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# Management and Productivity in the Private Sector<sup>1</sup>

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## Policies to Enhance Management Practises

1. Competitive product markets
2. Professionally managed firms (as opposed to family or government-managed firms)
3. Trade openness and multinational presence
4. Lighter labor and business regulations
5. More educated employees

What explains differences in productivity across firms and countries? For the past decade, a project called the World Management Survey (WMS) has been collecting management data to understand the role of management practices as an important factor in explaining variation in firm productivity.

We find three key results, which are briefly summarized and discussed in this article.

Firstly, there are massive and persistent variations in management practices across firms and countries. Secondly, these variations in management practices account for much of the variation in productivity, growth, innovation and exporting we see across firms and countries. Finally, we find five key factors that are associated with better management practices; competitive product markets; professionally managed firms (as opposed to family or government-managed firms); trade openness and multinational presence; lighter labor and business regulations, and more educated employees.

Hence, policies to open markets, relax ownership controls, increase trade and FDI, deregulate markets and raise workforce skills will help to improve management practices, and thus productivity and growth.

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## *- Executive Summary -*

Growth accounting allocates cross-country differences in GDP per capita to differences in inputs used in production and differences in the efficiencies with which those inputs are combined to produce output. Combinatorial efficiency is referred to as “total factor productivity”, or TFP. Current estimates suggest that about half of the variation in GDP per capita is explained by differences in inputs - capital and labour skills - and the other half by differences in TFP (e.g, Caselli 2005). TFP itself has remained something of a “black box”, as it is generally the unexplained residual from an analysis accounting for all measured inputs.

Differences in TFP may arise from misallocation of input across sectors or firms - allocative inefficiency (see, for example, Hsieh and Klenow 2008) - or from inefficient use of inputs within firms - productive inefficiency. For decades, productive inefficiency has been referred to simply as X-inefficiency (Leibenstein 1966), a term indicating our ignorance about its origins and persistence. The World Management Survey (WMS), which we developed 10 years ago, aims to provide quantitative measures of management practices in firms around the world. The quantitative measures allow us to unpack X-inefficiency, and hence a part of the TFP differences that arise from within-firm inefficiencies. The WMS measures management practices across firms, industries, and countries through an interviewed-based evaluation focusing on three key areas: 1) how well organizations monitor activities; 2) how well they set and manage targets; 3) how well they incentivise workers. The WMS has now been administered to over 12,000 firms in 35 countries. The initial work in medium and large-scale manufacturing has now been expanded to firms in the retail sector, hospitals that deliver acute care, and schools that offer education to 15-year olds.

Our work on the WMS data shows that higher management scores are correlated with higher productivity, firm size, profitability, sales growth, market value, and survival. Findings from managerial practices comparisons across countries show a ranking that approximates the cross-country productivity and income rankings. The data suggest that management can account for an important part of the large differences in cross-country total factor productivity (TFP). Bloom, Sadun, and Van Reenen (2016) estimate that management accounts for, on average, a quarter of the TFP gaps between the United States and other countries.

But there is also wide variation in management practices within countries, and management also potentially accounts for a great deal of the TFP spread within countries. In the United States and the United Kingdom, Bloom, Sadun and Van Reenen find that about a third of the gap between high-performing firms (those at the 90th percentile) and low performing firms (those at the 10th percentile) in TFP can be related to management practices.

The relationship between productivity and management is robust to different ways of combining the management questions, and to controlling for firm-specific, time-invariant characteristics using the panel dimension of the management data. In recent years, a number of studies using the WMS methodology have corroborated these findings.

Non-experimental evidence, however, may fail to provide reliable economic relationships as management is likely to be endogenous to firm-level outcomes. More profitable firms, for example, may attract higher quality managers. We have collected data from the same firms across time, but even estimates using these panel data are subject to time-varying unobservable factors that may be correlated with both management and performance. To account for this problem, economists increasingly rely on evidence from experiments that mimic experiments conducted in the lab. In the manufacturing sector, a randomised controlled trial (RCT) run by Bloom et al. (2013) revealed that the adoption of management practices led to large increases in productivity: following a consulting intervention costing around \$250,000 per firm, profits in a typical firms increased in the first year by \$325,000.

As management quality is a potential constraint on the growth of developing countries, it is important to identify the main factors driving differences in management quality across countries.

A growing literature suggests that product market competition has a critical influence in increasing aggregate management quality by thinning the ranks of badly managed firms, and incentivizing the survivors to improve. Firm ownership and governance may also drive variation in management practices. Family-owned and family-managed firms have, on average, much worse management scores, while the family-owned but externally-managed firms score much higher. The human capital of managers is also correlated with management scores. The human capital of production workers also seems to matter: for example, sufficiently educated workers tend to better respond to continuous improvement initiatives. Finally, informational frictions may explain why some firms do not adopt good management practices. Indeed, a common challenge facing firms in how to upgrade their practices is that managers themselves appear to be ignorant of their own firm's management quality, or lack knowledge about what constitutes effective management practices, or both.

This extensive review of the literature allows us to inform policy and policymakers through three main pillars:

1. Policies should avoid regulatory barriers to entry and protection of inefficient incumbents. Instead, governments should promote vigorous competition. Regulations should be avoided that slow reallocation of assets across firms and sectors. Likewise, regulations should avoid creating barriers to skill acquisition.
2. Governments should avoid taxes and other distortive policies that favour family-run firms because family control appears to hinder the establishment of good management practices.
3. Reducing barriers to the market for advice should be high on the policy agenda. The creation of better benchmarks, advice shops, and management-demonstration projects, especially for smaller firms, could be beneficial.

The WMS has focused on medium and large-scale enterprises. But entrepreneurship training programs in low- and middle-income countries have focused on microenterprises. McKenzie and Woodruff (2016) develop a diagnostic that adapts the WMS approach for microenterprises. Data from seven countries shows that management practices are also highly correlated with firm performance among much smaller enterprises. However, in contrast to the very strong results Bloom et al (2013) find from their consulting intervention in large firms, results from RCT assessments of micro-enterprise training programs are much more ambiguous (McKenzie and Woodruff 2012): while several studies find positive effects on profits, others find insignificant or mixed results (e.g., positive effects for men but negative effects for women) and a few even find negative effects.

Three main factors may drive the contrasting evidence between larger and smaller firms. First, the Bloom intervention (like the WMS) emphasizes formal systems for monitoring output, inputs, and defects; setting short- and long-run targets; and establishing rigorous employee appraisal systems. These areas are less likely to be important for the micro- and small-enterprises, which are often single-person firms. Second, the firms that deliver the management consultancy services to micro- and small firms are usually local firms, which may struggle to deliver the same quality of intervention of global consultancy firms, such as the one employed for the Bloom intervention. Third, the types of management training differ substantially. The WMS method focuses on operational improvements, whereas many of the treatments focus on "strategic management", such as improved marketing and pricing.

