The New Empirics of Management

Nick Bloom, IGC/SCID, November 15th 2014

Ohio, USA

Maharashtra, India
Summarizing parts of a review and three projects

THE NEW EMPIRICAL ECONOMICS OF MANAGEMENT
Nicholas Bloom
Renata Lemos
Raffaella Sadun
Daniela Scur
John Van Reenen

Working Paper 20102
http://www.nber.org/papers/w20102

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
May 2014

IT and Management in America
Nicholas Bloom1, Erik Brynjolfsson2, Lucia Foster3, Ron Jarmin4,
Megha Patnaik5, Itay Saporta-Eksten6 and John Van Reenen7

February 2014

The Census Bureau recently conducted a survey of management practices in over
units across the US, the first large-scale survey of management in America. Analyzing
reveals several striking results. First, more structured management practices are tightly
higher levels of IT intensity in terms of a higher expenditure on IT and more on-line
wise, more structured management is strongly linked with superior performance:
ments adopting more structured practices for performance monitoring, target setting and
enjoy greater productivity and profitability, higher rates of innovation and faster
growth. Second, there is a substantial dispersion of management practices across the
ents. We find that 18% of establishments have adopted at least 75% of these more
management practices, while 27% of establishments adopted less than 50% of these

MANAGEMENT AS A TECHNOLOGY?
Nicholas Bloom1, Raffaella Sadun2 and John Van Reenen3

November 1st 2013

Abstract
Are some management practices skin to a technology that can explain company and nation
performance, or do they simply alternative styles? We collect cross sectional and panel data on
management practices we believe are related to productivity across 8,000 firms in 20 coun-
tries in the Americas, Europe and Asia. We find the US has the highest weighted average man-
gage score, with around a quarter of this advantage due to more powerful reallocation effects
reward better managed firms with greater market share. Further, this US lead in manage-
appears to account for up to half of the TFP gap between America and other countries. We present
a simple model of management as a technology that predicts: (i) a positive effect of management on

Management, Product Quality and Trade: Evidence from China
Nick Bloom, Stanford University and NBER
Kalina Manova, Stanford University and NBER
John Van Reenen, London School of Economics and CEP
Zhihong Yu, Nottingham University
Long debate over the importance of management for growth and development

Walker wrote a paper in 1887 in the Quarterly Journal of Economics called “The Sources of Business Profits”

Walker argued that management was the key driver of firm performance
But there is still a wide debate – many people claim management is “hot air” or “BS”

“No potential driving factor of productivity has seen a higher ratio of speculation to empirical study”

- Chad Syversson (2011, Journal of Economic Literature)
I will focus on four areas in discussing the research:

1) **Measuring management**

2) Model

3) Management contribution to firm and national TFP gaps

4) Current projects
World Management Survey has covered more than 20,000 manufacturing firms since 2002
Management survey methodology – 3 key steps

1) Scoring management practices
   • Scorecard for 18 monitoring, target and incentives practices in ≈45 minute phone interview of manufacturing plant managers

2) Getting firms to participate in the interview
   • Introduced as “Lean-manufacturing” interview, no financials
   • Endorsement: HM Treasury, Banque de France, RBI, PBC etc.

3) Obtaining unbiased comparable responses, “Double-blind”
   • Interviewers do not know the company’s performance
   • Managers are not informed (in advance) they are scored
Some typical endorsement letters

Dear Prof. Bloom,

I would like to confirm our enthusiastic support for the joint project between academicians at London School of Economics, Stanford University, Harvard Business School, Cambridge University and Oxford University. This study, aimed at understanding management practices across a range of organizations in African countries and at comparing these practices to practices in North American, European, Asian and Latin American countries, provides a valuable and timely contribution to sectoral competitiveness and overall regional development.

We will follow your results with great interest.

