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PRÁCTICAS GERENCIALES, PROPIEDAD DE FIRMAS Y PRODUCTIVIDAD EN AMÉRICA LATINA

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RESUMEN

Este trabajo analiza datos gerenciales y de desempeño de unas 8000 firmas manufactureras a través de América, Asia y Europa. Se encontró que las empresas de América Latina tienen pobres prácticas gerenciales al comparar con los estándares internacionales, con un monitoreo limitado, objetivos pequeños y de corto plazo, y prácticas de recursos humanos inefectivas. Un factor grande detrás de esta mala calidad gerencial es la alta incidencia de empresas controladas por los propietarios; bien sea el fundador o la familia fundadora. En América Latina, estas firmas muestran un retraso en la calidad media de la gerencia al comparar con firmas de la misma estructura propietaria en otras regiones, asimismo, también muestran un retraso con sus pares dentro de su región. Una competencia limitada en el mercado de productos y la presencia de empresas multinacionales extranjeras, explorada ya por (Bloom et al. (2012b), parecen ser razones de las pobres prácticas gerenciales. Se encontró entre firmas que las pobres prácticas gerenciales están asociadas a poca educación de la fuerza laboral, baja orientación exportadora, fuertes regulaciones en el mercado laboral y acceso limitado al crédito. Finalmente se demostró que una mejor calidad gerencial está fuertemente ligada a una mayor cantidad de firmas y a la productividad nacional, confirmando que la medición de las prácticas gerenciales son significativas económicamente.

MANAGEMENT PRACTICES, FIRM OWNERSHIP, AND PRODUCTIVITY IN LATIN AMERICA

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ABSTRACT

We analyze management and performance data for over 8,000 manufacturing firms across the Americas, Asia and Europe. We find that Latin American firms have poor management practices by international standards, with limited monitoring, short-term and narrow targets, and ineffective human-resource practices. A major factor behind this poor management quality is the high incidence of firms owned and controlled by the founder or the founding family. In Latin America, these firms lag both in average management quality when compared to firms of the same ownership structure in other regions and in catching up to their peers within their regions. Limited product market competition, the presence of few foreign multinationals, already explored by Bloom et al. (2012b), also appear to account for poor management practices. Across firms, we find that poor management practices are linked to a less educated workforce and low export orientation as well as heavy labour-market regulations and limited access to credit. Finally, we show that better management quality is tightly linked to higher firm and national productivity, confirming that the management practices measured are economically meaningful.

JEL Codes: L2, M2, O14, O32, O33

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Management Practices, Firm Ownership, and Productivity in Latin America

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Abstract: We analyze management and performance data for over 8,000 manufacturing firms across the Americas, Asia and Europe. We find that Latin American firms have poor management practices by international standards, with limited monitoring, short-term and narrow targets, and ineffective human-resource practices. A major factor behind this poor management quality is the *high incidence of firms owned and controlled by the founder or the founding family*. In Latin America, these firms lag both in average management quality when compared to firms of the same ownership structure in other regions and in catching up to their peers within their regions. Limited *product market competition*, the presence of *few foreign multinationals*, already explored by Bloom et al. (2012b), also appear to *account for poor management practices*. Across firms, we find that *poor management practices* are linked to a *less educated workforce* and *low export orientation* as well as *heavy labour-market regulations* and *limited access to credit*. Finally, we show that *better management quality* is tightly linked to higher *firm and national productivity*, confirming that the management practices measured are economically meaningful.

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Keywords: management, family firms, organization, and productivity

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1. Introduction

The existence of a persistent and substantial productivity gap between Latin American and more developed countries is a well-documented fact. In recent years, however, Latin America has become a hotspot for foreign investment as a result of hard-hitting recessions in Europe and the United States. Consequently, there has been a growing interest in understanding the driving forces behind the productivity gap among these economies to devise efficiency improvement policies and create an environment more conducive to investment and growth. Much research has already been carried out to look inside the black box of economic development. This paper sits at the intersection of two important factors linked to this persistent productivity gap: the effect of ownership structures and of management practices on firm performance. We will address each in turn.

While the ownership and productivity literature has been quite prolific since the seminal work of Berle and Means (1932) with both theory and empirical works, it mostly focuses on ownership concentration and effects of top management ownership (ie. board of directors and C-level) on firm productivity. There is still disagreement regarding the effect of ownership structure on productivity, as it is inherently difficult to account for the endogeneity of ownership structure on firm performance (Demsetz, 1983; Claessens and Djankov, 1999; La Porta et al., 1999; Demsetz and Villalonga, 2001; Morck et al., 2005; Bennedsen et al., 2007). Perhaps this divergence in results stems from the fact that the ownership-performance relationship has not yet been examined empirically via the firm's internal management mechanisms, which is the channel explored in the seminal theoretical work. The literature on management and productivity contributes to this debate by finding that large variations in management quality across firms and countries are also strongly associated with differences in performance (Ichniowski et al., 1997; Black and Lynch, 2001; Bertrand and Schoar, 2003; Bloom and Van Reenen, 2007, 2010; Bloom et al., 2012b).

In our work, we find that different types of ownership are strongly correlated with various levels of quality of management practices. In general, we find that firms owned by the founder/founding family and have founder/family members serving as the chief executive officer (CEO) tend to be significantly worse managed than firms under alternative ownership structures, such as dispersed shareholders, private equity or founder/family firms which are managed by an external CEO. Insofar as we also find a significant relationship between better management and firm performance, it could be that one of the reasons behind the lower performance of family firms is related to with the lower quality of their management practices.

Our contribution to the literature is exploring the role of management practices across distinct types of ownership structures as an important factor underlying the productivity lag of Latin American firms. We use a unique dataset that includes quality of management practices and ownership structure data from over 8,300 firm interviews collected from 2006 to 2010 across 21 countries by the World Management Survey.¹ More specifically, this paper focuses on a comparative analysis of firms across continental regions (henceforth: regions) following the work of Bloom and Van Reenen (2007) and Bloom et al.

¹ For more information, see www.worldmanagementsurvey.org. Daniela Scur and James Milway collected the Canadian data at the ICP, Renu Agarwal and Roy Green collected the Australian and New Zealand data at UTS, and Andrea Tokman collected the Chilean data at the IPP.

(2012b), who argue that ownership structure is a factor linked to the variation of management practices across firms and ultimately linked to firm productivity. The management survey methodology, described in Bloom and Van Reenen (2007), uses double-blind surveys to collect data on firms' use of operations management, performance monitoring, target setting and talent management in their day-to-day management practices.²

The remainder of this paper is organized as follows: Section 2 reviews the relevant literature. Section 3 discusses measuring management practices and describes the data used in this paper. Section 4 describes the variation of management practices within and across countries. Section 5 explains management practices across ownership types with a focus on firms owned and controlled by founders and founding families in different regions. Section 6 explores the potential factors linked to the variation of management practices in different regions, focusing on factors that are both internal and external to the firm. Section 7 investigates the relationship between management practices, firm ownership, and performance. Section 8 concludes the paper.

2. Literature Review

2A. *Ownership and Productivity*

The current literature surrounding ownership and productivity both supports and challenges the Berle and Means (1932) theory suggesting that there is an inverse relationship between ownership diffusion and firm performance. In their seminal work, *The Modern Corporation and Private Property*, they argue that the separation of ownership and control creates a structure that moves agents away from maximizing profit and in favour of non-value-maximizing management's desires, such as on-the-job consumption.

Since then, much disagreement has ensued. Demsetz (1983), one of the contenders of this theory, argues that, in fact, the ownership structure of a firm is an endogenous result of a maximizing process. Demsetz posits that the utility maximization problem of the owner-manager includes on-the-job consumption as well as consumption out of the firm. In his position as owner-manager, he may value the on-the-job consumption more than other types of (possibly cheaper) consumption at home. Consumption is defined broadly as a concept encompassing not only directly consumable items such as food but also workplace environment. To illustrate this point, Demsetz uses the example of an owner-manager's consumption in terms of hiring workers. Considering this to be part of the owner-manager's on-the-job consumption set, he could maximize utility by hiring a set of workers based on sets of characteristics he valued more than sheer labour productivity, such as religious affiliation.

However, once the owner is no longer a manager, he specializes in ownership and no longer has the on-the-job consumption he had as a manager. The specialized owner now no longer gains utility from on-the-job consumption, but he does so from his home consumption. Since his home consumption is largely based on profits he gets from the firm, his focus is now shifted towards profit maximization. To achieve this, he will hire a managerial team that minimizes the on-the-job consumption and maximizes firm profit.

² While there is not a well-defined absolute guide to what is "best practice" and "worst practices" in management, these are a set of basic practices that a leading international consulting firm (McKinsey & Company) originally suggested as being important for effective management.

For the managerial team, there will be a trade-off between on-the-job amenities and wages, depending on how much the managers choose to consume at the job. However, as these managerial tasks are inherently difficult to monitor, Demsetz suggests that the higher cost of monitoring middle managers can be reduced by introducing profit-sharing schemes.

Exploring this theoretical framework, the empirical literature has looked at 1) whether the widely held corporation described in Berle and Means, where capital ownership is dispersed and actual control is concentrated in the hands of managers, is in fact the predominant structure found around the world (La Porta et al., 1999; Morck et al., 2005), and 2) whether ownership dispersion is indeed inversely related to firm performance (Demsetz, 1983; Claessens and Djankov, 1999; Demsetz and Villalonga, 2001; Bennedsen et al., 2007).

First, studies have shown that, perhaps with the exception of the United States and the United Kingdom, the predominant structure in the world is not dispersed ownership but one where there is a major group of controlling shareholders, such as states or families (La Porta et al., 1999; Morck et al., 2005). La Porta et al. (1998) suggests that although it is not the case in most of the world, the Berle and Means' corporation is more likely to exist in rich common law countries, where there is stronger protection for minority shareholders and less risk of expropriation for controlling shareholders. Further, La Porta et al. (1999) looks at ownership structures of the 20 largest publicly traded firms in each of 27 richest economies and, using a 20% definition of control, find that 36% of firms worldwide are widely held while 30% are family-controlled and 18% are state-controlled.³ The prevalence of family-owned as an ownership structure underscores the importance of analyzing family-owned firms as a distinct group and of investigating whether there is a set of characteristics of these firms that are fundamentally different from other types of ownership structures. In our context, we find that, on average, family-owned firms do indeed differ from other firms in the quality of management practices as measured by our survey (Bloom and Van Reenen, 2007).

Second, in terms of whether a dispersed shareholder structure has a perverse effect on productivity, the empirical evidence is mixed. Some studies find that concentration of ownership has a positive effect on firm performance (Claessens and Djankov, 1999), others find an inverted U shape relationship (Morck et al., 1988), others find no relationship at all (Demsetz and Villalonga, 2001), and some even find a negative relationship (Bennedsen et al., 2007).

Claessens and Djankov (1999) find that concentration of ownership has a positive effect on firm performance. They use data from the Czech Republic at the time of the mass-privatization program to test this relationship and argue that this finding is not a result of an endogeneity bias. An important point in their findings is that there are classes of owners - namely foreign strategic investors and non-bank funds - which are more strongly associated with improvements in performance. Thus, it is not simply the dispersion or concentration of shareholdings but also *who* owns the majority or minority stakes in the corporations that matter for firm performance. Other studies point out that when managers are minority shareholders, market forces can still steer them towards maximizing value rather than focusing on non-

³ The remaining 15% are other categories.

value-maximizing goals.⁴ However, when a manager owns a significant stake in the company, his job is relatively more secure and he can “indulge in non-value-maximizing preferences” (Morck et al., 1988).

Morck et al. (1988), similarly, find evidence of a statistically significant effect of ownership structure on performance (measured by Tobin’s Q). Using a cross-section of 371 Fortune 500 firms, they suggest that imposing a linear relationship is “inappropriate” and estimate a series of piecewise linear regressions instead. They find a nonmonotonic relationship between ownership by the board of directors and Tobin’s Q; that is, it first increases, then it declines and rises again. Another interesting finding in Morck et al. (1988) is that if owners become entrenched managers, this has an adverse effect on firm value. They argue that there could be a fundamental misalignment between what the board and the market consider desirable corporate investments, and, thus, an entrenched manager could force a non-optimal allocation of the firm’s investment funds.

They examine this issue empirically by looking at firms where the founder or a member of the founding family is the CEO.⁵ They find that the presence of a founding family member as CEO differed for old firms (negative effect) and young firms (positive effect). They explain that one possible reason for this is that the entrepreneurial role of the founder in “young firms” is still important, while as firms get older this turns into “entrenchment” and starts to erode the value maximization proposition of the firm.

On the other hand, Demsetz and Villalonga (2001) argue that empirical analyses that fail to take into account the endogeneity of ownership structure miss a crucial point: firm performance can influence its ownership structure as much as the structure can influence performance. Including this in their model, they do not find a statistically significant relationship between ownership structure and performance. They point out that this result supports the view that while diffuse ownership can cause the agency problems described in Berle and Means (1932), it can also yield “compensating advantages” which mitigate these problems. They conclude that the market influences ownership structures and that the degree of concentration or dispersion suits each firm according to the circumstances, scale and regulation that each of them faces.

On the other end of the spectrum, a recent study by Bennedsen et al. (2007) uses the incidence of male primogeniture births among CEOs of firms in Denmark to infer the causal effect of family ownership on firm performance. They use the gender of departing CEOs’ first-born child as an instrumental variable, arguing that when the first-born child is a son, the probability of family succession is higher. In this study, they find a large negative causal impact on firm performance following family successions in the top management role. In particular, they find that the type of industry is important, and that family CEOs underperformance is worse in innovative and fast-growing industries, where there is a relatively higher incidence of larger firms and higher skilled employees.

Other studies have made the argument from a macro perspective, looking at the relationship between country growth and the share of firms with dispersed ownership. Morck et al. (2005) argue that economic growth depends on the distribution of control over capital assets, and thus depends on institutions that are

⁴ See, for example, Fama (1980) and Jensen and Ruback (1983).

⁵ By extension, their idea suggests that even with small stakes in shareholding, the founders could have special control of their firm because of their status as founders, which could have allowed them to choose those sitting in the board of directors or other such claims to power.

capable of restricting entrenched elites. In particular, their concern is that when there is a large concentration of firm ownership within the hands of a few members of an elite group, there can be bias in the allocation of capital, slow down the development of capital markets and create barriers to entry by outside entrepreneurs, all which retard growth.

As it relates to this paper, loosely based on the theory of the firm espoused by Demsetz, we can draw three main parallels with the ownership categories in our data: the owner-manager, the owner with external management, and the dispersed ownership. One idea is that in the firm where the owner/founder is also the manager, he exercises direct control over the firm and thus could have less motivation to implement formal monitoring systems. He can also become perversely entrenched in the management of the firm unable to let go of the “private benefits” of control, consistent with the Morck et al’s hypothesis. It is possible that the set of skills necessary to be a successful entrepreneur and founder are different than the set of skills needed to be a manager after the company reaches a certain scale. In the case of dispersed shareholders, the structure inherently necessitates external managers and more formal systems of management. The figure of one owner-manager is by definition, absent.

2B. Management and Productivity

The other strand of literature focuses on the relationship between management and productivity. In terms of theory, there are three main ways of thinking about the role of management practices in a production function: management as a factor of production, management as a technology, and management as design or contingent management.(Bloom et al., 2012c)

If we consider management as another factor of production, akin to labour or capital, we would observe a market price for the management input. This price would in turn determine the optimal level of usage of the input. Thus, assuming we are properly measuring the managerial inputs, although differences in management practices will be correlated with differences in productivity, these should not be systematically correlated with differences in profitability.

Our results show some evidence for this type of approach. We find evidence, albeit not causal, that variations in management practices are at least in part driven by the regional supply of skills. That is, we see a strong correlation in our results between better management practices and measures of manager as well as worker education. Further, we also find that firms across every country interviewed highlight lack of manager and worker skills as a constraint on their management practices, and presumably these types of skills are available at market rates.