# I. Productivity Variation

Over the last few decades, the opening up of business micro data by national statistical agencies, and the vast improvement in computer power to store and analyze very large and complex datasets have facilitated the careful documentation of the enormous variation in productivity across countries, firms, and time.

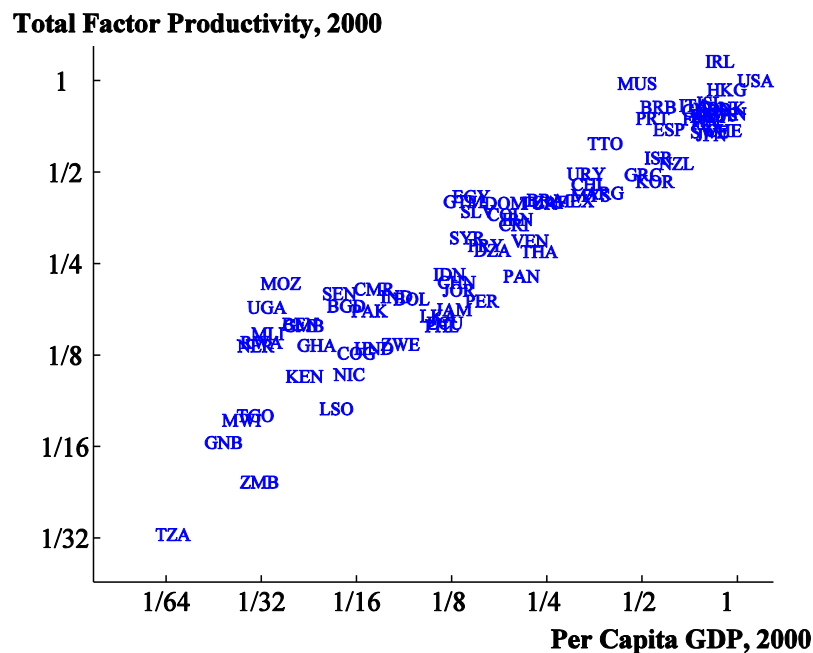
Figure 1 shows the correlation between GDP per capita and Total Factor Productivity (TFP, see next page for Explanation Box) for a large number of countries (Jones and Romer, 2010). It is clear that those countries with high TFP are also the countries with high GDP per capita, suggesting that TFP is important for understanding cross-country success. Development accounting (e.g., Caselli, 2005) focuses on how to account for these large cross-sectional differences across countries, but a puzzle remains: observables such as human and nonhuman capital seem unable to account for the large GDP per capita

differences observed across countries.

Aggregate TFP differences across countries are also influenced by how different economies allocate output to plants of heterogeneous productivity levels. For example, Figure 2 shows the estimated productivity distribution of the manufacturing sectors in the United States and India (Hsieh and Klenow, 2009). Compared to the United States, India appears to have a much longer left tail of low-productivity plants. This suggests that something about the structure of the Indian economy allows less-productive plants to survive more easily than they do in the United States.

At the micro level, a substantial body of evidence shows persistent heterogeneity in firm productivity (and other dimensions of performance) in narrowly defined industries in many countries and time periods (e.g. Foster, Haltiwanger, and Syverson 2008; Bartelsman and Dhrymes, 1998).

Figure 1: Per capita GDP and TFP between countries



Note: US=1. Source: Jones and Romer, 2010.

Differential observable inputs, heterogeneous prices and idiosyncratic stochastic shocks are not able to adequately account for the remarkable dispersion of productivity. So, what else could account for these persistent productivity differences?

One of the possible causes of productivity differences that has been the focus of much of the growth literature is “hard” technologies. This refers to the generation of new technologies, as proxied by measures of R&D or citation-weighted patents, or the adoption of technologies, as proxied by use of, for example, hybrid corn, new drugs, or information and communication technologies (ICT).

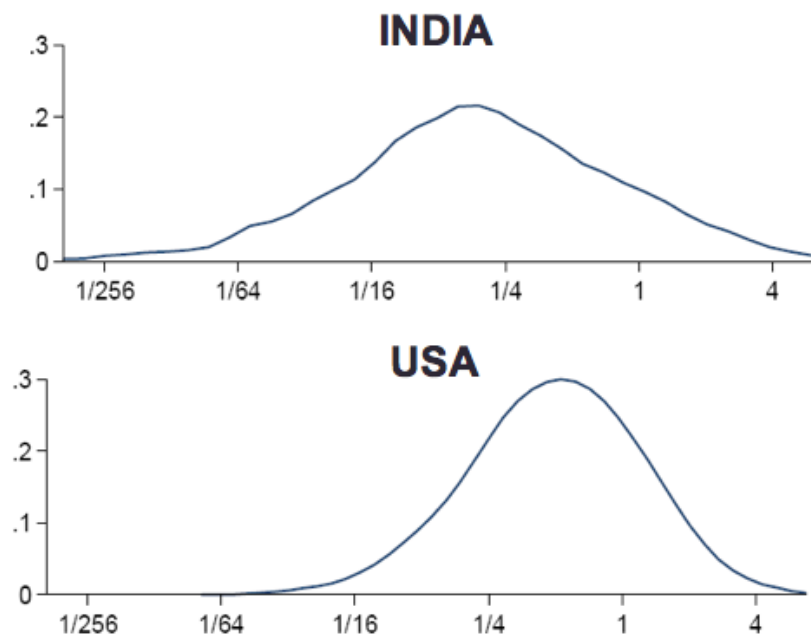
### Total Factor Productivity

In economics, TFP is a fraction of total output, such as GDP, that is not explained by the aggregate inputs of production. It is particularly studied in macroeconomics as it highly affects economic growth. TFP growth is usually measured by the Solow residual.

Differences in hard technologies, however, are not able to fully account for productivity spreads for at least two reasons. First, even after controlling for a host of observable technology measures, a very large TFP residual remains. Second, the impact of observable technologies seems to vary systematically with the management and organization of the firm. This has been seen most clearly in studies of the effect of ICT on productivity (e.g., Bresnahan, Brynjolfsson and Hitt, 2002). The effects of ICT on productivity range widely, and the impact seems to be much higher when firms are more decentralized and have stronger “people management” practices—structured hiring policies; and a strong emphasis on ability and effort when determining promotion, and dealing with underperformance and pay (Bloom, Sadun and Van Reenen, 2012).

The generation and diffusion of hard technological innovations are therefore unlikely to be the only drivers of the productivity dispersion observed across firms and countries. Another important factor could be “soft” technologies such as management practices.

**Figure 2:** Distribution of TFP



*Note:* the United States has a much smaller “left tail” of less-productive plants than India. Mean=1, manufacturing plants.

*Source:* Hsieh and Klenow, 2009.

