

Family Firms and Labor Market Regulation

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Abstract

We investigate whether labor market regulation affects the performance difference between family and non-family firms across a large panel of more than 6,900 firms in 28 countries over 10 years. We establish two main results: family firms have a performance advantage over non-family firms in countries with less regulated labor markets, and the performance advantage of being family-controlled in countries with lower regulation is less pronounced in industries with high labor intensity and high labor volatility. These results are robust to matching and using a survey-based instrument for family control. Our results suggest that family control and labor market regulation to some extent are substitute governance mechanisms.

Keywords: Family firms, Labor market regulation

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1. Introduction

We investigate how labor market regulation (LMR) affects the performance difference between family and non-family firms. Family firms are dominant in most countries around the world (La Porta, Lopez-de-Silanes, and Shleifer 1999, and Faccio and Lang 2002), and many studies have shown that family firms perform differently from non-family firms (Anderson and Reeb 2003, Perez-Gonzales 2006, Villalonga and Amit 2006, Bennedsen et al. 2007, and Miller et al. 2007). However, only recently have scholars started opening the black box of why family firms are different, by focusing on families' special contribution to their firms (see Bertrand and Schoar 2006, and Bennedsen et al. 2010, for surveys).

In this paper, we focus on the role of country-level differences in LMR to explain the performance difference between family-controlled and non-family-controlled corporations. LMR is an important institutional roadblock. Regulation of labor and other types of regulation, including product markets and regulation of trade, have been studied extensively in the macroeconomic literature on barriers for growth. Studies have established that tight regulation of labor markets is correlated with lower growth, higher unemployment, and more rent seeking from incumbent firms (Blanchard and Giavazzi 2003, Botero et al. 2004, and Besley and Burgess 2004). We contribute to this literature by analyzing, in general, firm-level effects of LMR on performance and productivity and, in particular, the differential impact of LMR on family-controlled and non-family-controlled corporations. We emphasize that, a priori, no clear theoretical relationship exists between the macroeconomic results and the firm-level results we investigate in this paper since labor market regulation impacts incentives and performance of individual firms but also affects entry and exit into a market.

We use the OECD employment protection index to measure LMR across countries and time. The measure has a strong focus on protecting employees from being separated from their jobs and is constructed from sub-measures of regular employment protection, temporary employment protection, and the cost of collective dismissals. We document that significant variation exists in the OECD employment protection measure across countries. Importantly, this variation goes well beyond variation in GDP per capita and other institutional constraints such as investor protection and product market competition.

By focusing on firing cost and how easy it is to separate workers from their jobs, the measures of LMR used in the present study shapes the form and content of labor contracts. Thus, strong labor market regulation reduces the freedom of designing both explicit and implicit labor contracts. Theoretically, when regulation increases the cost of separating workers from firms, it can induce both benefits and costs on the individual firm. The most obvious impact is that higher firing costs and less flexible use of temporary workers make it difficult for firms to adapt to fast changes in the business environment. This challenge can increase firm-level cost or induce firms to forego business opportunities because hiring more labor is risky. On the benefit side, protection of workers can increase the relation-specific investment by workers who are concerned about being held up by the company. Hence, workers who feel safer in their jobs may invest more in skills that are specific to the individual firm. Another firm-level benefit of stronger regulation is that it will serve as a barrier to entry for new firms or for foreign firms that are considering establishing new firms or plants in a given country. Note that if regulation is a powerful barrier to entry, incumbent firms may, on net, benefit from regulation even if it increases labor costs and overall reduces industry or country-level growth.

How do labor relations interact with family control? Labor contracts both provide incentives for workers to supply effort and relation-specific investment and provide optimal risk allocation between firms and workers (Knight 1921, Bailey 1974, and Azariadis 1975). Family business scholars have argued that family firms are better at managing stakeholders and have a more loyal labor force (Davis, Schoorman, and Donaldson 1997, and Lansberg 1983 and 1988). Recent firm-level studies have found significant differences in management practices for family-controlled firms (Bloom and van Reenen 2007, and Bennedsen et al. 2007). Thus, it is plausible that family firms have a different tradeoff between worker incentives and worker insurance than do non-family firms. Recent literature has documented this difference using both firm-level and country-level data (Sraer and Thesmar 2007, Mueller and Philippon 2011, Bach and Serrano-Velarde 2014, and Ellul, Pagano, and Schivardi 2014). These papers have established that family firms provide better employment insurance than non-family firms and the latter paper shows this is related to cross country differences in unemployment insurance.

In this paper, we start from the above documented notion that family firms are better at insuring workers and paying lower wages. We then ask in which environment family firms are most beneficial, given that implicit labor contracts and labor market regulation both affect the incentives of individual workers. Family firms' superior relationship with their workers relative to non-family firms gives a comparative advantage in environments where this implicit insurance is most valuable. Given that both implicit labor contracts and labor market regulation provide insurance, we claim that family firms will have a comparative advantage in countries where less labor market regulation exists.

We assemble a dataset of 6,983 firms in 28 countries (based on Lins et al. 2013). Our firms are large publicly-traded corporations, and we use a strict 25 percent threshold of voting

rights via direct or indirect family shareholdings to define family firms in our benchmark analysis. We collect firm-level data for these firms and investigate to what extent regulation of labor market and being a family firm interact.

The contribution of the paper can be summarized in a number of findings. First, we find that LMR does not, in general, have a strong impact on firm performance. Second, we find that family-controlled corporations have higher operating performance and return on capital employed relative to non-family-controlled corporations in countries with less regulated labor markets. Thus, the ability of family firms to protect labor seems to give them a relative performance advantage in less-regulated countries. Third, the comparative advantages of family firms in less-regulated countries are driven by those industries that are less labor intensive and where firm-level employment is less volatile. This finding supports the notion that the abilities of families to implicitly contract with labor in a way that increases relation-specific investment is higher in stable industries, with lower labor intensity. We confirm this insight by showing that employment in family firms is less volatile and that this effect is stronger in less regulated countries. Fourth, the interaction effects between family control and labor market regulation that we observe for firm-level performance measures are not significant when we compare relative productivity.

Like most cross-sectional country studies, our analysis is subject to identification challenges. In particular, the choice of being a family firm may be affected by the level of regulation in general. This concern is supported by the observation that the share of family firms across countries is negatively correlated with the degree of labor market regulation. To mitigate this concern, we both use matching and instrumental variables techniques. We instrument the presence of family firms across countries using survey-based questions from the World Value

Survey about the strength of family values across countries. Our main findings obtain also when we apply instrumental variables regression methods.

By showing that LMR has a differential impact on family-controlled and non-family-controlled corporations, we also contribute to a recent literature that shows how institutional roadblocks are important for the relative performance of family firms (Bennedsen and Fan 2014, and Bennedsen et al. 2013). Ellul et al. (2010) show that the strictness of inheritance laws affects family firms negatively. Tsoutsoura (2013) documents how the removal of inheritance taxes in Greece improved investment in family firms around succession, and Bennedsen and Nielsen (2010) document how family firm control can provide value in countries with weak investor protection. The notion that regulation interacts with individual governance structures like ownership is also a persistent theme in the law and finance literature.

The remainder of this paper is organized as follows: Section 2 describes our measure of LMR and shows that variation across countries exists beyond the variation in other institutional country variables. In this section, we also present our firm sample and provide summary statistics at the country and at the firm levels. Section 3 presents our results. We begin with univariate illustrations and proceed with multivariate and instrumental regressions; then, we introduce sample splits to provide a deeper understanding of our main interaction effect. Section 4 concludes.

2. Data and summary statistics

The focus of this paper is to study whether labor market regulation affects the performance difference between family and non-family firms. In this section, we provide a description of our data. We introduce the labor market regulation measures and how these measures compare to

other country-level variables such as investor protection, product market regulation, and welfare. We then describe the sample and control variables.

2.1 Labor Market Regulation

The OECD provides a yearly measure of employment protection based on data collected by the *International Labor Organization (ILO)*. The *ILO* uses country officials and law experts to collect detailed information about firing procedures, notification rules, as well as valid and invalid reasons for firing individuals or groups of workers. All information is aggregated into an employment protection indicator, which we henceforth refer to as *overall employment protection*. Importantly, for our purposes, this measure is comparable across countries.

Figure 1 summarizes how the *overall employment protection* measure is constructed. The *overall employment protection* measure is composed of three sub-measures: (i) individual dismissal of workers with regular contracts (weighted with 5/12); (ii) regulation of temporary contracts (weighted with 5/12); and (iii) additional costs for collective dismissals (weighted with 2/12). Sub-measure (i), which we henceforth refer to as *regular employment protection*, is the equally weighted mean of measures for procedural inconveniences, notice and severance pay for no-fault individual dismissals, and difficulty of dismissal—all as a function of how many years an employee has been on a regular contract. Sub-measure (ii), which we henceforth refer to as *temporary employment protection*, is the equally weighted mean of measures of fixed-term contract conditions and temporary work agency employment. This measure focuses on issues such as when and for which type of work a temporary contract can be used, what the maximum length of a single temporary contract can be, and how many times temporary contracts can be renewed before the worker has to be offered a regular contract. Sub-measure (iii) is henceforth

referred to as *collective dismissal protection*. This measure quantifies regulatory burdens and costs that go beyond regular employment protection in that they apply to the dismissal of large groups of workers.

--- Figure 1 about here ---

The OECD standardizes employment protection such that the measure decreases in the strictness of regulation on a scale from 0 to 5. We subtract this measure from 5 to obtain a measure that increases in labor market regulation. Table 1 summarizes the labor market measures by country in 2008. Countries are sorted by *overall labor market protection*, starting with the least protected country. The least protected countries are the United Kingdom, Canada, and Ireland. The most protected countries are Turkey, Portugal, and Mexico. Inspection of the sub-measures reveals that the three sub-measures are relatively uncorrelated (indeed, *regular* and *temporary* measures have a correlation of 0.34). Thus, these sub-measures are likely to capture different aspects of labor market protection.

--- Table 1 about here ---

2.2 Labor Market Regulation and other institutional roadblocks

As we aim to explore the impact of labor market roadblocks on the performance difference between family and non-family firms, it is important that our LMR measure is not highly correlated with other country-level variables faced by firms. In the following, we focus on institutional roadblocks (investor protection and product market regulation) and welfare. First, we study the correlation between labor market regulation and two investor protection measures. The *Anti-Self-Dealing index* measures the strength of minority shareholder protection against self-dealing conducted by controlling shareholders (Djankov et al. 2008). The *Revised Anti-Director index* is an index that ranges from 0 to 5, depending on how many of 5 different

shareholder rights a country fulfills (La Porta et al. 1998, and Djankov et al. 2008). Second, we focus on measures of economic development using the *log of GDP per capita* from World Bank and GDP growth between 2003 and 2008. Third, we examine the relation between LMR and measures of product market regulation provided by the OECD, namely the OECD's overall *product market regulation* measure and its three sub-measures: *barriers to entrepreneurship*, *barriers to trade and investment*, and *state control*.

