All in the family?
CEO succession and firm organization

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Abstract Family firms are the most prevalent type of firm in the world and account for a large proportion of the economic activity and employment, especially in developing countries. We consider firms to be "family controlled" when the founding family owns over 25% of shares and the CEO is a family member. In this paper we investigate the relationship between family control and firm organization and performance in the manufacturing sector of primarily emerging economies. To do this we collect a new detailed dataset of the succession history in terms of ownership (who owns the shares) as well as control (who is the CEO) for over 800 firms in Latin America, Africa and Europe. We merge this with a unique dataset on firm performance and organizational structures, including on quality of managerial practices. We exploit exogenous variation in the composition of the family CEO's children, and use it as an instrumental variable for family ownership *and* control. Our results suggest that family-owned-and-controlled firms are worse managed, with coefficients being over twice larger under 2SLS than OLS. In general the negative link seems to stem from the family vs non-family *control* rather than simply family or non-family *ownership*. Firms owned by families but with non-family CEOs do not suffer from the deficit in management quality.[1]

1   Introduction

What drives firm productivity and growth has long been a fundamental question in economics. Although there are myriad factors that contribute to the wide dispersion of firm performance across countries, the structure of ownership and control of firms, particularly "dynastic" family control, seems to be important across both developed and developing countries. But why are average family firms worse performers than non-family firms? In this paper, we take the first look at the relationship between firm governance structures (more specifically, family CEOs in family firms) and firm management and performance in a sample of medium and large firms in the manufacturing sector in primarily emerging economies in Latin America and countries in Southern Europe. We propose that one of the mechanisms that may be behind family firms' underperformance is poor managerial practices. To consider this, we create a new survey tool to capture full firm ownership and control succession information along with family characteristics of the family behind the family firm. We merge this data with external datasets of firm performance and management and use an instrumental variables approach exploiting exogenous variation in family structure to support a causal interpretation of our results.

We consider to be "family firms" those firms that have the founding family as the controlling shareholder block *and* a family member as the CEO: the most common type of governance structure in the world (Figure 1).[2] Although several studies have looked at the relationship between family ownership and firm performance,[3] they have mainly focused on developed countries, where the share of family firms is substantial but not as profuse as in developing countries, and the studies have not offered much evidence of channels underlying this phenomenon. One key reason for this dearth of empirical work is lack of data availability for linked ownership and control structures and firm performance data.[4]

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[2]La Porta et al. (1999) have looked at the largest firms across the richest countries in the world and found this result, though they looked only at the largest firms and across several sectors. Our focus here is medium-sized firms in the manufacturing sector. Figure 1 shows the proportion of firms in the founder/family category versus all other categories in the World Management Survey, one of our primary datasets. Founder/family firms also command a similarly large proportion of employment in firms between 50 and 5000 workers in our sample. Figure 8 in the Appendix shows the cross-country shares within the sample we are using. For an exhaustive list of the ownership structures captured in our dataset, please see Table A1.

[3]For example, see Bennedsen et al. (2007), Bertrand & Schoar (2003), Claessens & Djankov (1999), Mueler & Philippon (2011), Bandiera et al. (2012).

[4]One notable exception is Bennedsen et al. (2007), where the authors use rich census data to look at the relationship between family succession and firm productivity in Denmark. Such data is, however,

A succession in ownership occurs when the controlling shareholder block changes, such as when a founding family sells shares of their firm such that another entity owns more than 25% of the voting shares. A succession in control, however, happens when the CEO changes regardless of changes in ownership.[5] Our data includes detailed information on the full history of successions of ownership *and* control. This allows us to tease out the individual effect of family control by exploiting the gender of the previous family CEO's children as a source of variation in family CEO successions that is, conditional on observables, plausibly exogenous to firm performance and management. A similar IV strategy has been used by Bennedsen et al. (2007) with Danish data to explore the effect of family control on traditional firm performance measures, such as sales and profits and the authors found strong negative results. Given the lack of such reliable traditional outputs data at the firm level for a number of the countries we are studying, we primarily use a measure of the internal organizational structure of the firm as an outcome (management practices), rather than conventional measures of firm output such as sales or profits.[6] Further, we propose that managerial practices is an interesting outcome in itself as it could be a potential channel to explain part of the lower performance outcomes of family firms that have been observed in the literature. Our results are broadly consistent with Bennedsen et al. (2007) in that we find that a family succession leads to negative firm outcomes.[7]

Our results are the following: first, we find that indeed, manufacturing firms with family owners and family CEOs have significantly worse performance and management practices. This expands on the findings from Bloom & Van Reenen (2007, 2010) by presenting the first results suggesting a causal link. Our IV results suggest the causal relationship between family control and management practices[8] is decidedly negative, and estimate the magnitude of the effect, in standard deviations, to be -0.808 using 2SLS (-0.369 from an OLS estimation). We test the strength of this result using several alternative specifications and

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notoriously scarce and generally only available from the Scandinavian nations.

[5]The changes may, of course, happen at the same time as well as separately.

[6]Brazil is the one Latin American country with a rich and reliable industrial census, and we have recently received authorization to merge the Ownership Survey data used in this paper with their industrial census. Results using traditional output measures will be part of a future draft.

[7]The relationship between management and productivity is a parallel research agenda started by Nick Bloom and John Van Reenen. Our focus here is more specific in looking at the relationship between management and firm outcomes in emerging economies and family firms, as well as potential channels of this relationship for this subset of firms.

[8]To measure levels of management practices we use data from the World Management Survey, explain further in Section 2.2

find it to be robust. Second, to put these results into context, we present new evidence of the relationship between management practices and firm performance for a sample of family firms in a large emerging economy: Brazil. Our results suggest that a one standard deviation increase in the quality of management practices is correlated with 15% higher sales per employee and 20% higher value added per employee in Brazilian family firms. Third, we find that within the countries we study, it is the existence of *at least one* son that matters more for family firm succession rather than simply the gender of the eldest child. Fourth, despite the low relevance of the order of the children's gender, there is a strong tendency for the first son to be the CEO's successor, and in the absence of a son, other male family members are still chosen over daughters.

Our paper contributes to different strands of literature. First, we contribute to the studies on the importance of family firms in the global economy in terms of the share of economic activity they command. La Porta et al. (1997, 1999) look at the largest firms in the world's richest economies and show that family firms are the most common governance type across several sectors. In Europe, Faccio & Lang (2002) and more recently Iacovone et al. (2015) find similar results looking at public and private firms. In the US, Anderson & Reeb (2003) look at firms in the S&P 500 and also find that family ownership is "both prevalent and substantial." In Asia, Claessens et al. (2000) finds that more than two-thirds of firms have a single controlling shareholder, and that much of the corporate wealth belongs to a small number of families. Cai et al. (2013) finds similar trends in Chinese private firms. Among the large number of studies looking at the ubiquity of family firms, most look at OECD and large Asian economies, and generally focus on large (and often public) firms. Few studies focus on Latin America and Africa, and when they do, it is often with a focus on microenterprises.[9] Although small firms account for the vast majority of firms in these countries, medium-sized firms account for a much larger share of employment in Latin America and Africa. Thus, in this paper we add to the literature by focussing on this important group of medium-sized firms.[10] There are a series of studies considering the possible reasons be-

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[9]There is a large literature looking at microfinance and microentrepreneurs, and family pressures on income sharing. As our paper focuses on medium and large firms, we do not review this literature here. For a recent study on management in small firms, see McKenzie & Woodruff (2015).

[10]Firms with more than 50 employees in manufacturing account for 66% of employment in Argentina, 67% of employment in Brazil and Mexico (authors' calculations based on 2005 firm registers for Argentina and 2010 firm registers for Brazil and Mexico and available upon request). Although in this draft we are primarily looking at Latin American firms, we are in the process of collecting a larger sample of firms from African countries and will include this analysis in a future draft.

hind this trend, which goes against the predictions found in the seminal work of Berle & Means (1932). Trust (Chami (2001)), capital imperfections of the market (Bhattacharya & Ravikumar (1997, 2001)), and legal institutions (Burkart & Panunzi (2006), Mueler & Philippon (2011)) are all expected to influence a founder's decision.

Another strand of the literature considers the effect of ownership concentration on firm outcomes, offering mixed evidence. For example, Morck et al. (1988) finds an inverse u-shaped relationship in the US, Claessens & Djankov (1999) finds a positive relationship for the Czech Republic and Demsetz & Villalonga (2001) finds no relationship between ownership concentration and performance. Looking at the effect of firm CEOs on firm performance, Bertrand & Schoar (2003) provide evidence that "CEO style" matters significantly for firm performance. When considering specifically *family CEOs*, the evidence mostly points to a negative relationship, with few exceptions finding a positive relationship (for example, Anderson & Reeb (2003), Khanna & Palepu (2000), Sraer & Thesmar (2007)). The evidence of a negative relationship at the firm-level spans North America, Asia and Europe (for example, Morck et al. (2000), Perez-Gonzales (2006), Claessens et al. (2002), Bertrand et al. (2008), Cai et al. (2013))[11] and extends to the macro level considering the effect of large shares of family controlled firms on economic growth (for example, Morck et al. (2005), Caselli & Gennaioli (2013)). Although these studies have taken the first step of mapping the field and describing the correlational relationship between family CEOs and firm performance across several countries, analyses with cross-sectional data is generally subject to endogeneity issues. However, some studies such as Bennedsen et al. (2007) have also provided causal evidence that firms led by family CEOs are, indeed, on average less productive. Our aim in this project is to add to this growing literature on mapping the degree of underperformance of family firms and (eventually) providing causal evidence of these effects beyond European countries and focus on emerging economies, where family controlled firms command a much larger share of the economy.[12]

But why are family controlled firms worse performers than non-family controlled firms? We explore the proposal that poor management practices is one of the channels leading to poor performance. Thus, our paper also contributes to the growing literature on management

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[11]Bertrand & Schoar (2006) provides a good review.

[12]In this draft we add to the correlational evidence of the relationship between family control and firm performance for Brazil. In a future draft we will present results using the new data collected employing a similar IV strategy described in this paper. We have secured access to the Brazilian data and will conduct the analysis over the next few months.

and productivity and technology adoption. In general, the literature on management and productivity finds that large variations in quality of management practices[13] across firms and countries are strongly associated with differences in performance and also finds that there are large systematic differences in the quality of management across ownership structures (Ichniowski et al. (1997), Black & Lynch (2001), Bertrand & Schoar (2003), Bloom & Van Reenen (2007, 2010), Bloom et al. (2013), Bandiera et al. (2012), Giorcelli (2016)). Most recently, Bloom et al. (2014) show that ownership and control structures are a factor linked to the variation of management across firms and ultimately linked to firm productivity. The authors present stylized facts for over 10,000 firms in 35 countries showing that firms owned and controlled by families tend to have significantly worse management than firms under other governance structures. Crucially, using the same dataset we dig deeper into the stylized fact that firms that are family owned but *not family controlled* are just as well managed as those under other governance structures (Figure 2).[14] If we look at management as a technology as in Alexopoulos & Tombe (2012) and Bloom et al. (2015), our paper also speaks to the literature on barriers to technology adoption in manufacturing firms (see, for example, Bloom et al. (2013), Atkin et al. (2015) and Gibbons & Roberts (2013)).[15]

The remainder of this paper is organized as follows: Section 2 describes the two key surveys used in this paper: the Ownership Survey and the World Management Survey. Section 3 describes our empirical strategy and presents our main results, with Section 2.3 providing a set of descriptive statistics of the firms in our sample, Section 2.4 presenting new evidence that management matters for family firms, and Section 3.2 presenting the IV results suggesting a causal relationship between family control and worse management practices. Section 4 presents a concluding discussion and next steps.

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[13]Hereafter we will use management and management practices interchangeably.

[14]The Kolmogorov-Smirnov test of equality of distributions suggests that the distribution of firms that are non-family owned and controlled is not statistically different from the distribution of firms owned by families but controlled by a professional CEO. The test also suggests that both distributions are statistically different from the distribution of firms owned and controlled by family members.

[15]We are currently working on a theoretical framework to shed light on the empirical results we find, and expect to present it on our next draft.

2 Data

2.1 Ownership and Control History data: The Ownership Survey

To study the questions we presented in Section 1, we designed and implemented a new survey to collect data on the full ownership and control history of successions the firm has had since its inception. For those firms that were founded by a single founder or founding family we also collect information on their family characteristics.[16] We based the choice of basic classification of ownership and control on other firm surveys such as the World Management Survey and the Executive Time Use survey but expand to include more detailed data.

