	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Firm fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry x Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
State x Year fixed effects	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO

This table presents the results from OLS regressions relating employment and capital expenditures to the adoption of the good faith exception for Compustat non-financial firms from 1967 to 1995. Employment and capital expenditures are normalized by their sample average. Good faith$_t$ is an indicator variable set to one if the state at which a firm is headquartered has enacted the good faith exception by year t and zero otherwise. Dollar values are expressed in 2009 dollars. The upper table uses employment as dependent variable, while the bottom table uses capital expenditures. The firm-level control are the ones used in Serfling (2016). Section 9.3 in the Appendix provides variable definitions. Financial constraint$_{it-1}$ is a firm-level measure of the degree of financial constraints at year $t-1$. In columns (1) and (2) Financial constraint$_{it-1}$ is measured by the Log of assets. In columns (3) to (8) Financial constraint$_{it-1}$ is measured by the indexes in Hadlock and Pierce (2010), Kaplan and Zingales (1997) and Whited and Wu (2006). In columns (9) and (10) Financial constraint$_{it-1}$ is an indicator variable set to one if a firm is not paying common dividends in year $t-1$ and zero otherwise. Columns (1), (3), (5), (7) and (9) include state-year fixed effects. Columns (2), (4), (6), (8) and (10) include state-level controls. Standard errors are clustered at the state-level (standard deviations in parenthesis). *, **, and *** correspond to significance at the 10%, 5%, and 1% levels, respectively.

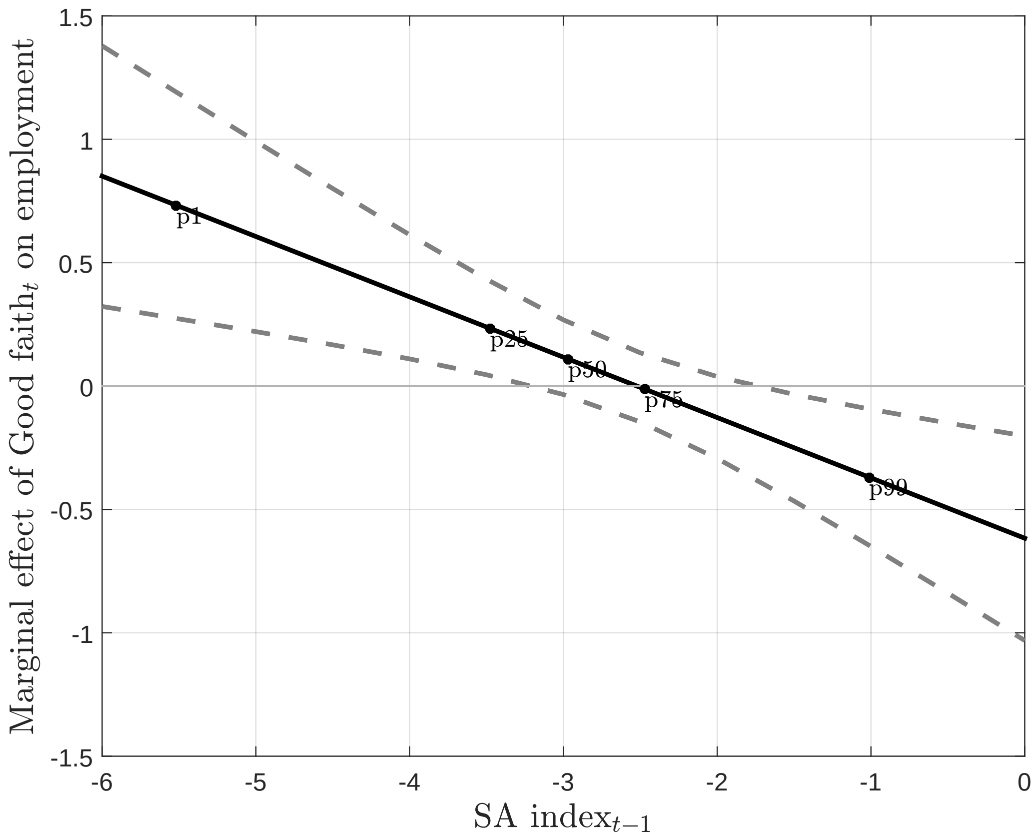

Figure 10: Effect of the passage of the good faith exception on employment as a function of financial constraints

The figure shows the marginal effect of the adoption of the good faith exception (Good faith$_t$ = 1) on employment conditional on the Hadlock and Pierce index at $t-1$ (SA index$_{t-1}$). Calculations are based on the estimated coefficients presented in column (4) of Table 9. The black solid line presents the marginal effect of Good faith$_t$ = 1 on employment according to expression (12). The dashed lines correspond to the 90% confidence intervals obtained from applying the delta method. The black dots indicate the effect of Good faith$_t$ on employment for the 1st, 25th, 50th, 75th and 99th percentiles of SA index. A higher value of the SA index means greater financial constraints. The effects on SA index are in terms of the percentage change (in decimal form) relative to the mean.