Table 1 tabulates these roadblocks by country, and Table 2 shows correlations between major roadblocks, weighting each country equally. Figure 2 plots the overall LMR measure against major roadblocks as well as welfare, again weighting each country equally.¹

--- Table 2 and Figure 2 about here ---

Table 2 provides first evidence that LMR does not merely capture other country-level measures. Anti-self-dealing is negatively correlated with LMR, while no correlation exists between LMR and anti-director rights. Economic welfare—measured by GDP per capita—is slightly negatively correlated with LMR, while growth over the past 5 years is slightly positively correlated. Also, some positive correlations exist between product market competition measures and the sub-measures of LMR, yet clearly not all variations in LMR are explained by measures of competition. Figure 2 provides additional evidence by showing that none of the low correlations are driven by outliers.

In sum, LMR captures something beyond known country-level roadblocks. At the same time, to alleviate concerns that these country-level measures may drive our results, we include these country-level controls in our regressions.

¹ Weighting countries by the number of firms or the number of observations used in our later analysis does not affect conclusions drawn in this section.

Note that Table 2 also provides insights into the LMR measure. First, overall LMR is positively correlated with two of its subcomponents (temporary and regular LMR) but negatively correlated with collective dismissal. Second, the three subcomponents are not strongly correlated with each other. This result leads us to investigate which of the subcomponents matter in a later part of our paper.

2.3 Sample description

Our baseline dataset is that constructed by Lins, Volpin, and Wagner (2013). The authors start with the December 2006 issue of OSIRIS and restrict the sample to firms that (i) are active; (ii) report sales, assets, operating profit, and industry for fiscal year 2005; (iii) have sales of at least EUR50mn and assets of at least EUR25mn; and (iv) are incorporated in countries covered by Djankov et al. (2008). Firms in Fama-French 48 industries with less than ten firms in total are removed.

We further restrict the sample to firms that are incorporated in countries for which the OECD employment protection measure is available. This leaves 6,983 unique sample firms in 28 countries. Japan (1,593), the United Kingdom (1,048), and Australia (763) are most represented. None of the sample countries is reflected by fewer than 30 unique firms.

We apply the definition of family firm employed by Franks et al. (2012) and Lins, Volpin, and Wagner (2013). *Family firm* is a dummy variable equal to one if voting rights held by an individual or through a group of family members exceed 25%, directly or via a control chain. A more detailed description of the sample selection and family-firm classification can be found in Franks et al. (2012). Table 3 Panel A presents our sample across countries and divided into total number of firms, number of family firms, and share of family firms. Twelve percent of

sample firms are classified as family firms. France (36%), Greece (34%), Germany (32%), and Italy (32%) have the largest fraction of family firms.

--- Table 3 about here ---

One major challenge of using 25 percent share of ownership as the definition of family firms is that we leave out firms that are controlled and managed by families with a smaller ownership stake. Whereas this narrowing of the definition is true for all countries, it affects Japan disproportionately, which has many family firms that are controlled through relatively small ownership stakes by the family (Bennedsen et al. (2013)). As a result we categorize very few firms as family firms in Japan. To check that our results do not depend on this categorization, we repeat all our analyses by excluding Japan. This does not change the qualitative results; thus, to save space we only present the results for the full sample including Japan.

2.4 Firm- and industry-level control variables

Panel B of Table 3 provides a brief description of firm- and industry-level controls. All firm-level controls are from Worldscope and Datastream. Our key performance measures are *return on assets (ROA)* and *return on capital employed (ROCE)*, which are constructed as *earnings before interest and taxes (EBIT) over total assets* and as *EBIT over total assets less current liabilities*, respectively. *Log(Assets)* is the log of *total assets*. *R&D/Assets* is defined as *research and development costs over total assets* where, in line with the literature, research and development costs are assumed to be zero if missing. *Leverage* is defined as *long-term debt* divided by *total assets*. *Log(Age)* is the log of years since firm foundation or the log of years since a firm first appeared in DataStream if the foundation year is missing. *Log(Cost of goods sold)* and *Log(Employees)* are the log of cost of goods sold and log of number of employees,

respectively. These measures, along with $\text{Log}(\text{Assets})$, serve as proxies for capital, material, and labor input in the total factor productivity regressions.

The average sample firm has ROA of 3.8%, ROCE of 9.1%, leverage of 50.8%, R&D/assets of 2.5%, and $\text{Log}(\text{Assets})$ of 12.7, the latter reflecting the size criteria imposed by Lins, Volpin, and Wagner (2013) on sample firms.

3. Results

In this section, we present our results. We begin with univariate illustrations and proceed with multivariate regressions, as well as matched sample and instrumental regressions. We then conduct industry splits and analyze employment and productivity to provide a deeper understanding of channels that drive our main result. We conclude with further robustness checks using alternative institutional roadblocks and alternative measures of employment protection.

3.1 Univariate analysis

As discussed earlier, the theoretical impact of higher LMR on firm performance is ambiguous. First, higher costs of firing workers increases overall production costs and thus reduces profits. Second, higher labor costs may lead firms to substitute labor for capital, thus increasing labor productivity. Third, higher firing costs increase job security of workers. This result may have a positive effect on labor productivity, if workers make larger relationship-specific investments into their jobs, or a negative effect, if workers exhibit less effort knowing that the likelihood of being fired is smaller. Finally, higher labor costs may work as a general barrier to entry, which reduces competition and thus allows incumbent firms to enjoy higher rents.

Table 4 Panel A provides first insights into the firm-level relation between LMR and firm performance based on univariate analysis. We calculate firm performance, measured by return on assets, for firms in countries with weak and strong employment protection by family and non-family firms. The first row shows that publicly traded firms in general have higher returns on assets in countries with high LMR. Given that high country-level LMR implies lower growth and higher unemployment, the firm-level results confirm that high LMR induces more rent to the individual firm and thus also reduces competition among firms. As we show below, this correlation does not carry over when we add control variables to the analysis. The first column shows that family firms in our sample have higher return on assets than non-family firms. This is driven by countries with low LMR, while family firms have lower ROA than non-family firms in countries with high LMR.

--- Table 4 about here ---

The *difference-in-difference* of family firm performance in countries with low versus high LMR is 3.55 percentage points. Hence, family firms have a relative performance advantage in countries with low LMR. Panel B measures performance by return on capital employed and confirms these results. Overall, this result confirms the notion that family firms' ability to better insure labor is worth more in countries where labor is less protected through public labor market regulation.

Figure 3 supports this insight by mapping the gap between return on assets of family and non-family firms (vertical axis) to the aggregate level of labor market regulation (horizontal axis). The line of best fit illustrates a clear negative relationship, confirming that family firms have a comparative advantage in countries with lower labor market regulation. The difference between return on assets of family and non-family firms is positive in countries with a low level

of labor market protection—such as in the UK, as well as in Ireland, Japan, Australia, New Zealand, and Denmark. The difference between return on assets of family and non-family firms is close to zero or negative in countries with a high level of labor market protection—such as in France, Norway, Turkey, and Portugal. While this illustration is based on equally weighted observations, results are essentially unchanged when weighting country-level observations by the number of sample firms.

--- Figure 3 about here ---

Next, we consider how changes in labor market regulation impact the performance difference between family and non-family firms. Panel B plots changes in return on assets of family firms (left) and non-family firms (right) between 2003 and 2008 against changes in the OECD's LMR measure, focusing on the five countries that experienced a change in the overall labor market protection measure during the period 2003 to 2008. We find weak evidence that an increase in the level of LMR is associated with lower returns on assets in family firms and higher returns on assets in non-family firms. Panel C combines the two figures, showing that the difference in return on assets closes as LMR gets stronger. While this evidence is consistent with the correlations before and hints at a causal link between labor market regulation and performance difference, we acknowledge that five countries are too few to draw general conclusions. We refer to the multivariate firm-level evidence that uses matching and instruments in the next sub-section.

In conclusion, this subsection shows that the gap between return on assets of family firms and non-family firms decreases in overall labor market protection. This finding is consistent with the notion that family ownership provides implicit labor protection: labor market regulation and ownership structure are partly governance substitutes.

3.2 Multivariate analysis

We now turn to multivariate analysis. Specifically, the results of the univariate analysis may be subject to firm-level characteristics, such as size, firm age, or industry selection. We start with simple multivariate OLS regressions. We then match family firms to non-family firms using a propensity score matching method and employ instruments variables regressions to alleviate selection concerns. We conclude by examining sub-measures of LMR and industry splits to hint at the channels that explain our results.

3.2.1 LMR and firm performance

Table 5 analyzes the impact of LMR on firm-level performance and productivity. The key explanatory variable is LMR. Column (1) shows that LMR does not have a statistically or economically significant impact on firm performance measured as operating return on assets. In results reported below, we confirm this for the three sub-measures (collective dismissal, regular LMR, or temporary LMR). In Column (4) we use return on capital employed as our performance measure and still do not find a correlation between labor market regulation and average firm performance. In unreported results, we check the correlation between average firm performance and protection of temporary and permanent employed workers and we limit the analysis to labor intensive industries where any impact should be largest. We find no significant correlation, and thus we conclude that firm-level return measures are not correlated with the regulative-induced protection of labor. On average, labor market regulation does not impact the mean performance of publicly traded companies in a country. The most important determinants of return over assets are size and country-level GDP.

--- Table 5 about here ---

3.2.2 Family-firm performance and LMR

Table 5 presents the main result of our multivariate analysis by documenting the differential impact that LMR has on family-controlled corporations relative to other firms. In Column (2), we add a family firm dummy in addition to the LMR dummy. The family firm dummy is statistically significant and economically large. The economic magnitude is such that being a family firm increases ROA by 2.7%. This result is confirmed in all other regressions we present, thus in this sample of large public traded firms, we notice that very concentrated family ownership (above 25 percent) is correlated with superior performance. This finding may result from the fact that we are looking at a) the largest firms in each country; and b) a very strict definition of family firms. Given that a large literature on family firm performance points to the importance of the definition of family firms, we do not pursue this further here (see Bennedsen, Perez-Gonzalez, and Wolfenzon 2010 for a discussion of the definition of family firms).

In Column (3), we introduce interaction effects between LMR and family firms, as we are particularly interested in the effect of being a family firm in low LMR environments. Most importantly, while on average family firms outperform non-family firms in terms of ROA, they outperform non-family firms even more in low LMR countries: the interaction effect is statistically significant at 5% level and economically important. Indeed, for a one standard deviation decline in LMR, ROA increases 0.98 percentage points more for family than non-family firms.² In columns (4) to (6), we use the return over capital employed as our performance measure. Our previous result is confirmed: For a one standard deviation decline in LMR, ROCE increases 1.58 percentage points ($=2.1\% * 0.752$) more for family than non-family firms. .

