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graduating from college in a recession lowers earnings for eight to ten years thereafter. Angrist, Daniel Lang, and Oreopolous (12790) find that financial incentives for college students in Canada led to improved grades and college completion for female students. Rothstein and Rouse (13117) find that when a U.S. college moved from loans to direct grants to its students, students were willing to take much lower paying jobs.

And, Susan Dynarski (10357, 10470) discusses the pros and cons of tax subsidized savings accounts for college.

## Conclusions

The past four years have seen continued growth in the areas of interest and the depth of research produced by members of the Children's Program. The results are an important set of findings

that dramatically advance our understanding of child well-being. Moreover, the findings summarized here are only a part of the exciting research program being carried out by Program members. This policy-relevant work will continue to promote our understanding of children's well-being in the United States and around the world.

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## Research Summaries

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# Bossonomics? The Economics Of Management And Productivity

Nick Bloom and John Van Reenen\*

## Management and Productivity

Economists have long speculated on why such astounding differences in productivity exist between firms and plants within countries, even within the same narrow sector.<sup>1</sup> While the popular press and business schools have long stressed the importance of different management practices, empirical economists have had relatively little to say about management.<sup>2</sup> A major problem has been the absence of high quality management data that is measured in a consistent way across firms and countries.

Despite this data constraint, heterogeneity in managerial and entrepreneurial ability has become the foundation for a wide range of literatures.<sup>3</sup> In many benchmark theories, it is assumed that management is an unobservable factor that varies across firms, driving productivity differences. In parallel, Mundlak labelled his fixed-effect differences in productivity as "unobserved managerial ability."<sup>4</sup>

## Measuring Management using Double-Blind Surveys

To address this lack of management data, we have been developing a methodology for measuring management practices.<sup>5</sup> We use an interview-based evaluation tool that defines and scores from one ("worst practice") to five ("best practice") 18 basic management practices. This evaluation tool was developed by an international consulting firm, and scores these practices in three broad areas:

- *Monitoring*: how well do companies track what goes on inside their firms, and use this for continuous improvement?
- *Target setting*: do companies set the right targets, track the right outcomes, and take appropriate action if the two don't tally?
- *Incentives*: are companies promoting and rewarding employees based on performance, and systematically trying to hire and keep their best employees?

To obtain accurate responses from firms, we interview production plant managers using a "double-blind" technique: managers are not told they are being scored or shown the scoring grid; they are only told they are being "interviewed about management practices for a research project." To run this blind scoring, we use open questions. For example, on the first monitoring question, we ask "tell me how you monitor your production process," rather than asking a closed question such as "do you moni-

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tor your production daily [yes/no]”. We continue with open questions targeting 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?”. The scoring grid for this performance tracking dimension is shown here as an example.

The other side of the double-blind technique is that interviewers are not told in advance anything about the firm’s performance. They are only provided with the company name, telephone number, and industry. Since we randomly sample medium-sized manufacturers (employing between 100 to 10,000 workers) who are not usually reported in the business press, the interviewers generally have no preconceptions about these firms.

To ensure high sample response rates and skilled interviewers, we hired MBA students to run interviews. We also obtained government endorsements for the surveys in each country covered, and positioned it as a “Lean manufacturing” interview with no requests for financial data. These steps helped to yield a 45 percent response rate which was uncorrelated with the (independently collected) performance measures.

Management Practice Dimension 4 (“Performance tracking”)		
Score 1	Score 3	Score 5
<b>Scoring grid</b>		
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).	Most key performance indicators are tracked formally. Tracking is overseen by senior management.	Performance is continuously tracked and communicated, both formally and informally, to all staff using a range of visual management tools.
<b>Sample firm</b>		
<i>A manager tracks a range of measures when he does not think that output is sufficient. He last requested these reports about 8 months ago and had them printed for a week until output increased again. Then he stopped and has not requested anything since.</i>	<i>At a firm every product is bar-coded and performance indicators are tracked throughout the production process. However, this information is not communicated to workers</i>	<i>A firm has screens in view of every line, to display progress to daily target and other performance indicators. The manager meets daily with the shop floor to discuss performance metrics, and monthly to present a larger view of the company goals and direction. He even stamps canteen napkins with performance achievements.</i>