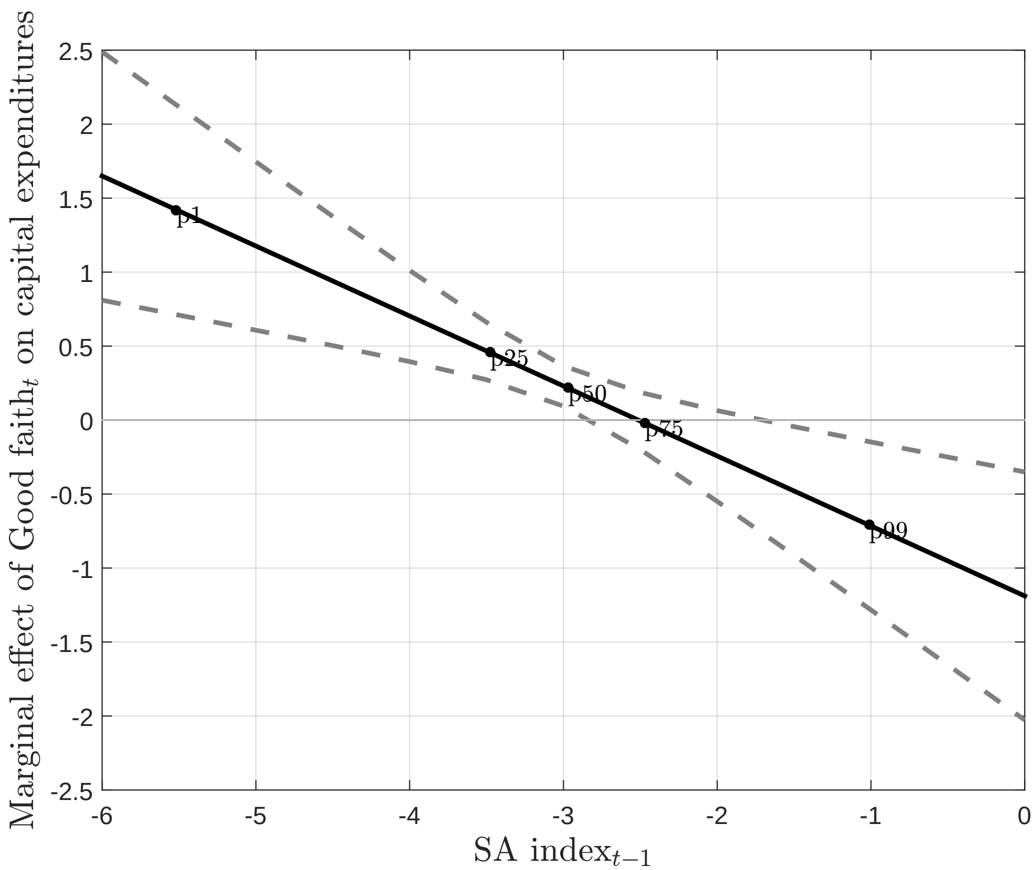

Figure 11: Effect of the passage of the good faith exception on investment as a function of financial constraints

The figure shows the marginal effect of the adoption of the good faith exception (Good faith$_t$ = 1) on capital expenditure conditional on the Hadlock and Pierce index at $t-1$ (SA index$_{t-1}$). Calculations are based on the estimated coefficients presented in column (4) of Table 9. The black solid line presents the marginal effect of Good faith$_t$ = 1 on capital expenditures according to expression (12). The dashed lines correspond to the 90% confidence intervals obtained from applying the delta method. The black dots indicate the effect of Good faith$_t$ on capital expenditures for the 1st, 25th, 50th, 75th and 99th percentiles of SA index. A higher value of the SA index means greater financial constraints. The effects on SA index are in terms of the percentage change (in decimal form) relative to the mean.

7 Econometric Concerns

7.1 Pre-treatment trends

Figures 6 and 8 suggest that treatment and control firms share similar pre-treatment trends. In this section, I conduct an additional test in order alleviate potential endogenous concerns arising from reverse causality. The main concern is that, during periods where firms profits are declining more than labor earnings, the 'at-will employment' termination principle allows firms to adjust by dismissing workers. If that is the case, then courts may decide to adopt the good faith exception to protect workers from unfair dismissal. If reverse causality is present or if there is a pre-treatment trend, then firms' profits and labor earnings would exhibit a declining trend (or possibly increasing for labor earnings) before the enactment of the good faith exception.

In order to check for pre-existing trends, I follow Bertrand and Mullainathan (2003) and explore the timing of the change of labor and firms' earnings relative to the timing of the passage of the good faith exception. I replace Good faith_t in specification (11) by the following indicator variables: Good faith^{-1}, Good faith^{0}, Good faith^{1} and Good faith^{+2}. These variables are set to one if the firm is headquartered in a state that: i) will enact the good faith exception in one year, ii) passes the exception in the current year, iii) adopted the law one year ago, and iv) enacted the exception two or more years ago, respectively.[5] The interaction of these variables with Log Assets_{t-1} account for pre-treatment trends in firms with different levels of financial constraints.

The results reported in Table 10 show that labor and firms' earnings decline in more financially constrained firms only after the enactment of the good faith exception. Columns (1) to (4) show that the interaction term is positive and highly significant the year after passage of the law, but it becomes less significant with time after one or more than two years after the enactment. Thus greater employment protection reduces by more labor earnings of workers in more financially constrained firms only after the enactment of the law. On the other hand, columns (5) and (6)

[5] There are two states that reversed the passage of the good faith exception: New Hampshire in 1980 and Oklahoma in 1989. I drop all observations for these states after the reversal of the law, which reduces observations from 8,613 to 8,344 in the restricted sample, and from 89,852 to 89,288 in the full sample.

that use the restricted sample, show that the passage of the good faith exception reduces profits of more financially constrained firms only after one year of the passage. The interaction term with Good faith^{-1} when using the full sample in columns (7) to (8) is slightly significant one year before the enactment of the law, which could cast some doubt on the validity of the parallel trend assumption. However, the table also shows that the interaction term becomes more significant the year after the passage of the law and after two or more years after the adoption.

Overall, table 10 suggests that the main findings of the paper do not suffer from reverse causality and that the parallel trend assumption holds. Labor earnings and firms' profits decline relatively more in more financially constrained firms only after the enactment of the good faith exception, confirming the appropriateness of the difference-in-difference approach.

Table 10: The good faith exception and the timing of labor and firms' earnings

	Labor earnings				EBIT			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
					Restricted sample		Full sample	
Good faith (-1)	-0.519	-0.495	-0.530	-0.631	-3.920	-2.484	-1.490	-1.441
	(0.588)	(0.468)	(0.808)	(0.688)	(5.306)	(4.340)	(1.017)	(0.883)
Good faith (0)	-1.267	-1.107**	-1.039	-1.271**	-15.78*	-8.183	-2.006	-1.935*
	(0.943)	(0.487)	(0.964)	(0.624)	(8.831)	(5.652)	(1.241)	(1.069)
Good faith (+1)	-0.971	-1.109**	-0.956	-1.188*	-20.99**	-10.54*	-1.374	-1.320
	(1.102)	(0.479)	(1.222)	(0.594)	(9.837)	(6.101)	(1.160)	(0.873)
Good faith (>=+2)	-0.467	-0.980*	-0.504	-1.168*	-21.56*	-11.00	-1.057	-1.017*
	(1.023)	(0.521)	(1.127)	(0.603)	(11.00)	(7.049)	(0.948)	(0.605)
Good faith (-1) * Log Assets	0.127	0.0777	0.139	0.0967	0.294	0.373	0.324*	0.297*
	(0.0818)	(0.0716)	(0.105)	(0.0977)	(1.103)	(0.806)	(0.181)	(0.172)
Good faith (0) * Log Assets	0.301***	0.190**	0.295***	0.216**	1.632	1.329	0.448**	0.413*
	(0.0901)	(0.0783)	(0.0961)	(0.0935)	(1.472)	(0.952)	(0.217)	(0.211)
Good faith (+1) * Log Assets	0.261**	0.176**	0.244*	0.190*	2.324*	1.742*	0.314*	0.282*
	(0.115)	(0.0870)	(0.124)	(0.0982)	(1.283)	(0.900)	(0.172)	(0.166)
Good faith (>=+2) * Log Assets	0.219*	0.163*	0.218*	0.188**	2.358*	1.869*	0.240**	0.226**
	(0.112)	(0.0842)	(0.119)	(0.0932)	(1.206)	(0.973)	(0.114)	(0.107)
Observations	8,344	8,561	7,780	8,037	8,344	8,561	89,230	89,288
Adjusted R-squared	0.931	0.930	0.933	0.931	0.848	0.851	0.828	0.828
Controls								
Serfling (2016)	YES	YES	NO	NO	YES	YES	YES	YES
Michaels et al. (2019)	NO	NO	YES	YES	NO	NO	NO	NO
State control variables	NO	YES	NO	YES	NO	YES	NO	YES
Firm fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Industry x Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
State x Year fixed effects	YES	NO	YES	NO	NO	YES	NO	YES

