Managing the Family Firm: Evidence from CEOs at Work

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We build a comparable and bottom-up measure of CEO labor supply for 1,114 CEOs and investigate whether family and professional CEOs differ along this dimension. Family CEOs work 9% fewer hours relative to professional CEOs. CEO hours worked are positively correlated with firm performance and account for 18% of the performance gap between family and professional CEOs. We study the sources of the differences in labor supply across family and professional CEOs by exploiting firm and industry heterogeneity and variation in meteorological and sports events. Evidence suggests that family CEOs value or can pursue leisure activities more so than professional CEOs. (*JEL* J22, L21, O40, L25)

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Should firms be led by their owners or by professional managers? The debate over the desirability of the separation between firm ownership and control is as old as the firm itself. One of the main arguments in favor of owners is that they have more at stake and are thus expected to exert more effort at work. This is the standard prediction of the principal-agent model, as owners are

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residual claimants over the income generated by the business and hence are motivated to succeed, other things equal. The argument against is that, simply put, other things are not equal. For example, Chief Executive Officers (CEOs) with a significant ownership stake in the firm are likely to be wealthier than professional CEOs; if leisure is a normal good, they may therefore demand more leisure.[1] Equivalently, owner CEOs may be able to pursue private interests at the expense of other stakeholders (Shleifer and Vishny 1989); if the pursuit of private interests crowds out activities beneficial to the firm, this will also result in less managerial effort. These factors may lead to owner CEOs being *less* motivated to work hard relative to nonowners.

Family CEOs—that is, managers with a majority ownership stake in the firm, who have either founded the firm or inherited the firm from the original founders—are a primary example of owner CEOs and are widely present in both developed and developing countries (Caselli and Gennaioli 2013, LaPorta, Lopez-De-Silanes, and Shleifer 1999). In this paper, we explore differences between family and professional CEOs (i.e., non-family-affiliated CEOs) in one basic metric of effort: the number of hours they work. We do so using a new survey instrument that allows us to codify the diaries of 1,114 CEOs of manufacturing firms across six countries: Brazil, France, Germany, India, the United Kingdom, and the United States. To measure the labor supply of CEOs, we reconstruct their time diaries via daily phone interviews over the course of one week. We ask respondents (the CEOs themselves or their personal assistants) to list sequentially all activities in their diaries longer than 15 minutes and to report details of those activities. This methodology allows us to build an accurate bottom-up estimate of how much time CEOs allocate to business activities. Our methodology is inspired by (Mintzberg 1973) celebrated analysis of the work week of five CEOs, extended to large random samples.[2]

We find substantial variation in the number of hours CEOs devote to work activities: the average CEO in our sample spends 52 hours per week (10.4 hours per day) at work, whereas CEOs in the bottom quartile work on average 44.2 hours per week, and those in the top quartile work on average 58.5 hours per week. When we divide CEOs between family and professional CEOs—that is, managers who do not have significant ownership stakes in the firm—we find a large difference in hours worked: family CEOs, who account for 41% of our sample, record 6 fewer hours per week relative to professional CEOs.

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[1] For example, Holtz-Eakin, Joulfaian, and Rosen (1993) show that large inheritances reduce labor force participation and labor supply.

[2] "Shadowing" exercises are common in the management literature but typically cover a handful of observations. To the best of our knowledge, the most extensive CEO time use study is still (Mintzberg 1973) seminal work, which comprises five CEOs. The largest observational data set on top executives known to us includes 15 general managers (Kotter 1999). The largest time use study of managerial personnel we are aware of covers 44 mostly middle managers (Luthans 1988). Some surveys ask large numbers of CEOs general questions about their aggregate time use (e.g., McKinsey (2013), but they are not based on an analysis of their agendas for a specific time period. Karolyi and Liao (2015) collect data on the time spent by CEOs and CFOs in investor relations activities at 800 firms in 59 countries.

Are these differences correlated with firm performance and, in particular, with differences in firm performance between family and professional CEOs? To answer this question, we match the CEO survey with accounting data. We show three related facts. First, CEO hours worked are positively and significantly correlated with firm performance: a one-standard-deviation change in CEO hours worked is associated with an 8% increase in firm productivity. Second, firms run by family CEOs are on average less productive (and profitable) than firms run by professional CEOs. Third, differences in CEO hours worked account for up to 18% of the performance gap between family and professional CEOs.

We develop a simple model of CEO labor supply to study why family and professional CEOs vary in their effort at work. The model illustrates that the observed cross-sectional differences in hours worked across CEOs may depend on both differences in the marginal product of CEO effort across governance types—that is, differences in CEO or firm characteristics that may make it uniquely optimal for family CEOs to work fewer hours—and differences in the CEOs taste for leisure.

We assess the empirical relevance of these two alternative sources of variation by examining whether the gap in hours worked between family and professional CEOs can be accounted for by observable industry, firm, and CEO characteristics that are likely to affect the marginal product of CEO effort. The data suggest that these factors do not fully account for differences in hours worked between family and professional CEOs. Once we include the full set of firm, CEO, and industry controls, family CEOs still work 9% fewer hours than their professional counterparts. Importantly, we observe that professional CEOs who run family firms work as much as their counterparts in nonfamily firms, suggesting that the difference in hours worked is not due to family ownership per se.

We then turn to analyze whether the differences in behavior observed in the data are consistent with heterogeneous preferences for leisure across CEOs. We do so by exploiting a key insight provided by the model: if family CEOs choose to work fewer hours because they put a higher weight on leisure relative to firm performance, then factors affecting the opportunity cost of leisure (or, symmetrically, the marginal cost of effort) across all CEOs should have a greater impact on family CEOs. To implement the empirical strategy suggested by the model, we study whether the difference in hours worked by family and professional CEOs varies with factors affecting the opportunity cost of leisure *across firms* and *across days* of work. We use two alternative measures to proxy for differences in the opportunity cost of leisure across firms: firm size and the competitiveness of the industry in which the firm operates. The opportunity cost of leisure is likely to be higher in larger firms, as CEOs' efforts affect a larger volume of activity.[3] The opportunity cost of leisure is also likely to be higher in

[3] This is an analogue to the "scale of operations" effect discussed in Mayer (1960) that has been used to explain how small differences in ability can produce large differences in pay when more able CEOs work for larger firms (see, e.g., Tervio (2008)).

more competitive industries conditional on firm size, since competition lowers the probability of survival and increases the importance of managerial effort to keep the firm in business. We show that the difference in hours worked between family and professional CEOs is significantly smaller in larger firms and in firms active in more competitive industries. Furthermore, for two countries in our sample, India and Brazil, we are also able to measure variation in the opportunity cost of labor *across days*, using daily variation in rainfall and the broadcasting of popular sport events (Premier League cricket matches in India and State Football League matches in Brazil). In this subsample, the difference between family and professional CEOs is significantly larger on days when torrential rains or popular sports events increase the marginal cost of effort.

Taken together, these results are consistent with the notion that family CEOs have different preferences for leisure relative to professional CEOs. We speculate that the heterogeneity in preferences across CEOs could be related to wealth effects—namely, by the fact that family CEOs may be wealthier than professional CEOs thanks to their ownership stake in the firm—and investigate this hypothesis by exploiting cross-country differences in inheritance laws facilitating the intergenerational concentration of wealth.

While the cross-sectional nature of our data limits our ability to make causal statements about the relationship between CEO hours worked and firm performance, the evidence is consistent with the idea that family CEOs may be willing to trade-off profits for other nonmonetary benefits of control, such as the ability to enjoy more leisure (Bandiera et al. 2015; Demsetz and Lehn 1985). Our findings complement the observation that family CEOs are less likely to adopt managerial best practices (Bloom and Van Reenen 2007; Lemos and Scur 2017) and are characterized by a management style less conducive to shareholder value maximization (Mullins and Schoar 2016). In line with these literatures, our time use analysis shows that the incentives arising from having a higher stake in the firm may be offset by other factors that induce less effort on the part of the CEOs. More broadly, our research illustrates one channel through which CEOs may affect firm performance (Bertrand and Schoar 2003; Kaplan, Klebanov, and Sorensen 2012; Malmendier and Tate 2005, 2009; Schoar and Zuo 2011). Finally, the paper is related to the strand of work emphasizing the importance of preferences in explaining differences in managerial effort (Bertrand and Mullainathan 2003; Malmendier and Tate 2009).

1. Measuring the Labor Supply of CEOs

1.1 The CEO time use survey

To measure CEOs' labor supply, we created a survey instrument that keeps track of the activities undertaken by executives on a daily basis.[4] We use this

[4] A similar version of the survey was first used in a small scale study of about 100 Italian CEOs. See Bandiera et al. (2012) for details.

instrument to collect information for a sample of CEOs over one work week. While titles may differ across countries (e.g., Managing Director in the United Kingdom), we always interview the highest-ranking authority in charge of the organization who has executive powers and reports to the board of directors. For brevity, we refer to them as CEOs in what follows.

The survey includes questions about all the activities lasting 15 minutes or longer in the order they happened during the day, including starting and ending times and other activity details. Our main measure of CEO labor supply is the sum of time devoted to work activities over the week. To compare our diary measure with the standard recall measure used in other time use surveys, we also asked CEOs to estimate the hours they worked during the same week. Figure A1 in the appendix shows a screenshot of the survey tool.[5]

The data were collected by a team of hired enumerators through daily phone calls with the Personal Assistant (PA) of the CEO or with the CEO himself (43% of the cases) over a week randomly chosen by us. On day one of this week, the enumerator called in the morning and gathered detailed information on all the activities planned in the CEO diary for the day. The enumerator then called again in the evening to gather information on the actual activities undertaken by the CEO (including those that were not originally included in the planned agenda) and the activities planned for the following day. On subsequent days, the enumerator called in the evening, again to collect data on the actual activities undertaken during the day and the planned schedule for the next day.[6] On the last day of the data collection, the analysts also interviewed the CEO to validate the activity data (if collected through his PA) and to collect information on the characteristics of the CEO and of the firm, including firm ownership and organizational structure.

1.1.1 Sampling frame. The survey covers CEOs in six of the world's ten largest economies: Brazil, France, Germany, India, the United Kingdom, and the United States. For comparability, we focus on established market economies and opt for a balance between high- and middle-low-income countries. The sampling frame was drawn from ORBIS, an extensive commercial data set produced by the company Bureau Van Dijk that contains company accounts for more than 200 million companies around the world. To maintain comparability of performance data, we restricted the sample to manufacturing firms. We then selected firms with available sales and employment data.[7] This yielded a sample

[5] The survey tool can be found online at www.executivetimeuse.org.

[6] For 70% of the CEOs in our sample, the work week consisted of 5 days. The remaining 30% of the CEOs also reported to work during the weekend (21% for 6 days and 9% for 7 days). Analysts were instructed to call the CEO after the weekend to retrieve data on Saturdays and Sundays.

[7] We went from a random sample of 11,500 firms to 6,527 eligible ones after screening for firms for which we were able to find CEO contact details and were still active. Among this set, 1,009 were located in Brazil; 896 in Germany; 762 in France; 1,429 in India; 1,058 in the United Kingdom; and 1,372 in the United States. The lower

of 6,527 firms in 32 2-digit SIC code industries that we randomly assigned to different analysts to call to seek the CEOs' participation.

We were able to interview 1,131 CEOs, with a response rate of 17%. This figure is at the higher end of response rates for CEO surveys, which typically range between 9% and 16% (Graham, Harvey, and Puri 2015). Of the interviewed CEOs, 17 were later dropped from the sample because of low data quality (typically because the time use data covered fewer than 4 days of the week). Our final sample thus comprises 1,114 CEOs, of which there are 282 in Brazil, 115 in France, 125 in Germany, 356 in India, 87 in the United Kingdom, and 149 in the United States.

The selection analysis in Table A1 in the appendix shows that respondents have on average lower log sales (coefficient = −0.071; SE = 0.011). However, we do not find any significant selection effect on performance variables, such as sales over employees and return on capital employed (ROCE).

1.1.2 Measurement concerns. Two measurement concerns are of note. First, we were able to measure only those activities that the CEO is willing to report. The sign of the bias this creates is ambiguous. CEOs might indeed be prone to overestimate the hours they work, for example, by coding time spent in personal activities as work. At the same time, we will not pick up activities that take place out of business hours unless they are recorded in the CEO diary. To the extent that the CEO labor supply data are estimated with error, this would create attenuation bias on the estimates.

Second, a week of detailed activity data might not be enough to capture typical CEO behavior. The allocation of time across activities might just be a reflection of high-frequency shocks to the marginal cost or marginal product of time across CEOs. If so, the time use data would capture the relevance of these shocks, rather than explicit managerial choices. If this were true, however, we would expect little similarity in the way time is allocated within the week by the same CEO (i.e., we would not see any within week autocorrelation in CEO time use). In contrast, we find a high degree of autocorrelation in the average number of hours worked during the week by the CEOs. A simple regression of the number of log(hours worked) on day t on the same variable measured on day $t-1$ delivers a coefficient of .40, statistically significant at the 1% level. In addition, CEO fixed effects explain 25% of the variance observed in the daily time use data.

Finally, at the end of the survey week, we ask CEOs to rank whether the week is considered "representative" of their usual work activity on a scale 1–10. Reassuringly, we observe substantial heterogeneity in hours worked even if we restrict the sample to the 63% of CEOs who score the survey week as

number of firms screened in France and Germany is because the screening had to be done by native language RAs based in Boston, of which we could only hire one for each country. The sample construction is described in detail in the appendix.

highly representative (i.e., a score of 8, 9, or 10 out of 10). This is at odds with the hypothesis that all observed variation is due to transitory shocks rather than actual differences in behavior.

1.2 Ownership

In our sample, 57% of the firms are owned by a family, 23% by disperse shareholders, 9% by private individuals, and 7% by private equity.[8] Family CEOs are CEOs who belong to the family that owns the firm, and account for 41% of the sample. Of these, 329 (30% of the sample) are descendants of the original founders, and 126 (11%) are the founders themselves.[9] Detailed information about family ownership, which we were able to collect for a subsample of firms,[10] shows that the family firms in our sample tend to have a very concentrated ownership structure: families own on average 64% of the shares (66% at the median), and in 70% of the firms, the family owns more than 50% of the shares.

Professional CEOs are CEOs who have no family bond with the owners of the firm. These account for 59% of the sample. Just over a quarter of them (16% of the sample) manage firms owned by a family. Later, this will allow us to separate the effect of family ownership from the effect of family CEOs.[11] Forty-three percent of the firms are listed on the stock market.

1.3 Basic summary statistics of CEOs at work

Figure 1 shows the distribution of hours worked during the week using the diary method, namely the sum of the duration of all the activities the CEO undertakes while at work. The average CEO in our sample spends 52 hours per week (10.4 hours per day) at work, whereas a CEO in the bottom quartile works on average 44.2 hours per week and a CEO in the top quartile works on average 58.5 hours per week.

Figure 2 compares the diary measure with a recall measure that we obtained by asking CEOs to estimate the number of hours worked at the end of the week.[12] Three points are of note. First, the distribution of the recall measure

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[8] The classification assigns ownership to the largest shareholder with at least 25.01% of the shares. We classify a firm as being owned by dispersed shareholders if no single entity, family or person owns at least 25.01% of the shares.

[9] In the robustness checks, we investigate whether the main results vary between founders and descendants CEOs and find them to follow a very similar behavior.

[10] We gathered detailed ownership data for 324 of the total sample of 493 firms owned by a family or a founder. The 169 firms for which this data could not be retrieved are primarily (116) private firms located in Brazil, for which the detailed ownership information could not be found neither in Orbis nor via manual Web searches. The remaining firms are located in France (3), Germany (5), India (38), the United Kingdom (2), and the United States (5).

[11] The shares owned by the family are significantly higher (70% vs. 62%, difference significant at the 1% level) when the firm is family owned, but run by a professional CEO. Further details on our ownership measures are provided in the appendix.

[12] The sample included in this analysis excludes India since we did not collect recall time use in the first wave of the survey.