In 2013, we were able to survey a sample of firms within the World Management Survey dataset and document the ownership history and family characteristics of 2,176 firms (3,027 succession data points) across 12 countries in Latin America and Africa, plus Turkey. In 2014, we added a selected set of questions to the 2014 wave of the World Management Survey to collect information on the latest succession of power in the random sample of firms interviewed across Europe and Asia. In all, we have 2,755 firms (3,606 successions) in our full sample of the Ownership Survey. The sample we use, however, is based on there being at least one *change in CEO* (or, succession of control) and also for which we have enough family history data (that is, data on our instrumental variables). We discuss this in detail in the empirical section of this paper. Further, we can only use successions that have at least one matching data point in the World Management Survey (WMS) dataset. All considered, our final dataset has 818 successions from 810 firms.[17] In Table 3 we show the relationship between the ownership categories and management for the full sample and progressively smaller samples to show that the 810 firms included in the analysis are not

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[16]We are aware of existing M&A databases, such as Zephyr and SDC Platinum, but these collect data on changes in *ownership* rather than changes in control. Fons-Rosen et al. (2008) have created an excellent combined panel dataset using Zephyr data, and Bena et al. (n.d.) also developed an algorithm to create a Pyramid Ownership Structures dataset. Beyond the Scandinavian matched census datasets, however, there are no datasets that we are aware of that collect data on successions of *control* (rather than simply ownership), and include family characteristics of CEOs.

[17]The countries included in the analysis are: Argentina, Brazil, Chile, Colombia, France, Germany, Great Britain, Italy, Kenya, Mexico, Portugal and Turkey. The largest share of the sample is from the Latin American countries. We are currently running a second wave of the Ownership Survey and collecting data on the remaining African countries in the World Management Survey, as well as Myanmar and Vietnam.

likely to be a highly selected sample.[18]

During the survey, the interviewees are asked to describe who ultimately owns the firm, and the interviewer is instructed to probe enough to find out who the single largest shareholding is and whether they own more than 25% of the controlling shares.[19] Table A1 in the Appendix gives an overview of the ownership categories and where they fit in our framework of combined versus separate ownership and control. In short, if the founder or the descendants of the founder own and control the firm (ie. the founder or a family member is the CEO of the family firm), we classify the firm under "family control." Likewise, if a firm was sold to another entity (person or another family), and that entity (the new owner or a family member of the new owner) holds the CEO position, the firm is also classified under "family control." If the shares of the firm are owned by one or many individuals and the CEO is not related to them, we call the CEO a professional CEO and classify the firm under "non-family control." Similarly, some founder/family firms are owned by the family but have a professional CEO, so we also classify them under the "non-family control." For ease of exposition, we will henceforth refer to firms with combined family ownership and control as *family firms* and all other firms as *non-family firms*.

The variables we are collecting include, for all firms, a full history of ownership and control from the time of foundation, dates of ownership and control changes and reason for change. For firms that at the time of inception were family firms, we ask whether the founder had children. If yes, then we ask for the gender of the first child, how many children the founder-CEO had in total and the gender of all the children. For each succession we also ask who the control was transferred to, in terms of family relationship. With this information we can ascertain whether the founder had children at all, whether the first child was male, the ratio of male to female children, and who control of the firm was passed on to within the

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[18]We also build sampling weights to account for such issues and the results are similar.

[19]Our survey is specifically concerned with *controlling shares of ownership*, similar to how Bureau van Dijk's datasets are compiled. Thus, by more than 25% of the controlling shares we mean more than 25% of the "voting shares" or equivalent terminology. We exclude government firms from our analysis. The interviewees for the Ownership Survey are one of the following: firm CEO or executive assistant to the CEO, head of administration, or if the firm was recently sold, the longest tenured employee at the managerial level. For the WMS, the interviewees are usually the plant manager. In 2011 the WMS team conducted a follow-up project that looked to cross-check the survey information with external data sources, such as Bureau van Dijk's data, online research through company documents and websites and call-backs. The share of correct information was very high. More specifically, the countries included in this paper had the correct ownership structure data from the survey over 75% of the time.

family.[20]

We give further details and an example of the dataset created in Appendix A.

2.2 Organizational data: the World Management Survey

In 2013, under the umbrella of the World Management Survey (WMS) and with our WMS colleagues Nicholas Bloom, Raffaella Sadun and John Van Reenen, we collected internal organizational data for over 3,000 firms in Africa and Latin America. The WMS is a unique dataset that includes levels of structured management practices and current governance data from over 10,000 manufacturing firms collected from 2004 to 2015 across 35 countries. To date, nearly 40% of these firms are owned by a founder or family member. The WMS methodology uses double-blind surveys to collect data on firms' use of management practices and focuses on medium- and large-sized firms, selecting a sample of firms with employment of between 50 and 5,000 employees.[21] The project is among a surge of emerging research on this subject, which has attempted to move beyond selective case studies and collect systematic and reliable data on this topic.

The WMS uses an interview-based evaluation tool, initially developed by an international consulting firm, that defines and scores from one ("little/no formal practices") to five ("best practice") a set of 18 basic management practices on a scoring grid. A high score represents a best practice in the sense that a firm that adopts the practice will, on average, increase their productivity. The combination of many of these indicators reflects "good formal structured management practices" as commonly understood, and our main measure of management practices in this paper represents the average of these 18 scores. The tool can be interpreted as measuring the level of formal managerial practices in three broad areas: operations & monitoring, target-setting and people management practices.

The survey seeks to unveil to what extent formal managerial structures are implemented in the firm, asking managers to describe their practices and evaluating them systematically on a set scale, rather than simply asking managers to name their management system or evaluate the quality of their practices themselves. Thus, the survey captures the degree of usage rather than the manager's opinions and abstracts from possible mood influences of

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[20]In the current and future waves we are also collecting data on the order of gender of the children.

[21]The WMS methodology was first described in Bloom & Van Reenen (2007). Survey instrument available at www.worldmanagementsurvey.org.

individual managers. Beyond the key measure of managerial structures at the plant level, the survey also collects a wealth of information on the firm, including firm location, size and current ownership information.[22]

2.3 How different are family and non-family firms?

Table 1 shows the difference in means across key characteristics of family versus non-family firms. Turning first to the family characteristics of the CEO prior to succession, we see evidence that the characteristics of the former CEO's children in family vs. non-family firms are significantly different from each other. On average, former CEOs of firms that switched to non-family control are likely to have fewer children and likely to have fewer boys. Importantly, however, conditional on the first child being male, the average family size is not statistically different between the two groups. This will be relevant in our later discussion of instrument validity. Table A2 in the Appendix reports the summary statistics for the key dependent and independent variables in our empirical model in more detail.

[Table 1 here]

Turning to firm characteristics, we report the means and difference in means for the set of factors that have been shown to have a correlation with managerial structures.[23] Reassuringly, firms in the two groups are not significantly different from each other in terms of firm size, with means of 463 and 545 employees for family and non-family firms respectively, or firm age with means of 51 and 46 years respectively. In terms of the proportion of employees who have college degrees, non-family firms tend to have a slightly higher proportion, 14% for non-family firms versus 11% for family firms, though the difference in means is weakly significant. Over half of non-family firms are multinationals while only 12% of the family firms fall under the same category. There is also a significantly higher proportion of family firms in low-tech industries than non-family firms in those industries.

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[22]Performance data is not collected at the time of the management survey, so researchers have to rely on external datasets and match them to the WMS data. The WMS data has been collected in waves over the past 10 years with cross-sections of firms in new countries added every wave as well as panel data for selected countries.

[23]Bloom et al. (2014)

We also check the difference in means of a set of other firm organizational characteristics beyond those that are known in the literature to be correlated with management practices. The means of firms in the family and non-family groups across several variables are not statistically different from each other, including number of direct reports to the plant manager, average hours worked per week by managers and number of production sites (at home and abroad). Non-family firms seem to be more hierarchical, with on average a larger number of levels between the CEO and the shopfloor.[24] Finally, there is a small difference in the average number of hours worked by non-managers, with workers in family firms working slightly longer hours on average.

Lastly, considering the average scores across the management measure indices we see that family firms have significantly lower average scores compared to non-family firms overall, and across operations and monitoring and targets areas. Interestingly, people management does not seem to be statistically different in an unconditional difference of means test. We will return to these results in later sections.

2.4   Does management matter for family firms?

Our main aim in this paper is to explore whether the appointment of family versus non-family CEOs affects the quality of management in manufacturing firms, and why that might be the case. Establishing a causal relationship between quality of management and *productivity* is the subject of a parallel research agenda and is outside the scope of this paper. However, it is important for us to be able to put our results into context —namely considering how much "management matters" for firm productivity in emerging economies.

One hypothesis is that family firms might be different from other firms and not need such management practices in the same way to be optimally productive. If this were the case, we would expect to find no significant relationship between management and firm outcomes in the sample of family firms. The best evidence to date on the topic is the Bloom et al. (2013) management experiment with family owned and controlled firms in India. They find that adopting a better set of management practices (in many ways parallel to those used in this paper) improved the treated firms' productivity by 17% in the first year. To supplement

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[24]This statistic is not controlling for firm size.

the experimental findings, we present evidence on the correlational relationship between management and firm performance in the context of the countries we are studying.

We find that management is significantly correlated with better firm outcomes for the sample of family firms. In this section we provide a brief analysis of this relationship for both the WMS Brazilian firms matched with the industrial census and also the WMS firms that had available Orbis data. Although the Orbis coverage of Latin American countries is far from perfect, we hope that the results from a large Latin American economy such as Brazil will shed light on the expected relationship within the Latin American context.[25]

To consider the relationship between family control and firm performance, we run a descriptive Cobb-Douglas production function specification:

$$y_{isc} = \beta_1 M_{isc} + \alpha_l l_{isc} + \alpha_k k_{isc} + \boldsymbol{\gamma' Q_{isc}} + \Omega_s + \varphi_c + \varepsilon_{isc} \tag{1}$$

where y_{isc} is a measure of performance of firm i in industry s in country c (here, log of sales and log of value added).[26] The conventional factor inputs we have data for are l (log of labour) and k (log of capital). Labour is measured as number of employees and capital is the firm's capital stock in the measured year.[27] The coefficient of interest is β_1, and M_{isc} is the main management measure: we first standardize the 18 ordinal management scores, take the average across them and standardize this sum to proxy for level of management. We refer to this variable as "z-management" in the tables.

$\mathbf{Q_{isc}}$ is a vector of other controls, including firm characteristics that might be correlated with output (firm age, a dummy variable for whether firm is publicly listed in the stock

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[25]The reason we chose Brazil for this analysis is threefold: 1) it is one of the countries for which we have the largest number of data points for ownership and firm organization (there are only four countries with approximately 1000+ data points: US, UK, India and Brazil); 2) it is a large and economically important country in a developing region and also has a large proportion of family firms (compared to the US/UK where only 20-30% of firms are founder or family owned); 3) the data both exists and is accessible at this point.

[26]Sales in columns (1) and (2) are in US$, while sales and value added are in BRL$. Within each regression, the currencies are comparable. Because we use z-scores for the management index and logs for the outcome measures, however, units are less important in the interpretation of the results.

[27]PIA does not collect a direct measure of capital, but the *Instituto de Pesquisa Econômica Avançada* (IPEA), a Brazilian economic research institute, has built a widely used set of four alternative measures of capital based on the data available from PIA. They kindly made these measures available to us, and we ran the specification iterating among the four. The results are robust to all four measures of capital and although the coefficients do not change much, we present the results with the 'middle' result rather than the strongest or weakest.

market, the proportion of workers with a college degree and average hours worked) and a set of survey noise controls (interviewer dummies, the seniority and company tenure of the manager interviewed, the day of the week and time of day the interview was conducted, the duration of the interview, and an indicator of the reliability of the information as coded by the interviewer). We also include industry and country fixed effects. We cluster the standard errors at the firm level.[28]

[Table 2 here]

Table 2 reports the descriptive results. Columns (7) to (9) use the best available sample from Bureau van Dijk's Orbis database that matches WMS firms, and primarily includes European countries where the reporting requirements are more stringent. However, it is likely not representative as there is sample selection in terms of which firms report sales data. We include it here mainly as a comparison group. Columns (1) to (6), however, use the dataset of WMS Brazilian firms matched to the Brazilian Annual Industrial Survey (*Pesquisa Industrial Anual - PIA*). PIA is an industrial census and yielded a match of approximately 95%.[29] We will discuss each column in turn.[30]

Columns (1) and (4) show that the raw correlation between management, value added and sales is strong and substantial. Once we control for labour, capital and a series of firm, industry and noise controls, the coefficients more than halve in size but remain quite substantial. The coefficient of z-management in Column (2), including only controls for capital and labour, suggests that a one standard deviation increase in management practices is associated with approximately 46% higher value added[31] (the standard deviation for the WMS dataset is 0.66). When we include the other series of controls in Column (3) the

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[28]Our unit of observation for the performance and management analysis is the establishment/plant level, so we cluster at the firm level to take into account those companies which have multiple production sites in our dataset.