Sincerely,

[Signature]

Professor Nicholas Bloom
Department of Economics
Stanford University

Professor Nicholas Stern
Director of the Asia Research Centre
London School of Economics

September 12, 2007

Thank you for your email of August 20 addressed to Governor Zhou. On his behalf, I would like to congratulate you on your appointment as the first holder of the S.0 Patel Chair at the London School of Economics and the Director of the Asia Research Centre.

Governor Zhou thanks you for informing him of the joint London School of Economics and Stanford research project led by Professor John Van Reenen. He agrees with you that improving productivity and management practices is important for ensuring economic growth and employment, and believes that this project will be valuable in understanding managerial strengths and weaknesses. Personally he welcomes this project. He suggests that Professor Van Reenen approach the concerned firm directly. I believe many Chinese firms looking for international knowledge would be happy to take part in such a high-level academic survey.

With my best regards,

[Signature]

Professor Nicholas Stern

[China Bank Letterhead]

[Foreign Exchange Certificate]

[Bank of France Letterhead]
Basic survey methodology – 3 key steps

1) Developing management questions
   • Scorecard for 18 monitoring, target and incentives practices in ≈45 minute phone interview of manufacturing plant managers

2) Getting firms to participate in the interview
   • Introduced as “Lean-manufacturing” interview, no financials
   • Endorsement: Bundesbank, Banque de France, RBI, PBC etc.

3) Obtaining unbiased comparable responses, “Double-blind”
   • Interviewers do not know the company’s performance
   • Managers are not informed (in advance) they are scored
<table>
<thead>
<tr>
<th>Score</th>
<th>(1): Measures tracked do not indicate directly if overall business objectives are being met. Certain processes aren’t tracked at all</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(3): Most key performance indicators are tracked formally. Tracking is overseen by senior management</td>
</tr>
<tr>
<td></td>
<td>(5): Performance is continuously tracked and communicated, both formally and informally, to all staff using a range of visual management tools</td>
</tr>
</tbody>
</table>

Example monitoring question, scored based on a number of questions starting with “How is performance tracked?”
Examples of performance metrics – Car Plant
Examples of a performance metrics – Hospital
Examples of performance metrics – Retail (Ctrip)
Example of *no* performance metrics: Textile Plant
Example incentives question, scored based on questions starting with “How does the promotion system work?”

<table>
<thead>
<tr>
<th>Score</th>
<th>(1) People are promoted primarily upon the basis of tenure, irrespective of performance (ability &amp; effort)</th>
<th>(3) People are promoted primarily upon the basis of performance</th>
<th>(5) We actively identify, develop and promote our top performers</th>
</tr>
</thead>
</table>


Examples of performance reviews – Retail Bank

<table>
<thead>
<tr>
<th>Data: 09/01/2008</th>
<th>Out</th>
<th>Nov</th>
<th>Dez</th>
<th>4Tri</th>
<th>Jan</th>
<th>Fev</th>
<th>Mar</th>
<th>1Tri</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Segmentos</td>
<td>61,53</td>
<td>83,64</td>
<td>79,17</td>
<td>73,25</td>
<td>52,27</td>
<td>0,00</td>
<td>0,00</td>
<td>34,37</td>
</tr>
<tr>
<td>Total PF</td>
<td>70,15</td>
<td>76,99</td>
<td>75,13</td>
<td>68,82</td>
<td>42,11</td>
<td>0,00</td>
<td>0,00</td>
<td>26,86</td>
</tr>
<tr>
<td>Preferencial</td>
<td>58,09</td>
<td>86,85</td>
<td>86,87</td>
<td>76,92</td>
<td>15,16</td>
<td>0,00</td>
<td>0,00</td>
<td>13,43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18,78</td>
<td>0,00</td>
<td>0,00</td>
<td>18,12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>37,11</td>
<td>0,00</td>
<td>0,00</td>
<td>25,07</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75,99</td>
<td>0,00</td>
<td>0,00</td>
<td>51,89</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>47,40</td>
<td>0,00</td>
<td>0,00</td>
<td>41,84</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26,08</td>
<td>0,00</td>
<td>0,00</td>
<td>23,13</td>
</tr>
</tbody>
</table>
Wide spread of management in manufacturing