Figure 1
CEO weekly hours worked, diary measure
The graph shows the histogram of total weekly hours worked (built from actual diary data) by a sample of 1,114 CEOs.

exhibits considerable bunching at round numbers, for example, 26% of the sample CEOs report working 50 hours, while the diary measure shown in Figure 1 exhibits no bunching, that is, no more than 1.5% of the sample take the same value. Second, the diary and the recall measures are positively correlated, but the correlation is well below 1. Regressing the recall measure on the diary measure yields a coefficient of .50, significantly different from 1 with p-value equal to .00. Third, the recall measure is larger than the diary measure for half of the CEOs whose diary measure is below the mean, but only for 16% of the CEOs whose diary measure is above the mean. Thus, the noise in the recall measure is not orthogonal to the actual hours recorded in the diary. CEOs who work fewer hours are equally likely to over- or underestimate their hours worked, whereas those who work longer hours tend to underestimate it. Taken together, these comparisons suggest that the bottom up estimate of CEO labor supply employed in the remainder of the paper is likely to provide more meaningful and objective information on CEO hours worked than more commonly used recall measures of labor supply.[13]

[13] Robinson et al. (2011) discusses the impact of recollection biases in recall methods relative to the time-diary method. This notwithstanding, the diary method may still fail to capture some activities or still allow respondents to overestimate the time they devote to other activities, so that the hours of work recorded in our survey should be seen as a proxy of actual work hours. See Aguiar, Hurst, Karabarbounis (2012) for a comprehensive review of the growing literature in the economics of time use.

Figure 2
CEO weekly hours worked, diary and recall measure
The graph shows the linear regression of total weekly hours worked (CEO estimates recorded at the end of the data collection week) and actual hours worked (built from diary data) for a sample of 758 CEOs (all CEOs in sample excluding India, where the recall question was not asked).

Table A3 shows that total weekly hours worked are similar across countries and above 50 hours per week on average (or above 9.8 hours a day) across all countries, except India, where the average number of hours worked across all CEOs is significantly lower (46 weekly hours, or 8.8 hours a day). Overall, country fixed effects are jointly significant at the 1% level and account for about 14% of the variation in total hours worked observed in the data. In contrast, industry fixed effects—while being jointly significant at the 1% level—account for only 3% of the overall cross-sectional variation in total hours worked. In the main analysis, we primarily rely on within-country, within-industry comparisons of CEO hours worked across different governance types.

2. The Labor Supply of CEOs: Family versus Professional CEOs

2.1 Differences in hours worked

Figure 3 plots the distribution of weekly hours worked by family and professional CEOs as they appear in the raw data. The heterogeneity in hours worked across both types of CEOs is wide, but the distribution of hours worked by family CEOs is entirely shifted to the left relative to professional CEOs. This is the main stylized fact documented in this paper.

Table 1 provides some additional summary statistics to better qualify the nature of this difference. The first and second rows report the recall and diary measures of hours worked described earlier. By both measures family CEOs

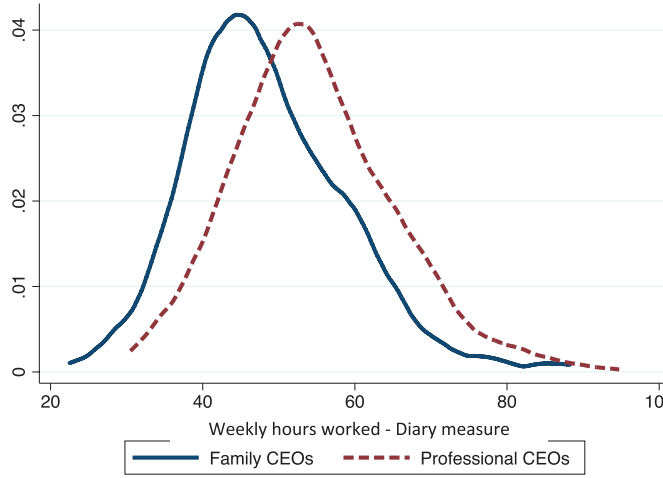

Figure 3
CEO hours worked: differences between family and professional CEOs in the raw data
The graph shows the kernel distribution of total weekly hours worked (built from actual diary data) by a sample of 1,114 CEOs, of which 458 classified as *Family CEOs* and 656 classified as *Professional CEOs.*

work fewer hours, but importantly the difference is much larger (6.2 vs. 3.6 hours) when we use the diary measure, as family CEOs tend to overestimate their time at work while professional CEOs underestimate it.[14]

The difference remains stable (6.8 hours) when we only count work activities (i.e., we drop travel time and personal time) that last longer than 15 minutes. The difference between governance types is due to two factors. Family CEOs start working later in the morning—at 9:16 a.m. versus 8:31 a.m. for professional managers—and devote a larger share of time to personal activities during business hours (12.3% vs. 8.6%).

2.2 Hours worked and firm performance

The data show a large statistically significant difference in hours worked across CEOs, but is this difference interesting from an economic perspective? To provide some evidence for this point, we examine three related issues. First, are there performance differences between family and professional CEOs? Second, do CEO hours worked correlate with firm performance? And, third, to what extent do differences in CEO hours worked account for the performance gap between family and professional CEOs?

[14] Note that the recall measure is more prone to be biased by systematic misreporting (Robinson et al. 2011). Therefore, this finding allays the possible concern that the difference in hours worked between family and professional CEOs may be driven by professional CEOs intentionally overstating their effort at work.

Table 1
Differences in time use between family and professional CEOs

Summary Statistics

CEO use of time	(1) All	(2) Family CEOs	(3) Professional CEOs	(4) Difference (3)-(2) (t-statistic)
Total weekly hours worked - Recall measure	51.719	49.147	52.749	3.602***
	(10.105)	(10.727)	(9.665)	(4.46)
Total weekly hours worked - Diary measure	52.009	48.378	54.543	6.165***
	(11.026)	(10.504)	(10.674)	(9.55)
Total weekly hours worked excluding activities <15 min, personal & travel	41.439	37.415	44.249	6.834***
	(10.035)	(9.740)	(9.258)	(11.87)
Number of days at work	5.356	5.303	5.393	0.0898*
	(0.695)	(0.639)	(0.729)	(2.13)
Beginning of work day (hour)	8.826	9.260	8.524	−0.736***
	(1.161)	(1.213)	(1.019)	(−10.96)
End of work day (hour)	18.270	18.239	18.291	0.0511
	(1.566)	(1.383)	(1.682)	(0.54)
Share of time spent in personal activities	0.101	0.123	0.086	−0.0379***
	(0.099)	(0.113)	(0.084)	(−6.42)
Number of observations	1,114	458	656	

The table shows summary statistics (means, standard deviation in parentheses in Columns 1–3; differences and *t*-statistic in parentheses in Column 4) of time use for the sample CEOs. Family CEOs are those who own the firm or belong to the family that owns the firm. All variables were collected in the CEO time use survey.

To examine these questions, we match the CEO survey data with firm-level accounting data extracted from the Bureau Van Dijk's ORBIS database. This database provides digitized and comparable company accounts covering very large samples of private and publicly listed firms.[15] We start by considering firm productivity as a proxy for firm performance (Syverson 2011) and estimate by ordinary least squares (OLS) a basic production function of the form:

$$y_{it} = \alpha^F Fam + \alpha^l l_{it} + \alpha^k k_{it} + \alpha^h h_i + \gamma' Z_{it} + u_{it}, \quad (1)$$

where y_{it} are sales, l_{it} is labor, k_{it} capital of firm i at time t and lower case letters denote natural logarithms. CEO log hours worked are denoted by h_i.

We restrict the analysis to the years in which the manager we interviewed had the role of CEO, and, for each firm, we keep the three most recent years prior to the survey year to avoid selection on CEOs with longer tenure.[16] We include year and country by industry (at the 2-digit SIC code level) dummies throughout, as well as a set of interview noise controls to control

[15] See the appendix for details.

[16] This approach does not condition on the CEO being present for all 3 cross-section years to avoid selection on CEO longevity. Instead, we include a firm even if we can only observe performance data only for one of the three cross-sections, such that we can potentially include also CEOs that have been recently appointed. In the largest sample (Table 2, Columns 1 and 2), we work with and unbalanced panel with 617 firms, each observed for at most 3 years, for a total of 1,415 firm*year observations. Of these 617 firms, 151 have only one cross-section of data, 134 have two cross-sections, and 332 have three cross-sections. We obtain similar results if, instead of working with repeated cross-sections and clustering at the firm level, we use one cross-section per firm (either the year with the most recent accounting data relative to the survey or a simple average across the most recent 3 years of data). Results are available on request.

for measurement error in the time use variables,[17] and cluster the standard errors by firm throughout the table.

The results of this analysis are shown in Table 2. Column 1 shows that firms run by family CEOs in our sample are on average less productive than those run by professional CEOs. The difference in log sales controlling for employment and capital between firms run by family CEOs and those run by professional managers is −0.190 log points (SE = 0.071), which translates in a 20% productivity gap with firms run by professional CEOs.[18] The coefficient on capital and employment are both precisely estimated and within the expected range of magnitude (SE = 0.336, SE = 0.031 for capital, and 0.555, SE = 0.041 for labor).

Column 2 shows that hours worked by the CEO are correlated with performance. The association between hours worked and productivity is positive and precisely estimated: a 10% change in weekly hours worked is associated with a 3.3% increase in productivity.[19] Furthermore, the inclusion of CEO hours worked reduces the coefficient on the family CEO dummy by 18%, suggesting that the difference in hours worked account for almost a fifth of the productivity gap. We repeat the exercise using the Olley and Pakes (1996) estimator of productivity in Columns 3 and 4, finding consistent results: firms run by family CEO are on average less productive than firms run by professional CEO, differences in CEO hours worked are positively associated with productivity, and account for about 20% of the productivity gap between family and professional CEO firms.

Columns 5 to 8 reveal a similar pattern when we use profits per employee and ROA as metrics of firm profitability, and Tobin's q in Columns 9 and 10, which is available for the subset of listed firms in the sample. In Table A4

[17] The noise controls include: a dummy to denote if the time use data was recorded by the PA; 55 interviewer dummies; a dummy to denote CEOs who formally report to an executive Chairman; 29 interview week dummy; a self-reported score given by the CEO to rank the representativeness of the week and a dummy to denote weeks with a national or religious holiday. As expected, these controls improve the precision of the estimates of the coefficient on CEO hours worked, but the results are robust to their exclusion. To the extent that our measures reflect time use shocks that hit in that particular week or biases in reporting time use that are orthogonal to yearly firm outcomes, the estimated coefficient on CEO hours worked will be biased towards zero.

[18] This result is in line with previous research on family run firms by Morck, Shleifer, and Vishny (1988), Smith and Amoako-Adu (1999), Pérez-González (2006), Bennedsen et al. (2007), and Anderson and Reeb (2003), in contrast, report that public firms with a large block held by an individual or family on average are assigned higher values by public shareholders. However, the positive effect of family ownership documented in Anderson and Reeb (2003) tapers off from shares of family ownership of 30% and above, and turns negative at about 60%. Since, as discussed earlier, the share of family ownership in the family firms in our sample is very high (66% at the median), the two sets of results are in fact consistent with each other. Our results differ, to some extent, from those of Villalonga and Amit (2006), in that we find a negative correlation between firm performance and family control even when the CEO is a founder (in Villalonga and Amit (2006), the negative effect of family CEOs emerged only for second-generation CEOs and onward). A possible reason for this discrepancy is because our sample includes a large fraction of private firms in six countries, whereas Villalonga and Amit (2006) focus on listed U.S. firms only.

[19] For comparison, a one-standard-deviation change in capital would be associated with a 46% increase in productivity, while a standard deviation change in log CEO hours worked would result in an increase by 8%.

Table 2
CEO hours worked and firm performance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variable	**log(sales)**		**Olley-Pakes TFP residual**		**Profits per employee**		**ROA**		**Tobin's q**	
Family CEO	−0.190***	−0.155**	−0.257***	−0.203***	−2.565**	−2.039	−0.202**	−0.149*	−0.373**	−0.332**
	(0.071)	(0.074)	(0.073)	(0.077)	(1.235)	(1.269)	(0.084)	(0.077)	(0.152)	(0.155)
log(Hours worked)		0.338**		0.584***		4.682*		0.481***		0.517*
		(0.140)		(0.183)		(2.467)		(0.169)		(0.303)
log(Employment)	0.555***	0.549***			−0.432	−0.562			0.247***	0.237***
	(0.041)	(0.041)			(0.452)	(0.466)			(0.072)	(0.070)
log(Capital)	0.336***	0.333***					−0.092***	−0.102***	−0.093**	−0.096**
	(0.031)	(0.031)					(0.021)	(0.022)	(0.044)	(0.043)
Observations	1,415	1,415	1,383	1,383	1,722	1,722	1,649	1,649	856	856
Number of firms	617	617	603	603	720	720	702	702	313	313

* significant at 10%; ** significant at 5%; *** significant at 1%. All columns are estimated by OLS (standard errors under coefficient clustered by firm). The variable *CEO hours worked* is the log of the total hours the CEO devoted to work activities lasting more than 15 minutes (excluding travel) during the survey week. The dependent variable in Columns 1 and 2 is log sales; in Columns 3 and 4, the Olley-Pakes (1996) estimator of productivity; in Columns 5 and 6, profits per employee; in Columns 7 and 8, ROA (profits divided by assets); and in Columns 9 and 10, Tobin's q. Accounting data run between 2007 and 2013. Each column includes a full set of country by 2-digit SIC codes and year dummies. We include only years in which the CEO was in office in all columns, and allow for a maximum of 3 years of accounts for each firm (the 3 most recent years with nonmissing data in ORBIS). All columns include the following noise controls: a dummy to denote cases in which the time use data were recorded by the CEO's Personal Assistant; 55 interviewer dummies; a dummy to denote CEOs who formally report to an executive Chairman; 29 interview week dummy; a self-reported score given by the CEO to rank the representativeness of the week; and a dummy to denote weeks with a national or religious holiday.

(see the appendix), we report similar results using inputs rather than outputs as dependent variables (log investments and log average wages).

Overall, these findings show the presence of a significant relationship between the CEO owning the firm or being part of the family that owns the firm, working fewer hours, and worse firm performance. The evidence of a positive correlation between CEO effort and firm performance is, to the best of our knowledge, novel.[20] The vast literature on the CEO agency problem initiated by Jensen and Meckling (1976) is consistent with many interpretations of CEO effort, such as refraining from empire building or from consuming on-the-job perks. The presence of a strong correlation between hours worked and firm performance suggests that a literal interpretation of effort as being present at work may have explanatory power as well.[21] Our findings are also consistent with the idea that differences in hours worked between family and professional CEOs may be one of the causal factors behind the performance differences between family and professional CEO firms. Unfortunately, however, the direction of causality behind these relationships cannot be pinned down using cross-sectional data. For example, CEO hours worked may have no direct effect of firm performance, but more productive firms might demand more CEO effort, or unobservably more productive firms may be more likely to hire CEOs who happen to work longer hours.[22]

In what follows, we completely abstract from the challenge of estimating the causal effect of CEO effort on firm performance. Instead, we focus on a more specific question: taking it as a given that the variation in CEO effort will to

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[20] Pencavel (2014) examines the correlation between hours of work and productivity among munition workers.

[21] This is in line with Malmendier and Tate (2009) finding that CEOs who receive business awards are more likely to devote time to outside activities.