This table presents the results from OLS regressions relating labor and firm's earnings to the adoption of the good faith exception for Compustat non-financial firms from 1967 to 1995. Labor earnings are measured by item *XLR* from Compustat. Firms' earnings correspond to *EBIT*. EBIT is earnings before interest and taxes. Both variables were scaled by their sample average. Good faith^{-1} is an indicator variable set to one if the state at which a firm is headquartered will adopt the good faith exception in one year and zero otherwise. Good faith^{0} is an indicator variable set to one if the state at which a firm is headquartered adopts the good faith exception in the current year and zero otherwise. Good faith^{1} is an indicator variable set to one if the state at which a firm is headquartered adopted the good faith exception one year ago and zero otherwise. Good faith^{2+} is an indicator variable set to one if the state at which a firm is headquartered adopted the good faith exception two years or more years ago and zero otherwise. Dollar values are expressed in 2009 dollars. Section 9.3 in the Appendix provides variable definitions. Columns (1)-(6) use the restricted sample, while columns (7)-(8) consider the full sample. The full sample corresponds to Compustat firms (excluding financials and utilities) over the period 1967 to 1995 and consists of 89,795 observations. The restricted sample consists of all firms from the full sample that disclose information on total labor earnings (8,613 observations). Columns (1)-(2) and (5)-(8) use the control variables from Serfling (2016), columns (3) to (4) use the controls from Michaels et al. (2019). All regressions include firm fixed effects, state-level fixed effects and industry-year fixed effects. Columns (1), (3), (5) and (7) also include state-year fixed effects. Standard errors are clustered at the state-level (standard deviations in parenthesis). *, **, and *** correspond to significance at the 10%, 5%, and 1% levels, respectively.

7.2 Political conditions

Walsh and Schwarz (1995) investigate the rationale for the adoption of WDLs and conclude that judicial decisions were mainly concerned about enhancing fairness in employment relationships and consistency with contracting principles. Additionally, in the case of the implied contract and public policy exceptions, the adoption also relates to precedent from decisions in other states. However, this is not the case for the adoption of the good faith exception which is the focus of this paper. To account for this possibility, in the main specifications I have included a variable for the fraction of states in the firm's federal circuit that have already adopted the good faith exception (Circuit good faith$_{t-1}$).

One possible source of endogeneity is whether the adoption of WDLs systematically coincides with state-level political factors or if lobbying activities may have influenced the courts' decisions to adopt WDLs. However, since the recognition of WDLs is based on a judicial rather than legislative decision, it is more likely to be driven by merits of the case than political economy considerations (Acharya et al., 2014). Nevertheless, to address residual concerns about omitted variable bias, I include three political variables that may influence the adoption of WDLs (Serfling, 2016): i) Political balance$_t$ measured as the fraction of Democrat state representatives in the House of Representatives and Senate, ii) Right-to-work$_t$ is an indicator variable set to one if the state in which the firm is headquartered has passed the right-to-work laws by year t, and iii) Union membership$_t$ is the fraction of employees who are covered by collective bargaining agreements. All specifications also include the state-level economic factors used in the main econometric model.

Table 11 reports the results when using the Log of assets and the SA index to measure financial constraints. Columns (1) to (4) present the results for the main dependent variables: labor earnings and firm's profits as measured by EBIT and EBITDA. Columns (5) and (6) consider employment and capital expenditures as dependent variables to test whether the mechanism studied in section 6 survive after controlling for political factors.

Overall, the results are robust to the inclusion of political variables. The interaction term remains significant and has the predicted sign (positive when using Log asset and negative when using SA index). Union membership and right-to-work laws are positively related to labor earnings, while profits, employment, and investment do not appear to be significantly affected by political factors.

7.3 Historical headquarters

Employment protection laws typically apply to the state in which the firm the employee works in is headquartered. However, a limitation of Compustat is that it provides only the latest headquarters locations. In order to address this issue, I use the data on historical headquarters locations constructed by Bai et al. (2020). This data supplements Compustat's headquarters locations by combining two datasets: i) headquarters locations from SEC filings beginning in the mid-1990s via EDGAR and headquarters locations hand-collected from the Moody's Manuals, and ii) Dun & Bradstreet's Million Dollar Directory for earlier time periods. Therefore, this dataset overcomes the limitation of backfilled headquarters in Compustat.

Table 12 presents the results. Overall, the results are robust to using alternative data on firm's headquarters location. The interaction term between Good faith$_t$ and the two measures of financial constraints, Log assets and SA index, preserves the sign predicted by the model and remains significant for firms' profits (EBIT and EBITDA), employment and investment. In the case of labor earnings, the interaction term loses significance, but it remains positive when using Log assets and negative when measuring financial constraints by the SA index. Thus greater employment protection reduces labor earnings, profits, investment and employment by more in more financially constrained firms.

7.4 Matched sample

Ideally, the treatment and control groups should be similar in terms of the characteristics that affect labor earnings, firms' profits, investment and employment. However, as shown in table 4,

Table 11: Controlling for political factors

	Labor earnings		EBIT	EBITDA	Employment	Cap. Expenditures
	(1)	(2)	(3)	(4)	(5)	(6)
	Log Assets					
Good faith	-0.718*	-0.832*	-0.877	-0.761*	0.0635	-0.689
	(0.359)	(0.426)	(0.536)	(0.428)	(0.321)	(0.537)
Log Assets	0.482***	0.137	0.551***	0.442***	0.520***	0.486***
	(0.0959)	(0.108)	(0.116)	(0.0705)	(0.0614)	(0.0775)
Good faith x Log Assets	0.123*	0.140**	0.201*	0.175**	0.0203	0.179*
	(0.0621)	(0.0684)	(0.101)	(0.0788)	(0.0663)	(0.103)
Union Membership	0.0232*	0.0236*	-0.00647	-0.00394	-0.00535	-0.0146
	(0.0127)	(0.0139)	(0.0114)	(0.0105)	(0.0132)	(0.0155)
Right-to-work	-0.154	0.248**	0.197	0.113	0.261	0.270*
	(0.184)	(0.0936)	(0.168)	(0.135)	(0.281)	(0.153)
Political balance	-0.0941	-0.0246	-0.451	-0.288	-0.0424	-0.319
	(0.250)	(0.243)	(0.386)	(0.286)	(0.236)	(0.328)
Observations	8,030	7,548	86,833	86,777	83,511	85,881
Adjusted R-squared	0.958	0.958	0.858	0.911	0.894	0.892
	SA Index (Hadlock and Pierce, 2010)					
Good faith	-0.832	-0.782	-0.983**	-1.122***	-0.619**	-1.207**
	(0.506)	(0.484)	(0.422)	(0.322)	(0.255)	(0.515)
SA Index	0.561***	1.202***	0.0881	0.271**	-0.0758	0.0333
	(0.116)	(0.275)	(0.177)	(0.129)	(0.109)	(0.130)
Good faith x SA index	-0.269*	-0.265*	-0.406***	-0.430***	-0.245**	-0.482***
	(0.159)	(0.149)	(0.145)	(0.106)	(0.0931)	(0.170)
Union Membership	0.0209*	0.0211	-0.0107	-0.00700	-0.00736	-0.0154
	(0.0120)	(0.0130)	(0.0135)	(0.0123)	(0.0148)	(0.0175)
Right-to-work	0.368***	0.185**	0.241	0.156	0.432	0.254
	(0.124)	(0.0878)	(0.192)	(0.154)	(0.310)	(0.175)
Political balance	-0.0390	-0.0210	-0.691	-0.418	-0.00254	-0.377
	(0.254)	(0.218)	(0.459)	(0.335)	(0.266)	(0.380)
Observations	6,993	6,772	75,626	75,607	73,346	75,627
Adjusted R-squared	0.955	0.962	0.854	0.906	0.893	0.886
Controls						
Serfling (2016)	YES	NO	YES	YES	YES	YES
Michaels et al. (2019)	NO	YES	NO	NO	NO	NO
Firm fixed effects	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES
Industry x Year fixed effects	YES	YES	YES	YES	YES	YES

