Concentrated Ownership and Labor Relations*

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Abstract

The extent to which firm ownership is concentrated or dispersed varies considerably from country to country. Explanations based on differences in the protection of minority shareholders leave a significant part of the variance unexplained. This paper offers a novel explanation for the variation in ownership concentration across countries based on differences in the quality of labor relations. We show empirically that countries in which labor relations are hostile tend to have more concentrated ownership. These results continue to hold when we instrument labor relations using religion, which has been argued is a key factor in the history of European labor organizations. We find similar results using historical data for Canada, documenting a surprisingly strong correlation between strike activity and ownership concentration over the past 50 years. Theoretically, we show that these findings are consistent with a simple model of repeated wage bargaining under asymmetric information in which labor relations and ownership concentration are jointly determined.

JEL codes: D2, G3, J3, J5

PRELIMINARY AND INCOMPLETE

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Introduction

The role of trust and social capital for economic development has been the object of much research. Banfield (1958) and Putnam (1993) study norms and civic traditions in Italy, while Fukuyama (1995) argues that large organizations cannot develop without trust. Indeed, La Porta, Lopez-de Silanes, Shleifer, and Vishny (1997) show that, across countries, trust is correlated with the presence of large firms.[1]

As Guiso, Sapienza, and Zingales (2004) point out, however, two critical issues remain. First, we need a better understanding of the precise link between trust and economic performance. Second, if we want to argue that trust has a causal effect on development, we need to understand where trust comes from. Arguably, different notions of trust may be relevant in different contexts. In this paper, we focus on a particular form of trust, that between workers and firms, and its relevance for a particular economic outcome, the concentration of corporate ownership and control.

La Porta, de Silanes Florencio, and Shleifer (1999) show that the widely held firm envisioned by Berle and Means (1932) is the exception rather than the norm. In most countries, firms tend to be controlled by rich individuals and families, not dispersed shareholders. As La Porta, de Silanes Florencio, and Shleifer (1999) argue, this prevalence of tightly held firms can be partly explained by poor protection of minority shareholders. And yet, explanations based on differences in the protection of minority shareholders leave a significant fraction of the variance unexplained.

To shed light on this issue, we develop a model of repeated bargaining under asymmetric information in which corporate control and labor relations are jointly determined. When ownership is dispersed, control rests in the hands of professional managers. To the extent that managers tend to shy away from conflicts with workers, the effective delegation of control to managers can foster trust between the firm and its workers. Conversely, when the manager is part of the controlling family, she might not be able to establish trust.

Several predictions of our model are consistent with existing firm-level evidence. Our model predicts that firms with concentrated ownership pay lower wages. Sraer and Thesmar (2004) show that this is indeed the case in France. Similarly, Bertrand and Mullainathan

[1] See also Knack and Keefer (1997) and Tabellini (2005), and see Guiso, Sapienza, and Zingales (2005a) for a recent survey.

(2003) show that firms in which managers have more effective control tend to pay higher wages. Our model also predicts that the exclusive pursuance of profit maximization can lead to worse labor relations. This is consistent with Fisman and Nair (2005) who show that, in firms that focus more on shareholder interests, employees are more dissatisfied.

We show that the pattern of labor relations and ownership concentration around the world is consistent with our model. First, we show that ownership is more concentrated in countries where labor relations are more conflictual. We obtain our data on the quality of labor relations from two worldwide surveys of managers. A priori, one might think that many characteristics of the labor market should affect ownership concentration. It is therefore quite informative to see that conflictual relationships in the workplace do indeed matter. On the other hand, we find that neither union power nor labor regulations matter for ownership concentration.

Second, following the work of labor historians, we argue that religion is an important determinant of the quality of labor relations. For Europe, it has been argued that state-church conflicts had a long lasting influence on the relations between the state and early labor organizations in the 19th century. These early conflicts were very different in Catholic and Protestant countries, and even today, we show that countries with a large fraction of Catholics tend to have worse labor relations. For Western countries, we confirm the existence of a causal link going from labor relations to ownership concentration by using religion as an instrument, controlling for legal origin. We also argue that the Japanese historical experience is consistent with our main prediction, since labor relations in Japan were more conflictual before World War II – when family ownership was very prevalent – than after the American invasion and the post-war dismantlement of the zaibatsu by the occupiers. A close comparison of Japan and Korea today also suggests a positive link between family capitalism and bad labor relations.

Third, we present historical evidence from Canada. We show that the rise of labor conflicts in Canada, starting in the mid 1960s, was accompanied by a fall in the proportion of widely held firms, as documented by Morck, Percy, Tian, and Yeung (2004). Likewise, dispersed ownership started to recover only after labor conflicts decreased sharply in the 1980s.

The rest of the paper is organized as follows. Section 1 presents the model. Section

2 establishes the link between labor relations and family control across countries. Section 3 tests alternative explanations. Section 4 discusses historical evidence and presents the instrumental variable regressions. Section 5 focuses on Canada. Section 6 concludes.

1 Theory

1.1 The Model

We sketch a simple model to examine the relationship between ownership concentration, trust, and labor relations. We distinguish between two types of firms, which may be viewed as being on opposite sides of the spectrum. In one firm ownership is dispersed, and the firm is effectively controlled by a professional manager. In the other firm ownership is concentrated, and the firm is effectively controlled by the firm's shareholders, e.g., a family or large individual blockholder. While the latter type of firm may also have a professional manager, we assume effective control resides with the firm's shareholders, alluding to the idea that it is difficult for a controlling shareholder to credibly precommit not to overrule managerial decisions that run against his own interests (cf., Aghion and Tirole (1997); Burkart, Gromb, and Panunzi (1997)).

In summary, we distinguish between concentrated, owner-controlled firms in which key decisions are made by the firm's shareholders and dispersed, manager-controlled firms in which shareholders are passive, and decisions are made by professional managers. We assume for simplicity that in both types of firms there is a single decision-maker, i.e., there is either a single owner or manager that is making all the decisions.

Our focus in this paper is on wage bargaining. We assume labor is represented by a union whose objective is to maximize workers' wages. The union's counterparty in the bargaining is either the firm's owner or manager, depending on which type of firm we consider. While there are many potential costs and benefits of delegating control to a manager, we focus on a single aspect that we believe is particularly relevant for the wage bargaining: we assume managers have a lower tolerance for labor conflict than shareholders. Precisely, if y is the firm's income and w is the (total) wage paid to workers, we assume the owner's objective function is

$$\pi := y - w,$$

while the manager's objective function is

$$u := \pi - \chi\psi,$$

where ψ represents the manager's personal, non-pecuniary cost of a strike, and χ is an indicator function taking the value $\chi = 1$ if there is a strike and $\chi = 0$ otherwise.

Accordingly, both the owner and the manager maximize firm profits. In the owner's case, this follows naturally from the fact that he owns the firm. In the manager's case, this follows from an assumption we make, namely, that the manager receives private benefits (in utility terms) equal to π, which causes him to maximize firm profits.[2] Given this assumption, the only difference between the owner and the manager is that the manager incurs an additional private disutility if there is a strike. This disutility may come from, e.g., depletion of the manager's human capital if there is no production, or career concerns if the managerial labor market penalizes managers who fail to come to peace with labor.

Of course, in practice managers may not necessarily maximize firm profits. What is more, it may be possible to influence the manager's objectives by putting him on an appropriately designed incentive scheme. We abstract from all these issues here. As we will see shortly, even a parsimonious model like ours where the only difference between the owner and manager is that the manager incurs an additional disutility from strikes is sufficiently rich to produce an interesting tradeoff: delegating control to a strike-averse manager means there will be fewer strikes, and hence more production, but also that the manager will accept higher wages if the union threatens him to strike.

Note that it is not critical that the manager, like the owner, maximizes the firm's *total* profits. Neither is it critical that only the manager incurs a disutility from strikes. For instance, we could equally assume that both the manager and the owner incur a disutility from strikes, but the manager's disutility is higher than the owner's. Alternatively, we could assume that both incur the same disutility, but the manager cares only about a fraction β of the firm's profits.[3] In all these cases, the manager-controlled firm will have fewer strikes but

[2] Such private benefits might derive from empire-building preferences: "the CEO's ability to appropriate private benefits should ultimately be roughly in line with the value of the enterprise as a whole. To put it simply, although agency-prone CEOs may want big empires, it also seems reasonable that, holding size fixed, they will want valuable empires" (Scharfstein and Stein (2000), p.2538).

[3] Assuming that the manager maximizes $u = \beta\pi - \chi\psi$ is tantamount to assuming that he maximizes $u = \pi - \chi\psi/\beta$. Hence, it does not matter if the manager and the owner both incur the same disutility ψ

higher wages. Hence, what matters in the end is only that the manager cares *relatively* more about avoiding strikes, and *relatively* less about minimizing wages (and thus maximizing profits), than the firm's owner.

Such managerial preferences are consistent with Bertrand and Mullainathan (2003) findings that managers appear to prefer a "quiet life" in which labor conflicts are absent.[4]

While differences in preferences between the owner and manager will affect the *outcome* of the bargaining with the union, the *structure* of the bargaining game is the same for the owner- and manager-controlled firm. There are four stages.

- Stage 1. Nature draws the firm's potential income $y \in \left\{y^L, y^H\right\}$, where $y = y^H$ with probability p and $y = y^L$ with probability $1 - p$. While the firm (i.e., the owner or manager) observes whether $y = y^H$ or $y = y^L$, the union only knows the respective probabilities for y^H and y^L.

- Stage 2. The firms makes a wage offer w which the union can either accept or reject.

- Stage 3. If the union accepts the firm's offer, the game ends. The firm's and the union's payoffs are then $\pi = y - w$ and w, respectively. If the union rejects, there are two possibilities.

  - with probability γ negotiations break down, which we may interpret as a strike. There is no production in this case, and both the firm's and the union's payoffs are zero.
  - with probability $1 - \gamma$ negotiations continue, and we proceed to stage 4.