[22] Note that unobserved heterogeneity across firms may also affect the estimation of the coefficient α^F in Equation (1) (i.e., the coefficient on the family CEO dummy). Bennedsen et al. (2007), for example, show that correcting for the endogeneity and omitted variable concerns in the choice of a family CEO leads to a large reduction in the α^F coefficient, that is, the appointment of a family CEO is more likely when unobserved firm performance is expected to improve. Extrapolating their results to our sample, this would imply that the OLS coefficient on α^F shown in Table 2 may be upward biased. While this hypothesis is certainly plausible, three pieces of evidence alleviate the endogeneity concerns about α^F in our sample. First, the magnitude of the productivity gap between family and professional CEOs estimated with OLS is very similar to the one obtained using the Olley Pakes estimator of productivity, which takes into consideration endogeneity biases in the production function estimation. Second, we are able to observe firm performance before the CEO was appointed (363 firms), and, in this subsample, we do not find evidence of differential pre-appointment trends in performance between family and professional CEOs, even when focusing on professional CEOs replacing a family CEO (see Table A5 in the appendix). Third, if unobserved productivity was positively correlated with CEO hours, its inclusion as an additional regressor in Equation (1) would lead to a further decrease in the α^F coefficient, which is opposite to what we observe in Table 2. On a related note, we also considered whether the reduction of the coefficient α^F when CEO hours worked are included in the production function could be driven by systematic differences in reporting biases between family and professional CEOs. Two pieces of evidence, however, suggest that mismeasurement does not systematically vary across governance types. First, the correlation between actual and self-reported hours is not statistically different across governance types (the coefficient on the regression of log perceived hours worked on log actual hours worked is 0.54 (se 0.07) for family CEOs and 0.49 (se 0.04) for professional CEOs, and the difference is not significant). Second, we examined whether family and professional CEOs varied in terms of the representativeness of the week chosen for the data collection using a self-reported measure that we collect from the CEO when reviewing the data. This variable is also not statistically different across family and professional CEOs.

some extent reflect firm specific characteristics, including differences in firm performance, is there any role left for individual CEO preferences in explaining the difference in hours worked across CEOs? In particular, is it possible that family CEOs may have a different preference for leisure relative to professional CEOs? In the next section, we present a simple model to guide the empirical investigation of these questions.

3. A Simple Model of CEO Labor Supply

The model contains two main elements: a production function that depends on CEO work time, as mediated by (a) the characteristics of the CEO and the firm and (b) CEO preferences. Time allocated to an activity is taken as a proxy for CEO attention, which like in Geanakoplos and Milgrom (1991) is akin to a factor of production and matches the empirical model in Equation (1).

Starting with technology, the performance of a firm is given by

$$y_{gs} = \overline{y}_{gs} + \left(a_g + b_s\right) h_{gs} - \frac{1}{2} h_{gs}^2, \tag{2}$$

where $g \in \{F, P\}$ indicate the CEO—family or professional—and $s \in \{L, H\}$ denotes a binary state of the world, to be discussed later. Firm performance, y_{gs}, depends on the number of hours that the CEO works, h_{gs}. The marginal effect of a CEO hour depends on his type (a_g), and the state of the world (b_s). The negative quadratic term captures the idea that the marginal return of CEO time is decreasing. Firm performance may also depend directly on the CEO type and on the state of the world through $\overline{y}_{gs}$.

The only restriction that our formulation imposes, by having additive a_g and b_s rather than a generic a_{gs}, is that the identity of the CEO does not directly interact with the state of the world in determining the marginal effect of CEO time on performance. In the model, we do not take a stand on whether performance is innately higher or lower in firms run by family CEOs or professional CEOs: $\overline{y}_{Fs}$ can be greater or smaller than $\overline{y}_{Ps}$. We also remain agnostic about whether the return to CEO time is higher or lower for family, compared to professional, CEOs: a_F can be larger or smaller than a_P. For example, the marginal productivity of a professional CEO might be different from that of a family CEO because the family CEO can more easily delegate to other family members who are more likely to work for the firm.

CEO utility depends on the performance of the firm and on the cost of spending time at work:

$$u_{gs} = c_g y - d_s h_{gs},$$

where c_g represents the relative weight of firm performance and work hours in the preference of a CEO of type g;[23] and d_s captures the possibility that the cost

[23] Differences in c_g may be innate to the CEO or compensation related. For example, different governance types may be associated with differences in performance-related pay.

of effort, or the opportunity cost of leisure, depends on the state of the world common across all CEOs.[24]

In this simple setup, given technology and preferences, the number of hours maximizing CEO payoff is derived as

$$h^*_{gs} = a_g + b_s - \frac{d_s}{c_g}. \tag{3}$$

Equation (3) illustrates the primary identification challenge we face in a cross-sectional setting, which we briefly discussed in Section 3.2. Namely, differences between the hours worked by family and professional CEOs can be due to either differences in firm or CEO characteristics that vary across governance types and determine the marginal product of CEO's hours (a_g) or differences in the relative weight the CEO assigns to firm performance (c_g).

The model, however, also provides a key insight that can be used to identify at least the sign of the difference between c_F and c_P. More specifically, factors that affect the opportunity cost of leisure/marginal cost of effort d_s to the same extent for both CEO types can be used to identify differences in managerial preferences (i.e., whether c_g effectively differs across CEOs). To see this, suppose that the cost of effort is higher (or the opportunity cost of leisure lower) in state H than in state L ($d_H > d_L$). In this case, we can show that, even if a change in the state of the world may affect the marginal productivity of CEO work through b_s, the sign of the difference-in-differences depends on the preference parameter c_g only.

Proposition 1. The difference-in-differences in hours worked over CEO type and state of the world has the same sign as the difference in the preference parameter of family CEOs and professional CEOs. Formally, if $d_H > d_L$, then $h^*_{PH} - h^*_{FH} > h^*_{PL} - h^*_{FL}$ if and only if $c_P > c_F$.[25]

Intuitively, if preferences are the same across CEOs, and the difference between family and professional CEOs is solely driven by the marginal product of CEO time a_g, an increase in the marginal cost of effort d_s that affects both types equally should make both types reduce hours worked *to the same extent*, leaving their difference constant. By the same logic, if the difference in hours worked across CEOs instead increases with d_s, this is consistent with the

[24] The utility function can be rewritten as $u_{gs} = \frac{c_g}{d_s} y - h_{gs}$. Therefore, the parameter d_s captures differences in the trade-off between firm performance and leisure.

[25] Proof. Given the optimal h and the assumption that $d_H > d_L$,

$$sign\left[h^*_{FL} - h^*_{FH} - \left(h^*_{NL} h^*_{NH}\right)\right] = sign\left[\frac{d_H}{c_F}\frac{d_L}{c_F} - \frac{d_H}{c_N} + \frac{d_L}{c_N}\right]$$
$$= sign\left[-\left(\frac{1}{c_N}\frac{1}{c_F}\right)(d_H - d_L)\right] = sign[c_N c_F]$$

idea that family CEOs have a stronger preference for leisure relative to firm performance.

We take this approach to the data in the next section.

4. Why Do Family CEOs Work Less than Professional Managers?

4.1 Firm, CEO, and industry characteristics

In line with earlier work (e.g., Pérez-González (2006)), family CEOs are different in other dimensions besides the amount of time they work. This is shown in Table 3, panels A, B, and C. Panel A shows that family and professional CEOs have similar demographics: the average CEO is 51 years old and 96% of CEOs are men. However, the share of family CEOs with a college degree and/or an MBA is significantly lower relative to professional managers (90% vs. 94% for a college degree, p-value $<.1$, and 43% vs. 63% for an MBA degree, p-value $<.01$). Family CEOs are also less likely to have worked abroad (39% vs. 54% , p-value $<.01$) and more likely to have longer tenure both as CEOs (16 vs. 7 years, p-value $<.01$) and in other positions with the same firm (23 vs. 13 years, p-value $<.01$).

Panel B shows that the average firm has 1,571 employees and that family CEOs manage smaller firms (1,037 vs. 1,945 employees, p value$>.1$). Twenty-four percent of the sample firms are part of foreign multinationals and are less likely to be managed by family CEOs (19% vs. 28%, p-value $<.01$). The organization of the firm also differs: family CEOs have fewer direct reports (7.4 vs. 8, p-value$<.05$) and are also less likely to have a COO (18% vs. 31%, p-value $<.01$), but they are much more likely to have their offsprings in executive positions within the firm (.24 sons and .10 daughters versus .005 and .006, p-values$<.01$).

Finally, panel C describes the external environment in which these firms operate. Fifty-seven percent of the sample firms are located in emerging economies (India or Brazil), with this number being higher for firms led by family CEOs (78% vs. 43%, p-value $<.01$). The sample firms are distributed across 32 different 2-digit SIC code sectors, the largest of which, SIC 28 (Chemicals and Allied Products), accounts for 13% of the firms. The distribution of family and professional CEOs are generally balanced across sectors. We reject the null that the sector dummies do not predict CEO type only for 4 out of the 32 sectors, three of which account for less than 2% of the sample each. Family and professional CEOs also face a similar level of product market competition, as measured by the Lerner index, which is defined as (1-profit/sales), calculated as the average across the entire population of firms in Orbis in the sample countries for the 5 years preceding the data collection, and is specific to the firm 3-digit SIC code industries Aghion et al. (2005). We obtain similar results when we use the degree of import penetration as a proxy for product market competition, measured as the share of total imports

Table 3
Family and professional CEOs: Differences in manager and firm characteristics

	(1)	(2)	(3)	(4)
A. CEO characteristics	**All**	**Family CEOs**	**Professional CEOs**	**Difference (3)-(2) (t-statistic)**
Age	50.930	50.562	51.187	0.625
	(8.458)	(9.738)	(7.425)	(1.21)
Male (=1 if CEO is male)	0.961	0.950	0.970	0.0197
	(0.193)	(0.219)	(0.172)	(1.68)
College degree (=1 if CEO has a college degree)	0.925	0.904	0.939	0.0351∗
	(0.264)	(0.295)	(0.239)	(2.19)
MBA (=1 if CEO has been awarded an MBA)	0.548	0.430	0.631	0.201∗∗∗
	(0.498)	(0.496)	(0.483)	(6.76)
Tenure as CEO (number of years)	10.298	15.586	6.602	−8.984∗∗∗
	(9.550)	(10.514)	(6.677)	(−17.40)
Tenure in firm (number of years)	17.116	22.862	13.119	−9.742∗∗∗
	(11.597)	(10.497)	(10.611)	(−15.11)
Experience abroad (=1 if CEO has had worked experience abroad)	0.482	0.393	0.544	0.151∗∗∗
	(0.500)	(0.489)	(0.498)	(5.02)
CEO holds positions in other firms (= 1 if CEO hold managerial positions in other firms)	0.418	0.456	0.392	−0.0646∗
	(0.494)	(0.499)	(0.489)	(−2.15)
B. Firm characteristics				
Domestic or foreign multinational (=1 if firm is owned by a foreign or domestic MNE)	0.242	0.188	0.280	0.0927∗∗∗
	(0.429)	(0.391)	(0.450)	(3.57)
Number of employees	1,571.05	1,036.58	1,945.43	908.9
	−10,127.43	−3,660.92	−12,837.27	(1.47)
Firm age	49.185	43.295	53.320	10.02∗∗∗
	(45.360)	(31.940)	(52.412)	(3.64)
Listed status	0.432	0.544	0.354	−0.190∗∗∗
	(0.496)	(0.499)	(0.478)	(−6.41)
Number of CEO direct reports	7.775	7.389	8.044	0.656∗∗
	(3.774)	(3.979)	(3.604)	(2.86)
COO (=1 if COO exists)	0.259	0.177	0.317	0.140∗∗∗
	(0.439)	(0.382)	(0.466)	(5.32)
Number of sons in management positions	0.103	0.245	0.005	−0.240∗∗∗
	(0.304)	(0.430)	(0.068)	(−14.04)
Number of daughters in management positions	0.043	0.096	0.006	−0.0900∗∗∗
	(0.203)	(0.295)	(0.078)	(−7.45)
Data collected through the CEO personal assistant	0.428	0.373	0.466	0.0931∗∗
	(0.495)	(0.484)	(0.499)	(3.10)
C. External environment				
Located in emerging economies (=1 if India or Brazil)	0.573	0.779	0.428	−0.351∗∗∗
	(0.495)	(0.415)	(0.495)	(−12.43)
Lerner index	1.227	1.225	1.229	0.00337
	(0.412)	(0.419)	(0.408)	(0.13)
Import penetration	0.614	0.638	0.597	−0.0406
	(0.566)	(0.623)	(0.523)	(−1.12)
Number of observations	1,114	458	656	

The table shows summary statistics (means and standard deviation in parentheses in Columns 1–3 and differences and *t*-statistic in parentheses in Column 4) of CEO characteristics and firm- and industry-level data for the sample CEOs. Family CEOs are those who own the firm or belong to the family that owns the firm. All variables in panels A and B were collected in the CEO time use survey. Import penetration = ln(import/production) in the firm ISIC REV3 industry, computed by averaging OECD STAN data relative to the 2006–2008 time period (last available year for all countries) across France, Germany, the United States, and the United Kingdom at the industry level. The Lerner index of competition equals (1-profit/sales) in the firm 3-digit SIC code industries computed like in Aghion et al. (2005) by averaging firm-level data in ORBIS relative to the 2008–2012 time period across Brazil, France, Germany, India, the United States, and the United Kingdom at the industry level.

relative to domestic production in the industry in which the firm operates also aggregated up at the industry level.[26]

To assess the relevance of these factors in accounting for the gap in hours worked between family and professional CEOs, we estimate an empirical version of Equation (3), that is,

$$h_{ijc} = \alpha^F Fam_i + C_i\beta + F_i\gamma + \delta_{jc} + \varepsilon_{ijc}, \quad (4)$$

where h_{ijc} is the log of total weekly hours worked by CEO i in industry j in country c, Fam_i equals 1 if firm i is owned by a family and the CEO belongs to the family, while $Fam_i = 0$ if firm i is led by a professional CEO regardless of ownership status, C, F are vectors of CEO and firm characteristics, δ_{jc} are industry by country fixed effects. We examine the extent to which the magnitude and the significance of the coefficient α^F is affected by the inclusion of these controls (robust standard errors are reported in parentheses under the coefficients).

The results are shown in Table 4. Column 1 shows that the unconditional difference between the hours worked of family and professional CEOs is 16% (0.18 log points). Column 2 shows that one-third of this difference is due to differences across countries, namely CEOs in emerging economies record fewer hours and family CEOs are more likely to be located there (more details on country differences are shown in Table A3). Adding a dummy for the CEO's country by 2-digit SIC code industries fixed effects reduces the difference from 16% to 11%.

Column 3 shows that older CEOs work fewer hours (coefficient on log CEO age is −0.165, significant at the 1% level), whereas proxies for CEO skills (college degree dummy, MBA dummy, and an indicator to denote CEOs with work experience abroad) are all positively but only weakly correlated with hours worked. The inclusion of these additional controls leaves the coefficient on the family CEO dummy unchanged.

In Column 4 we examine the association between industry and firm characteristics and CEO hours worked by including a set of variables likely to affect the magnitude and the complexity of CEO workload such as firm size (in terms of employees) and firm age and a dummy denoting firms that are either domestic or foreign multinationals to capture the possibility of extended working hours due to the necessity of managing across different time zones. Among these variables, only firm size is positively and significantly correlated with CEO hours worked. A 10% increase in firm size is associated with a 0.25% increase in CEO hours worked. [27] Overall, industry fixed effects and CEO and firm characteristics explain a small portion of the difference in hours worked

[26] See Section A.3 in the appendix for more information on the construction of the Lerner index and the import penetration variables.