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## II. The World Management Survey

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While many theories put entrepreneurial or managerial ability at the heart of the issue of productivity dispersion, until recently little large-scale quantitative data existed to empirically investigate these claims across firms, industries, and countries. For an informative discussion on the importance of management in driving productivity, we needed to collect systematic data on representative samples of firms across different sectors and countries. To measure management practices, we developed a new survey methodology, first described in Bloom and Van Reenen (2007), and now known as the World Management Survey (WMS).

The WMS is an interview-based evaluation tool that defines 18 key management practices, and scores them from 1 (“worst practice”) to 5 (“best practice”). The evaluation focuses on three key areas: First, monitoring: How well do organizations monitor what goes on inside the firm, and then use this information for continuous improvement? Second, targets: Do organizations set the right targets, track the right outcomes, and take appropriate action if the two are inconsistent? Third, incentives/people management: Are organizations promoting and rewarding employees based on performance, prioritizing careful hiring, and trying to keep their best employees?

It is important to note that these practices do not cover every aspect of management; for example, we explicitly leave out more “strategic” aspects of management relating to innovation, marketing and finance. These aspects are definitely important, but we do not feel confident of judging anything to be on average better or worse in this regard. The WMS focuses on practices that are likely to be associated with delivering existing goods or services more efficiently. We think there is some consensus over better or worse practices in this regard.

To collect the data, we hired MBA-type students who had some business experience, and trained

them to conduct the telephone interviews. These students were from the countries we surveyed (and, thus, could interview managers in their native languages), and were studying at top North American or European universities. The students surveyed manufacturing plant managers, retail store managers, clinical service leads in hospitals, and principals or headmasters in schools. We deliberately targeted middle managers at these levels; they were 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 managers using a double-blind survey technique. The first part of this double-blind technique ensured that managers were not told they were being scored or shown the scoring grid. They were told only that they were being “interviewed about their day-to-day management practices.” To do this, we asked open-ended questions. For example, on the first monitoring dimension in the manufacturing survey, we start by asking the open question “Could you please tell me about how you monitor your production process?” rather than closed questions such as “Do you monitor your production daily [yes/no]?”.

The other side of our double-blind approach ensured that our interviewers were not told in advance anything about the organization’s performance; they were provided only with the organization’s name, telephone number, and industry.

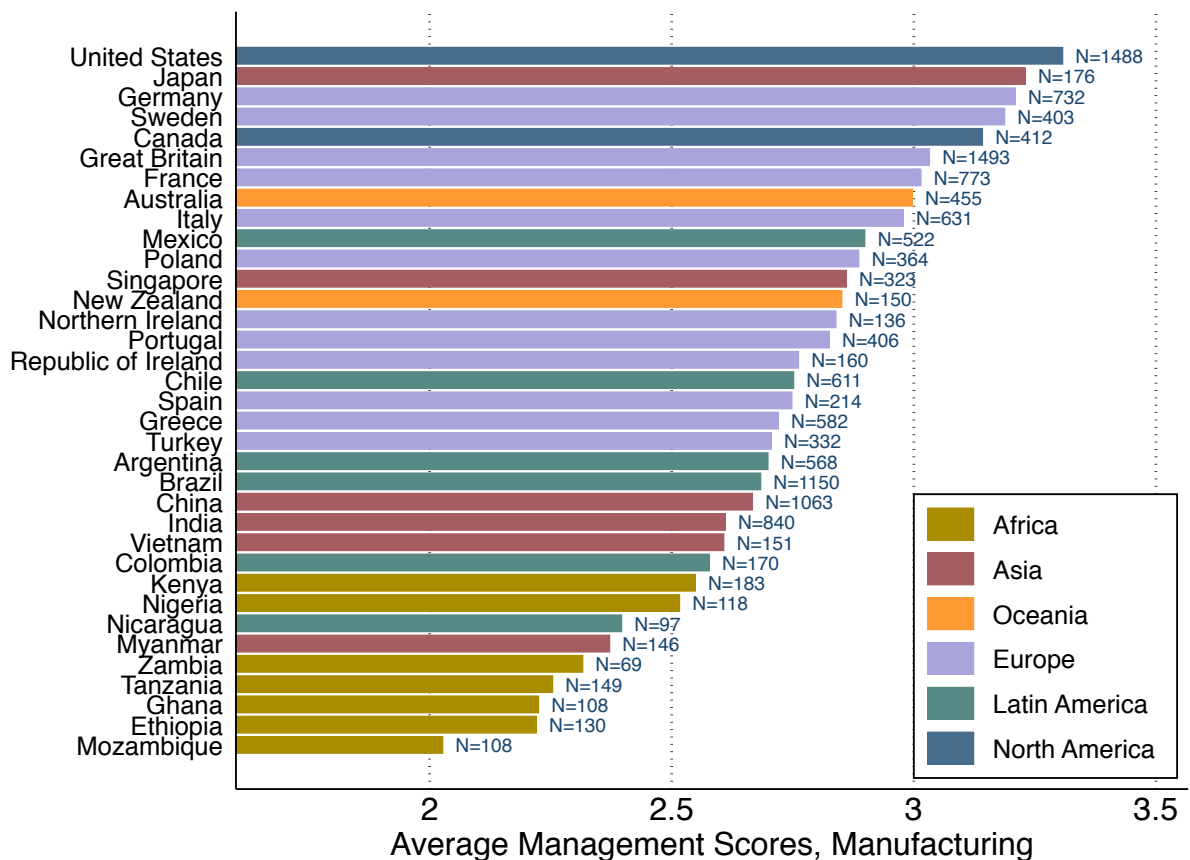
The WMS was administered to over 12,000 firms in 35 countries. We randomly sampled medium-sized firms (employing between 50 and 5,000 workers) in manufacturing and retail, hospitals that deliver acute care, and schools that offer education to 15-year olds (which corresponds to high schools in most of the countries we surveyed)<sup>ii</sup>. The surveys focus on particular practices that are not likely to be relevant for very small organizations with few employees, but see McKenzie and Woodruff (2016) for

a related exercise focusing on micro- and small-scale enterprises.

Our findings suggest that the WMS provides a methodologically robust way of measuring core management practices. In the manufacturing sector, the median firm in our sample is privately owned, employs around 300 workers, and operates two production plants. Figure 3 presents the average management practice score<sup>iii</sup> across countries.

The United States has the highest average management score followed by Japan, Germany, and Sweden. Halfway down the table are Southern European countries such as Portugal and Greece, followed by emerging economies such as India and China. African countries come at the bottom of the table. This cross-country ranking is perhaps not surprising, since it approximates the cross-country productivity and income rankings.

**Figure 3:** Average management scores by country



Source: World Management Survey.

