

Why do Management Practices Differ Across Firms and Countries?

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Economists have long puzzled why there are such astounding differences in productivity between firms and countries. For example, looking at disaggregated data on U.S. manufacturing industries, Syverson (2004a) found that plants at the 90th percentile produced four times as much as the plant in the 10th percentile on a per-employee basis. Only half of this difference in labor productivity could be accounted for by differential inputs, such as capital intensity. Syverson looked at industries defined at the four-digit level in the Standard Industrial Classification (SIC) system (now the North American Industry Classification System or NAICS) like “Bakeries and Tortilla Manufacturing” or “Plastics Product Manufacturing.” Foster, Haltiwanger and Syverson (2009) show large differences in total factor productivity even within very homogeneous goods industries such as cement and block ice. Some of these productivity differences across firms and plants are temporary, but in large part they persist over time. At the country level, Hall and Jones (1999) and Jones and Romer (2009) show how the stark differences in productivity across countries account for a substantial fraction of the differences in average per capita income.

Both at the plant level and at the national level, differences in productivity are typically calculated as a residual - that is, productivity is inferred as the gap between output and inputs that cannot be accounted for by conventionally measured inputs. For this reason, Abramovitz (1956) labeled total factor productivity at the country level “a measure of our ignorance.” Productivity differences at the firm level have long been a measure of our ignorance, too. For example, one potential hypothesis has been that persistent productivity differentials are due to “hard” technological innovations as embodied in patents or adoption of new machinery. Although there has been substantial progress in improving our measures of technology, there remain substantial productivity differences even after controlling for such factors.

In this paper, we present evidence on another possible explanation for persistent differences in productivity at the firm and the national level—namely, that such differences largely reflect variations in management practices. As two British-born academics, we are accustomed to reports that blame Britain’s relatively low productivity

on bad management. Indeed, this view is so common in the UK that it has generated a vibrant export industry of TV shows on bad management in manufacturing (“The Office”), private services (“Fawlty Towers”), and the public sector (“Yes, Minister”). Now that “The Office” has been so successfully imported into the US, this raises the question as to whether Michael Scott (the infamously bad American manager in the show) is representative of US firms?

But while ascribing differences in productivity to management practices has long been popular for TV shows, business schools and policy makers, it has been less popular among economists for two broad reasons. First, much of the management literature is based on case studies, rather than on systematic empirical data across firms and countries. To tackle this problem we have, over the last decade, undertaken a large survey research program to systematically measure management practices across firms, industries and countries. We begin by describing our survey approach, which focuses on aspects of management like systematic performance monitoring, setting appropriate targets and providing incentives for good performance.

A second reason that economists have tended to shy away from management-based explanations for productivity differences is a sense that changing management seems a relatively straightforward process. To be sure, there are always adjustment costs and agency costs, but if we are correct about the substantial size of the potential gains from improved management, it seems as if such barriers should be surmountable. In turn, this insight suggests that perhaps management differences are rooted in deeper informational, social, legal and technological differences. Thus, once we have explained how we measure management and identified some basic patterns in our data, we turn to the question of why management practices vary so much across firms and nations. What we find is a combination of imperfectly competitive markets, family ownership of firms, regulations restricting management practices, and informational barriers, allow bad management to persist.

As a foretaste of our argument, here are ten conclusions we will discuss in this paper based on our management data.

First, firms with “better” management practices tend to have better performance on a wide range of dimensions: they are larger, more productive, grow faster and have higher survival rates.

Second, management practices vary tremendously across firms and countries. Most of the difference in the average management score of a country is due to the size of the “long tail” of very badly managed firms. For example, relatively few U.S. firms are very badly managed, while Brazil and India have many firms in that category.

Third, countries and firms specialize in different styles of management. For example, American firms score much higher than Swedish firms in incentives but are worse than Swedish firms in monitoring.

Fourth, strong product market competition appears to boost average management practices through a combination of eliminating the tail of badly managed firms and pushing incumbents to improve their practices.

Fifth, multinationals are generally well managed in every country. They also transplant their management styles abroad. For example, US multinationals located in the UK are better at incentives and worse at monitoring than Swedish multinationals in the UK.

Sixth, firms that export (but do not produce) overseas are better managed than domestic non-exporters, but are worse managed than multinationals.

Seventh, inherited family owned firms who appoint a chief executive officer as a family member (especially the eldest son) are very badly managed on average.

Eighth, government owned firms are typically managed extremely badly. Firms with publicly quoted share prices or owned by private-equity firms are typically well managed.

Ninth, firms that more intensively use human capital, as measured by more educated workers, tend to have much better management practices.

Tenth, at the country level, a relatively light touch in labor market regulation is associated with better incentives management.

We hope and expect that these findings will be tested and refined as research continues in the area of quantitative analysis of management practices. At the end of the paper, we suggest some directions for future research, and offer some broader discussion of interpreting the quality of management both as shaped by national factors and as reflecting the decisions of firms.

How Can Management Practices Be Measured?

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 that defines and scores from one (“worst practice”) to five (“best practice”) 18 basic management practices on a scoring grid from one to five. Table 1 lists the 18 management practices, and also gives some sense of how each is measured on a scale from 1 to 5. In our view, a high score represents a best practice in the sense that a firm which has adopted the practice will, on average, increase their productivity. The combination of many of these indicators reflects “good management” as commonly understood, with our main measure of management practices simply the average of these 18 scores.

This evaluation tool was developed by an international consulting firm, and it can be broadly interpreted as attempting to measure management practices in three broad areas. First, *monitoring* - how well do companies monitor what goes on inside their firms, and use this for continuous improvement. Second, *targets* - do companies set the right targets, track the right outcomes and take appropriate action if the two are inconsistent. Third, *incentives* - are companies promoting and rewarding employees based on performance, and trying to hire and keep their best employees?¹

We hired MBA students to carry out the interviews because they generally had some business experience and training. The survey was targeted at plant managers, who are senior enough to have an overview of management practices but not so senior as to be detached from day-to-day operations. We interviewed these production plant managers using what we call a “double-blind” technique.

One part of this double-blind technique is that managers are not told they are being scored or shown the scoring grid. They are only told they are being “interviewed about management practices.” To do this we used open questions in the survey. For example, on the first monitoring dimension we start by asking the open question “tell me how you monitor your production process”, rather than closed questions such as “do you monitor your production daily [yes/no]”. We continue with open questions focusing on actual practices and examples until the interviewer can make an accurate assessment of the firm’s practices. For example, the second question on that performance tracking dimension is “what kinds of measures would you use to track performance?” and the third is “If I walked round your factory what could I tell about how each person was performing?” The combined response to this dimension are scored against a grid which goes from 1 (out of 5) 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*

¹ 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). Bertrand and Schoar (2003) focus on another important angle – the management style of chief executive officers and chief financial officers— which will capture differences in management strategy (say over mergers and acquisitions) rather than management practices *per se*.

continuously tracked and communicated, both formally and informally, to all staff using a range of visual management tools.” The full list of dimensions and questions used to score these are given in Bloom and Van Reenen (2006).