[27] For a subsample of firms, we were able to build alternative measures of firm size based on accounting data using information of firm-level sales. We also investigated whether the differences in hours worked could be

Table 4
Differences in hours worked between family and professional CEOs controlling for CEO, industry, and firm characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent variable	**log(Hours worked)**						
Family CEO	−0.180***	−0.111***	−0.106***	−0.102***	−0.088***	−0.088***	−0.078***
	(0.015)	(0.018)	(0.020)	(0.019)	(0.020)	(0.020)	(0.021)
Family Ownership, External CEO							0.029
							(0.019)
CEO holds positions in other firms			0.022	0.016	0.018	0.014	0.014
			(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
log(CEO age)			−0.165***	−0.181***	−0.138***	−0.143***	−0.147***
			(0.043)	(0.043)	(0.045)	(0.045)	(0.045)
log(1+CEO tenure in firm)			−0.004	−0.007	−0.007	−0.006	−0.006
			(0.010)	(0.011)	(0.010)	(0.011)	(0.011)
CEO holds college degree			0.052	0.044	0.041	0.054*	0.053
			(0.032)	(0.033)	(0.033)	(0.033)	(0.033)
CEO holds MBA degree			0.011	0.006	0.007	0.006	0.006
			(0.018)	(0.018)	(0.017)	(0.018)	(0.018)
CEO has study/work experience abroad			0.016	0.006	0.004	−0.003	−0.002
			(0.016)	(0.016)	(0.016)	(0.017)	(0.016)
log(Employment)				0.025***	0.021***	0.024***	0.024***
				(0.007)	(0.007)	(0.007)	(0.007)
log(Firm age)				0.006	0.004	0.003	0.003
				(0.010)	(0.010)	(0.011)	(0.011)
MNE				0.029	0.024	0.033*	0.033*
				(0.020)	(0.020)	(0.019)	(0.019)
Listed				−0.033	−0.032	−0.009	−0.005
				(0.022)	(0.023)	(0.024)	(0.024)
Number of CEO direct reports					0.007***	0.006***	0.006***
					(0.002)	(0.002)	(0.002)
COO exists					−0.009	−0.018	−0.017
					(0.019)	(0.020)	(0.020)
Number of sons in management positions					−0.049**	−0.060***	−0.060***
					(0.022)	(0.021)	(0.021)
Number of daughters in management positions					0.004	−0.013	−0.013
					(0.029)	(0.029)	(0.029)
Data collected through the CEO personal assistant						−0.001	−0.000
						(0.017)	(0.017)
R-squared	0.118	0.212	0.229	0.245	0.256	0.347	0.348
Number of firms	1,114	1,114	1,114	1,114	1,114	1,114	1,114
Country*Industry dummies	n	y	y	y	y	y	y
Noise controls	n	n	n	n	n	y	y

* significant at 10%; ** significant at 5%; *** significant at 1%. All columns are estimated by OLS (robust standard errors in parentheses). The variable *CEO hours worked* is the log of the total hours the CEO devoted to work activities lasting more than 15 minutes (excluding travel) during the survey week. Family CEO=1 for those who own the firm or belong to the family that owns the firm, and 0 otherwise. Family Ownership, External CEO=1 for professional CEOs working in firms owned by a family, and 0 otherwise. Industry dummies are thirty-three 2-digit SIC codes. Noise controls include a dummy to denote if the time use data were recorded by the PA; 55 interviewer dummies; a dummy to denote CEOs who formally report to an executive Chairman; 29 interview week dummy; and a self-reported score given by the CEO to rank the representativeness of the week and a dummy to denote weeks with a national or religious holiday.

between family and professional CEOs, a difference that remains unchanged in magnitude even when these additional controls are included.

accounted for different growth rates, rather than levels, of sales. We found similar results, namely that the number of CEO hours worked is higher in larger firms, but this does not account for the differences between family and professional CEOs. CEO hours worked are positively but not significantly correlated with the growth rate of firm sales, and the inclusion of the variable does not affect the family CEO dummy (see Table A7 in the appendix for details).

Column 5 controls for firm organizational features, that is, the number of CEO direct reports; a dummy to denote the presence of a COO; and the number of sons and/or daughters employed in senior managerial positions. These variables are of particular interest for our purposes, since they systematically differ between firms managed by family and professional CEOs—as shown in Table 3—and may at the same time significantly shape overall the demands on CEO time.[28] Differences in organizational structure are indeed correlated with CEO hours worked. Namely, CEOs who have a larger number of direct reports work longer hours, while those whose sons hold senior management positions in the firm work fewer hours. Differences in organizational structure reduce the coefficient on family CEOs by 2 percentage points, but this remains economically and statistically significant.

Column 6 further probes the result to the inclusion of the set of interview noise controls included in the production function results in Table 2 to proxy for systematic differences in measurement error across CEO types. Reassuringly, the inclusion of these controls leaves the magnitude and the significance of the family CEO dummy unchanged. There is no correlation between the identity of the survey respondent (the PA or the CEO himself) and hours worked, which allays concerns that PAs have more limited information or that CEOs who choose to report their own time use overstate hours worked.[29]

Since 16% of the sample firms are owned by a family and managed by a professional CEO we can separately identify the effect of family CEOs from the effect of family ownership. Column 7 shows that professional CEOs working in firms owned by a founder or a family are statistically indistinguishable from other professional CEOs. This finding is important, as it suggests that the differences in hours worked between family and professional CEOs are not due to factors related to family ownership per se, but are tightly linked to the presence of a family-affiliated manager.

4.1.1 Robustness checks. Table A6 in the appendix shows a battery of robustness checks, including expressing CEO hours worked in levels, using a negative binomial regressions to take into account the count nature of the hours data, estimating the regression separately for developing (Brazil and India) and developed (France, Germany, U.K., and U.S.) economies and the first wave

[28] For example, the presence of other family members in top managerial positions may facilitate the distribution of CEO workload across a team of trusted managers (Bloom et al. 2013). These organizational decisions may clearly also be endogenous to CEO effort.

[29] The coefficient remains stable at .088 even if we include all the other noise controls but we remove the variable capturing the identity of the respondent. To address measurement issue concerns, we also replicated the analysis using a recall measure of hours worked, rather than the actual diary based measure. This is because, with significant reporting biases, we would expect the difference in hours worked between family and professional CEOs to be larger when using the recall measure, which is easier to manipulate. In contrast with this hypothesis, we find that the estimated difference in hours worked between family and professional CEOs is smaller when we use the recall measure. This is consistent with the fact that—as shown in Table 1—family CEOs are more likely to overstate hours worked relative to professional CEOs.

of the survey (which exclusively focused on India) and the second wave of the survey (in which all the other countries were covered). The magnitude of and the significance of the family CEO dummy are remarkably stable across methods and samples.

4.1.2 Founder CEOs. In the main analysis, first- and second-generation family CEOs are grouped together in the family CEO category. It is, however, possible, as shown in earlier research (e.g., Villalonga and Amit 2006), that founder CEOs (i.e., first-generation family CEOs) may be systematically more inclined to exert more effort on the job, due to a stronger attachment to the company or higher skills.

Therefore, in Appendix Tables A8 and A9, we explore whether the results vary when we consider first- and second-generation family CEOs separately, that is, founders separately from descendants. Table A8 shows that, unconditionally, founders work 1.3 fewer hours per week relative to professional CEOs, but they are also are older, less educated, have longer tenure and are mostly located in emerging economies. Once all observable characteristics are controlled for, Columns 5 and 6 in Table A9 show that both founder and descendant CEOs affiliated with the owning family work 9% fewer hours than professional CEOs.

The founder-managed firms in our sample are not start-ups (the average founder has been managing his firm for 22 years), but the finding that founder and descendant CEOs behave similarly is, to our knowledge, novel. This is in line with recent findings that both adopt worse managerial practices (Bloom and Van Reenen 2007) and that they share a similar business philosophy and firm governance (Mullins and Schoar 2016).

4.1.3 Summary. Taken together, the evidence presented so far does not support the idea that the firm or managerial characteristics affecting the marginal product of CEO time—a_g in the terminology of the model—are the sole drivers of the observed differences in hours worked across CEOs. First, the correlation between any of these variables and hours worked is an order of magnitude smaller than the effect of CEO type. Second, differences in CEO and firm observable characteristics, including family ownership, explain only about half of the difference in total hours between family and professional CEOs.[30]

The remaining gap in hours worked might be due to other unobservable differences specific to family firms, but only when managed by family CEOs, and/or differences in CEOsâŁ™ preferences. We attempt to disentangle these two potential sources of variation in Section 5.2.

[30] To see this, compare the coefficient on the family CEO dummy in Table 4, Column 1, with that in Column 7.

4.2 CEO preferences

4.2.1 Heterogeneity across firms. Proposition 1 of the model suggests that differences in managerial preferences across CEOs should result in differential responses with respect to variations in the opportunity cost of leisure common across across all CEOs. We investigate this idea by examining two factors that should affect the CEO opportunity cost of leisure: firm size and the level of competition the firm is exposed to.

In both cases, the intuition is straightforward. The opportunity cost of leisure is likely to be higher in larger firms because the CEO controls a larger volume of activity. Therefore, the marginal hour of leisure deprives more people of the input of the CEO, and each decision not taken during that hour has larger monetary value. This is akin to the "scale of operations" effect (Mayer 1960). Symmetrically, the opportunity cost of leisure is likely to be higher in more competitive settings, because the baseline probability of survival is lower, and CEO effort is more likely to be essential to keeping the firm in business. The marginal hour of leisure can be the difference between firm death and firm survival in competitive industries, whereas it has less dire consequences firms sheltered from competition.

Table 5 reports the estimates of

$$h_{ijc} = \alpha^F Fam_i + \beta Fam_i * X_{ij} + \gamma X_{ij} + C_i\varphi + F_i\phi + \delta_{jc} + \varepsilon_{ijc}, \quad (5)$$

where X_{ij} is a measure of firm i size, or a measure of competition in industry j, and all other variables are as defined above. Proposition 1 makes clear that, under the assumption that the opportunity cost of leisure is higher in larger firms and in more competitive industries, the difference in difference parameter β has the same sign as the difference in preferences between professional and family CEOs. Namely, $\beta > 0$ implies that, compared to family CEOs, professional CEOs put more weight on firm performance relative to leisure.

In Table 5 we use two measures of firm size—number of employees and revenues—and two measures of competition—the Lerner index and import penetration, where both are defined at the industry level (SIC 3 and ISIC Rev1, respectively). The estimates in Columns 1 to 4 reveal a consistent picture: when the opportunity cost of leisure is higher, the difference in hours worked between family and professional CEOs is smaller. The estimates of β are positive and statistically different from zero for all four measures, and the magnitudes are economically meaningful. The difference between family and professional CEOs is 12% (11%) in firms at the 10th percentile of the distribution of log employment (log sales) but only 4% (5%) in firms at the 90th percentile of the same distribution. Thus, family CEOs in large firms work almost as much as their professional counterparts, while those in small firms work significantly less. Likewise, the difference between family and professional CEOs is 10% in low competition industries at the 10th percentile of the Lerner (import penetration) index but only 5% in high competition industries at the 90th

Table 5
Firm size and competition

Dependent variable	(1)	(2)	(3)	(4)
	log(Hours worked)			
Family CEO	−0.298***	−0.292***	−0.167***	−0.123***
	(0.078)	(0.093)	(0.043)	(0.030)
log(Employment)	0.011	0.020**	0.024***	0.026***
	(0.008)	(0.009)	(0.007)	(0.006)
Family CEO*log(Employment)	0.034***			
	(0.012)			
log(Sales)		−0.001		
		(0.008)		
Family CEO*log(Sales)		0.021**		
		(0.009)		
Lerner index			0.028	
			(0.017)	
Family CEO*Lerner index			0.059**	
			(0.026)	
Family CEO*Import penetration (OECD)				0.044**
				(0.018)
R-squared	0.353	0.357	0.350	0.276
Number of firms	1,107	1,089	1,020	1,006
Country by industry dummies	y	y	n	n
Country dummies	n	n	y	y
Industry dummies	n	n	y	y
CEO characteristics	y	y	y	y
Firm characteristics	y	y	y	y
Noise controls	y	y	y	y

* significant at 10%; ** significant at 5%; *** significant at 1%. All columns are estimated by OLS. The variable *CEO hours worked* is the log of the total hours the CEO devoted to work activities lasting more than 15 minutes (excluding travel) during the survey week. Family CEO=1 for those who own the firm or belong to the family that owns the firm, and 0 otherwise. Lerner index of competition = (1-profit/sales) in the firm 3-digit SIC code industries computed, as in Aghion et al. (2005), by averaging firm-level data in ORBIS relative to the 2008-2012 time period across Brazil, France, Germany, India, the United States, and the United Kingdom at the industry level. Import penetration = ln(import/production) in the firm ISIC REV3 industry, computed by averaging OECD STAN data relative to the 2006–2008 time period (last available year for all countries) across France, Germany, the United States, and the United Kingdom at the industry level (the linear term is omitted as is perfectly collinear with 2-digit SIC code dummies, also included as controls). All columns include country and industry dummies, CEO and firm characteristics, and noise controls. Industry dummies are thirty-three 2-digit SIC codes. CEO characteristics is a dummy to denote CEOs holding a managerial or board position in another firm, the log of CEO age, the log of one plus number of years CEO has been employed in the firm, a dummy to denote CEOs holding a college degree, a dummy to denote CEOs holding an MBA or equivalent degree, a dummy to denote CEO that have worked or studied abroad. Firm characteristics are the log of one plus firm age, a dummy to denote foreign or domestic multinationals, the number of people reporting directly to the CEO, a dummy to denote whether the firm employs a COO, the number of CEO's sons and daughters holding a managerial position in the same firm. Noise controls include a dummy to denote cases in which the time use data were recorded by the CEO's Personal Assistant; 55 interviewer dummies; a dummy to denote CEOs who formally report to an executive Chairman; 29 interview week dummy; a self-reported score given by the CEO to rank the representativeness of the week and a dummy to denote weeks with a national or religious holiday. Robust standard errors are provided in Columns 1 and 2. Standard errors are clustered at the 3-digit SIC code level in Column 3 and at the ISIC REV3 industry level in Column 4.

percentile. These magnitudes are almost identical when we consider import penetration as an alternative proxy for competition.

In light of Proposition 1, the estimates with respect to size and competition are consistent with a scenario in which family CEOs put lower weight on firm performance relative to leisure, that is $c_P > c_F$. However, an observationally equivalent explanation is that there is a distribution of preferences for leisure among family CEOs, and variation in the opportunity cost of leisure at the firm

or industry level determines sorting, so that leisure-loving family CEOs are only found in small firms and low-competition industries. In this case, leisure-loving family CEOs drop out rather than working longer hours, although note that differences in preferences still explain differences in hours worked. The next subsection exploits variation in the cost of effort across days to shed light on whether family and professional CEOs adjust their hours differently in response to exogenous shocks.

4.2.2 Heterogeneity across days. For the two largest of our sample countries—India and Brazil—we are able to exploit shocks affecting the cost of CEO effort *during* our sample week. In these two countries, the data collection period coincided with intense rainfall days (especially in India, in which it overlapped with the onset and early development of the monsoon rainfall season) and with popular sports tournaments (cricket in India and soccer in Brazil). These events affect the cost of effort on some days but not on others and, crucially, affect both family and nonfamily CEOs in the sample. These features of the shocks provide enough variation to identify whether CEOs display a differential reaction to the same exogenous shocks.

Extreme rainfall disrupts local transportation in urban areas (where most of the CEOs in our sample are located), adding delays and inconveniences that increase the cost of effort. We obtain rainfall data for all the major weather stations in India and Brazil for the period in which the data were collected, as well as for previous months. We classify a day as having extreme rain if its deviation from the driest month in the year preceding the survey (May 2011 in India and July 2012 in Brazil) falls in the upper one-third of the station-level distribution of the same variable. By this measure, 403 of 597 CEOs (or 67% of the sample) experience extreme rain at least once during the survey week.[31]

The second quasi-natural experiment we exploit important sports events, cricket in India and soccer in Brazil. These sports are extremely popular in these countries, and the cost of effort is likely to be higher during a match for an average individual, including CEOs. For this test, we take advantage of the fact that our data collection partially overlapped with key events: the playoffs, semifinals, and finals of a major cricket tournament, the Indian Premier League (IPL), in India; and popular soccer matches played by top teams in the 2013 State Football League in Brazil.[32] For both countries, we collect data on the timing of these matches and classify a day to have a sport event if one is scheduled on the day. Since only 100 CEOs across the two countries are exposed to at least one match during the survey week, this test will inherently have less power than the earlier test to identify CEOs' responses.

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[31] See the appendix for details on the construction of the rain shock variable.

[32] In Brazil, since the data collection did not overlap with finals or semifinals we focus on matches played by the top 30 teams (as measured by fanbase size). See the appendix for details.