The other way to look at management is as a technology, and we would follow the notion that better management should strictly increase firm-level profitability. The idea is that management is a type of process innovation that can be used by many firms, and can be thought of as a “soft technology.” Alexopoulos and Tombe (2010) use an index based on counts of management-related publication titles from the Library of Congress as a proxy for the introduction of new practices to measure the effect of an unanticipated increase in publications on Gross Domestic Product (GDP) as well as Total Factor Productivity (TFP).⁶ In the United States, they find that the impulse response of an unanticipated increase

⁶ In short, the idea is that the objective of publishing is to educate and disseminate new ideas. As soon as an idea surfaces, there is a large increase in publications on that topic. As time goes on, the number of new publications goes

in book titles (ie. introduction and dissemination of a new practice) is as high as 16% and 28% respectively after 5 years.

More generally, the concept is easily illustrated by examples of major process innovations in the past hundred years, such as Total Quality Management, Scientific Management and Lean Manufacturing, all of which have been implemented across the world. These process innovations are similar to product innovations, which are non-rivalled but diffuse slowly because of the informational complexity around their introduction. For example, it took the American automotive industry several decades to replicate the Japanese system of Lean Manufacturing despite the system's increasingly obvious superiority from the 1980s onwards.

Treating management as a technology, we could consider it changing over time as new managerial techniques arise and firms choose whether to adopt these or not. Empirically, we also find some evidence for this theoretical approach in observing that well-managed firms make higher profits on average, suggesting good management is more than just a paid-for factor.

Finally, we can also consider management through the lens of contingency theory in management science, or "design approach," which espouses the view that all practices are contingent on the industry and environment faced by the firm. This approach has a long history in management science, going back at least to Woodward (1958), and in fact is now the dominant paradigm in fields like organizational behavior and human resource management. Within economics, Organizational and Personnel economics has also focused here, analyzing the circumstances under which different designs of firms could raise productivity (e.g. decentralization, incentive pay, outsourcing, etc.).

We understand that there will always be some element of the design approach at play when firms choose certain management practices. In our research we focused on collecting information on management practices that we believe on average should raise productivity (e.g. using data systematically to make operational decisions and taking worker performance into account when making promotion decisions). That is, we tried to avoid measuring management practices whose impact was contingent because these are hard to label "good" and "bad". Such contingent practices would be around activities like advertising, strategy, research and development rates for which there is no one best practice.

As it pertains to this paper, it is important to emphasize that we understand that, despite our focus on "best practice" management, these practices will still not be universally equally important. For example, aspects of the environment such as labour regulations and the level of human capital will make some styles of management more attractive for some countries and firms than others. In these circumstances firms will optimally specialize in some forms of managerial practices rather than others. However, our view is that the 18 practices we focus on are likely to be performance enhancing for most firms. For example, having entrenched processes to identify top performers who should be deemed valuable for the firm, as well as set processes to document and follow-up with poor performers can safely be considered best practices regardless of the economic and legal environment of individual national labour markets.

down but it does not mean the practices are not still in use. The authors use the example of publications on penicillin. While no one could question the widespread use of the drug today, searches for articles on penicillin would not be about how penicillin is used to treat customary bacterial infections, as this is already well understood and applied.

Our hypothesis that these processes are likely to improve productivity is based both on our own empirical results throughout the years of this research project and also on field experiments showing a large causal impact of better management (Bloom et al., 2012a).

Considering the broader literature on management and productivity, Ichniowski et al. (1997) document higher levels of productivity associated with using sets of modern or innovative practices instead of traditional practices. They also find that clusters of complementary human resource management practices have large and positive effects on productivity, while individual work practices show little to no effect on productivity. Black and Lynch (2001) also find similar results when estimating a standard Cobb-Douglas production function with cross-sectional data in the US. More importantly, they find that the *manner* in which a practice is implemented is more important for the productivity effect than *whether* the practice is said to be used or not. For example, “simply adopting a TQM [Total Quality Management] system has an insignificant or even negative impact on productivity, whereas increasing the proportion of workers meeting regularly to discuss workplace issues or extending profit sharing to production workers has a significant and positive impact on productivity.”⁷ In our survey, we seek to unveil *which* and *how* management practices are implemented in the firm, asking managers to describe their practices and evaluating them systematically on our scale, rather than simply asking them to name their management system. In this way, we believe we are actually measuring the degree of usage rather than the superficial adoption of these practices.

Bertrand and Schoar (2003) use a panel of manager-firm matched data to isolate the manager fixed effects and find that there are significant patterns that indicate management “style” is related to manager fixed effects in performance, who in turn are more likely to be in better managed firms.

Furthermore, new survey and diagnostic tools for evaluating management practices find that large variations in the quality of management across firms and countries are also strongly associated with differences in performance (Ichniowski et al., 1997; Black and Lynch, 2001; Bertrand and Schoar, 2003; Bloom and Van Reenen, 2007, 2010; Bloom et al., 2012b). For example, better managed firms have significantly higher productivity, higher profitability, faster growth, higher market value (for quoted firms) and higher survival rates (Bloom and Van Reenen, 2010; Bloom et al., 2012b). Particularly relevant for this paper, Bloom et al., (2012b) find that firms in developing countries have much worse effective monitoring, targets and incentive practices – a set of measures of management – than firms in developed countries. Moreover, they suggest that the low average quality of management in developing countries appears to be attributed to a large tail of badly managed firms coexisting with firms with world-class management practices. These findings suggest that poor management practices are potentially an important factor underlying the lower levels of development of many countries.

3. The Data

3A. Measuring Management Practices

Throughout the years, several schools of classical, neo-classical and contemporary management thought have developed frameworks to study management theory. While a firm’s managerial decisions are still

⁷ p. 435

subject of much theoretical discussion, scholars have often pointed out that this debate is scarcely substantiated with empirical studies (Holmstrom and Tirole, 1989; Peltzman, 1991; Coase, 1993; Lafontaine and Slade, 2007).

This lack of empirical work may come from the difficulty of asking appropriate questions and collecting accurate information to understand how firms are managed, both of which require effort and resources. Furthermore, the intangible nature of most management concepts makes the quantification of a firm's management practices a very complex exercise. Thus, it becomes evident why the debate on firm management has remained mostly at the theoretical or case study level. The World Management Survey is among a small but significant surge of emerging research on this subject, which has attempted to move beyond selective case studies and collect systematic and reliable data to empirically test management theories (Siebers et al., 2008). Below we describe the data collected in the survey and used in this paper.

i. Defining and Scoring Management Practices

To measure management practices, we have developed a new survey methodology described in Bloom and Van Reenen (2007). We use an interview-based evaluation tool, initially developed by an international consulting firm, that defines and scores from one (“worst practice”) to five (“best practice”) a set of 18 basic management practices on a scoring grid (practices listed in Appendix A). A high score represents a best practice in the sense that a firm that adopts the practice will, on average, increase their productivity. The combination of many of these indicators reflects “good management” as commonly understood, and our main measure of management practices represents the average of these 18 scores.

This evaluation tool can be interpreted as attempting to measure management practices in three broad areas:

First, *operations management & performance monitoring practices* - testing how well lean (modern) manufacturing management techniques have been introduced, what the motivation and impetus behind changes were, whether processes and attitudes towards continuous improvement exist and lessons are captured and documented, whether performance is regularly tracked with useful metrics, reviewed with appropriate frequency and quality, and communicated to staff, and whether different levels of performance lead to different process-based consequences.

Second, *target setting practices*— testing whether targets cover a sufficiently broad set of metrics, including short and long-term financial and non-financial targets, and whether these targets are based on solid rationale, are appropriately difficult to achieve, are tied to the firm's objectives, are well cascaded down the organization, are easily understandable and are openly communicated to staff.

Third, *talent management practices* – testing what emphasis is put on overall talent management within the firm and what the employee value proposition is, and whether there is a systematic approach to identifying good and bad performers and rewarding them proportionately, to dealing with bad performers, and to developing, promoting and retaining good performers.⁸

ii. Obtaining interviews with managers

⁸ These practices are similar to those emphasized in earlier work on management practices, by for example Ichinowski, Prennushi and Shaw (1997) and Black and Lynch (2001).

We used a variety of procedures to obtain a high response rate and to remove potential sources of bias from our estimates. First, we monitor interviewers' performance in contacting firms and scheduling interviews. The interviewers were encouraged to be persistent, that is, they run on average two interviews a day lasting approximately 45 minutes each and spend the remainder of their time repeatedly contacting managers to schedule interviews. Second, we presented the study as a "piece of work" (never using the word "survey" or "research") and the interview as a confidential conversation about management experiences, starting with non-controversial questions of management practices within the firm. Third, we never ask interviewees or mention the firm's financial performance. Instead, we obtain such data from independent sources or company accounts. Fourth, we always send informational letters, and, if necessary, copies of country endorsements letters as well.

These procedures helped yield an overall 42% response rate which was uncorrelated with the (independently collected) performance measures for the firms. That is, we were not disproportionately interviewing successful or failing firms.

iii. Collecting accurate responses

To ensure the collection of accurate responses, we hired MBA and PhD students with some business experience and training to conduct the interviews. Our interviewees were plant managers, who, due to being part of the middle management team, have an overview of the firm's overall management practices without being detached from its day-to-day operations.

During the interview itself, we used a double-blind technique by:

1) conducting a telephone survey without informing the managers that their answers would be evaluated against a scoring grid and thus, gathering information about actual management practices (as opposed to manager's aspirations, perceptions and interviewer's impressions).

2) not informing the interviewers about the firm's performance. Interviewers are only provided with the firm's name and telephone number. We randomly sample medium-sized firms, employing between 100 to 5,000 workers, that is, these firms are large enough that the type of systematic management practices chosen are likely to matter; however, they are small enough so the interviewers generally have not heard of them before and, therefore, have no preconceptions about the firm's performance.

We also follow several other steps to guarantee the quality of the data such as:

3) asking open-ended questions until an accurate assessment of the actual management practices could be made, for example, on the first performance monitoring dimension we start by asking the open question "what kinds of indicators do you use for performance tracking", rather than closed questions such as "do you use indicators for performance tracking" which may lead to a yes/no answer. The second question on the performance monitoring dimension is "how frequently are these measured? Who gets to see this data?" and the third is "If I were to walk through your factory what could I tell about how you are doing against your indicators?" The combined responses to this dimension are scored against a grid which goes from 1 which is defined as "*Measures tracked do not indicate directly if overall business objectives are being met. Tracking is an ad-hoc process (certain processes aren't tracked at all).*" up to 5 which is defined as "*Performance is continuously tracked and communicated, both formally and informally, to all*

staff using a range of visual management tools.” During their training session, the interviewers are also encouraged to ask follow-up questions beyond the ones we give them as guides, whenever necessary.

4) ensuring that each interviewer conducted a minimum amount of interviews in order to correct any inconsistent interpretation of responses.

5) double-scoring, i.e, having another interviewer silently listening and scoring the responses provided during the interview to be discussed with the primary interviewer.

6) collecting a series of noise controls on the interview process itself (such as the time of day and the day of the week), characteristics of the interviewee and the identity of the interviewer. We include these controls in the regression analysis to help improve the precision of our estimates by reducing some of the measurement error.

iv. Validating the management practices measures

To validate our survey data, we re-surveyed 5% of the sample using a second interviewer to independently interview a second plant manager in the same firm. Two independent management interviews on different plants within the same firms should help to reveal how consistently we are measuring management practices within that firm. In the sample of 222 additional interviews, we found that the correlation of the score between our independently run first and second interview was 0.51. Part of this difference across plants within the same firms is likely to be real internal variations in management practices, with the rest presumably reflecting survey measurement error. However, the correlation across the two interviews is highly significant (p-value 0.001). This suggests that while some substantial noise exists in our interview process there are significant differences in management quality across firms.

3B. Defining and Collecting Ultimate Ownership Information

The ultimate ownership information was initially collected by the interviewers during the telephone survey and later verified by a research assistant using the Bureau van Dijk’s Orbis database, internet research including firms’ websites, and, if necessary, calling back the firm and speaking to a different person.

During the survey, we asked plant managers “Who ultimately owns the firm?”, and in case it was a multinational, we asked the follow up question of “Who owns the parent firm in the home country?” The interviewer was instructed to probe enough to find out who the single largest shareholding was and whether it owned more than 25.01% of the shares. If the founder or one of his descendants ultimately owned the firm, the interviewer also asked, “is the CEO a family member?” and, if yes, “When the CEO control was passed down through the family, was it given to the eldest son?”

The ownership categories and definitions used in this process are the following:

1) *Dispersed Shareholders* - No single entity (person, family, or firm) owns more than 25.01% of the shares, i.e. no entity owns a controlling stake.

2) *Private Individuals* - One or more private individuals own a controlling stake and they are not the founders or descendants of founders of the firm. This applies to firms that have been acquired by a family or other individuals from a previous owner or the founding entity.

- 3) *Founder/ Family owned* - The firm founder or founding family still owns the firm. This group is comprised of 3 subcategories: a) *Founder owned, founder CEO* - the founder is still the owner as well as the CEO of the firm, regardless of whether the founder is a family member or one of several founding partners, b) *Family owned, family CEO*, - the founding family still owns the firm, and the CEO is a family member, c) *Family owned, external CEO* - the founding family still owns the firm, but the CEO is an individual not related to them.
- 4) *Managers* - The firm managers own the controlling stake.
- 5) *Government* - The firm is majority owned by a government or state enterprise, which can be of the same nationality as the firm or a foreign one.
- 6) *Private Equity or Venture Capital* - A private equity, venture capital or investment fund type of enterprise owns the controlling stake.
- 7) *Other* – This category comprises all other types of ownerships not included in the above such as holding firms, financial firm (ex. banks) or non-governmental organizations, foundations, trust, research institutes, employees/ COOP, and joint ventures.

3C. Sampling Frame

We focused on medium-sized firms, selecting a sample of firms with predicted employment of between 100 and 5,000 workers. Very small firms have little publicly available data. Very large firms are likely to be more heterogeneous across plants, and, therefore, it would be more difficult to capture the management practices implemented in the firm as a whole from an interview with one plant manager. We drew a sampling frame from each country to be representative of medium-sized manufacturing firms and then randomly chose the order of firms to contact (see Appendix B for details).

We used different databases for these sampling frames: Amadeus (Bureau van Dijk) in Europe, Icarus in the US, Oriana for China and Japan, Firstsource for India, Dun and Bradstreet in Australia, Orbis (Bureau van Dijk) for Canada, Brazil, Argentina, and Mexico, and SOFOFA (Sociedad de Fomento Fabril)'s list of affiliated companies for Chile. We had concerns regarding the cross-country comparisons so we include country dummies in all of the preferred specifications. Our choice of countries was determined by economic size, data and our ability to hire analysts who were natives of the countries in which interviews were being conducted (in order for the interview to be conducted fluently in the same language as the plant manager being interviewed).

Comparing the responding firms with those in the sampling frame, we found no evidence that the responders were systematically different from the non-responders on any of the performance measures. They were also statistically similar on all the other observables in our dataset.

i. Possible concerns

There are two possible issues that concern this particular paper in terms of the size of firms in our sample. First, there is a concern that a survey that focuses on medium-sized firms of between 100 and 5,000 workers is not as relevant to studying firm management practices in Latin America as it would be if it also included firms employing less than 100 workers. This concern stems from the firm-size distribution across countries of different income levels and, particularly, the prevalence of entrepreneurs and smaller firms in Latin America.

In order to address this concern, Exhibit 1 presents the share of firms and share of total employment attributed to different firm size bands collected from economic censuses and other datasets from statistical agencies in Argentina, Brazil, Mexico and the United States.⁹

As the table shows, the share of *very small-sized manufacturing firms*¹⁰ in the United States comprises 79% of the population of firms, while the share reaches 83% in Argentina and 92% in Mexico. Brazil is the only Latin American country surveyed with a lower share of firms in this size range than the United States, 74%. The share of *small-sized manufacturing firms*¹¹ in the United States reaches 19% while in Argentina the share is 16% and in Mexico 6%. Brazil presents a larger share in this size range than the United States, 24%. A cursory look at this simple set of statistics does indeed suggest that the firm-size distribution in most Latin American countries is skewed to the left when compared to the distribution in the United States. However, the share of medium sized firms (the focus of this survey) and of *large-sized firms*¹² is similar in all countries: 2% in the US, 2% in Argentina, 2% in Brazil and 1% in Mexico.