The other side of our “double-blind” approach is that our interviewers are not told in advance anything about the firm’s performance. They are only provided with the company name, telephone number and industry. We randomly sample medium-sized firms, employing between 100 to 5,000 workers. These firms are large enough that the type of systematic management practices chosen are likely to matter. However, these firms are small enough that they are not usually reported in the business press, and so the interviewers generally have not heard of these firms before, so should have no preconceptions. By contrast, interviewer preconceptions might be more of a problem if the interviewers knew they were talking to an employee of well-known firms like General Electric, Boeing or Honda.

We used a variety of procedures to obtain a high success rate and to remove potential sources of bias from our estimates. First, we obtained government endorsements for the surveys in each country covered. Second, we positioned the surveys as a “piece of work on Lean manufacturing,” never using the word “survey” or “research”, as telephone switchboards usually block surveys and market research. Third, we never ask interviewees for financial data, instead obtaining such data from independent sources or company accounts. Fourth, the interviewers were encouraged to be persistent – so they ran about two interviews a day lasting 45 minutes each on average, with the rest of the time spent repeatedly contacting managers to schedule interviews. These steps helped to yield a 44 percent response rate which was uncorrelated with the (independently collected) performance measures for the firm—thus, we were not disproportionately interviewing successful or failing firms.² We also collected a series of “noise controls” on

² As one step to validate our survey data, we re-surveyed 5 percent of the sample using a second interviewer to independently survey 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. We found that in the sample of 222 additional interviews the correlation between our independently run first and second interview scores was 0.51. Part of this difference across plants within the same firms is likely to be real internal variations in management

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. Including these in our regression analysis typically helps to improve the precision of our estimates by stripping out some of the measurement error.

International Patterns of Management and Productivity

In discussing the patterns we find in our management data, it is important to remember that our main data is essentially cross sectional—across many firms and countries at roughly the same point in time—and so clearly establishing the causal effect of how changes in management affect productivity is not possible. A wealth of field experiments, surveyed in Lazear and Oyer (2009), does strongly suggest the importance of incentive-based pay for productivity. Nevertheless, examining both the patterns of management across countries and the correlation between our measures of management and various measures of firm performance is an important first step in determining the extent to which our measurements of management are economically meaningful.

International Patterns of Management

The average management practice score across countries from the almost 6,000 interviews on different firms we have carried out since 2006 appear in Figure 1. These firms were randomly sampled from the population of all public and private firms manufacturing firms with 100 to 5,000 employees. The median firm in every country is privately owned employing around 350 workers and operating across two production plants.

The United States has the highest management practice scores on average, followed by the Germans, Japanese, Swedes and Canadians, and then followed by a block of mid-

practices, with the rest presumably reflecting survey measurement error. However, the correlation across the two interviews is highly significant (p-value 0.001), which suggests that while our management score is clearly noisy, it is picking up significant management differences across firms.

European countries (France, Italy, Ireland, the United Kingdom and Poland) and Australia. At the bottom are countries in Southern Europe (Greece and Portugal) along with developing countries like Brazil, China and India.

We can separate these overall management scores into three broad categories: scores related to monitoring, targets and incentives, with country level scores shown in Table 2. For ease of comparison, average scores are given in the bottom row of the table. U.S. management has by far the largest advantage in incentives (with Canada and Germany following), and the second-largest advantage in the category of monitoring and target-setting (behind Sweden and Germany respectively). However, this data also describes how management styles differ across countries. In the United States, India and China, managerial use of incentives (relative to the average country) are substantially greater than their use of monitoring and target-setting (relative to the average). However, in Japan, Sweden and Germany, managerial use of monitoring and target setting (relative to the average) far exceeds their use of incentives (relative to the average). There could be many reasons for this pattern of specialization across countries. One factor we will examine below is that the lighter labor market regulations in the United States make it easier to remove poor performers and to reward high performers.

What does the distribution of management practices look like within countries? We can plot a firm-level histogram of management practices by country, as shown in Figure 2. The first histogram shows this data for the United States, where the bars show the actual data and the dark line is a smoothed (kernel) fit of the data. Other advanced economies in Western Europe, Japan, Canada, and Australia have some resemblance to the US distribution, except they have a somewhat thicker “tail” of badly managed firms. To illustrate this we show the histograms of France and “Southern Europe” (Portugal and Greece). These diagrams also show the smoothed value for the U.S. economy, so that management in these countries can be readily compared to the United States. Histograms for Brazil and India shows that although they both have numerous well managed firms, their average firms have much lower management scores than the US. Finally, China has

a more compressed distribution, possibly because Chinese firms are much younger so have less variation in terms of varieties of management practices.

In one sense this cross-country ranking is not surprising, since it approximates the cross-country productivity ranking. Although we cannot offer a rigorous argument here about the magnitude of any causal effect, it certainly appears plausible that management practices should be viewed as part of the determinants of national productivity. A regression of GDP per capita on management practices across the sample of 17 countries yields an R-squared of 0.81. Since some of this is simply a contrast between more and less developed countries, focusing the regression on the 11 OECD nations with good manufacturing productivity data (Inklaar and Timmer, 2008) yields an R-squared of 0.66. Either way, management practices appear quantitatively important.

Countries can improve average management practices and therefore aggregate productivity in two distinct ways. The first is by promoting factors that increase average management quality in *each firm* (say through better business education) and therefore raising productivity within the average firm. The next sub-section relates to this mechanism.

The second is through *improved reallocation across firms*. Empirically this turns out to be important in explaining cross-country differences in aggregate productivity –high productivity countries like the US appear to be better at getting efficient firms to grow larger, while low productivity countries like China and India are not (Hsieh and Klenow, 2009). The implication is that factors like product market competition should generate a stronger relationship between management quality on the one hand and firm size and growth on the other, and therefore lead to higher aggregate productivity. We discuss this later when we turn to the determination of management practices.

Associations Between Management Quality and Firm Performance

We examined the correlation between our measure of management practices and firm performance in terms of productivity, profitability, growth rates, survival rates and market value. For these measures of firm performance, we used company accounts data which were available for 3,380 of the firms. We found that for our sample of manufacturing firms, higher management scores are robustly associated with better performance.³

Table 2 reports the results of some ordinary least squares regressions. Our dependent variables are different measures of firm performance, including sales per employee, profitability, Tobin's q (the ratio of a firm's stock market value to its capital stock), the growth of sales and survival. Our key explanatory variable is the measure of the company's management quality. In some of the regressions, we also adjust for capital per employee, and the share of the workforce with a college degree. We also employ other control variables including country and industry dummy variables, firm-level control variables for hours worked and firm age, and a set of "noise controls" that (as discussed earlier) take include a dummy variables for our interviewers, as well as for the job tenure of the manager, the day of the week the interview was conducted, the time of day the interview was conducted, the length of the interview, and a judgment from the interviewer on the reliability of the information collected.