- Stage 4. The union makes a counteroffer $\tilde{w}$, which the firm can either accept or reject. If the firm accepts, the firm's and the union's payoffs are $\pi = y - \tilde{w}$ and $\tilde{w}$, respectively. If the firm rejects, negotiations break down once and for all, which we

but the manager cares only about a fraction β of the firm's profits, or if both maximize π but the manager incurs a higher disutility $\psi/\beta > \psi$.

[4] "[M]anagers appear to care more about workers ... than shareholders do ... This care for workers may result from a desire to avoid conflict with unions" (p.1046). Incidentally, our result that managers' aversion towards strikes leads to higher wages is consistent with another of Bertrand and Mullainathan's findings, namely, that firms in which managers are insulated from shareholder pressure pay higher wages. The authors conclude: "[t]he wage results may also fit well into this quiet life view if high wages are a way for managers to buy peace with their workers" (p.1047).

may again interpret as a strike. Like above, both the firm's and the union's payoffs are zero in this case.

Before we come to the main analysis, let us briefly comment on the game structure. Since the firm makes its initial wage offer under private information, we have a signalling game. Provided the firm's initial offer is fully revealing, the union knows whether $y = y^H$ or $y = y^L$ when it makes a counteroffer in stage 4. Since we assume the game ends after this stage, this implies the union can extract the full surplus (and even more when it faces the strike-averse manager). While this result may appear extreme, note that the union's ex-ante *expected* payoff is considerably lower, as we will show shortly. Alternatively, we could assume that, beginning with stage 4, the firm and the union play an alternating-offer game with open time horizon à la Rubinstein (1982). The results are qualitatively the same. The only difference is that instead of the union appropriating the full surplus, the union and the firm share this surplus more evenly according to the generalized Nash bargaining solution.[5,6]

In our analysis below, we focus on a separating equilibrium in which the firm's initial wage offer is fully revealing. Separation is possible as high-income firms have relatively more to lose from a strike than low-income firms. Hence, the sorting variable that separates high- from low-income firms is the *probability* of a strike.[7] Alternatively, we could construct a separating equilibrium using the delay involved in reaching an agreement—i.e., the *length* of a strike—as a sorting variable, like in Admati and Perry (1987). The qualitative results are very similar, although Admati and Perry's model requires discounting even in the one-shot game, while our model does not.

[5] This holds in the limit as the time between offers and counteroffers becomes arbitrarily small and bargaining frictions are either due to discounting or risk of breakdown. Like in our model where the game ends in stage 4, the firm always accepts the union's (first) counteroffer, which implies the game effectively also ends after stage 4 despite its open time horizon. See Binmore, Rubinstein, and Wolinsky (1986) for details.

[6] There are some technical issues, however, which are absent in our model where the game ends after stage 4. For instance, in our model it is relatively straightforward to take the one-shot game into a repeated-game setting as the length of the stage game is fixed. This is not true in an infinite-horizon stage game à la Rubinstein (1982). See Muthoo (1995) for a discussion. Second, if the firm can make future wage offers after its initial wage offer in stage 2, additional conditions must be imposed to ensure that the firm's initial wage offer is fully revealing. For further details, see Rubinstein (1985) and Admati and Perry (1987).

[7] This is an application of Wilson (1980) insight that the probability of trade can serve as a sorting variable in private-information settings.

1.2 The One-Shot Game

We first consider a one-shot version of the game outlined above. We focus on the interesting case in which the firm's wage offer in stage 2 is fully revealing. In Appendix A we show that this is indeed the unique equilibrium outcome if p is sufficiently large. While the one-shot game delivers interesting insights into the costs and benefits of delegating control, it cannot address the issue of trust between the firm and its workers. To address this issue, we subsequently consider a repeated version of the one-shot game.

Owner-Controlled Firm

In a separating equilibrium, the high-income firm offers a high wage w^H, while the low-income firm offers a low wage w^L. Working backwards, consider first the union's counteroffer in stage 4. At this stage, the union knows from the firm's initial wage offer whether $y = y^H$ or $y = y^L$. Hence, if the firm's initial wage offer was $w = w^H$, the union's counteroffer is

$$\tilde{w}^H = y^H. \tag{1}$$

Similarly, if the firm's initial wage offer was $w = w^L$, the union's counteroffer is

$$\tilde{w}^L = y^L. \tag{2}$$

Hence, there is never a strike in stage 4, which is of course what we would expect given that there is full information at this stage.

Consider next the union's accept or reject decision in stage 3. In a separating equilibrium, the union always accepts a high wage offer $w = w^H$, while it rejects a low wage offer $w = w^L$ with positive probability $\lambda \in (0, 1)$. Hence, offering a low wage triggers a strike with probability $\lambda\gamma > 0$. For the union to prefer accepting a high wage offer, it must hold that

$$w^H \geq (1 - \gamma)\, \tilde{w}^H. \tag{3}$$

Clearly, the firm will set w^H so that (3) is satisfied with equality. On the other hand, for the union to reject an offer $w = w^L$ with probability $\lambda \in (0, 1)$, it must be indifferent. Hence,

$$w^L = (1 - \gamma)\, \tilde{w}^L. \tag{4}$$

Consider finally the firm's initial wage offer in stage 2. Given the union's accept or reject decision in stage 3, the IC constraint of the high-income firm is

$$y^H - w^H \geq \lambda (1-\gamma) \left(y^H - \tilde{w}^L\right) + (1-\lambda) \left(y^H - w^L\right), \tag{5}$$

while the IC constraint of the low-income firm is

$$\lambda (1-\gamma) \left(y^L - \tilde{w}^L\right) + (1-\lambda) \left(y^L - w^L\right) \geq y^L - w^H. \tag{6}$$

In a separating equilibrium, (5) must hold with equality. Inserting (1)-(4) in (5) and solving for λ yields

$$\lambda_O = \frac{1-\gamma}{\gamma} \frac{\Delta}{y^H}, \tag{7}$$

where the subscript "O" stands for "owner-controlled" and where $\Delta := y^H - y^L$. Hence, the probability of a strike, $\gamma\lambda_O$, is decreasing in γ and increasing in Δ/y^H. It is easily checked that the IC constraint of the low-income firm is satisfied with strict inequality.

We can finally compute the firm's ex-ante expected profit before y is realized. It is

$$\pi_O^N = p \left(y^H - w^H\right) + (1-p) \left[(1-\lambda_O) \left(y^L - w^L\right) + \lambda_O (1-\gamma) \left(y^L - \tilde{w}^L\right)\right], \tag{8}$$

where the superscript "N" stands for "Nash", as π_O^N represents the firm's expected profit in a Nash equilibrium of the one-shot game. Inserting (1)-(4) as well as (7) in (8), we obtain

$$\pi_O^N = \gamma \bar{y} - (1-\gamma)(1-p) \frac{\Delta y^L}{y^H}, \tag{9}$$

where $\bar{y} := p y^H + (1-p) w^L$.

Manager-Controlled Firm

We proceed in the same way as above. The union's counteroffer in stage 4 is now

$$\tilde{w}^H = y^H + \psi \tag{10}$$

and

$$\tilde{w}^L = y^L + \psi, \tag{11}$$

respectively. Accordingly, the fact that the manager dislikes strikes allows the union to extract higher wages in stage 4 compared to the owner-controlled firm.[8]

[8] The fact that $w > y$ is not a concern if we allow the firm to make negative profits. Alternatively, we could define the firm's income as $x + y$, where x is the income level if there is a strike. As long as $\psi < x$, profits are always positive.

Stage 3 is identical to above, implying (3) (with equality) and (4) both hold. Hence, given that the firm offers a fraction $(1-\gamma)$ of what the union will offer in stage 4, wage offers by the firm are also higher in the manager-controlled firm.

Consider finally stage 2. The IC constraint of the high-income firm is now

$$y^H - w^H \geq \lambda(1-\gamma)\left(y^H - \tilde{w}^L\right) + (1-\lambda)\left(y^H - w^L\right) - \gamma\lambda\psi, \tag{12}$$

while that of the low-income firm is

$$\lambda(1-\gamma)\left(y^L - \tilde{w}^L\right) + (1-\lambda)\left(y^L - w^L\right) - \gamma\lambda\psi \geq y^L - w^H. \tag{13}$$

Note the difference to the owner-controlled firm. The fact that a low wage offer leads to a strike with probability $\gamma\lambda$ makes deviating less attractive (compared to the owner-controlled firm) if the income is high, but more attractive if the income is low. Since the binding IC constraint is always that of the high-income firm, this already implies that it is relatively easier to achieve separation in the manager-controlled firm.

Again, (12) must hold with equality. Inserting (3)-(4) and (10)-(11) in (12) and solving for λ, we obtain

$$\lambda_M = \frac{1-\gamma}{\gamma}\frac{\Delta}{y^H + \psi}, \tag{14}$$

where the subscript "M" stands for "manager-controlled". A quick comparison with (7) reveals that the equilibrium strike probability $\gamma\lambda_M$ is strictly lower in the manager-controlled firm, confirming our above intuition that it is indeed easier to separate between types if the firm is run by a strike-averse manager.

Like above, it is easily checked that the IC constraint of the low-income firm is satisfied with strict inequality. We can finally again compute the firm's ex-ante expected profit. It is

$$\pi_M^N = \gamma\bar{y} - (1-\gamma)\psi - (1-\gamma)(1-p)\frac{\Delta y^L}{y^H + \psi}, \tag{15}$$

where the superscript "N" stands for "Nash", like above.

Owner- versus Manager-Controlled Firm

The above analysis suggests that delegating the wage bargaining to a strike-averse manager entails costs and benefits. On the one hand, unions—using strikes as a threat in the bargaining—can extract higher wages if the firm is run by a strike-averse manager. On the

other hand, a strike-averse manager has less of an incentive to deviate to a low wage offer as this involves a positive probability of a strike. In consequence, the critical strike probability that separates high from low types is lower in the manager-controlled firm, implying there is less strike and hence more production.

To see whether it pays to delegate control to a strike-averse manager, we can compute the difference in expected profits under owner and manager control. We obtain

$$\pi_O^N - \pi_M^N = (1-\gamma)\psi \left[1 - \frac{(1-p)\,\Delta y^L}{(y^H+\psi)\,y^H}\right] > 0,$$

suggesting that the negative effects from delegating control (higher wages) outweighs the positive effects (fewer strikes). This is summarized in the following proposition.