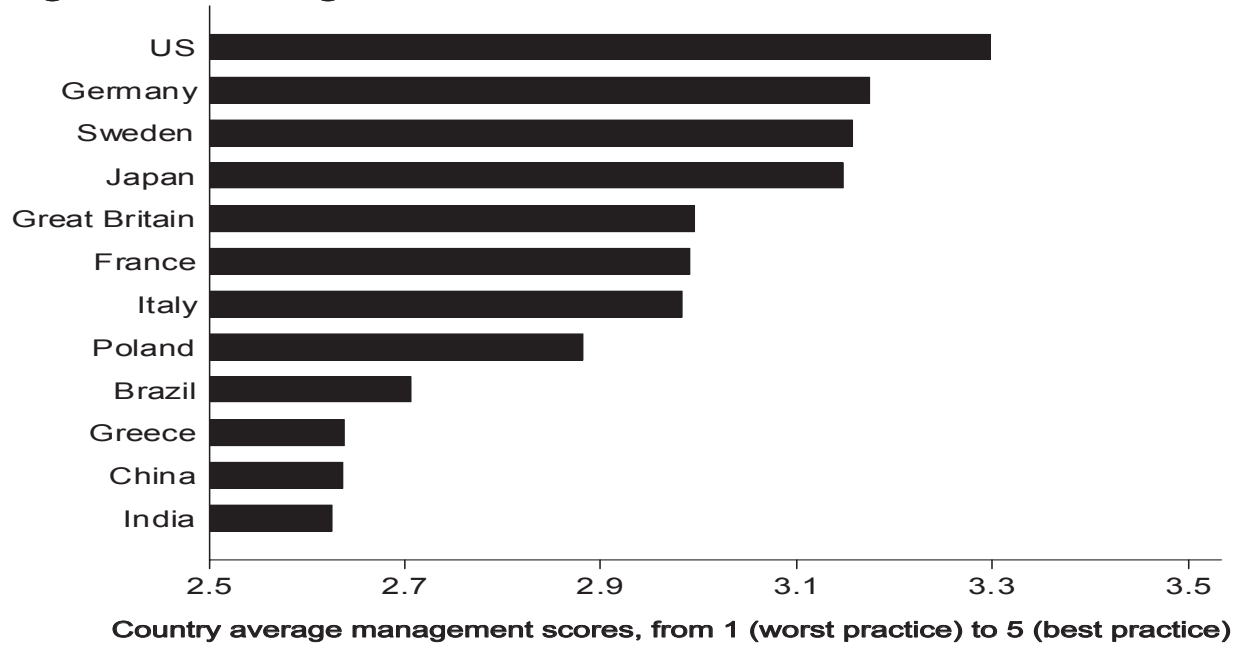
### Management Practices across Firms and Countries

The bar chart in Figure 1 (page 8) plots the average management practice score across countries from the 6,000 interviews we carried out in survey waves from 2004 to 2008. This shows the United States has the highest management practice scores on average<sup>6</sup>, with the Germans, Japanese, and Swedes next, followed by a block of mid-European countries (France, Italy, the United Kingdom, and Poland), with Southern Europe and developing countries Brazil, China, Greece, and India at the bottom. In one sense this is not surprising because it approximates the cross-country spread of productivity. But in another sense it suggests management practices could play

an important role in determining country-level productivity. At the firm-level, better management practices are strongly associated with higher firm-level productivity, profitability, and survival<sup>7</sup>, suggesting they could play an equally important role in country-level productivity. Better management is also linked with improved employee work-life-balance and lower energy use, suggesting better management does not come at the expense of worker welfare or more pollution.<sup>8</sup> Of course the key question is why are management practices different across countries? Figure 2 (page 8) plots the firm-level histogram of management practices by country, and shows that management practices display tremendous within-country variation. So, much like productivity figures, within-country vari-