[29]PIA is a well-used and reliable dataset, with the only downside that all analyses must be done in their offices in Brazil to comply with microdata confidentiality restrictions. We used their measures of firm gross sales, value added and employment. Although IBGE does not directly collect measures of capital, an affiliated applied economics research institute (*Instituto de Pesquisa Economica Aplicada - IPEA*) has built four alternative measures of capital from the variables in PIA and provided them to us to match with the PIA and WMS datasets.

[30]As this table uses the World Management Survey data, it refers to a subset of the firms that we consider "family firms" in our analysis, more specifically those firms that are family owned and controlled by members of the *founding family*. Although this is noteworthy, we found through the Ownership Survey that relatively very few firms were owned and controlled by families who were not the founding family members and thus do not expect that we are looking at a highly selected sample here.

[31]Calculated as $(e^0.379 - 1)x100$.

management coefficient is again about halved, but still significant, suggesting a correlation of approximately 22% higher value added for a one-standard deviation increase in management quality. In terms of sales, we see a similar pattern. Column (6) suggests that a one standard deviation increase in management quality is associated with approximately 15% higher sales for Brazilian family firms. The relationship qualitatively holds for the Orbis sample in Columns (7), (8) and (9).

Although this is naturally only a correlational result, we take it along with Bloom et al. (2013) experiments as evidence that improving the quality of the management practices we measure here is likely to improve firm performance even in family firms. This should hopefully appease concerns that there is something happening within the organization of family firms in particular that makes such practices irrelevant, and serve as evidence against the argument that family firms "do not need" this type of management. Indeed, we suggest that poor management practices could be a channel that explains at least part of the poor performance of family firms vs. non-family firms documented elsewhere in the literature.[32]

If we accept that management matters for family firm productivity, then why are these firms not adopting higher levels of this technology? To explore this question we are in the process of collecting data on the education, professional background and experience level of CEOs of the firms in our sample. We briefly discuss possible mechanisms in Section 3.4, but will provide a more formal discussion in a future draft.

3   Empirical results

3.1   Ownership structure and management:
OLS results

Having discussed results on the relationship between firm performance and management for family firms, we now turn to exploring the relationship of family control and management. We use the full WMS dataset and run the following OLS model, with results reported in Table 3:

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[32]For example, Bennedsen et al. (2007).

$$M_{isc} = \alpha + \boldsymbol{\beta_1'}\mathbf{Family_{isc}} + \boldsymbol{\beta_2'}\mathbf{NonFamily_{isc}} + \boldsymbol{\theta_2'}\boldsymbol{V_i} + \omega_s + \delta_c + u_{isc} \tag{2}$$

where M_{isc} is the z-scored management index for firm i in industry s in country c. $\mathbf{Family_{isc}}$ and $\mathbf{NonFamily_{isc}}$ are vectors of dummy variables indicating ownership and control categories broken down as follows: family firms are subdivided into "family owned, family CEO" and "founder owned, founder CEO," while non-family firms are subdivided into "dispersed shareholders," "privately owned, professional CEO" and "family owned, professional CEO."[33] The reference category in Table 3 is dispersed shareholders. $\boldsymbol{V_i}$ is a vector of controls for firm i, including the log of the number of employees, log of firm age and a dummy variable for multinational status. The survey noise controls are a set of interviewer dummies, manager's tenure, day of week, survey wave year and interview duration. We also include country and industry fixed effects.

[Table 3 here]

Columns (1) through (3) use the full WMS sample, while columns (4) and (5) are restricted to only the countries that are also used in the main IV analysis in this paper, and Column (6) uses only the firms within these countries that are included in the IV specification. Column (1) shows the baseline relationship between the sub-categories and management excluding all controls, while Column (2) includes industry controls and Column (3) includes firm and noise controls. The industry controls only slightly reduce the coefficients, but firm and noise controls account for a more substantial share of the variation. The estimates in Column (3) suggest that the average family owned, family CEO firm has 0.289 standard deviations worse management than the average dispersed shareholder firm. The average founder owned, founder CEO firm has 0.320 standard deviations worse management than the average dispersed shareholder firm. We also observe that firms with professional CEOs, either family or privately owned, are also worse managed than dispersed shareholder firms (coefficients of -0.097 and -0.155, respectively) but better managed than firms with family CEOs. In Column (4) we restrict the sample to only countries included in our IV analysis and observe similar results to Column (3). The exception is that the coefficient on family

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[33]Again, note that as this is using the WMS dataset, where a family firm is only classified as such if the owners are members of the founding family. That is, if a family takes over a business from the founding family the firm is now classified under "private individuals" ownership, rather than family ownership. As above, we do not expect this share to be very high given the evidence we find through the Ownership Survey.

owned, professional CEO firms is no longer significantly different from dispersed shareholder firms though this might simply be reflecting a noisier estimate as a result of the substantially lower number of firms with this ownership and control type in the particular subset of countries we study.

Columns (5) further restricts the sample to exclude founder owned, founder CEO firms from the samples of all firms in the "IV countries," and Column (6) shows results using only the sample of firms that are also used in the IV analysis. The purpose of these is to show that the pattern of poor management practices in family owned, family CEO firms is persistent across several subsamples of the data. This negative and systematic relationship is not as clear for other types of ownership and control.[34] The coefficient in Column (6) suggests that family-controlled firms have, on average, 0.37 standard deviations worse management than dispersed shareholder firms. This is equivalent to about 56% of the standard deviation in the full management dataset.

To consider whether we should be focusing on dimensions of control or dimensions of ownership, we run three tests of equality between coefficients and provide results at the bottom of the table. We first test the equality of the coefficients within each category of control, that is, a comparison of (i) family owned, family CEO and founder owned, founder CEO; and of (ii) family owned, professional CEO and privately owned, professional CEO, showing that for the full specification in Column (3) we cannot reject the hypothesis that the coefficients significantly different from each other within each category.[35] We also check for the equality of the coefficients between the two types of firms, that is family firms controlled by family CEOs and those controlled by professional CEOs, and observe that the coefficients are indeed statistically different in Columns (1) to (5) and nearly significant in Column (6), despite the substantially noisier data. This analysis suggests that the combination of several sub-categories into two major categories based on who *controls* the firm and not who *owns* the firm is reasonable for the purposes of this paper.

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[34]Although our identification strategy (discussed in detail in Section 3.2) by design excludes founder firms, the coefficients on the relationship between founder-owned, founder CEO firms and management are not statistically different from that of family owned, family CEO firms and management. The similarity of the relationship between "first generation" family firms (founder owned, founder CEO) and "second generation onwards" family firms will inform our discussion of external validity at the end of this paper.

[35]Less crucially, we do see a difference between the excluded category of founder owned, founder CEO and family owned, family CEO at the 10% level for the countries in our IV sample.

3.2 Ownership structure and management: Instrumental variables results

3.2.1 IV approach: exploiting conditional exogenous variation in gender composition of the outgoing CEO's children

We have established that family control across firms and countries is significantly correlated with management quality, but we cannot imply causality from a simple OLS model. There are several reasons why the OLS results could be biased. There could be omitted variable bias where there is some factor driving both CEO choice and management. If the firm is able to stay alive as a family controlled firm in a competitive environment, there is likely some positive productivity shock that both drives CEO choice and their choice of managerial structures. There could also be reverse causality, as it is possible that different control structures, say, less concentrated control, leads firms to have more managerial structures, but it is also possible that more managerial structures in turn allow firms to transition to control structures with, say, less concentration of control at the top. In short, it is difficult to pin down the real effect of family control on firm performance and organization from an OLS analysis. We expect there to be a positive bias in OLS, and that the true effect is significantly more negative.

In order to establish the true effect, we need to find a source of variation in family control that is exogenous to the level of managerial structures in a firm. One instrument that is particularly useful in determining family control is the family characteristics of the outgoing owner-CEO. In particular, we explore the gender composition of the children of the former owner-CEO as identifying variation. We use three main variations of this instrument: (a) a dummy variable for whether there was at least one son among the children, conditional on the number of children (b) the number of boys, conditional on number of children, and (c) a dummy variable for whether the first child was male. The rationale is that if the owner-CEO has a male child he is more likely to keep the firm under family control.[36] The gender of the first child instrument has been used by Bennedsen et al. (2007) with Danish data of family firms CEOs, for example. We will discuss the informativeness of the proposed instrument and the exclusion restriction subsequently.

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[36]Here and throughout the paper we use the masculine pronoun because the vast majority of founder/family owners and CEOs in our sample are, in fact, male.

By design, this IV strategy requires that at least one succession of power has taken place. More specifically, at the point where a family owner-CEO makes the decision to pass control of the firm to the next generation of family members, hire a professional CEO or sell the firm outright, we posit that this decision is heavily influenced by the gender composition of the CEO's children. Essentially, we are comparing "stayers" with "switchers". The "stayers" are firms that stay with combined ownership and control - that is, family owned firms with family CEOs.[37] The "switchers" are firms that were founded by a founder/founding family, but have since "switched" into separate ownership and control, that is, where the firm CEO is not related through family ties to the majority shareholders of the firm. As explained in Section 2, we use the measure of quality of management of the firm to be contemporaneous with the CEO presiding during that time, and the information on the gender of the preceding CEO's children as the identifying variation.

3.2.2   Assessing instrument validity: instrument informativeness

In Table 4 we show our main results, including the IV first stage regressions in the bottom panel. Although the results from the first stage are economically meaningful and statistically significant, in this section we present further statistics supporting the informativeness of our choice of instruments. At a glance, it is clear that the strongest instrument we have is the dummy variable for whether the former CEO had at least one son or not. The results suggest that having at least one son is associated with a 31% higher chance of a family control succession. Interestingly, in the countries that we study, the gender of the *first child* is not as strong a predictor of family succession, with a male first child predicting only a 12.4% higher chance of family control.

Figure 3 breaks down the firm control succession by the number of sons of the former CEO. We have restricted the sample used in this graph to only those used in the IV analysis. Interestingly, even when there are no sons in the family, control tends to be passed to other male family members or to professional CEOs (either through external hires or firm sale) rather than daughters.

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[37]Because we need at least one "switch" to have happened, although we consider founder owned and controlled firms under the category of "combined" ownership and control they are not part of our IV strategy.

3.2.3 Assessing instrument validity: exclusion restriction

The exclusion restriction would fail to hold if the gender of the CEO's children was directly related to any part of our measure of quality of management. In terms of the IV specification using the gender of the first child, this is rather "purely" random since the countries we are including in the analysis do not have histories of selective abortion or infanticide.[38] In terms of the 'number of sons' or 'at least one son', it can be argued that perhaps more devoted CEOs kept having children until they had a son to keep the control of the firm within the family. The exclusion restriction would not hold if this devotion to the family firm led to better management and also to a larger family with more sons. This is generally a problem when looking at the effect of family control on sales or profits - that is, outcomes that could be affected more directly by a CEO's higher effort (ie. time spent) to leave a legacy to their children. The outcome we are currently exploring is quality of management; an outcome on which simple CEO effort or sheer determination has a much less straightforward effect as drivers of better management are not as simple as spending more time at work. Bloom et al. (2013) notes that one of the main reasons firm owners in their Indian experiment were not adopting good management practices was lack of information - they simply did not know that they were poorly managed or how to adopt these practices. Although it could be that more devoted CEOs also spend more time to increase their own levels of education (one of the drivers of good management), this is likely to take some investment time and it is unclear it would yield large enough changes in the short run that would upset the validity of our IV.[39] In short, even if the owner-CEO chose to have more children because they were keen on keeping the firm in the family, it is less obvious that this also determines the quality of management practices they choose to adopt in the firm, thus making variations on the gender composition of children a plausible set of instruments.

To consider this potential issue statistically, we are currently collecting data on the order of the gender of the CEO's children. For example, we can verify whether there probability of the last child being a boy is higher or lower across groups. At this moment we use an alternative method to check whether this is likely to be a problem. At a first instance,

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[38] Although it has been noted to us that studies have shown that there are other external factors that might affect the gender of children *in utero*, such as testosterone levels of the parents. We are currently reviewing the literature to explore this further.