In Column 1, the dependent variable is the logarithm of sales per employee, a very basic measure of firm productivity. Our management score is an average across all 18 questions. The coefficient suggests that firms with one point higher average management score have about 45 log points (about 57 percent) higher labor productivity. So a one-standard deviation change in management (of 0.664) is associated with about a 38 percent increase in sales holding employment constant. Column 2 controls for country and industry to reflect different accounting standards and prices across countries and industries. The management coefficient drops in magnitude to 0.208, but remains highly

³ Our sample contained 90 percent private firms and 10 percent publicly listed firms. In most countries around the world, both public and private firms publish basic accounts. In the United States, Canada and India, however, private firms do not publish (sufficiently detailed) accounts, so while we still surveyed these firms no accounting performance data is available for them. Hence, these performance regressions use data for all firms except privately held ones in the United States, Canada and India.

significant. Column 3 adds controls for capital per employee, the percentage of the workforce with a college degree, and our controls for survey “noise”. These additions slightly reduce the coefficient on the management variable to around 0.172, because better managed firms tend to have more fixed capital and human capital. These correlations are not simply driven by the “Anglo-Saxon” countries, as one might suspect if the measures were culturally biased. The relationship between productivity and management is strong across all regions in the data.

In Column 4 of Table 2 we look at profitability as measured by return on capital employed (defined as profits over equity plus debt capital) and find that this is about 1.8 percentage points higher for every one point increase in the management score. In Column 5 we look at Tobin’s q for the subsample of publicly quoted firms (where Tobin’s q is calculated as the stock market value of the firm divided by the book value of the firm) and find a one-point increase in management is associated with a 15 log point increase in Tobin’s q. Column 6 uses the five-year sales growth rate as the outcome. Here, a unit improvement in the management practice score is associated with 4.4 percent higher annual sales growth. Finally, Column 7 looks at the post-survey survival rates shows that better managed firms are more likely to survive, while worse managed firms are more likely to go bankrupt.

Another key measure of performance is firm size; in equilibrium, better-managed firms should be larger (Lucas, 1978). This is partly because the market will allocate these firms a greater share of sales, but also because larger firms have the resources and incentives to employ better management. When we plotted average management score against the number of employees in a firm (as a measure of firm size) we found that firm with 100-200 employees had average management scores of about 2.7. The management score then rose steadily with firm size, so that firms with 2000-5000 employees—the largest firms in our sample—had average management scores of about 3.2.

The international data revealed some patterns of specialization by country in management style, in term of whether management in certain countries places a higher relative weight

on monitoring and target-setting or on incentives. Although, a firm which is good at one dimension of management tends to be good at all (that is, the answers to the individual questions tend to be positively correlated), a pattern of specialization in different styles of management is also observable at the firm level. However, the relative specialization in incentives tends to be stronger for firms and industries that are more human capital intensive (Bloom and Van Reenen, 2007). So firms operating in industries like pharmaceuticals that are relatively human-capital intensive, tend to have better incentive management practices than firms operating in industries textiles and apparel that have more unskilled workers.

The association of management with firm performance is also clear in other sectors outside manufacturing. In Bloom, Propper, Seiler and Van Reenen (2009), we interviewed 181 managers and physicians in the orthopedic and cardiology departments of UK hospitals. We 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.

Might better management also be associated with worse outcomes for workers and for the environment? In an earlier 2004 survey wave we also collected information on aspects of work-life balance such as child-care facilities, job flexibility and self-assessed employee satisfaction. Well-managed firms actually tended to have better facilities for workers along these dimensions (Bloom, Kretschmer and Van Reenen, 2009). We also found that energy efficiency is strongly associated with better firm-level management, because good management practices (like Lean manufacturing) tend to economize on energy use (Bloom, Genakos, Martin, and Sadun, 2008).

What Causes Differences in Management Practices?

Management practices vary substantially across countries and across firms, which raises a difficult question. If improved management offers profitability gains, why would firms not adopt better management practices? To address this we focus on product market

competition, labor regulation, multinational status, ownership and education. Of course, some of these reasons may be better suited to explaining differences within countries or across industries, while other reasons may be better-suited to explaining difference between countries.

Product Market Competition

When product market competition is not very intense, some low productivity firms will be able to survive. This insight is consistent with our earlier argument that the United States, which generally has very competitive product markets by international standards, does not have as much of a tail of badly-managed firms as some other countries. Syverson (2004b) showed that in a very homogeneous industry in the US (ready mix concrete); more competitive geographic markets had a smaller tail of less productive plants.

In our surveys, we asked managers how many competitors they faced, and found the average management score was significantly higher when firms reported facing more competitors. Using other measures of competition not reported by managers, like the import penetration rates (measured by imports as a share of domestic production) or Lerner indices of competition yields a similar general result that management quality tends to increase with competitive intensity.⁴

In general, we interpret this finding as showing that competitive product markets are associated with better management practices. This result could arise through a variety of channels. For example, one route for competition to improve management practices may be through selection, with badly run firms exiting more speedily in competitive markets. A second route may be through incentives to improve practices, which could be sharper when competition “raises the stakes” either because efficiency improvements have a

⁴ The Lerner index is one minus the average profits/sales ratio of all other firms in the country industry cell over the last 5 years. High values suggest low long-run profits, suggestive of tough competition. When we used this and the import measure data we add country and industry dummies to control for things like country size and different reporting requirements – see Bloom and Van Reenen (2007) for details.

larger impact on shifting market share or because managers are more fearful of losing their jobs. In ongoing work (Bloom, Genakos, Sadun and Van Reenen, 2009) we appear to find evidence that both effects are at play. On the selection story, the relationship between management and firm growth appeared to be particularly strong in the US where competition is more intense. Further, using our short panel data for four countries we found that increases in competition were associated with increases in management quality for surviving firms.

In any case, the bottom line is that encouraging tougher competition should improve average management practices.

Labor Market Regulation

Labor market regulations that constrain the ability of managers to hire, fire, pay and promote employees could reduce the quality of management practices. Figure 3 plots each countries average management scores on incentives management (questions 7 and 13 to 18 on hiring, firing, pay and promotions) against an employment rigidity index from the World Bank, which focuses on the difficulties that firms face in hiring workers, firing workers and changing their hours and pay. Tougher labor markets regulation is significantly negatively correlated with the management scores on incentives. In contrast, more restrictive labor market regulations are not significantly correlated with management practices in other dimensions like monitoring or targets.

Obviously a number of other factors also vary across countries, so the pattern shown in Figure 3 does not conclusively demonstrate labor market regulations constrain some forms of management practices — but it is certainly supportive of this effect.

Ownership and Meritocratic Selection of the Chief Executive Officer

The firms in our sample can be divided up by ultimate ownership: including dispersed shareholders, family ownership with an external chief executive officer, family

ownership with a family chief executive officer; owned by the founder, the government or the managers of the firm; and owned by private equity or private individuals. Figure 4 plots a firm-level histogram by ultimate ownership category. The bars display the distribution of management practices within ownership group. The dotted line is the kernel density for dispersed shareholders – which is the most common ownership category in the United States – for comparison. The differences shown across the categories are not primarily explained by differences in countries or in type of industry.