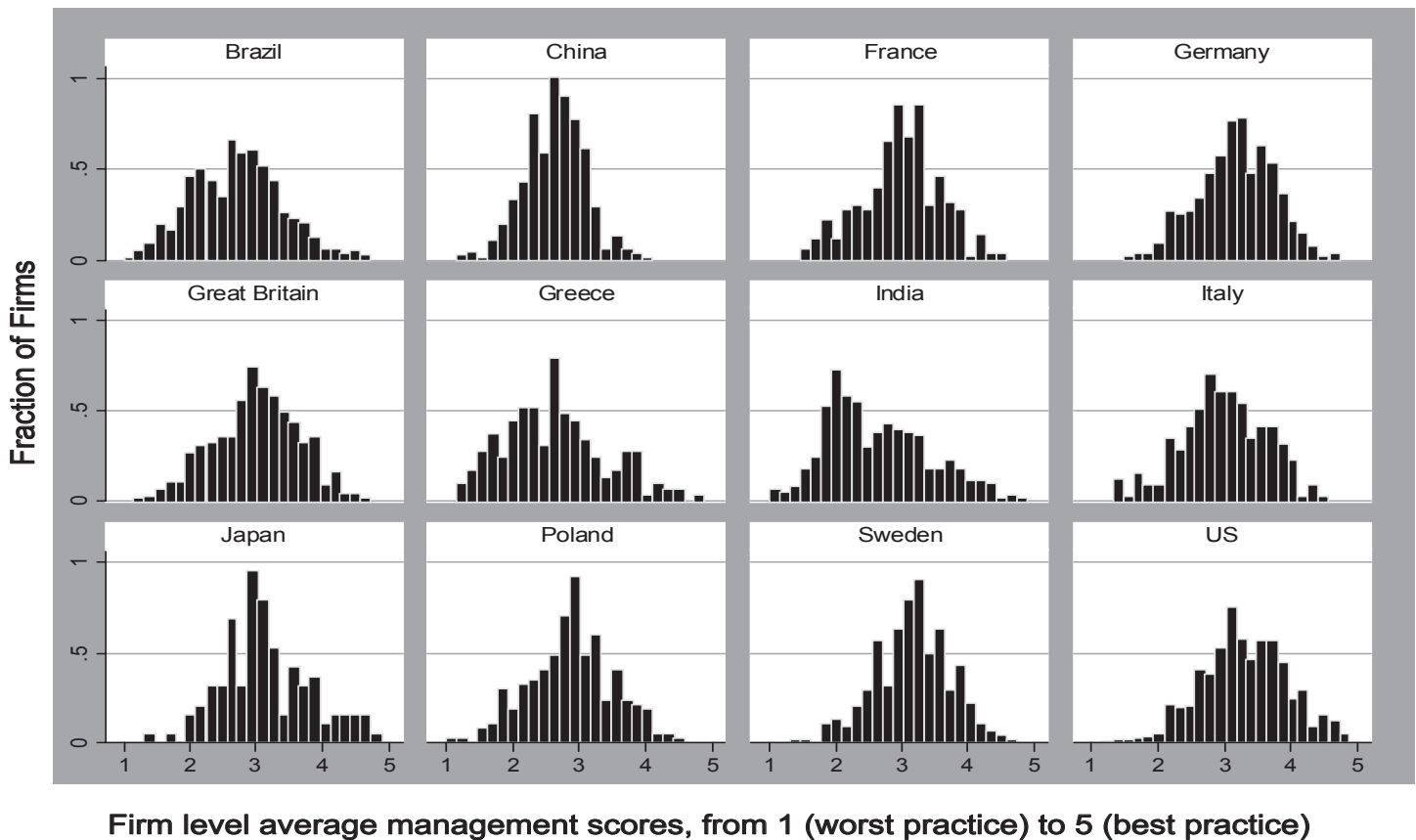
ation is far greater than cross-country variation. This figure also highlights that U.S. firms have the highest average management score because they have almost no density of firms with management practices below two. Thus, the infamously badly managed paper-supply firm “Dunder-Mifflin” from the TV show “The Office” is thankfully a rare U.S. exception.<sup>9</sup> In comparison India, which has the lowest cross-country management score, has a large mass of firms with extremely poor management practices (scores of two or less). This raises two key questions which we are currently working on: Why do these variations in management practices exist, and to what extent do variations in management practices actually *cause* variations in productivity?

**Figure 1: Management Practice Scores Across Countries**



Averages taken across all firms within each country. 4423 observations in total.

**Figure 2: Management Practice Scores Across Firms**



## Why do Management Practices Vary So Much across Firms and Countries?

We have identified three key factors that appear to play an important role in shaping management practices — competition, family ownership, and multinational status.

*Product market competition* is associated with significantly better management practices. In particular, the tail of badly managed firms shrinks in highly competitive markets. Thus, the competitive product markets of the United States explain much of its lack of badly managed firms. In contrast, many product markets in India have limited competition because of entry barriers, trade regulations, and high transportation costs, enabling badly managed firms to persist.