Note: Firms between 50 and 5000 employees, Raw data
Average manufacturing management scores across countries are strongly correlated with GDP (\& TFP).
Management (like TFP) also varies widely in countries.
Also been looking at other sectors: hospitals

Randomly surveyed population of hospitals in each country that offer acute care (take emergencies), and have an orthopaedics and/or cardiology department. Total of 1687 hospitals.
Again see a very wide spread in hospitals

Source: www.worldmanagementsurvey.com
Also been looking at other sectors: high-schools

Randomly surveyed population of high schools in each country with 100+ pupils aged 15.
So we find a huge spread in management practices across firms and countries....

....but does this matter?
I will try to summarize 10+ years research in 2 areas

1) Measuring management

2) Model

3) Management contribution to firm and national TFP gaps

4) Current projects
Two broad views of management

Managerial capital
• Management is “better” or “worse” (you can rank practices)
• Classic view of management going back over 100 years

Management as design
• Styles of management that depend on circumstance
• View in some Org-Econ theory and strategy literature

We argue the managerial capital view has the best fit with our data (although some evidence for design model)
Stylized “Managerial Capital” model

Production Function:  \( Y = AK^\alpha L^\beta M^\gamma \) (\( M = \text{management capital} \))

i)  \( M \) entry endowment (Hopenhayn 1992; Melitz 2003)
ii) Firms invest in \( M \) which depreciates (like \( K \))
iii) \( M \) cannot be sold (an intangible)

Other assumptions
- \( M \) & \( A \) drawn randomly at entry (\( K_0 = 0 \)) from known distribution, \( A \) hit by ongoing shocks
- Changing \( M \) & \( K \) involves adjustment costs (\( L \) flexible)
- Monopolistic competition (Isoelastic demand)
- Entry & fixed costs, zero-profit condition on entry
Timing of firms decisions

1. Entrants pay a sunk cost $\kappa$ for a draw on $(A,M)$. Free entry condition determines number of firms

2. Each period firms receive TFP shock, $\varepsilon_t$: $A_t = \rho A_{t-1} + \varepsilon_t$

3. Pay fixed operating cost $F$ per period (or exit)

4. Invest in $M$ & $K$. Choose labor (fully flexible)

Solve the model – 2 nested fixed-points – in Matlab
Take 11 standard parameters from the literature

<table>
<thead>
<tr>
<th>Parameter</th>
<th>value</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Share</td>
<td>$\alpha$</td>
<td>0.6</td>
</tr>
<tr>
<td>Labor share</td>
<td>$\beta$</td>
<td>0.3</td>
</tr>
<tr>
<td>Management coefficient</td>
<td>$\gamma$</td>
<td>0.1</td>
</tr>
<tr>
<td>Demand elasticity</td>
<td>$e$</td>
<td>5</td>
</tr>
<tr>
<td>Mean of Log TFP</td>
<td>$A_0$</td>
<td>1</td>
</tr>
<tr>
<td>Std. Dev. of Log TFP</td>
<td>$\sigma_A$</td>
<td>0.31</td>
</tr>
<tr>
<td>AR(1) of Log TFP</td>
<td>$\rho_A$</td>
<td>0.885</td>
</tr>
<tr>
<td>Discount Factor</td>
<td>$\phi$</td>
<td>0.9</td>
</tr>
<tr>
<td>Capital depreciation rates</td>
<td>$\delta_K$</td>
<td>10%</td>
</tr>
<tr>
<td>Capital resale loss</td>
<td>$\phi_K$</td>
<td>50%</td>
</tr>
<tr>
<td>Fixed cost of production</td>
<td>$F$</td>
<td>100</td>
</tr>
</tbody>
</table>
Estimate 4 parameters using SMM on moments from our management-accounting data panel