One interesting group are the family firms, which is defined in our research as firms owned by the descendants of the founder (so sons, daughters, grandsons etc). Those that are family owned and also family managed (“Family, family CEO”) have a large tail of badly managed firms, while the family owned but externally managed (“Family, external CEO”) look very similar to dispersed shareholders. The reason appears to be that many family firms typically adopt a rule of primogeniture, so that the eldest son becomes the chief executive officer, regardless of talent considerations. Many governments around the world also provide strong tax subsidies for family firms; for example, the United Kingdom has many more family-run owned firms than the United States and Germany, which is likely to be related to the estate tax exemption for inherited business assets in the United Kingdom.

Since family firms typically have less debt, product market competition may not be as effective in driving them out of business if they are badly managed. 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 typically bought outright many years ago). Hence, family firms can continue to generate positive cash-flow while generating economic losses, because their family owners are subsidizing them through cheap capital.

Firms owned by private equity appear well managed, in particular when compared to family and government-owned firms (Bloom, Sadun and Van Reenen, 2009b). Thus, the pattern in recent years of private equity firms purchasing firms in Europe and Asia that were previously under family or government management makes some economic sense.

A perhaps surprising result is that “Founder firms”—where the current chief executive officer founded the firm—are also badly managed. We are still trying to understand this phenomenon, but one potential explanation is that the entrepreneurial skills required of a start up (e.g. creativity and risk taking) are not the primary skills required when a firm grows large enough to enter our sample (at least 100 employees). A mature firm needs to move beyond informal rules and these may be implemented more effectively by a professional manager.

We have also examined how the distribution across these ownership categories varies across countries, since ownership can account for up to 40% of cross-country differences in management practices.⁵ In particular, we focused on the three ownership categories associated with the lowest management scores in our sample: family firms with a family chief executive officer, founder firms, and government-owned firms. In developed economies like Germany, Japan, Sweden and the United States, these categories as a group make up about 20 to 30 percent of the sampled firms. By contrast, around three-quarters of our Indian firms are owned either by the firm’s founder or one of his descendants. In Italy, Brazil, Portugal, and Greece, the share of firms in our sample that fall into these three categories is roughly 60 percent.

One likely explanation for this difference is that the underdevelopment of financial markets and poor rule of law in many developing countries makes the separation of ownership and control extremely difficult. For example, families may be reluctant to hire outside managers because the law is not strong enough to protect them from theft (La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1997).

Multinationals and Exporters

⁵ For example, including a full set of dummies for different ownership types reduces the R-squared of country dummies in firm-level management regressions by 40%. This suggests about 40% of the cross-country variation in management is associated with differences in ownership.

Figure 5 plots the management scores by country for domestic firms (those with no production facilities abroad) and foreign multinationals. Two results stand out. First, foreign multinationals are better managed than domestic firms, presumably reflecting the selection on management in becoming a multinational. Second, foreign multinationals seem able to partially “transport” their better practices abroad despite often difficult local circumstances (see Burstein and Monge, who have a model consistent with these findings). We also find that multinationals transplant other features of their organizational form overseas such as the average degree of decentralization (Bloom, Sadun and Van Reenen, 2009a). We also distinguished by export status. Consistent with the predictions of papers such as Helpman, Melitz and Yeaple (2004) there is a pecking order: average management scores were lowest for non-exporters (2.6), next lowest for non-multinational exporters (2.8) and highest for multinationals (3.2).

Human Capital

Education is strongly correlated with high management scores is the education levels of the workers and managers. We cannot infer a causal relationship from this association, of course, but it is plausible that managers with an MBA or college education are more likely to be aware of the benefits of modern management practices like Lean manufacturing. More surprisingly perhaps, is that worker level education is also positively associated with management scores, suggesting that implementing many of these practices may be easier when the workforce is more knowledgeable. Many of the best practices in Table 1 require significant initiative from workers, such as the Japanese inspired lean manufacturing techniques and higher powered incentives.

Our belief is that more basic business education – for example around capital budgeting, data analysis, and standard human resources practices – could help improve management in many countries. This holds particularly true in developing countries, and recent field work we have been doing with firms in India has provided supportive evidence on this.

Information

The slow evolution of management practices across the US, Europe and Japan - from Taylor's "Scientific Management", to Ford's mass production, Sloan's M-form corporation, Demming's quality movement, and Toyota's "Lean production" - suggest management practices do have a resemblance to process technologies that diffuse slowly over time. Slow technological diffusion can have many causes (e.g. see Hall, 2003, for a survey), but a well studied factor is *information*. New management practices are often complex and hard to introduce without the assistance of employees or consultants with prior experience of these. Firms learn from the experiences (good and bad) of others in experimenting with different practices, so not all will adopt immediately (e.g. Acemoglu, Aghion, Lelarge, Van Reenen and Zilibotti, 2007). An example is the two decade struggle of US automotive firms to replicate the Japanese Lean manufacturing system.

In our survey we directly ask managers the question "*Excluding yourself, how well managed would you say your firm is on a scale of 1 to 10, where 1 is worst practice, 10 is best practice and 5 is average*". We find firms give us an average score of 7.1 – well above what should be the average – and this score is uncorrelated with either the management score we give them or their firm's own performance on the dimensions in Table 3 such as productivity and profitability. Hence, this suggests that managers are not well informed about how good their own management practices are and which areas need improvement.

A project we have been involved in India attempts to test from another angle by taking a sample of textile firms and providing a randomly sub-group with free management consulting and comparing this to a control group without assistance (see Bloom, Eifert, Mahajan, McKenzie and Roberts, 2009). We find changes in management practices are associated with significant improvement in performance, and the reason firms most frequently suggested for not introducing these practices earlier was simply "lack of awareness" of these. Again, this suggests that improved management practices are a type of process innovation that takes time to diffuse across firms.

Contingent Management

Thus far we have been assuming that there are some type of management practices that are, on average productivity enhancing. From this perspective, management resembles a technology and there can be technical progress in management, just as there is for machines. An alternative perspective is that all management practices are contingent on the firm's environment (e.g. Woodward, 1958). Every firm is optimally adopting its own best practices given the circumstance it finds itself in.

There is certainly some element of contingency in management choices in at least three respects. First, different firms (and indeed countries) specialize in different aspects of the managerial practices. For example, Japan focuses more on monitoring than incentives/people management. Firms in highly skilled industries and/or with lighter labor market regulations focus relatively more on incentives/people management than on monitoring. Second, many aspects of strategic management – such as pricing or takeover decisions – will be very contingent on specific circumstances with no typical “good” or “bad” practice—which is why our survey looks only at a subset of the more process-oriented management practices where it appears there is a more universal set of “good” practices. Third, the management practices we use have not been equally beneficial throughout history. For example, rigorously and systematically using data to deal with problems and make decisions is facilitated by the dramatic fall in the real cost of information technology.