[39] See Bandiera et al. (2012) for evidence on CEO time use. New evidence in *Lemos, (forthcoming)* suggests that the effect of quality and quantity of tertiary education on management is significant, but small.

we have taken the data we have on the gender of the first child and number of children, and plotted the distribution of children (ie. family size) conditional on the first child being either a boy or a girl in Figure 4. The distributions are nearly identical, suggesting that this is less of a concern.

3.3   IV-2SLS results

The dependent variable of the first stage of our two stage least squares (2SLS) strategy is $FamilyCEO_i$, a dummy variable that takes a value of 1 when the firm is owned and controlled by a family and 0 when it is not. The first instrument, $HADSONS_i$ is a dummy variable that takes a value of 1 if the former owner-CEO had at least one son. The second instrument, $SONS_i$ is the number of sons the former owner-CEO had, entered as a step function.[40] The third instrument, $FIRSTSON_i$, is a dummy variable that takes a value of 1 if the former owner-CEO had a male first child and 0 if not. $\boldsymbol{X_i}$ is the vector of firm controls included in equation (2).

$$FamilyCEO_i = \alpha_{fs} + \rho_i HADSONS_i + \delta_i children_i + \boldsymbol{\eta' X_i} + \nu_i \tag{3}$$

$$FamilyCEO_i = \alpha_{fs} + \sum_{j=1}^{3} \rho_j SONS_j + \delta_i children_i + \boldsymbol{\eta' X_i} + \nu_i \tag{4}$$

$$FamilyCEO_i = \alpha_{fs} + \rho_i FIRSTSON_i + \boldsymbol{\eta' X_i} + \nu_i \tag{5}$$

The second stage regression of the impact of family control on the quality of management is:

$$M_i = \alpha_{ss} + \beta_f \widehat{FamilyCEO}_i + \delta_i children_i + \boldsymbol{\phi' X_i} + \epsilon_i \tag{6}$$

where M_i is a measure of managerial structures in the firm, $\widehat{FamilyCEO}_i$ is the predicted value from the first stage regression and $\boldsymbol{X_i}$ is the set of firm-level controls. The coefficient

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[40]We have three different iterations for this instrument as robustness checks, included in the Appendix: the first iteration includes a control for number of children entered linearly (instead of a step function); the second iteration includes as IVs only the number of sons starting from the second son onwards; the third iteration includes the number of sons as the IVs entered as a step function and the number of children also as a step function.

of interest is β_f: the effect of family control on quality of management. Table 4 shows a summary of the OLS and IV results. Column (1) shows the OLS regressions using the same sample as in the main IV specification, using only the Ownership Survey data that can be matched to the World Management Survey and has full information on the instrumental variable. Column (2) shows the reduced form using the instrument from our preferred IV specification.

[Table 4 here]

The bottom panel of Table 4 shows the first stage results for the three main instruments we use in Columns (3) to (5), and repeats the results for our preferred instrument in Columns (6) to (8). In Columns (3) and (5) to (8), and the first stage is essentially a linear probability model of the probability that the firm had a family control succession, conditional on the previous CEO having at least one son (Columns 3, 6-8) or the first child being male (Column 5).[41] Column (4) shows the first stage results for using the number of sons as the IV. In this specification the number of sons enters as a step function, with dummy variables for each number of sons.

Still focusing on the bottom panel, Column (3) of Table 4 suggests that, controlling for family size (number of children), a firm is approximately 30 percentage points more likely to have a succession to a family CEO if the previous CEO had at least one son. The Kleibergen-Paap Wald F-statistic testing for weak instruments is 21.58, well above the Stock & Yogo (2005) 10% maximal IV size critical value. This suggests that the largest relative bias of the 2SLS estimator relative to OLS for our preferred specification is 10%.[42]

Column (4) shows the results of using the number of sons as an IV. The coefficients and significance levels are similar to those of the "had sons" IV in Column (3), predicting an approximate 30 percentage points likelihood of a firm staying in the family if there is exactly one son in the family, and similarly for higher numbers of sons. Because we have multiple instruments here we report the Sargan-Hansen test of over-identifying restrictions resulting Hansen's J statistic (because of the clustered standard errors) and corresponding p-value.

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[41]As suggested by Angrist & Pischke (2009). We use Stata's `ivreg2` command, by Baum et al. (2002) to estimate these regressions.

[42]The Kleibergen-Paap Wald statistic (Kleibergen (2002), Kleibergen & Paap (2006)) is the heteroskedasticity-robust analogue to the first-stage F-statistic, and we report this value because we use clustered standard errors at the firm level. Although there are no critical values specifically for the K-P statistic, Baum et al. (2007) suggests that the Stock & Yogo (2005) critical values for the Cragg-Donald Wald F-statistic could be used and thus we report them here to facilitate comparison.

We cannot reject the joint null hypothesis that the instruments are valid. However, this specification seems to have weaker instruments than our preferred specification as suggested by the lower Kleibergen-Paap Wald F-statistic of ~ 7.6.

In Column (5) we use the gender of the first child as the instrument. The coefficient suggests that having a male first child is associated with a 12.4 percentage points higher probability of the firm remaining under the control of a family CEO. Considering the weak instruments test, the Kleibergen-Paap statistic sits between the specifications in Columns (3) and (4) with a statistic of 11.37.

The top panel of Table 4 shows the second stage results, along with the OLS results and reduced form for ease of comparison. Column (3) is our preferred specification and suggests that a succession to a family CEO leads to 0.808 standard deviations worse management practices, significant at the 5% level (p-value: 0.037). The coefficients of the different iterations of the IVs are very similar to each other, and not statistically different. The coefficient in Column (5) is not significant but the sign and magnitude of the coefficient are broadly consistent with that of our preferred specification, albeit imprecisely estimated.

When comparing the family control coefficient in Column (3) of Table 4 to the one we get in the equivalent OLS regression in Column (1), we cannot reject the hypothesis that they are significantly different from each other mainly because the standard errors around the IV coefficient are rather large. However, the IV results give us some confidence that the effect is, in fact, negative and provides new evidence that the OLS has a positive bias.

In Columns (6) to (8) we break down the WMS management score into its three main components, including operations & monitoring, target setting and people management. We see that, although with slightly more measurement error given the smaller number of questions making up each index, the coefficients are broadly consistent with the overall management measure. This suggests that the overall result is not likely being driven by any one particular area of management more than the others. We interpret these results with caution, however, and plan to drive further into each set of questions within these sub-indices to understand what is driving these results.

3.4 Possible mechanisms: a preliminary discussion

Although this first step was verifying that, indeed, there is evidence of a causal effect of family CEO on quality of management, the result begs the question of "why." We leave a more detailed treatment of mechanisms to a future draft, but we discuss a set of key possible mechanisms that may be driving poor management in family firms inspired in the discussion in Gibbons & Roberts (2013): education, information, preferences and incentives.

In terms of *education and ability*, Bennedsen et al. (2007) show that Danish family CEOs tend to be less well educated than non-family CEOs. Further, if the firm is to stay under family control, the outgoing CEO inherently has a limited talent pool constrained by family size and is thus less likely to find a talented CEO when compared to the broader market.[43] Within Latin America, however, it could also be that family CEOs invest in their children to groom them to become the future leaders of the company and thus they are just as well educated as their broader market counterparts. To consider this mechanism, we are currently matching our ownership dataset to a large CV database extracted from LinkedIn. As we have the name of the companies and CEOs we may be able to find information on education and past employment experience for the CEOs and perhaps even other family members working in the company.

Another possible mechanism is *information*. Bloom et al. (2013) suggest that one of the reasons firms may not adopt management best practices is that they simply do not know that they are badly managed. The WMS collects some data that can help shed light on this mechanism: at the end of the management interview, the interviewer asks the only personal opinion question of the survey: "On a scale of 1 to 10 and excluding yourself, how well managed do you think the rest of your firm is?" The answer is then re-scaled to match the 1 to 5 scale of the WMS and the difference between the manager's perception and the "true" WMS score become the average information gap variable. We show in Figure 5 that managers in family firms seem to be systematically less aware of their own shortcomings than those in non-family firms. Thus, it seems plausible that family firms are perhaps less well informed about (a) their own level of quality of management, (b) what "best practice" management is, (c) whether it is profitable for them to implement new practices, and (d) how to implement such practices in their firm even if they wanted to do so. It is non-trivial to disentangle these effects, and we are currently working with the World Bank on an RCT

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[43]Bennedsen et al. (2007).

project to start looking at these questions.

Demsetz (1983), Demsetz & Lehn (1985) suggest that firms choose their ownership structure in ways that are "consistent with value maximization." Similarly, it could be argued that family CEOs have different preferences from non-family CEOs and care about other outcomes beyond simply profits (akin to the "private benefit of control" term in a family CEO's objective function in the early separation of ownership and control literature). If that is the case, we might expect family firms to have superior practices in terms of, for example, employee outcomes. Thus far in our analysis of non-management outcomes we have primarily looked at sales and value added, but we also have data on work-life balance variables that allow us to create a work-life balance index. We leave a more thorough discussion of this to a future draft, but here present a short summary in Table 5 that suggesting family firms have work-life balance practices that are no different to those of non-family firms.

Finally, it could also be that *incentives*, or "influence costs," are one of the mechanisms driving lower adoption of management. This mechanism works from the "bottom up" rather than "top down," and the idea is that employees may accept new managerial structures (such as, say, increased monitoring of their work) from a new professional CEO, but would resist it from a family CEO who might be known to them. On the theoretical side, work by Meyer et al. (1992) suggests this is a plausible scenario, and there is also empirical evidence of such cases. Atkin et al. (2015), in their technology adoption experiment with soccer ball factories in Pakistan, show evidence that worker pushback is indeed a possible reason for lack of technology adoption. If we consider management as technology, as in Bloom et al. (2015), this could be a mechanism driving the lower adoption of management practices in family firms.

4 Conclusion

In this paper we set out to investigate the effect of family control on firm organization and performance. We define family firms as firms that have a combined ownership and control structure - that is, firms where the same entity (or, family) both holds the majority of voting shares and the CEO position in the firm. Adding to previous work in this area, we find that simple family *ownership* does not fully explain family firms' underperformance,

but rather it is the effect of the combination of ownership and control that seems to be driving this. Given the notorious lack of data for private and family firms, particularly for emerging economies, we first collect a rich new dataset on the history of ownership and control successions for a sample of firms in Latin America, Africa and Europe, and match it with a unique dataset on firm organizational structure and managerial practices. Relying on the body of work that has provided evidence on the strong relationship between managerial practices and firm performance, we suggest that poor management could be a channel driving family firms' poor performance. We consider whether the decision to appoint a family CEO had a causal effect on firm management, and provide a brief discussion on possible mechanisms behind this stylized fact.

The new dataset we collected allowed us to add to the correlational findings of Bloom & Van Reenen (2007, 2010) and suggest a causal relationship by using an instrumental variables approach. We explored the gender of the outgoing CEO's children as exogenous variation to identify the effect of a family CEO on the quality of management of a firm. We find convincing evidence that the gender mix of the children does affect the likelihood of a succession to a family CEO: in families where there is at least one male child the likelihood of a family succession of control is 30 percentage points higher. We also present descriptive evidence that this is, indeed, a stylized fact and strengthens our claim of the informativeness of the instrument. We argue that, conditional on family size (number of children), the *gender mix* of the children is as good as random and unrelated to the managerial structures implemented in the firm, thus satisfying the exclusion restriction.

Our OLS and IV-2SLS results suggest that there is a statistically significant negative effect of family control, and the true effect sits somewhere between -0.369 (OLS result) and -0.808 (IV result). To put this in context, a one standard deviation change in management quality is associated with approximately 20% higher value added per employee in Brazilian family firms. If we take this proportional relationship, our results suggest that keeping the firm under family control leads to between 7% and 16% lower value added per employee in the average family firm.[44] This result is, in fact, within the same range as the main results from Bennedsen et al. (2007) in Denmark.

We believe that better management leads to better firm productivity, and thus we believe that our results have key implications for policies in emerging economies that perpetuate

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[44]Calculated as 0.369 x 20% ≈ 7% ; 0.808 x 20% ≈ 16%

the high incidence of family owned and controlled firms (such as tax breaks for family businesses). To the best of our knowledge, this is the first set of suggestive causal evidence of this negative effect of family control on *internal organization of the firm*, and also the first such analysis to be done with emerging economies. This is also, however, only the first step in this research agenda. Future research is needed into the mechanism behind the choice of family CEOs to implement less managerial structures than non-family CEOs, and what effect this might have on other firm outcomes and characteristics, such as on employee satisfaction, wages and work-life balance. We leave a formal treatment of the theoretical framework and a more extensive discussion of the mechanisms to the next draft of this paper.