We are currently investigating the mechanisms through which competition works to improve management. One possibility is Darwinian selection — high levels of competition should drive badly managed firms out of business more quickly. Another is by inducing higher levels of effort — tough product market competition may lead managers to work harder as the stakes are higher (slacking is more likely to lead to losses of market share and bankruptcy). As we follow up the initial cross-sectional firm surveys to convert this into panel data, we can investigate these different mechanisms.

*Firms that are both family owned and family managed* tend to be badly run on average.<sup>10</sup> This is true even after including a battery of econometric controls for country, industry, firm size, human and physical capital intensity. Looking at these family firms in more detail, it appears the worse managed firms are those in particular that hand down the position of CEO using the ancient practice of *primogeniture* (succession of the eldest son). To elicit this information, we asked the plant managers the question: “How was the CEO chosen, was he selected as the eldest son or by some other mechanism?” Surprisingly, in many countries, including Brazil, India, and the United Kingdom,

the answer was often selection by eldest son, while in others countries such as the United States and Sweden this was very rare. A number of factors, including traditions over leadership succession, estate tax breaks, and the external market for CEOs appear to drive these differences.

*Multinational and Export Status* also appears to play an important role in determining a firm’s management practices. One stylized fact is that multinationals have good management practices wherever they are located — so multinationals in the United States, Brazil, and India all appear to be well run. A second stylized fact is that some countries have relative managerial strengths and weaknesses — for example, the Japanese are better at monitoring and the Americans at incentives/people management — and their multinationals take this with them abroad. In other work with Rafaella Sadun, we show that U.S. multinational affiliates located in Europe were able to use their managerial advantage to make better use of information technology to raise productivity.<sup>11</sup> We argue that these managerial differences could account for about half of the superior productivity growth performance in the United States relative to Europe in the decade after 1995. A third stylized fact is that among domestic firms, those that export are better managed than non-exporters. Interestingly, these stylized facts are broadly consistent with a wide range of recent trade models.<sup>12</sup>

<sup>1</sup> See, for example, L. Foster, J. Haltiwanger, and C. Syverson, “Reallocation, Firm Turnover, and Efficiency: Selection on Productivity or Profitability?” NBER Working Paper No. 11555, August 2005.

<sup>2</sup> Notable exceptions include A. Bartel, C. Ichinowski, and K. Shaw, “How Does Information Technology Really Affect Productivity? Plant-Level Comparisons of Product Innovation, Process Improvement, and Worker Skills,” NBER Working Paper No. 11773, November 2005; and S. Black and L. Lynch, “How to Compete: The Impact of Workplace Practices and Information Technology on Productivity,”

NBER Working Paper No. 6120, August 1997, and Review of Economics and Statistics, LXXXIII (3), (2001), pp.434–45.

<sup>3</sup> For example, R. Lucas, “On the Size Distribution of Business Firms,” *Bell Journal of Economics*, IX (2), (1978), pp. 508–23; B. Jovanovic “Selection and the Evolution of Industry,” *Econometrica*, L (3), (1982), pp. 649–70; H. Hoppenhayn, “Entry, Exit and Firm Dynamics in Long-Run Equilibrium,” *Econometrica*, LX (5), (1992), pp. 1127–50; or M. Melitz, “The Impact of Trade on Intra-industry Reallocations and Aggregate Productivity Growth,” NBER Working Paper No. 8881, April 2002, and *Econometrica*, LXXI (6), (2003), pp. 1695–725.

<sup>4</sup> Y. Mundlak, “Empirical Production Function Free of Management Bias,” *Journal of Farm Economics*, XLIII (1) (1961), pp. 44–56.

<sup>5</sup> See N. Bloom and J. Van Reenen, “Measuring and Explaining Management Practices across Firms and Countries,” NBER Working Paper No. 12216, May 2006, and *Quarterly Journal of Economics*, November 2007, pp. 1351–1408; and N. Bloom, R. Sadun, and J. Van Reenen, “Americans Do I.T. Better: U.S. Multinationals and the Productivity Miracle,” NBER Working Paper No. 13085, May 2007.

<sup>6</sup> We should note that all the co-authors of the management research are European.

<sup>7</sup> See N. Bloom and J. Van Reenen, “Measuring and Explaining Management Practices across Firms and Countries.”