Proposition 1. *Delegating control to a strike-averse manager has costs and benefits: while there are fewer strikes in equilibrium, the manager-controlled firm pays higher wages. Overall, it does not pay for the owner to delegate control in the one-shot game.*

1.3 The Repeated Game

We now embed the one-shot game in a repeated game setting. The question we are interested in is whether, and under what conditions, the firm can establish a reputation for being trustworthy. To focus on reputation-building on the part of the firm, we model the union as a sequence of short-run players. In what we call "trust equilibrium" there is no need for costly signalling: in stage 1 of each period the firm truthfully announces whether $y = y^H$ or $y = y^L$. Given that there is full information, the union always accepts the firm's initial wage offer, i.e., there are no strikes on the equilibrium path. The wage offers derived above are all subgame perfect, hence they remain optimal in the trust equilibrium that we consider here. Precisely, the union's counteroffer in stage 4 is given by (1)-(2) if the union plays against the owner and (10)-(11) if it plays against the strike-averse manager. Similarly, the firm's initial wage offer in stage 2 is given by (3) (with equality) and (4). As the union always accepts the firm's initial wage offer, the game ends in stage 3—at least on the equilibrium path.

To focus on simple equilibria in trigger strategies, we assume at the end of each period y becomes publicly known. Hence, at the beginning of each period the union knows if the firm has lied in the previous period and, if so, can punish the firm accordingly. Given that

the union is a short-run player, subgame perfectness implies that punishments must take the form of reverting to static Nash play. In the end, we thus have the usual equilibrium in trigger strategies where the firm truthfully announces y each period, and the union trusts the firm that it has told truth. If it turns out that the firm has violated the union's trust, all players revert to static Nash play in all following periods.

To pave the way for our empirical analysis, let us introduce a new variable α to capture the extent to which labor relations are hostile or cooperative. Precisely, α—which we assume is positive but small—is the probability that in any given period the firm faces a "hostile" union that does not care about trust. Precisely, we assume the hostile union always plays static Nash regardless of whether the firm has successfully established a reputation for being trustworthy. Clearly, such behavior violates the proposed rule of play associated with our trust equilibrium. In that sense, the hostile union may be best viewed as a behavioral player.

Introducing a hostile union has two implications for our analysis. First, every time the firm faces a hostile union it cannot realize its equilibrium payoff from maintaining trust with the cooperative union. Second, and more perhaps importantly, establishing trust only pays off if the firm faces a player that is willing to honor the firm's cooperative play in previous periods. Hence, the larger is α, the smaller are the firm's long-run gains from establishing trust with the cooperative union, and the more difficult it becomes to satisfy the firm's dynamic IC constraint that is crucial for establishing trust (see below).

Before we come to the analysis, two comments appear to be in order. First, we assume at the beginning of each period it is commonly known whether the union is hostile or not. This way, we can compute the firm's expected per-period payoff as a simple weighted average of its payoff from playing against the hostile and the cooperative union, respectively. Second, it is immediate that the firm's play against the hostile union has no implications for its ability to maintain trust with the cooperative union.

Owner-Controlled Firm

In order to set up the firm's dynamic IC constraint that determines whether the firm is able to maintain trust, let us summarize the firm's per-period payoffs under the various regimes for the case where the owner has control. If the firm plays against the hostile

union—which happens with probability α every period—its per-period payoff is π_O^N as given in (9). If the firm plays against the cooperative union, which happens with probability $1-\alpha$ every period, its per-period payoff depends on whether it has previously violated the union's trust. If it has violated the union's trust, the trust equilibrium we consider prescribes that all players revert to static Nash play, implying the firm's per-period payoff is again π_O^N. On the other hand, if the firm has not previously violated the union's trust, its per-period payoff is

$$\pi_O^C = \gamma \bar{y}, \tag{16}$$

which follows immediately from (1)-(4). The superscript "C" stands for "Cooperative".

Taken together, we thus have the following dynamic IC constraint for the high-income firm under owner control:[9]

$$y^H - (1-\gamma)\, y^L + \frac{\pi_O^N}{r} \leq \gamma y^H + \frac{1}{r}\left(\alpha \pi_O^N + (1-\alpha)\, \pi_O^C\right). \tag{17}$$

If the firm falsely asserts that its current income is y^L, it only pays a wage of $w^L = (1-\gamma)\, y^L$ instead of $w^H = (1-\gamma)\, y^H$ in the current period. On the other hand, the firm's future payoff from playing against the cooperative union drops from the cooperative level π_O^C to the non-cooperative Nash payoff π_O^N. Using (9) and (16), we can rewrite (17) in a more compact way as

$$\frac{1-\alpha}{r} \frac{(1-p)\, y^L}{y^H} \geq 1. \tag{18}$$

Manager-Controlled Firm

The analysis for the case where the manager has control is analogous, except that what matters for the firm's dynamic IC constraint is not the firm's payoff but the manager's private utility $u = \pi - \chi\psi$. If the manager plays against the hostile union, his per-period utility is $u_M^N := \pi_M^N - \lambda_M \gamma \psi$, where λ_M and π_M^N are given by (7) and (15), respectively. Recall that $\lambda_M \gamma$ is the equilibrium strike probability in the static Nash game if the manager has control. Likewise, if the manager plays against the cooperative union, and he has previously violated the union's trust, his per-period utility is again u_M^N. Finally, if the

[9] To be precise, this is the IC constraint if the firm faces the rational, cooperative union. If the firm faces the hostile union, there is nothing it can do, as the hostile union always strikes. The IC constraint for the low-income firm is slack and therefore omitted.

manager plays against the cooperative union, and he has not previously violated the union's trust, his per-period utility is

$$u_M^C = \pi_M^C = \gamma\bar{y} - (1-\gamma)\,\psi. \tag{19}$$

Taken together, we thus have the following dynamic IC constraint for the high-income firm under manager control:

$$\begin{aligned} & y^H - (1-\gamma)\left(y^L + \psi\right) + \frac{1}{r}(\pi_M^N - \lambda_M\gamma\psi) \\ \leq \quad & \gamma y^H - (1-\gamma)\,\psi + \frac{1}{r}[\alpha(\pi_M^N - \lambda_M\gamma\psi) + (1-\alpha)\pi_M^C]. \end{aligned} \tag{20}$$

Like above, using (15) and (19) we can rewrite (20) more compactly as

$$\frac{1-\alpha}{r}\frac{(1-p)\,y^L + \psi}{y^H + \psi} \geq 1. \tag{21}$$

Owner- versus Manager-Controlled Firm

To find out whether, under what conditions, it pays to delegate control to a strike-averse manager, we can again compute the difference in expected profits under owner and manager control. Before doing so, let us quickly check which of the two dynamic IC constraints is easier to satisfy. By inspection, if (21) holds then (18) must also hold. The reverse is not true, however. We thus have:

Proposition 2. *It is easier to establish trust with the union if control is delegated to a strike-averse manager.*

Observe that Proposition 2 holds for any $\psi > 0$. Hence, strike aversion unambiguously helps when it comes to establishing and maintaining trust with the (cooperative) union. A quick comparison of (17) and (20) shows why this is so. While wages are always higher in the manager-controlled firm (even in the trust equilibrium), the relative difference between w^H and w^L is the same for the manager- and owner-controlled firm.[10] Hence, the short-run gains from violating the union's trust are the same for both firms, which implies they

[10] This can be easily seen by comparing π_M^C with π_O^C. Wages are always higher in the manager-controlled firm—regardless of whether we consider the trust equilibrium or the static Nash equilibrium—because the union can extract higher wage concessions from the manager in the counteroffer stage.

cannot explain why it easier for the manager to establish trust. Rather, the reason is that reverting to static Nash play hurts the manager more than the owner since the static Nash equilibrium involves strikes, and the manager incurs an additional disutility from strikes compared to the owner.

We can now finally address the question we are ultimately interested in: does it pay for the owner to delegate control? Clearly, if neither the owner nor the manager can establish trust, i.e., if both (21) and (18) are violated, then we know from Proposition 1 that delegating control is unprofitable. What about the case where both the owner and the manager can establish trust, i.e., where both (21) and (18) hold? Again, delegating control is then unprofitable since the manager-controlled firm pays higher wages while everything else is the same. Hence, a *necessary* condition for delegating control to be profitable is that the manager must be able to establish trust while the owner must be unable to do so. In other words, it must hold that (21) is satisfied while (18) is violated.

As is easy to see, the dynamic IC constraint for the manager, (21), defines a minimum level of managerial strike aversion that is necessary to establish and maintain trust. Precisely, the manager can establish trust if and only if $\psi \geq \underline{\psi}$, where

$$\underline{\psi} := \frac{ry^H - (1-\alpha)(1-p)y^L}{1-\alpha-r}. \tag{22}$$

Arguably, if $\underline{\psi} \leq 0$ the manager can establish trust for all $\psi \geq 0$. But this implies the owner can also establish trust. On the other side, if $0 < \psi < \underline{\psi}$ neither the manager nor the owner can establish trust. In consequence, delegation of control is profitable *only if* $0 < \underline{\psi} \leq \psi$.

Assuming this necessary condition for delegation to be profitable holds, the firm's expected per-period payoff under owner control is given by π_O^N, while its expected per-period payoff under manager control is given by $\alpha\pi_M^N + (1-\alpha)\pi_M^C$. Using (9), (15) , and (19) shows that the latter exceeds the former if and only if

$$\alpha(1-p)\frac{\Delta y^L}{y^H+\psi} + \psi < (1-p)\frac{\Delta y^L}{y^H}. \tag{23}$$

By inspection, (23) is satisfied if $\psi = 0$ and violated if ψ is sufficiently large. Moreover, it is easily established that the LHS in (23) is increasing in ψ. Together, this implies there exists a unique cutoff value $\bar{\psi} > 0$ defined by

$$\alpha(1-p)\frac{\Delta y^L}{y^H+\bar{\psi}} + \bar{\psi} = (1-p)\frac{\Delta y^L}{y^H} \tag{24}$$

such that the firm's expected per-period payoff is greater under manager control if and only if $\psi < \bar{\psi}$.