² The standard deviation of LMR is 0.752 in this sample.

As previously discussed, the strict definition of family firms used in this analysis means that we have very few family firms in Japan. In unreported regressions, we repeat the analysis of Table 5 (and all future tables) excluding Japan. This does not significantly affect economic magnitude and statistical significance of our results.

Thus controlling for relevant observables, we have established a negative interaction effect between performance difference for family and non-family ownership and the strength of labor market regulation.

3.2.3 Controlling for selection

In the previous subsection, we have shown a negative correlation between the performance of family and non-family firms and the strength of labor market regulation. Such a correlation is naturally plagued with endogeneity concerns. Are family and non-family firms similar across different levels of LMR with respect to observable and non-observable characteristics? Is the distribution of family firms and non-family firms within a country affected by the strength of labor market regulation? A family may choose to dilute ownership below the 25 percent threshold we use, and this choice may be affected by a country's labor market regulation. On average, we do find that the share of family firms is larger in highly regulated countries.

In a large global cross-country sample, it is very challenging to control for all possible endogeneity concerns. However, in the following, we provide evidence from two separate approaches that strengthen the claim that the correlation found above is causal.

Our first approach is to look at the interaction effect in a matched sample. Ideally, we want to compare similar family and non-family firms within each country, but firms may be different both in observable and unobservable ways. However, if the unobservable differences

are significantly correlated with observable variables, a matching approach will do a better job in estimating the interaction effect. Specifically, for each year, non-family firms are matched to family firms by country characteristics (log of GDP per capita, anti-self-dealing, anti-director index), industry, log(assets), R&D/assets, leverage, and age, using propensity score matching. This allows us to select, for each family firm, a non-family firm having similar characteristics to function as its control group.

Panel A of Table 6 shows that propensity scores are indistinguishable between matched sample and control group. In untabulated results, we verify that family firms and non-family firms in the control group have indistinguishable characteristics for every control variable. Univariate analysis in Panel A further confirms our prior findings that family firms outperform non-family firms even when we control for self-selection bias. Panel B extends the analysis to a multivariate setting, and again we find that the outperformance of family firms is more pronounced in countries with low LMR.

--- Table 6 about here ---

The matching approach does assure that we are comparing similar firms when we estimate the performance difference between family and non-family firms across countries. However, it does not solve other types of endogeneity challenges. For instance, in our data we see more family firms in countries with low LMR. Hence, we cannot rule out that LMR is one determinant of whether families continue owning large stakes in their firms or that families opt for diluting ownership, thus becoming a non-family firm according to our definition.

To mitigate the concern of reverse causality, we instrument family control. Our instrument comes from the World Value Survey and measures the importance of family values. The World Value survey is based on interviews with a representative sample of 1000-4000

individuals in each country, and these individuals are randomly chosen among the entire population. Thus, most of the respondents have little or no connections with the firms in our sample, and we therefore claim that mean survey answers are not affected by the ownership choices that owners in our sample make. The World Value Survey asks the question of how important the family is in a respondent's life in many countries around the world over several waves. Respondents can answer on a scale of 1 to 4, and we have extracted the average of the answers for each country each year in our sample. For years in which the survey is not carried out, we use the mean value from the most recently available one. Following this approach, we have constructed a country-level measure of the importance of family values. Family values on a country level does impact the way families in general perceive doing business together. Strong family values make families more likely to continuing entrepreneurial activities within the family and make it more likely that a family succession is chosen when the founder retires. Thus, we expect that countries with strong family values will have more family firms than do countries with weaker family values.

We conclude that the World Value Survey measure of family values satisfies two conditions for being a valid instrument: it is not affected by the choice of being a family firm in our sample; and it is potentially a good predictor of the share of family firms in a country. In addition to these two conditions, country-level family values shall not impact the performance of firms beyond the impact that comes through the channel we investigate. This exclusion restriction is hard to prove generically, but we argue that, empirically, it seems to be satisfied. In Table 7, columns (1) and (5), we regress firm performance on country-level family value with our usual set of controls. We find no direct effect of family value on average firm performance.

This finding is consistent with the notion that any impact of family value on the return gap goes through family ownership structure.

--- Table 7 about here ---

Table 7, columns (2) and (3), show the first stage regression for ROA, and columns (5) and (6) for ROCE. We instrument both the share of family firms and the interaction between family-firm share and LMR. As instruments, we use a dummy for high family values and the interaction between this dummy and LMR. We cluster the standard errors at country-year level. Panel A shows that both instruments have a significant impact on the share of family firms and on the interaction between the share of family firms and high LMR. High-family values are positively associated with presence of family firms. First-stage F tests suggest that neither instrument is a weak instrument.

Columns (4) and (8) report second-stage regressions on our two alternative performance measures. After correcting for ownership choices, family firms have stronger performance and the effect remains statistically significant. More importantly, the interaction effect of LMR and Family Firm is negative and highly significant. When we instrument the choice of being a family firm, the impact of labor market regulation is significantly higher on the performance difference between family and non-family firms. The results confirm and strengthen our findings from previous sections and are consistent with the claim that labor market regulation has a causal impact on the performance difference between family and non-family firms.

3.2.4 Submeasures of LMR

We have established so far that the overall level of labor market regulation impacts the performance gap between family and non-family firms in a way that is consistent with the idea

that family firms are better able to protect labor in an environment where less regulatory protection exists. We now examine which dimensions of labor market regulation drive our result.

Table 8 estimates the performance difference between family firms and non-family firms, replacing the overall employment protection measure with each of its sub-components. We present results of OLS regressions in Panel A and results of IV regressions using family values as instruments in Panel B. For each LMR sub-measure, we present results for performance measured by ROA and ROCE.

--- Table 8 about here ---

We find that our results are driven by temporary employment protection and regular employment protection. Using temporary employment protection, we find that the interaction effect remains negative and statistically significant for both performance measures. Instrumenting the family firm dummy leads to similar results.

The analysis of permanent employment protection gains similar results. While the interaction effect is negative but statistically insignificant when we use OLS regressions, the effect becomes significant when instrumenting with family values. Finally, we document that collective dismissal does not drive our main result.

Taken together, we conclude that the effect of employment protection on the performance difference between family and non-family firms is driven by temporary and regular labor protection.

3.2.5 Industry effects

The performance difference between family and non-family firms in low LMR countries depends on the advantages of having a better relationship with labor and on the cost of not being able to

downsize labor drastically when facing negative demand shocks. In this section, we illuminate the relative costs and benefits that family firms have in comparison to non-family firms in low LMR countries: We investigate how industry characteristics are associated with the magnitude of the performance difference.

Table 9 analyzes the relationship between industry-level characteristics likely to be affected by LMR and the performance difference between family and non-family firms. We follow exactly the set-up of Table 5 (Column 3) but additionally interact all key variables with industry characteristics. Our focus is on performance differentials in countries with weak labor market regulation. In order to facilitate interpretation of results, we flip the sign of labor market regulation: we introduce a dummy variable equal to one if a country has below-median labor market regulation. Our focus is on the interaction between family firms, labor market regulation, and industry characteristics.

--- Table 9 about here ---

We start by considering labor intensity. In labor-intense industries, it may be more costly not to be able to downsize the workforce when demand falls. Moreover, labor-intense industries often require less skilled workers: relationship-specific investment becomes less valuable. We hypothesize that the relative performance advantages of family firms in low LMR countries is stronger in less labor-intense industries.

We measure labor intensity at the industry level as the number of employees divided by the cost of goods sold (Compustat). Since we have relatively incomplete information on all the firms across industries in non-US countries, we categorize industries on the basis of US data and impose the resulting categories on our sample countries. Low (high) labor intensity is a dummy equal to one if an industry has below (above) median industry labor intensity in 1999. We find

that family firms do indeed obtain their performance advantage in low LMR countries from outperforming in less labor-intense industries.

Second, we investigate to what extent the performance advantage of family firms in low LMR countries is related to operating in less volatile environments. We argue that it is more costly to provide labor insurance in a more volatile environment. We therefore expect the performance advantage of family firms to stem from less volatile industries.

Columns (3) and (4) of Table 9 measure volatility as average stock return volatility in each Fama-French industry. Low (high) return volatility is a dummy equal to one if an industry has below (above) median industry return volatility in 1999. Again, due to limited availability of data for countries other than the US, we categorize industries in the US and impose resulting industry categories on our sample firms. We find the outperformance of family firms in low LMR countries is more pronounced in less volatile industries. We confirm this insight in columns (5) and (6), where we measure volatility by average industry stock return volatility.

Panel B of Table 9 proposes further industry splits. First, we split by labor unionization rates. Due to limited availability of data for countries other than the US, we categorize industries in the US and impose resulting industry categories on our sample firms. Unionization rate was obtained from U.S Bureau of Labor Statistics, and it measures percentage of labor force that belongs to a labor union in each Fama-French industry. Low (high) unionization rate is a dummy equal to one if an industry has below (above) industry in 1999. The idea is that additional labor protection provided by family firms is less valuable in industries with high unionization rates. However, the results do not support this prediction. Second, we split by R&D intensity. We hypothesize that labor protection is more important in high-skill industries, yet this prediction is not confirmed in the data. Third, we split by product market competition, measured by a

Herfindahl-Hirschman Index measure of industry concentration. We find weak evidence that the performance gap is more pronounced in more competitive industries, in line with the notion that labor market competition increases the value of labor protection. Fourth, we consider labor force actions, measured by the accumulated number of strikes for each Fama-French industry over 2002-2012, but find no significant results.

Overall, the evidence of this subsection highlights that implicit contracts are of more value where the costs of adjusting labor are lower. Specifically, family firms outperform non-family firms in countries with weak LMR, particularly in less labor-intense and less volatile industries.

3.3 Labor volatility

The literature has highlighted that family firms have a different tradeoff between worker incentives and worker insurance than do non-family. Specifically, Sraer and Thesmar (2007), Bach and Serrano-Velarde (2014) and Bach and Ellul et al (2014) document a lower volatility of labor in family firms and the latter paper furthermore point out that this is particularly the case when public unemployment insurance is less generous. We now investigate directly whether this channel may partly explain family firms' performance advantage in countries with weak LMR.

In Table 10 we explain changes in labor volatility by LMR, Family firms, the interaction of the two, and all controls from our main specification in Table 5. Following Ellul et al. (2014) we measure labor volatility by the year-to-year % and the year-to-year log change in the number of employees, respectively. Consistent with the notion that family firms may provide insurance where LMR is otherwise weak, we find that labor volatility is significantly lower across family

firms in low LMR countries. Indeed, for a one standard deviation decline in LMR, family firms reduce labor volatility by 0.54 percentage points more than non-family firms.³

--- Table 10 about here ---

Overall, this result suggests that the performance advantage of family firms in weak LMR countries is at least partly driven by family firms' ability to provide additional protection against dismissal where labor protection is weak.