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mnemonic</th>
<th>Estimated value (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation rate of management</td>
<td>$\delta_M$</td>
<td>0.098 (X)</td>
</tr>
<tr>
<td>Adjustment costs for management</td>
<td>$Q_M$</td>
<td>0.595 (X)</td>
</tr>
<tr>
<td>Adjustment costs for capital</td>
<td>$Q_K$</td>
<td>0.244 (X)</td>
</tr>
<tr>
<td>Sunk cost of entry</td>
<td>$\kappa$</td>
<td>213 (X)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moment</th>
<th>Data Value</th>
<th>Estimated Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD of 5 year management growth</td>
<td>0.580</td>
<td>0.592</td>
</tr>
<tr>
<td>SD of 5 years sales growth</td>
<td>0.926</td>
<td>0.927</td>
</tr>
<tr>
<td>SD of 5 year capital growth</td>
<td>0.850</td>
<td>0.849</td>
</tr>
<tr>
<td>Exit rate</td>
<td>4.52%</td>
<td>4.62%</td>
</tr>
</tbody>
</table>
Model matches the data well: basic spreads

Simulation management spread

Data management spread

Notes: Simulation: 2,500 firms per year for 10 years. Data: 15,154 firms.
1) Performance ↑ in management

2) Management ↑ in competition

3) Management mean ↑ SD ↓ in age

4) Management ↑ in skills supply

Model matches the data well: relationships
I will try to summarize 10+ years research in 2 areas

1) Measuring management

2) Model

3) Management contribution to firm and national TFP gaps

4) Current projects
Two steps to estimate impact of management on TFP across countries

1. Estimate the coefficient in the production function on $M$

2. Estimate country differences in *size weighted* $M$

Many assumptions, so only rough magnitude calculation
To impute management coefficient use RCT
Took 28 large textile plants near Mumbai and randomized into treatment (improved management) & control (same as before)
Inventory Control: After
Factory operations: Before
Factory operations: After
Factory information: **Before**
Factory information: After
These management improvements increased TFP, with an implied management coefficient of 0.1.

Source: Bloom, Eifert, Mahajan, McKenzie & Roberts, forthcoming Quarterly Journal of Economics
Second calculate the employment weighted difference in management (from the US as baseline)

Notes: Total weighted mean management deficit with the US is the number on top of bar. This is decomposed into (i) reallocation effect (blue bar) and (ii) unweighted average management scores (red bar). Domestic firms, scores corrected for sampling bias.
Second calculate the employment weighted difference in management (from the US as baseline)

Greece management score 1.6 sd worse than US, with 1/3 of gap due to better US reallocation

Notes: Total weighted mean management deficit with the US is the number on top of bar. This is decomposed into (i) reallocation effect (blue bar) and (ii) unweighted average management scores (red bar). Domestic firms, scores corrected for sampling bias.
Finally, estimate impact on TFP, finding management accounts for ≈ 25% of the cross-country variation