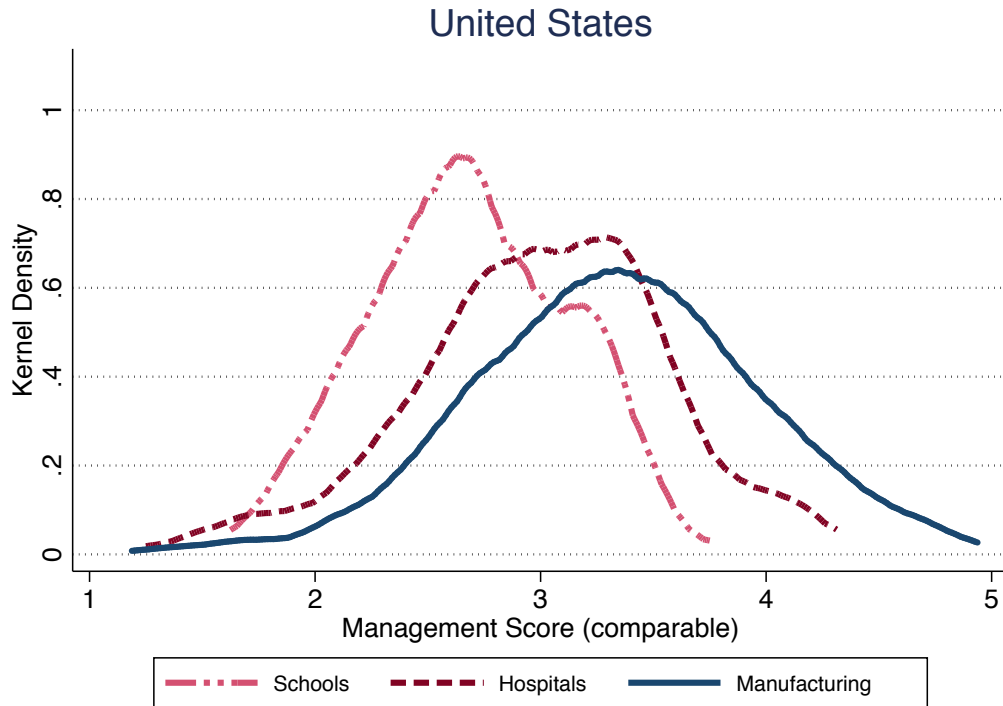
Outside of the manufacturing sector, we also observe wide variation in management practices within countries. To illustrate this, Figure 4 plots the distributions of management scores for hospitals, schools, and manufacturing firms in the United States for the 16 questions that are identical across the surveys. Figure 4 also highlights that average management scores for manufacturing are higher than for hospitals, whose scores are, in turn, higher than for schools.

One possible reason for the difference is that schools are dominated by the public sector compared to manufacturing, with hospitals in-between. In each individual sector (manufacturing, hospitals, and schools), government-owned organizations have lower average management scores than the others. This is true even after controlling for size, country, and other factors. The main reason that government-owned organizations have lower scores is that they have weaker people-management practices. In particular, promotion is often based on

time served; persistent underperformers are seldom retrained or moved to different positions. Interestingly, public hospitals and schools look as good as, or better than their private counterparts in terms of management. This finding suggests that the lack of

managerial autonomy, the power of unions, and/or the unobserved characteristics of public-sector employees may drive the lower average management scores of hospitals and schools, rather than public ownership per se.

**Figure 4:** Comparison of management scores across three sectors (in the United States)



*Notes:* Management kernel density plot. Scores from 1 (worst management practices) to 5 (best management practices). Practices measured are monitoring (collection of information and use for ongoing improvements), targets and incentives (rewarding higher performing employees and addressing under-performing employees). *Source:* Bloom et al., 2014.



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### III. Management and Organizational Performance

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*a. Non experimental evidence*

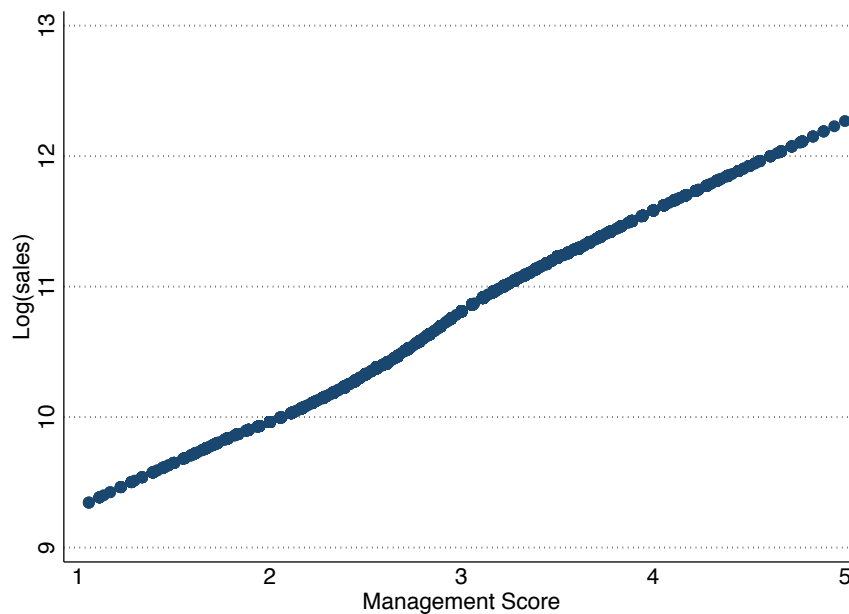
Our work on the WMS data fits within a large body of literature examining the effects of management on firm performance. Several findings support the hypothesis of a positive relationship between management quality and firm performance. First, correlating the same summary management-quality measure underlying Figure 3 with various firm-performance outcomes suggests that higher management scores are positively and significantly associated with higher productivity, firm size, profitability, sales growth, market value, and survival in the manufacturing sector. For example, Figure 5 shows the local linear regression of log of firm sales on the management score. Since we would expect the better-managed firms to capture a larger fraction

of sales, the positive and monotonic relationship is consistent with this prediction.

#### Fixed Effects (FE) Model

FE is a widely used econometric technique that exploits the time dimension of repeated observations for, say, the same individual, to account for any time invariant and individual specific characteristic. In this way, the resulting estimate can be interpreted as the causal effect of the variable of interest. Note, however, that any time variant occurrence, such as a random shock, that affects the variables in your model, represents a real threat to the interpretation of the results.

**Figure 5:** Firm size is increasing in management score



*Notes:* WMS: management is an average of 18 questions. Sales in log(sales) is in US\$. N =7,683. *Source:* World Management Survey.

The relationship between productivity and management is robust to different ways of combining the management questions, and to controlling for firm-specific, time-invariant characteristics using the panel dimension of the management data. Fixed-effects estimates of the management coefficient are indeed also positive and significant, although the magnitude of the association is smaller.