But with these elements of contingency readily acknowledged, our work suggests that this is not the whole story. As Table 2 showed better managed firms within the same country and industry are earning more profits, growing faster and have higher stock market valuations. This is hard to square with the idea that all the differences in management practices reflecting optimal responses to different circumstances.

It seems likely that many aspects of management style are not contingent. Certain practices like basing promotion largely on nepotism or keeping workers at the same job without any regard at all to a worker's performance are unlikely to be productivity-enhancing in any economy. In every country in our survey, multinationals do bring a stronger management approach, even though the multinationals need to work with most of the same constraints that domestic firms face. Business education does seem to improve management in developing countries, which suggests that contingency is not overwhelming the choice of management options.

Future Research

Empirical research in the economics of management is at an early stage, and there are several areas of particular interest for future research. Here are a few:

Field experiments to alter management practices and then attempt to identify the causal change on firm performance. One form of intervention is some type of outside consultancy advice. Some ongoing work on randomized control trials in Indian textile firms is attempting to establish causality using management consultancy treatments (Bloom, Eifert, Mahajan, McKenzie, and Roberts, 2009).

Links to theories of management. Many of the correlations that we have discussed, such as the positive association of size and productivity with management quality, and the positive impact of competition on management are common to a number of theories of management, but not all. Other findings may spur the development of new theories and a more structural link between the theory and data.

Management panel data would be a useful supplement to our data, most of which is cross-sectional. We have built a small panel on the same firms over time and as this goes forward we will be able to observe the dynamics of managerial change and make stronger statements about cause and effect. Many of the workhorse theory models assume that

management is essentially time invariant (for example, Melitz, 2003), so analyzing when and where this is a good approximation is important.

Multiple sectors. We have focused here on management practices in manufacturing, but most questions can be applied across other areas of the economy. We are already collecting management data with Raffaella Sadun for the healthcare, retail and education sectors and expect many more to follow.

Conclusions

Studying the causes and implications of variation in productivity across firms has become an important theme in many fields of economics including trade (e.g. Melitz, 2003), labor (e.g. Van Reenen, 1996), industrial organization (e.g. Hopenhayn, 1992) and macroeconomics (e.g. Prescott and Visscher, 1980; Atkeson and Kehoe, 2005).

The patterns within our large samples of management data across firms and countries have led us to believe that one important explanation for the large differences in productivity between firms and countries — differences that cannot be readily explained by other factors — is variations in management practices. These are hard, but not impossible to measure, and we hope the methodology we have developed will be used by other researchers to help draw the international map of management in finer detail in new countries, industries and practices.

From a policy perspective, several factors seem important in influencing management quality. Product market competition has a critical influence in increasing aggregate management by thinning the ranks of the badly managed. Indeed, much of the cross country variation in management appears to be due to the presence or absence of this tail of bad performers. One reason for the predominance of the US in management scores is that better managed firms appear to be rewarded more quickly with greater market share and the worse managed forced to shrink and exit. We also uncover many other policy relevant effects. Taxes and other distortive policies that favor family run firms appear to

hinder better management, while general education and multinational presence seem valuable in improving management practices.

The patterns described here give support to many of the new theories developed to explain productivity dispersion, but they also pose many puzzles. So the empirical and theoretical foundations of management economics should continue to be a fertile area for research.

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Table 1: The Management Practice Dimensions

Categories	Score from 1-5 based on:
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 behavior?
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?
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?
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 company 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: Full set of questions that are asked to score each dimension are included in Bloom and Van Reenen (2006).

Table 2: Management practice scores by country

Country	Overall Management	Monitoring Management	Targets Management	Incentives Management	Firms in the sample
Australia	2.99	3.27	2.96	2.76	382
Brazil	2.69	2.81	2.68	2.60	559
Canada	3.13	3.35	3.02	3.02	344
China	2.64	2.72	2.53	2.66	524
France	3.00	3.28	2.98	2.78	312
Germany	3.18	3.40	3.24	2.95	336
Great Britain	2.98	3.16	2.93	2.88	762
Greece	2.65	2.90	2.56	2.50	171
India	2.65	2.62	2.66	2.67	620
Italy	2.99	2.98	2.80	2.73	194
Japan	3.15	3.20	3.25	2.90	188
Northern Ireland	2.91	3.01	2.84	2.86	92
Poland	2.88	2.88	2.93	2.85	231
Portugal	2.79	3.07	2.72	2.61	140
Republic of Ireland	2.84	2.95	2.76	2.81	102
Sweden	3.18	3.54	3.22	2.86	270
US	3.33	3.44	3.23	3.30	695
Average	2.94	3.09	2.91	2.84	344

Note: **Overall management** is the average score in across all 18 questions. **Monitoring management** is the average score across questions 1 to 6 in Table 1. **Targets management** is the average score across questions 8 to 12. **Incentives management** is the average score across questions 7 and 13 to 18. The lowest and highest country level scores in each column are highlighted in bold.