The next obvious question then becomes, if these medium and large firms are such a small share of the overall stock of firms in these economies, why should we focus on them? The next set of statistics on the share of total employment in each firm size range answers this question: despite their meagre share of the total firm distribution, they employ very large shares of the population across all the countries studied, and thus they represent a substantial and important share of the country's economy and labour market. In Argentina, 45% of total employment in the manufacturing sector is concentrated in firms employing 100 or more workers. This number reaches 58% in Brazil, and 61% in Mexico. Thus, to the extent that the aim of this paper is to explore the potential factors behind the productivity gap between Latin America and other regions, it becomes relevant to study the quality of management practices of medium-sized firms.¹³

A second concern, also related to this differing firm size distribution across the countries surveyed, is that the overall country management scores are a reflection of a sample constituted by larger firms in developed countries and smaller firms in developing countries. The similar share of medium and large-sized firms across Latin American countries and the United States partially addresses this concern. Furthermore, Exhibit 2 presents the descriptive statistics of the samples for all countries surveyed (discussed in more detail in the next section). The median firm in Latin American countries is indeed

⁹ The Chilean economic census or the Chilean Annual National Manufacturing Survey (ENIA) is carried out at the plant level but only includes manufacturing firms with 10 or more employees. For the purposes describing the firm size and workforce distribution across countries, the set of statistics provided by the ENIA is not fully comparable to the set of statistics available in the other countries and, thus, not used in this paper.

¹⁰ In this paper, we define this category as firms employing between 0 to 9 or to 10 workers, depending on the definition used by the statistical agency in each country. In Exhibit 1, we provide more detailed information regarding number of firms and employment by firm size. For Brazil, Chile and the United States, the size range provided by their respective censuses and used in this paper is as follows: 0 to 4, 5 to 9, 10 to 49, 50 to 99, 100+ employees. For Argentina and Mexico, the size range used is as follows: 0 to 5, 6 to 10, 11 to 50, 51 to 100, 101+ employees.

¹¹ Firms employing between 9 or 10 to 99 or 100 workers, again depending on the definition of the census in each country.

¹² Firms employing more than 100 or 101 workers, again depending on the definition of the census in each country.

¹³ There has been some mixed evidence from the recent developing-country empirical literature investigating the impact of management or business practices on the performance of smaller firms. See, for example, Bjorvatn and Tungodden (2010), Karlan and Valdivia (2010), Bruhn and Zia (2011), and Mano et al. (2011) among others.

smaller than the median firm in some developed countries, such as the United States and Germany, but it is larger than the median firm in several other developed countries, such as Canada and Great Britain. Nevertheless, we address this concern by controlling for firm size when presenting the average management scores ranking in this paper.

4. Management Practices

Across the 21 countries for which we have management data, the median firm is privately owned and around 38 years old. It employs approximately 330 workers, operates across two production plants, and exports 20% of its production.

In Latin America, the median firm has 300 workers, is slightly older than the overall median firm (41 years old), operates with one production plant and exports approximately 10% of its production, half as much as the overall median firm. Looking at individual countries, the median Argentinean firm is of similar size (320 workers) but is a few years older (48 years old), operates with one production plant and exports about 10% of its production. The median Brazilian firm is of similar size (300 workers) and age (36 years old) to the overall median firm, but it also operates with one production plant and exports substantially less (around 3%). The median Chilean firm employs slightly less people (280 workers), is older than the overall median firm (47 years old), but it operates across two production plants and exports only slightly less than the overall median firm (around 15%). The median Mexican firm is slightly bigger (350 workers) and younger (33 years old) than the overall median firm. Similar to Argentina and Brazil, it operates with one production plant, but it exports slightly more than the overall median firm (25%) and substantially more than the other Latin American countries in our sample.

The median firm in the United States, used throughout this paper as a benchmark, employs a higher number of workers (375) than the overall median firm, is 42 years old, operates across 4 production plants and exports 10% of its production. Exhibit 2 presents these statistics for all countries in our sample. Below we describe firm management practices observed in these 21 countries.

4A. Management practices across countries

The average management practice scores across countries are shown in Exhibit 3. Three distinctive blocks emerge from this analysis. At the top, the United States has the highest management practice score on average, followed by the Japanese, Germans, Swedes and Canadians. This group of countries are followed by a block of other Western and Anglo-Saxon countries (Great Britain, Italy, Australia, France, Northern Ireland, and New Zealand). At the bottom are countries in Southern and Central Europe (Poland, Greece, and Portugal) and the Republic of Ireland, along with Latin American countries (Mexico, Chile, Argentina, and Brazil), China and India.

Mexico outperforms the other Latin American countries surveyed and has management practices that are comparable to New Zealand and Poland while management practices in Chile, Argentina and Brazil are comparable to practices in Greece, China and India. Overall, average management practices in Latin American countries are poor by international standards.

4B. Management practices within countries

Perhaps most notable are the large differences between Latin American countries and the United States. Exhibit 4 shows a firm-level distribution of management practices by plotting a smoothed (kernel) fit of the data for Argentina, Brazil, Chile, Mexico and for the United States, our benchmark country. The dark blue line indicates that there are very few badly-managed firms in the United States while for all lines representing Latin American countries, we observe a much thicker left tail. As the graph shows, 63% of Argentinean firms, 66% of Brazilian firms, 62% of Chilean firms and 47% of Mexican firms score within the range of the bottom quartile of US firms.

This indicates that, although some firms in Latin American countries have high quality management practices, there is a substantial number of badly-managed firms co-existing with these well managed firms, dragging down their country's average management scores.

In fact, 61% of the differences in management practices is attributed to the variation across firms within the same country while only 20% is attributed to the variation between countries. That is, both the overall poor management practices and, particularly, the large differences in management practices within countries could be an important factor behind the lower levels of development in middle-income countries. These findings suggest that it is necessary to study which aspects might be driving these divergent distributions within countries to begin to understand the position of Latin American countries within this ranking.

5. Management Practices and Ownership Structure

We now turn to an analysis of management practices across different types of ownership. As described in section 3B, the dataset includes firms owned by dispersed shareholders, the founding family with an external chief executive officer (CEO), the founding family with a family CEO, the founder, the government, the managers of the firm, private equity, private individuals, and others.

First, we examine how the distribution of these ownership categories varies across countries, since ownership can account for up to 38% of cross-country differences in management practices.¹⁴ In particular, we focus on two ownership categories associated with family ownership and control: family firms with a family CEO and founder firms where the founder is also the CEO (henceforth, founder/family firms). As seen in Exhibit 5, Latin American countries along with Southern European countries and India have a substantial share of founder/family firms when compared to other countries. More specifically, 55% of Brazilian firms, 41% of Argentinean firms, 37% of Mexican firms, and 28% of Chilean firms are ultimately owned and controlled by their founders or one of their descendants.

The high incidence of founder/family firms is not surprising. La Porta et al. (1999) use ownership data from corporations in 27 countries to argue that only a small share of firms is widely held. They show that firms with a controlling shareholder, such as family and state firms, are the most common form of ownership in the world. By contrast, in the majority of the countries in the top and middle block of the

¹⁴ Including a full set of dummies for different ownership types reduces the R-squared of country dummies in firm-level management regressions by 38%, suggesting that about 38% of the cross-country variation in management is associated with differences in ownership.

management practices ranking (as described in section 4A) such as the Sweden, United States, Australia, Canada, Germany, Great Britain, and France, these two categories as a group constitute no more than 22% of the sampled firms.

One leading explanation for this difference is that ownership structure of firms is linked with a country's shareholder protection regulation, that is, founder and family firms prevail in countries with poor minority shareholder protection and, by contrast, widely dispersed firms are more common in countries with strong minority shareholder protection (La Porta et al., 1999). Furthermore, the underdevelopment of financial markets and weak legal system in many countries makes the separation of ownership and control extremely difficult (La Porta et al., 1997). An alternative explanation is that family firms are particularly effective at coping with difficult labour relations, so they arise as a natural response in countries where labour relations are hostile (Mueller and Philippon, 2011). Considering the high relative and absolute prevalence of founder and family firms in Latin American countries shown above, the remainder of this paper investigates management practices across and within different ownership categories, focusing particularly on these types of firms.

5A. Management practices across ownership types

Exhibit 6 shows the average management practices scores by ownership type, controlling for size and country of location. At the bottom of the table are firms owned and controlled by the founder, that is, firms where the current CEO founded the firm. These firms present very poor management practices in comparison to firms of other types of ownership. One potential reason for this is that the entrepreneurial skills required for a start up, such as creativity and risk taking, are not the primary skills required to manage a firm that has grown large enough to enter our sample (at least 100 employees). A firm of this size needs to move beyond informal rules and implement a systematic and thorough coordinating process to survive, which may be executed more effectively by a professional manager.

Founding family firms with a family CEO, that is, firms owned and controlled by the descendants of the founder (sons, daughters, grandsons, etc), are second to last in the table, also presenting poor management practices in comparison to other ownership groups. Using management data from France and Germany, the UK and the US, Bloom and Van Reenen (2007) find that family-owned firms in which the CEO position is passed to the primogeniture are extremely badly managed. They suggest that, despite the potential positive effects of reducing the principal-agent problem often observed in firms of dispersed ownership, there are negative effects associated with family-owned, family-controlled firms such as limited availability of candidates who can be nominated to managerial positions, little incentive to family members to do well in their early careers knowing they will have a guaranteed job in the family business (the Carnegie effect), which leads to limited talent at the top, and no incentive provided to other non-family managers who know there is limited room for merit based promotion in the firm. Bennedsen et al. (2007) also document a negative causal effect on performance in firms following primogeniture handovers.

On the other hand, founding family firms with an external CEO, that is, firms owned by the descendants of the founder but externally controlled, present good management practices, which are similar to the practices of firms owned by dispersed shareholders (at the top of the table) and by private equity.

5B. Management practices within ownership type

Exhibit 7 presents the distribution of management practices within different categories of ownership, providing a comparison between founder and family-owned and controlled firms and dispersed shareholder firms (placed at the top of the ranking of management practices across ownership type) in Latin America and the United States.

As expected, the thick left tail of badly managed firms owned and controlled by their founder or family members is substantially more accentuated in Latin American countries. This trend is most notable within founder firms where 67% of Argentinean firms, 72% of Brazilian firms, 81% of Chilean firms, 73% of Mexican firms score within the range of bottom quartile of firms in the United States. Within family firms, 64% of Argentinean firms, 62% of Brazilian firms, 58% of Chilean firms, and 50% of Mexican firms score within the range of the bottom quartile of firms in the United States. This suggests that founder/family firms in Latin American countries present substantially poorer management practices when compared to founder/family firms in the United States.

On the other hand, firms owned by dispersed shareholders are, on average, well managed across countries. Within this type of ownership, the distribution of firm management practices scores across Latin America are comparable to the distribution of the United States, where all countries present a very mild left tail of badly managed firms. This is partly due to the fact that 73% of the firms owned by dispersed shareholders in these Latin American countries are overseas affiliates of foreign multinationals (10% are domestic multinationals and 17% are domestic firms). Therefore, these firms have a comparative advantage in regards to their management quality and organizational structure (Antras et al., 2008; Burstein and Monge-Naranjo, 2009). Empirical evidence supports this theory by showing that multinationals are able to replicate their management practices in their affiliates abroad (Bloom et al., 2011).

5C. Management practices across ownership types within regions

We also look at the large differences between the quality of different sets of management practices implemented by founder/family firms in comparison to all other firms within Latin America and within other continental regions. Exhibit 8 presents the results from regressing firm management practices scores for each dimension of management practices (detailed in Section 3A) across different regions against a founder/family firm dummy. The standard deviation of each of the three sets of management scores was normalized to unity. Hence, the coefficient on the founder/family firm dummy reports how many standard deviations founder/family firms are away from all other firms for that particular set of management practices.

Columns (1) and (2) in the table report the results for all countries combined. Columns (3) to (7) replicate the same regression model in column (2) with added controls but restricting the sample to different regions, allowing for a within-region analysis. The results for Latin American countries are in columns (3), Asian countries in columns (4), Anglo-Saxon countries in columns (5), Southern & Central European countries in columns (6), and Scandinavian & Western European countries in columns (7). Each row reports the results for a different set of management practices.

The first set of regressions refers to the set of management practices related to operations management and performance monitoring. In column (1), we find, as expected, that founder/family firms are

significantly worse managed than all other firms. In column (2), we add controls for countries, industry, firm characteristics, and noise and find that founder/family firms are still significantly worse managed than all other firms. The founder/family firm dummy for Latin American countries shows a similar coefficient to the coefficient for Southern European countries, but it is slightly higher than the coefficient for Anglo-Saxon countries, for Scandinavian and Western European countries, and for Asian countries. That is, taking only operations management and performance monitoring practices into consideration, these results suggest that the gap in management quality between founder/family firms and other firms within Latin America is similar to the gap found in firms from Southern & Central European countries but slightly larger than firms in other regions.

The second set of regressions focuses on the set of management practices related to target setting. Columns (1) and (2) repeat similar estimations to the previous set of regressions, showing that founder/family firms are significantly worse managed than all other firms. The results found in columns (3) to (7), however, are interesting. The coefficient for founder/family firms dummy in Latin America is substantially higher than that coefficient for all other regions. This estimation shows that the gap in the quality of target-setting practices between founder/family firms and all other firms are considerably larger within Latin America than within all other regions. Target-setting practices evaluated in our survey include a) setting balanced short and long-term, financial and non-financial targets; b) ensuring these targets are interconnected through business units, demanding (yet attainable) for all parts of the firm, and based on shareholder value; and c) ensuring the targets ultimately define individual performance expectations.

The third set of regressions looks at the set of practices related to talent management. Once again, columns (1) and (2) show that family firms are significantly worse managed than all other firms. Similar to what the previous set of regressions suggests, the coefficient for the founder/family firms dummy is substantially higher in Latin America than in other regions, with founder/family firms in Anglo-Saxon countries presenting the smallest gap in talent management quality in comparison to other firms in the region. These regressions indicate that, within Latin American countries, founder/family firms are also lagging behind other firms concerning their ability to manage human capital, that is, their ability to remove poor performers from their positions as well as attract, retain, develop, promote and reward good performers across departments and business units.

Thus, this analysis show that founder/family firms in Latin America not only have lower average scores, as shown in Section 5B, but they are substantially behind firms within the same category in other countries, particularly within target setting and talent management practices. That is, these firms are not only lagging behind in management quality when compared to firms of the same ownership type in other regions, but they are also lagging in catching up to their peers within their regions.

6. Factors Linked to Differences in Management Practices

The next step in exploring the management data is to examine factors associated with the large differences in management practices across firms and countries. In addition to family and founder ownership, in the most recent paper describing the World Management Survey management data, Bloom et al. (2012b) identify several other factors linked to management practices. For example, government ownership is associated with worse management practices across the manufacturing sector; foreign

multinationals are associated with better management practices when compared to domestic firms; and higher competition is associated with better overall management. In this section, we explore four other factors that appear to be relevant to founder/family firms as well as firms of other types of ownership: the firm's human capital characteristics, its export orientation and two structural constraints – labour market regulations and access to credit.¹⁵

6A. Firm-specific characteristics

i. Human capital characteristics

In a recent World Bank Enterprise Survey of 1,420 manufacturing firms of 100 or more employees in Argentina, Brazil, Chile, and Mexico, 91% of firms reported an inadequately educated workforce to be an obstacle to their current operations (90% in Argentina, 95% in Brazil, 89% in Chile, 89% in Mexico). Out of these firms, 76% reported it to be a moderate, major or very severe obstacle, and, on a separate question, 10% of these firms reported it to be the most important obstacle to their current operations. Given such alarming numbers, we investigate whether a firm's human capital, that is, the stock of competencies and knowledge constituting the skill set of the workforce, is linked to management quality.