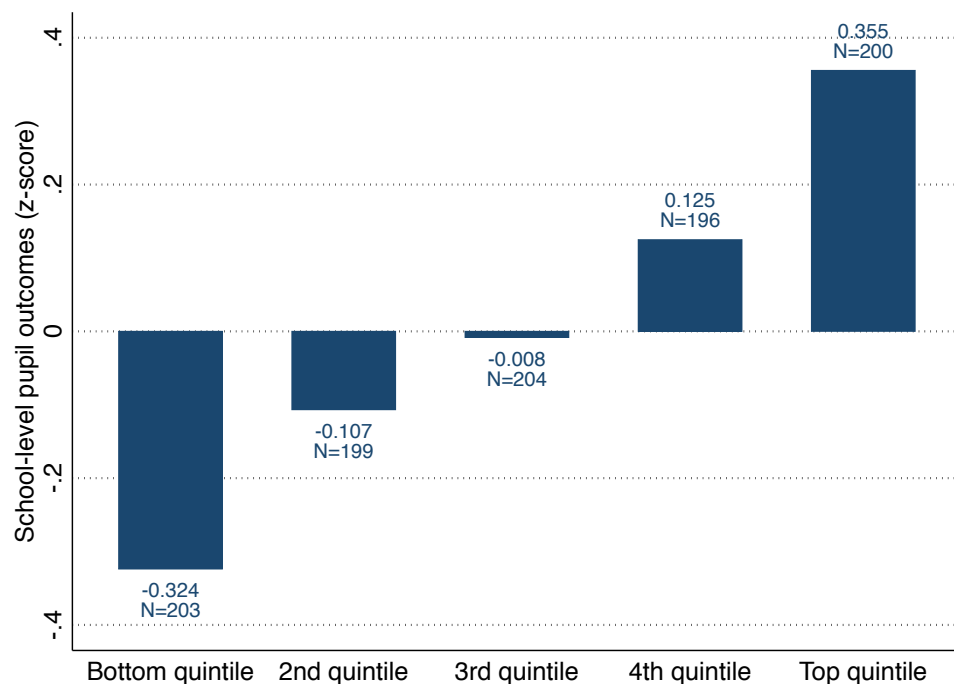
The association of management with organizational performance is also clear in other sectors outside manufacturing. Bloom et al. (2010) finds that management scores in a sample of orthopedic and cardiology departments of UK hospitals are significantly associated with better patient outcomes. Chandra et al. (2013) show that there is also a positive association between case-mix-adjusted AMI (heart attack) survival rates and management scores among hospitals in the United States. In subsequent work, Bloom, Sadun and Van Reenen (2013) show that this positive relationship between patient outcomes and management also holds in other countries.

In the six countries for which we have school-

level pupil outcome data (the United Kingdom, the United States, Sweden, Brazil, India, and Canada), there is again a positive and monotonic relationship between pupil test scores and the management scores of the schools, as shown in Figure 6.

In recent years, a number of studies using the WMS methodology have corroborated the finding that management scores are positively associated with measures of organizational performance. One exception, however, is the Rasul and Rogger (2013) study of the Nigerian civil service, which examines the success rates of 4,721 projects, such as plans to build dams and roads. After implementing a survey mirrored in the WMS methodology, they found that, contrary to the other studies, organizations with high management scores were less likely to successfully complete projects. By contrast, decentralization was found to be associated with a greater likelihood of project success. The authors' preferred explanation is that the greater monitoring associated with higher management scores crowds out the intrinsic motivation of the public servants.

**Figure 6:** Pupil test scores correlated with higher management scores



*Notes:* We use the math exam pass rate from HSEEs in public schools in the United States, the GCSE score in the UK, the school-level rating produced by the Fraser Institute in Canada, the 9th grade GPA in Sweden, the school-level average in math in the High School National Exam in Brazil, and the X Standards Math Score in India. We z-score the student achievement data within-country to take into account differences in school performance measures. Regional dummies and school-level controls for the number of students, the pupil/teacher ratio, the school type dummies, and noise controls are included. *Source:* Bloom et al., 2014.

b. RCT evidence

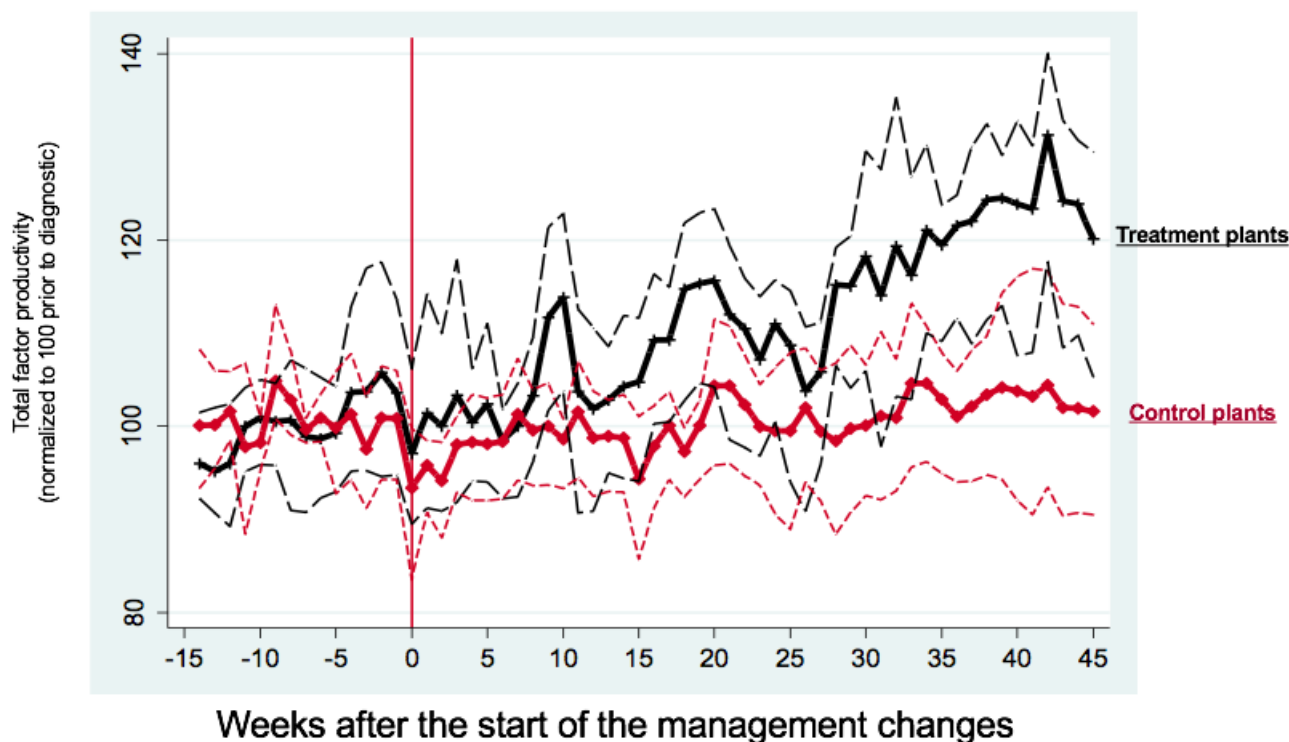
A problem with the non-experimental evidence is that management is likely to be endogenous. Even in the panel estimates, time-varying unobservable factors may be correlated with both management and performance. Reverse causality may also be an issue: perhaps better-performing firms can employ superior management consultants, for example. Hence, in recent years an emphasis has been placed on randomized controlled trials (RCTs, see section IV for Explanation Box) to obtain causal estimates.