Two forces are at work that make delegation potentially unprofitable—even if the owner cannot establish trust. First, we know from Proposition 1 that the owner-controlled firm does better than the manager-controlled firm when playing against the hostile union. If the probability α that the firm faces the hostile union is sufficiently large, delegation of control may be unprofitable. Second, wages are always higher in the manager-controlled firm. On the other hand, if the manager but not the owner can establish trust with the cooperative union, there are no strikes if the manager faces the cooperative union, but there is a positive probability $\lambda_O \gamma \psi$ of strikes, and therefore forgone production, if the owner faces the cooperative union.

In conjunction with our above results, we thus have the following *necessary and sufficient* condition for delegation to be profitable.

Proposition 3. *It is profitable for the owner to delegate control to a strike-averse manager if and only if*

$$0 < \underline{\psi} < \psi < \bar{\psi},$$

where $\underline{\psi}$ *and* $\bar{\psi}$ *are given by* (22) *and* (24)*, respectively.*

Note that if $\underline{\psi} \leq 0$ delegation is unprofitable regardless of ψ.

Delegation of Control and Labor Relations

How does the optimality of delegating control to a strike-averse manager depend on the quality of labor relations? In our model, the quality of labor relations varies with α. As α increases, the firm is more likely to face a hostile union with whom trust cannot be established. The consequence are strikes and forgone production. On the other hand, as α decreases the firm is more likely to face a cooperative union with whom it is possible to establish and maintain trust. Of course, whether trust can be actually established with the cooperative union depends on whether the firm's dynamic IC constraint holds.

Implicit differentiation of (22) and (24) yields $d\underline{\psi}/d\alpha > 0$ and $d\bar{\psi}/d\alpha < 0$, respectively, implying the range of $\psi-$values for which delegation is optimal becomes smaller as the quality of labor relations deteriorates. In other words, in two countries, one with good

and one with bad labor relations, we should see less delegation of control, and thus more concentrated ownership, in the country with bad labor relations. Of course, any such statement must be taken with caution. It implicitly assumes, for instance, that there is a limited supply of capable managers, and that the distribution of managers with respect to ψ is comparable across countries. Bearing this caveat in mind, we can conclude our discussion with the following empirical conjecture.

Empirical Conjecture. *If the quality of labor relations differs across countries, then we should see more concentrated ownership in countries with bad labor relations, and less concentrated ownership in countries with good labor relations.*

2 Ownership Concentration and Labor Relations Across Countries

As explained in the introduction, our model is consistent with the firm level evidence in Bertrand and Mullainathan (2003), Sraer and Thesmar (2004) and Fisman and Nair (2005). We now test the model using cross-country data.

2.1 Data on Ownership & Control

We use three sources of data on the extent of family control in different countries. The data are listed in **Table 1a**.

Faccio and Lang (2002) (henceforth FL) provide data for 13 Western European countries, studied between 1996 and 1999: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. They measure ownership in terms of cash flow rights and control in terms of voting rights, and they report the statistics separately for financial and for non-financial firms. The number of companies ranges from 69 in Ireland to 1953 in the UK. The authors define control when a shareholder holds at least 20% of the votes. Ultimately, families control 44.29% of the firms, and the state 4.14%. Family control ranges from 23.68% in the UK to 64.82% in France. Faccio and Lang (2002) also report the fraction of total market value controlled by the top 5 families. This fraction ranges from 4% in the UK to 25% in Portugal. For the United States, we use the data from Gadhoum, Lang, and Young (2005) which is directly comparable to the FL

data. **Table 2b** reports the correlations among these different measures of family control. The correlation between the measures based on the number of firms and the measures based on the fraction of market capitalization is 54%.

Claessens, Djankov, and Lang (2000) (henceforth CDL) provide data for 9 East Asian countries in 1996: Hong Kong, Indonesia, Japan, South Korea, Malaysia, the Philippines, Singapore, Taiwan and Thailand. The number of companies ranges from 120 in the Philippines to 1,240 in Japan. Family control ranges from 13.1% in Japan to 68.6% in Indonesia. **Table 2a** shows that, for the Asian sample, the correlation between the measures based on the number of firms and the measures based on the fraction of market capitalization is 58%.

For the rest of the countries, we use La Porta, de Silanes Florencio, and Shleifer (1999) (henceforth LLS) who studied corporate ownership in 27 wealthy economies. For each country, LLS created three measures of the prevalence of family control. The first two measures are based on the top 20 firms ranked by market capitalization of common equity at the end of 1995. LLS define control using a 20% cutoff, and report the fraction of top-20 firms controlled by families, which ranges from 0% in the UK to 70% in Hong Kong, as well as the value weighted fraction, which ranges from 0% in the UK to 63.42% in Hong Kong. The third measure is the fraction of family controlled firms in a sample of mid-sized companies. **Table 2c** shows that the correlation among the various measures in the LLS sample ranges from 67% to 93%.

We now wish to construct a consistent measure of family control for our 30 countries. In doing so, we face the issue that CDL-FL and LLS do not report the same variables. On the one hand, CDL and FL cover relatively few countries, but look at essentially all the publicly traded companies in these countries. On the other hand, LLS cover more countries, but only look at a subset of companies, and their selection criteria makes it potentially more difficult to compare large and small countries. Given these issues, we decided to proceed in two steps. Whenever possible, we use two measures of family control from CDL-FL data: the fraction of family controlled firms using the 20% cutoff, and the fraction of market capitalization controlled by the top 5 families. For those countries that are covered only by

LLS, we use predicted values from the following regression

$$Fam_{i,j}^{CDL-FL} = \alpha_j + \beta_j' Fam_i^{LLS} + \varepsilon_{ij} \tag{25}$$

where $Fam_{i,j}^{CDL-FL}$ is the particular measure j for country i included in either CDL or FL, and Fam_i^{LLS} is the vector of the three measures reported by LLS (fraction and value weighted fraction in top 20 firms, fraction in mid-sized firms). For the first measure, the fraction of family controlled firms, we obtain an R^2 of 42.9% for the 18 countries covered by both CDL-FL and LLS. For the second measure, the fraction of market capitalization controlled by the top 5 families, we obtain an R^2 of 41%.

2.2 Data on Labor Relations

Our data on labor relations, displayed in **Table 1b**, come from two surveys of business managers. The first survey, published in the Global Competitiveness Report (GCR) by the World Economic Forum, covers 100 countries. The second survey is conducted by IMD, a business school in Lausanne, Switzerland and is sent to approximately 4,000 managers in 60 countries. In 1993, GCR started asking managers about labor relations in their countries. The managers report if they agree with the statement: "Labor-employer relations in your country are generally cooperative". The responses range from 1, strong disagreement, to 7, strong agreement. In 1999, managers were asked to report on the collective bargaining power of workers, and on the frequency and severity of strikes. IMD asks a similar question, "Labor relations are generally productive or hostile", and manager respond from 1 if they disagree strongly, to 8 if they agree strongly. Finally, both survey also ask various question about how managers perceive the judiciary and the political system. **Table 2d** presents the correlation matrix of these various survey measures. Two points are most important for us. First, the different measures of labor trust are remarkably stable over time: the correlation between the GCR measure in 1993 and 2003 is 88.6%. This is consistent with Blanchard and Philippon (2002) who show that labor relations today can be well predicted by strike activity in the 1960s. Second, the variables are remarkably similar across surveys: the correlations between the IMD and GCR measures range from 83% to 93%. Note also the strong correlation between the 'labor relation' measure and the 'strikes' measure. On the other hand, none of these measure is significantly correlated with the perceived strength

of unions. This is good news, for it means that we will be able to distinguish our theory, based on trust, from alternative theories based on the strength of unions.

Because the various measures of labor relations are so consistent across surveys and over time, none of the issues encountered in the definition of family control arise here. In fact, all the results that we present are robust to using any of the 6 measures of labor relations listed in **Tables 1b and 2d**. We choose to work with IMD03, the most recent measure.

2.3 Basic OLS Regressions

Table 3 presents our basic result, for various definitions of family control and various subsamples. Given, the way the data on family control was constructed, it is clear that there may be systematic effects of country size. All else equal, the top 5 families in Sweden, with a population of 8.8 millions, are likely to control more of the stock market that the top 5 families in the US, with a population of 268.7 millions. Therefore, we shall always include the log of the total population in 1995 as a control in our regressions. Our basic specification is

$$Fam_i = \alpha + \beta \; LaborTrust_i + \gamma \; \log\left(Population_{i,1995}\right) + \varepsilon_i \tag{26}$$

The first two columns of **Table 3** report the basic regressions using the fraction of family-controlled firms and the share of market capitalization controlled by the top 5 families. In both cases, there is a significant and negative relation between the quality of labor relations and the extent of family control. Also, as expected, we find that our measures of family control are negatively related to country size.

We have two measures of family control defined for all 30 countries. As we have already mentioned, **Tables 2a, 2b, and 2c** show that the measures based on the fraction of family-controlled firms are not perfectly correlated with the measures based on the fraction of market capitalization controlled by the top 5 families. From a theoretical perspective, it is unclear which is the better measure. From an empirical perspective, both are probably noisy estimates of the truth, and we have just shown that labor trust enters negatively and significantly whether we use one or the other. Moreover, given the number of robustness checks that we wish to perform, keeping both variables would not be convenient. Therefore, we construct the first principal component of these two variables, and we use it as our main

measure of family control in the rest of the paper. The first component, displayed in the last column of **Table 1a**, accounts for 79% of the variance in the two variables. The first principal component is normalized to have a mean of 0 and a variance of 1.

The last 5 columns of **Table 3** report the results using the principal component as our dependent variable. We estimate equation (26) in different subsamples, for two reasons. The first is that we want to allow for systematic differences between Asian and Western countries. The second is that we want to check that our results are robust to dropping the countries for which we had to use predicted values from equation (25). The first point to notice is that the labor trust coefficient is quite stable and very significant in all cases. The second point to notice is that the coefficients for size and GNP per capita differ in Asia and in the West. In fact, GNP does not enter significantly among Western countries, which is not very surprising given that these countries are similar in terms of development. On the other hand, it is significantly negative in Asia, confirming the intuitive ideas that family firms are more prevalent in less developed economies.