3.4 Productivity analysis

We have so far shown that family firms have a relative performance advantage in countries with weak LMR. As discussed above, many reasons may account for such an advantage, including better relationship with workers and entry and exit barriers. In this section, we investigate whether the advantage is channeled through a relative productivity advantage, i.e., whether family-controlled companies in countries with low LMR have higher productivity.

We use a simple total factor productivity model that follows Bloom and van Reenen (2007) in using the log of sales as dependent variable and log of assets; log of cost of goods sold; and log of number of employees as proxies for capital, material, and labor input, respectively. As before, we also control for firm age control and other country-level controls. The residual of this regression is firm productivity. In order to test whether LMR, family-firm dummy, and the interaction of the two explain differences in productivity, we add them to the regression on log of sales.⁴ If LMR, family-firm dummy and the interaction of the two load significantly, they are related to productivity.

³ The standard deviation of LMR is 0.765 in this sample. The unconditional mean year-to-year percentage change in the number of employees is 6.13%, suggesting an effect of 8.7% ($=0.054/6.13\%$).

⁴ An alternative approach is to regress LMR, the family-firm dummy, and the interaction on the residual of the total factor productivity regression. We obtain similar results using this approach.

Results are presented in Table 11 and suggest that family-controlled companies in countries with low overall LMR do not have higher productivity (Column 1). However, we do find a significant interaction effect with respect to the regulation collective dismissals. Thus, in countries with less protection against collective dismissals, evidence exists that family controlled corporations are less productive.

--- Table 11 about here ---

3.5 Labor Market Regulation versus other regulatory roadblocks

We illustrated in the data section that variation in labor market regulation goes beyond variation in other country-level roadblocks and welfare; and, we controlled for the impact of these institutional roadblocks on performance in our previous analysis. In this section, we additionally investigate whether other institutional roadblocks lead to similar results.

Table 12 uses the main regression setup of Table 5 (columns 3 and 6), replacing labor market regulation with measures of investor protection and economic development. In columns (1) and (2), we use the *Anti-Self-Dealing index* (see Djankov et al. 2008); in columns (3) and (4) we consider anti-director rights (La Porta et al. 1998, and Djankov et al. 2008); and in columns (5) and (6), we measure economic welfare through the logarithm of GDP per capita. We find that these roadblocks have very little explanatory power in explaining the performance difference between family and non-family firms. Only the interaction between the anti-self-dealing index and family firms is positive at a 10% significance level.

--- Table 12 about here ---

This confirms that labor market regulation is a type of regulation that impacts the relative performance of family and non-family firms beyond that of other types of regulation.

3.6 Alternative measures of employment protection

Our LMR measures are based on data collected by the *International Labor Organization*, which relies on country officials and law experts to collect detailed information about firing procedures, notification rules, and group layoffs that are comparable across a wide range of countries. These LMR measures are useful for the purposes of our analysis as they focus on firing costs and how easy it is to separate workers from their jobs. As a further robustness check, we consider three additional labor regulation measures— Social Security Legislation (SSL), Employment Protection Legislation (EPL), and Gross Replacement Rate (GRR) — that are available across countries, and conceptually capture some aspects of LMR in our data.

SSL, or Social Security Legislation, as introduced by Botero et al. (2004), measures the level of unemployment benefits. SSL itself is an average of four normalized variables that capture of unemployment insurance. EPL, or Employment Protection Legislation against Dismissal, also from Botero et al. (2004), measures worker protection granted by law or mandatory collective agreements against dismissal. EPL is the average of seven dummy variables that capture the legal obstacles employers face when dismissing employees. Finally, GRR, or the Gross Replacement Rate, introduced by Aleksynska and Schindler (2001), measures unemployment benefits of dismissed employees as a fraction of employee earnings. Among these alternatives, EPL is closer related to our LMR measure, since it focuses on the specific legal rules that apply to the dismissal of employees. Empirically, the correlations of LMR with these alternative measures are 0.68 for SSL, -0.52 for EPL, and 0.02 for GRR.

In Table 13 we use SSL, EPL, and GRR instead of our LMR measure to replicate our main results from Table 5. Specifically, the table shows regressions that correspond to Columns

3 and 6 in Table 5, where Alternative Measure represents the alternative country-level labor regulation variable. While coefficients are not directly comparable because of different scaling of the labor regulation variables, the results show that in all regressions the Family Firm dummy maintains its positive sign, and its interaction with Alternative Measure maintains its negative sign (coefficients are not significantly different from zero for EPL however).

--- Table 13 about here ---

Overall, this confirms that our main results also obtain for a range of alternative measures of labor market regulation. Because these alternative measures focus on several different aspects of labor market relations, and some of these differences are more subtle than we can capture here, we treat these results as a robustness test only.

4. Conclusion

A large number of publicly traded firms around the world continue to be controlled by families. The performance differential between family- and non-family-controlled firms has been extensively studied, yet only recently has the literature attempted to explain how family control may affect firm performance through the specific channel of labor relations. This paper provides new evidence on how labor market regulation at the country level affects the performance differential between family-controlled companies and non-family-controlled companies. Using firm-level data for more than 6,900 firms in 28 countries, we establish two main results. First, family firms have a performance advantage over non-family firms in countries with a lower level of labor market regulation. Second, the performance advantage of being family controlled in countries with lower regulation is less pronounced in industries with high labor intensity and high labor volatility. Our results suggest that family control and labor market regulation are—at

least to some extent—substitute governance mechanisms. This interpretation is supported by evidence that the performance advantage of family firms diminishes as labor market regulation strengthens.

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Figure 1: OECD employment protection measures

This figure summarizes the compilation of the OECD employment protection measure. The overall measure is constructed by weighting three sub-measures: (i) individual dismissal of workers with regular contracts (weighted with 5/12), (ii) regulation of temporary contracts (weighted with 5/12), and (ii) additional costs for collective dismissals (weighted with 2/12). Measure (i), which is henceforth referred to as regular employment protection, is the equally weighted mean of measures for procedural inconveniences, notice and severance pay for no-fault individual dismissals, and difficulty of dismissal. Measure (ii), which is henceforth referred to as *temporary employment protection*, is the equally weighted mean of measures of fixed-term contract conditions and temporary work agency employment. Measure (iii) is henceforth referred to as *collective dismissal protection*.

O V E R A L L S U M M A R Y I N D I C A T O R	Regular contracts	Procedural inconveniences (1/3)	1. Notification procedures 2. Delay to start a notice
		Notice and severance pay for no-fault individual dismissals (1/3)	3. Notice period after 9 months 4 years 20 years 4. Severance pay after 9 months 4 years 20 years
		Difficulty of dismissal (1/3)	5. Definition of unfair dismissal 6. Trial period 7. Compensation 8. Reinstatement 9. Maximum time for claim
	Temporary contracts	Fixed term contracts (1/2)	10. Valid cases for use of fixed-term contracts 11. Maximum number of successive contracts 12. Maximum cumulated duration
		Temporary work agency employment (1/2)	13. Types of work for which is legal 14. Restrictions on number of renewals 15. Maximum cumulated duration 16. Authorisation and reporting 17. Equal treatment
	Collective dismissals		18. Definition of collective dismissal 19. Additional notification requirements 20. Additional delays involved 21. Other special costs to employers

Figure 2: Labor market regulation and other country-level measures

This figure plots the overall OECD Labor Market Regulation measure against various country-level measures in 2008 for the 28 sample countries. Panel A and B focus on investor protection measures: Djankov et al.'s (2008) *Anti-Self-Dealing* index and La Porta et al.'s (1998) *Anti-Director* index. Panels C and D show GDP per capita (where growth is measured relative to 2003). Panels E and F show two of the OECD Product Market Regulation measures: the overall product market regulation measure, and the barriers to entrepreneurship measure. Each 'x' reflects a country observation in 2008.

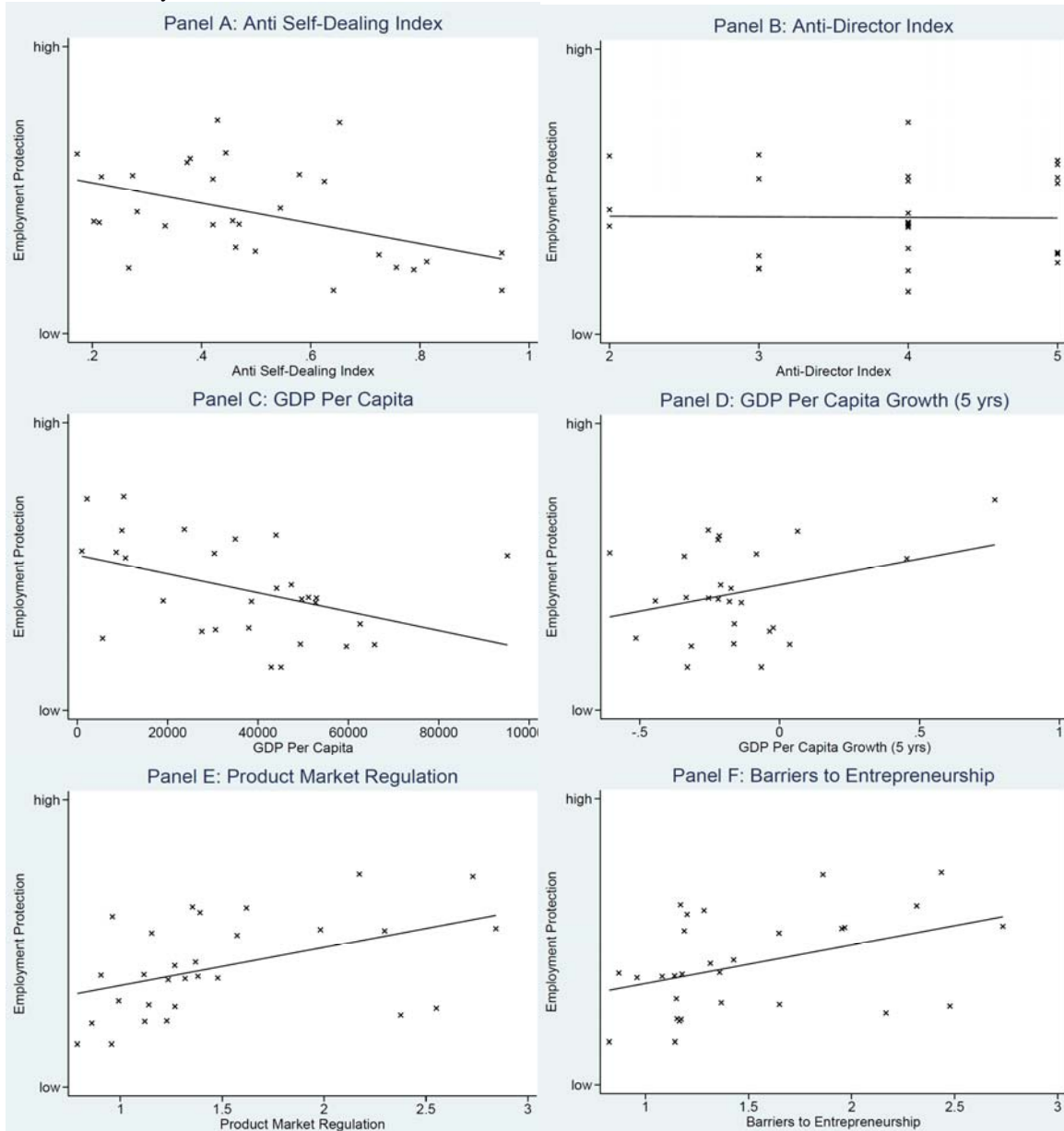
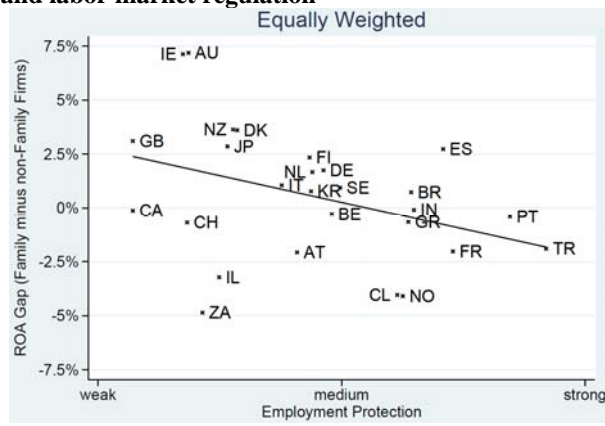