<table>
<thead>
<tr>
<th>Country</th>
<th>Share-Weighted Average Management Deficit with US</th>
<th>TFP GAP with US</th>
<th>Proportion of TFP gap due to Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>0</td>
<td>32.2</td>
<td>7.8%</td>
</tr>
<tr>
<td>Sweden</td>
<td>-0.25</td>
<td>33.6</td>
<td>10.4%</td>
</tr>
<tr>
<td>Japan</td>
<td>-0.35</td>
<td>22.3</td>
<td>22.4%</td>
</tr>
<tr>
<td>Canada</td>
<td>-0.50</td>
<td>20.3</td>
<td>36.5%</td>
</tr>
<tr>
<td>Great Britain</td>
<td>-0.74</td>
<td>17.2</td>
<td>47.7%</td>
</tr>
<tr>
<td>Italy</td>
<td>-0.81</td>
<td>25.3</td>
<td>38.7%</td>
</tr>
<tr>
<td>France</td>
<td>-0.82</td>
<td>59.6</td>
<td>16.9%</td>
</tr>
<tr>
<td>Brazil</td>
<td>-0.98</td>
<td>78.3</td>
<td>14.9%</td>
</tr>
<tr>
<td>China</td>
<td>-1.01</td>
<td>57.3</td>
<td>20.6%</td>
</tr>
<tr>
<td>Argentina</td>
<td>-1.17</td>
<td>24.9</td>
<td>48.2%</td>
</tr>
<tr>
<td>Portugal</td>
<td>-1.18</td>
<td>51.0</td>
<td>32.4%</td>
</tr>
<tr>
<td>Greece</td>
<td>-1.65</td>
<td>25%</td>
<td></td>
</tr>
</tbody>
</table>

Assume one sd increase in management increases TFP by 10%. Regressions suggest about 5% to 15% depending on specification. TFP data from Jones and Romer (2010).
Preliminary estimates of contribution of management to within-country firm TFP spread is similar – e.g.

<table>
<thead>
<tr>
<th>Country</th>
<th>90-10 gap in:</th>
<th>% accounted for by management</th>
<th>TFP spread source:</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>TFP</td>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>90%</td>
<td>2.7 SDs</td>
<td>30%</td>
</tr>
<tr>
<td>UK</td>
<td>110%</td>
<td>3.0 SDs</td>
<td>38%</td>
</tr>
</tbody>
</table>
I will try to summarize 10+ years research in 2 areas

1) Measuring management

2) Model

3) Management contribution to firm and national TFP gaps

4) Current projects
   - Census management data
   - Trade and “quality” data
   - Management, forecasts and uncertainty
(1) Census Management Data: Management and Organizational Practices survey (MOPS)

It was delivered to 47,534 US manufacturing plants in 2011 (second panel wave in 2016)

This was quick and easy to fill out - and mandatory - so 78% of plants responded, covering 5.6m employees (>50% of US manufacturing employment)

Samples all ages & sizes
One interesting finding is higher management scores in the South.
Another interesting finding is 40% of the firm level management performance correlation is from better cross-plant reallocation of inputs (labor & capital).

### Firms with higher management scores reallocate more inputs to higher TFP plants

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable:</td>
<td>Cov(ltfp,L)</td>
<td>Cov(ltfp,K)</td>
<td>Cov(ltfp,inputs)</td>
<td>Cov(ltfp,dL)</td>
<td>Log(TFP)</td>
<td>Log(TFP)</td>
<td>0.299***</td>
<td>0.496***</td>
</tr>
<tr>
<td>Decentralization measure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management score</td>
<td>0.0217***</td>
<td>0.0212***</td>
<td>0.0231***</td>
<td>0.0525**</td>
<td>0.00505</td>
<td>0.00579</td>
<td>0.00509</td>
<td>0.0215</td>
</tr>
<tr>
<td>Decentralization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decentralization X Man.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>3613</td>
<td>3613</td>
<td>3613</td>
<td>3613</td>
<td>3613</td>
<td>3613</td>
<td>3613</td>
<td>3613</td>
</tr>
</tbody>
</table>

Notes: The sample is our baseline sample (all MOPS observations with at least 11 non-missing responses to management questions with a successful match to ASM, which were also included in ASM tabulations, have positive value added, positive employment and positive imputed capital in the ASM) with a parent firm that had at least 3 establishments in the 2007 CMF. The dependent variable is: Columns 1, 9 and 10 - the within firm covariance of establishment log(TFP), and the share of firm employment in the establishment. Column 2: like column 1 with share of capital instead of share of employment. Column 3: Like column 1 with factor share weighted input shares instead of employment share. Column 4: Like column 2 with establishment...