Figures

Figure 1: Share of founder/family firms across the world, manufacturing

Note: Firms between 50 and 5000 employees, manufacturing sector. This graph uses the full WMS dataset and represents a random sample of firms within the manufacturing sector of each country.
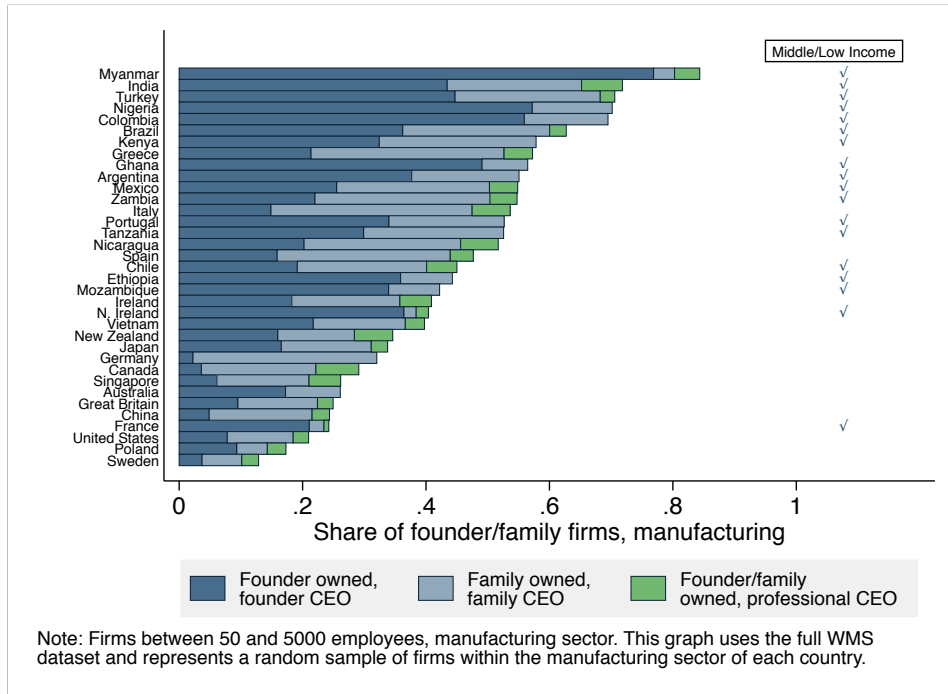
Figure 2: Formal managerial practices, by type of ownership

Note: This graph uses the full WMS sample. N=15489;
N(Not family owned)=8454; N(Family owned, professional CEO)=558; N(Family owned, family CEO)=5795.
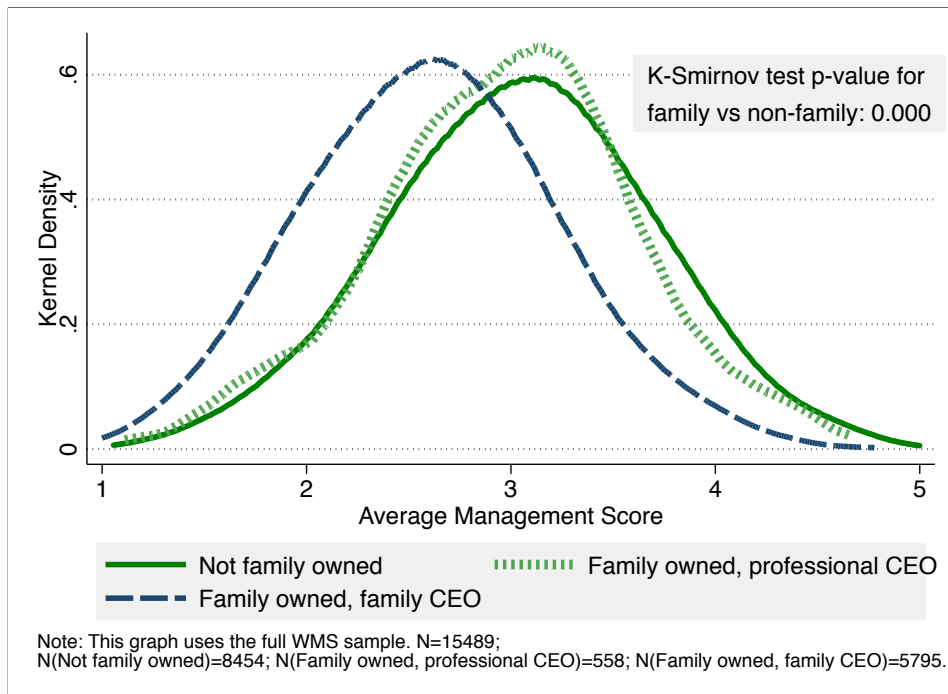
Figure 3: Successions from founder/family ownership, by number of sons

Note: Family includes primarily male family members such as grandchildren, nephews, cousins, in laws etc. and CEOs that could be identified as family members, but the analyst could not ascertain which one. This graph includes all successions included in the sample used for the IV analysis. Includes CEOs with no. children. Total N=818. N(0)=59; N(1)=257; N(2)=295; N(3+)=203.
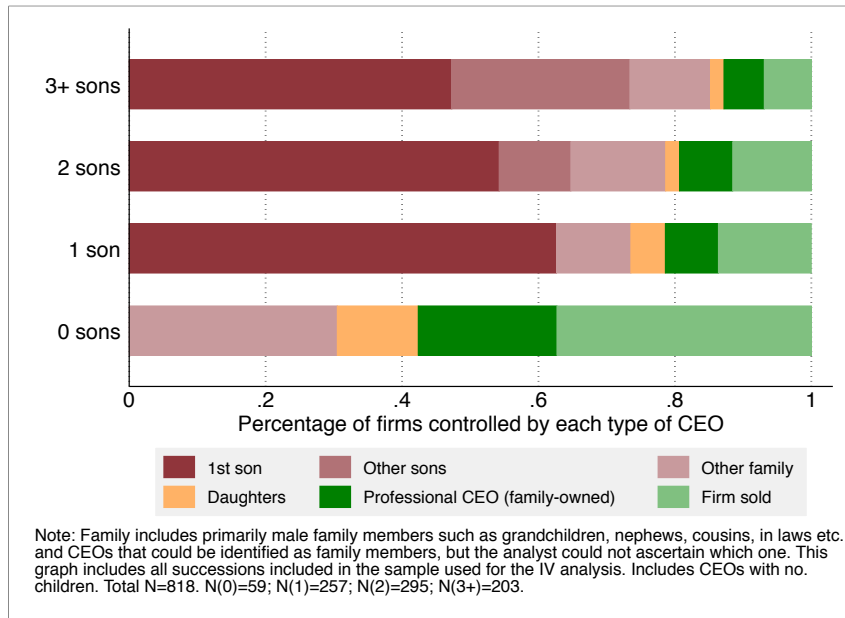
Figure 4: Distribution of family size conditional on gender of the first child
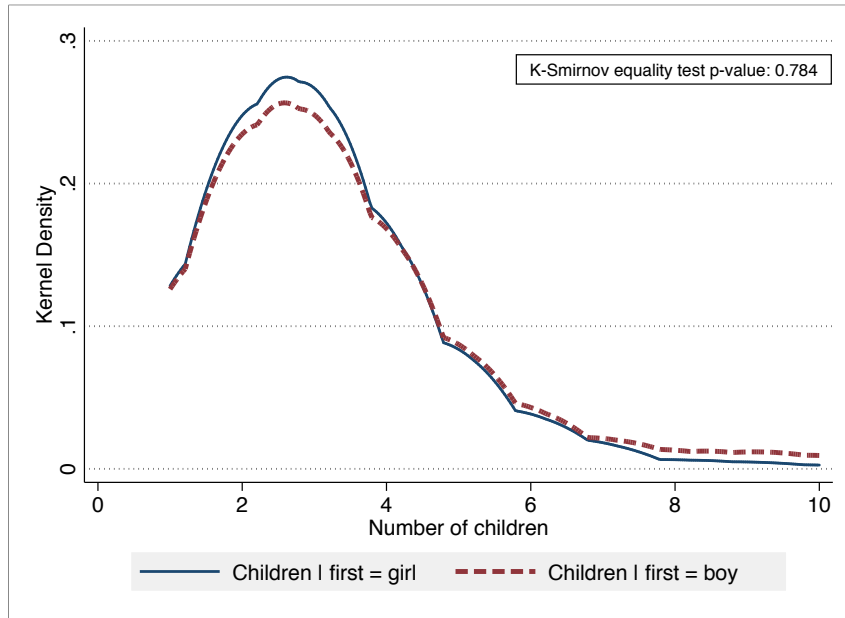
Figure 5: Mechanisms: family firms are less well informed about how well they are managed
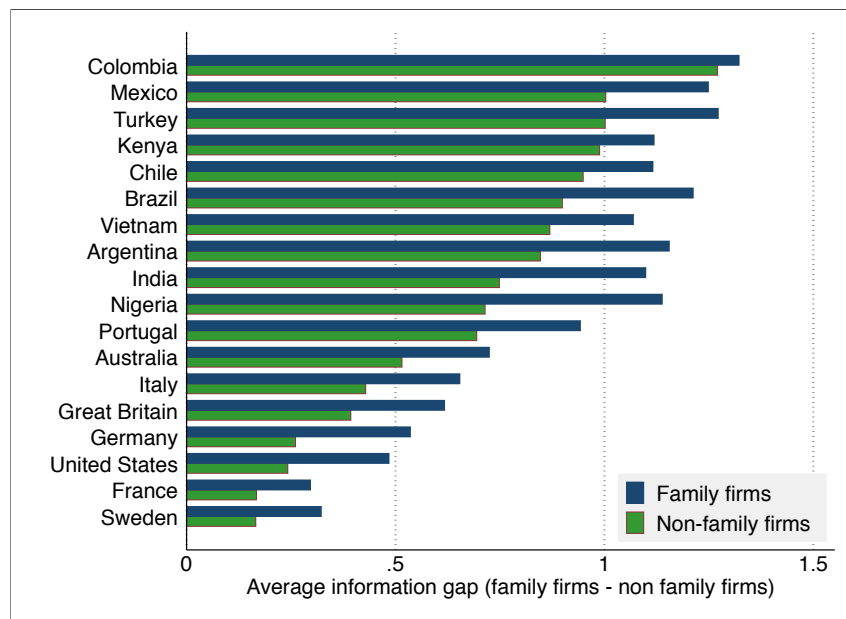
Tables

Table 1: Difference in means: family vs. non-family succession, eligible firms with full data

	Family Mean	Non-family Mean	Diff in means	T Stat	Family N	Non-family N
Family characteristics						
Of previous CEO						
First child = male	0.80	0.65	-0.14**	-3.20	680	133
Had at least one son	0.95	0.81	-0.14***	-4.09	689	135
# children	3.10	2.45	-0.64***	-4.61	689	135
# children | first = boy	3.09	2.75	-0.35	-1.95	541	87
# boys	1.98	1.50	-0.47***	-4.48	689	135
Firm characteristics, regressors						
Employment	462.80	544.84	82.03	1.08	689	135
Firm age	50.52	46.35	-4.17	-1.48	689	135
% of employees with degrees	11.35	14.44	3.09*	2.32	689	135
MNE = 1	0.12	0.52	0.39***	8.75	688	135
Share in low tech industries	0.47	0.30	-0.16***	-3.68	689	135
Levels between CEO and shopfloor	3.25	3.57	0.33**	3.03	677	133
# direct reports to plant manager	7.17	7.75	0.59	1.16	685	134
Avg hrs/wk, manager	48.82	48.10	-0.72	-1.33	686	135
Avg hrs/wk, non-manager	43.58	42.81	-0.77*	-2.09	685	135
# production sites, total	2.24	3.54	1.31	1.61	689	134
# production sites, abroad	0.37	1.73	1.36	1.73	689	134
Management scores						
Management (overall)	2.68	2.90	0.22***	4.04	689	135
Management: ops & monitoring	2.86	3.16	0.30***	4.48	689	135
Management: targets	2.58	2.84	0.26***	4.11	689	135
Management: people	2.55	2.63	0.09	1.64	689	135