Table 6
Response to rain and sport events

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	**log(1+ Hours worked) - Day level**				**log(1+ Hours worked) - Day level - Game hours only**			
Sample	**India**	**India**	**Brazil**	**Brazil**	**India**	**India**	**Brazil**	**Brazil**
Family CEO	−0.089***	−0.060*	−0.067**	−0.051*	−0.052	−0.045	−0.033	−0.012
	(0.029)	(0.036)	(0.027)	(0.029)	(0.036)	(0.036)	(0.042)	(0.044)
Rain	−0.017	0.028	0.007	0.034				
	(0.023)	(0.024)	(0.024)	(0.026)				
Rain*Family CEO		−0.066**		−0.071*				
		(0.030)		(0.041)				
Sport event					−0.059	0.028	−0.114	−0.003
					(0.064)	(0.080)	(0.118)	(0.097)
Sport event*Family CEO						−0.141**		−0.276**
						(0.063)		(0.133)
R-squared	0.163	0.165	0.406	0.407	0.120	0.121	0.268	0.272
Observations	1640	1640	1380	1380	1640	1640	1380	1380
Number of firms	317	317	280	280	317	317	280	280

* significant at 10%; ** significant at 5%; *** significant at 1%. This table is based on day level data collected from CEOs in Brazil and India. All columns estimated by OLS. Standard errors under coefficient are clustered by firm and date in all columns. The dependent variable in Columns 1–4 is the log of 1 plus the total hours the CEO devoted to work activities lasting more than 15 minutes (excluding travel) during the survey day. The dependent variable in Columns 5–8 is the log of 1 plus the total hours the CEO devoted to work activities lasting more than 15 minutes (excluding travel) during hours potentially affected by the sport event (1 p.m.–7 p.m. in India and 3 p.m.–9 p.m. in Brazil). Family CEO=1 for those who own the firm or belong to the family that owns the firm, and 0 otherwise. *Rain* is a dummy denoting intense rainfall (relative to May in India and to July in Brazil) in the area and day where the CEO is located (data measured by the closest weather station, matched to the ZIP code of the CEO activities for the day). *Sport event* is a dummy denoting that an Indian Premier League playoff, semifinal or final game was played on the day for the India sample, and that a soccer match including at least one top Brazilian team was played on the day for the Brazil sample. Industry dummies are 2-digit SIC codes. Firm characteristics are the log of one plus firm age, a dummy to denote foreign or domestic multinationals, the number of people reporting directly to the CEO, a dummy to denote whether the firm employs a COO, the number of CEO?s sons and daughters holding a managerial position in the same firm. CEO characteristics are a dummy to denote CEOs holding a managerial or board position in another firm, the log of CEO age, the log of one plus number of years CEO has been employed in the firm, a dummy to denote CEOs holding a college degree, a dummy to denote CEOs holding an MBA or equivalent degree, a dummy to denote CEO that have worked or studied abroad. Noise controls include: a dummy to denote cases in which the time use data were recorded by the CEO's Personal Assistant; interviewer dummies; a dummy to denote CEOs who formally report to an executive Chairman; interview week dummies; a self-reported score given by the CEO to rank the representativeness of the week and a dummy to denote weeks with a national or religious holiday.

For this analysis, we use total hours of work at the daily level (since this is the frequency at which the shocks occur) to estimate the following specification:

$$h_{id} = \alpha^F Fam_i + \gamma X_d + \beta Fam_i * X_d + C_i \rho + F_i \varphi + S_i \delta + I_i \eta + \varepsilon_{id}, \qquad (6)$$

where h_{id} is one plus the log of daily hours worked by CEO i on day d, $Fam_i = 1$ if CEO i belongs to the owning family as defined above, $X_d = 1$ if day d has extreme rainfall in Columns 1–4 and a sport match in Columns 5–8 and C, F, S, I are vectors of CEO, firm, and industry characteristics as defined in Equation (4); standard errors are clustered at the firm and date level across all regressions. The coefficient of interest is β, the parameter measuring whether family and professional CEOs react differently to shocks increasing the marginal cost of effort.

The results of this estimation are shown in Table 6. Column 1 restricts the sample to Indian firms, and replicates our baseline specification controlling for

the extreme rain dummy. The difference in hours worked between family and professional CEOs is in line with earlier estimates (8%), while the coefficient on extreme rain is negative, but not significant. In Column 2 we include the interaction family CEO*rain. This shows that family CEOs reduce their hours on a rainy day significantly more than professional CEOs (coefficient = −0.066; SE = 0.030). Columns 3 and 4 show that also in Brazil family CEOs are much more likely to react to rain shocks relative to professional CEOs. The coefficient is also negative and significant at the 10% level, with a similar magnitude (coefficient = −0.071; SE = 0.041). The results are similar when we pool the sample across the two countries (see Column 1 in Table A10 in the appendix).[33]

According to the model, the differential reaction to common shocks identifies the sign of the difference in preferences if and only if the cost shock (rain) affects all CEOs equally regardless of firm governance. This assumption fails if factors correlated with firm governance type affect the effect of rain shocks on the marginal cost or the marginal product of CEO time, namely $cov(\varepsilon_{id}, Fam_i * Rain_d) \neq 0$. For example, firms run by family CEOs might have characteristics that make them more prone to be disrupted by rain (e.g., if they are more likely to have old machinery or bad maintenance processes). To test the robustness of the results to these factors, in Table A10 (see the appendix), we augment the specification with additional CEO and firms controls and interactions between rain and state, and between industry, CEO and firm characteristics. Reassuringly, the inclusion of these interactions does not generally affect the magnitude and precision of the difference in difference estimate allaying the concern that this captured unobservables at the firm day level.[34]

We turn to sport events in Columns 5 to 8. Since the sports events we consider are generally held in the evenings, we focus on the afternoon hours (after 1 p.m. in India and after 3 p.m. in Brazil), which we expect to be more affected by the shocks. Even in this case, family CEOs are more likely to reduce their hours in concomitance of sport events relative to days with no sport event, in both India and Brazil. This reduction is also larger relative to professional CEOs, who appear to be unaffected by the "shock." The β coefficients are −0.141 and −0.276, respectively, and both are significant at the 5% level. Table A11 (see the appendix) allows for a rich set of interactions between sport events and CEO, firm, industry and state characteristics. The magnitude of the β coefficient is generally stable across these more flexible specifications.[35]

[33] We checked in more detail whether this result was driven by professional CEOs increasing their hours during rainy days, rather than family CEOs reducing their hours. The results are entirely driven by family CEOs working fewer hours, while the number of hours that professional CEOs worked remained stable on a rainy day.

[34] Across the experiments, the β coefficient retains a similar magnitude but turns insignificant when we include the set of CEO characteristics interacted with the rain dummy.

[35] Similar to the rain regressions, across the experiments, the β coefficient retains a similar magnitude but turns insignificant when we include the set of CEO characteristics interacted with the rain dummy.

4.2.3 Mechanisms. Taken together, the results in this section are consistent with the idea that the leisure-performance trade-off differs between family and professional CEOs or, in the terminology of our model, $c_P > c_F$.

While our data does not allow us to fully investigate the reasons behind the heterogeneity in the preference for leisure across CEOs, a candidate explanation consistent with our results is that these differences may be related to wealth differentials. Namely, family CEOs are likely to be wealthier than professional CEOs, since they own the firms they lead. If leisure is a normal good, this would result in differences in the leisure-performance trade-off across CEOs.

To investigate this idea, we examine whether the differences in the hours worked by family CEOs vary by cross-country differences in inheritance laws. The results of this analysis are presented and discussed in Appendix Table A12. These laws are interesting from our perspective, since they create variation in wealth concentration (Ellul, Pagnano, and Panunzi 2010), such that more permissive laws favor the concentration of wealth in the hands of the individual designated to inherit the control of the family business. Other things equal, we therefore expect family CEOs to be wealthier in countries in which the maximal share of transmissible wealth is larger, and the difference between family and professional CEOs is larger.

In line with this hypothesis, we find that the difference in hours worked between family and professional CEOs is increasing in the share of wealth that can be bequeathed to a single heir. To the extent that wealth concentration is correlated with wealth differentials between owners and managers, the result provides some evidence that labor supply differences may be affected by wealth differences.

Another observationally equivalent explanation is that family and professional CEOs have similar preferences for leisure, but are subject to different performance-related incentives. For example, the compensation of family CEOs may be less sensitive to firm performance, or they may attribute a lower probability to the event of being fired for underperformance.

In the absence of detailed data on CEO wealth and/or firm-level incentive policies, we cannot distinguish between these two alternative channels. We note, however, that both mechanisms—combined with the productivity results presented in Table 2—imply that potential profit opportunities may be lost in the pursuit of private benefits of control.

5. Conclusion

This paper shows a significant difference in labor supply of between family and professional CEOs: family CEOs tend to work fewer hours. This difference between is not entirely accounted for by observable differences in firm, CEO and industry characteristics, and is larger when the opportunity cost of leisure is smaller. These patterns are consistent with the predictions of a simple model with heterogeneous preferences for leisure between family and professional

CEOs. The data also reveals a strong correlation between CEO hours and firm performance. While no causal inference can be made, differences in hours worked can account for almost a fifth of the productivity difference between family and professional CEOs. The behavioral difference is hence a potential candidate to account for at least some of the performance differential between family and non-family firms documented in the literature (Bennedsen et al. 2007; Bertrand et al. 2008; Bertrand 2009; Morck, Stangeland, and Yenug 1998; Pérez-González 2006; Villalonga and Amit 2006).

A natural question follows: why don't family CEOs delegate to professionals who are willing to work longer hours, so to enjoy both more leisure and higher profits? One possibility is that family CEOs are unable to delegate because of costly contract enforcement and the subsequent perceived risk of expropriation on the part of non-family-affiliated CEOs (Shleifer and Wolfenzon 2002). As documented in the earlier literature (Burkart, Panunzi, and Shleifer 2003; Doidge, Karolyi, and Stulz 2007; Durnev and Kim 2005), this hypothesis is consistent with observed cross-country differences in family controlled firms. Consistently with these findings, we find that the share of family CEOs is significantly higher in developing countries, where governance is typically more problematic.

The evidence presented in this paper highlights the importance of a previously unexplored dimension of heterogeneity across managers, that is, their effort on the job. The observed differences in managerial effort between family and professional CEOs raise a public finance question: would policies aimed at reducing intrafamily transfers of businesses bring about an increase in productive efficiency? Such policies might include an inheritance tax, a wealth tax, or a reduction in the various forms of exemptions that family firms enjoy in many parts of the world (Tsoutsoura 2015). We leave these questions for future work.

Appendix

A.1 The Time Use Survey

A.1.1 Survey management. The time use survey took place in two stages, both of which were led by the same project manager: in the Spring of 2011 a team of fifteen enumerators and two supervisors based in Mumbai collected data on India, and the rest of the countries were covered in a second survey wave in the Spring of 2013 by a team of forty enumerators and six supervisors based at the London School of Economics. To ensure comparability, we adopted the same protocol and retained the same project manager across both waves. The enumerators were typically graduate students (often MBAs) specifically recruited for this project. All enumerators were subject to a common intensive training on the survey methodology for 3 days at the beginning of the project, plus weekly team progress reviews and one-to-one conversations with their supervisors to discuss possible uncertainties with respect to the classification of the time use data. Each interview was checked off at the end of the week by a supervisor, who would make sure that the data were complete in every field and that the enumerator had codified all the activities according to the survey protocol. Each enumerator ran on average 30 interviews, with an average of 3 interviews per week to ensure data quality.

Each enumerator was allocated a random list of about 120 companies, was in charge of calling the numbers on his or her list to convince the CEO to participate in the survey, and was responsible for collecting the time use data in the week allocated to the CEO.

We actively monitored and coached the enumerators throughout the project, which intensified their persistence in chasing the CEOs and getting them to participate. We also offered the CEOs a personalized analysis of their use of time (which was sent to them in January 2012 to the Indian CEOs and in June 2014 to the rest of the countries) to give them the ability to monitor their time allocation and compare it with peers in the industry.

A.1.2 Sampling frame. The sampling frame was randomly drawn from ORBIS, an extensive commercial data set that contains company accounts for several millions of companies around the world. Our sampling criteria were as follows. First, we restricted the sample to manufacturing and additionally kept firms that were classified as "active" in the year prior to the survey (2010 in India and 2012 for the other countries) and with available recent accounting data.[36] These conditions restricted our sample to 11,500 firms. Second, we further restricted the sample to companies for which we could find CEOs contact details. To gather contact information we hired a team of research assistants based in Mumbai, London, and Boston who verified the CEOs names and found their phone numbers and emails. This restricted the sample to 7,744 firms. Of these, 907 were found to be ineligible for the interviews upon the first telephonic contact (the reasons for ineligibility included recent bankruptcy or the company not being in manufacturing), and 310 were never contacted because the project ended before contact was possible. The final number of eligible companies was thus 6,527, with median yearly sales of $53,000,000. Of these, we were able to secure an interview with 1,131 CEOs, although 17 CEOs dropped out before the end of the data collection week and were thus removed from the sample before the analysis was conducted.

The selection analysis in Table A1 shows that firms in the final sample have on average slightly lower log sales relative to the sampling frame (coefficient = 0.071; SE = 0.011). However, we do not find any significant selection effect on performance variables, such as labor productivity (sales over employees) and return on capital employed (ROCE).

[36] For the Indian sample, we also restricted the sample to firms headquartered in the fifteen main Indian states. This excluded firms located in Assam, Bihar, Chandigarh, Chhattisgarh, Dadra, Daman and Diu, Goa, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Orissa, and Uttarakhand, each of which accounts for less than 3% of Indian gross domestic product (GDP).

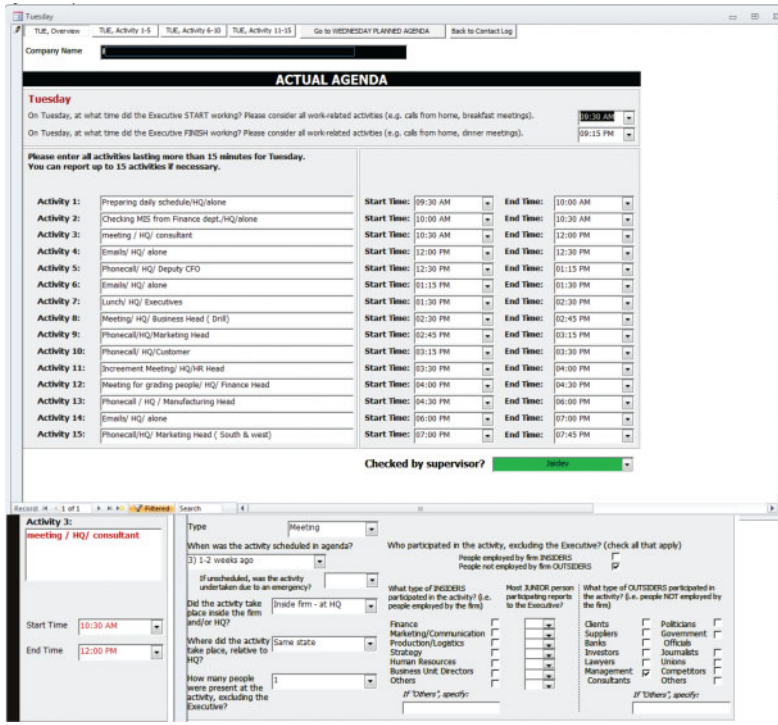

Figure A1
Survey Instrument

Table A1
Selection analysis

Sample	(1) All	(2) All	(3) All	(4) All
Dependent variable		**Dummy=1 if CEO participated**		
Country=Brazil	0.677***	0.695***	0.655***	0.559*
	(0.074)	(0.075)	(0.079)	(0.288)
Country=France	0.210***	0.256***	0.143	0.562**
	(0.073)	(0.074)	(0.104)	(0.221)
Country=Germany	0.115	0.194**	0.152*	0.476**
	(0.072)	(0.078)	(0.082)	(0.222)
Country=India	0.658***	0.699**	1.227***	0.672
	(0.247)	(0.272)	(0.371)	(0.425)
Country=UK	−0.178**	−0.139*	−0.153**	0.088
	(0.074)	(0.074)	(0.077)	(0.218)
log(Sales)		−0.071***		
		(0.011)		
log(Sales/Employees)			−0.018	
			(0.030)	
ROCE				0.000
				(0.001)
Number of firms	6,256	5,993	4,090	3,492

* significant at 10%; ** significant at 5%; *** significant at 1%. All columns estimated by probit (marginal effects reported, robust standard errors under coefficient). The dependent variable in all columns is a dummy=1 if the CEO participated in the survey. The selection regression is run on the latest available year of accounting data. All columns include 2-digit SIC code industry dummies.