Table 3: Estimates of firm performance equations

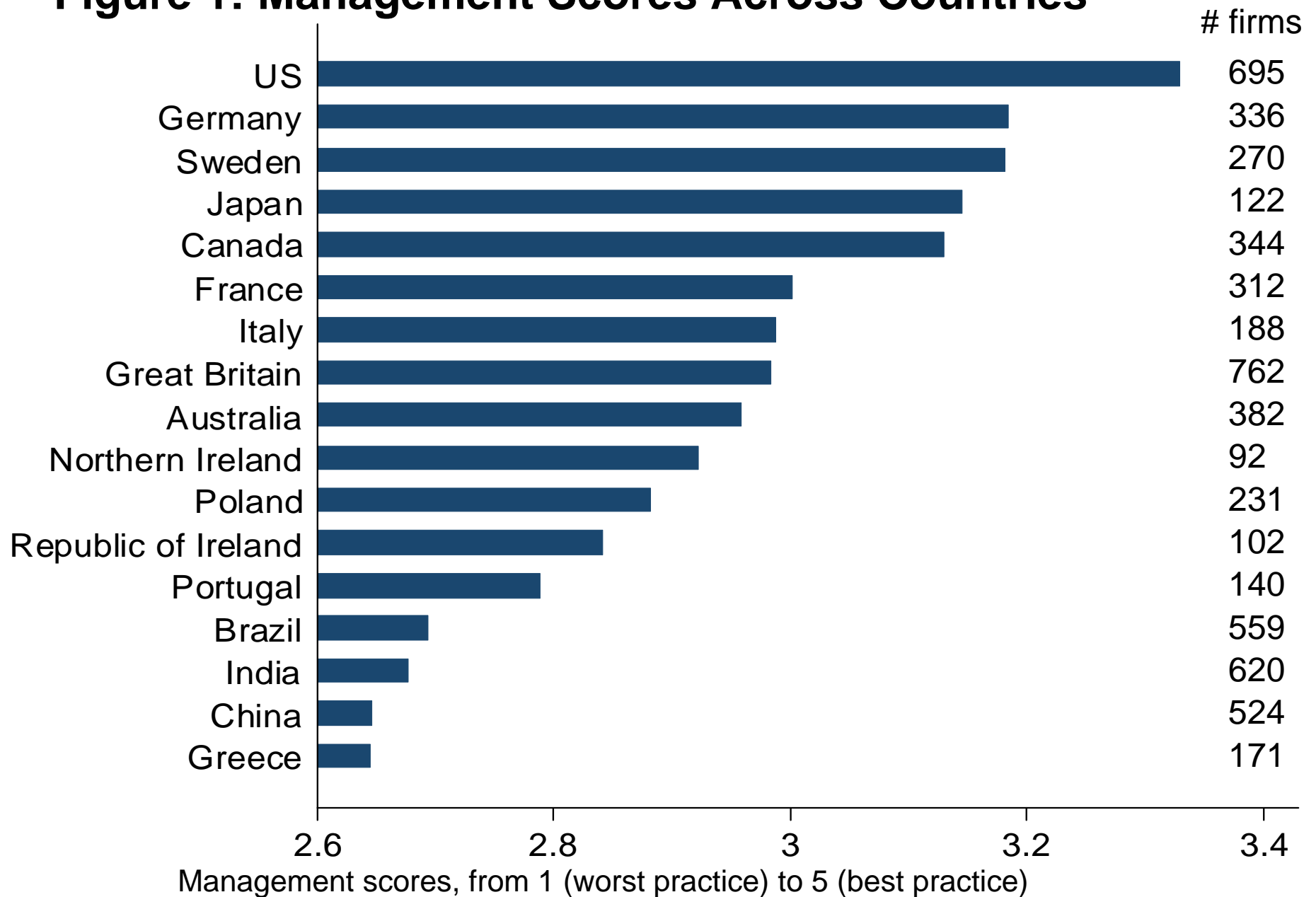
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent variable	Ln(Sales/ employee)	Ln(Sales/ employee)	Ln(Sales/ employee)	Profitability (ROCE)	Ln (Tobin's Q)	Sales growth	Survival
Management	0.450 (0.028)	0.208 (0.021)	0.172 (0.024)	1.804 (0.668)	0.150 (0.062)	0.044 (0.014)	0.53 ^a (0.30 ^a)
Ln(Capital/ Employee)			0.106 (0.014)				
%College Degree			0.076 (0.014)				
Country & industry dummies	No	Yes	Yes	Yes	Yes	Yes	Yes
General controls	No	No	Yes	Yes	Yes	Yes	Yes
Noise Controls	No	No	Yes	Yes	Yes	Yes	Yes
Firms	3,380	3,380	3,380	2,369	524	2,298	3,627
Observations	29,390	29,390	29,390	20,141	3,505	19,568	3,627

Note: All columns estimated by OLS with standard errors are in parentheses under coefficient estimates clustered by firm, except for column (7) which is estimated by Probit (we report marginal effects at the sample mean). Survival is defined as firms who are still in operation in Spring 2009 (including if they have been taken over by another firm). Sample of all firms with available accounts data at some point between 2000 and 2008. Management score has a mean of 2.973 and a standard-deviation of 0.664. “Country and industry dummies” includes a full set of 17 country and 162 SIC 3-digit dummies. “General controls” comprise of firm-level controls for ln(average hours worked) and ln(firm age). “Noise controls” are 78 interviewer dummies, the seniority and tenure of the manager who responded, the day of the week the interview was conducted, the time of the day the interview was conducted, the duration of the interviews and an indicator of the reliability of the information as coded by the interviewer. All regressions include a full set of time dummies. “Management” is the firm-level management score. “% College Degree” is the share of employees with a college degree (collected from the survey). “Profitability” is ROCE which is “Return on Capital Employed” and “Sales growth” is the 5-year growth of sales. Survival is equal to zero if a firm exited due to bankruptcy/liquidation by the end of 2008 and one otherwise.

^a marginal effect and standard error multiplied by 100. The sample mean of non-survival is 2.64% so the marginal effect of -0.53 implies one management point is associated with 20.1% (=0.53/2.64) lower exit rate.

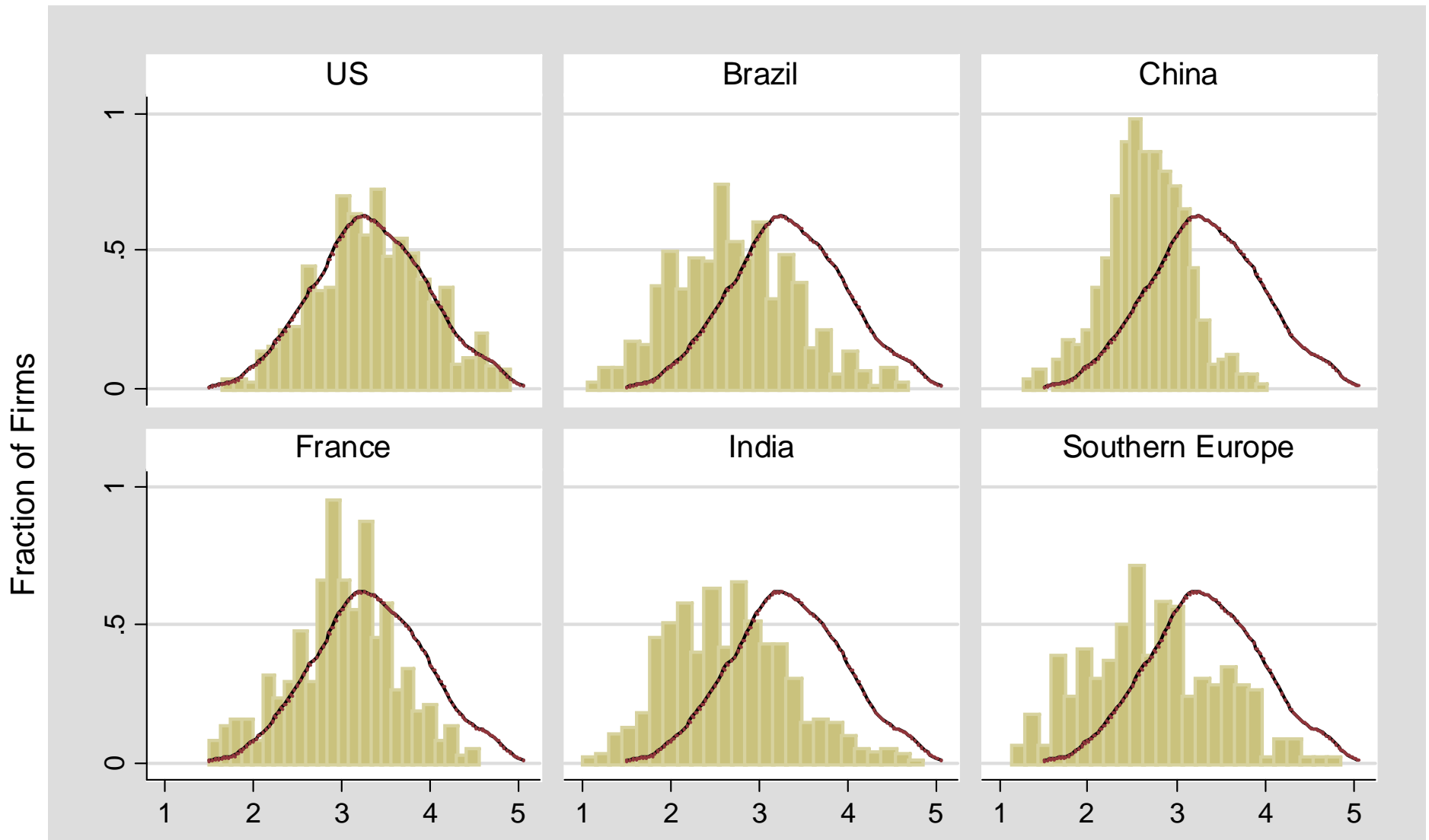
Source: Bloom, Genakos, Sadun and Van Reenen (2009)