Table 2: Management on firm performance in family firms

	Dataset:						Dataset:		
	WMS-PIA (Brazilian Industrial census)						**WMS-Orbis (Bureau van Dijk)**		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	ln(value added)	ln(value added)	ln(value added)	ln(sales)	ln(sales)	ln(sales)	ln(sales)	ln(sales)	ln(sales)
z-management	0.997***	0.379***	0.196**	0.911***	0.260***	0.137**	0.502***	0.184***	0.071***
	(0.097)	(0.078)	(0.089)	(0.106)	(0.072)	(0.070)	(0.040)	(0.025)	(0.022)
ln(employment)		0.651***	0.694***		0.790***	0.802***		0.179***	0.332***
		(0.051)	(0.059)		(0.049)	(0.055)		(0.028)	(0.030)
ln(capital)		0.159***	0.159***		0.203***	0.202***		0.638***	0.508***
		(0.020)	(0.024)		(0.022)	(0.025)		(0.024)	(0.023)
Observations	627	601	555	624	615	567	1904	1883	1883
R^2	0.178	0.636	0.763	0.136	0.682	0.799	0.113	0.536	0.702
Noise controls	✗	✗	✓	✗	✗	✓	✗	✗	✓
Firm controls	✗	✗	✓	✗	✗	✓	✗	✗	✓
Industry controls	✗	✗	✓	✗	✗	✓	✗	✗	✓
Country controls	✗	✗	✗	✗	✗	✗	✗	✗	✓
Sample used:	**Family firms**	**Family firms**	**Family firms**	**Family firms**	**Family firms**	**Family firms**	**Family firms**	**Family firms**	**Family firms**

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Note: All columns estimated by OLS with standard errors clustered by firm. Firm value added, capital measures and industry codes come from the Brazilian Industrial Survey (PIA) and Bureau van Dijk's Orbis dataset. PIA's values for sales, value added, employment and capital measures were averaged over 3 years around the year for when the management data was collected. z-management is the plant-level standardized management score. General controls include firm-level controls for average hours worked and the proportion of employees with college degrees (from the survey), plus a set of country dummies. Noise controls include a set of interviewer dummies, the seniority and tenure of the manager who responded, the day of the week the interview was conducted, the time of day the interview was conducted and the duration of the interview.

Table 3: Ownership and control structures on quality of management: regressions using full WMS sample and sample used in the IV analysis

	(1) z-management	(2) z-management	(3) z-management	(4) z-management	(5) z-management	(6) z-management
Family (controlled) firms						
Family owned, family CEO	-0.724***	-0.612***	-0.289***	-0.293***	-0.287***	-0.369***
	(0.025)	(0.025)	(0.024)	(0.033)	(0.034)	(0.111)
Founder owned, founder CEO	-0.961***	-0.796***	-0.320***	-0.353***		
	(0.024)	(0.025)	(0.025)	(0.037)		
Non-family (controlled) firms						
Family owned, professional CEO	-0.314***	-0.228***	-0.097**	-0.080	-0.084	-0.207
	(0.047)	(0.045)	(0.040)	(0.053)	(0.054)	(0.144)
Privately owned, professional CEO	-0.437***	-0.368***	-0.155***	-0.145***	-0.137***	-0.253
	(0.024)	(0.023)	(0.021)	(0.030)	(0.030)	(0.162)
Dispersed Shareholders *(reference category)*						
Observations	13842	13842	13842	6793	5468	818
R^2	0.129	0.188	0.384	0.338	0.323	0.240
Noise controls	✗	✗	✓	✓	✓	✓
Firm & country controls	✗	✗	✓	✓	✓	✓
Industry controls	✗	✓	✓	✓	✓	✓
Sample used:	**Full WMS**	**Full WMS**	**Full WMS**	**IV countries**	**IV countries**	**IV firms only**
Tests of equality (p-values)						
Family (controlled) firms	0.000	0.000	0.185	0.055		
Non-family (controlled) firms	0.009	0.002	0.143	0.205	0.310	0.774
Family vs non-family (controlled) firms	0.000	0.000	0.000	0.000	0.000	0.131

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Note: All columns estimated by OLS with standard errors clustered by firm. All data comes from the World Management Survey. z-management is the plant-level standardized management score. General controls include firm-level controls for average hours worked and the proportion of employees with college degrees (from the survey), plus a set of country dummies. Noise controls include a set of interviewer dummies, the seniority and tenure of the manager who responded, the day of the week the interview was conducted, the time of day the interview was conducted and the duration of the interview. The base category here is firms with dispersed shareholder ownership.

Table 4: IV-2SLS results for the effect of family control on firm managerial structures

	OLS	Reduced Form	IV Second Stage results					
	(1) z-mgmt	(2) z-mgmt	(3) z-mgmt	(4) z-mgmt	(5) z-mgmt	(6) z-ops/monitor	(7) z-targets	(8) z-people
Family CEO = 1	-0.369*** (0.111)		-0.808** (0.388)	-0.767** (0.382)	-0.423 (0.560)	-0.747* (0.412)	-0.686* (0.381)	-0.673* (0.375)
Had at least 1 son		-0.298** (0.123)						
# Firms			810	806	800	810	810	810
K-P Wald F-statistic			21.58	7.599	11.37	21.58	21.58	21.58
Stock-Yogo 10% CV			*16.38*	*16.38*	*16.38*	*16.38*	*16.38*	*16.38*
Stock-Yogo 15% CV			*8.96*	*8.96*	*8.96*	*8.96*	*8.96*	*8.96*
Stock-Yogo 20% CV			*6.66*	*6.66*	*6.66*	*6.66*	*6.66*	*6.66*
Hansen's J statistic				0.553				
Hansen's J p-value				0.758				

	IV First Stage results							
Excluded instruments								
Had at least 1 son			0.308*** (0.066)			0.308*** (0.066)	0.308*** (0.066)	0.308*** (0.066)
1 son				0.304*** (0.068)				
2 sons				0.302*** (0.069)				
3+ sons				0.348*** (0.074)				
First child = male					0.124*** (0.037)			
Control for family size: linear	✓	✓	✓	✓	✗	✓	✓	✓
# Observations	818	818	818	814	807	818	818	818
# Firms	810	810	810	806	800	810	810	810
R^2	0.311	0.259	0.059	0.064	0.019	0.059	0.059	0.059

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Note: Columns (1) and (2) estimated by OLS with standard errors clustered by firm. Columns (3) through (6) are estimated by IV-2SLS using Stata's `ivreg2` command. Management data comes from the World Management Survey. z-management is the plant-level standardized management score. Ownership and family history data comes from the Ownership Survey. General controls include firm-level controls for average hours worked, whether the firm is listed on the stock market, plus a set of country dummies. Noise controls include a set of interviewer dummies, the seniority and tenure of the manager who responded, the day of the week the interview was conducted, the time of day the interview was conducted and the duration of the interview.

Table 5: Work-life balance questions

	(1) z-work-life balance average index	(2) z-emergency leave	(3) z-work from home (y/n)	(4) z-switch FT-PT	(5) z-childcare subsidy	(6) z-hours worked	(7) z-holidays	(8) z-part time share
Family (controlled) firms								
Family owned, family CEO	0.003	0.026	-0.052	-0.062	-0.078	0.003	-0.004	0.054
	(0.023)	(0.049)	(0.034)	(0.045)	(0.052)	(0.022)	(0.029)	(0.070)
Founder owned, founder CEO								
Non-family (controlled) firms								
Family owned, professional CEO	-0.032	0.080	-0.005	-0.181*	0.094	-0.004	-0.041	-0.064
	(0.037)	(0.090)	(0.096)	(0.101)	(0.110)	(0.042)	(0.052)	(0.058)
Privately owned, professional CEO	0.010	-0.001	0.003	-0.020	-0.031	0.004	0.028	-0.047
	(0.020)	(0.049)	(0.036)	(0.047)	(0.049)	(0.020)	(0.028)	(0.036)
Dispersed Shareholders (reference category)								
Observations	2549	2685	5039	2656	2647	13574	2707	2780
Noise controls	✓	✓	✓	✓	✓	✓	✓	✓
Firm controls	✓	✓	✓	✓	✓	✓	✓	✓
Industry controls	✓	✓	✓	✓	✓	✓	✓	✓
Sample used:	Full WMS	Full WMS	Full WMS	Full WMS	Full WMS	Full WMS	Full WMS	Full WMS

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Note: All columns estimated by OLS with standard errors clustered by firm. All data comes from the World Management Survey. z-management is the plant-level standardized management score. General controls include firm-level controls for average hours worked and the proportion of employees with college degrees (from the survey), plus a set of country dummies. Noise controls include a set of interviewer dummies, the seniority and tenure of the manager who responded, the day of the week the interview was conducted, the time of day the interview was conducted and the duration of the interview. The base category here is firms with dispersed shareholder ownership.

Appendices

A   Data appendix

A.1   Data structure details

Figure 6 shows a diagram of a hypothetical firm surveyed both by the Ownership Survey and the WMS. In this example, the WMS surveyed this hypothetical firm twice: once between $t = 1$ and $t = 2$, and then again between $t = 2$ and now. The Ownership Survey collected data on: the date of foundation $(t = 0)$ and each date of succession $(t = 1, 2)$; who owned the firm at each time bracket and the family characteristics of the founder and each family owner-CEO after. In terms of the merged data, the family characteristics of the founder, who owned and managed the firm between $t = 0$ and $t = 1$, will be the instrumental variables for the first WMS management measurement between $t = 1$ and $t = 2$. In turn, the family characteristics of the family owner-CEO who presided over the company between $t = 1$ and $t = 2$ will serve as the instrumental variables for the WMS management measurement between $t = 2$ and now.

For example, take two hypothetical Brazilian firms: Firm A is currently a "family firm" and Firm B is currently a "non-family firm." Firm A was founded in 1980 and its founder handed down control of the firm to his son in 2005, who is still presiding over the company. Firm B was founded in 1990 by a founder who decided to sell the firm in 2000 to a set of investors ("private individuals," by our categorization). These investors chose to hire a professional CEO to lead the firm. The firm today is still owned by these investors and the CEO continues to be the same professional hired in 2000. As the first WMS wave for Brazil was in 2008, we have a snapshot measure of the quality of management in both firms during the tenure of the founder's son for Firm A and during the tenure of the professional CEO in Firm B. We do not have measures for either of the founders' tenures in the earlier decades of these firms and thus cannot use panel data methods with the current dataset. The Ownership Survey collected information on the family characteristics of the founders of both firms and enables us to then use the gender composition of the founders' children as an instrument for the founders' choice of succession into another generation of a family

Figure 6: Hypothetical example
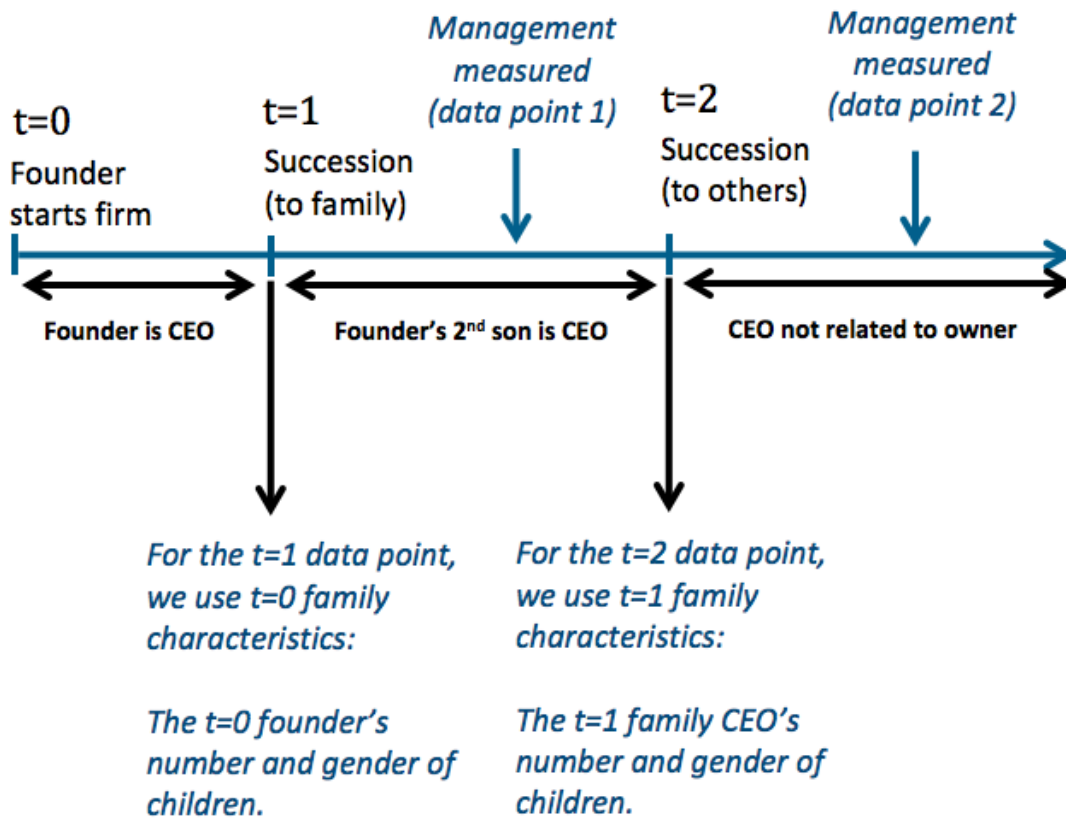
firm or out of family control.[45]