Table A2
Accounting data: Summary statistics

	Mean	SD	Number of firms with available information
Number of employees	1,764.67	9,287.85	617
Sales	336,642.30	2,076,857	617
Capital	78,335.56	466,065.10	617
Profits per employee	10.06176	16.43106	720
Tobin's q	1.06	1.11	313
Investment	12,150.15	73,855.30	697
Wages	57,256.50	476,536.40	563

Notes: This table reports the summary statistics of the accounting data used in Table 2 and A4. All data are expressed in real 2005 '000 US$, except for Tobin's q.

A.2 Firm Data

A.2.1 Accounts. Accounting data were all drawn from ORBIS for all countries. The main exception is India, where employment figures are typically not published in the public accounts. Therefore, we gathered this information from the survey questionnaire.

In the regressions shown in Table 2 we restrict the sample to the three most recent years in the interval running from 2007 to 2011 in India and 2008 to 2012 for the rest of the sample, and use only years in which the CEO was in office. The summary statistics for this sample are shown in Table A2.

A.2.2 Ownership. Ownership data are collected in interviews with the CEOs and independently checked using several Internet sources (e.g., *Economic Times of India* and *Bloomberg*), information provided on the company Web site and supplemental phone interviews. We define a firm to be owned by an entity if this controls more than 25.01% of the shares; if no single entity owns at least 25.01% of the share the firm is labeled as "Dispersed shareholder." Family firms are defined as those where a family (combined across all family members, all second-generation relative to the founder or beyond) are the largest shareholders. Founder firms are defined as those where the original founder of the company is the largest shareholder. For both family second-generation and founder firms, we distinguish between cases in which a family firm or the founder are also CEOs of the company, in contrast to cases in which a professional manager (i.e., a person not affiliated with the founder or the family) has been nominated CEO. In the analysis we combine founder CEO and family, second-generation CEOs in a single category (41% of the sample). The omitted category in all regressions includes family or founder owned firms with professional CEOs (16.2%), dispersed shareholders (22.5%), government (0.8%), private equity/venture capital (7.5%), private individuals who are not founders or heirs to the founders of the company (9.3%). In 2.7% of the sample, the firm was owned by joint venture with equal split of the ownership shares.

A.3 Industry Data

Our industry classification is the U.S. SIC (1987). Each firm is allocated to each main 2-digit sector based on sales. We have 32 distinct 2-digit industries, and at least two companies for all of these industries except 4 (0.4% of the sample of firms).

The Lerner index of competition is constructed following Aghion et al. (2005) as the mean of (1-profit/sales) in the entire database excluding the firm itself for every 3-digit SIC code industry, using accounting data relative to the six countries in our sample (data averaged between 2006 and 2010 for India and between 2008 and 2012 for the rest of the countries).

The import competition measure is built as real industry imports divided by industry sales, using STAN data produced by the OECD. The measure is obtained by taking averages across all countries in our sample for which the industry measures were available (France, Germany, the United Kingdom, and the United States). The years used to build this measures are 2006 to 2008,

that is, the latest years for which the data were produced using the ISIC REV3 classification (the coverage of the countries included in our sample declines dramatically in the data produced using the ISIC REV4 classification).

A.4 Rain Shocks

A.4.1 Rain shocks. The climate data were extracted on December 8, 2011, from http://www7.ncdc.noaa.gov/CDO/cdodata.cmd. The data were merged with station coordinates (latitude and longitude), and these were in turn used to merge the data with the time use data set using the date and ZIP code of each of the activities recorded in the data (data matched with the closest station, distance computed by generating the vertical and horizontal distance using the latitude and longitude points and applying Pythagoras).

In India, the expected arrival of the Monsoons is around June 1^{st}, starting from the southwestern coast of Kerala, and gradually covering the entirety of India by July 15th. Therefore, for the Indian sample the definition of days of intense rain is based on the comparison of the daily rainfall precipitation with the average precipitation in the pre-monsoon month of May for the same station. We first compute a variable measuring for each day between June 1st and July 31st the change in precipitation relative to the average May values for the same station. We then define a variable "Extreme Rain" which takes value one if the change in rainfall lies in the third tercile of the overall distribution computed using data across all stations in the sample. Finally, we match the CEO time use information with the rainfall data of the closest weather station by using the modal (manually collected) ZIP code of the activities undertaken by the CEO during the week. We use the same approach in Brazil, but in this case we use as a reference the month of July of the year prior to the survey (2012), which is on average the driest month for the So Paulo region,[37] where 44.4% of the firms in the Brazilian sample are located.

The rainfall measure can be constructed for 597 CEOs in the sample. 32% of the CEO-day observations are classified as days of intense rain. 403 CEOs out of 597 CEOs (of which 215 family and 188 professional CEOs) experience extreme rain at least once during the survey week. 363 CEOs in the sample (186 family CEOs and 177 professional CEOs) have at least one day of extreme rain and one day of nonextreme rain during the sample week.

A.4.2 Sport events. For the Indian sample, we use data on the 2011 Indian Premier League (IPL) Cricket tournament. We focus on four games: two playoffs (Royal Challengers versus Chennai Super Kings, played on May 25, 2011) and Mumbai Indians versus Kolkata Knight Riders, played on may 25, 2011), one semifinal for the third and fourth place (Royal Challengers vs. Mumbai Indians, played on May 27, 2011) and the final (Chennai Super Kings vs. Royal Challengers (played on May 28, 2011). For the Brazilian sample, we use data on soccer matches played in the 2013 State Football Leagues. We focus on matched played by the top 30 teams (as measured by fanbase size).[38] These teams are located in the states of Bahia, Cear, Gois, Minas Gerais, Par, Paran, Pernambuco, Rio de Janeiro, Rio Grande do Sul, Santa Catarina, and So Paulo. The State Football League matches started in January and ended in May 2013, which coincided with the timing of our data collection.

The sport events dummy is constructed for 597 CEOs, 6% of the CEO-day observation are classified as days with a sport event. 100 CEOs out of 597 CEOs (of which 46 family and 54 professional CEOs) experience a day with a sport event and a day without a sport event during the survey week.

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[37] https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,sao-paulo,Brazil

[38] The source for the soccer match data is Resultados.com (http://www.resultados.com/futebol/brasil/). The source for fanbase data is a survey conducted by Pluri Stochos Pesquisas e Licenciamento Esportivo between November 2012 and February 2013. A total of 21,049 people were interviewed.

A.5 Wealth and the Demand for Leisure

While it is intuitive that the average family CEO, who owns a sizable share of the firm, may be wealthier than the average professional CEOs, who owns a small share of the firm (if any), a test of the hypothesis requires comparing the difference in hours worked at different levels of wealth differentials. Measuring personal wealth via surveys is notoriously difficult and we have no information, let alone a plausible source of variation, on the CEOs' wealth.

Instead, we approach this question using as a proxy for wealth differentials between family and professional CEOs exploiting cross-country differences in inheritance laws compiled by Ellul, Pagnano, and Panunzi (2010), which provide a country-specific measure of the largest share of the family wealth that can be bequeathed to a single heir. Intuitively, more permissive laws favor the concentration of wealth in the hands of the individual designated to inherit the control of the family business. Other things equal, we therefore expect family CEOs to be wealthier in countries where the maximal share of transmissible wealth is larger.

The variable "Max % of inheritable wealth" used in Table A12 measures the largest share of the estate that in each country a testator can bequeath to a single child in presence of a surviving spouse and two siblings (Ellul, Pagnano, and Panunzi (2010) show that the median number of children of firm owners is estimated to be two across almost all countries where this could be calculated). We use the measure published on Table 1, Column 4, for all countries except for India. The measure proposed for India by Ellul, Pagnano, and Panunzi (2010) is based on the Indian Succession Act, which applies to all non-Hindu and non-Muslim citizens. Since the vast majority (81%) of the Indian family firms in our sample are organized as Hindu United Family (HUF) organizations, we refer instead to the Hindu Succession Act (1956) which stipulates that the head of a HUF family firm must bequeath his share of the firm in equal parts to all members of the HUF. Since there must be at least two members in a HUF and we do not know the number of family members, we take 0.5 to be the upper bound of the inheritance share. Results are robust to assuming there are three surviving members hence the maximal share is 0.33.

To test whether this results in larger differences in hours worked between family and professional CEOs we estimate:

$$h_{ijc} = \alpha Fam_i + \beta Fam_i * (S_c - \bar{S}) + C_i\varphi + F_i\phi + \delta_j + \eta_c + \varepsilon_{ijc} \tag{A1}$$

where S_c is the largest admissible inheritance share in country c and $\bar{S}$ is the sample mean. Standard errors are clustered at the country level and bootstrapped using the wild bootstrapping technique proposed by Cameron, Gelbach, and Miller (2008) given the small number of clusters. The coefficient of interest is β, the interaction between the family CEO dummy and the inheritance share variable. Under the assumption that the latter proxies for family CEOs wealth, the hypothesis that the demand for leisure is increasing in wealth implies $\beta < 0$. We scale S_c in deviation from its sample mean, so that the coefficient on the family CEO dummy α measures the difference between family and professional CEOs at the mean values of S_c. S_c ranges from .5 (France and India) to 1 (the United Kingdom and the United States).

Column 1, Table A12, reports the estimates of (A1). We find $\beta < 0$ and precisely estimated. Its magnitude implies that going from an average share of .69 to the highest share of 1 increases the difference in hours worked by .07 log points, 79% of the mean effect. In other words, family CEOs located in countries with the average level of the inheritance variable work 9% fewer hours than professional CEOs; those in countries with the highest level of the inheritance variable work 16% fewer hours than professional CEOs.

The inheritance variable may capture other country specific factors different from wealth concentration, which may also affect the labor supply of family CEOs. For example, differences in the quality of contract enforcement may affect the ability to delegate control to a professional CEO (Bloom et al. 2013) and, therefore, the selection of family CEOs (intuitively, when delegation is feasible all family CEOs who have a higher marginal utility of leisure should delegate to hard working professionals and enjoy the extra profits these generate, while the only family CEOs who choose not to delegate should work as hard as professional CEOs). In Columns 2–5 of Table A12 we

check the robustness of the results to estimate (A1) using different proxies of contract enforcement in lieu of S. Column 2 uses regional GDP, a country specific measure of the level of development Gennaioli et al. (2013), which is presumably correlated with the quality of contractual enforcement. Column 3 uses cross-country differences in the rule of law, and Column 4 uses regional variation in the level of generalized trust, which we take as a proxy for the ease to manage incomplete contracts (Bloom, Sadun, and Van Reenen 2012).[39] As above, we scale these variables in deviation from their sample means.

None of the interactions with these country-specific measures are significant. Finally, Column 5 includes together all the interactions between the family CEO dummy and all the proxies of contract enforcement, plus the interaction with the inheritance law variable discussed in the previous section. The latter remains of a similar magnitude and statistically significant at the 10% level.

[39] The Rule of Law measure captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, that is, ranging from approximately −2.5 to 2.5 and is drawn from Kaufmann, Kraay, and Mastruzzi (2010). Data on regional GDP per capita are drawn from Gennaioli et al. (2013). The measure is expressed in PPP constant 2005 international dollars. Data on regional trust have been calculated from the World Values Survey (WVS). The WVS is a cross-country project coordinated by the Institute for Social Research of the University of Michigan. Each wave carries out representative surveys of the basic values and beliefs of individuals in a large cross-section of countries. The questionnaire contains answers to specific questions about religion and social attitudes, including several question on generalized and specific trust (e.g., trust in the family, government), as well as detailed information on the social and education background of the respondents (age, income, and education). The key question we use is the standard one: "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?"The WVS data can be downloaded from the WVS Web (www.worldvaluessurvey.org). For the purposes of our analysis, we pool together four successive waves of data collection (1981–1984, 1989–1993, 1994–1999, and 1999–2004), and we use only individual entries with information on the respondents' region of residence. We compute the regional level of trust by taking the simple average over all observations available for the region across all WVS waves (see Bloom, Sadun, and Van Reenen (2012) for further details).

A.6 Additional Tables Referenced in the Text

Table A3
Country-level summary statistics

	Brazil	France	Germany	India	United Kingdom	United States	Total
A. Time use							
Total weekly hours worked - Recall measure	50.26	50.81	52.11	n.a..	52.08	54.97	51.72
Total weekly hours worked - Diary measure	52.60	58.30	55.88	46.27	54.40	55.09	52.01
Total weekly hours worked excluding activities < 15 min, personal & travel	40.80	47.02	46.69	35.94	44.31	45.41	41.44
Number of days at work	5.29	5.21	5.54	5.25	5.52	5.61	5.36
Beginning of work day (hour)	8.51	8.19	8.58	9.80	8.45	8.03	8.83
End of work day (hours)	18.13	18.92	18.19	18.57	17.89	17.60	18.27
Share of time spent in personal activities	0.14	0.09	0.05	0.10	0.07	0.09	0.10
B. CEO characteristics							
Age	51.90	49.53	49.26	50.61	49.02	53.47	50.93
Male	0.97	0.96	0.93	0.99	0.94	0.93	0.96
College degree	0.91	0.92	0.94	0.96	0.84	0.91	0.92
MBA	0.63	0.60	0.85	0.41	0.47	0.48	0.55
Tenure as CEO	11.39	7.12	7.85	12.82	7.00	8.57	10.30
Tenure in firm	19.34	12.29	14.98	19.11	14.16	15.29	17.12
Experience abroad	0.55	0.56	0.69	0.33	0.59	0.42	0.48
CEO holds positions in other firms	0.34	0.35	0.58	0.47	0.40	0.38	0.42
C. Firm characteristics							
Domestic or foreign multinational	0.17	0.24	0.48	0.17	0.32	0.32	0.24
Number of employees	1185.64	730.21	4942.14	1224.86	486.78	1559.61	1571.05
Number of CEO direct reports	6.60	8.54	9.50	7.79	7.93	7.85	7.77
COO	0.19	0.19	0.42	0.05	0.74	0.54	0.26
Number of sons in management positions	0.08	0.01	0.03	0.22	0.06	0.04	0.10
Number of daughters in management positions	0.05	0.03	0.00	0.07	0.01	0.03	0.04
Data collected through the CEO personal assistant	0.56	0.40	0.58	0.35	0.34	0.31	0.43
% of family firms	0.41	0.14	0.31	0.67	0.17	0.21	0.41
D. Industry characteristics							
Lerner index	1.18	1.18	1.19	1.34	1.16	1.16	1.23
Import penetration	0.63	0.56	0.66	0.66	0.48	0.58	0.61
ln(GDP per capita), region	9.22	10.30	10.36	8.03	10.39	10.65	9.36
Rule of law, country	−0.29	1.41	1.64	0.09	1.67	1.55	0.62
Trust, region	0.06	0.22	0.35	0.39	0.35	0.42	0.28
Max % inheritance, country	0.67	0.66	0.67	0.50	1.00	1.00	0.68

Notes: The table shows summary statistics (means, standard deviation in parentheses in Columns 1–3; differences and *t*-statistic in parentheses in Column 4) of CEO time use, CEO characteristics, firm and industry level data for a sample of 1114 CEOs in Brazil (N = 282), France (N = 115), Germany (N = 125), India (N = 356), the United Kingdom (N=87), and the United States (N = 149). All variables in panels A, B, and C were collected in the CEO time use survey. Import penetration = ln(import/production) in the firm ISIC REV3 industry, computed by averaging OECD STAN data relative to the 2006–2008 time period (last available year for all countries) across France, Germany, the United States, and the United Kingdom at the industry level. Lerner index of competition = (1-profit/sales) in the firm 3-digit SIC code industry computed, as in Aghion et al. (2005), by averaging firm-level data in ORBIS relative to the 2008–2012 time period across Brazil, France, Germany, India, the United States, and the United Kingdom at the industry level.