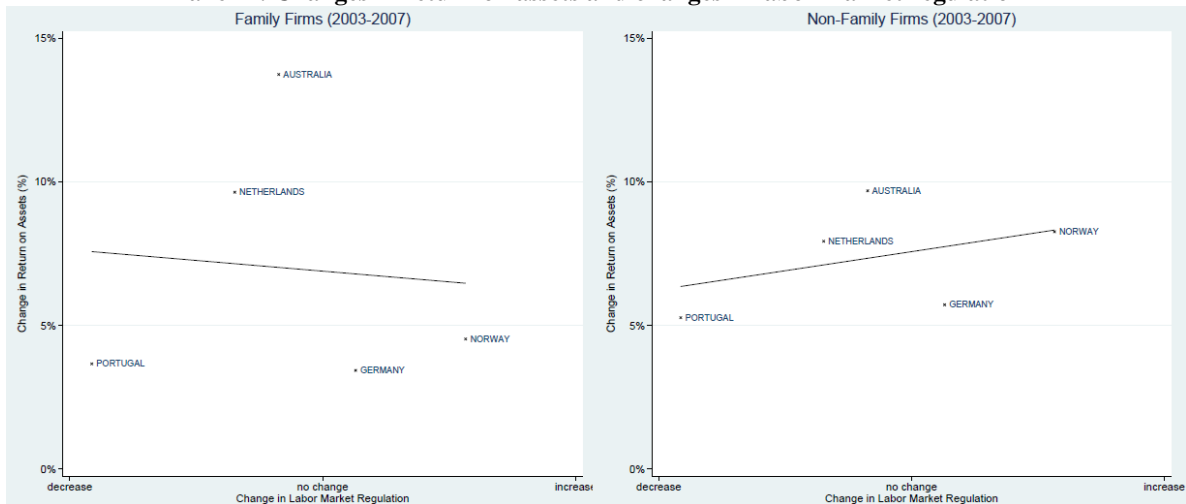
Figure 3: Performance difference and labor market regulation

This figure illustrates the relation between the performance difference of family versus non-family firms and labor market regulation. Each 'x' reflects one sample country. Labor market regulation is measured using the OECD Overall Labor Protection measure. Panel A plots the average performance difference between family firms and non-family firms against the Overall Labor Protection measure. The performance difference is calculated country by country as the difference between average return on assets of family firms and average return on assets of non-family firms in 2008. Panel B considers the relation between changes in return on assets and changes in Overall Labor Protection between 2003 and 2008 for family firms (left) and non-family firms (right). The x-axis reflects the change in Overall Labor Protection from 2008 to 2003. The y-axis reflects the difference between average returns on assets in 2008 and average returns on assets in 2003. Panel C considers the difference in difference. The x-axis reflects the change in Overall Labor Protection from 2008 to 2003. The y-axis shows the change in returns on assets of family firms from 2003 to 2008 and the change in return on assets of non-family firms.

Panel A: Performance gap and labor market regulation



Panel B: Changes in return on assets and changes in labor market regulation



**Panel C: Difference in difference: Changes in the performance gap and changes in labor market regulation
Family Firms vs. Non-Family Firms (2003-2007)**

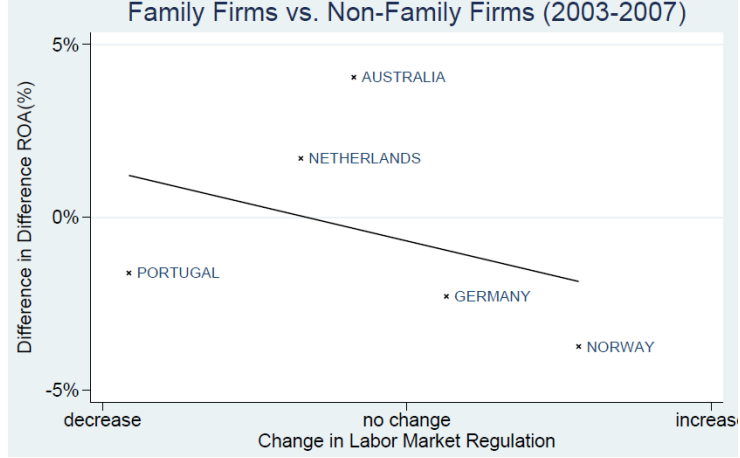


Table 1: Sample countries

This table presents country-level summary statistics for each country used in this study. Sample countries are those in Lins, Volpin, and Wagner (2013) for which the OECD provides Labor Market Regulation (LMR) measures in 2008. The OECD provides four Labor Market Regulation measures: overall employment protection along with three sub-measures (collective dismissal protection, regular employment protection, and temporary employment protection). Labor Market Regulation is measured on a scale from 0 to 5, 0 denoting weak labor market regulation and 5 denoting strong labor market regulation. Also reported are two investor protection measures: anti-self-dealing (Djankov et al. 2008) and anti-director index (La Porta et al. 1998, Djankov et al. 2008), log of GDP per capita (from the World Bank), and four OECD competition measures (overall product market regulation and three sub-measures: barriers to entrepreneurship, barriers to trade and investment, and state control). Countries are sorted by Overall LMR, starting with the country with weakest LMR.

Country	Overall LMR	Collective Dismissal	Regular LMR	Temporary LMR	Anti-Self-dealing	Anti-Director Index	Log(GDP per capita)	Product Market Regulation	Barriers to Entrepreneurship	Barriers to Trade & Investment	State Control
United Kingdom	.74	2.88	1.12	.37	.95	4	10.47	.78	.87	.05	1.43
Canada	.75	2.63	1.25	.25	.64	4	10.41	1.02	1.16	.45	1.44
Ireland	1.07	2.38	1.6	.55	.79	4	10.71	1.01	1.2	.15	1.66
Switzerland	1.14	3.88	1.16	1.13	.27	3	10.81	1.3	1.48	.21	2.22
Australia	1.18	2.88	1.47	.88	.76	3	10.36	1.2	1.21	.46	1.94
South Africa	1.25	1.88	1.99	.5	.81	5	8.39	1.94	2.17	1.35	2.47
Israel	1.37	1.88	1.87	.88	.73	3	9.94	2.13	2.08	1.21	3.11
Japan	1.43	1.5	1.87	1	.5	5	10.46	1.24	1.36	.53	1.82
New Zealand	1.45	.38	1.67	1.25	.95	5	10.07	1.23	1.6	.43	1.66
Denmark	1.5	3.55	1.63	1.38	.46	4	10.73	1.03	1.24	.5	1.36
Italy	1.88	4.88	1.77	1.99	.42	2	10.28	1.46	1.25	.55	2.59
Austria	1.99	3.25	2.49	1.5	.21	4	10.49	1.48	1.36	.85	2.24
South Korea	2	1.88	2.37	1.63	.47	4	9.67	1.6	1.37	1.36	2.06
Finland	2.01	2.57	2.17	1.85	.46	4	10.5	1.16	1.38	.25	1.84
Netherlands	2.07	3	2.96	1.19	.2	4	10.55	1.04	1.17	.17	1.76
Germany	2.14	3.75	2.89	1.39	.28	4	10.4	1.36	1.49	.57	2.02
Sweden	2.16	3.75	2.86	1.46	.33	4	10.57	1.3	1.02	.36	2.51
Belgium	2.18	4.13	1.73	2.63	.54	2	10.45	1.42	1.58	.14	2.55
Norway	2.62	2.88	2.25	2.99	.42	4	11.03	1.23	1.22	.5	1.97
Chile	2.65	0	2.67	2.63	.63	5	8.86	1.43	1.5	.45	2.34
Brazil	2.75	0	1.37	4.13	.27	5	8.48	1.67	1.97	.99	
India	2.77	0	3.54	2	.58	4	6.59	2.25	2.73	1.6	2.78
Greece	2.9	3.25	2.31	3.49	.22	3	9.94	2.36	2.14	1.09	3.87
Spain	3	3.13	2.49	3.5	.37	5	10.11	1.18	1.34	.17	2.01
France	3.05	2.13	2.47	3.63	.38	5	10.39	1.49	1.45	.3	2.71
Mexico	3.13	3.75	2.25	4	.17	2	8.98	1.72	2.29	.99	1.86
Portugal	3.43	2.66	4.16	2.7	.44	3	9.78	1.43	1.31	.28	2.69
Turkey	3.72	2.21	2.56	4.88	.43	4	8.73	2.26	2.5	.37	3.91
Column Mean	2.08	2.54	2.18	1.99	0.49	3.86	9.93	1.45	1.55	0.58	2.25

Table 2: Country-level correlations

This table presents country-level correlations for the four Labor Market Regulation measures and further country-level controls described in Table 1. Observations are equally weighted by country.