This table presents the results from OLS regressions relating labor earnings, EBIT, EBITDA, employment and capital expenditures to the adoption of the good faith exception for Compustat non-financial firms from 1967 to 1995. All variables are normalized by their sample means. Good faith$_t$ is an indicator variable set to one if the state at which a firm is headquartered has enacted the good faith exception by year t and zero otherwise. Dollar values are expressed in 2009 dollars. Section 9.3 in the Appendix provides variable definitions. All regressions include firm fixed effects, state-level fixed effects, industry-year fixed effects. The firm and state-level controls used in tables 5 and 6 are included in all regressions. The upper table uses the lagged Log of assets to proxy financial constraints, while the bottom table uses the SA index introduced by Hadlock and Pierce (2010). Three additional state-level controls are included. (1) Political balance$_t$ is the fraction of Democrat state representatives in the House of Representatives and Senate. (2) Right-to-work$_t$ is an indicator variable set to one if the state in which the firm is headquartered has passed the right-to-work laws by year t. (3) Union membership$_t$ is the fraction of employees who are covered by collective bargaining agreements at year t. Standard errors are clustered at the state-level (standard deviations in parenthesis). *, **, and *** correspond to significance at the 10%, 5%, and 1% levels, respectively.

Table 12: Alternative headquarters locations

	Labor earnings		EBIT	EBITDA	Employment	Cap. Expenditures
	(1)	(2)	(3)	(4)	(5)	(6)
	Log Assets					
Good faith	-0.512	-0.545	-0.812	-0.843	-0.214	-0.862*
	(0.354)	(0.390)	(0.571)	(0.511)	(0.319)	(0.510)
Log Assets	0.463***	0.0997	0.545***	0.451***	0.534***	0.506***
	(0.107)	(0.115)	(0.116)	(0.0878)	(0.0797)	(0.107)
Good faith x Log Assets	0.0811	0.0864	0.187*	0.180*	0.0413	0.181*
	(0.0602)	(0.0647)	(0.111)	(0.0971)	(0.0643)	(0.0945)
Observations	6,341	6,186	66,805	66,789	65,179	66,806
Adjusted R-squared	0.943	0.944	0.835	0.905	0.880	0.882
	SA Index (Hadlock and Pierce, 2010)					
Good faith	-0.659	-0.649	-0.738	-0.890**	-0.557*	-1.041**
	(0.432)	(0.460)	(0.471)	(0.384)	(0.282)	(0.395)
SA Index	0.423***	0.891***	0.0656	0.210***	-0.0623	0.0253
	(0.0835)	(0.232)	(0.118)	(0.0756)	(0.0853)	(0.136)
Good faith x SA index	-0.204	-0.204	-0.312*	-0.331**	-0.180*	-0.375***
	(0.137)	(0.140)	(0.163)	(0.130)	(0.0978)	(0.125)
Observations	7,026	6,808	75,753	75,734	73,469	75,754
Adjusted R-squared	0.957	0.962	0.854	0.907	0.893	0.886
Controls						
Serfling (2016)	YES	NO	YES	YES	YES	YES
Michaels et al. (2019)	NO	YES	NO	NO	NO	NO
Firm fixed effects	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES
Industry x Year fixed effects	YES	YES	YES	YES	YES	YES

This table presents the results from OLS regressions relating labor earnings, EBIT, EBITDA, employment and capital expenditures to the adoption of the good faith exception from Compustat non-financial firms from 1967 to 1995. All variables are normalized by their sample means. Good faith$_t$ is an indicator variable set to one if the state at which a firm is headquartered has enacted the good faith exception by year t and zero otherwise. The Compustat data on headquarters locations is supplemented by data on historical headquarters locations constructed by Bai et al. (2020). Dollar values are expressed in 2009 dollars. Section 9.3 in the Appendix provides variable definitions. All regressions include firm fixed effects, state-level fixed effects, industry-year fixed effects. The firm and state-level controls used in tables 5 and 6 are included in all regressions. The upper table uses the lagged Log of assets to proxy financial constraints, while the bottom table uses the SA index introduced by Hadlock and Pierce (2010). Standard errors are clustered at the state-level (standard deviations in parenthesis). *, **, and *** correspond to significance at the 10%, 5%, and 1% levels, respectively.

the treatment and control groups differ across several firm and state-level dimensions. To account for these differences, I have controlled for these factors in all the previous regressions. To further address this concern, in this section I follow a propensity score matching based on log assets, profitability, fixed assets, the market to book ratio, an indicator for whether the firm is a dividend payer, the modified z-score, and book leverage. Each treatment firm is matched to a control firm with replacement on year, three digit SIC industry, and based on the closest propensity score.

Table 13 presents the results. Overall, the results are robust to using a matched sample. That is, labor earnings, firm's profits, employment, and investment decrease more after an improvement in EPLs in more financially constrained firms. Only in the case of using labor earnings and the SA index the interaction term loses significance, but this may be due to the loss of observations when applying the matching procedure.