Figure 1: Management Scores Across Countries



Note: Averages taken across all firms within each country. 5,850 observations in total. Firms per country in the right column
Source: Bloom, Genakos, Sadun and Van Reenen (2009)

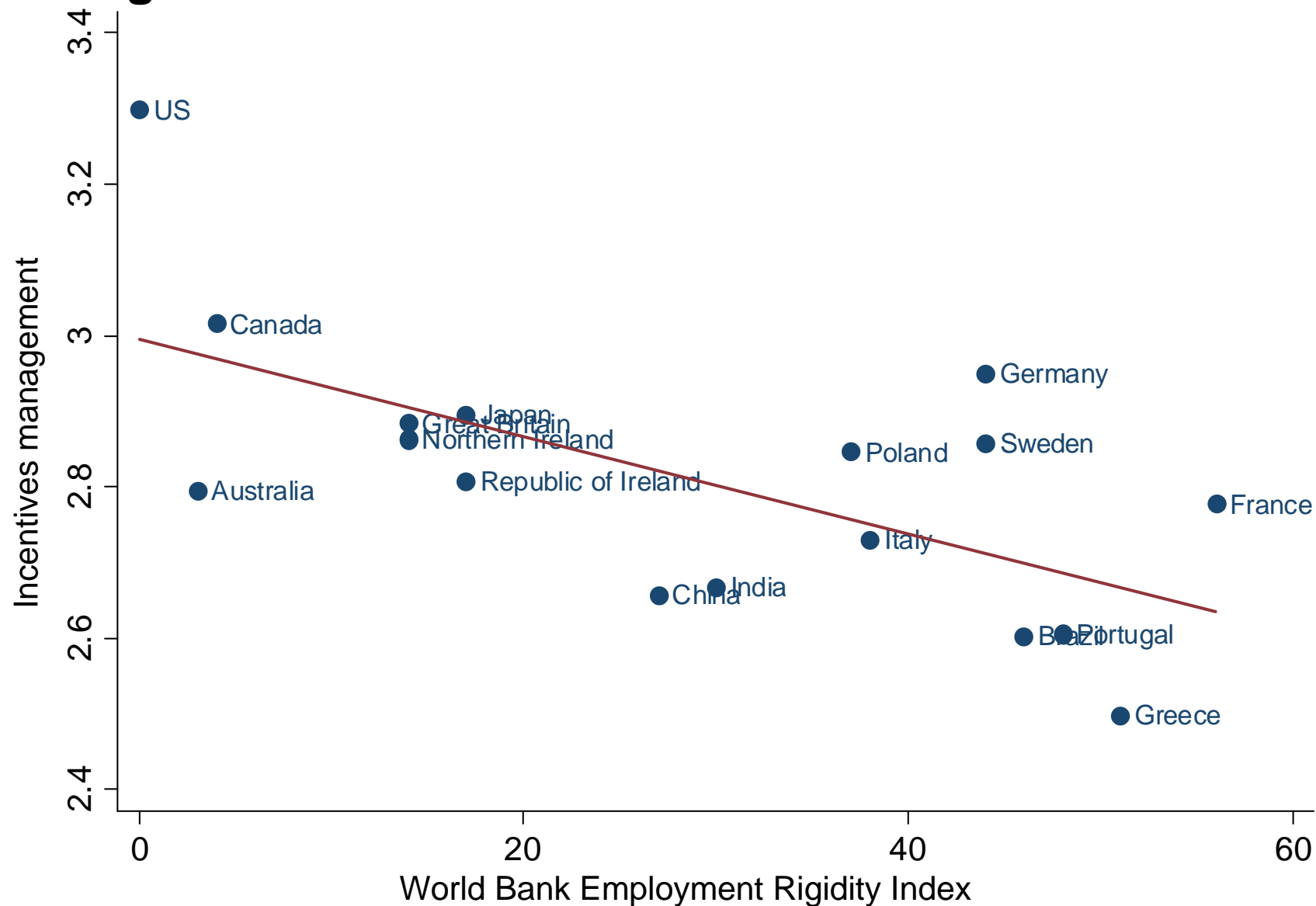
Figure 2: Management Practice Scores Across Firms



Firm level average management scores, from 1 (worst practice) to 5 (best practice)

Note: Bars are the histogram of the actual density. The line is the smoothed (kernel) of the US density for comparison. Southern Europe combines Greece and Portugal. Source: Bloom, Genakos, Sadun and Van Reenen (2009)