	Overall	Collective Dismissal	Regular	Temporary	Anti-Self-Dealing	Anti-Director Index	GDP Per Capita	Product Market Regulation	Barriers To Entrepreneurship	Barriers to Trade & Investment	State Control
Labor Market Regulation											
Overall	1.00 [28]										
Collective Dismissal	-0.08 [28]	1.00 [28]									
Regular	0.69 [28]	-0.09 [28]	1.00 [28]								
Temporary	0.92 [28]	-0.05 [28]	0.34 [28]	1.00 [28]							
Investor Protection											
Anti-Self-Dealing	-0.60 [28]	-0.38 [28]	-0.37 [28]	-0.58 [28]	1.00 [28]						
Anti-Director Index	-0.06 [28]	-0.65 [28]	0.05 [28]	-0.10 [28]	0.21 [28]	1.00 [28]					
GDP Per Capita											
	-0.48 [28]	0.54 [28]	-0.32 [28]	-0.44 [28]	-0.07 [28]	-0.11 [28]	1.00 [28]				
Competition Measures											
Product Market Reg	0.63 [28]	0.33 [28]	0.25 [28]	0.67 [28]	-0.60 [28]	-0.38 [28]	-0.15 [28]	1.00 [28]			
Barriers To Entrepreneurship	0.56 [28]	-0.12 [28]	0.29 [28]	0.56 [28]	-0.42 [28]	-0.16 [28]	-0.56 [28]	0.56 [28]	1.00 [28]		
Barriers to Trade & Investment	0.33 [28]	0.15 [28]	0.10 [28]	0.38 [28]	-0.44 [28]	-0.25 [28]	-0.25 [28]	0.58 [28]	0.35 [28]	1.00 [28]	
State Control	0.59 [27]	0.30 [27]	0.20 [27]	0.68 [27]	-0.53 [27]	-0.28 [27]	-0.02 [27]	0.88 [27]	0.32 [27]	0.19 [27]	1.00 [27]

Table 3: Sample firms

This table provides firm-level summary statistics. Panel A shows the number of unique sample firms in the sample period 2001-2009, the number of family firms, and the fraction of family firms by country. Countries are those in Lins, Volpin, and Wagner (2013) for which the OECD provides Labor Market Regulation measures. *Family firm* is a dummy variable that equals one if voting rights held by an individual or a group of family members exceed 25%, directly or via a control chain. Panel B provides firm-year level summary statistics of key control variables. *ROA (%)* is EBIT over Total Assets. *ROCE (%)* is EBIT over Total Assets less Current Liabilities. *Log(Assets)* is log of assets in USD. *R&D/Assets* is R&D expense over total assets. *Leverage* is debt over total assets. *Log(Age)* is the log of years since firm foundation or the log of years since the firm first appeared in Datastream if the foundation year is missing. *Log(Cost of goods sold)* and *Log(Employees)* are the log of COGS in USD and the log of the number of employees, respectively.

Panel A: Family firms by country

Country	# Firms	# Family Firms	Percent Family Firms
Australia	763	42	5.50
Austria	39	7	17.95
Belgium	73	16	21.92
Brazil	96	6	6.25
Canada	430	21	4.88
Chile	58	2	3.45
Denmark	67	7	10.45
Finland	83	7	8.43
France	408	146	35.78
Germany	336	108	32.14
Greece	89	30	33.71
India	328	24	7.32
Ireland	36	3	8.33
Israel	38	4	10.53
Italy	154	49	31.82
Japan	1593	11	0.69
Korea	491	115	23.42
Mexico	39	5	12.82
Netherlands	84	9	10.71
New Zealand	46	3	6.52
Norway	71	14	19.72
Portugal	31	5	16.13
South Africa	115	16	13.91
Spain	88	20	22.73
Sweden	128	12	9.38
Switzerland	137	21	15.33
Turkey	114	27	23.68
United Kingdom	1048	90	8.59
SUM	6983	820	11.74

Panel B: Firm-level summary statistics

	N	Mean	Median	SD	25th pctl.	75th pctl.
ROA (%)	48,062	3.80%	6.04%	22.77%	1.52%	11.32%
ROCE(%)	48,062	9.12%	10.77%	42.69%	2.98%	20.11%
Log(Assets)	48,062	12.7	12.7	2.1	11.3	14.0
R&D/Assets	48,062	2.50%	0.00%	7.57%	0.00%	1.45%
Leverage	48,062	50.78%	52.05%	23.48%	34.14%	66.92%
Age	48,062	15.3	13.0	10.3	7.0	20.0
Log(Cost of goods sold)	46,042	12.0	12.3	2.7	10.9	13.6
Log(Employees)	40,566	7.1	7.2	2.1	5.9	8.4

Table 4: Univariate performance splits by family control

This table compares operating performance of family and non-family firms in countries with low and high overall labor market protection, respectively. Operating performance is measured by return on assets and return on capital employed. The labor market protection split is performed year by year at the country level. ***, **, and * denote a significant differences in means at 1%, 5%, and 10% levels, respectively.

%Return on Assets	All Firms	LMR		Difference (Low-High) (ii)-(iii)
		Low	High	
	(i)	(ii)	(iii)	
(1) All Firms	3.80%	2.40%	7.97%	-5.57% ***
(2) Family Firms	5.68%	4.43%	6.92%	-2.49% ***
(3) Non-Family Firms	3.56%	2.24%	8.28%	-6.04% ***
(2)-(3) Difference (Family - non-Family)	2.12% ***	2.19% ***	-1.36% ***	3.55% *** (Diff-in-Diff)

%Return on Capital Employed	All Firms	LMR		Difference (Low-High) (ii)-(iii)
		Low	High	
	(i)	(ii)	(iii)	
(1) All Firms	9.12%	6.93%	15.64%	-8.71% ***
(2) Family Firms	11.71%	9.31%	14.10%	-4.79% ***
(3) Non-Family Firms	8.79%	6.74%	16.09%	-9.35% ***
(2)-(3) Difference (Family - non-Family)	2.92% ***	2.57% ***	-1.99% ***	4.56% *** (Diff-in-Diff)

Table 5: Labor market regulation, family firms, and firm performance

This table reports results of OLS regressions for firm performance. The sample period is 2001-2009, and observations are at firm-year level. The dependent variables are return on assets (*ROA*; columns 1-3) and return on capital employed (*ROCE*; columns 4-6), respectively. The key explanatory variable is the *Overall* OECD Labor Market Regulation measure, which is lagged by one year. *Family firm* is a dummy variable that equals one if voting rights held by an individual or a group of family members exceed 25%, directly or via a control chain. All firm-level controls from *Worldscope* and *Datastream* are lagged by one year. *R&D/Assets* is R&D expense divided by total assets. *Leverage* is debt divided by total assets. *Log(Age)* is the log of years since firm foundation or the log of years since the firm first appeared in *Datastream* if the foundation year is missing. Country-level controls include Djankov et al. (2008)'s *Anti-Self Dealing* index, La Porta et al. (1998)'s *Anti-Director* index, and *log of GDP per capita* from World Bank. Regressions include year- and industry-fixed effects. t-statistics are in parentheses. ***, **, * denote significance at 1%, 5% and 10% levels, respectively. Standard errors are clustered at country level.

	(1)	(2)	(3)	(4)	(5)	(6)
	ROA	ROA	ROA	ROCE	ROCE	ROCE
Labor Market Reg. (LMR)	0.003 (0.37)	-0.000 (-0.02)	0.002 (0.29)	0.011 (0.85)	0.006 (0.48)	0.011 (0.77)
Family Firm		0.027*** (3.43)	0.053*** (4.39)		0.042*** (3.11)	0.085*** (7.55)
LMR*Family Firm			-0.013** (-2.61)			-0.021*** (-3.59)
Log(Assets)	0.033*** (3.52)	0.034*** (3.55)	0.034*** (3.55)	0.049*** (4.57)	0.049*** (4.61)	0.049*** (4.60)
R&D/Assets	-0.030 (-0.25)	-0.026 (-0.22)	-0.025 (-0.21)	0.298 (1.55)	0.303 (1.58)	0.305 (1.59)
Leverage	0.051 (1.12)	0.050 (1.10)	0.049 (1.10)	0.199** (2.37)	0.196** (2.36)	0.196** (2.36)
Log(Age)	-0.008 (-0.58)	-0.007 (-0.55)	-0.007 (-0.55)	-0.020 (-1.11)	-0.019 (-1.07)	-0.019 (-1.07)
Log(GDP per capita)	-0.037*** (-5.65)	-0.039*** (-6.19)	-0.038*** (-6.00)	-0.067*** (-4.62)	-0.069*** (-4.94)	-0.068*** (-4.83)
Anti Self	-0.009 (-0.27)	-0.010 (-0.29)	-0.008 (-0.22)	0.040 (0.84)	0.038 (0.81)	0.042 (0.87)
Anti Director	0.002 (0.27)	0.003 (0.46)	0.003 (0.52)	-0.004 (-0.36)	-0.003 (-0.21)	-0.002 (-0.16)
Observations	48062	48062	48062	48062	48062	48062
R-squared	0.157	0.158	0.159	0.121	0.122	0.122
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 6: Firm performance for matched samples

This table presents the main result using a sample of matched firms. Each year, non-family firms are matched to family firms by country characteristics (log of GDP per capita, anti self-dealing, anti director index), industry, log(assets), R&D/assets, leverage, and age using propensity score-matching. Panel A provides a univariate split by family firm identifier of the propensity score as well as of the key operating performance measures. Panel B repeats the analysis of Table 4 for the matched sample. Regressions include year- and industry-fixed effects. *t*-statistics are in parentheses. ***, **, * denote significance at 1%, 5% and 10% levels, respectively. Standard errors are clustered at country level.

Panel A: Outcome of propensity score matching

	Non-family	Family	p-value
Propensity Score	22.57%	22.57%	.99
ROA	4.67%	6.41%	<0.01
ROCE	2.62%	5.26%	<0.01

Panel B: Regressions using matched sample

	(1)	(2)	(3)	(4)	(5)	(6)
	ROA	ROA	ROA	ROCE	ROCE	ROCE
Labor Market Reg. (LMR)	-0.008 (-1.68)	-0.007 (-1.54)	0.019 (1.68)	-0.011 (-1.67)	-0.010 (-1.54)	0.021* (1.91)
Family Firm		0.014 (1.34)	0.086*** (2.88)		0.021* (1.71)	0.109*** (4.36)
LMR*Family Firm			-0.031*** (-2.88)			-0.038*** (-4.11)
Log(Assets)	0.024*** (3.65)	0.024*** (3.66)	0.024*** (3.67)	0.030*** (4.14)	0.030*** (4.15)	0.030*** (4.16)
R&D/Assets	-0.157* (-1.94)	-0.156* (-1.92)	-0.158* (-1.93)	-0.148 (-1.00)	-0.147 (-0.99)	-0.150 (-1.02)
Leverage	0.014 (0.41)	0.015 (0.45)	0.017 (0.50)	0.024 (0.50)	0.026 (0.54)	0.028 (0.58)
Log(Age)	0.009 (1.23)	0.009 (1.21)	0.008 (1.14)	0.008 (0.91)	0.008 (0.88)	0.007 (0.77)
Log(GDP per capita)	-0.041*** (-7.95)	-0.041*** (-7.86)	-0.042*** (-7.95)	-0.047*** (-11.99)	-0.046*** (-12.05)	-0.047*** (-12.27)
Anti Self	-0.028 (-1.03)	-0.029 (-1.09)	-0.033 (-1.27)	-0.030 (-1.00)	-0.032 (-1.08)	-0.037 (-1.27)
Anti Director	0.012*** (3.62)	0.012*** (3.60)	0.012*** (3.55)	0.018** (2.25)	0.018** (2.26)	0.018** (2.26)
Observations	6436	6436	6436	6436	6436	6436
R-squared	0.123	0.124	0.126	0.091	0.092	0.093
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 7: Instrumental variable regressions