In the manufacturing sector, an RCT run by Bloom et al. (2013) provides important contribution in the study of the causal impact of management on firm performance. In this study, the research team provided free management consulting to textile plants in India to help them adopt the kind of modern management practices measured by the WMS. The researchers compared the performances of two sets of randomly selected plants: those that received the consulting and the control group that did not. The experiment revealed that the adoption of these management practices led to large increases in pro-

ductivity: a one standard deviation increase in the management score increased productivity by 10 percent. This figure lies between the OLS levels cross-sectional and within-groups panel estimates in Bloom, Sadun, and Van Reenen (2016). Profits in the first year increased on average by \$325,000, which compared to a market cost of the intervention of \$200,000. So, the intervention more than paid for itself in the first year. The fact that the improvements seem to have persisted suggests that the total returns will likely be even higher.

Interestingly, the Indian experiment also found that the adoption of these types of practices was more likely to occur when firms were struggling. When facing tough times, firms were more likely to try to upgrade their management practices. In contrast, when conditions were better, firms were reluctant to change or adjust management practices. If this type of endogeneity were common, it would lead to systematic underestimation of the impact of management on performance, at least in panel data estimates that rely on changes in performance following changes in management.

Figure 7: Productivity improvements in RCT on adoption of management practices



Notes: Weekly average total factor productivity for 14 treatment and six control plants. All plants make cotton fabric near Mumbai, India; all plants employ between 100 and 1,000 workers. Values are normalized so both series have an average of 100 prior to the start of the intervention. Confidence intervals are bootstrapped over firms. Source: Bloom et al., 2014.

A growing number of RCTs have also studied management interventions in developing countries in micro-enterprises (single- or few-person firms). The results of these are much more ambiguous than those from the Indian textile experiment (which, by contrast, focused on large firms). Karlan, Knight, and Udry (2012) survey 11 studies of managerial interventions. Several of these find positive effects on profits, results that are similar to those of the Indian textile RCT. These RCTs include Mano et al. (2011) in sub-Saharan Africa; Valdivia (2012) in Peru; and Bruhn, Karlan, and Schoar (2012) and Calderon, Cunha, and De Giorgi (2013) in Mexico. Others find insignificant or mixed results; Berge et al. (2011), for example, find positive effects for men but negative effects for women. Some other studies find negative effects. Among these are Gine and Mansuri (2011), and Drexler, Fisher, and Schoar's (2011) basic accounting training. These studies are summarized in McKenzie and Woodruff (2012).

Several possible factors may explain why the wider literature does not find uniformly strong and positive effects such as the RCTs of Bloom et al. (2013). First, the Bloom intervention (like the WMS) emphasizes formal systems for monitoring output, inputs, and defects; setting short- and long-run targets; and establishing rigorous employee appraisal systems. These are less likely to be important for the micro- and mini-enterprises - mostly single-person firms. The Indian textile RCTs (and the WMS survey) explicitly target larger firms with several hundred or thousands of employees spread across multiple factories. Second, the firms that deliver the management consultancy services in the wider literature are usually local firms, unlike Accenture, the global firm that delivered the services for the Indian experiment. Such local firms may struggle to deliver the same quality of intervention of global consultancy firms. Third, the types of management training differ substantially. The WMS method focuses on operational improvements, whereas many of the treatments focus on "strategic management," such as improved marketing and pricing. Consistent with the latter two points, McKenzie and Woodruff (2016) show that the measured effects of training on profits and sales are consistent with the magnitude of the changes in management practices observed following the training interventions. The problem is that the training programs aimed at smaller enterprises result in only very modest changes in management practices. This

suggests the need to focus on both the content and the quality of delivery of the training. And while the RCT closest to the WMS approach (the consulting experiment in India) does find causal effects consistent with the non-experimental work, understanding the heterogeneity of the effects across different RCTs is therefore an important area for future research.

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## IV. Management and TFP Variation

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Patterns observed in the WMS data suggest that management is important in accounting for the large differences in cross-country total factor productivity (TFP). Bloom, Sadun, and Van Reenen (2016) estimate that management accounts for (on average) a quarter of the TFP gaps between the United States and other countries. To do this they use: (i) the size-weighted average management scores by country, (ii) an average treatment effect of a 10 percent increase in TFP from a one standard deviation increase in management; and (iii) the cross-country TFP differences from Jones and Romer (2010). For some southern European countries such as Portugal and Italy, management accounts for half of the TFP gap with the United States, whereas for other nations such as Japan and Sweden, the fraction is only one-tenth.

Management also potentially accounts for a great deal of the TFP spread within countries. In the United States and the United Kingdom, they find that about a third of the gap between high-performing firms (those at the 90<sup>th</sup> percentile) and low performing firms (those at the 10<sup>th</sup> percentile) in TFP can be related to management practices. These estimates are crude, and highlight the importance of many non-management issues in TFP; yet, they do imply that management is potentially important in both quantitative and qualitative respects when it comes to understanding the forces that account for TFP differences between and within countries.

### Randomized Controlled Trials RCTs

As for today, RCTs are considered the gold standard of applied economics and other disciplines. The reason why researchers performing empirical analysis appreciate RCTs has to do with the several problems that they face when attempting to infer a causal relationship between the variables under study. Let's imagine, for example, that a researcher wants to assess the impact of a training programme offered to unemployed people on the ability to find a job afterwards. If this researcher will estimate the casual impact of the programme by comparing position secured after a month between people who joined the programme and people who did not, he or she will very likely estimate an invalid impact. In fact, people who decided to join the programme has some unobservable characteristics that determine their success in finding a job with respect to people who did not join, such as greater motivation. RCTs overcome this issue (known as selectivity bias) randomising the allocation of the "treatment" (the programme, in our case). If the sample is large enough, people who were randomly assigned with the treatment do not differ, on average, from people who were not allocated with the treatment - the resulting discrepancies in outcomes (finding a job, in our case) are interpreted as the causal effect of the treatment. Note, however, that RCTs may still suffer, among other problems, from small sample size, poor take-up, contaminations between groups and the Hawthorne effect.