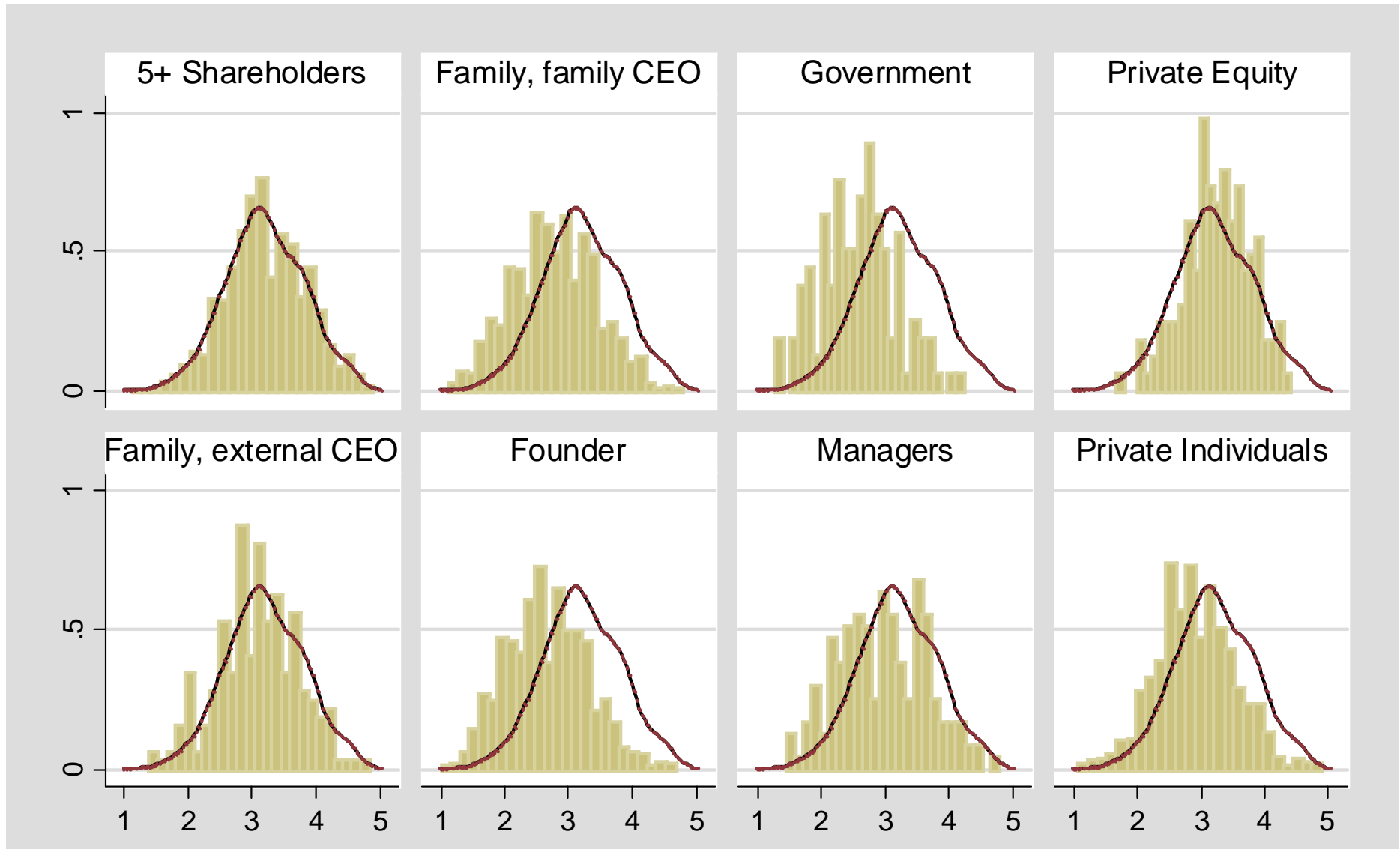
Figure 3: Labor market regulation and incentives management



Note: World Bank index from the Doing Business database, <http://www.doingbusiness.org/ExploreTopics/EmployingWorkers/>
Source: Bloom, Genakos, Sadun and Van Reenen (2009)

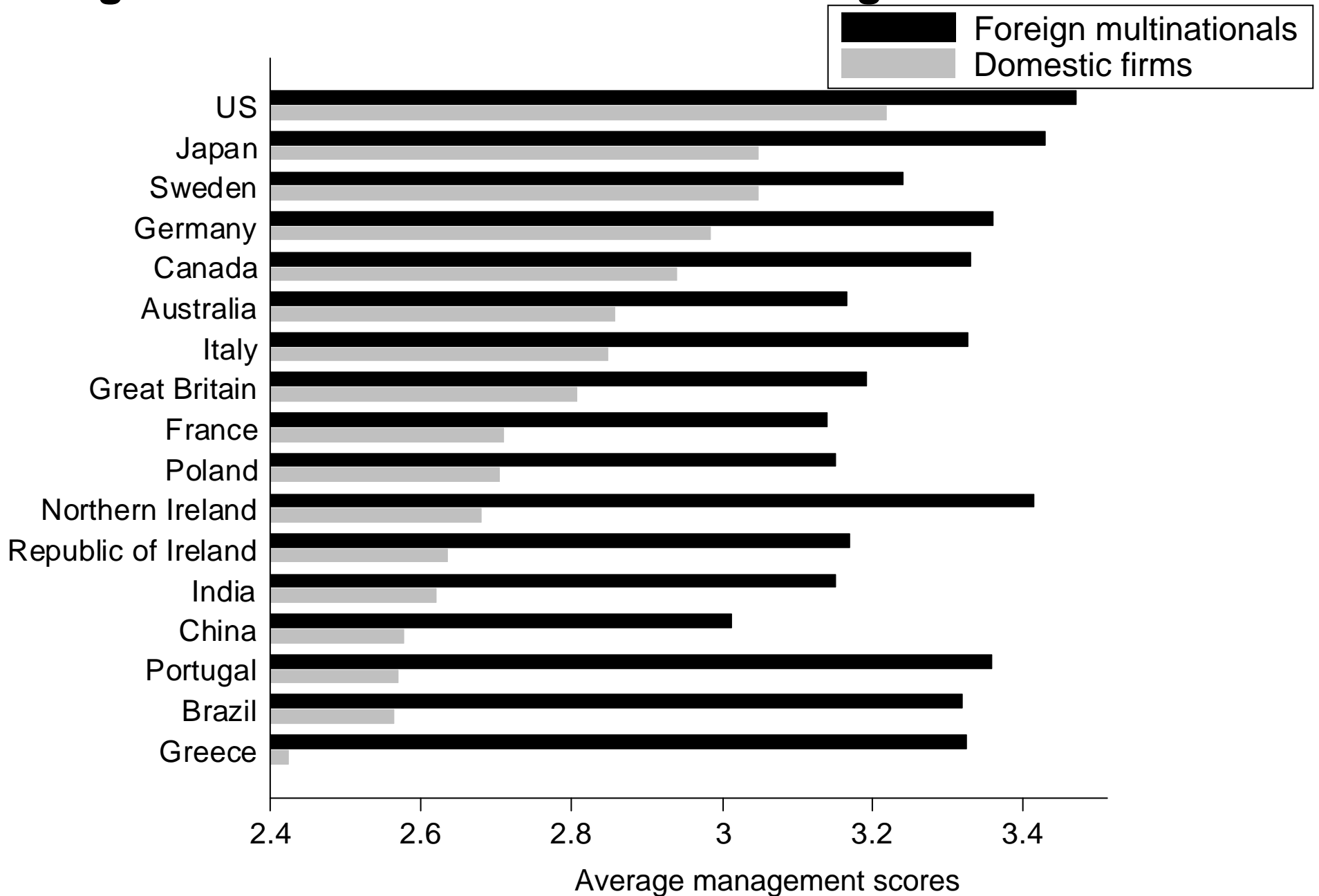
Figure 4: Ownership and management scores

Distribution of firm management scores by ownership. Overlaid dashed line is the kernel density for dispersed shareholders, the most common US ownership type



Source: Bloom, Genakos, Sadun and Van Reenen (2009)

Figure 5: Multinationals are well managed in all countries



Source: Bloom, Genakos, Sadun and Van Reenen (2009)