Table 13: Propensity score matched samples

	Labor earnings		EBIT	EBITDA	Employment	Cap. Expenditures
	(1)	(2)	(3)	(4)	(5)	(6)
	Log Assets					
Good faith	-0.966*	-1.008**	-1.082*	-0.996*	-0.249	-1.054
	(0.498)	(0.495)	(0.575)	(0.502)	(0.307)	(0.666)
Log Assets	0.510***	0.121	0.525***	0.429***	0.549***	0.489***
	(0.101)	(0.116)	(0.0967)	(0.0598)	(0.0593)	(0.0717)
Good faith x Log Assets	0.170*	0.170*	0.237**	0.219**	0.0765	0.251*
	(0.0899)	(0.0859)	(0.108)	(0.0912)	(0.0628)	(0.127)
Observations	8,111	7,630	86,348	86,212	82,441	85,162
Adjusted R-squared	0.929	0.930	0.828	0.891	0.868	0.869
	SA Index (Hadlock and Pierce, 2010)					
Good faith	-1.145	-0.654	-1.052**	-1.191***	-0.714***	-1.284**
	(0.751)	(0.515)	(0.434)	(0.366)	(0.233)	(0.598)
SA Index	0.450**	1.057***	0.0922	0.274**	-0.0705	0.0405
	(0.181)	(0.357)	(0.180)	(0.133)	(0.112)	(0.133)
Good faith x SA index	-0.370	-0.236	-0.425***	-0.454***	-0.278***	-0.507**
	(0.237)	(0.168)	(0.147)	(0.117)	(0.0840)	(0.198)
Observations	6,592	6,366	72,702	72,617	70,330	72,582
Adjusted R-squared	0.928	0.938	0.823	0.886	0.870	0.862
Controls						
Serfling (2016)	YES	NO	YES	YES	YES	YES
Michaels et al. (2019)	NO	YES	NO	NO	NO	NO
Firm fixed effects	YES	YES	YES	YES	YES	YES
State fixed effects	YES	YES	YES	YES	YES	YES
Industry x Year fixed effects	YES	YES	YES	YES	YES	YES

This table presents the results from OLS regressions relating labor earnings, EBIT, EBITDA, employment and capital expenditures to the adoption of the good faith exception by suing a matched sample from Compustat non-financial firms from 1967 to 1995. I estimated propensity scores based on Log assets, Profitability, Fixed assets, Market to book, Dividend payer, the Modified z-score and Book leverage. Each treatment firm is matched to a control firm with replacement on year, three-digit SIC industry, and based on the closest propensity score. All variables are normalized by their sample means. Good faith$_t$ is an indicator variable set to one if the state at which a firm is headquartered has enacted the good faith exception by year t and zero otherwise. Dollar values are expressed in 2009 dollars. Section 9.3 in the Appendix provides variable definitions. All regressions include firm fixed effects, state-level fixed effects, industry-year fixed effects. The firm and state-level controls used in tables 5 and 6 are included in all regressions. The upper table uses the lagged Log of assets to proxy financial constraints, while the bottom table uses the SA index introduced by Hadlock and Pierce (2010). Standard errors are clustered at the state-level (standard deviations in parenthesis). *, **, and *** correspond to significance at the 10%, 5%, and 1% levels, respectively.

8 Conclusions

In this paper I start by presenting a model with heterogeneous agents that face endogenous credit constraints as a result of the interaction between labor and financial frictions. The main prediction of the model is that employment protection laws (EPLs) have unintended regressive consequences. EPLs hurt credit constrained firms and their workers, while they may only benefit financially unconstrained firms and their workers. The main mechanism behind this result is that EPLs distort firms' decisions through a financial channel. EPLs crowd out external finance, forcing firms to reduce investment and employment. These distortions are particularly large in more financially constrained firms, that have less room to accommodate EPLs. In contrast, credit unconstrained firms can more easily absorb EPLs. Thus, the decrease in investment and employment after the adoption of EPLs is more pronounced in more financially constrained firms.

To test the theoretical predictions of the model, I exploit the staggered adoption of Wrongful Discharge Laws (WDLs) by US states as a quasi-natural experiment to explore the causal impact of EPLs on labor earnings, firms' profits, investment, and employment. I find strong evidence that EPLs reduce labor earnings, firms' profits, investment and employment in financially constrained firms. Consistently with the model, this negative effect is decreasing in the level of financial constraints. Only unconstrained firms and their workers benefit from EPLs, confirming the regressive effects of EPLs predicted by the model.

Overall, this paper recognizes firms' financial constraints and their interaction with labor frictions as determinant factors for the effectiveness of EPLs. My findings provide supporting evidence for the implementation of size-contingent labor regulations across the world and a starting point for future research on the determinants of EPLs.

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9 Appendix

9.1 The debt contract

In this section, I characterize the optimal debt contract. Define the auxiliary function,

$$\Psi(a, d, l|\varphi, \theta) \equiv U^e(a, d, l|\varphi, \theta) - \phi k. \tag{13}$$

which measures the severity of agency problem for a triplet (a, d, l).[6] Analogously as inFischer and Huerta (2021), it can be shown that there exists a minimum wealth required to obtain a loan $\underline{a} > 0$ which is given by, [7]:

$$\Psi(a, d, l|\varphi, \theta) = 0 \iff U^e(\underline{a}, \underline{d}, \underline{l}|\varphi, \theta) = \phi\underline{k} \tag{14}$$

$$\Psi_d(a, d, l|\varphi, \theta) = 0 \iff pf_k(\underline{k}, (1-s)\underline{l}) = 1 + r^* + \phi, \tag{15}$$

$$\frac{\partial U^e(a, d, l|\varphi, \theta)}{\partial l} = 0 \iff pf_l(\underline{k}, (1-s)\underline{l}) = \bar{w}(\underline{\theta}), \tag{16}$$

where $\underline{k} \equiv \underline{a} + \underline{d}$, $\underline{d} > 0$ is the amount of debt that the first agent with access to credit can get and $\underline{l}$ are the units of labor he hires. Intuitively, the first condition asks that the minimum wealth to get a loan $\underline{a}$ leaves the agent just indifferent between absconding with the loan or honouring the contract. The second expression imposes that an agent with $\underline{a}$ is obtaining his minimum debt $\underline{d}$. The final condition imposes that labor hired $\underline{l}$ is optimal at the capital level $\underline{a} + \underline{d}$.

Thus, there is credit rationing: a rationed borrower ($a < \underline{a}$) may be willing to pay a higher interest rate in order to obtain a loan, but investors will not accept such offer since they cannot trust the borrower. From condition (15), the marginal return to investment of the first agent with access to credit is $1 + r^* + \phi$, which corresponds to the highest possible return to investment. As a increases, the return to capital falls until eventually it attains the level obtained by an efficient

[6] If $\Psi > 0$ the incentives to commit default decrease as Ψ increases. In contrast, if $\Psi < 0$ the entrepreneur has incentives to behave maliciously. A more negative Ψ means that the entrepreneur has less incentives to honour the credit contract and abscond with the loan.