Column (iii) to (v) lead use naturally to our preferred specification, in column (vii). It includes as controls, in addition to population, a dummy for Asia and the interaction terms with population and GNP per capita. For parsimony, we restrict the coefficient on GNP to zero for western countries, since it is otherwise small and insignificant. Before discussing alternate theories, it is important to check that the results are not driven by outliers. To do so, we first regress family control and labor trust separately on population, the Asian dummy, and the interaction terms Asia*log(population) and Asia*log(GNP per capita). **Figure 1** plots the residuals of these two preliminary regressions. The correlation between the residuals is -72%, and, more importantly, the figure shows that our results are not driven by outliers.

3 Alternate Theories

In this section, we discuss alternate explanations that have been proposed in the literature to explain why family control varies so much from one country to the next. For each explanation, we run a new regression including various proxies for the variable that is supposed to explain the cross-section of family control. A quick look at the first row of **Table**

4a,b shows that our main result remains stable and significant throughout. Nonetheless, it is quite informative to see which alternate theories are in fact supported by the data.

The leading explanation for differences in patterns of corporate ownership is the protection of minority shareholders. When this protection is inadequate, we expect more concentration. There are two ways to measure shareholder protection. One way is to look at legal mechanisms that are supposed to protect minority shareholders. These mechanisms were the focus of La Porta, Lopez-de Silanes, Shleifer, and Vishny (1998), who collected data on six rights protecting minority shareholders: the right to mail their proxy vote, the interdiction for the firm to block the shares before the meetings, the right of cumulative voting and proportional representation, a judicial venue to challenge managerial decisions (called oppressed minority mechanism), preemptive rights to buy newly issued shares, and the minimum percentage of shares to call an extraordinary meeting. When these six variables are included in one regression (not reported), only the last three appear significant, and we focus on them. Column (i) of **Table 4a** shows that mechanisms protecting minority shareholders from oppression by management are particularly important. Dyck and Zingales (2004) have estimated the value of the (private) benefits of control for a large number of countries, 27 of which are in our sample. Their measure is the premium that market participants are willing to pay for control. Column (ii) shows that private benefits enter with the expected sign, but, in our sample, they are not significant.

In column (iii) and (iv), we look at the efficiency of the judicial system and at political risk. Rule of law is the assessment of law and order by the country credit rating agency International Country Risk. This agency also provides measures of the risk of repudiation of contracts by the government, and of the risk of expropriation. Efficiency of the judicial system is the assessment of "the efficiency and integrity of the legal environment" produced by the rating agency Business International Corporation. These four variables are taken from La Porta, Lopez-de Silanes, Shleifer, and Vishny (1998). None of these variables is significant, and they do not affect the estimated coefficient of labor relations. In fact, they only appear to reduce the significance of GNP per capita, consistent with the idea that rich countries have better judicial and political institutions.

In columns (i) of **Table 4b**, we consider union power and labor regulation, as emphasized by Roe (2003). Roe argues that labor regulation and political pressures lead to concentrated

ownership in social democracies. To test this theory, we include the index of collective bargaining and the index of employment protection from Botero, Djankov, La Porta, Lopez-de Silanes, and Shleifer (2004), as well as our survey measure of the strength of unions, as perceived by managers. We find that these measures do not explain ownership concentration, neither individually nor collectively.

Another of Roe's hypothesis, shared by Pagano and Volpin (2005), is that politics predicts ownership concentration. To test this theory, we use the same index as Roe, and the same sample of 16 European countries. The index measures the left-right scale of politics between 1981 and 1991, with higher scores meaning more to the right. On its own, this index is correlated with ownership concentration, but this correlation disappears completely once we control for size and labor trust, as shown in column (ii). We do not mean to imply that politics do not matter, however. In fact, column (iii) shows that politics is related to the extent of state ownership, while trust and size are not. In columns (iv) and (v), we use the measure of proportionality in voting reported in Pagano and Volpin (2005). This measure is not related to the concentration of ownership, but, like the left-right scale, it explains the extent of state ownership. So we conclude that Roe's and Pagano and Volpin's theories are really theories of state involvement in the economy. They explain quite well the pattern of state ownership of large companies. They are not, however, theories of the governance of large private companies.

Finally, in column (vi), we consider general trust as an alternative measure. A number of recent books and papers have emphasized the importance of trust among people for the economic performance of different societies.[11] General trust is usually measured as the percentage of respondents who answer that most people can be trusted to the following question from the World Value Survey: "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" This variable has been used in La Porta, Lopez-de Silanes, Shleifer, and Vishny (1997) to explain the prevalence of large organizations, and in Guiso, Sapienza, and Zingales (2005b) to explain stock market participation. Column (v) shows that general trust does not predict ownership concentration once we control for the quality of labor relations. We believe this is good news

[11] see Fukuyama (1995), La Porta, Lopez-de Silanes, Shleifer, and Vishny (1997), Guiso, Sapienza, and Zingales (2004) and the references therein

for theories emphasizing the role of trust, since it means that one can distinguish different forms of trust, and discover which ones matter for what. As Guiso, Sapienza, and Zingales (2005a) put it: "Without testable hypotheses, there is no role for culture in economics."

4 Historical Perspective and IV Regressions

We now turn to the issue of the historical determinants of labor relations. In the model, there are exogenous differences in labor relations between countries. Where do they come from? To answer this question, we shall look at the history of labor relations in Western countries, as well as in Japan and Korea.

4.1 Western Countries

According to Crouch (1993), the critical period is between 1870 and 1914, since before 1870 there was essentially no organized labor outside the UK, and even there it was concentrated in skilled labor occupations. Crouch's thesis is that labor relations were directly influenced by the conflicts between the church and the emerging liberal state. In those countries where the state had to struggle to affirm its authority over the church, the state had a tendency to forbid all forms of organization to maintain its monopoly power in the political arena. The Vatican-based Catholic Church asserted a superior political loyalty, and the French republicans of 1789 wanted the state to be as strong and encompassing as the church had been. They were eager to make sure the state did no suffer from competition by organized groups. This was the motivation behind the Lois Le Chapelier of 1791. Later on, when the labour movement emerged, it was perceived as a threat. On the other hand, Lutheran churches have historically been obedient institutions. In return, Lutheran states had no problem sharing political space. The state remained mostly neutral vis-à-vis the churches and organized interests. On these matters, the Anglican Church behaved like the Lutheran churches.

This discussion suggests that religious variables should be able to predict trust in labor relations. On the other hand, La Porta, Lopez-de Silanes, Shleifer, and Vishny (1998) have emphasized the importance of legal traditions. We are therefore going to run the following

regression

$$Fam_i = \alpha + \beta\ \widehat{LaborTrust}_i + \gamma\ \log\left(Population_{i,1995}\right) + \delta' Legal\_Origin_i + \varepsilon_i \qquad (27)$$

where $Legal\_Origin$ is a vector of two dummies for English and German legal origin, and $\widehat{LaborTrust}$ is cooperation in labor relation instrumented by either the fraction of protestant or by the fraction of Catholics, from Stulz and Williamson (2003). **Table 5** presents the first and second stages of the estimation of equation (27). We present four regressions to show that our results are robust to dropping the countries for which we have used predicted values from equation (25), and also robust to using either the percentage of Catholics or the percentage of Protestants.

The first stage regressions show that trust is higher in countries with a larger fraction of Protestants, and lower in countries with a higher fraction of Catholics, as predicted by Crouch (1993). It is also striking to see that larger countries have systematically lower labor trust than smaller countries. In fact, if one were to add the Scandinavian dummy to the first stage, it would be insignificant. According to the data, the differences between France and Sweden are well explained by the different sizes of the two countries, and by the different fractions of Protestants. On the other hand, the German and English dummies are positively related to labor trust, which captures the fact that Germany, England and the US, despite their large sizes, have good labor relations. The R^2 of the first stage are between 61% and 86%.

The second stage regression point to a causal role from labor relations to ownership concentration. The estimated coefficients are similar to the ones obtained from OLS regressions. However, note that not including religion in the second stage relies on the restriction that, if religion affects ownership concentration, it is through labor relations.

4.2 Japan and Korea

Unfortunately, we could not include Asian countries in our IV regressions. Yet, the OLS regressions suggest that our theory is at least as successful in Asia as it is in Europe. While we were not able to find an instrument for labor relations in the nine Asian countries of our sample, we were able to find qualitative evidence about the two most extreme cases, namely Korea and Japan.

In today's Japan, strikes are practically non-existent, and family firms are rare. It is therefore interesting to know that this was not the case before World War II. As historian Andrew Gordon explains

"In their mature form by the 1920s, each of the major zaibatsu was a sprawling business empire embracing dozens of corporations in finance, transport, trade, mining, and manufacturing. Each zaibatsu was held together at the apex by a holding company. Until the start of World War II, individual families (the Mitsui, Yasuda, and Sumitomo families and, in the case of the Mitsubishi combine, the Iwasaki family) were the exclusive owners of these holding families." (Gordon (2003), page 143)

Historically, Japanese zaibatsu have been keen on hiring outside managers, but "even in these appointments, loyalty to the controlling family was valued highly. Devotion was further reinforced when rising managerial stars on occasion married the daughters of zaibatsu families. Already in 1918, the eight largest zaibatsu held more than 20% of all private capital in the manufacturing, mining and trading sectors. The bank crisis of 1927 opened the way for the zaibatsu banks to dominate the financial world even more." (Gordon (2003), page 143) After World War II, however, "occupation reformers attacked the sprawling business empires of the zaibatsu. They took away ownership and control from the holding companies dominated by the zaibatsu families." (Gordon (2003), page 231).

On the other hand, labor relations in Japan were more conflictual before World War II than they have been in the past 40 years. Gordon (1985) argues that the century-long process by which a distinct pattern of Japanese labor relations evolved is traced through the often turbulent interactions of workers, managers, and, at times, government bureaucrats and politicians. He concludes that, although by the 1920s labor relations had reached a stage that foreshadowed postwar development, it was not until the 1940s and 1950s that something closely akin to the contemporary pattern emerged.