Like PE in Davis, Haltiwanger, Handley, Jarmin, Lerner and Miranda (AER, 2014)
## Management Quality and Export Success

<table>
<thead>
<tr>
<th>Dep Variable:</th>
<th>Exporter Dummy (ASIE)</th>
<th>Log Exports (ASIE)</th>
<th>Log Exports (CCTS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Score</td>
<td>0.121***</td>
<td>0.124***</td>
<td>0.625**</td>
</tr>
<tr>
<td></td>
<td>(2.83)</td>
<td>(2.77)</td>
<td>(2.08)</td>
</tr>
<tr>
<td>Foreign</td>
<td>0.198***</td>
<td>0.639***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5.11)</td>
<td>(3.14)</td>
<td></td>
</tr>
<tr>
<td>Capital Intensity</td>
<td>-0.010</td>
<td>0.201**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-0.82)</td>
<td>(2.52)</td>
<td></td>
</tr>
<tr>
<td>Skill Intensity</td>
<td>-0.001</td>
<td>-0.006</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-0.37)</td>
<td>(-0.84)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.034*</td>
<td>0.138</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.74)</td>
<td>(1.44)</td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>0.39</td>
<td>0.42</td>
<td>0.41</td>
</tr>
<tr>
<td># observations</td>
<td>3,233</td>
<td>3,177</td>
<td>1,875</td>
</tr>
<tr>
<td># firms</td>
<td>485</td>
<td>478</td>
<td>352</td>
</tr>
</tbody>
</table>

Province FE, Industry FE, Year FE, Noise Controls
## Management and Export Success

<table>
<thead>
<tr>
<th>Dep Variable:</th>
<th>Log # Destinations</th>
<th>Log # Products</th>
<th>Log # Dest-Product Pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Controls</td>
<td>Baseline</td>
</tr>
<tr>
<td>Management Score</td>
<td>0.393**</td>
<td>0.563***</td>
<td>0.332***</td>
</tr>
<tr>
<td></td>
<td>(2.59)</td>
<td>(3.30)</td>
<td>(2.69)</td>
</tr>
</tbody>
</table>

Province FE, Industry FE, Year FE, Noise Controls

| R-squared | 0.40 | 0.42 | 0.40 | 0.42 | 0.386 | 0.394 |
| # observations | 1,705 | 1,459 | 1,705 | 1,459 | 1,705 | 1,459 |
| # firms | 331 | 309 | 331 | 309 | 331 | 309 |
## Management and Input Quality

<table>
<thead>
<tr>
<th>Dep Variable:</th>
<th>Log Imports</th>
<th>Log # Origin Countries</th>
<th>Log # Import Products</th>
<th>Log Avg Origin Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Controls</td>
<td>Baseline</td>
<td>Controls</td>
</tr>
<tr>
<td>Management Score</td>
<td>1.533***</td>
<td>1.113***</td>
<td>0.433***</td>
<td>0.253**</td>
</tr>
<tr>
<td></td>
<td>(4.24)</td>
<td>(3.19)</td>
<td>(3.78)</td>
<td>(2.38)</td>
</tr>
</tbody>
</table>
| Province FE, Industry FE, Year FE, Noise Controls

|                      |             |                        |                       |                       |                        |                        |
| R-squared            | 0.48        | 0.57                   | 0.48                  | 0.54                  | 0.48                   | 0.59                   | 0.48                   | 0.59                  |
| # observations       | 1,594       | 1,368                  | 1,594                 | 1,368                 | 1,594                 | 1,368                 | 1,594                 | 1,368                 |
| # firms              | 311         | 292                    | 311                   | 292                   | 311                   | 292                   | 311                   | 292                   |
Management linked to quality

- Literature – e.g. Verhoogen (2008), Khandelwal (2010), Goldberg, Khandelwal, Pavcnik and Topalova (2010) and Manova (2012)
  - Higher prices (and selling to wealthier markets) indicative of quality
  - Quality inputs linked to quality outputs