[7] Conditions below arise from a *minimax* problem. See Fischer and Huerta (2021) for more details.

firm $1 + r^*$. Since U^e is increasing and continuous in the relevant range, there exists a critical wealth level $\overline{a} > \underline{a}$, such that an entrepreneur owing $\overline{a}$ is the first agent that can obtain a loan to invest efficiently,

$$\Psi(\overline{a}, k^* - \overline{a}, l^*) = 0. \tag{17}$$

Thus, in equilibrium these two thresholds define an endogenous range of entrepreneurs $[\underline{a}, \overline{a})$ who have restricted access to credit leading them to operate at an inefficient scale. Because in this range the marginal return to capital is larger than the marginal cost of debt, those agents will decide to ask for their maximum allowable loan given by,

$$\Psi(a, d, l|\varphi, \theta) = 0, \tag{18}$$

where labor $l \equiv l(a|\varphi, \theta)$ satisfies,

$$p(1 - s)f_l(a + d, (1 - s)l) = \bar{w}(\varphi, \theta). \tag{19}$$

9.2 Main Proofs

Proposition 1 *Consider the effect of a marginal increase of φ on entrepreneurs' utility, denoted as $\frac{\partial U^e(a)}{d\varphi}$. Then, there are two cases:*

1. $\frac{\partial U^e(a)}{\partial \varphi} < 0$ *for all* $a \geq \underline{a}$.
2. *There exists a threshold* $\hat{a} \in (\underline{a}, \overline{a})$ *such that:*

   i) $\frac{\partial U^e(a)}{\partial \varphi} < 0$ *if* $a < \hat{a}$.

   ii) $\frac{\partial U^e(a)}{\partial \varphi} \geq 0$ *if* $a \geq \hat{a}$.

   In either case the following holds: $\frac{\partial^2 U^e(a)}{\partial a \partial \varphi} > 0$.

Proof:

To simplify calculations, define $x = \{\varphi, \theta\}$. Differentiation of U_e in terms of x gives,

$$\frac{\partial U_e}{\partial x} = [pf_k - (1+r^*)]\frac{\partial d}{\partial x} - \frac{\partial \bar{w}(\varphi,\theta)}{\partial x} l. \tag{20}$$

Define $\bar{w}_\varphi \equiv \frac{\partial \bar{w}(\varphi,\theta)}{\partial \varphi} = \frac{\partial w}{\partial \varphi}[p((1-s)+s\varphi)+(1-p)\theta] + psw$ and $\bar{w}_\theta \equiv \frac{\partial \bar{w}(\varphi,\theta)}{\partial \theta} = \frac{\partial w}{\partial \theta}[p((1-s)+s\varphi)+(1-p)\theta] + (1-p)w$. Additionally, use that $\frac{\partial d}{\partial x} = \frac{l \cdot \bar{w}_x}{f_k - (1+\underline{r})}$ in previous expression,

$$\frac{\partial U_e}{\partial x} = l \cdot \bar{w}_x \left[\frac{pf_k - (1+r^*)}{pf_k - (1+\underline{r})} - 1\right] = \phi \bar{w}_x \frac{l}{pf_k - (1+\underline{r})} < 0. \tag{21}$$

Thus, the effect of increased $x = \{\varphi, \theta\}$ on entrepreneurs' utility is negative. In particular, $\lim_{a \to \underline{a}^+} \frac{\partial U_e(a)}{\partial x} \longrightarrow -\infty$ and $\frac{\partial U_e(\overline{a})}{\partial x} = -l^* \bar{w}_x$.

In order to conclude that this negative effect becomes weaker as a increases, all is left to show is that $\frac{\partial}{\partial a}\left(\frac{\partial U_e}{\partial x}\right) > 0$. Differentiate (21) with respect to a,

$$\frac{\partial}{\partial a}\left(\frac{\partial U_e}{\partial x}\right) = \frac{\phi \bar{w}_x}{(pf_k - (1+\underline{r}))^2}\left[\frac{\partial l}{\partial a}(pf_k - (1+\underline{r})) - l\frac{\partial}{\partial a}(pf_k)\right].$$

Note that,

$$\frac{\partial}{\partial a}(f_k) = \left(f_{kk} - \frac{f_{kl}^2}{f_{ll}}\right)\left(1 + \frac{\partial d}{\partial a}\right) = -\frac{\alpha f}{(1-\beta)k^2}(1-\alpha-\beta)\left(1+\frac{\partial d}{\partial a}\right) < 0, \tag{22}$$

then,

$$\begin{aligned}
\frac{\partial}{\partial a}\left(\frac{\partial U_e}{\partial x}\right) &= \frac{\phi \bar{w}_x}{(pf_k - (1+\underline{r}))^2}\left(1+\frac{\partial d}{\partial a}\right)\left[-\frac{f_{kl}}{(1-s)f_{ll}}(pf_k - (1+\underline{r})) + l\frac{p\alpha f}{(1-\beta)k^2}(1-\alpha-\beta)\right], \\
&= \frac{\phi \bar{w}_x}{(pf_k - (1+\underline{r}))^2}\left(1+\frac{\partial d}{\partial a}\right)\left[\frac{\alpha l}{k(1-s)^2(1-\beta)}(pf_k - (1+\underline{r})) + l\frac{pf_k}{(1-\beta)k}(1-\alpha-\beta)\right], \\
&= \underbrace{\frac{\phi l \bar{w}_x}{(1-s)^2(1-\beta)k(pf_k - (1+\underline{r}))^2}\left(1+\frac{\partial d}{\partial a}\right)}_{>0}\left[\alpha(pf_k - (1+\underline{r})) + pf_k(1-s)^2(1-\alpha-\beta)\right].
\end{aligned}$$

Denote the term in brackets by h and notice that,

$$h \equiv \alpha(pf_k - (1+\underline{r})) + pf_k(1-s)^2(1-\alpha-\beta) > -\alpha\phi + (1+r^*)(1-s)^2(1-\alpha-\beta) > 0,$$

where the first inequality comes from $pf_k \in [1+r^*, 1+\underline{r}]$ and the second one uses assumption 1. Therefore, $\frac{\partial}{\partial a}\left(\frac{\partial U_e}{\partial x}\right) > 0, x \in \{\varphi, \theta\}$ and smaller firms are more adversely affected by an improvement in employees' rights measured by φ or θ, which concludes the proof ■

Proposition 2 *Consider the effect of a marginal increase of φ on workers' utility, denoted as $\frac{\partial \tilde{U}^w(a)}{\partial \varphi}$. Then, there exists a threshold $\tilde{a} \in (\underline{a}, \overline{a})$ such that:*

i) $\frac{\partial \tilde{U}^w(a)}{\partial \varphi} < 0$ *if* $a < \tilde{a}$.

ii) $\frac{\partial \tilde{U}^w(a)}{\partial \varphi} > 0$ *if* $a > \tilde{a}$.

Additionally, the following holds: $\frac{\partial^2 \tilde{U}^w(a)}{\partial a \partial \varphi} > 0$.