Exhibit 9 shows that a qualified and educated workforce – as measured by the percentage of managers and non-managers with a college degree – is linked to better management practices. Despite being unable to infer causality, Bloom et al. (2012b) suggest that managers with a college degree are more likely to be aware of the benefits of introducing or complying with modern management practices and that non-managers with a college degree might be more receptive towards the introduction and more knowledgeable during the implementation of these practices. A standard OLS regression of our management scores against 4 dummies representing categories for the percentage of the total workforce with a college degree (using the categories specified in the Exhibit 9, with 0 being the omitted category) shows an increasing positive relationship which, although not causal, supports this story.

Exhibit 10 and 11 particularly look at the association between the plant manager's skill set and the management practices implemented in the firm. We explore two possible avenues regarding the plant manager's skill set. First, we look at whether firms that hire plant managers with college-acquired qualifications are better managed. Second, we investigate whether firms that promote managers with accumulated experience in the company prior to taking the current post are better managed. Accumulated experience in the firm may offer an alternative option for managerial training and development, and it may compensate to a certain extent for the lack of formal education. This would suggest that there is a possible trade-off between different forms of human capital. It may also indicate that the plant manager is better acquainted with- and more knowledgeable about the operational management procedures and talent management practices implemented in the firm.

In Exhibit 10, we show that firms where the plant manager has a college degree are strongly associated with better management practices across all types of ownership, including founder/family firms. In

¹⁵ Several other environmental and structural constraints are considered to be obstacles to the functioning of firms, such as the inefficiency of the judicial system in resolving commercial disputes, the administrative burden of paying taxes and contributions, and the difficulty of registering property. However, these obstacles are not directly linked to the day-to-day shop floor management practices measured in the World Management Survey and, therefore, not considered in this paper.

Exhibit 11, we show that firms where the plant manager has accumulated experience in the company in a different post are strongly associated with better management practices, regardless of whether the plant manager has a college degree. A breakdown by ownership type shows that this is also a factor associated with differences in management practices in founder/family firms.

These results suggest that the skills gap may be an important factor hampering the absorption of modern management practices in firms in Latin America. Policies aimed at improving workforce skills and closing this gap could have a positive and significant impact on firm management practices.

ii. Export Orientation

Describing management practices at different stages of the internationalization process, Bloom et al., (2012b) show that, on average, non-exporters are the worst managed, followed by non-multinational exporters, while foreign multinationals are the best managed in the group. In this paper, we also look at the differences between the quality of management practices implemented by export-oriented firms in Latin America in comparison to all other firms within Latin America and within other continental regions.

A key institutional factor affecting the internationalization of firms is customs and trade regulations, which indeed appear to present an obstacle to export-oriented firms in Latin America. In the four Latin American countries studied in this paper, the World Bank Enterprise Survey reports that out of the 1420 firms surveyed, 58% of firms surveyed do not export¹⁶. Out of these, 51% of firms perceive customs and trade regulations to be an obstacle to the operations of their firms. Further, out of the remaining 44% of firms surveyed, which do export, 81% of firms perceive customs and trade regulations to be an obstacle to their current operations (90% in Argentina, 89% in Brazil, 68% in Chile, and 77% in Mexico). It is noteworthy that these are not major exporters as, for the median exporting firm, exports account for only 15% of their direct sales. This could suggest that customs and trade barriers are a significant impediment for firms to increase their export intensity, a firm characteristic we find to be correlated with better management practices.

Firms for which exporting presents a challenge can certainly benefit from learning-by-exporting effects. In order to fulfil their international orders, these firms might need to comply with a different (and potentially more stringent) set of requirements and regulations, deal with more demanding customers, upgrade their operational practices, and retrain their workers, all of which is conducive to developing new skills and improving their management processes. That is, the knowledge flows from international customers can help improve the post-entry practices of new exporters. On the other hand, the desire to export may also lead firms to improve their practices in order to be competitive in the new, broader markets.¹⁷

Although our data currently does not allow us to make causal inferences, we can still see a set of clear patterns from our cross-sectional data. To explore the link between management and export propensity, we first divide our firms into six categories based on the percentage of their production output that is exported. In Exhibit 12, we look at the average management score of firms within each category, as well

¹⁶ These statistics include direct exports only.

¹⁷ See Wagner (2007) for a survey of firm-level studies investigating the relationship between exports and productivity through the learning-by-exporting and the self-selection hypotheses.

as non-exporters, and find that export intensity is positively linked to better management practices. Further, we also analysed this data with a standard OLS regression, allowing for the effect of export intensity on management to vary with each category. Exhibit 13 presents the results of this regression. Column (1) shows the raw regression of our management scores against 6 dummies representing the different percentage ranges of share of production exported (where no exports becomes the omitted category). As expected, the result of this simple cross-sectional regression shows that exporting firms have better management practices than non-exporting firms. In column (2), we add controls for countries, industry, firm characteristics, and interview noise and find that the significant advantage of exporting firms over non-exporters holds across all export intensity categories, except for the 1-10% group. These results indicate that the link between exporting and management practices is substantially more prominent as firms become more export-oriented. In column (3), we replace individual country controls with a dummy variable for Latin America and include an interaction term of the Latin America dummy variable with each export level group. This allows us to explore whether firms with the same export intensity are as well managed in Latin America as in non-Latin American countries. In this regression, the omitted category becomes non-Latin American, non-exporting firms.

A few interesting results emerge. From column (3), we see that there is no difference in management practices between a non-Latin American, non-exporter to a non-Latin American firm exporting between 1-10% of their output. It could be that firms exporting less than 10% of their output do not have enough exposure to the external markets to be influenced by them in the ways we described above. This reasoning is cogent with the result that the relationship of export intensity with the quality of management practices is nearly monotonic, increasing in magnitude as well as significance as the export intensity increases (with the one notable exception of firms exporting over 51% of their output).

When we look at the Latin America dummy, the negative sign indicates that the average non-exporting Latin American firm is worse managed than the non-exporter outside of Latin America, though this is not significant at any of the conventional levels. In the interaction terms, we only see significantly better management in Latin American firms exporting more than 20% of their output, when compared to a non-Latin American, non-exporter. More specifically, on average, firms exporting between 20 and 50% of their output have scores that are 0.03 to 0.09 points better than non-Latin American, non-exporting firms. This is the equivalent of about 5 to 13% of a standard deviation in the management dataset.¹⁸

It is curious that firms exporting over 50% of their output have a combined effect that is negative though insignificant on management practices,¹⁹ while this is positive, strongly significant and quite substantial (17% of a standard deviation) for non-Latin American firms. Furthermore, it seems that the relationship is partially being driven by foreign multinationals. When we add a dummy for these firms, the coefficient for the same is large and strongly significant (1% level). Controlling for foreign multinational status also reduces both the magnitude and the significance of previously significant coefficients. These findings are robust to different threshold definitions of export intensity. Within family and non-family firms, we still see a generally positive relationship between higher export intensity and better management.

¹⁸ The standard deviation for the whole management dataset is about 0.66.

¹⁹ Latin America dummy coefficient + LatAmX51% coefficient: $-0.125 + 0.072 = -0.053$

These results suggest that policies minimizing the inherent market distortions caused by high tariffs and other types of trade barriers could have a positive and significant impact on improving firm management practices for export-oriented firms.

6B. Aggregate Frictions

i. Labour market regulations

There has been considerable evidence from both developing and developed regions showing that tougher regulation of labour can constrain the market from operating efficiently.²⁰ At the firm level, tougher labour market regulation has been associated with a reduction in the reallocation of jobs across firms (Gonzaga, 2003; Caballero et al., 2004; Haltiwanger et al., 2008; Micco and Pagés-Serra, 2008). Consistent with Bertola (1990), this suggests that tougher labour regulations impede efficient labour market reallocations by preventing firms from reacting to changes in their environment and adjusting to shocks as they cannot freely allocate workers to more appropriate positions in order to improve firm performance.

Labour market regulation appears to strongly affect the functioning of firms in developing countries. In the four Latin American countries considered in this paper, the World Bank Enterprise Survey reports that 87% of firms perceive labour regulations to be an obstacle to their current operations (94% in Argentina, 94% in Brazil, 82% in Chile, 82% in Mexico). Out of these firms, 72% perceive it to be a moderate, major or very severe obstacle, and 13% find it to be the most important obstacle to their current operations. To empirically test for this, we look at the relationship between labour regulations and management practices by plotting our management scores by country and survey wave against the World Bank Doing Business employment rigidity index. This index measures the regulation of employment in regards to the hiring and firing of workers and the rigidity of working hours, ranking countries from 0 (less rigid) to 100 (more rigid).

Exhibit 14 shows that better talent management practices are significantly correlated with lighter labour regulations (correlation of 0.48). On the other hand, operations management and performance monitoring practices as well as target setting practices are not significantly correlated with labour regulations. As Bloom et al. (2012b) suggest, despite not taking into consideration other aspects influencing the rigidity of labour regulations, which does not allow for us to conclusively demonstrate the relationship mentioned above, it is plausible to argue that tougher labour market regulations may constrain a firm's ability to improve its set of talent management practices.

That is, in rigid labour markets, managers are constrained in their ability to identify good and bad performers with the purpose of rewarding them proportionately using financial and non-financial incentives, to deal effectively with bad performers by removing them from their positions or the firm, and to proactively develop and promote good workers based on merit. Thus, policies aimed at achieving

²⁰ In particular, tougher labour market regulation has also been associated with lower rates of labour market participation and higher levels of unemployment (Heckman and Pagés-Serra, 2000; Besley and Burgess, 2004; Botero et al., 2004; Amin, 2009), increased employment in the informal sector (Bosch et al., 2007), lower levels of productivity (Besley and Burgess, 2004), and increased poverty and inequality (Heckman and Pagés-Serra, 2000; Besley and Burgess, 2004). For a survey of the research on the effect of labour regulations in developing countries, see Djankov and Ramalho (2009).

flexible labour regulations may have a positive impact on a firm's ability to deal more effectively with employee performance and improve productivity.

ii. Access to credit

Limited or no access to credit may constrain a firm's ability to pursue investment opportunities and, consequently, may hinder its growth.²¹ If firms can easily access credit, they may be able to invest in technological innovation by improving their operations and performance management techniques, and invest in human capital by providing training to workers, resulting in more efficient operational processes. They may also plan ahead and set long-term targets for their operations.

To reduce the impact of limited access to external sources of credit, firms can overcome their financing constraints by accumulating more internal funds. This is common among firms owned by their founders or founding families because their owners are financing them through savings or cheap capital and, consequently, accumulating less debt. Without debt, firms only have to cover operating costs (e.g. salaries and wages) but not capital costs (e.g. the rent on property or equipment since these were usually paid for around the firm's inception). Hence, founder/family firms can continue to generate positive cash flows (while generating economic losses) and, thus, may be less pressured to change their practices in order to increase productivity and profitability. Furthermore, founder/family firms are often reluctant to dilute their controlling stake, which prevents them from raising equity capital.

In the four Latin American countries considered in this paper, the World Bank Enterprise Survey reports that 75% of firms perceive difficulty in accessing financing to be an obstacle to their current operations (80% in Argentina, 86% in Brazil, 57% in Chile, 76% in Mexico). Out of these firms, 56% perceive it to be a moderate, major or very severe obstacle, and 9% find it to be the most important obstacle to their current operations.

We then investigate whether access to credit is correlated with day-to-day management activities of firms. For this analysis, we plot the average management scores by country and survey wave against an indicator measuring the ease of getting credit. This indicator was created using the World Bank Doing Business methodology for the construction of the index measuring the legal rights of borrowers and lenders with respect to secured transactions, and the coverage scope and accessibility of credit information available through public credit registries and private credit bureaus. The first measure examines how well collateral and bankruptcy laws facilitate lending and enforce claims in the event of default. The second measure aids creditors in the process of assessing the creditworthiness of clients.

Exhibit 15 shows that easier access to finance is correlated to better overall management practices (correlation of .48). Although other aspects influencing the easiness of access to credit are omitted from the analysis at this point, it appears that there is some link between a country's poor financial development and a firm's ability to pursue investment opportunities and improve some of their

²¹ See, for example, Demirgüç-Kunt and Maksimovic (1998), Rajan and Zingales (1998), Beck et al. (2008). For a survey of the research on the broader topic of the impact of financial development on growth, see Levine (2005). The link between financial development and growth is well-established; however, the channel through which finance influences firm growth is still unclear. Recent research has suggested that access to finance may have an impact on productivity (Bernstein and Nadiri, 1993; Nickell and Nicolitsas, 1999; Gatti and Love, 2008), and on investment decisions and technological innovation (Levine, 2005).

management practices. It is important to emphasize that some of the management practices measured can be improved with little or no capital investment. Nonetheless, policies aimed at greater financial development may remove impediments to efficient allocation of investment funds in the economy and firms' exploitation of profitable growth opportunities in need of this capital investment.

7. Management Practices, Ownership Structure and Productivity

A final step requires an examination of the relationship between management quality and productivity across countries and firms in order to determine the extent to which our measurements of management practices matter for firm performance.

First, we simply plot the GDP per hour worked in 2011 US\$ - an internationally comparable measure of productivity for all countries and waves surveyed (with the exception of India and China) - against our management measure (the labour productivity variable was extracted from the Conference Board Total Economy Database). As Exhibit 16 shows, our average management scores are strongly and significantly positively correlated with productivity levels across countries (correlation of 0.745). It is also notable that national productivity levels in Latin American countries are also lower than every other country surveyed.

Second, we investigate the relationship between performance and management practices at the firm level.²² Exhibit 17 presents the results from regressing four measures of firm performance – productivity (log of sales per employee), profitability (return on capital employed), 5-year sales growth rates, and exit rates on our average management scores. Columns (1) to (6) are sourced from the most recent paper describing the World Management Survey management data (Bloom et al., 2012b).²³

Using a standard ordinary least squares regression, column (1) reports the regression of the log of sales on management, holding employment constant. As Bloom et al. (2012b) describe, the coefficient suggests that one extra point in the average management score is associated with a 52.3 log point, or approximately 69%, increase in labour productivity. A one-standard-deviation change in management (of 0.664) is associated with about a 45% increase in sales, holding employment constant. Column (2) includes country dummies, industry dummies, and general controls and shows that, despite the decrease in the coefficient value, one extra point in the average management score is still significantly associated with an

²² The association between management and firm performance has also been empirically tested in other sectors outside manufacturing. In the public sector, Bloom et al. (2012b) find that hospital management quality is significantly and positively associated with risk-adjusted mortality rate from acute myocardial infarction in the UK and US, and that school management quality is significantly and positively associated with student test scores in Canada, Sweden, the UK, and the US. Bloom et al. (2010) interviewed 181 managers and physicians in the orthopaedic and cardiology departments of UK hospitals and found that management scores were significantly associated with better performance as indicated by improved survival rates from emergency heart attack admissions and other kinds of general surgery as well as shorter waiting lists. Better management practices have also been associated with better outcomes for workers and for the environment. Bloom et al. (2009) find that well-managed firms have better facilities for workers such as child-care facilities, job flexibility and self-assessed employee satisfaction. Bloom et al. (2010a) find that energy efficiency is strongly associated with better firm-level management.