Table A4
CEO hours worked and firm inputs

	(1)	(2)	(3)	(4)
Dependent variable	**log(Investments)**		**log(Wages)**	
Family CEO	−0.779***	−0.671***	−0.446***	−0.387***
	(0.233)	(0.247)	(0.128)	(0.133)
log(Hours worked)		0.902*		0.675**
		(0.507)		(0.307)
log(Employment)	0.878***	0.852***	0.925***	0.905***
	(0.104)	(0.104)	(0.045)	(0.047)
log(Capital)				
Observations	697	697	1,735	1,735
Number of firms	404	404	563	563

* significant at 10%; ** significant at 5%; *** significant at 1%. All columns are estimated by OLS (standard errors under coefficient clustered by firm). The variable *CEO hours worked* is the log of the total hours the CEO devoted to work activities lasting more than 15 minutes (excluding travel) during the survey week. The dependent variable in Columns 1 and 2 is log investments and in Columns 3 and 4, log average wages. Accounting data run between 2007 and 2013. Each column includes a full set of country by 2-digit SIC codes and year dummies. We include only years in which the CEO was in office in all columns, and allow for a maximum of 3 years of accounts for each firm (3 most recent years with nonmissing data in ORBIS). All columns include the following noise controls include: a dummy to denote case in which the time use data were recorded by the CEO's Personal Assistant; 55 interviewer dummies; a dummy to denote CEOs who formally report to an executive Chairman; 29 interview week dummy; a self-reported score given by the CEO to rank the representativeness of the week and a dummy to denote weeks with a national or religious holiday.

Table A5
Pre-Appointment Trends

	(1)	(2)	(3)	(4)	(4)	(5)
Dependent variable	**log(Sales)**		**Profits per employee**		**ROA**	
log(Employment)	0.740***	0.745***	−4.822	−4.252		
	(0.107)	(0.116)	(3.802)	(4.348)		
log(Capital)	0.117***	0.117**			−0.263***	−0.302**
	(0.040)	(0.046)			(0.092)	(0.129)
Trend	0.046	0.040	−6.232*	−8.052*	0.007	−0.012
	(0.128)	(0.141)	(3.392)	(4.829)	(0.027)	(0.045)
Trend*Family CEO	−0.009	−0.006	0.661	0.431	−0.015	0.010
	(0.018)	(0.019)	(0.978)	(1.027)	(0.040)	(0.052)
Trend*Professional CEO replacing a family CEO		0.024		−0.676		0.032
		(0.031)		(1.148)		(0.067)
R-squared	0.985	0.984	0.644	0.620	0.628	0.698
Observations	953	738	898	693	1,616	971
Number of firms	271	208	266	198	381	206
Firm fixed effects	y	y	y	y	y	y

* significant at 10%; ** significant at 5%; *** significant at 1%. All columns are estimated by OLS (standard errors under coefficient clustered by firm). The dependent variable in Columns 1 and 2 is log sales in the years preceding the CEO appointment, up to 5 years before appointment. In Columns 3 and 4 (5 and 6), it is profits per employee (ROA) for the same time period. All columns include year dummies and firm fixed effects. Family CEO=1 for those who own the firm or belong to the family that owns the firm, and 0 otherwise. Family Ownership External CEO=1 for professional CEOs working in firms owned by a family, and 0 otherwise.

Table A6
Robustness checks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Experiment	**Baseline**	**Levels**	**Negative binomial**	**Restrincting sample to Brazil & India**	**Restricting sample to France, Germany, UK, and US**	**First survey wave (India only)**	**Second survey wave (Brazil, France, Germany, UK, and US)**
Dependent variable	**log(Hours worked)**	**Hours worked**	**Hours worked**	**log(Hours worked)**	**log(Hours worked)**	**log(Hours worked)**	**log(Hours worked)**
Family CEO	−0.088***	−3.104***	−0.080***	−0.079***	−0.095**	−0.065**	−0.098***
	(0.020)	(0.776)	(0.017)	(0.022)	(0.039)	(0.031)	(0.026)
R-squared	0.347	0.360		0.351	0.163	0.249	0.268
Number of firms	1,114	1,114	1,114	638	476	356	758
Country by industry dummies	y	y	y	y	y	y	y
Noise controls	y	y	y	y	y	y	y

* significant at 10%; ** significant at 5%; *** significant at 1%. All columns are estimated by OLS (robust standard errors in parentheses), except for Column 3, estimated using a negative binomial regression. The dependent variable is the log of the total hours the CEO devoted to work activities lasting more than 15 minutes (excluding travel) during the survey week in Columns 1 and 4–6, while the level of hours worked is used in Columns 2 and 3. Family CEO=1 for those who own the firm or belong to the family that owns the firm, and 0 otherwise. Industry dummies are thirty-three 2-digit SIC codes. Noise controls include a dummy to denote if the time use data were recorded by the PA; 55 interviewer dummies; a dummy to denote CEOs who formally report to an executive Chairman; 29 interview week dummy; a self-reported score given by the CEO to rank the representativeness of the week and a dummy to denote weeks with a national or religious holiday. The regressions include all the controls used in Table 4 column 6.

Table A7
Additional results using firm sales and capital as controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable				**log(Hours worked)**				
Family CEO	−0.084***	−0.085***	−0.079***	−0.079***	−0.079***	−0.076***	−0.076***	−0.072***
	(0.022)	(0.022)	(0.024)	(0.024)	(0.019)	(0.020)	(0.021)	(0.021)
log(Employment)	0.032***	0.032***	0.030***	0.030***	0.026***	0.018**	0.025***	0.015*
	(0.008)	(0.008)	(0.009)	(0.009)	(0.007)	(0.008)	(0.008)	(0.009)
Sales 1 year growth rates		0.037						
		(0.048)						
Sales 3 year growth rates				0.029				
				(0.019)				
log(Sales)						0.010*		
						(0.006)		
log(Capital)								0.012***
								(0.005)
R-squared	0.349	0.349	0.402	0.403	0.349	0.351	0.372	0.376
Number of firms	876	876	700	700	1,076	1,076	890	890

* significant at 10%; ** significant at 5%; *** significant at 1%. All columns are estimated by OLS (robust standard errors in parentheses). The variable *Hours worked* is the log of the total hours the CEO devoted to work activities lasting more than 15 minutes (excluding travel) during the survey week. Family CEO=1 for those who own the firm or belong to the family that owns the firm, and 0 otherwise. The variables Sales 1 Year and Sales 3 Years measure, respectively, the average log 1 and 3 years growth rate of sales, in all available years preceding the survey. log(Sales) and log(Capital) measure the average log of these variables in levels, averaged across all available years preceding the survey. All columns include the same set of controls used in Table 4, Column 6. Industry dummies are thirty-three 2-digit SIC codes. Noise controls include: a dummy to denote if the time use data were recorded by the PA; 55 interviewer dummies; a dummy to denote CEOs who formally report to an executive Chairman; 29 interview week dummy; a self-reported score given by the CEO to rank the representativeness of the week and a dummy to denote weeks with a national or religious holiday.

Table A8
Founder and family CEOs: Summary statistics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All	Founder CEOs	Family CEOs (2nd generation onward)	Professional CEOs	Difference (4)-(2)	Difference (4)-(3)	Difference (2)-(3)
A. Use of Time							
					(t-statistic)	(t-statistic)	(t-statistic)
Total weekly hours worked - Recall measure	51.719	49.371	49.038	52.749	3.711***	3.378**	−0.333
	(10.105)	(12.452)	(9.826)	(9.665)	(4.07)	(2.65)	(−0.21)
Total weekly hours worked - Diary measure	52.009	47.445	48.740	54.543	5.804***	7.098***	1.294
	(11.026)	(10.714)	(10.415)	(10.674)	(8.12)	(6.88)	(1.18)
Total weekly hours worked excluding activities	41.439	35.805	38.039	44.249	6.210***	8.444***	2.234*
<15 min, personal & travel	(10.035)	(10.410)	(9.410)	(9.258)	(9.88)	(9.24)	(2.21)
Number of days at work	5.356	5.211	5.339	5.393	0.0539	0.182**	0.128
	(0.695)	(0.570)	(0.662)	(0.729)	(1.13)	(2.67)	(1.94)
Beginning of work day (hour)	8.826	9.225	9.273	8.524	−0.749***	−0.701***	0.0483
	(1.161)	(1.271)	(1.192)	(1.019)	(−10.28)	(−6.82)	(0.38)
End of work day (hours)	18.270	18.008	18.329	18.291	−0.0387	0.283	0.321*
	(1.566)	(1.713)	(1.223)	(1.682)	(−0.37)	(1.73)	(2.24)
Share of time spent in personal activities	0.101	0.144	0.115	0.086	−0.0299***	−0.0585***	−0.0286*
	(0.099)	(0.121)	(0.109)	(0.084)	(−4.76)	(−6.67)	(−2.44)
B. CEO characteristics							
Age	50.930	55.367	48.693	51.187	2.494***	−4.180***	−6.674***
	(8.458)	(7.392)	(9.908)	(7.425)	(4.42)	(−5.83)	(−6.91)
Male	0.961	0.984	0.936	0.970	0.0331*	−0.0149	−0.0480*
	(0.193)	(0.125)	(0.244)	(0.172)	(2.47)	(−0.93)	(−2.12)
College degree	0.925	0.852	0.924	0.939	0.0148	0.0875***	0.0727*
	(0.264)	(0.357)	(0.265)	(0.239)	(0.88)	(3.45)	(2.38)
MBA	0.548	0.297	0.482	0.631	0.149***	0.334***	0.185***
	(0.498)	(0.459)	(0.500)	(0.483)	(4.53)	(7.22)	(3.63)
Tenure as CEO	10.298	21.211	13.398	6.602	−6.796***	−14.61***	−7.813***
	(9.550)	(10.223)	(9.802)	(6.677)	(−12.79)	(−20.50)	(−7.56)
Tenure in firm	17.116	24.320	22.291	13.119	−9.171***	−11.20***	−2.030
	(11.597)	(9.928)	(10.672)	(10.611)	(−12.74)	(−11.03)	(−1.86)
Experience abroad	0.482	0.227	0.458	0.544	0.0866*	0.318***	0.231***
	(0.500)	(0.420)	(0.499)	(0.498)	(2.57)	(6.76)	(4.64)
CEO holds positions in other firms	0.418	0.445	0.461	0.392	−0.0688*	−0.0535	0.0153
	(0.494)	(0.499)	(0.499)	(0.489)	(−2.07)	(−1.13)	(0.29)

(*continued*)

Table A8
Continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All	Founder CEOs	Family CEOs (2nd generation onward)	Professional CEOs	Difference (4)-(2)	Difference (4)-(3)	Difference (2)-(3)
C. Firm characteristics							
Domestic or foreign multinational	0.242	0.109	0.218	0.280	0.0623*	0.171***	0.109**
	(0.429)	(0.313)	(0.414)	(0.450)	(2.11)	(4.11)	(2.69)
Firm age	49.185	50.116	25.766	53.320	3.204	27.55***	24.35***
	(45.360)	(34.696)	(11.117)	(52.412)	(1.00)	(5.92)	(7.78)
Listed	0.432	0.579	0.453	0.354	−0.225***	−0.0995*	0.126*
	(0.496)	(0.495)	(0.500)	(0.478)	(−6.89)	(−2.14)	(2.43)
Number of employees	1571.051	633.701	1192.091	1945.432	753.3	1311.7	558.4
	(10127.428)	(1165.430)	(4240.615)	(12837.271)	(1.04)	(1.15)	(1.46)
Number of CEO direct reports	7.775	6.594	7.697	8.044	0.347	1.450***	1.103**
	(3.774)	(2.863)	(4.299)	(3.604)	(1.34)	(4.30)	(2.68)
COO	0.259	0.180	0.176	0.317	0.141***	0.137**	−0.00393
	(0.439)	(0.385)	(0.381)	(0.466)	(4.77)	(3.13)	(−0.10)
Number of sons in management positions	0.103	0.438	0.170	0.005	−0.165***	−0.433***	−0.268***
	(0.304)	(0.498)	(0.376)	(0.068)	(−10.91)	(−21.34)	(−6.22)
Number of daughters in management positions	0.043	0.156	0.073	0.006	−0.0666***	−0.150***	−0.0835**
	(0.203)	(0.365)	(0.260)	(0.078)	(−6.05)	(−9.52)	(−2.74)
Data collected through the CEO personal assistant	0.428	0.406	0.361	0.466	0.106**	0.0602	−0.0456
	(0.495)	(0.493)	(0.481)	(0.499)	(3.18)	(1.25)	(−0.91)
D. External Environment							
Located in emerging economies (=1 if India or Brazil)	0.573	0.844	0.755	0.428	−0.326***	−0.415***	−0.0892*
	(0.495)	(0.365)	(0.431)	(0.495)	(−10.18)	(−9.02)	(−2.07)
Lerner Index	1.227	1.186	1.240	1.229	−0.0112	0.0426	0.0538
	(0.412)	(0.322)	(0.450)	(0.408)	(−0.38)	(1.05)	(1.16)
Import Penetration	0.614	0.602	0.651	0.597	−0.0536	−0.00465	0.0490
	(0.566)	(0.632)	(0.621)	(0.523)	(−1.36)	(−0.08)	(0.70)
Number of observations	1,114	128	330	656	986	784	458

The table shows summary statistics (means and standard deviation in parentheses in Columns 1–3 and differences and *t*-statistics in parentheses in Column 4) of CEO time use, CEO characteristics, firm and industry level data for a sample of 1,114 CEOs). All variables in panels A, B, and C were collected in the CEO time use survey. Import penetration = ln(import/production) in the firm ISIC REV3 industry, computed by averaging OECD STAN data relative to the 2006–2008 time period (last available year for all countries) across France, Germany, the United States, and the United Kingdom at the industry level. Lerner index of competition = (1-profit/sales) in the firm 3-digit SIC code industry computed, like in Aghion et al. (2005), by averaging firm-level data in ORBIS relative to the 2008–2012 time period across Brazil, France, Germany, India, the United States, and the United Kingdom at the industry level.