This table reports results of IV regressions for firm performance. The labor market regulation measure is overall labor market protection measure. We instrument both LMR and LMR*Family Firm. The instruments are *High Family Value* and interaction of *High Family Value* and LMR measures. We obtain family firm values from World Value Survey. The survey asks the question of how important the family is in the respondent's life (Question: a001), and respondents assign a score of one to three (1=not very important and 3=very important) to the question. We measure the family value at country-year level by averaging across respondents' family value scores in each year and *High family value* is equal to one if country has an above median family value score in that year. Columns (1)-(4) show IV regression results for ROA, and columns (5)-(8) show regression results for ROCE. *t*-statistics are in parentheses. ***, **, * denote significance at 1%, 5% and 10% levels, respectively. Standard errors are clustered at country-year level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Exclusion Restriction	First Stage	First Stage	Second Stage	Exclusion Restriction	First Stage	First Stage	Second Stage
	ROA	Family Firm	LMR*Family Firm	ROA	ROCE	Family Firm	LMR*Family Firm	ROCE
Family Firm				0.248 (3.705)***				0.388 (3.068)***
LMR*Family Firm				-0.408 (-2.649)***				-0.680 (-2.083)**
Family Value	0.036 (0.175)	0.197 (12.287)***	0.052 (5.213)***		-0.326 (-0.963)	0.197 (12.287)***	0.052 (5.213)***	
LMR*Family Value	0.088 (0.402)	-0.288 (-10.435)***	-0.144 (-5.538)***		0.405 (1.109)	-0.288 (-10.435)***	-0.144 (-5.538)***	
LMR	-0.246 (-0.392)	0.207 (3.727)***	0.280 (6.256)***	0.068 (2.137)**	-1.148 (-1.107)	0.207 (3.727)***	0.280 (6.256)***	0.122 (1.787)*
Log(Assets)	0.034 (3.398)***	-0.009 (-6.304)***	-0.005 (-3.973)***	0.034 (9.469)***	0.050 (4.451)***	-0.009 (-6.304)***	-0.005 (-3.973)***	0.050 (11.168)***
R&D/Assets	-0.035 (-0.286)	-0.155 (-7.928)***	-0.033 (-2.633)***	-0.012 (-0.247)	0.288 (1.479)	-0.155 (-7.928)***	-0.033 (-2.633)***	0.323 (3.956)***
Leverage	0.052 (1.084)	0.037 (3.584)***	0.014 (1.659)*	0.049 (2.664)***	0.201 (2.249)**	0.037 (3.584)***	0.014 (1.659)*	0.197 (6.026)***
Log(Age)	-0.008 (-0.591)	-0.013 (-4.564)***	-0.006 (-2.919)***	-0.007 (-1.240)	-0.022 (-1.188)	-0.013 (-4.564)***	-0.006 (-2.919)***	-0.020 (-2.530)**
Log(GDP per capita)	-0.037 (-5.813)***	0.022 (4.507)***	0.038 (9.582)***	-0.028 (-5.612)***	-0.069 (-4.414)***	0.022 (4.507)***	0.038 (9.582)***	-0.053 (-4.657)***
Anti Self	-0.015 (-0.333)	-0.344 (-10.866)***	-0.086 (-5.274)***	0.005 (0.315)	0.067 (1.006)	-0.344 (-10.866)***	-0.086 (-5.274)***	0.056 (2.484)**
Anti Director	0.003 (0.417)	0.009 (1.019)	0.022 (3.913)***	0.017 (3.258)***	-0.003 (-0.248)	0.009 (1.019)	0.022 (3.913)***	0.020 (1.912)*
Observations	45,770	45,770	45,770	45,770	45,770	45,770	45,770	45,770
R-squared	0.160	0.115	0.227	0.098	0.124	0.115	0.227	0.073
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 8: Sub-measures of labor market regulation

Panel A reports results of OLS regressions for firm performance following table 4. Panel B reports second stage of IV regression for firm performance following Table 7. The sample period is 2001-2009, and observations are at firm-year level. The dependent variables are return on assets (*ROA*; columns 1, 3, 5) and return on capital employed (*ROCE*; columns 2, 4, 6), respectively. In columns (1)-(2), the key explanatory variable is *temporary* employment protection, a sub-measure of the overall labor market regulation measure. In columns (3)-(4) and (5)-(6), the key explanatory variable is *regular* employment protection and *collective dismissal* protection, both sub-measures of the overall labor market regulation measure, respectively. *Family firm* is a dummy variable that equals one if voting rights held by an individual or through a group of family members exceed 25%, directly or via a control chain. All firm-level controls from *Worldscope* and *Datastream* follow Table 4 and are omitted for brevity. Country-level controls include Djankov et al. (2008)'s *Anti-Self Dealing* index, La Porta et al.(1998)'s *Anti-Director* index, and *log of GDP per capita* from World Bank. Regressions include year- and industry-fixed effects. *t*-statistics are in parentheses. ***, **, * denote significance at 1%, 5% and 10% levels, respectively. Standard errors are clustered at country-year level.

Panel A OLS Regressions						
	(1)	(2)	(3)	(4)	(5)	(6)
	Temporary	Temporary	Regular	Regular	CollDismiss	CollDismiss
	ROA	ROCE	ROA	ROCE	ROA	ROCE
LMR	0.004	0.012	-0.01	-0.018	0.006	0.01
	(1.01)	(1.70)	(-1.27)	(-1.37)	(0.81)	(0.65)
Family Firm	0.043	0.077	0.05	0.052	0.044	0.062
	(4.37)***	(6.39)***	(2.90)***	(1.72)*	(2.27)**	(1.84)*
LMR*Family Firm	-0.009	-0.019	-0.01	-0.003	-0.007	-0.008
	(-2.63)**	(-5.01)***	(-1.49)	(-0.22)	(-1.40)	(-0.68)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	48,062	48,062	48,062	48,062	48,062	48,062
R-squared	0.159	0.123	0.159	0.122	0.159	0.122
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel B IV Regressions-Second Stage						
	(1)	(2)	(3)	(4)	(5)	(6)
	Temporary	Temporary	Regular	Regular	CollDismiss	CollDismiss
	ROA	ROCE	ROA	ROCE	ROA	ROCE
LMR	0.043	0.075	0.081	0.146	-0.074	-0.329
	(2.270)**	(2.093)**	(2.181)**	(1.986)**	(-0.344)	(-0.401)
Family Firm	0.516	0.749	1.937	3.294	0.390	0.319
	(3.364)***	(2.961)***	(2.588)***	(2.218)**	(0.682)	(0.161)
LMR*Family Firm	-0.214	-0.334	-0.747	-1.279	0.100	0.764
	(-2.713)***	(-2.372)**	(-2.444)**	(-2.115)**	(0.146)	(0.301)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	45,770	45,770	45,770	45,770	45,770	45,770
R-squared	0.228	0.187	0.132	0.061	0.059	0.021
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 9: Industry splits

This table reports OLS regressions of firm performance (Return on Assets). The sample period is 2001-2009, and observations are at firm-year level. *Low Labor Market Regulation* and *Family firm* are dummy variables defined as before. In Panel A, *Low Labor Industry* is a dummy equal to one if a firm operates in a Fama-French 48 industry in the bottom-tercile (odd-numbered columns) or below-median (even-numbered columns) by labor intensity, labor volatility, and return volatility. In Panel B, splits are by labor unionization, R&D, product market regulation, and labor force actions. Regressions include year- and industry-fixed effects. *t*-statistics are in parentheses. ***, **, * denote significance at 1%, 5% and 10% levels, respectively. Standard errors are clustered at country level.

Panel A: Labor intensity, labor volatility, return volatility

	(1)	(2)	(3)	(4)	(5)	(6)
	Labor Intensity		Labor Volatility		Return Volatility	
	P33	Median	P33	Median	P33	Median
Low Labor Market Regulation (LMR)	-0.007 (-0.47)	-0.005 (-0.55)	-0.003 (-0.30)	-0.009 (-0.80)	-0.005 (-0.50)	-0.006 (-0.66)
Family Firm	0.033*** (3.52)	0.022*** (2.81)	0.022** (2.10)	0.018** (2.52)	0.027*** (3.70)	0.022*** (3.75)
Low LMR*Family Firm	-0.015 (-1.18)	0.010 (0.87)	-0.007 (-0.61)	0.012 (1.14)	-0.004 (-0.55)	0.012 (1.52)
Low LMR*Low Labor Industry	0.004 (0.20)	0.003 (0.22)	-0.002 (-0.14)	0.009 (0.57)	0.001 (0.16)	0.004 (0.90)
Family Firm*Low Labor Industry	-0.025* (-1.76)	-0.014 (-1.09)	-0.009 (-0.48)	-0.003 (-0.24)	-0.018** (-2.28)	-0.013 (-1.64)
Low LMR*Family Firm* Low Labor Industry	0.052** (2.45)	0.022 (1.23)	0.042** (2.15)	0.014 (0.76)	0.037** (2.67)	0.018 (1.42)
Observations	48062	48062	48062	48062	48062	48062
R-squared	0.159	0.159	0.159	0.159	0.159	0.159
Industry and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
S.E. Clustering	Country	Country	Country	Country	Country	Country

Panel B: Labor unionization, R&D, product market competition, and labor force actions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Labor Unionization		R&D		Product Mkt Comp		Labor Force Actions	
	P33	Median	P33	Median	P33	Median	P33	Median
Low Labor Mkt Reg (LMR)	-0.004 (-0.32)	-0.002 (-0.19)	0.002 (0.21)	0.002 (0.13)	0.018 (0.80)	0.020 (0.77)	-0.003 (-0.28)	-0.004 (-0.38)
Family Firm	0.009 (0.72)	0.005 (0.41)	0.029*** (3.31)	0.029*** (2.94)	-0.033 (-1.06)	-0.045 (-1.30)	0.018 (1.42)	0.015 (1.28)
Low LMR*Family Firm	0.031* (1.85)	0.035* (1.87)	0.020** (2.42)	0.018* (1.94)	0.123 (1.67)	0.183** (2.07)	0.022 (1.29)	0.033* (1.99)
Low LMR*Low Lbr Ind	-0.000 (-0.03)	-0.003 (-0.19)	-0.006 (-0.55)	-0.003 (-0.30)	-0.022 (-1.20)	-0.024 (-0.95)	-0.002 (-0.21)	0.001 (0.08)
Family Firm*Low Lbr Ind	0.017 (1.20)	0.022 (1.43)	-0.015 (-0.86)	-0.013 (-0.97)	0.050 (1.38)	0.062 (1.57)	-0.002 (-0.17)	0.003 (0.27)
Low LMR*Family Firm* Low Lbr Ind	-0.027 (-1.19)	-0.031 (-1.32)	-0.010 (-0.47)	-0.001 (-0.04)	-0.104 (-1.44)	-0.164* (-1.87)	-0.004 (-0.23)	-0.021 (-1.45)
Observations	48062	48062	40765	40765	48062	48062	48062	48062
R-squared	0.159	0.159	0.163	0.163	0.159	0.159	0.159	0.159
Industry and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S.E. Clustering	Country	Country	Country	Country	Country	Country	Country	Country