²³ In these regressions, the paper by Bloom et al. (2012b) uses a larger sample of firms as, in addition to the sample used in this paper, it also includes approximately 900 interviews conducted before 2006. These 900 observations are not used throughout this paper because the definitions and categories captured in the ownership variables collected before 2006 are different than the definitions and categories applied after 2006.

increase of approximately 26% in labour productivity. Column (3) uses panel data only and reports the results for a fixed effects regression of log of sales on management for a comparison of changes in firm productivity with changes in the firm's management practices. In this estimation, a one-point increase in the average management score is associated with an increase of 4.7 log points (approximately 5%) in labour productivity but remains significant. Columns (4) to (6) repeat the specifications of column (2) using different performance measures. These estimations show that a one point increase in the average management score is significantly associated with a 2.0% increase in profitability (return on capital employed), a 6.7% higher annual sales growth and a 1.1% reduction in exit (bankruptcy or liquidation). We also find a positive and significant correlation between management scores and firm size – another key measure of firm performance as measured by the number of employees) - and is consistent with the Lucas model of the distribution of managerial ability and firm size (Lucas, 1978).

In columns (7) and (8), we restrict the sample to firms owned and controlled by their founders or the founding families to test the applicability and strength of the management practices measured in World Management Survey for these types of firms. Column (7) reports the results after regressing the log of sales on management, holding employment constant but with no other controls added. Our management measure continues to be strongly positively and significantly associated with higher labour productivity. A one-point increase in the average management score is associated with a 42-log point, or approximately 53%, increase in labour productivity. Column (8) repeats the same specification of column (2) but again using the restricted sample. A one-point increase in the average management scores is associated with a 17-point, or approximately 19%, increase in labour productivity. The results from this restricted sample not only show a significant effect of management on productivity, but they also confirm that the management practices measured in the survey are indeed relevant to founder/family firms.

Finally, we also explored whether there was a differential effect of management practices on productivity allowing the coefficients to vary across categories of firm-size using dummy variables for each firm-size quartile range and interacted those with the management score. We did not find a significant relationship in the interaction terms, while the linear management and size terms remained significant supporting the hypothesis that management matters across all size categories in our data.

It is important to remember that this analysis is essentially cross-sectional as our management data was collected at approximately the same point in time. Thus, it is worth stressing that the correlations shown here do not necessarily imply causality between management practices and firm performance. However, recent work does suggest that an improvement in management practices can lead to higher productivity rates. In the work of Bloom et al. (2012a) running management field experiments, they suggest that the adoption of modern management practices can raise productivity by about 17% in the short-run. In addition, a wealth of field experiments, surveyed in Lazear and Oyer (2012), strongly suggest the importance of incentive-based pay for productivity.

Nonetheless, these results present substantial evidence that management practices – as measured by the World Management Survey – are significantly correlated with national productivity levels and positively and significantly associated with better firm performance measures, confirming that our management measures are economically meaningful.

8. Conclusion

Using management practices, ownership structure and productivity data from over 8,300 firm interviews collected from 2006 to 2010 across Latin America, Asia, Europe and North America and focusing on a comparative analysis of firms across regions, we find six sets of results.

First, Latin American countries are towards the bottom of the international rank of management practices. Their firms have only limited monitoring of production processes, infrequent, short-term and narrow targets, and relatively ineffective human-resource management.

Second, there is a very high incidence of firms owned and controlled by the founder or the founding family in Latin American countries.

Third, firms owned and controlled by the founder or the founding family present poor management practices relative to firms of other ownership types in every region under study, but in Latin America these firms are lagging behind in average management quality when compared to firms of the same ownership type in other regions.

Fourth, the substantial gap in management practices presented by these firms in comparison to firms of other ownership types is larger within Latin America than in other regions across a range of dimensions of management practices, particularly concerning target setting and talent management practices. That is, these firms are also lagging behind in catching up to their peers within their regions.

Fifth, drawing from the previous four results, this paper turns to a discussion of factors that could potentially be determining the variation of management practices across countries. In addition to other firm characteristics such as product market competition, the presence of foreign multinationals and of government firms, – factors already explored by Bloom et al. (2012b) – human capital (managerial and non-managerial) characteristics in the firm also appear to be linked to the variation in management practices across firms and countries. There is also a positive correlation between certain management practices and structural factors such as national labour regulations and access to credit.

Sixth, management quality is positively and significantly correlated with national productivity levels and with better firm performance measures. This relationship also holds for firms owned and controlled by their founders or the founding families. One limitation of our study is that it is mainly cross-sectional, and, therefore, we are not able to determine the causal effect of firms owned and controlled by their founder or the founding family on management practices and performance. Nevertheless, we do find evidence suggesting that the management practices measured are economically meaningful and, in combination with the high incidence of firms owned and controlled by founders and founding families (which present poor management quality) found in Latin America, may offer an explanation to the productivity gap between Latin America and more developed countries.

The findings reported in this paper are an initial step in a longer-term research project exploring management, organizational practices and productivity. However, there are several other areas within this work that we are exploring in future research to specifically address the productivity gap between Latin America and other more developed economies. One potential avenue of research involves the application of field experiments or the collection of panel data in the Latin American countries already surveyed. This

would provide a much richer analysis and help identify management and ownership changes across firms and make stronger statements about cause and effect.

Another potential avenue involves expanding the collection of management data in manufacturing to other Latin American countries, which could help us observe patterns of management practices through a comparative analysis within the region. We hope the inclusion of Argentina, Brazil, Chile, and Mexico in this study is soon followed by the inclusion of other countries in the region, which would help us build a large-scale dataset of management and ownership practices in Latin America.

A third avenue of research involves expanding the collection of data to other sectors outside manufacturing such as retail, healthcare, and education, which would help us understand the relationship between management and performance and the various factors affecting overall management practices in the economy as a whole.

Finally, a fourth avenue of research would include collaborating with national statistics offices in the countries surveyed in order to match the data already collected at the plant level to a range of national surveys conducted by these institutes. Databases such as the *Industrial Annual Surveys* in Argentina, Brazil, Chile and Mexico, the *Innovation and Technology Industrial Survey* and employer-employee *Annual Social Information Report* in Brazil, and the *National Survey of Employment, Salary, Technology and Skills* in Mexico would provide a much richer dataset containing a range of information concerning organizational structure, innovation patterns, workforce characteristics and firm performance. In combination with management data, these datasets allow for a much thorough analysis of the factors linked to the variation of management practices and productivity across firms in Latin American countries.

9. Bibliography

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Exhibit 1: Share of firms and share of total employment in manufacturing

UNITED STATES				
Firm Employment Size	Number of Firms	Employment	% of Firms	% Employment
0 to 4 employees	3,558,708	5,966,190	62	5
5 to 9 employees	1,001,313	6,580,830	17	6
10 to 99 employees	1,106,450	27,581,229	19	5
100+ employees	100,835	74,381,377	2	65
Total	5,767,306	114,509,626	100	100
ARGENTINA				
Firm Employment Size	Number of Firms	Employment	% of Firms	% Employment
0 to 5 employees	55,202	130,539	70	13
6 to 10 employees	10,462	78,509	13	8
11 to 50 employees	10,717	227,423	14	23
51 to 100 employees	1,504	105,460	2	11
101+ employees	1,419	440,531	2	45
Total	79,304	982,462	100	100
BRAZIL				
Firm Employment Size	Number of Firms	Employment	% of Firms	% Employment
0 to 4 employees	252,152	469,431	57	5
5 to 9 employees	76,250	505,683	17	6
10 to 49 employees	90,643	1,830,643	21	21
50 to 99 employees	11,858	818,411	3	9
100+ employees	10,245	5,029,949	2	58
Total	441,148	8,654,117	100	100
MEXICO				
Firm Employment Size	Number of Firms	Employment	% of Firms	% Employment
0 to 5 employees	367,744	814,332	84	17
6 to 10 employees	36,412	266,381	8	6
11 to 50 employees	22,349	467,197	5	10
51 to 100 employees	3,897	280,135	1	6
101+ employees	6,449	2,833,017	1	61
Total	436,851	4,661,062	100	100

Sources: 2009 County Business Patterns for the United States. Economic Census 2004/2005 for Argentina. Central Register of Enterprises (CEMPRE) 2010 for Brazil. Economic Census 2008 for Mexico.

Exhibit 2: Firm characteristics across countries

# of Employees in the Firm		Firm Age		# of Production Sites		% of Production Exported	
China	725	Sweden	58	Canada	5	Sweden	70
Germany	500	Japan	56	Australia	4	Portugal	65
United States	375	Australia	53	Rep. of Ireland	4	New Zealand	60
India	350	New Zealand	52	United States	4	Germany	50
Mexico	350	Argentina	48	France	3	Italy	50
Australia	330	Chile	47	Great Britain	3	France	35
Argentina	320	Canada	43	New Zealand	3	China	30
Brazil	300	France	43	Northern Ireland	3	Great Britain	30
Japan	300	Northern Ireland	42	Chile	2	Poland	30
Sweden	300	United States	42	Germany	2	Mexico	25
Northern Ireland	294	Germany	37	India	2	Greece	20
Rep. of Ireland	290	Portugal	37	Italy	2	India	20
France	290	Brazil	36	Japan	2	Chile	15
Chile	280	Great Britain	36	Sweden	2	Argentina	10
Great Britain	275	Greece	33	Argentina	1	Japan	10
Canada	260	Italy	33	Brazil	1	Northern Ireland	10
Greece	260	Mexico	33	China	1	Rep. of Ireland	10
Poland	250	Rep. of Ireland	32	Greece	1	United States	10
Italy	241	Poland	31	Mexico	1	Australia	5
New Zealand	240	India	25	Poland	1	Brazil	3
Portugal	230	China	15	Portugal	1		

Note: There are 8,352 observations containing information about the number of employees in the firm, firm age, and number of production sites. For the percentage of production exported, there are 3,611 observations as the information started being collected in August 2008. We do not have information on the percentage of production exported for the Canadian firms in the sample.