A.2 A brief illustration: the early days of the Ford Motor Company

Beyond understanding how our data is matched to the WMS, a crucial definition worth reiterating is that when we use the term *family firm* we mean family control of the firm in terms of the same family entity owning the majority of the voting shares of the firm *as well as* having a family member presiding over the company as CEO: *combined* ownership and control. To illustrate the data we collected and our definitions, it is useful to consider a well-known example such as the early days of the Ford Motor Company. Ford was founded in 1903 by Henry Ford, who had one son. In 1919 Henry Ford passed the position of CEO to his son, Edsel, until Edsel (unexpectedly) died in 1943. Edsel had four children: three boys and one girl. Henry Ford briefly took control for the interim two years until 1945 when Edsel's first son, Henry Ford II, returned to the US and assumed the helm of the firm. Henry Ford II had three children: two girls and one boy, Edsel Ford II.[46] In 1956, Ford went public in the largest IPO (initial public offering) of common stock shares in history at the time, but the Ford family still retained 40% of the voting shares.[47] Up to this point, the Ford Motor Co. would be considered a *family firm* in the Ownership Survey as the Ford family held over 25% of the voting shares and a family member from the original founding family held the CEO position in the firm. We would have, thus far, registered three successions of power within the family.[48]

A *non-family firm*, on the other hand, has *separate* ownership and control. Continuing with the Ford Motor Co. example, in 1980 Phillip Caldwell became the first non-Ford-family member to take the post of CEO. From 1980 onwards Ford is considered a *non-family firm* in our analysis. The data point would be recorded as "family owned, professional CEO,"

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[45]Most of our data at the moment only has one management data point and complete data on the ownership background. While we cannot currently explore all successions we collected in the ownership dataset, we have received authorization from the Brazilian statistics agency to match our ownership data with their Industrial Census and explore the panel dimension of this dataset. We will also be able to replicate the analysis of Bennedsen et al. (2007) for the first time for an emerging economy.

[46]Edsel Ford II ran Ford Australia between 1978 and 1980.

[47]According to Ford Motor Co.'s website. It is important to note that when they took the company public the family separated the type of stock offered into 95% Class A shares (no voting rights) and 5% Class B (voting rights) shares. The Ford family in fact owned less than 2% of the company as a whole, but crucially, they own 40% of the *Class B voting shares*, affording them majority control of the company.

[48]Henry Ford 1903-1919, Edsel Ford 1919-1943, Henry Ford 1943-1945, Henry Ford II 1945-1979.

(ie. the green boxes in Figure 1) but as discussed earlier, we combine all categories that are not owned and controlled by families under *non-family firm*. An example of what the early Ford history would look like in our survey instrument is shown in Figure 7. If the Ford family ever chose to divest or dilute their voting shares such that the family's voting ownership stake of the firm fell to below 25% of the shares, they would then continue to be coded as a *non-family firm* category, but their ownership sub-category would change to *dispersed shareholders*.[49] Crucially, our identification strategy would not use ownership successions that, for example, started as "family owned, professional CEO" and switched to "dispersed shareholders, professional CEO." Our identification is coming from firms that have successions of *control*, such as a "family owned, family CEO" firm hiring a professional CEO or, alternatively, selling the firm outright/diluting their shares to under 25% voting ownership to non-family investors who then hire a professional CEO.

A concern could be that what we will capture with this strategy is the effect of the change in ownership rather than the change in control, as in our analysis we combine firms that have changed *only control* with those who change *ownership and control*. The best scenario would, indeed, be to have a large sample of firms that switched from having family ownership and control to family ownership and professional control, but that is a limitation of our dataset (indeed, of "reality") that we do not think is fatal. First, as evidenced in Figure 1, although the family ownership with professional CEO structure is relatively more common in OECD countries than in middle- and low-income countries, it still constitutes a very small share of the overall ownership and control structures that we study. Among the countries we study it is an even smaller part of the share of firms in the economy. Thus, the next best alternative is comparing family owned and controlled firms with non-family owned and professionally controlled firms.[50]

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[49]History of the Ford Motor Co. primarily obtained from the Ford Motor Co.'s website: https://corporate.ford.com/company/history.html, last accessed on January 15, 2016.

[50]Once we match the Ownership Survey data with the Brazilian industrial census we will hopefully be able to say more about the effect of changes in ownership without changes in CEO. We leave this to a future draft.

Figure 7: Survey instrument, hypothetical example: Ford Motor Company

Interview_EN

| Analyst Details | Ownership History | Education | Current Mgmt | HR | Post Interview | Back to Overview |

Company Name: **FORD MOTOR CO**

Please list all changes in ownership AND control from the date it was founded

If ownership stays the same BUT CEO changes, list it!

Family Characteristics of each CEO for Family Firms

Ownership	Year	Who is the CEO? (not related = non-family)	CEO gender	# of years CEO worked outside	Why did the ownership or control change?	If other, please explain	How many children?	Were they all boys? (insert # of boys)	Was the CEO's first child MALE?	Ask for the order of the gender of the children and separate each by "/". Ex: F/M/F/F = 4 M/M/M/F/M = 5
Founded as....										
Founder/Founding Family	1903	owner (founder)	M	24			1	1	Yes, MALE	M
1st change... After 1st change, who is the CEO in relation to the previous CEO?										
Family	1919	1st son	M	0	other	controversial!	4	3	Yes, MALE	M/M/F/M
2nd change...										
Family	1943	owner (founder)	M	24	Former CEO retired		0	0	No children	
3rd change...										
Family	1945	grandchild	M	3	Former CEO reduced workload		3	1	No, FEMALE	F/F/M
4th change...										
Family	1979	not related	M	11	Former CEO retired					
5th change...										
Family	1985	not related	M	0	other	CEO left for another firm				
6th change...										
Family	1990	not related	M	0	other	CEO left for another firm				

0   = not worked
-99 = refused
-44 = doesn't know/information not available

F   = female
M   = male
-99 = refused
-44 = doesn't know/information not available

DEFINITIONS:

**** Dispersed Shareholders - No single entity (person, family or company) owns more than 25.01% of the shares, i.e. no entity owns a controlling stake. This category does not include Cooperatives or Management types of GUO.

IF ONE SINGLE ENTITY OWNS MORE THAN 25.01%, THEN:
**** Family/Founder owned - The company founder or founding family still owns the company.
**** Government - The company is majority owned by a government or state enterprise. This can be of the same nationality as the company or a foreign one.
**** Joint Venture - Two entities founded the company and each owns 50% of the shares. For India and China only: Two entities founded the company and both own at least 25% of the shares.
**** Managers - The company managers and executives own the controlling stake. This is not to be confused with cooperative/employee ownership and private individuals.
**** Private Individuals (non-family) - One or more private individuals own a controlling stake and they are not the founders or heirs to the founders of the company AND are NOT blood-related
**** Private Individuals (family) - One or more private individuals own a controlling stake and they are not the founders or heirs to the founders of the company AND are blood-related. For example, this applies to companies that have been acquired by a family or other individuals from a previous owner or the founding entity.**** Private Equity or Venture Capital - A private equity, venture capital or investment fund type of enterprise owns the company after acquisition and usually for restructuring purposes. If the PE/VC company were owned by a Bank or private individuals or other entity, the ownership would still be defined as PE or VC.

B   Additional figures and tables

B.1   Ownership categories and additional summary statistics

Table A1 describes the definition of ownership and control structures used in this paper. We differentiate between *combined* ownership and control, which we refer to generally as "family firms" (for ease of exposition) and *separate* ownership and control "non-family firms." Table A2 shows the summary statistics of the dataset we use in our analysis.

Table A1: Data categories - The Ownership Survey

Ownership category	Ownership & control	
	Non-family	Family
Founder or family owned		
Founder owned, founder CEO		✓
Founder owned, professional CEO	✓	
Family owned, family CEO		✓
Family owned, professional CEO	✓	
Privately owned (non-founding family owners)*		
Single owner, owner CEO		✓
Single owner, professional CEO	✓	
Many owners, owner CEO		✓
Many owners, professional CEO	✓	
Dispersed shareholders**	✓	

* For the category of Privately owned, at least one entity owns more than 25% of voting shares, and they are not members of the founding family.
** For the category of Dispersed shareholders, no one entity owns more than 25% of voting shares.
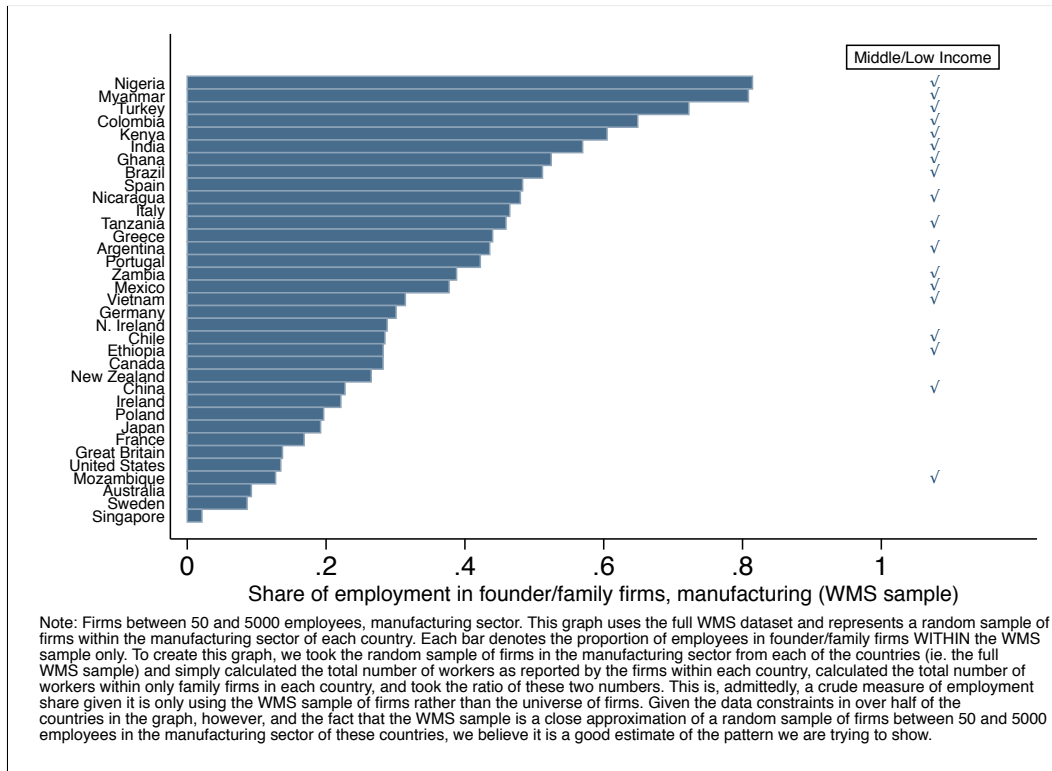
Figure 8 shows the share of employment attributed to family firms in the WMS dataset. This graph is to quell concerns that, while there are many firms in the manufacturing sector in these countries, they account for a small share of employment.