Table A9
Founder and family CEOs: Hours worked

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent variable	log(Hours worked)						
Family CEO (2nd generation onward)	−0.162***	−0.094***	−0.097***	−0.096***	−0.087***	−0.085***	−0.077***
	(0.017)	(0.019)	(0.021)	(0.021)	(0.021)	(0.021)	(0.022)
Founder CEO	−0.228***	−0.160***	−0.128***	−0.115***	−0.090***	−0.095***	−0.088***
	(0.026)	(0.027)	(0.029)	(0.029)	(0.031)	(0.029)	(0.031)
Family ownership, external CEO							0.041**
							(0.020)
Founder ownership, external CEO							−0.021
							(0.044)
CEO holds positions in other firms			0.022	0.016	0.018	0.014	0.014
			(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
log(CEO age)			−0.154***	−0.174***	−0.138***	−0.141***	−0.144***
			(0.044)	(0.044)	(0.045)	(0.045)	(0.046)
log(1+CEO tenure in firm)			−0.005	−0.007	−0.007	−0.006	−0.005
			(0.010)	(0.011)	(0.010)	(0.011)	(0.010)
CEO holds college degree			0.051	0.043	0.041	0.054*	0.055*
			(0.032)	(0.033)	(0.033)	(0.032)	(0.033)
CEO holds MBA degree			0.010	0.006	0.007	0.006	0.005
			(0.018)	(0.018)	(0.017)	(0.018)	(0.018)
CEO has study/work experience abroad			0.014	0.005	0.004	−0.003	−0.004
			(0.016)	(0.016)	(0.016)	(0.017)	(0.017)
log(Employment)				0.025***	0.021***	0.024***	0.023***
				(0.007)	(0.007)	(0.007)	(0.007)
log(Firm age)				0.005	0.004	0.002	0.001
				(0.010)	(0.010)	(0.011)	(0.011)
MNE				0.029	0.024	0.033*	0.032*
				(0.020)	(0.020)	(0.019)	(0.019)
Listed				−0.032	−0.032	−0.009	−0.004
				(0.022)	(0.023)	(0.024)	(0.024)
Number of CEO direct reports					0.007***	0.006***	0.006***
					(0.002)	(0.002)	(0.002)
COO exists					−0.009	−0.018	−0.017
					(0.019)	(0.020)	(0.020)
Number of sons in management positions					−0.049**	−0.059***	−0.058***
					(0.023)	(0.022)	(0.022)
Number of daughters in management positions					0.004	−0.013	−0.012
					(0.029)	(0.029)	(0.029)
Data collected through the CEO personal assistant						−0.000	0.002
						(0.016)	(0.017)
R-squared	0.123	0.214	0.230	0.244	0.255	0.347	0.348
Number of firms	1,114	1,114	1,114	1,114	1,114	1,114	1,114
Test family CEO (2nd gen)= Founder CEO, *p*-value	.0209	.0187	.2966	.5161	.9169	.7167	.6866
Country by industry dummies	n	y	y	y	y	y	y
Noise controls	n	n	n	n	n	y	y

* significant at 10%; ** significant at 5%; *** significant at 1%. All columns are estimated by OLS (robust standard errors in parentheses). The variable *CEO hours worked* is the log of the total hours the CEO devoted to work activities lasting more than 15 minutes (excluding travel) during the survey week. The variable *Start(End) of the day* denotes the hour at which the CEO reported to start(end) the work-day. The variable *Share time spent in personal activities* denotes the share of hours reported by the CEO as dedicated to leisure activities during working hours. Family CEO (second generation)=1 for those who own the firm or belong to the family that owns the firm but have not founded it themselves, and 0 otherwise. Founder CEO=1 for those who own the firm or belong to the family that owns the firm and have founded it themselves, and 0 otherwise. Industry dummies are thirty-three 2-digit SIC codes. Noise controls include: a dummy to denote if the time use data were recorded by the PA; 55 interviewer dummies; a dummy to denote CEOs who formally report to an executive Chairman; 29 interview week dummy; a self-reported score given by the CEO to rank the representativeness of the week and a dummy to denote weeks with a national or religious holiday.

Table A10
Rain - Robustness checks

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	**log(1+CEO hours worked) - Day level**					
Experiment	**Baseline**	**Include CEO*rain interactions**	**Include firm*rain interactions**	**Include org*rain interactions**	**Include industry*rain interactions**	**Include state*rain interactions**
Family CEO	−0.053**	−0.064***	−0.052**	−0.057**	−0.055**	−0.052**
	(0.022)	(0.024)	(0.022)	(0.022)	(0.023)	(0.024)
Dummy=1 if extreme rain	0.030	−0.311	0.140*	0.022	−0.210**	0.000
	(0.019)	(0.272)	(0.084)	(0.031)	(0.082)	(0.000)
Dummy=1 if extreme rain * Family CEO	−0.069***	−0.035	−0.071***	−0.057**	−0.070***	−0.058**
	(0.023)	(0.028)	(0.024)	(0.025)	(0.025)	(0.029)
Dummy=1 if extreme rain * log(CEO age)		0.128*				
		(0.071)				
Dummy=1 if extreme rain * log(1+CEO tenure in firm)		−0.042**				
		(0.019)				
Dummy=1 if extreme rain * CEO college		−0.080				
		(0.062)				
Dummy=1 if extreme rain *CEO studied/worked abroad		0.014				
		(0.026)				
Dummy=1 if extreme rain * CEO works for other firms		−0.011				
		(0.038)				
Dummy=1 if extreme rain * CEO MBA		0.022				
		(0.030)				
Dummy=1 if extreme rain * log(Employment)			−0.006			
			(0.012)			
Dummy=1 if extreme rain * log(Firm age)			−0.025			
			(0.023)			
Dummy=1 if extreme rain * MNE			0.056			
			(0.037)			
Dummy=1 if extreme rain *Number of direct reports				−0.000		
				(0.004)		
Dummy=1 if extreme rain *COO exists				0.033		
				(0.031)		
Dummy=1 if extreme rain *Sons in management				−0.024		
				(0.027)		
Dummy=1 if extreme rain *Daughters in management				−0.023		
				(0.055)		
log(Employment)	0.014**	0.014**	0.016**	0.015**	0.014*	0.018**
	(0.007)	(0.007)	(0.008)	(0.007)	(0.007)	(0.007)
log(Firm age)	0.007	0.006	0.013	0.007	0.008	0.002
	(0.014)	(0.015)	(0.017)	(0.014)	(0.015)	(0.015)
MNE	0.040*	0.040*	0.023	0.039*	0.040*	0.040*
	(0.021)	(0.022)	(0.024)	(0.021)	(0.022)	(0.024)

(*continued*)

Table A10
Continued

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable			log(1+CEO hours worked) - Day level			
Experiment	**Baseline**	**Include CEO*rain interactions**	**Include firm*rain interactions**	**Include org*rain interactions**	**Include industry*rain interactions**	**Include state*rain interactions**
Number of direct reports	0.007**	0.006**	0.006**	0.006*	0.007**	0.007**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
COO exists	−0.027	−0.027	−0.028	−0.038*	−0.027	−0.029
	(0.017)	(0.017)	(0.017)	(0.020)	(0.018)	(0.019)
Number of sons in management	−0.006	−0.007	−0.007	0.003	−0.006	−0.010
	(0.018)	(0.017)	(0.018)	(0.019)	(0.018)	(0.019)
Number of daughters in management	−0.040	−0.040	−0.043*	−0.032	−0.044*	−0.047*
	(0.026)	(0.025)	(0.025)	(0.026)	(0.026)	(0.028)
CEO works for other firms	−0.002	0.002	−0.002	−0.002	−0.001	0.006
	(0.021)	(0.026)	(0.021)	(0.022)	(0.023)	(0.023)
log(CEO age)	−0.090*	−0.137**	−0.088*	−0.091*	−0.091*	−0.115**
	(0.048)	(0.055)	(0.048)	(0.048)	(0.047)	(0.049)
log(1+CEO tenure in firm)	−0.005	0.008	−0.006	−0.006	−0.005	−0.001
	(0.011)	(0.014)	(0.011)	(0.011)	(0.011)	(0.012)
College degree	0.063**	0.084***	0.064**	0.064**	0.059**	0.048
	(0.026)	(0.031)	(0.026)	(0.027)	(0.027)	(0.036)
Dummy CEO MBA	−0.011	−0.018	−0.010	−0.011	−0.010	−0.017
	(0.016)	(0.020)	(0.017)	(0.016)	(0.017)	(0.017)
CEO studied/worked abroad	0.022	0.015	0.021	0.022	0.022	0.020
	(0.015)	(0.018)	(0.015)	(0.015)	(0.016)	(0.018)
Constant	2.238***	2.376***	2.183***	2.250***	2.361***	2.404***
	(0.258)	(0.281)	(0.260)	(0.255)	(0.256)	(0.246)
R-squared	0.255	0.257	0.256	0.256	0.260	0.277
Observations	3020	3020	3020	3020	3020	3020
Number of firms	597	597	597	597	597	597
Industry dummies	y	y	y	y	y	y
Noise controls	y	y	y	y	y	y
Test Rain+Family CEO*Rain=0 (*p*-value)	.059	.1911	.406	.25	.00	.0447
Test joint significance of Rain*CEO characteristics (*p*-value)		.1703				
Test joint significance of Rain* firm characteristics (*p*-value)			.3386			
Test joint significance of Rain* org characteristics (*p*-value)				.7126		
Test joint significance of Rain*Industry interactions (*p*-value)					.00	
Test joint significance of Rain*State interactions (*p*-value)						.00

* significant at 10%; ** significant at 5%; *** significant at 1%. See Table 6 for details.

Table A11
Sport events - robustness checks

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	**log(1+Hours worked) - Day level - Sport event hours only**					
Experiment	**Baseline**	**Include CEO*event interactions**	**Include firm*event interactions**	**Include org*event interactions**	**Include industry*event interactions**	**Include state*event interactions**
Family CEO	−0.026	−0.032	−0.025	−0.028	−0.024	−0.023
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.031)
Sport event	−0.056	0.728	0.410***	−0.131	0.210	−1.206***
	(0.065)	(0.900)	(0.156)	(0.111)	(0.208)	(0.178)
Sport event * Family CEO	−0.158***	−0.126	−0.174**	−0.175**	−0.173**	−0.206**
	(0.061)	(0.080)	(0.076)	(0.082)	(0.075)	(0.091)
Sport event * log(CEO age)		−0.087				
		(0.226)				
Sport event * log(1+CEO tenure in firm)		−0.121***				
		(0.038)				
Sport event*College		0.073				
		(0.135)				
Sport event*CEO studied/worked abroad		−0.149				
		(0.124)				
Sport event * CEO works for other firms		−0.307**				
		(0.134)				
Sport event * CEO MBA		−0.078				
		(0.102)				
Sport event * log(Employment)			−0.099**			
			(0.041)			
Sport event * log(Firm age)			0.039			
			(0.057)			
Sport event * MNE			0.102			
			(0.151)			
Sport event *Number of direct reports				0.001		
				(0.015)		
Sport event *COO				0.251**		
				(0.112)		
Sport event *Sons in management				−0.004		
				(0.141)		
Sport event *Daughters in management				0.036		
				(0.085)		
log(Employment)	0.008	0.010	0.014*	0.009	0.010	0.013
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
log(Firm age)	0.031	0.032	0.030	0.029	0.029	0.035*
	(0.021)	(0.021)	(0.022)	(0.021)	(0.021)	(0.021)
MNE	0.037	0.035	0.033	0.038	0.033	0.027
	(0.033)	(0.032)	(0.032)	(0.033)	(0.033)	(0.035)
CEO works for other firms	0.000	−0.000	0.000	0.000	−0.000	−0.000
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)

(*continued*)

Table A11
Continued

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	**log(1+Hours worked) - Day level - Sport event hours only**					
Experiment	**Baseline**	**Include CEO*event interactions**	**Include firm*event interactions**	**Include org*event interactions**	**Include industry*event interactions**	**Include state*event interactions**
log(CEO age)	−0.026	−0.030	−0.029	−0.044	−0.028	−0.032
	(0.029)	(0.028)	(0.029)	(0.028)	(0.030)	(0.031)
log(1+CEO tenure in firm)	0.004	0.006	0.003	0.005	0.002	−0.006
	(0.019)	(0.018)	(0.018)	(0.018)	(0.020)	(0.022)
College degree	−0.052	−0.057	−0.055	−0.056	−0.055	−0.054
	(0.037)	(0.038)	(0.037)	(0.039)	(0.038)	(0.041)
Dummy CEO MBA	−0.050*	−0.032	−0.051*	−0.051*	−0.045	−0.039
	(0.028)	(0.028)	(0.028)	(0.029)	(0.028)	(0.030)
Did the executive study or worked abroad?	0.016	0.006	0.016	0.013	0.013	−0.015
	(0.056)	(0.058)	(0.057)	(0.056)	(0.059)	(0.061)
Number of direct reports	−0.018	−0.008	−0.017	−0.015	−0.017	−0.016
	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)
COO exists	0.096**	0.098**	0.097**	0.094**	0.090**	0.081*
	(0.043)	(0.044)	(0.043)	(0.044)	(0.045)	(0.046)
Number of sons in management	−0.024	−0.025	−0.026	−0.021	−0.025	−0.027
	(0.022)	(0.022)	(0.023)	(0.022)	(0.023)	(0.025)
Number of daughters in management	−0.005	0.004	−0.003	−0.007	−0.003	−0.001
	(0.022)	(0.023)	(0.022)	(0.022)	(0.023)	(0.025)
Constant	1.042***	0.971***	1.002***	1.034***	0.891***	0.994***
	(0.344)	(0.345)	(0.349)	(0.345)	(0.317)	(0.326)
R-squared	0.213	0.220	0.216	0.215	0.221	0.236
Observations	3020	3020	3020	3020	3020	3020
Number of firms	597	597	597	597	597	597
Industry dummies	y	y	y	y	y	y
Noise controls	y	y	y	y	y	y
Test Sport event+Family CEO*Sport event=0 (*p*-value)	.0081	.504	.1573	.0873	.825	.00
Test joint significance of Sport Event*CEO characteristics (*p*-value)		.00				
Test joint significance of Sport Event* firm characteristics (*p*-value)			.0432			
Test joint significance of Sport Event*org characteristics (*p*-value)				.2248		
Test joint significance of Sport Event*Industry interactions (*p*-value)					.00	
Test joint significance of Sport Event*State interactions (*p*-value)						.00

* significant at 10%; ** significant at 5%; *** significant at 1%. See Table 6 for details.

Table A12
Wealth effects

	(1)	(2)	(3)	(4)	(5)
Dependent variable			**log(Hours worked)**		
Family CEO	−0.093***	−0.089***	−0.089***	−0.087***	−0.090***
	(0.024)	(0.023)	(0.023)	(0.023)	(0.023)
Family CEO*Max % of inheritable wealth, country	−0.229**				−0.399*
	(0.118)				(0.208)
ln(GDP), region		0.043			0.020
		(0.031)			(0.034)
Family CEO*ln(GDP), region		−0.018			0.030
		(0.019)			(0.048)
Family CEO*Rule of law, country			−0.008		0.008
			(0.025)		(0.062)
Trust, region				−0.171	−0.144
				(0.174)	(0.194)
Family CEO*Trust, region				0.074	0.066
				(0.121)	(0.214)
R-squared	0.349	0.346	0.345	0.345	0.349
Observations	1,114	1,114	1,114	1,114	1,114
Country and industry dummies	y	y	y	y	y
CEO characteristics	y	y	y	y	y
Firm characteristics	y	y	y	y	y
Noise controls	y	y	y	y	y

* significant at 10%; ** significant at 5%; *** significant at 1%. All columns are estimated by OLS. In all columns standard errors under coefficient are clustered by country (wild cluster bootstrap, Webb 6 point distribution). The variable *CEO hours worked* is the log of the total hours the CEO devoted to work activities lasting more than 15 minutes (excluding travel) during the survey week. Family CEO=1 for those who own the firm or belong to the family that owns the firm, and 0 otherwise. Industry dummies are thirty-three 2-digit SIC codes. CEO characteristics are a dummy to denote CEOs holding a managerial or board position in another firm, the log of CEO age, the log of one plus number of years CEO has been employed in the firm, a dummy to denote CEOs holding a college degree, a dummy to denote CEOs holding an MBA or equivalent degree, a dummy to denote CEO that have worked or studied abroad. Firm characteristics are the log of one plus firm age, a dummy to denote foreign or domestic multinationals, the number of people reporting directly to the CEO, a dummy to denote whether the firm employs a COO, the number of CEO's sons and daughters holding a managerial position in the same firm. Noise controls include: a dummy to denote cases in which the time use data were recorded by the CEO's Personal Assistant; 55 interviewer dummies; a dummy to denote CEOs who formally report to an executive Chairman; 29 interview week dummy; a self-reported score given by the CEO to rank the representativeness of the week and a dummy to denote weeks with a national or religious holiday. The variable *Max % of inheritable wealth* is a country-specific measure taken from Ellul, Pagnano, and Panunzi (2010) for all countries, except for India, where the measure is set to 0.50 to take into account that the vast majority of family firms in our sample are organized as Hindu Undivided Family organizations (see main text for more details). The variables ln(GDP), region, and rule of law are taken from Gennaioli et al. (2013). The variable *Trust, region*is computed using respondent-level data from the World Values Survey and measures the % of people responding ?Yes? to the question "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?".

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