The history of labor relations and ownership concentration in Japan seems consistent with our theory. We would argue that the exogenous change in ownership concentration imposed by the US on Japan after World War II favored the emergence of the high-quality labor relations that Japan has enjoyed to this day.

Comparing Korea to Japan also provides support for our theory. Yoon (2005) has argued that the sharp contrast in strike intensity between Korea and Japan is puzzling in

view of the similarity of labor institutions in the two countries.[12] "Essentially, Korean labor institutions are a virtual replica of Japan's. Yet labor militancy in Korea, as demonstrated by high strike intensity shows that the labor relation outcome in Korea is exactly the opposite to that of Japan." Consistent with our theory, the main difference between Korean chaebols and Japanese keiretsu is that "the founding family tightly controls chaebol through majority share-ownership in the core firm, while family power is absent in keiretsu." Yoon (2005) concludes that "an unintended consequence of the founding family's tight managerial control of chaebol, as opposed to keiretsu, is labor militancy in chaebol firms."

5 Country-Level Analysis: Canada

Canada is particularly relevant for our thesis, both because Attig and Gadhoum (2003) have shown that ownership concentration varies across provinces within Canada, and because Morck, Percy, Tian, and Yeung (2004) have constructed historical data on ownership concentration from 1902 to 1998. To measure labor relations within Canada and over time, we use the data provided to us by Pierre Fortin: it contains days lost due to strike and union membership for Canada – and separately for Quebec – from 1953 to 2002. Strike activity is defined as days lost over the number of salaried workers.

Strikes are more prevalent in Quebec than in the rest of Canada. Consistent with our theory, Attig and Gadhoum (2003) show that ownership is more concentrated in Quebec than in the rest of Canada. This is also consistent with our historical discussion above, since Quebec has a French-Catholic tradition, while the rest of Canada has an English-Protestant tradition. On the other hand, as explained by Attig and Gadhoum (2003), "traded firms in Quebec and in the rest of Canada are created under the same law, the Canadian Business Corporations Act. In addition, stock market regulations in the different provinces of Canada are not remarkably different." Arguably, this fact is difficult to reconcile with theories based on shareholder protection. It is, however, consistent with the theory proposed here.

Strike intensity increased in Canada in the late 1960s and was relatively high throughout the 1970s. Consistent with our theory, Morck, Percy, Tian, and Yeung (2004) show that the fraction of widely held firms decreased in the 1970s and started to recover only in the

[12] Unions are organized on the enterprise level in Korea, as in Japan. The enterprise unions renegotiate labor contracts with management annually in the so-called spring offensive, just like Japan's shunto.

1980s. As emphasized by Blanchard and Philippon (2005), strike activity declines when unemployment increases, even if labour relations do not improve, as happened in France over the past 30 years. Therefore, a refined measure of the quality of labour relations can be obtained by first adjusting strike activity for the effect of unemployment

$$\frac{Days\_Lost_t}{Employees_t} = \alpha + \beta\ Unemployment_t + e_t$$

Figure 2 plots e_t and the fraction of non-widely held firm from 1953 to 1998. To confirm the visual impression, we also run

$$\Delta y_t = \alpha + \beta\ \frac{Days\_Lost_t}{Employees_t} + \gamma\ \Delta \log\left(Union\_Member_t\right) + \varepsilon_t$$

where y_t is either the fraction of family controlled firms, or the fraction of widely held firms.[13] We run the regression in first difference because the series in level are very auto-correlated. Strike activity predicts a drop in the fraction of widely held companies and an increase in the fraction of family controlled companies. In both cases, strike activity is significant, while the growth rate of union membership is not significantly related to the growth of family control.[14]

While we do not have an instrument for the change in strike activity in Canada, we believe that the Canadian experience is consistent with the historical evidence discussed in the previous section. The increase in strike activity in the 1970s was significantly larger in Quebec, where it resembles the one in France. Strike activity in the rest of Canada, on the other hand, resembles the one in the US.

6 Conclusion

We study the interactions between a particular form of trust – cooperation in labor relations – and a particular economic outcome – the concentration of corporate ownership. We present a model in which the delegation of control to a strike-averse manager can foster trust between the firm and its employees. The model is consistent with existing firm-level evidence, and we show that, together with the protection of minority shareholders, the quality of labor relations can explain a large fraction of the observed variance in ownership concentration

[13] Remember that there are also the state and foreign investors.

[14] In these regressions, the unemployment rate is not significant and is omitted.

across countries. Using religion as an instrument for the degree of hostility of labor relations, we provide evidence of a causal link going from labor relations to ownership concentration. We find similar results using Canadian data, for which we document a surprisingly strong correlation between strike activity and ownership concentration over the past 50 years.

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Table 1a: Data on Ownership Concentration

Source of Data				FL&CDL	FL&CDL	CDL	FL	LLS	LLS	LLS	
Country	Code	Sample Used	Number of Firms	Fraction of Total Market Value controlled by Top 5 Families	Fraction of Firms Controlled by Families (20% cutoff)	Fraction of Firms Controlled by Families (10% cutoff)	Fraction of Non Financial Firms Controlled by Families	Fraction of Medium-Sized Publicly Traded Companies Controlled by Families	Fraction of Value of top 20 Firms controlled by Families	Fraction of Top 20 Firms controlled by Families	Principal Component
Australia	AUS	LLS	20	.	.	.	.	0.50	0.12	0.05	-0.03
Austria	AUT	FL	99	0.16	0.53	.	0.59	0.17	0.06	0.15	-0.10
Belgium	BEL	FL	130	0.20	0.52	.	0.64	0.40	0.41	0.50	0.20
Canada	CAN	LLS	20	.	.	.	.	0.30	0.28	0.25	-0.17
Denmark	DNK	LLS	20	.	.	.	.	0.40	0.32	0.35	0.01
Finland	FIN	FL	129	0.14	0.49	.	0.44	0.20	0.06	0.10	-0.40
France	FRA	FL	607	0.22	0.65	.	0.71	0.50	0.26	0.20	0.94
Germany	GER	FL	704	0.16	0.65	.	0.69	0.40	0.08	0.10	0.45
Greece	GRE	LLS	20	.	.	.	.	1.00	0.47	0.50	1.70
Hong Kong	HKG	CDL	330	0.26	0.67	0.65	.	0.90	0.63	0.70	1.24
Indonesia	IDN	CDL	178	0.41	0.72	0.69	.	.	.	.	2.52
Ireland	IRL	FL	69	0.12	0.25	.	0.27	0.13	0.04	0.10	-1.67
Israel	ISR	LLS	20	.	.	.	.	0.60	0.31	0.50	0.08
Italy	ITA	FL	208	0.17	0.60	.	0.72	0.60	0.14	0.15	0.30
Japan	JPN	CDL	1240	0.02	0.10	0.13	.	0.10	0.03	0.05	-2.96
Korea	KOR	CDL	345	0.30	0.48	0.68	.	0.50	0.22	0.20	1.65
Malaysia	MAL	CDL	238	0.17	0.67	0.58	.	.	.	.	0.24
Netherlands	NLD	LLS	20	.	.	.	.	0.20	0.06	0.20	-1.29
New Zealand	NZL	LLS	20	.	.	.	.	0.29	0.15	0.25	-0.78
Norway	NOR	FL	155	0.16	0.39	.	0.44	0.40	0.13	0.25	-0.72
Philippines	PHI	CDL	120	0.43	0.45	0.42	.	.	.	.	1.46
Portugal	PRT	FL	87	0.25	0.60	.	0.55	0.50	0.38	0.45	0.92
Singapore	SGP	CDL	221	0.20	0.55	0.52	.	0.40	0.15	0.30	0.16
Spain	ESP	FL	632	0.07	0.56	.	0.62	0.30	0.17	0.15	-0.61
Sweden	SWE	FL	245	0.09	0.47	.	0.47	0.60	0.35	0.45	-0.85
Switzerland	SWI	FL	214	0.24	0.48	.	0.56	0.50	0.29	0.30	0.34
Taiwan	TWN	CDL	141	0.15	0.48	0.66	.	.	.	.	0.40
Thailand	THA	CDL	167	0.32	0.62	0.57	.	.	.	.	1.32
United Kingdom	UK	FL	1953	0.04	0.24	.	0.25	0.40	0.00	0.00	-2.30
United States	USA	LLS*	20	.	0.1982*	.	.	0.10	0.18	0.20	-2.04

Note: CDL is Claessens, Djankov & Lang (2000), FL is Faccio & Lang (2002), and LLS is La Porta, Lopez-de-Silanes & Shleifer (1999). * For the US, we use data from Gadhoum, Land and Young (2005) which is comparable to the data in FL.