- Better management is an input, that is complementary with other quality inputs, and leads to higher quality outputs

Demming

Ohno
Finally, in the 2015 MOPS management survey wave adding in uncertainty questions

Projecting ahead over the next twelve months, please provide the approximate percentage change in your firm's SALES LEVELS for:

- The LOWEST CASE change in my firm’s sales levels would be: -9%
- The LOW CASE change in my firm’s sales levels would be: -3%
- The MEDIUM CASE change in my firm’s sales levels would be: 3%
- The HIGH CASE change in my firm’s sales levels would be: 9%
- The HIGHEST CASE change in my firm’s sales levels would be: 15%

Numbers in red are the average response from the pilot on 300 firms
Piloting results look good from testing on a monthly survey on 300 firms: change in sales
Please assign a **percentage likelihood** to these SALES LEVEL changes you selected above (values should sum to 100%)

- **10 %**: The approximate likelihood of realizing the LOWEST CASE change
- **18 %**: The approximate likelihood of realizing the LOW CASE change
- **40 %**: The approximate likelihood of realizing the MEDIUM CASE change
- **23 %**: The approximate likelihood of realizing the HIGH CASE change
- **9 %**: The approximate likelihood of realizing the HIGHEST CASE change

Numbers in red are the average response from the pilot on 300 firms
Piloting results look good from testing on a monthly survey on 300 firms: probabilities
Hope to investigate forecast accuracy (correct mean & variance) and links to management & TFP

From talking to firms see huge variation in forecast professionalism – from “gut instinct’ to “detailed analysis”

Want to measure this forecast accuracy and see how this links to firm level productivity, misallocation and management (and the behavioral literature on over confidence and optimism)
Conclusion

Management appears to be a type of intangible capital

Variations in management account for ≈25% of TFP variation across countries and firms

Important questions around channels of impact, e.g.;
- Within firm reallocation
- Quality
- Forecast ability

and also around drivers of management (right-to-work, skills etc)
MY FAVOURITE QUOTES:

The difficulties of defining ownership in Europe

*Production Manager:* “We’re owned by the Mafia”

*Interviewer:* “I think that’s the “Other” category……..although I guess I could put you down as an “Italian multinational” ?”

Americans on geography

*Interviewer:* “How many production sites do you have abroad? *Manager in Indiana, US:* “Well…we have one in Texas…”
Interviewer: “Do staff sometimes end up doing the wrong sort of work for their skills?”

NHS Manager: “You mean like doctors doing nurses jobs, and nurses doing porter jobs? Yeah, all the time. Last week, we had to get the healthier patients to push around the beds for the sicker patients”

Interviewer: “Is this hospital for profit or not for profit”

Hospital Manager: “Oh no, this hospital is only for loss making”
Interviewer: “Do you export any of your products?”

Factory Manager: “No. Our products only cater for tastes in the domestic market”
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The WMS generates data and reports that help managers and policy makers understand the drivers of better management practice.

Benchmark your manufacturing firm, hospital, school, or retail outlet against others in your country, industry or size class.

**Featured publications**

- Why do management practices differ across firms and countries?
- Management Practice and Productivity: Why They Matter
- Management in Healthcare: Why good practice really matters
Interviewer: “Do you offer acute care?”
Switchboard: “Yes ma’am we do”
Interviewer: “Do you have an orthopaedic department?”
Switchboard: “Yes ma’am we do”
Interviewer: “What about a cardiology department?”
Switchboard: “Yes ma’am”
Interviewer: “Great – can you connect me to the ortho department”
Switchboard?: “Sorry ma’am – I’m a patient here”
On the subset of identical questions can compare across industries on the same practices (here for the US)

Source: Bloom, Lemos, Sadun, Scur & Van Reenen (2014)
These management scores are positively correlated with firm performance.