<sup>8</sup> See N. Bloom, T. Kretschmer, and J. Van Reenen, “International Differences in the Business Practices and Productivity of Firms,” forthcoming in an NBER book, R. Freedman and K. Shaw, eds.; and N. Bloom, C. Genakos, R. Martin, and R. Sadun, “Modern Management: Good for the Environment or Just Hot Air?,” NBER Working Paper No. 14393, October 2008.

<sup>9</sup> We should note “The Office” originated in the UK, where a much larger tail of badly run firms exists. Interestingly, the UK was also the source of “Fawlty Towers,” another classic show about bad management practices.



<sup>10</sup> M. Bennedsen, K. Nielsen, F. Perez-Gonzales, and D. Wolfenzon, "Inside the Family Firm: the Role of Families in Succession Decisions and Performance", NBER Working Paper No. 12356, July 2006, uses gender of the founder's first-born child as an instrumental variable for family-run firms. They find that the OLS estimates actually underestimate how bad family firms are.

<sup>11</sup> See N. Bloom and J. Van Reenen, "Measuring and Explaining Management Practices across Firms and Countries", and N. Bloom, R. Sadun, and J. Van Reenen, "Americans Do I.T. Better: US Multinationals and the Productivity Miracle".

<sup>12</sup> See M. Melitz, "The Impact of Trade on Intra-industry Reallocations and Aggregate Productivity Growth"; E. Helpman, M. Melitz, and S. Yeaple,

"Export Versus FDI with Heterogeneous Firms", NBER Working Paper No. 9439, January 2003, and American Economic Review, Vol. 94, 2004, pp. 300–16; and A. Burstein and A. Monge, "Foreign Know-how, Firm Control, and the Income of Developing Countries", NBER Working Paper No. 13073, May 2007, forthcoming in Quarterly Journal of Economics.

## Banking Crises<sup>1</sup>

Charles W. Calomiris\*

The current global financial crisis grew out of banking losses in the United States related to subprime lending. How well do economists understand the origins of such crises and how they spread? Was this crisis something new or a replay of familiar historical phenomena? Will policy interventions be able to mitigate its costs? The history of banking crises provides informative perspectives on these and other important questions.

### Crises Are Not All the Same

When considering the history of banking crises, it is useful to distinguish between two phenomena associated with banking system distress: exogenous shocks that produce insolvency, and pressures on banks that arise from rapid withdrawals of debt or failures to rollover debt during "panics." These two contributors to

distress often do not coincide. For example, in the rural United States during the 1920s, large declines in agricultural prices cause many banks to fail, often with high losses to depositors, but those failures were not associated with systemic panics.<sup>2</sup> In 1907, the opposite pattern was visible. The United States experienced a systemic panic, originating in New York, which was precipitated by small aggregate shocks but had large short-term systemic effects associated with widespread withdrawals of deposits. Although some banks failed in 1907, failures and depositor losses were not much higher than in normal times.<sup>3</sup> That crisis was resolved only after banks had suspended convertibility and after uncertainty about the incidence of the shock had been resolved.

The central differences between these two episodes relate to the information about the shocks producing loan losses. In the 1920s, the shocks were loan losses in agricultural banks, geographically isolated and fairly transparent. Banks failed without subsequent system-wide concerns. During 1907, although the ultimate losses for New York banks were small, the incidence of the shock was not

clear (loan losses reflected complex connections to securities market transactions, with uncertain consequences for some New York banks).

Sometimes, large loan losses and confusion regarding their incidence occur together. In Chicago in mid-1932, for example, large losses resulted in many failures and also in widespread withdrawals from banks that did not ultimately fail. Despite the confusion about the incidence of the shock, and the consequent widespread temporary disruptions to the financial system, the banks that failed were exogenously insolvent; solvent Chicago banks experiencing withdrawals did not fail. In other episodes, however, bank failures may have reflected illiquidity resulting from runs, rather than exogenous insolvency.<sup>4</sup>

Today's financial turmoil is closer to the Chicago experience in 1932 than to either the banking shocks of the 1920s or those of 1907.<sup>5</sup> The shock that prompted the turmoil was of moderate size (subprime and Alt-A loans totaled roughly \$3 trillion, including those on the balance sheets of Fannie Mae and Freddie Mac, and total losses are likely to generate total

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