Table 10: Labor market regulation, family firms and labor volatility

This table reports results of OLS regressions for labor volatility. The left-hand side variable is the percentage change in the number of employees from year to year (Columns 1 and 2) and the log change in the number of employees from year to year (Columns 3 and 4) as in Ellul et al. 2014. LMR is the *Overall* OECD Labor Market Regulation measure, which is lagged by one year. *Family firm* is a Dummy variable that equals one if voting rights held by an individual or a group of family members exceed 25%, directly or via a control chain. All firm-level controls are constructed as in Table 5 and lagged by one year. Country-level controls include Djankov et al.'s (2008) *Anti-Self Dealing* index, La Porta et al. (1998)'s *Anti-Director* index, and *log of GDP per capita* from World Bank. Regressions include year- and industry-fixed effects. t-statistics are in parentheses. ***, **, * denote significance at 1%, 5% and 10% level. Standard errors are clustered at country level.

	(1)	(2)	(3)	(4)
	% Change in employment	% Change in employment	Log(Change in employment)	Log(Change in employment)
LMR	0.005 (1.58)	0.004 (1.04)	0.003 (0.80)	0.001 (0.36)
Family Firm	-0.005 (-0.94)	-0.020** (-2.46)	-0.001 (-0.24)	-0.015** (-2.21)
LMR*Family Firm		0.007** (2.15)		0.007** (2.50)
Observations	38860	38860	38860	38860
R-squared	0.076	0.076	0.071	0.071
Firm-level controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
S.E. Clustering	Country	Country	Country	Country

Table 11: Total factor productivity

This table reports results of OLS regressions for Total Factor Productivity. The sample period is 2001-2009, and observations are at firm-year level. The dependent variable is *productivity* measured by the log of sales. In Column (1), the key explanatory variable is the *Overall* OECD Labor Market Regulation measure, which is lagged by one year. In columns (2)-(4), the key explanatory variable is a sub-measure of the overall measure: *temporary* protection, *regular* employment protection, and *collective dismissal* employment protection, respectively, also lagged by one year. *Family firm* is a dummy variable that equals one if voting rights held by an individual or a group of family members exceed 25%, directly or via a control chain. All firm-level controls from Worldscope and Datastream are lagged by one year. *Log(Assets)*, *Log(COGS)*, and *Log(Employees)* are the log of total assets, cost of goods sold, and number of employees, respectively. These measures serve as proxies for capital, material, and labor input. *Log(Age)* is the log of years since firm foundation or the log of years since the firm first appeared in Datastream if the foundation year is missing. *Log(Assets)* is the log of total assets. Country-level controls include Djankov et al. (2008)'s *Anti-Self Dealing* index, La Porta et al. (1998)'s *Anti-Director* index, and *log of GDP per capita* from World Bank. Regressions include year- and industry-fixed effects. *t*-statistics are in parentheses. ***, **, * denote significance at 1%, 5% and 10% levels, respectively. Standard errors are clustered at country level.

	(1) Overall Log(sales)	(2) Temporary Log(sales)	(3) Regular Log(sales)	(4) Collective Dismissal Log(sales)
LMR	-0.086** (-2.46)	-0.033 (-1.50)	-0.106** (-2.19)	0.091** (2.71)
Family Firm	0.143* (1.72)	0.106* (1.77)	0.173 (1.69)	-0.163* (-2.01)
Family*LMR	-0.027 (-0.85)	-0.014 (-0.70)	-0.048 (-1.17)	0.066** (2.69)
Log(Assets)	0.342*** (13.73)	0.343*** (13.66)	0.341*** (13.60)	0.350*** (13.75)
Log(COGS)	0.542*** (22.54)	0.542*** (22.50)	0.542*** (22.27)	0.546*** (22.55)
Log(Employees)	0.201** (2.75)	0.199** (2.72)	0.200** (2.72)	0.187** (2.58)
Log(Age)	-0.072** (-2.11)	-0.069* (-2.04)	-0.066* (-1.95)	-0.059* (-1.80)
Log(GDP per capita)	-0.020 (-0.68)	0.001 (0.04)	-0.024 (-0.90)	-0.042** (-2.06)
Anti-Self-Dealing	-0.153 (-1.04)	-0.039 (-0.29)	-0.153 (-1.17)	0.122 (1.21)
Anti-Director	0.056* (1.76)	0.053 (1.60)	0.061* (2.00)	0.144*** (2.88)
Observations	39996	39996	39996	39996
R-squared	0.873	0.873	0.873	0.873
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
S.E. Clustering	Country	Country	Country	Country

Table 12: Alternative roadblocks

This table reports results on the interaction between Family Firms and roadblocks other than LMR. It constitutes a robustness test to Table 5, following columns (3) and (6) of Table 5 exactly. The sample period is 2001-2009, and observations are at firm-year level. The dependent variables are return on assets (*ROA*; odd-numbered columns) and return on capital employed (*ROCE*; even-numbered columns), respectively. The key explanatory variable is Djankov et al.'s (2008) *Anti-Self-Dealing* index (columns 1 and 2), La Porta et al.'s (1998) *Anti-Director* index (columns 3 and 4), and *log of GDP per capita* from the World Bank (columns 5 and 6). *Family firm* is a dummy variable that equals one if voting rights held by an individual or a group of family members exceed 25%, directly or via a control chain. Firm-level controls, lagged by one year, include *R&D/Assets* (R&D expense divided by total assets), *Leverage* (debt divided by total assets), and *Log(Age)* (the log of years since firm foundation or the log of years since the firm first appeared in Datastream if the foundation year is missing). Regressions include year- and industry-fixed effects. *t*-statistics are in parentheses. ***, **, * denote significance at 1%, 5% and 10% levels, respectively. Standard errors are clustered at country level.

	(1) Anti-Self Dealing ROA	(2) ROCE	(3) Anti-Director Index ROA	(4) ROCE	(5) Log(GDP per capita) ROA	(6) ROCE
Roadblock	-0.014 (-0.42)	0.037 (0.77)	0.002 (0.29)	-0.005 (-0.43)	-0.038*** (-5.66)	-0.073*** (-5.09)
Family Firm	0.007 (0.61)	0.037 (1.18)	0.003 (0.08)	-0.031 (-0.61)	0.004 (0.09)	-0.014 (-0.19)
Roadblock*Family Firm	0.038* (1.85)	0.013 (0.27)	0.006 (0.67)	0.019 (1.22)	0.002 (0.49)	0.006 (0.73)
Observations	48062	48062	48062	48062	48062	48062
R-squared	0.158	0.122	0.158	0.122	0.158	0.122
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
S.E. Clustering	Country	Country	Country	Country	Country	Country

Table 13: Alternative measures of employee protection

This table reports results of OLS regressions for firm performance. It replicates the main result (Table 5, Columns 3 and 6) using alternative measures of labor regulation. The left-hand side variable is ROA in odd-numbered columns and ROCE in even-numbered columns. Columns 1 and 2 report results using Social Security Legislation (SSL) from Botero et al. (2004). SSL measures the level of unemployment benefits as the average of the following four normalized variables: (1) the number of months of contributions or employment required to qualify for unemployment benefits by law; (2) the percentage of the worker's monthly salary deducted by law to cover unemployment benefits; (3) the waiting period for unemployment benefits; and (4) the percentage of the net salary covered by the net unemployment benefits in case of a one-year unemployment spell. Columns 3 and 4 report results using Employment Protection Legislation against Dismissal (EPL) from Botero et al. (2004). EPL measures worker protection granted by law or mandatory collective agreements against dismissal. It is the average of the following seven dummy variables which equal one: (1) if the employer must notify a third party before dismissing more than one worker; (2) if the employer needs the approval of a third party prior to dismissing more than one worker; (3) if the employer must notify a third party before dismissing one redundant worker; (4) if the employer needs the approval of a third party to dismiss one redundant worker; (5) if the employer must provide relocation or retraining alternatives for redundant employees prior to dismissal; (6) if there are priority rules applying to dismissal or lay-offs; and (7) if there are priority rules applying to re-employment. Columns 5 and 6 report results using the Gross Replacement Rate (GRR) for 2005 as used by Aleksynska and Schindler (2011) and Ellul et al. 2014. GRR measures unemployment insurance benefits received by a worker over the first two years of unemployment as a fraction of the worker's last gross earnings. *Family firm* is a Dummy variable that equals one if voting rights held by an individual or a group of family members exceed 25%, directly or via a control chain. All firm-level controls from *Worldscope* and *Datastream* are lagged by one year. *R&D/Assets* is R&D expense divided by total assets. *Leverage* is debt divided by total assets. *Log(Age)* is the log of years since firm foundation or the log of years since the firm first appeared in *Datastream* if the foundation year is missing. Country-level controls include Djankov et al.'s (2008) *Anti-Self Dealing* index, La Porta et al. (1998)'s *Anti-Director* index, and *log of GDP per capita* from World Bank. Regressions include year- and industry-fixed effects. t-statistics are in parentheses. ***, **, * denote significance at 1%, 5% and 10% level. Standard errors are clustered at country level.

	(1) SSL ROA	(2) SSL ROCE	(3) EPL ROA	(4) EPL ROCE	(5) GRR ROA	(6) GRR ROCE
Alternative Measure	0.012 (0.91)	0.001 (0.05)	0.009 (0.21)	0.076 (0.81)	0.080** (2.65)	0.127** (2.25)
Family Firm	0.049*** (5.39)	0.065*** (5.07)	0.033** (2.53)	0.043 (1.48)	0.059*** (4.60)	0.092*** (4.71)
Alternative Measure*Family Firm	-0.052*** (-3.42)	-0.048* (-1.76)	-0.008 (-0.44)	-0.001 (-0.02)	-0.125*** (-3.92)	-0.191*** (-4.02)
Observations	48062	48062	48062	48062	48062	48062
R-squared	0.159	0.122	0.158	0.122	0.160	0.123
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
S.E. Clustering	Country	Country	Country	Country	Country	Country