Exhibit 3: Management practices across countries

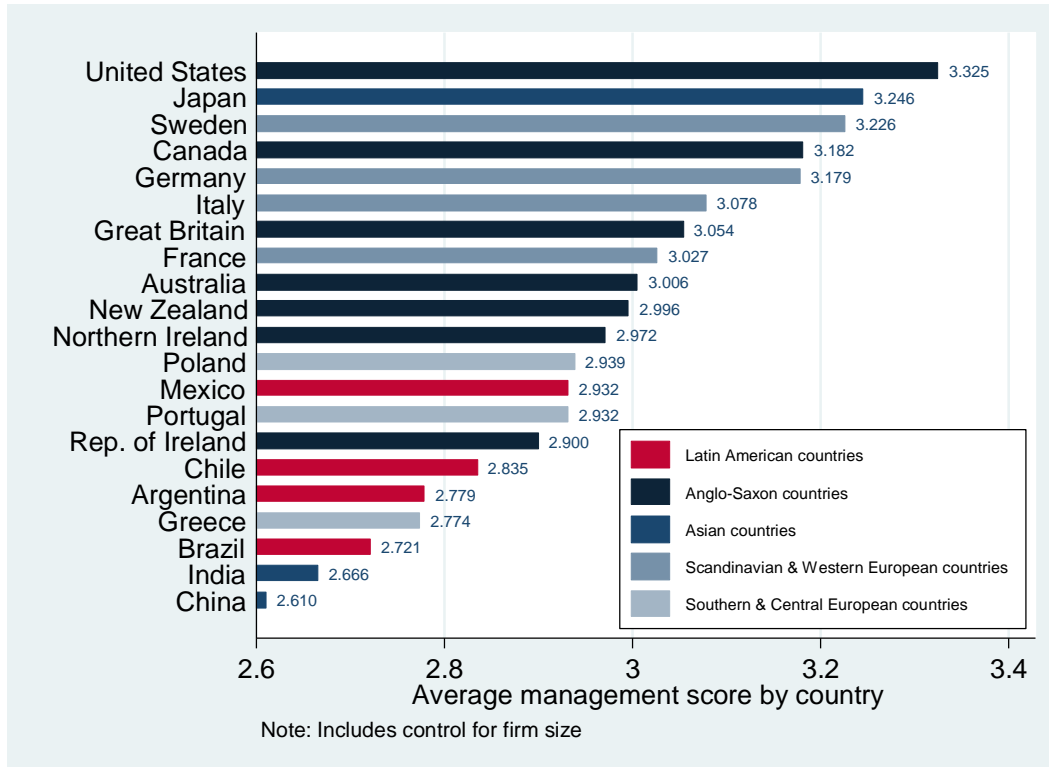


Exhibit 4: Management practices within countries

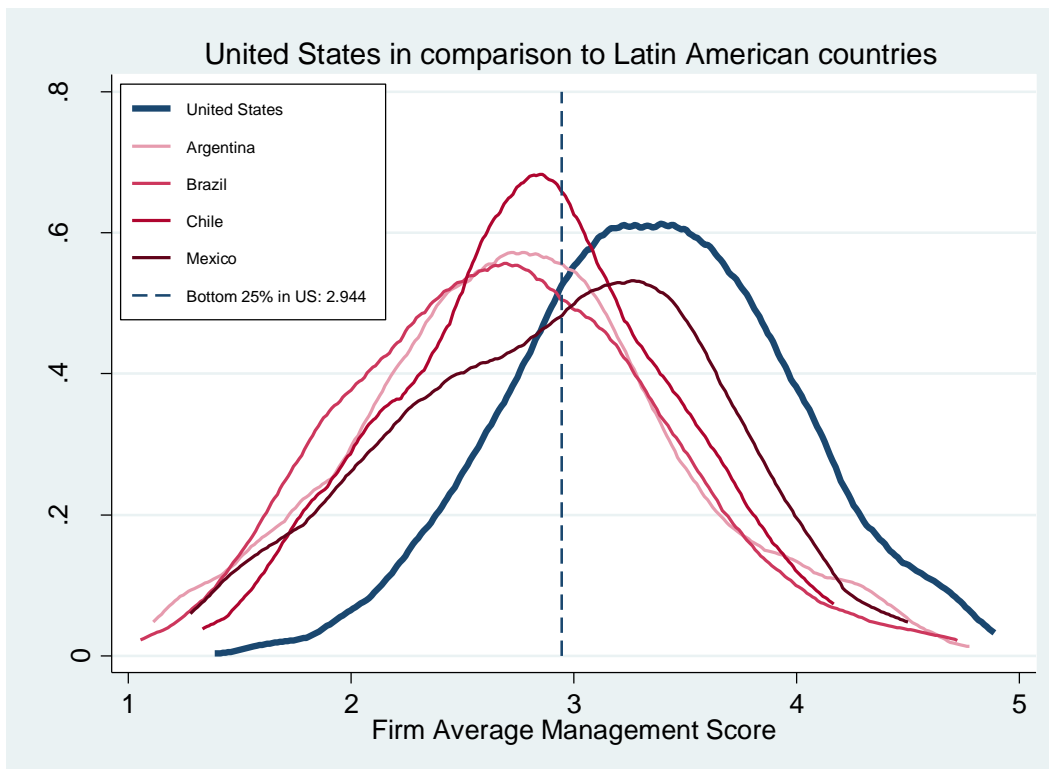


Exhibit 5: Ownership structure across countries

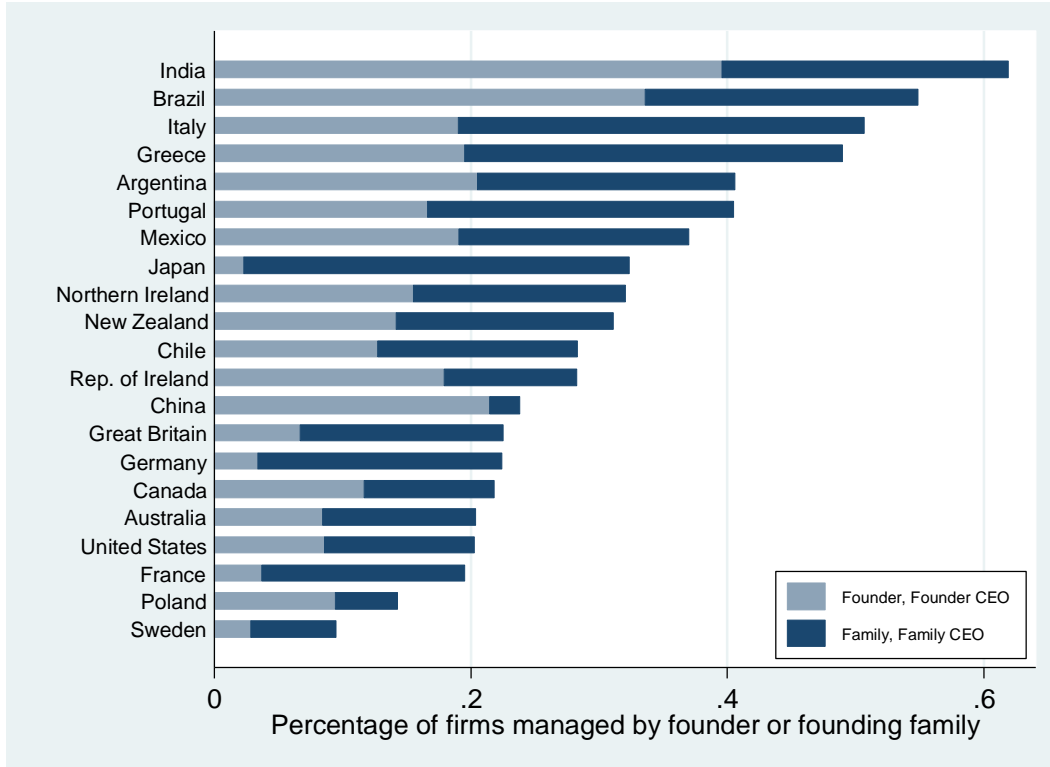


Exhibit 6: Management practices across ownership type

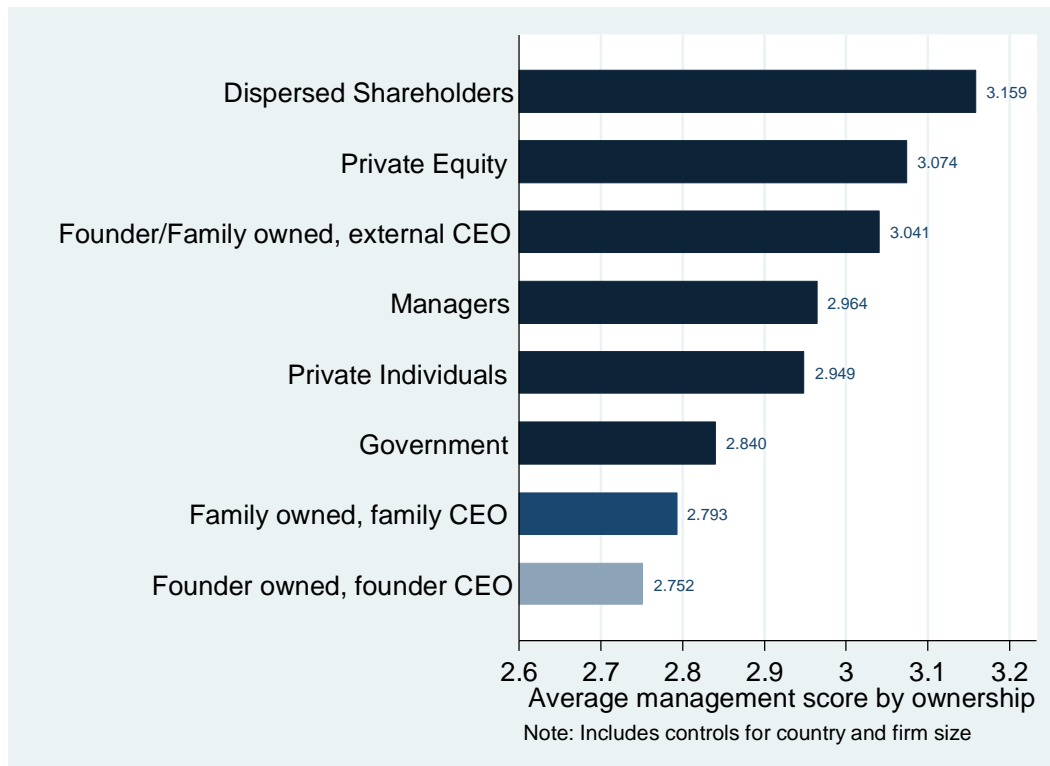


Exhibit 7: Management practices within ownership type

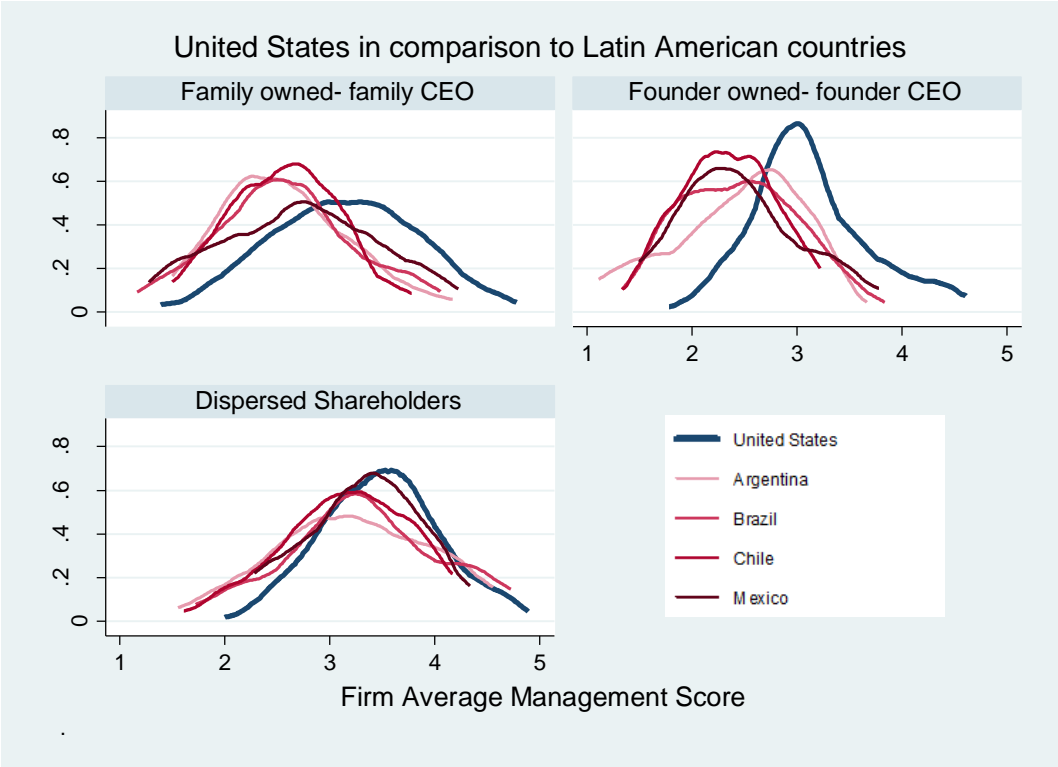


Exhibit 8: Management practices of firms owned and controlled by founders and founding family within regions

Sample:	(1) All Countries	(2) All Countries	(3) Latin American Countries	(4) Asian Countries	(5) Anglo- Saxon Countries	(6) Southern & Central European Countries	(7) Scandinavian & Western European Countries
<i>Dependent variable:</i>							
<i>Operations & Monitoring Z-Score</i>							
Founder/Family firms	-0.606*** (0.025)	-0.288*** (0.023)	-0.345*** (0.052)	-0.295*** (0.057)	-0.298*** (0.043)	-0.321*** (0.080)	-0.277*** (0.067)
<i>Targets Setting Z-Score</i>							
Founder/Family firms	-0.551*** (0.025)	-0.294*** (0.024)	-0.389*** (0.055)	-0.282*** (0.059)	-0.300*** (0.043)	-0.316*** (0.086)	-0.202*** (0.066)
<i>Talent Management Z-Score</i>							
Founder/Family firms	-0.400*** (0.025)	-0.156*** (0.024)	-0.279*** (0.056)	-0.148** (0.060)	-0.099** (0.042)	-0.154* (0.087)	-0.180*** (0.063)
Country controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Industry controls	No	Yes	Yes	Yes	Yes	Yes	Yes
General controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,352	8,352	1,282	1,642	3,003	849	1,576

Note: All columns estimated by ordinary least squares (OLS) with standard errors are in parentheses under coefficient estimates clustered by firm. *** denotes 1% significance, ** denotes 5% significance, and * denotes 10% significance. Sample is all firm-years surveyed from 2006 to 2010. Firm-level operations & performance monitoring management practices is the average of questions 1 to 7, targets setting practices is the average of questions 8 to 12 and talent management practices is the average of questions 13 to 18. All sets of management practices are normalized to have a standard deviation to unity. **Controls:** Country controls are a full set of country dummies. Industry controls are 155 SIC three-digit dummies. General controls comprise of firm-level controls for average hours worked and the proportion of employees with college degrees (log), plus a set of survey noise controls that are interviewer dummies, the seniority and company tenure of the manager who responded, the day of the week the interview was conducted, the time of day the interview was conducted, the duration of the interview, and an indicator of the reliability of the information as coded by the interviewer.

Exhibit 9: Management practices & workforce education

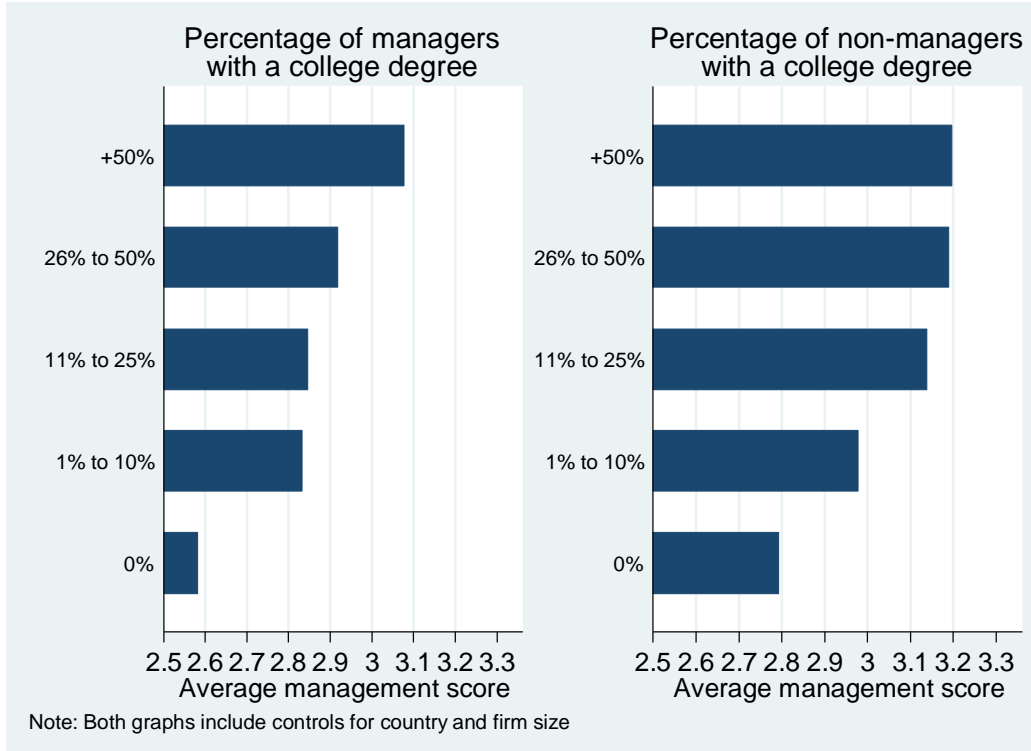


Exhibit 10: Management practices & plant manager's education

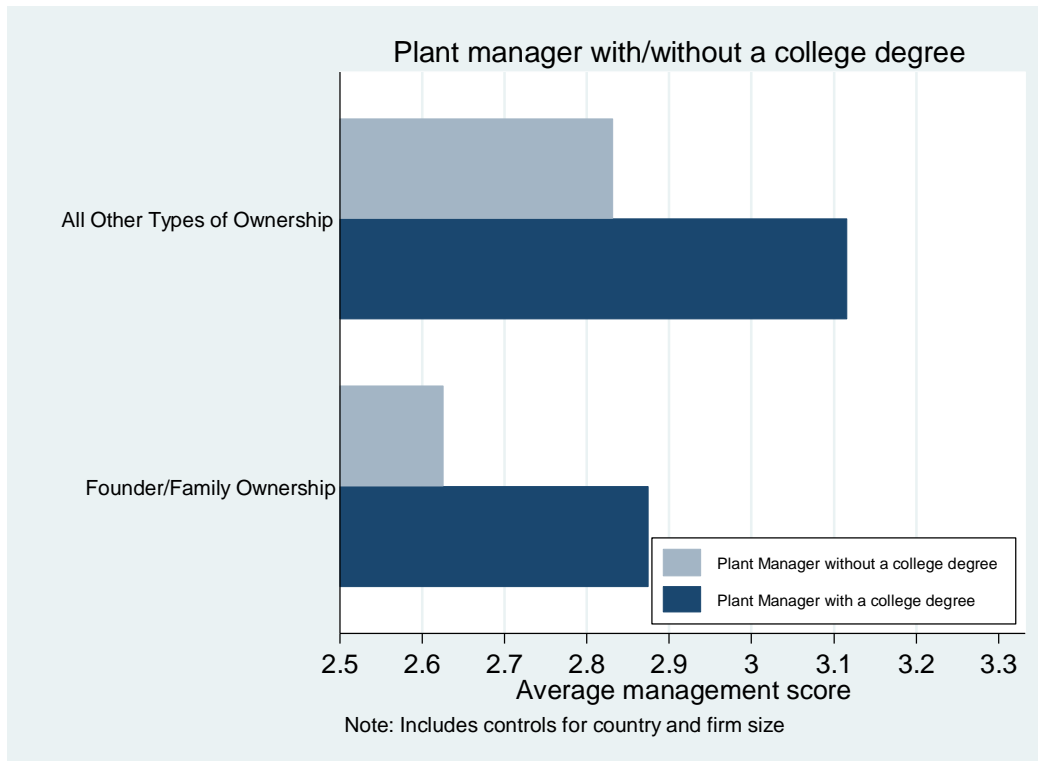


Exhibit 11: Management practices & plant manager's previous experience in the company