Table 1b: Data on Labor Relations

	Global Competitiveness Report							IMD Survey	
	Labor-employer relations in your country are generally cooperative.			Strikes are rare and quickly resolved	Collective bargaining power of workers is high	High public trust in the financial honesty of politicians	The judiciary is independent	Labor relations are generally productive (versus hostile)	
	1993	1999	2003	1999	1999	1999	1999	1999	2003
	1 = strongly disagree, 7 = strongly agree							Scale from 1 to 8	
Australia	4.4	4.3	4.5	4.1	4.9	4.3	6.6	5.8	7.0
Austria	6.0	6.1	5.7	7.0	5.5	4.9	6.2	7.6	7.7
Belgium	4.5	4.4	4.2	4.1	5.2	2.5	4.5	5.2	5.5
Canada	4.4	4.8	4.9	4.5	4.6	5.0	6.6	6.1	6.6
Denmark	6.1	6.0	6.0	5.6	5.0	5.5	6.6	7.7	7.4
Finland	5.5	5.4	5.5	5.0	6.0	5.6	6.8	7.1	7.6
France	3.3	3.3	3.5	3.2	4.4	3.9	5.5	4.4	4.3
Germany	5.3	5.3	4.7	5.6	5.3	4.5	6.5	7.0	5.6
Greece	4.4	3.9	4.1	3.1	4.3	2.6	4.0	4.8	5.6
Hong Kong	5.7	5.8	5.8	6.3	2.8	4.9	5.6	7.3	7.5
Indonesia	4.5	4.8	3.7	3.3	3.6	2.3	2.7	5.0	3.6
Ireland	5.2	5.2	5.0	5.3	4.8	3.2	6.1	7.1	7.6
Israel	5.0	4.7	4.3	3.7	5.0	3.7	6.3	6.5	6.1
Italy	4.3	4.2	3.8	3.6	4.6	2.4	3.8	5.0	4.8
Japan	6.0	6.1	5.4	6.2	4.2	2.9	5.7	7.7	7.6
Korea	3.9	3.9	3.6	3.3	4.6	2.1	3.3	3.6	3.6
Malaysia	5.3	5.7	5.6	6.2	4.2	3.0	3.8	7.3	7.3
Netherlands	5.9	5.9	5.8	5.9	5.2	5.1	6.6	7.7	7.4
New Zealand	5.4	5.6	4.7	5.8	3.6	4.9	6.6	7.7	6.9
Norway	5.7	5.7	4.9	4.7	5.7	5.6	6.0	7.4	7.4
Philippines	4.4	4.3	3.7	3.7	4.7	2.0	3.3	6.0	5.1
Portugal	4.8	5.0	4.4	4.9	3.8	4.0	5.5	6.3	5.3
Singapore	6.3	6.5	6.3	6.8	4.2	6.4	5.4	8.9	8.6
Spain	4.5	4.5	4.3	4.8	4.6	3.9	5.0	5.7	5.5
Sweden	5.8	5.9	5.8	5.2	5.8	5.0	6.2	7.4	7.1
Switzerland	6.1	6.4	6.1	6.7	3.4	5.8	6.3	8.0	8.2
Taiwan	5.3	5.6	5.5	5.9	3.7	3.5	4.5	6.9	7.1
Thailand	4.9	5.2	5.4	5.0	3.7	2.2	4.4	6.2	6.5
United Kingdom	5.5	5.1	5.0	5.6	3.5	4.1	6.3	6.9	6.7
United States	5.1	5.0	5.2	5.1	4.1	3.6	5.9	6.2	6.4

Notes: For "Willingess to delegate", 7=authority is mostly delegated to business unit heads and other lower-level managers, and 1=top management controls all important decisions. For "Judiciary is independent", the exact question added "and not subject to interference by the government and/or parties to a dispute". For "Strikes are rare and quickly resolved", the survey added " with minimum economic losses".

Table 2: Correlation Matrices of Raw Data.

2a: Ownership Concentration and Labor Relations in Asia. N=9

Fraction of Total Market Value controlled by Top 5 Families	1.00		
Fraction of Firms Controlled by Families (10%)	0.50	1.00	
Fraction of Firms Controlled by Families (20%)	0.58	0.85*	1.00

2b: Ownership Concentration and Labor Relations in Europe. N=13

Fraction of Total Market Value controlled by Top 5 Families	1.00		
Fraction of Firms Controlled by Families (20%)	0.54	1.00	
Fraction of Non Financial Firms Controlled by Families	0.53	0.94*	1.00

2c: Ownership Concentration and Labor Relations using LLS Data. N=25

Fraction of Medium-Sized Publicly Traded Companies Controlled by Families	1.00		
Fraction of Value of top 20 Firms controlled by Families	0.75*	1.00	
Fraction of Top 20 Firms controlled by Families	0.67*	0.93*	1.00

2d: Survey Measures of Trust. N=30

Cooperative Labor Relations (GCR, 1993)	1								
Cooperative Labor Relations (GCR, 1999)	0.9661*	1							
Cooperative Labor Relations (GCR, 2003)	0.8859*	0.9020*	1						
Strikes are rare and quickly resolved	0.8628*	0.9067*	0.8842*	1					
Collective bargaining power of workers is high	0.0471	-0.03	-0.0112	-0.1607	1				
High public trust in the financial honesty of politicians	0.6414*	0.6295*	0.6590*	0.5803*	0.2051	1			
The judiciary is independent	0.5089*	0.4461*	0.5325*	0.4658*	0.2947	0.7830*	1		
Productive Labor Relations (IMD, 1999)	0.9362*	0.9353*	0.8688*	0.8830*	0.0211	0.7034*	0.5964*	1	
Productive Labor Relations (IMD, 2003)	0.8472*	0.8338*	0.9103*	0.8183*	0.0587	0.6754*	0.6368*	0.8972*	1

Note: * denotes significance at 5% level

Table 3: Ownership Concentration and Labor Relations, OLS regressions. Dependent variable is principal component of degree of family control over listed firms.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
	Fraction of Family Controlled Firms	Share of Market Cap. Controlled by Top 5 Families	Principal Component of Family Control	Principal Component of Family Control	Principal Component of Family Control	Principal Component of Family Control	Principal Component of Family Control
Sample	All Countries	All Countries	Asia	Asia	Faccio-Lang	West	All Countries
Productive Labor Relations (IMD, 2003)	**-0.09**	**-0.05**	**-0.93**	**-0.68**	**-0.68**	**-0.86**	**-0.71**
	-4.00	-3.30	-3.59	-3.81	-2.99	-3.49	-5.10
Log(Population) in 1995	**-0.06**	**-0.02**	**-0.82**	**-0.99**	**-0.48**	**-0.55**	**-0.47**
	-2.65	-1.35	-2.31	-4.41	-2.26	-2.83	-3.05
Log(GNP_Per_Capita) in 1997				**-0.72**		**0.55**	
				-3.29		0.84	
Asian Dummy							**12.90**
							3.00
Asian Dummy * Log(Population)							**-0.53**
							-1.92
Asian Dummy * Log(GNP_Per_Capita)							**-0.70**
							-2.80
N	30	30	9	9	14	21	30
R2	0.38	0.30	0.68	0.90	0.46	0.48	0.70
Adj R2	0.33	0.24	0.58	0.84	0.36	0.38	0.64

Note: Coefficients are in bold, t-statistics are below the coefficients. Asia includes the 9 countries from Claessens, Djankov and Lang (2000). The Faccio-Lang sample includes the 13 countries in Faccio and Lang (2002) and the US from Gadhoun, Lang and Young (2005). The West sample includes 7 extra countries with predicted values using La Porta, Lopez-de-Silanes and Shleifer (1999): Australia, Canada, Denmark, Greece, Israel, the Netherlands, New Zealand.

Table 4a: Alternate Theories, OLS regressions. Dependent variable is principal component of degree of family control over listed firms.

		(i) Principal Component of Family Control	(ii) Principal Component of Family Control	(iii) Principal Component of Family Control	(iv) Principal Component of Family Control
IMD03	Productive Labor Relations	**-0.65**	**-0.60**	**-0.62**	**-0.63**
		-5.79	-4.33	-3.16	-4.17
	Log(Population) in 1995	**-0.36**	**-0.46**	**-0.48**	**-0.37**
		-2.86	-3.06	-2.87	-2.25
	Asian Dummy	**18.14**	**12.38**	**11.87**	**11.29**
		4.59	3.22	2.54	2.32
	Asian Dummy * Log(Population)	**-0.95**	**-0.47**	**-0.56**	**-0.54**
		-3.79	-1.88	-2.00	-1.99
	Asian Dummy * Log(GNP_Per_Capita)	**-0.77**	**-0.71**	**-0.57**	**-0.57**
		-3.19	-3.19	-1.81	-1.77
LLSV	Oppressed minorities mechanisms	**-1.19**			
		-3.99			
	Preemptive rights for new issues	**-0.42**			
		-1.54			
	Percent of shares to call meeting	**-6.28**			
		-2.21			
DZ	Private Benefits of Control		**1.29**		
			0.96		
LLSV	Rule of law			**0.06**	
				0.46	
	Efficiency of judicial system			**-0.16**	
				-1.26	
	Repudiation of contract by government				**0.48**
					1.20
	Risk of expropriation				**-0.77**
					-1.66
	N	29	27	30	30
	R2	0.84	0.77	0.73	0.74
	Adj R2	0.77	0.70	0.64	0.66

Note: Coefficients are in bold, t-statistics are below the coefficients. Sources : LLSV is La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) ; DZ is Dyck and Zingales (2004) ; SZ is Sapienza and Zingales (2004).

Table 4b: Alternate Theories (cont), OLS regressions. Dependent variable is principal component of degree of family control over listed firms.

		(i)	(ii)	(iii)	(iv)	(v)	(vi)
		Principal Component of Family Control	Principal Component of Family Control	State Control	Principal Component of Family Control	State Control	Principal Component of Family Control
IMD03	Productive Labor Relations	**-0.70**	**-0.75**	**0.01**	**-0.80**	**0.00**	**-0.69**
		-4.15	-3.50	0.62	-4.08	0.36	-4.05
	Log(Population) in 1995	**-0.50**	**-0.65**	**-0.01**	**-0.51**	**-0.01**	**-0.49**
		-2.98	-2.69	-0.42	-2.48	-0.68	-2.96
	Asian Dummy	**11.71**					**11.37**
		2.19					2.18
	Asian Dummy * Log(Population)	**-0.50**					**-0.41**
		-1.62					-1.18
	Asian Dummy * Log(GNP_Per_Capita)	**-0.61**					**-0.69**
		-1.78					-2.41
BDLLS	Index of Collective Bargaining	**-0.13**					
		-0.17					
	Index of Employment Protection	**0.98**					
		0.75					
IMD99	Collective bargaining power of workers is high	**-0.17**					
		-0.75					
Roe	Left-Right Political Scale, 1981-1991		**-0.06**	**-0.05**			
			-0.13	-2.07			
PV	Proportionality of Voting, 1986-1990				**0.10**	**0.02**	
					0.53	1.75	
WVS	Trust in people						**-0.54**
							-0.44
	N	30	16	16	21	21	27
	R2	0.72	0.63	0.51	0.57	0.34	0.71
	Adj R2	0.61	0.54	0.39	0.50	0.22	0.63