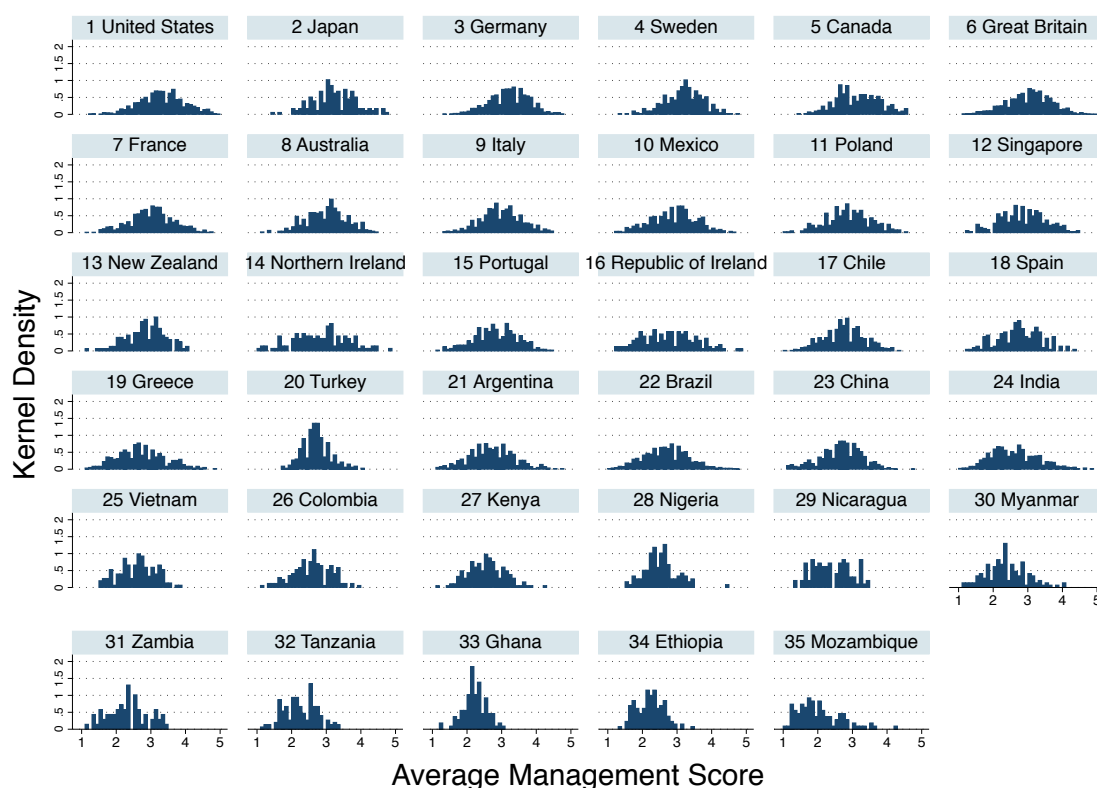
## V. What Cause the Heterogeneity in Management Practices?

As shown in section 3, the WMS data provide evidence that higher management scores tend to be associated with higher productivity and firm growth. The work on management and TFP variation further suggests that management can account for a large part of the TFP gap between countries at the bottom and top ends of the GDP-per-capita distribution. This, in turn, brings forward bad management as a potential constraint on the growth of developing countries. Several teams of researchers have therefore sought to identify the main factors driving differences in average management quality

across countries.

We plot a firm-level histogram of the distribution of management practices within countries in Figure 8. Interestingly, one of the features distinguishing the United States (the country with the highest average management score in our sample) is not just that the mean of the distribution is to the right of other countries, but also that the left tail of very badly managed firms is unusually thin. By contrast, the poorest countries in this sample tend to exhibit both a lower average management score, and a thicker tail of badly managed firms.

**Figure 8:** Large variation in management scores across firms within countries



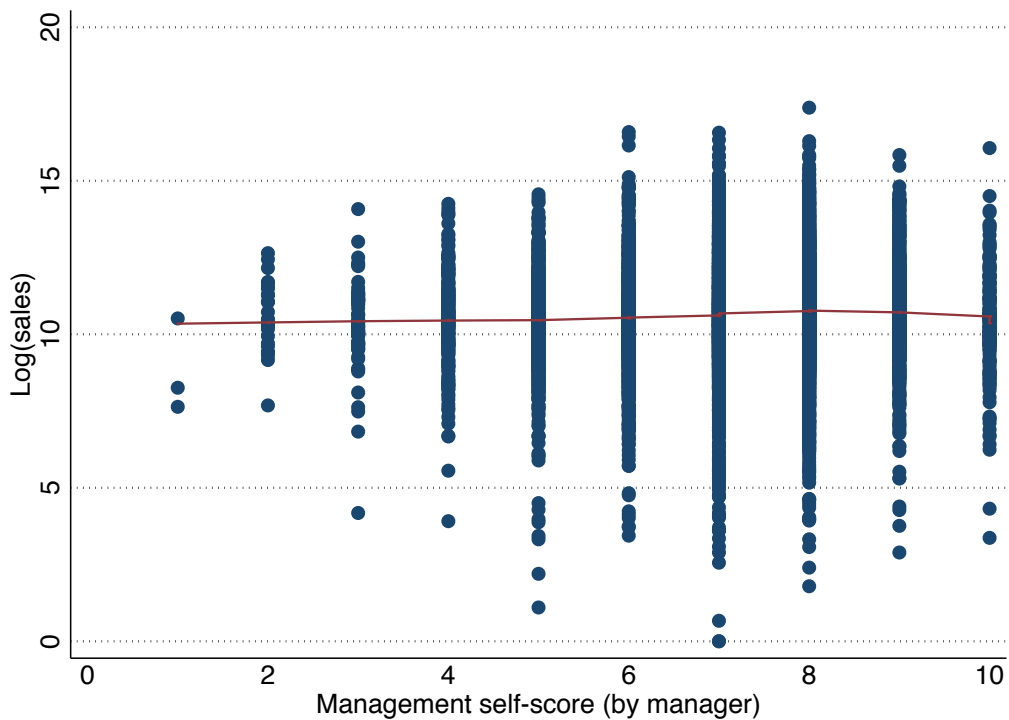
*Notes:* Data include data up to the 2014 survey wave. Bars denote the histogram of the actual density and the line is the kernel density estimate of the United States distribution. Scores are from 15,413 management interviews across 35 countries. *Source:* World Management Survey.

This suggests that harsher selective forces may be driving badly managed firms to exit the market in the United States. A growing literature suggests that product market competition has a critical influence in increasing aggregate management quality by thinning the ranks of the badly managed, and incentivizing the survivors to improve. Bloom and Van Reenen (2007) consistently find that greater levels of competition in the product market are associated with higher management scores, both in the cross-section and in the panel dimension. Bloom, Draca, and Van Reenen (2011a) and Bloom et al. (2010b) also exploit quasi-experiments in the manufacturing and hospital sectors, and find a positive causal effect of competition on management in both sectors. These results suggest that one reason for higher average management scores in the United States is that better-managed firms appear to be rewarded more quickly with greater market share, and the

worse-managed firms are forced to rapidly shrink and exit.

Firm ownership and governance may also drive variation in management practices. Those firms that are family-owned and family-managed have on average much worse management scores, while the family-owned but externally managed firms rank much better (the negative effect of family firms holds up after controlling for a host of factors such as age). Lemos and Scur (2016), using new data they collected on family characteristics of the WMS firms, suggest a causal relationship between family control and poor management. The reason appears to be that many family firms choose to appoint one of the sons to become the next CEO, regardless of merit. These results are consistent with the negative effect of family firms on performance as shown by Perez-Gonzalez (2006) and Bennesden et al. (2007).