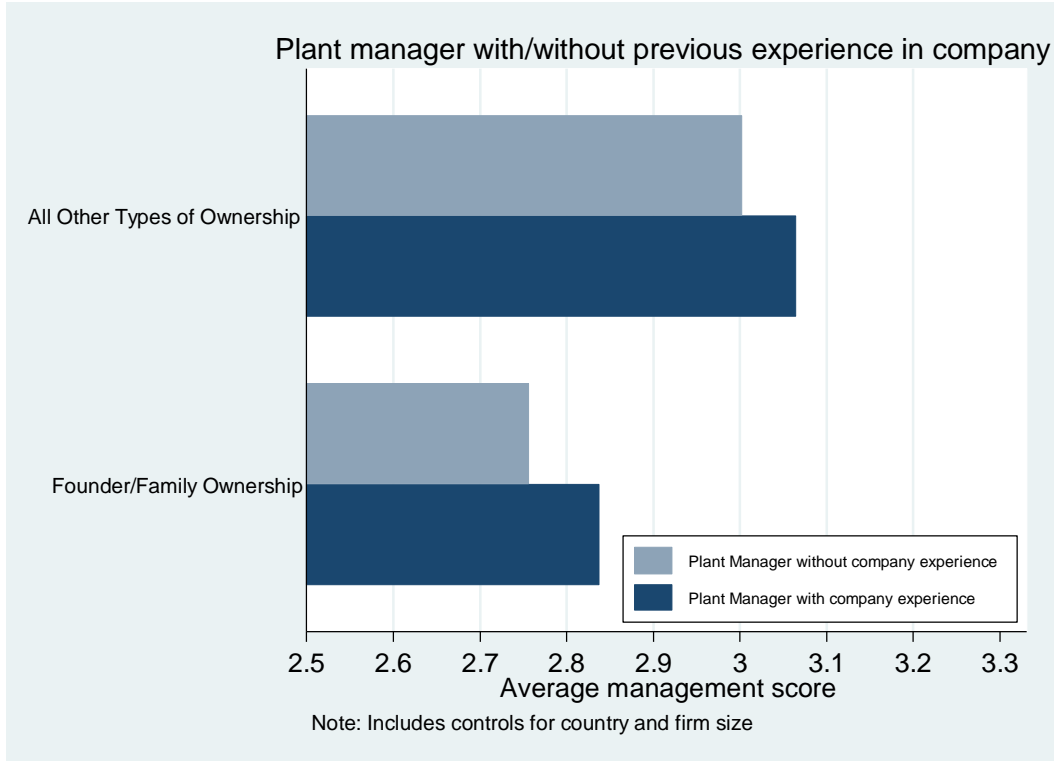


Exhibit 12: Management practices & export orientation

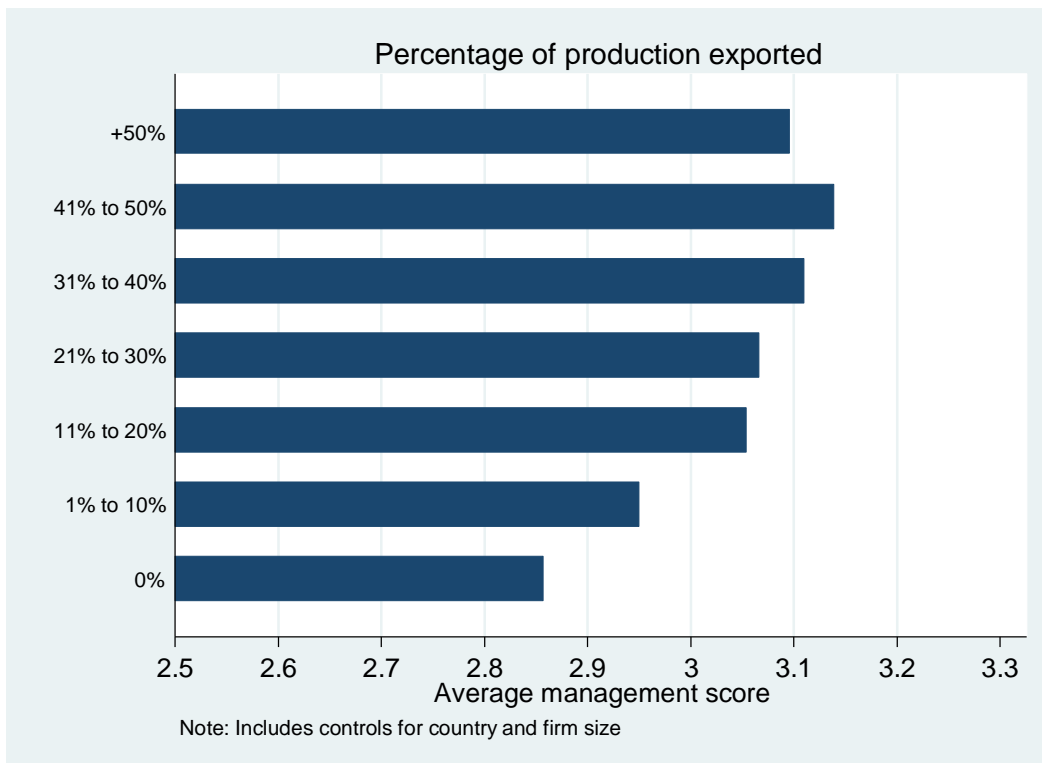


Exhibit 13: Management practices & export orientation

	(1) Management Score	(2) Management Score	(3) Management Score	(4) Management Score	(5) Management Score
<i>Omitted category: non-exporting firms</i>					
Export level: 1-10%	0.163*** (0.034)	0.032 (0.027)	0.000 (0.033)	-0.005 (0.033)	0.000 (0.033)
Export level: 11-20%	0.255*** (0.041)	0.112*** (0.033)	0.072* (0.039)	0.066* (0.039)	0.072* (0.039)
Export level: 21-30%	0.290*** (0.045)	0.125*** (0.037)	0.055 (0.046)	0.062 (0.045)	0.055 (0.046)
Export level: 31-40%	0.358*** (0.048)	0.163*** (0.041)	0.084* (0.049)	0.074 (0.049)	0.084* (0.049)
Export level: 41-50%	0.411*** (0.049)	0.172*** (0.044)	0.103** (0.049)	0.095** (0.048)	0.102** (0.049)
Export level: 51%+	0.337*** (0.032)	0.161*** (0.029)	0.117*** (0.033)	0.091*** (0.033)	0.116*** (0.033)
Lat. America			-0.125 (0.171)	-0.152 (0.166)	-0.124 (0.172)
LatAm x 1-10%			0.070 (0.057)	0.076 (0.055)	0.069 (0.057)
LatAm x 11-20%			0.082 (0.069)	0.068 (0.068)	0.082 (0.069)
LatAm x 21-30%			0.158** (0.075)	0.132* (0.074)	0.158** (0.075)
LatAm x 31-40%			0.185** (0.092)	0.178* (0.091)	0.185** (0.092)
LatAm x 41-50%			0.212* (0.120)	0.166 (0.111)	0.212* (0.120)
LatAm x 50%+			0.072 (0.061)	0.048 (0.059)	0.072 (0.061)
Foreign MNE				0.245*** (0.020)	
Domestic MNE					0.003 (0.025)
Country	No	Yes	Yes	Yes	Yes
Industry	No	Yes	Yes	Yes	Yes
General	No	Yes	Yes	Yes	Yes
Observations	3611	3611	3611	3611	3611

Note: All columns estimated by ordinary least squares (OLS) with standard errors are in parentheses under coefficient estimates clustered by firm. *** denotes 1% significance, ** denotes 5% significance, and * denotes 10% significance. Sample is all firm-years surveyed from 2008, after the export question was added to the survey. Management score is the average of all management questions. **Controls:** Country controls are a full set of country dummies. Industry controls are 155 SIC three-digit dummies. General controls comprise of firm-level controls for average hours worked and the proportion of employees with college degrees (log), plus a set of survey noise controls that are interviewer dummies, the seniority and company tenure of the manager who responded, the day of the week the interview was conducted, the time of day the interview was conducted, the duration of the interview, and an indicator of the reliability of the information as coded by the interviewer.

Exhibit 14: Talent management practices & labour market regulations

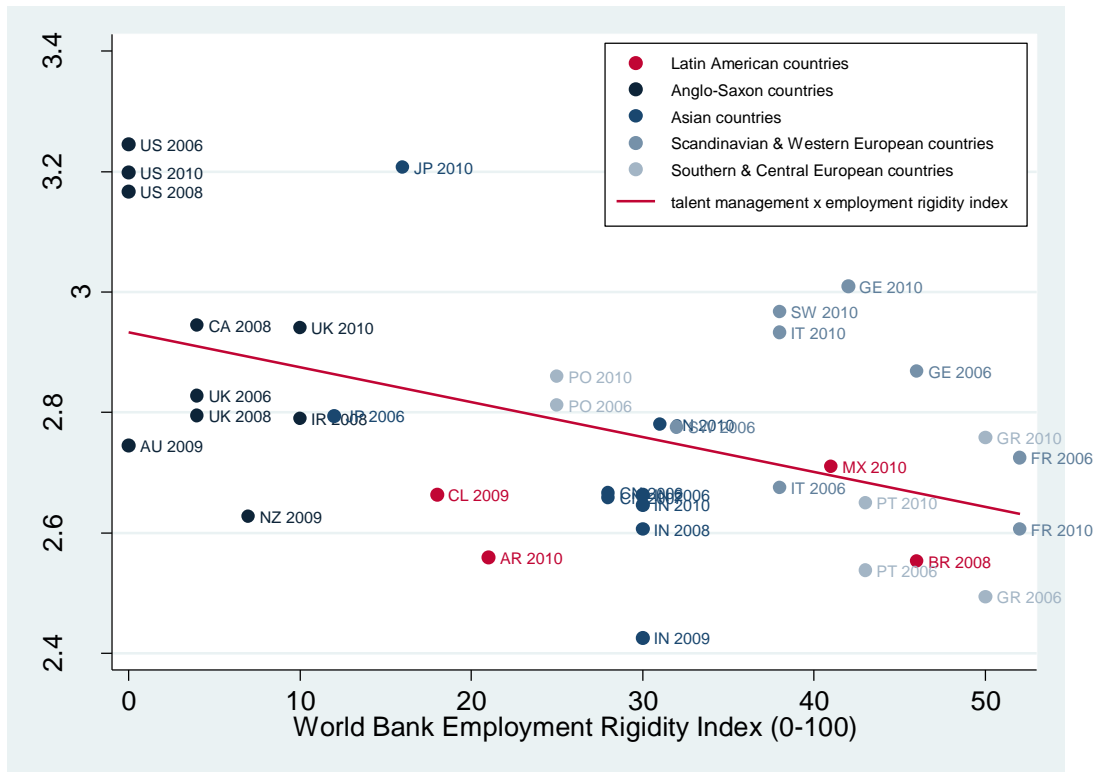


Exhibit 15: Management practices & access to credit

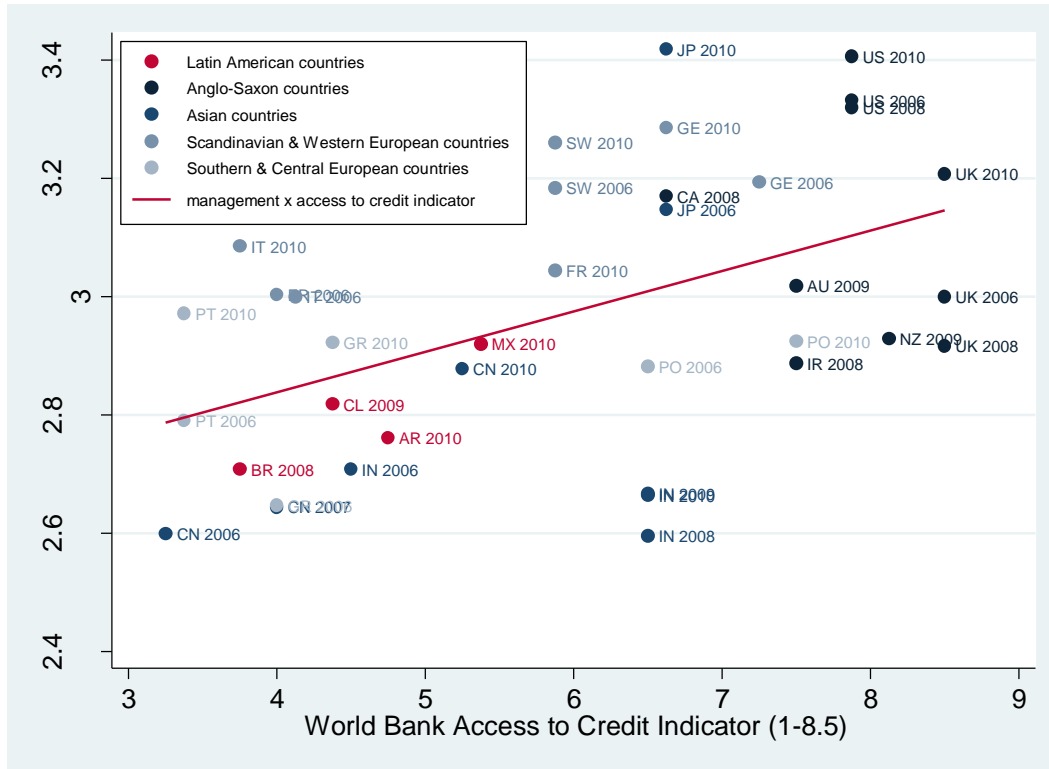


Exhibit 16: Management practices & labour productivity

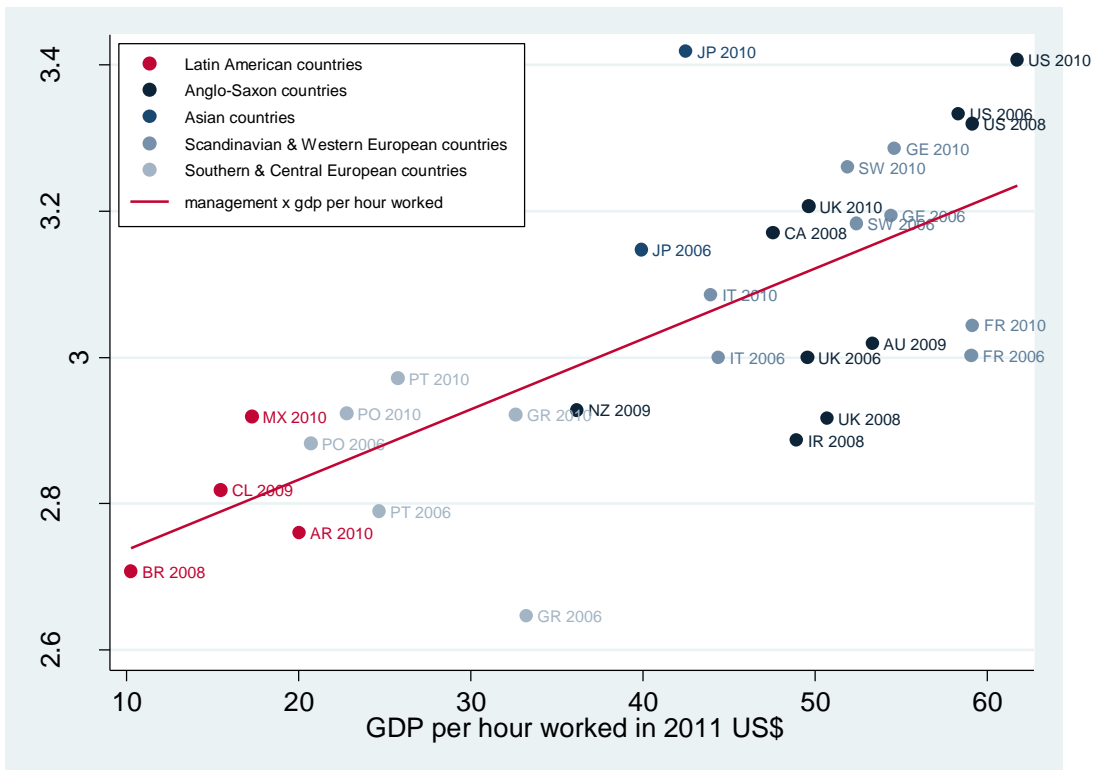


Exhibit 17: Management practices & firm performance

Sample:	(1) All Firms	(2) All Firms	(3) All Firms	(4) All Firms	(5) All Firms	(6) All Firms	(7) Founder & Family Firms	(8) Founder & Family Firms
Dependent variable:	<i>Log (Sales)</i>	<i>Log (Sales)</i>	<i>Log (Sales)</i>	<i>Profitability (ROCE)</i>	<i>5-Year Sales Growth (%)</i>	<i>Exit (%)</i>	<i>Log (Sales)</i>	<i>Log (Sales)</i>
Management	0.523*** (0.030)	0.233*** (0.024)	0.048** (0.022)	1.952*** (0.444)	6.738*** (1.984)	-1.138** (0.498)	0.426*** (0.060)	0.173*** (0.050)
Ln(Employees)	0.915*** (0.019)	0.659*** (0.026)	0.364*** (0.109)				0.874*** (0.054)	0.593*** (0.063)
Ln(Capital)		0.289*** (0.020)	0.244*** (0.087)					0.354*** (0.043)
Country controls	No	Yes	NA	Yes	Yes	Yes	No	Yes
Industry controls	No	Yes	NA	Yes	Yes	Yes	No	Yes
General controls	No	Yes	NA	Yes	Yes	Yes	No	Yes
Firm fixed effects	No	No	Yes	No	No	No	No	No
Organizations	2,927	2,927	1,453	2,927	2,927	2,927	744	744
Observations	7,094	7,094	5,561	7,094	7,094	7,094	1,757	1,757

Source: Columns 1 – 6 from (Bloom et al., 2012b), p. 26). **Note:** All columns estimated by ordinary least squares (OLS) with standard errors are in parentheses under coefficient estimates clustered by firm. *** denotes 1% significance, ** denotes 5% significance, and * denotes 10% significance. Sample is all firm-years with sales, employment, capital, ROCE, and 5-year sales growth data, except column 3, which also restricts to firms with two or more surveys and drops the noise controls (which have little time series variation), and column 6 which just used the most recent year to evaluate exit. Management is the organization-level management score. Profitability is ROCE, and 5-Year Sales Growth is the 5-year growth of sales. Exit means the firm was liquidated or went bankrupt. Country controls are a full set of country dummies. Industry controls are 187 SIC three-digit dummies. General controls comprise firm-level controls for average hours worked and the proportion of employees with college degrees (from the survey), plus a set of survey noise controls that are interviewer dummies, the seniority and tenure of the manager who responded, the day of the week the interview was conducted, the time of day the interview was conducted, the duration of the interview, and an indicator of the reliability of the information as coded by the interviewer.