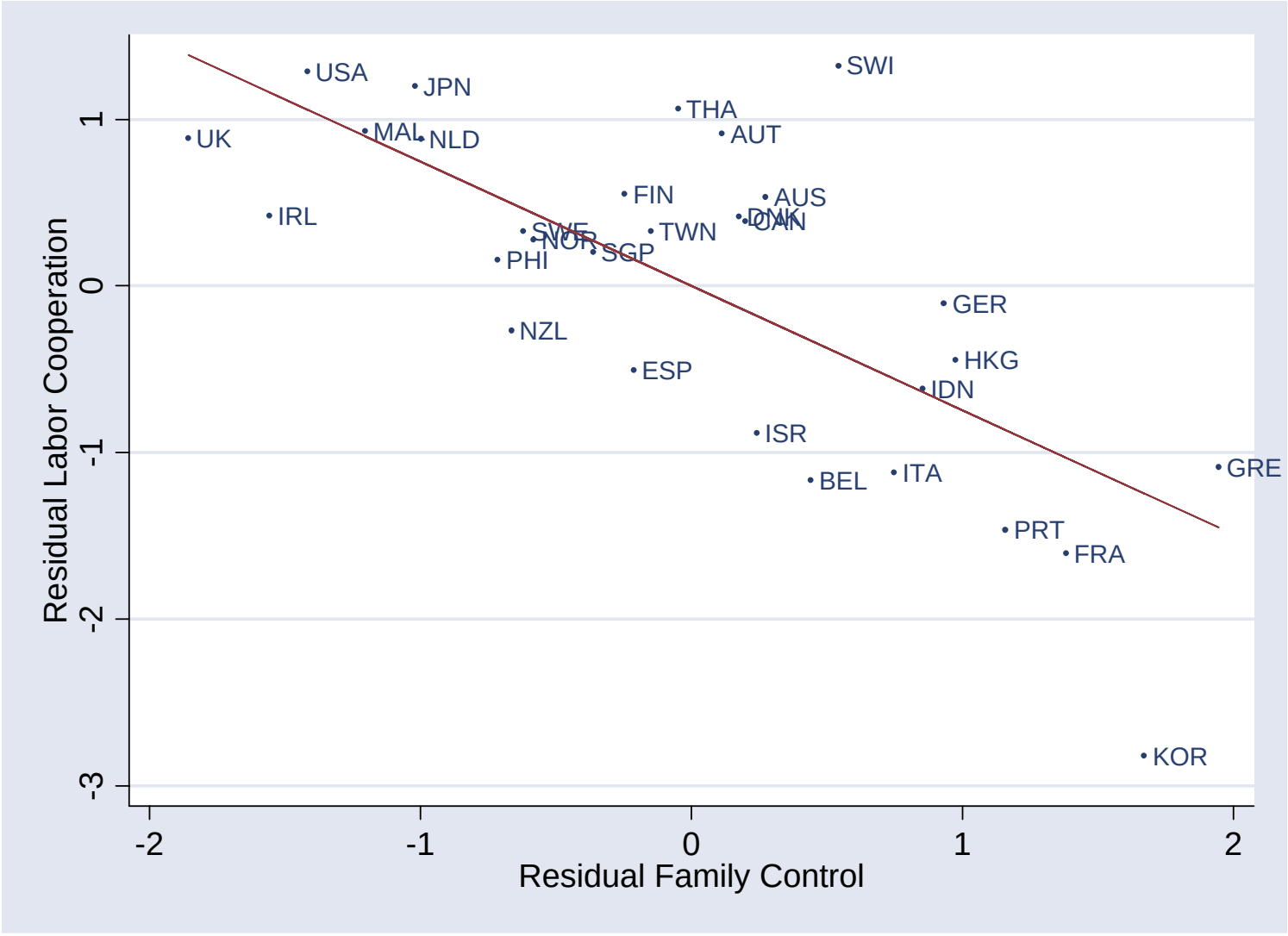
Note: Coefficients are in bold, t-statistics are below the coefficients. Sources : BDLLS is Botero, Djankov, La Porta, Lopez-de-Silanes and Shleifer (2004) ; Roe is Roe (2003) ; PV is Pagano-Volpin (2005) ; WVS is World Value Survey.

Table 5: Instrumental Variable Regressions

	(i)	(ii)	(iii)	(iv)
Sample	Faccio-Lang	West	Faccio-Lang	West
Second Stage Regressions: Dependent variable is principal component of degree of family control				
Productive labor relations	**-0.608**	**-0.704**	**-0.617**	**-0.724**
	-2.59	-2.43	-2.9	-2.13
Log(Population) in 1995	**-0.327**	**-0.451**	**-0.334**	**-0.461**
	-1.82	-2.33	-2	-2.15
Anglo Saxon Legal Origin	**-1.065**	**-0.45**	**-1.05**	**-0.435**
	-2.28	-1.19	-2.4	-1.08
German Legal Origin	**1.052**	**1.026**	**1.064**	**1.049**
	2.63	1.94	2.81	1.86
N	14	21	14	21
R2	0.91	0.674	0.911	0.676
First Stage Regressions: Dependent variable is productive labor relations				
Log(Population) in 1995	**-0.588**	**-0.411**	**-0.654**	**-0.447**
	-4.27	-3.03	-5.37	-3.08
Anglo Saxon Legal Origin	**1.543**	**0.783**	**1.31**	**0.393**
	3.57	2.32	3.21	1
German Legal Origin	**1.294**	**1.135**	**1.199**	**1.06**
	3.13	2.5	3.15	2.16
Percentage of Protestants	**0.014**	**0.016**		
	2.62	3.15		
Percentage of Catholics			**-0.014**	**-0.012**
			-3.15	-2.48
N	14	21	14	21
R2	0.835	0.671	0.862	0.614

Note: Coefficients are in bold, t-statistics are below the coefficients. The Faccio-Lang sample includes the 13 countries in Faccio and Lang (2002) and the US from Gadhoun, Lang and Young (2005). The West sample includes 7 extra countries with predicted values using La Porta, Lopez-de-Silanes and Shleifer (1999): Australia, Canada, Denmark, Greece, Israel, the Netherlands, New Zealand

Figure 1: Residual Labor Cooperation and Residual Family Control



Note: Residuals of regression (vii) in Table 3. Labor cooperation and family control are first regressed on log(employment) and log(GNP per capita), interacted with a dummy for Asia.

Figure 2: Strikes and Changes in Ownership Concentration in Canada

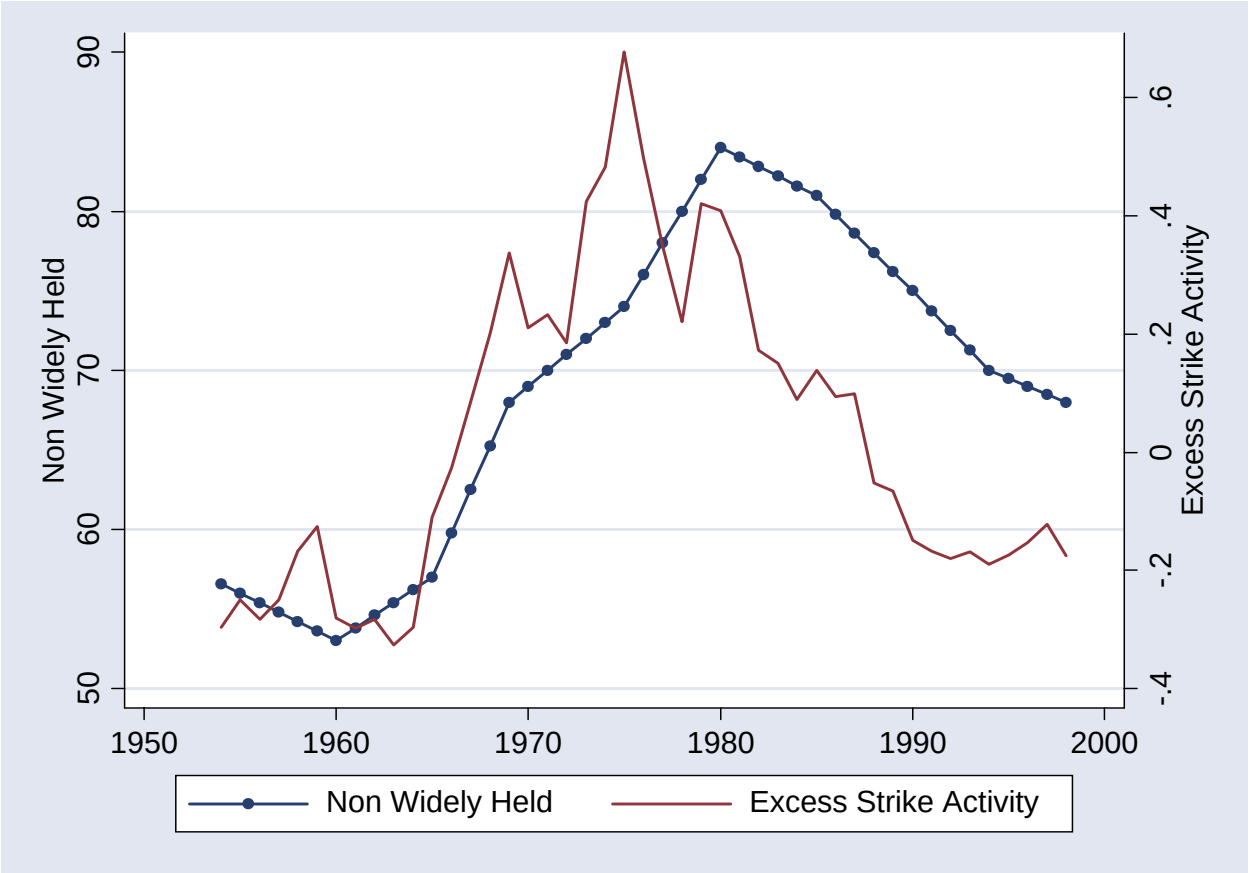


Table 6: Strikes and Changes in Ownership Concentration in Canada.

Dependen Variable	Change in % of Family Controlled Firms	Change in % of Widely Held Firms
Days Lost per 1000 Salaried Workers	**1.22**	**-2.06**
	2.86	-4.47
Growth Rate of Union Membership	**3.36**	**-16.54**
	0.63	-2.86
N	45	45
R2	0.20	0.47