**Figure 9:** Self-scored management uncorrelated with productivity



*Note:* Insignificant 0.03 correlation with labour productivity. *Source:* Bloom et al., 2014.

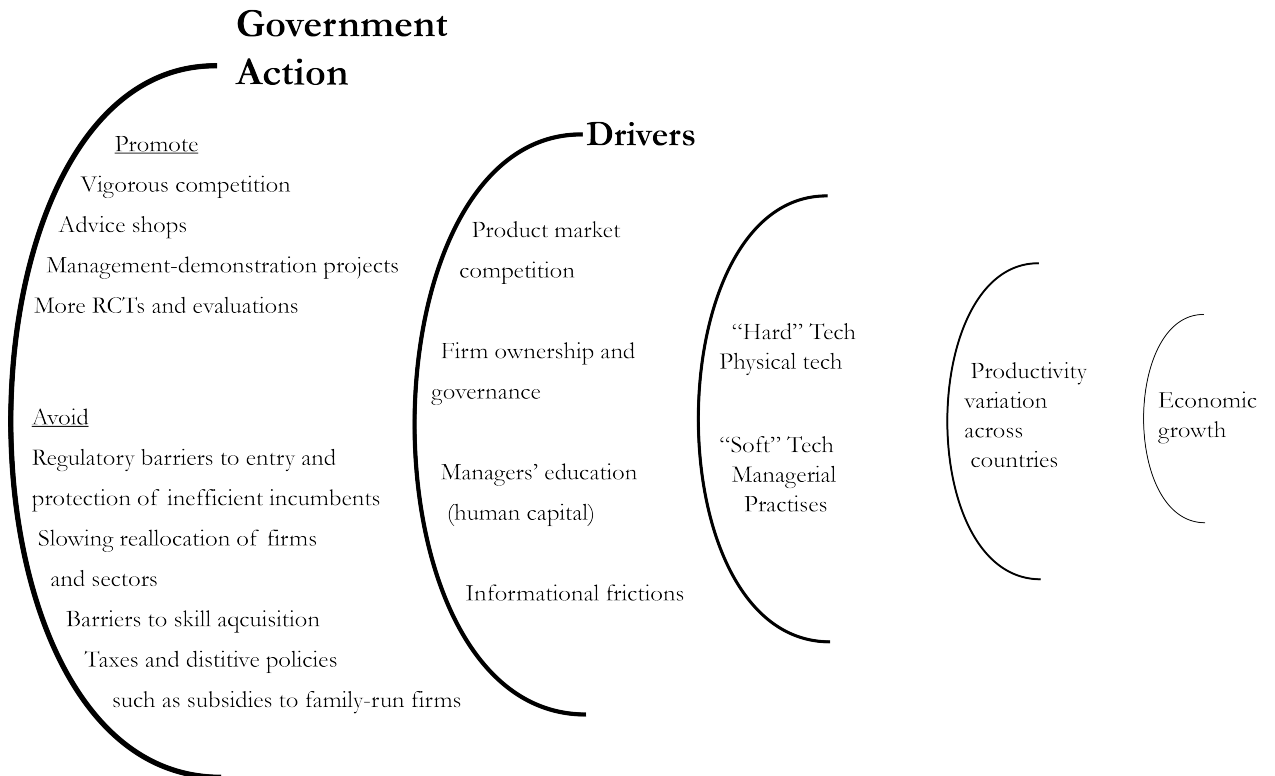


The human capital of managers as measured by the proportion with college degrees is also strongly positively associated with management scores. It is interesting that this relationship is also true for the proportion of non-managers with a college degree, which suggests that having workers who are sufficiently educated to respond to continuous improvement initiatives, for example, is important. Conditional on other local characteristics (such as population density), proximity to a university is significantly correlated with better management scores (Feng, 2013).

Finally, informational frictions may explain why some firms do not adopt good management practices. Anecdotally we find that the lack of knowledge is frequently mentioned as a constraint on the

adoption of managerial practices. Some suggestive evidence on this lack of knowledge is contained in a question we ask at the end of the management survey: “Excluding yourself, how well managed would you say your firm is on a scale of 1 to 10, where 1 is worst practice, 5 is average and 10 is best practice.” Unlike the management score, this is a purely subjective question capturing how the managers perceive the management quality in their firms. Figure 9 plots these scores against labor productivity, and shows there is no relationship between productivity and perceived management quality. This illustrates the challenge facing firms in how to upgrade their practices: managers themselves appear to be ignorant of their own firm’s management quality, or lack knowledge about what constitutes effective management practices, or both.

**Figure 10:** How government policies can lead to economic growth





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## VI. Conclusions

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The practices identified in the WMS survey appear to be informative for organizational performance across disparate sectors such as manufacturing, hospitals, schools, and retail stores. The patterns we find lead us to believe that variations in management practices offer an important explanation for the substantial differences in productivity among firms and among and within countries. Preliminary estimates suggest that around a quarter to a third of cross-country and within-country TFP gaps are management related.

From a research perspective, understanding the causes of the variation in management is a key issue. As economists, we have focused extensively on human capital, incentives and selection through market competition. Informational constraints and within-firm coordination are equally important, but even harder to measure. Understanding these factors will help us to advance the field, and to develop better policies for improving management and productivity. We hope that the methodology we have developed will be refined and used by other researchers to help draw the international map of management in finer detail in additional countries, industries, and practices.

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## POLICY RECOMMENDATIONS

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1. Policies should avoid regulatory barriers to entry and protection of inefficient incumbents. Instead, governments should promote vigorous competition. Regulations should be avoided that slow reallocation of assets across firms and sectors. Likewise, regulations should avoid creating barriers to skill acquisition.
2. Governments should avoid taxes and other distortive policies that favor family-run firms because family control appears to hinder the establishment of good management practices. Many governments around the world, including the United States and the United Kingdom, currently provide tax subsidies for family firms.
3. Reducing barriers to the market for advice should be high on the policy agenda. The creation of better benchmarks, advice shops, and management-demonstration projects, especially for smaller firms, could be beneficial. A plethora of these business support policies exist, but they are rarely credibly evaluated. Rigorous RCTs and other evaluations would both help governments determine “what works”, and also shed light on the fundamental drivers of firm heterogeneity.

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<sup>ii</sup>See Bloom, Lemos, Sadun, Scur and Van Reenen (2014) for a full review of the first decade of WMS results.

<sup>iii</sup>The descriptive statistics reported here were obtained using the simple average score across the 18 questions. In Bloom et al. (2013d), we discuss more sophisticated methods of aggregating individual management scores.

<sup>iv</sup>We survey this in Bloom and Van Reenen (2011) with an emphasis on human resource management (such as incentive pay).