Proof: Differentiating condition (10) with respect to $x = \{\varphi, \theta\}$:

$$\begin{aligned}
\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x} &= \bar{w}_x l + \frac{\partial l}{\partial x}\bar{w}(\varphi,\theta) - \frac{\left[\frac{\partial l}{\partial x}\varsigma(l_s) + l\varsigma'(l_s)\frac{\partial l_s}{\partial x}\right] l_s - l\varsigma(l_s)\frac{\partial l_s}{\partial x}}{(l_s)^2}, \\
&= \bar{w}_x l + \frac{\partial l}{\partial x}\left(\underbrace{\bar{w}(\varphi,\theta)}_{=\varsigma'(l_s)} - \frac{\varsigma(l_s)}{l_s}\right) - \frac{l}{l_s}\frac{\partial l_s}{\partial x}\left(\varsigma'(l_s) - \frac{\varsigma(l_s)}{l_s}\right), \\
&= \bar{w}_x \cdot l \underbrace{\left[1 - \frac{1}{\varsigma''(l_s)\cdot l_s}\left(\varsigma'(l_s) - \frac{\varsigma(l_s)}{l_s}\right)\right]}_{=(\gamma-1)/\gamma>0} + \underbrace{\frac{\partial l}{\partial x}}_{<0}\underbrace{\left(\varsigma'(l_s) - \frac{\varsigma(l_s)}{l_s}\right)}_{=(\gamma-1)l_s^{\gamma-1}>0},
\end{aligned} \tag{23}$$

where the last equality uses that $\frac{\partial l_s}{\partial x} = \frac{\bar{w}_x}{\varsigma''(l_s)} > 0$. Note that the sign of $\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x}$ is ambiguous and depends on a. For a firm which is operating close enough to $\underline{a}$, $\lim_{a\to\underline{a}^+}\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x} = -\infty$ (since $\lim_{a\to\underline{a}^+}\frac{\partial d}{\partial x} = -\infty$ and so, $\lim_{a\to\underline{a}^+}\frac{\partial l}{\partial x} = -\infty$). Thus, at least in a neighborhood of $\underline{a}$ the representative worker is worse off. In addition, note that the labour market must satisfy the welfare equilibrium condition,

$$\mathbb{E}_G[U_w(\varphi,\theta)|a<\underline{a}]G(\underline{a}) = \mathbb{E}_G[\tilde{U}_w(a|\varphi,\theta)|a>\underline{a}](1-G(\underline{a})), \tag{24}$$

$$\Longrightarrow \underbrace{\mathbb{E}_G\left[\frac{\partial U_w(\varphi,\theta)}{\partial x}\middle| a<\underline{a}\right]G(\underline{a}) + U_w(\varphi,\theta)g(\underline{a})\frac{\partial \underline{a}}{\partial \mathcal{I}^x}}_{>0} = \mathbb{E}_G\left[\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x}\middle| \underline{a}>0\right](1-G(\underline{a})) - \tilde{U}^w(\underline{a}|\varphi,\theta)g(\underline{a})\frac{\partial \underline{a}}{\partial \mathcal{I}^x}.$$

Using the fact that $\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x} < 0$ in some neighborhood of $\underline{a}$ and that the second term of the right-hand side is also negative, it follows that $\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x}$ must be positive in some range (otherwise condition (24) is violated). If $\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x}$ is strictly increasing in a then there exist some threshold $\tilde{a}_0^x \equiv \tilde{a}^x(\mathcal{I}_0) \in (\underline{a}, \overline{a})$ defined by,

$$\frac{\partial \tilde{U}^w(\tilde{a}_0^x|\mathcal{I}_0)}{\partial x} = 0, \quad x \in \{\varphi, \theta\},$$

such that $\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x} < 0$ if $a \in [\underline{a}, \tilde{a}_0^x)$ and $\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x} > 0$ if $a > \tilde{a}_0^x$.

All is left to show is that $\frac{\partial}{\partial a}\left(\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x}\right) > 0$. Differentiation of $\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x}$ with respect to a leads to:

$$\frac{\partial}{\partial a}\left(\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x}\right) = \underbrace{\bar{w}_x \cdot \frac{\partial l}{\partial a}}_{>0}\underbrace{\left[1 - \frac{1}{\varsigma''(l_s)\cdot l_s}\left(\varsigma'(l_s) - \frac{\varsigma(l_s)}{l_s}\right)\right]}_{>0} + \frac{\partial}{\partial a}\left(\frac{\partial l}{\partial x}\right)\underbrace{\left(\varsigma'(l_s) - \frac{\varsigma(l_s)}{l_s}\right)}_{>0}.$$

Observe that the sign of $\frac{\partial}{\partial a}\left(\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x}\right)$ depends on $\frac{\partial}{\partial a}\left(\frac{\partial l}{\partial x}\right)$. In what follows is shown that $\frac{\partial}{\partial a}\left(\frac{\partial l}{\partial x}\right) > 0$, which implies that $\frac{\partial}{\partial a}\left(\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x}\right) > 0$.

From the FOC of labor (19),

$$p(1-s)\left(f_{lk}\frac{\partial d}{\partial \theta} + (1-s)f_{ll}\frac{\partial l}{\partial \theta}\right) = \bar{w}_x,$$

$$\Longrightarrow \frac{\partial l}{\partial x} = \frac{\frac{\bar{w}_x}{p(1-s)} - f_{lk}\frac{\partial d}{\partial \theta}}{(1-s)f_{ll}} = \frac{\bar{w}_x}{1-s}\left(\frac{1}{p(1-s)f_{ll}} - \frac{lf_{kl}}{f_{ll}(f_k-(1+\underline{r}))}\right) = \frac{\bar{w}_x}{1-s}\left(\frac{1}{p(1-s)f_{ll}} - \frac{\beta(1-s)f_k}{f_{ll}(pf_k-(1+\underline{r}))}\right), \tag{25}$$

where the last equality follows from $f_{kl} = \frac{\alpha(1-s)\beta f}{kl} = \frac{\beta(1-s)f_k}{l}$. Differentiation of (25) leads to:

$$\frac{\partial}{\partial a}\left(\frac{\partial l}{\partial x}\right) = \frac{\bar{w}_x}{1-s}\left[-\frac{\frac{\partial}{\partial a}(f_{ll})}{p(1-s)f_{ll}^2} - \beta(1-s)\frac{\frac{\partial}{\partial a}(f_k)(pf_k-(1+\underline{r}))f_{ll}}{(pf_k-(1+\underline{r}))^2 f_{ll}^2} + \beta(1-s)f_k\frac{\left(p\frac{\partial}{\partial a}(f_k)f_{ll} + (pf_k-(1+\underline{r}))\frac{\partial}{\partial a}(f_{ll})\right)}{(pf_k-(1+\underline{r}))^2 f_{ll}^2}\right]$$
$$= \frac{\bar{w}_x}{1-s}\left(\frac{\partial}{\partial a}(f_{ll})\left[\frac{\beta(1-s)f_k(pf_k-(1+\underline{r}))}{(pf_k-(1+\underline{r}))^2 f_{ll}^2} - \frac{1}{p(1-s)f_{ll}^2}\right] + \beta(1-s)\frac{\partial}{\partial a}(f_k)\frac{f_{ll}(1+\underline{r})}{(pf_k-(1+\underline{r}))^2 f_{ll}^2}\right)$$
$$= \underbrace{\frac{\bar{w}_x}{p(1-s)^2(pf_k-(1+\underline{r}))^2 f_{ll}^2}}_{\equiv h_x>0}\left[\frac{\partial}{\partial a}(f_{ll})\cdot\left[\beta(1-s)^2 pf_k(pf_k-(1+\underline{r})) - (pf_k-(1+\underline{r}))^2\right] + \beta(1-s)^2 p\frac{\partial}{\partial a}(f_k)\cdot f_{ll}(1+\underline{r})\right]. \tag{26}$$