Table A2: Summary statistics, eligible firms with full data

| | **Family CEO** | | | | **Non-family CEO** | | | |
	Mean	Median	SD	N	Mean	Median	SD	N
Family characteristics								
Of previous CEO								
First child = male	0.80	1.0	(0.40)	680	0.65	1.0	(0.48)	133
Had at least one son	0.95	1.0	(0.22)	689	0.81	1.0	(0.40)	135
# children	3.10	3.0	(1.60)	689	2.45	2.0	(1.46)	135
# children | first = boy	3.09	3.0	(1.60)	541	2.75	2.0	(1.53)	87
# boys	1.98	2.0	(1.12)	689	1.50	1.0	(1.12)	135
Of current firm								
# family members working in firm	2.04	2.0	(6.74)	689				
Son	0.09	0.0	(0.28)	689				
Brother	0.16	0.0	(0.36)	689				
Total %: male family members	0.29	0.0	(0.45)	689				
Daughter	0.04	0.0	(0.20)	689				
Sister	0.08	0.0	(0.26)	689				
Total %: female family members	0.17	0.0	(0.37)	689				
Firm characteristics								
Employment	462.80	230.0	(701.70)	689	544.84	250.0	(822.46)	135
Firm age	50.52	47.0	(28.61)	689	46.35	41.0	(30.18)	135
MNE = 1	0.12	0.0	(0.33)	688	0.52	1.0	(0.50)	135
Share in low tech industries	0.47	0.0	(0.50)	689	0.30	0.0	(0.46)	135
% of employees with degrees	11.35	7.8	(12.77)	689	14.44	10.2	(14.41)	135
Management scores								
Management (overall)	2.68	2.7	(0.57)	689	2.90	2.9	(0.57)	135
Management: ops & monitoring	2.86	2.9	(0.72)	689	3.16	3.1	(0.70)	135
Management: targets	2.58	2.6	(0.68)	689	2.84	2.8	(0.68)	135
Management: people	2.55	2.5	(0.52)	689	2.63	2.7	(0.57)	135

Figure 8: Share of employment in founder/family firms, by country (manufacturing)

Note: Firms between 50 and 5000 employees, manufacturing sector. This graph uses the full WMS dataset and represents a random sample of firms within the manufacturing sector of each country. Each bar denotes the proportion of employees in founder/family firms WITHIN the WMS sample only. To create this graph, we took the random sample of firms in the manufacturing sector from each of the countries (ie. the full WMS sample) and simply calculated the total number of workers as reported by the firms within each country, calculated the total number of workers within only family firms in each country, and took the ratio of these two numbers. This is, admittedly, a crude measure of employment share given it is only using the WMS sample of firms rather than the universe of firms. Given the data constraints in over half of the countries in the graph, however, and the fact that the WMS sample is a close approximation of a random sample of firms between 50 and 5000 employees in the manufacturing sector of these countries, we believe it is a good estimate of the pattern we are trying to show.

B.2 Management across regions and industries

One important consideration is to what extent we should be treating this relationship between ownership and level of formal management practices as something that is common across countries. It could be that family ownership and control matters more in countries where there is less competition, better rule of law, or a different mix of industries. To consider this, we broke the full WMS sample into the continental regions and report the results in Table A3. The coefficients across nearly all regional specifications are not statistically different from each other, with the notable difference of Africa. This suggests that across the world, being owned and controlled by a founder or founding family is associated with a similar negative effect on the level of structured management in the firm.

Table A3: Management and founder/family ownership and control - across regions, WMS

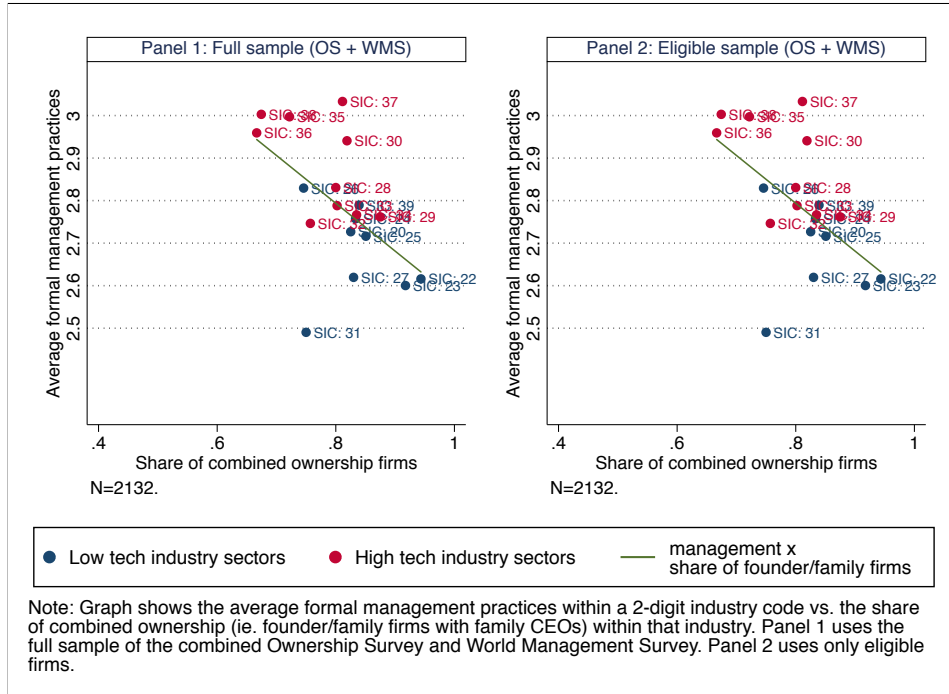|	Anglo-Saxon	Sca' via & W. Europe	S & C Europe	Latin America	Asia	Africa
Family Control = 1	-0.166***	-0.149***	-0.162***	-0.211***	-0.168***	-0.122***
	(0.024)	(0.032)	(0.030)	(0.021)	(0.029)	(0.034)
Ln(employment)	0.123***	0.153***	0.178***	0.221***	0.129***	0.134***
	(0.008)	(0.012)	(0.017)	(0.010)	(0.010)	(0.016)
Observations	4299	2438	1904	3049	2453	867
Noise controls	✓	✓	✓	✓	✓	✓
Industry controls	✓	✓	✓	✓	✓	✓
Firm controls	✓	✓	✓	✓	✓	✓

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Note: All columns estimated by OLS with standard errors clustered by firm and reported in brackets below the estimates. Sample includes all firms with controls data. Management is the plant-level management score. Controls include a full set of country dummies, US-SIC dummies and year dummies, as well as firm-level controls including the proportion of employees with college degrees (from the survey), interviewer dummies, the seniority and tenure of the manager who responded, the day of the week the interview was conducted, the duration of the interview, and an indicator of the reliability of the information as coded by the interviewer.

Finally, another interesting feature to consider in terms of firm characteristics is the industrial mix in each group of firms. Figure 9 shows the relationship between the average quality of management and share of combined ownership firms within each 2-digit industrial sector. Each observation is an industrial sector and it is colour coded to indicate high (red) and low (blue) tech industries. Panel 1 uses data from the full sample of firms in the matched Ownership Survey and World Management Survey sample. That is, it includes firms which we would not consider eligible for our identification strategy, namely firms that were not founded by a founding family and firms that have not had a succession yet and are still owned and controlled by their founders. Panel 2 includes firms that were founded by a founding family and have had at least one succession of power. A consistent pattern emerges across the two panels: high tech industries are overwhelmingly both better man-

aged and have lower shares of combined ownership firms. To take this into account we ensure we add industry fixed effects to all our specifications.

Figure 9: Share of combined ownership firms and formal management, by industry

Note: Graph shows the average formal management practices within a 2-digit industry code vs. the share of combined ownership (ie. founder/family firms with family CEOs) within that industry. Panel 1 uses the full sample of the combined Ownership Survey and World Management Survey. Panel 2 uses only eligible firms.

C   Robustness checks

We have carried out a series of robustness checks of our main results. Table A4 reports the results for our specifications from Table 4 using two different sets of sampling weights in Columns (1) to (3) and (4) to (6), and the results for two different functional forms of the number of sons IV, in Columns (7) and (8). The sampling weights in the first set of columns were calculated within each country, while the second set were calculated for the full sample including country fixed effects. The results are qualitatively similar to those in the main results table. The two different functional forms of the IV that we are exploring as a robustness check are:

$$FamilyCEO_i = \alpha_{fs} + \sum_{j=2}^{3} \rho_j SON_j + \delta_{1i}SON_1 + \delta_{2i}children_i + \boldsymbol{\eta'X_i} + \nu_i \qquad (7)$$

$$FamilyCEO_i = \alpha_{fs} + \sum_{j=1}^{3} \rho_j SON_j + \sum_{j=1}^{3} \delta_j children_j + \boldsymbol{\eta'X_i} + \nu_i \qquad (8)$$

In column (7), we attempt to address the possible concern that number of sons is endogenous because families have multiple children until they "finally get a son." Here we input the dummy variable for "exactly one son" as a *control* rather than an IV. The rationale for this is to test whether the result was being driven by a family having *the first boy* - that is, we control for the "first boy effect," by pulling it out of the IV set and adding it to the set of controls. Given that the second stage results are not statistically different, this serves as evidence that the effect is not wholly driven by having exactly one boy. Column (8) shows the number of sons IV controlling for family size (number of children) also as a step function - that is, including number of children dummies instead of the single variable. We lose a lot of efficiency by including an extra set of dummy variables, but the coefficients are not statistically different from the other two iterations of this IV.

Table A4: IV-2SLS results, robustness checks

	Sampling weights: by country			Sampling weights: overall			IV functional forms unweighted	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Family CEO = 1	-1.049**	-1.014**	-0.384	-1.020**	-0.962**	-0.415	-0.718*	-0.606
	(0.509)	(0.503)	(0.529)	(0.490)	(0.476)	(0.548)	(0.390)	(0.428)
Hansen's J statistic		2.167			2.535		0.219	1.214
Hansen's J p-value		0.338			0.281		0.640	0.545
IV First Stage results								
Excluded instruments								
Had at least 1 son	0.280***			0.280***				
	(0.075)			(0.074)				
First child = male			0.132***			0.126***		
			(0.042)			(0.041)		
1 son		0.277***			0.274***		0.304***	0.293***
		(0.078)			(0.077)		(0.068)	(0.079)
2 sons		0.275***			0.278***		0.302***	0.293***
		(0.078)			(0.077)		(0.069)	(0.081)
3+ sons		0.307***			0.312***		0.348***	0.334***
		(0.084)			(0.083)		(0.074)	(0.085)
1 child								0.080
								(0.120)
2 children								0.046
								(0.116)
3+ children								0.110
								(0.118)
Control for family size: linear	✓	✓	✗	✓	✓	✗	✓	✗
# Observations	818	814	807	818	814	807	814	814
# Firms	810	806	800	810	806	800	806	806
R^2	0.047	0.050	0.022	0.048	0.051	0.020	0.064	0.066
F-stat (first stage)	7.745	5.098	6.218	8.013	5.347	5.725	7.374	5.807

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Note: All columns are estimated by IV-2SLS using Stata's `ivreg2` command. Management data comes from the World Management Survey. z-management is the plant-level standardized management score. Ownership and family history data comes from the Ownership Survey. General controls include firm-level controls for average hours worked, whether the firm is listed on the stock market, plus a set of country dummies. Noise controls include a set of interviewer dummies, the seniority and tenure of the manager who responded, the day of the week the interview was conducted, the time of day the interview was conducted and the duration of the interview. Columns (1) through (3) use sampling weights based on firm size by country, and Columns (4) through (6) use sampling weights based on firm size overall (across all countries). Columns (7) and (8) are unweighted.

D   WMS survey tool topics

Practices	What is the WMS measuring
Operations Management and Performance Monitoring	
Introducing Lean (modern) Techniques	Measures how well lean (modern) manufacturing management techniques have been introduced
Rationale for introducing Lean (modern) Techniques	Measures the motivation/impetus behind changes to the operational processes, and whether a change story was well communicated turning into company culture
Continuous Improvement	Measures attitudes towards process documentation and continuous improvement
Performance Tracking	Measures whether firm performance is measured with the right methods and frequency
Performance Review	Measures whether performance is reviewed with appropriate frequency and follow-up
Performance Dialogue	Measures the quality of review conversations
Consequence Management	Measures whether differing levels of firm performance (not personal but plan/process based) lead to different consequences

Target Setting	
Target Balance	Measures whether targets cover a sufficiently broad set of metrics and whether financial and non-financial targets are balanced
Target Interconnection	Measures whether targets are tied to the organization's objectives and how well they cascade down the organization
Time Horizon of Targets	Measures whether the firm has a '3 horizons' approach to planning and targets
Target Stretch	Measures whether targets based on a solid rationale and are appropriately difficult to achieve
Clarity and Comparability of Targets	Measures how easily understandable performance measures are and whether performance is openly communicated to staff

Note: Survey instruments with full set of questions asked available at

www.worldmanagementsurvey.org

People Management	
Managing Talent	Measures what emphasis is out on overall talent management within the organization
Rewarding High Performers	Measures whether there is a systematic approach to identifying good and bad performers and rewarding them proportionately
Removing Poor Performers	Measures how well the organization is able to deal with underperformers
Promoting High Performers	Measures whether promotion is performance-based and whether talent is developed within the organization
Retaining Talent	Measures whether the organization will go out of its way to keep its top talent
Creating a Distinctive Employee Value Proposition	Measures the strength of the employee value proposition

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