Appendix A: Management Practice Dimensions

Dimension	Categories	Score from 1-5 based on:
Operations and Performance Monitoring	1) Introduction of Modern manufacturing techniques	What aspects of manufacturing have been formally introduced, including just-in-time delivery from suppliers, automation, flexible manpower, support systems, attitudes and behaviour?
	2) Rationale for introduction of Modern manufacturing techniques	Were modern manufacturing techniques adopted just because others were using them, or are they linked to meeting business objectives like reducing costs and improving quality?
	3) Process problem documentation	Are process improvements made only when problems arise, or are they actively sought out for continuous improvement as part of a normal business processes?
	4) Performance tracking	Is tracking ad hoc and incomplete, or is performance continually tracked and communicated to all staff?
	5) Performance review	Is performance reviewed infrequently and only on a success/failure scale, or is performance reviewed continually with an expectation of continuous improvement?
	6) Performance dialogue	In review/performance conversations, to what extent is the purpose, data, agenda, and follow-up steps (like coaching) clear to all parties?
	7) Consequence management	To what extent does failure to achieve agreed objectives carry consequences, which can include retraining or reassignment to other jobs?
Target Setting	8) Target balance	Are the goals exclusively financial, or is there a balance of financial and non-financial targets?
	9) Target interconnection	Are goals based on accounting value, or are they based on shareholder value in a way that works through business units and ultimately is connected to individual performance expectations?
	10) Target time horizon	Does top management focus mainly on the short term, or does it visualize short-term targets as a “staircase” toward the main focus on long-term goals?
	11) Targets are stretching	Are goals too easy to achieve, especially for some “sacred cows” areas of the firm, or are goals demanding but attainable for all parts of the firm?

	12) Performance clarity	Are performance measures ill-defined, poorly understood, and private, or are they well-defined, clearly communicated, and made public?
Talent Management	13) Managing human capital	To what extent are senior managers evaluated and held accountable for attracting, retaining, and developing talent throughout the organization?
	14) Rewarding high-performance	To what extent are people in the firm rewarded equally irrespective of performance level, or is performance clearly related to accountability and rewards?
	15) Removing poor performers	Are poor performers rarely removed, or are they retrained and/or moved into different roles or out of the firm as soon as the weakness is identified?
	16) Promoting high performers	Are people promoted mainly on the basis of tenure, or does the firm actively identify, develop and promote its top performers?
	17) Attracting human capital	Do competitors offer stronger reasons for talented people to join their companies, or does a firm provide a wide range of reasons to encourage talented people to join?
	18) Retaining human capital	Does the firm do relatively little to retain top talent, or do whatever it takes to retain top talent when they look likely to leave?

Note: Survey Instrument with full set of questions asked available at www.worldmanagementsurvey.org

Appendix B: Sampling Frame

i. Firm-level accounting databases

Our sampling frame was based on the Bureau van Dijk (BVD) Amadeus dataset for Europe (France, Germany, Greece, Italy, Ireland, Poland, Portugal and the U.K.), on BVD Icarus for the US, on CMIE Firstsource dataset for India, on the BVD Oriana dataset for China and Japan, on BVD Orbis for Argentina, Brazil, Canada, Mexico, on BVD Orbis and Duns & Bradstreet for Australia and New Zealand, and on the Industrial Annual Survey Sample of Firms (Encuesta Nacional Industrial Annual - ENIA) for Chile. These databases all provide sufficient information on companies to conduct a stratified telephone survey (company name, address and a size indicator). These databases also typically have accounting information on employment, sales and capital. Apart from size, we did not insist on having accounting information to form the sampling population, however.

Amadeus, Firstsource, and Orbis are constructed from a range of sources, primarily the national registries of companies (such as Companies House in the UK and the Registry of Companies in India). Icarus is constructed from the Dun & Bradstreet database, which is a private database of over 5 million US trading locations built up from credit records, business telephone directories and direct research. Oriana is constructed from Huaxia credit in China and Teikoku Database in Japan, covering all public and all private firms with one of the following: 150 or more employees, 10 million US\$ of sales or 20 million US\$ of assets. ENIA, collected by the Chilean Statistic Agency, covers all manufacturing plants employing at least 10 individuals.

ii. Firm and industry level variables

Our firm accounting data on sales, employment, capital, profits, shareholder equity, long-term debt, market values (for quoted firms) and wages (where available) came from BVD Amadeus dataset for Europe (France, Germany, Greece, Italy, Ireland, Poland, Portugal and the U.K.), on BVD Icarus for the US, on CMIE Firstsource dataset for India, and on the BVD Oriana dataset for China and Japan, on BVD Orbis for Argentina, Brazil, Canada, Mexico, on Duns & Bradstreet for Australia and New Zealand, and on the Industrial Annual Survey Sample of Firms (Encuesta Nacional Industrial Annual - ENIA) and BVD Orbis for Chile.

BVD and CMIE also have extensive information on ownership structure, so we can use this to identify whether the firm was part of a multinational enterprise. We also asked specific questions on the multinational status of the firm (whether it owned plants abroad and the country where the parent company is headquartered) to be able to distinguish domestic multinationals from foreign multinationals.

Our basic industry code is the U.S. SIC (1997) three digit level - which is our common industry definition in all countries. We allocate each firm to its main three digit sector (based on sales), covering 155 unique three-digit industries. There are at least ten sampled firms in each industry for 97.1% of the sample.

iii. The management survey

In every country, the sampling frame for the management survey includes all firms with a manufacturing primary industry code with between 100 and 5,000 employees on average over the

most recent three years of data prior to the survey.²⁴ In Japan and China, we used all manufacturing firms with 150 to 5000 employees since Oriana only samples firms with over 150 employees, while in Portugal we supplemented the sample with firms with 75 to 100 employees.²⁵ In Australia, Chile, the Republic of Ireland, Northern Ireland, and New Zealand, we also supplemented the sample with firms with 50 to 100 workers. We checked the results by conditioning on common size bands (above 150 in all countries).

Interviewers were each given a randomly selected list of firms from the sampling frame. This should therefore be representative of medium sized manufacturing firms. The size of this sampling frame by country is shown in Table B1, together with information on firm size. Looking at Table B1 two points are worth highlighting on the sampling frame. First, the size of the sampling frame appears broadly proportional to the absolute size of each country's manufacturing base, with China, the US and India having the most firms and Republic of Ireland, Northern Ireland and New Zealand the fewest. Second, China has the largest firms on average, presumably reflecting both the higher size cut-off for its sampling frame (150 employees versus 100 employees for other countries) and also the presence of many current and ex state-owned enterprises (13% in the survey are still Government owned). When we condition on the sample of firms with more than 150 employees in all countries, median employment for Chinese firms is still relatively high, but lower than the Argentina, Canada, Mexico, US, UK and Sweden. Third, Greece and India have a much higher share of publicly quoted firms than the other countries, with this presumably reflecting their more limited provision of data on privately held firms. Because of this potential bias across countries, we control for firm size and listing status in all the main regressions.

In addition to randomly surveying from the sampling frame described above we also resurveyed the firms we interviewed in the 2004 survey wave used in Bloom and Van Reenen (2007).²⁶ This was a sample of 732 firms from France, Germany, the UK and the US, with a manufacturing primary industry code and 50 to 10,000 employees (on average between 2000 and 2003). This sample was drawn from the Amadeus dataset for Europe and the Compustat dataset for the U.S. Only companies with accounting data were selected. For the UK and France this sampling frame was very similar to the 2006 sampling frame. For Germany it is more heavily skewed towards publicly quoted firms since smaller privately held firms do not report balance sheet information. For the US it comprised only publicly quoted firms. As a result when we present results we always include controls for firm size. In 2009/2010, we also resurveyed the firms we interviewed in the 2004 and 2006 survey. This was a sample of 4145 firms from China, France, Germany, Greece, India, Italy, Japan, Poland, Portugal, the UK, the US, and Sweden with a manufacturing primary industry code and 100 to 5,000 employees (on average prior to the survey). For every firm in this panel sample, we have a prior and current management score.

²⁴ In the US only the most recent year of employment is provided. In India employment is not reported for private firms, so for these companies we used forecast employment, predicted from their total assets (which are reported) using the coefficients from regressing $\log(\text{employees})$ on $\log(\text{assets})$ for public firms.

²⁵ Note that the Oriana database does include firms with less than 150 employees if they meet the sales or assets criteria, but we excluded this to avoid using a selected sample.

²⁶ Despite presenting the sampling frame information for the full management dataset, the specific dataset used in this paper does not include management interviews conducted prior to 2006 nor interviews with firms which have below 100 employees.

iv. The survey response rate

As shown in Table B2 of the firms we contacted for the first time 42.2% took part in the survey: a high success rate given the voluntary nature of participation. Of the remaining firms 14.7% refused to be surveyed, while the remaining 42.9% were in the process of being scheduled when the survey ended.²⁷

The reason for this high share of ‘scheduling in progress’ firms was the need for interviewers to keep a portfolio of firms who they cycle through when trying to set up interviews. Since interviewers only ran an average of 2.8 interviews a day the majority of their time was spent trying to contact managers to schedule future interviews. For scheduling, it was efficient for interviewers to keep a stock of between 100 to 500 firms to cycle through. The optimal level of this stock varied by the country – in the US and UK many managers operated voicemail, so that large stocks of firms were needed. In Japan after two weeks the team switched from working Japanese hours (midnight to 8am) to Japanese afternoons and UK morning (4am till midday), which left large stocks of contacted firms in Japan.²⁸ In Continental Europe, in contrast, managers typically had personnel assistants rather than voicemail, who wanted to see Government endorsement materials before connecting with the managers. So each approach was more time consuming, requiring a smaller stock of firms.

The ratio of successful interviews to rejections (ignoring ‘scheduling in progress’) is above 1 in every country. Hence, managers typically agreed to the survey proposition when interviewers were able to connect with them. This agreement ratio is lowest in Japan. There were two reasons for this: first, the Japanese firms did appear to be genuinely more willing to refuse to be interviewed; and second, the time-zone meant that our interviewers could not run talk during the Japanese morning; which sometimes led to rejections if managers were too busy to talk in the afternoon.

²⁷ This table reports the response rate for the first time each country was surveyed. That is, we do not include response rates for second or third waves of cross-sectional data collection nor response rates for second wave of panel data collection.

²⁸ After two weeks of the Japanese team working midnight to 8am it became clear this schedule was not sustainable due to the unsociability of the hours, with one of the Japanese interviewers quitting. The rest of the team then switched to working 4am until noon.

TABLE B1**The 2006/2007 Sampling Frame**

Country	CN	FR	GE	GR	IN	IT	JP	PO	PT	SW	UK	US
Sampling frame, number of firms (#)	86,733	4,683	9,722	522	31,699	5,182	3,546	3,684	1,687	1,034	5,953	27,795
Employees (median, sampling frame)	290	201	198	180	175	183	240	200	127	206	219	200
Employees (median, conditioning on firms with 150+ employees)	290	291	285	269	229	262	240	260	239	315	311	300
Publicly listed (%)	1	4	1	17	11	1	1	3	1	6	4	4

The 2008/2009/2010 Sampling Frame

Country	AR	AU	BR	CA	CL	IR	MX	NI	NZ
Sampling frame, number of firms (#)	1,000	3,487	5,617	5,215	1,516	596	4,662	203	638
Employees (median, sampling frame)	200	105	191	185	200-499	85	250	109	100
Employees (median, conditioning on firms with 150+ employees)	292	400	294	300	200-499	255	344	276	300
Publicly listed (%)	0.13	-	0.09	0.42	4.08	1.85	0.08	0	-

Notes: AR=Argentina, AU=Australia, BR=Brazil, CA=Canada, CL=Chile, CN=China, FR=France, GE=Germany, GR=Greece, IN=India, IT=Italy, IR=Republic of Ireland, JP=Japan, MX=Mexico, NI=Northern Ireland, NZ=New Zealand, PO=Poland, PT=Portugal, SW=Sweden, UK=United Kingdom, US=United States. **Sampling frame** is the total number of eligible firms for the survey. The sampling frame includes all firms between 100 and 5,000 employees in the population accounting databases for all countries, excluding China and Japan (for which the employment bracket is 150 to 5,000 employees), Portugal (for which the employment bracket is 75 to 5,000 employees), and Australia, Chile, the Republic of Ireland, Northern Ireland, and New Zealand (for which the employment bracket is 50 to 5,000 employees). **Employees** are the median number of employees in the firm. **Publicly listed** is the percentage of firms which are directly publicly listed (note that some firms may be privately incorporate subsidiaries of publicly listed parents). We do not have this information for Australian and New Zealand firms. Indian and Japanese employment numbers are predicted from balance sheet information for privately held firms (India) and unconsolidated accounts (Japan).

TABLE B2**The Survey Response Rate**

Country	CN	FR	GE	GR	IN	IT	JP	PO	PT	SW	UK	US
Interviews completed (%)	43.9	59.3	58.6	53.4	61.4	68.2	21.5	37.5	60.5	68.2	32.9	37.2
Interviews refused (%)	13.7	13.7	27.2	10.7	13.7	20	20.1	16.5	15.8	16.9	19.6	13.7
Scheduling in progress (%)	40.1	27	14.2	35.9	25	11.8	58.4	46	23.7	14.9	47.4	49.1
Survey sample, number of firms (#)	727	528	526	350	761	304	563	637	293	380	1,851	1,833
Interviews completed (#)	319	313	308	187	467	207	121	239	177	259	609	682
Country	AR	AU	BR	CA	CL	IR	MX	NZ	NI			
Interviews completed (%)	42.4	32.8	43.3	33.2	42.7	43.2	41.4	44.1	53.7			
Interviews refused (%)	14.3	11.0	9.3	10.4	22.8	10.6	17.8	8.4	6.4			
Scheduling in progress (%)	43.3	56.2	47.4	56.4	34.5	46.3	40.8	47.5	39.9			
Survey sample, number of firms (#)	589	1,355	1,381	1,246	663	387	461	345	203			
Interviews completed (#)	250	445	598	423	283	167	191	152	109			

Notes: AR=Argentina, AU=Australia, BR=Brazil, CA=Canada, CL=Chile, CN=China, FR=France, GE=Germany, GR=Greece, IN=India, IT=Italy, IR=Republic of Ireland, JP=Japan, MX=Mexico, NI=Northern Ireland, NZ=New Zealand, PO=Poland, PT=Portugal, SW=Sweden, UK=United Kingdom, US=United States. **Interviews completed** reports the percentage of companies contacted for which a management interview was completed. **Interviews refused** reports the percentage of companies contacted in which the manager contacted refused to take part in the interview. **Scheduling in progress** reports the percentage of companies contacted for which the scheduling was still in progress at the end of the survey period (so the firm had been contacted, with no interview run nor any manager refusing to be interviewed). **Survey sample** is the total number of firms that were randomly selected from the complete sampling frame.