Notice that,

$$\frac{\partial}{\partial a}(f_{ll}) = f_{llk}\left(1+\frac{\partial d}{\partial a}\right) + f_{lll}(1-s)\frac{\partial l}{\partial a} = \left(f_{llk} - \frac{f_{kl}\cdot f_{lll}}{f_{ll}}\right)\left(1+\frac{\partial d}{\partial a}\right) = \frac{\alpha\beta(1-s)^2 f}{kl^2}\left(1+\frac{\partial d}{\partial a}\right) > 0. \tag{27}$$

Defining $\tilde{h}_x \equiv h_x\left(1+\frac{\partial d}{\partial a}\right)$ and replacing (27) and (22) in (26) gives:

$$\frac{\partial}{\partial a}\left(\frac{\partial l}{\partial \theta}\right) = \tilde{h}_x\left[\frac{\alpha\beta(1-s)^2 f}{kl^2}\cdot\left[\beta(1-s)^2 pf_k(pf_k-(1+\underline{r})) - (pf_k-(1+\underline{r}))^2\right]\right.$$
$$\left. -\beta(1-s)^2 p\frac{\alpha f}{(1-\beta)k^2}(1-\alpha-\beta)\cdot f_{ll}(1+\underline{r})\right],$$
$$= \tilde{h}_x\frac{f_{ll}}{k}\left[\frac{\alpha}{(\beta-1)}\cdot\left[\beta(1-s)^2 pf_k(pf_k-(1+\underline{r})) - (pf_k-(1+\underline{r}))^2\right]\right.$$
$$\left. -\beta(1-s)p\frac{f_k}{1-\beta}(1-\alpha-\beta)\cdot(1+\underline{r})\right],$$
$$= \underbrace{-(1-\beta)^{-1}\tilde{h}_x\frac{f_{ll}}{k}}_{>0}\left[\alpha\left[\beta(1-s)^2 pf_k(pf_k-(1+\underline{r})) - (pf_k-(1+\underline{r}))^2\right]\right.$$
$$\left. +\beta(1-s)^2 pf_k(1-\alpha-\beta)(1+\underline{r})\right].$$

The sign of this expression is determined by the sign of the term in brackets which we denote by q:

$$q \equiv \alpha[\beta(1-s)^2 pf_k(pf_k - (1+\underline{r})) - (pf_k - (1+\underline{r}))^2] + \beta(1-s)^2 pf_k(1-\alpha-\beta)(1+\underline{r})$$
$$= \alpha(pf_k - (1+\underline{r}))[\beta(1-s)^2 pf_k - (pf_k - (1+\underline{r}))] + \beta(1-s)^2 pf_k(1-\alpha-\beta)(1+\underline{r})$$
$$= -\alpha(pf_k - (1+\underline{r}))(pf_k(1-\beta(1-s)^2) - (1+\underline{r})) + \beta(1-s)^2 pf_k(1-\alpha-\beta)(1+\underline{r}).$$

Recall that $pf_k \in [1+r^*, 1+\underline{r}]$, then $pf_k - (1+\underline{r}) \in [-\phi, 0]$ and $pf_k(1-\beta(1-s)^s) - (1+\underline{r}) \in [-(\beta(1-s)^2(1+r^*)+\phi), -\beta(1-s)^2(1+r^*+\phi)]$. Using these properties and assumption 1,

$$q \geq -\alpha\phi(\beta(1-s)^2(1+r^*)+\phi) + \beta(1-s)^2(1+r^*)(1-\alpha-\beta)(1+r^*+\phi),$$
$$> -\alpha\phi(\beta(1-s)^2(1+r^*)+\phi) + \beta(1-s)^2(1+r^*)(1-\alpha-\beta)(\beta(1-s)^2(1+r^*)+\phi),$$
$$> (\beta(1-s)^2(1+r^*)+\phi)\Big[-\alpha\phi + \beta(1-s)^2(1+r^*)(1-\alpha-\beta)\Big] > 0,$$

which implies that $\frac{\partial}{\partial a}\left(\frac{\partial l}{\partial x}\right) > 0$. Thus, $\frac{\partial}{\partial a}\left(\frac{\partial \tilde{U}^w(a|\varphi,\theta)}{\partial x}\right) > 0$, which leads to the result of the proposition. ■

9.3 Additional tables

Table 14: Variable definitions

Variable	Description (Compustat variable names in parentheses where appropriate)
Labor earnings	Salaries, wages, pension costs, profit sharing and incentive compensation, payroll taxes and other employee benefits (XLR)
Employment	Number of company workers (EMP)
EBIT	Earnings before interest and taxes (EBIT)
EBITDA	Earnings before interest (EBITDA)
Book leverage	Book value of long-term debt (DLTT) plus debt in current liabilities (DLC) divided by book value of assets (AT)
Market leverage	Book value of long-term debt (DLTT) plus debt in current liabilities (DLC) divided by market value of debt and equity (PRCC_F*CSHO)
Good faith	An indicator variable set to one if the state in which the firm is headquartered adopted the good faith exception
Implied contract	An indicator variable set to one if the state in which the firm is headquartered adopted the implied contract exception
Public policy	An indicator variable set to one if the state in which the firm is headquartered adopted the public policy exception
Assets	Total value fo book assets (AT)
Profitability	Income before extraordinary items (IB) plus deprecaition and amortization (DP) divided by the book value fo assets (AT)
Fixed assets	Property, plat and equipment (PPENT) divided by the book value of assets (AT)
Market to book	The market value of assets (AT+PRCC_F*CSHO-CEQ) divided by the book value of assets (AT)
Dividend payer	An indicator variable set one if the firm pays a common dividend (DVC)
Modified z-score	The modified Altman's z-score (1.2*WCAP+1.4*RE+3.3*EBIT+SALE)/AT
Sale	Gross sales (SALE)
Capital	Cash outflow or the funds used for additions to the company's property, plant and equipment, excluding acquisitions (CAPX)
State per capita GDP	State's GDP divided by its total population
State GDP growth	State-level GDP growth
Circuit good faith	Fraction of other states in the same federeal cicuit as the firm's headquarter state that have adopted the good faith exception.
Right-to-work	An indicator variable set to one if the state in which the firm is headquartered has adopted the right-or-work laws
Union membership	Fraction of employees who are covered by collective bargaining agreements in a given state
Political balance	Fraction of Democrat state representatives in the House of Representatives and Senate