BOSS-ONOMICS: TAKING THE MEASURE OF MANAGEMENT

John Van Reenen (LSE)
Richard Stone Lecture, Cambridge

February 27th 2014
Draws heavily on joint work with Nick Bloom (Stanford) and Raffaella Sadun (HBS)
MOTIVATION

• Evidence of extensive firms & plant productivity differences in last 10-20 years (e.g. Syverson, 2011)
• Finding has influenced many fields: trade (e.g. Melitz, 2003), labor (e.g. Card, Heining & Kline, 2013), macro (Hsieh & Klenow, 2009), IO etc.
• This talk:
  – Productivity heterogeneity related to certain core management practices
  – Some management practices like a technology, not simply different contingent styles (Woodward, 1958)
  – Management matters a lot in explaining productivity differences across countries (e.g. 50% of US-Southern EU gap)
LARGE PRODUCTIVITY DIFFERENCES BETWEEN COUNTRIES

Total Factor Productivity, 2000

Source: Jones and Romer (2010). US=1
FIRM HETEROGENEITY HAS LONG BEEN RECOGNIZED WITH POSSIBLE LINK TO MANAGEMENT

"It is on account of the wide range [of ability] among the employers of labor that we have the phenomenon in every community and in every trade some employers realizing no profits at all, while others are making fair profits; others, again, large profits; others, still, colossal profits."

Francis Walker (Quarterly Journal of Economics, ‘87)
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Alfred Marshall (QJE, July 1887, 1(4)) response
Because the scientific evidence on management is limited – mostly case-studies and ad-hoc surveys

Syverson (2011, JEL) “no potential driving factor of productivity has seen a higher ratio of speculation to empirical study”.

Management literature? San Francisco Airport bookstore
Measuring Management

Management Models

Data Description

Empirics
1) Developing management questions
   - Scorecard for 18 monitoring (e.g. lean), targets & people (e.g. pay, promotions, retention and hiring). ≈45 minute phone interview of manufacturing plant managers

2) Obtaining unbiased comparable responses ("Double-blind")
   - Interviewers do not know the company’s performance
   - Managers are not informed (in advance) they are scored
   - Run from LSE, with same training and country rotation

3) Getting firms to participate in the interview
   - Introduced as “Lean-manufacturing” interview, no financials
   - Official Endorsement: Bundesbank, Bank of England, RBI, etc.
   - Run by 100 MBA types (loud, assertive & business experience)
| Score | (1): Measures tracked do not indicate directly if overall business objectives are being met. Certain processes aren’t tracked at all | (3): Most key performance indicators are tracked formally. Tracking is overseen by senior management | (5): Performance is continuously tracked and communicated, both formally and informally, to all staff using a range of visual management tools |

**Note:** All 18 questions and over 50 examples in Bloom & Van Reenen (2007) & Appendix D

http://worldmanagementsurvey.org/
### INCENTIVES - e.g. “HOW DOES THE PROMOTION SYSTEM WORK?”

| Score | (1) People are promoted primarily upon the basis of tenure, irrespective of performance (ability & effort) | (3) People are promoted primarily upon the basis of performance | (5) We actively identify, develop and promote our top performers |

**Note:** All 18 questions and over 50 examples in Bloom & Van Reenen (2007) & Appendix D

[http://worldmanagementsurvey.org/](http://worldmanagementsurvey.org/)
Plant locations from World Management Survey (~8,000 firms, 3 major waves: 2004, 2006, 2009; 20 countries)

Medium sized manufacturing firms (50-5,000 workers, median ≈ 250)

Now extended to Hospitals, Retail, Schools, etc.

Extension to nearer population surveys (e.g. US MOPs)
ADDITIONAL CONTROLS FOR “NOISE”

INTERVIEWEE CONTROLS
• Gender, seniority, tenure in post, tenure in firm, countries worked in, foreign, worked in US, plant location, reliability score

INTERVIEWER CONTROLS
• Set of interviewer dummies, cumulative interviews run, prior firm contacts

TIME CONTROLS
• Day of the week, time of day (interviewer), time of the day (interviewee), duration of interview, days from project start
The traditional British Chat-Up

[Male manager speaking to an Australian female interviewer]

*Production Manager:* “Your accent is really cute and I love the way you talk. Do you fancy meeting up near the factory?”

*Interviewer* “Sorry, but I’m washing my hair every night for the next month….”
Production Manager: “Are you a Brahmin?”

Interviewer “Yes, why do you ask?”

Production manager “And are you married?”

Interviewer “No?”

Production manager “Excellent, excellent, my son is looking for a bride and I think you could be perfect. I must contact your parents to discuss this”
Measuring Management

Management Models

Data Description

Empirics
REASONS FOR FIRM HETEROGENEITY

• TFP Heterogeneity due to “hard technologies”
  – R&D, patents, diffusion of ICT (information and communication technologies), etc.

• These technologies matter a lot, but:
  – After controlling for technology, still a big TFP residual
  – E.g. Productivity effects of ICT depend on firm management/organization (e.g. Bresnahan, Brynjolfsson and Hitt, 2002, QJE; Bloom, Sadun & Van Reenen, 2012, AER)

• Heterogeneity of management practices?
  – Econometric tradition that fixed effects in production function = managerial ability (Mundlak, 1961)
  – Business case studies
ECONOMIC PERSPECTIVES ON MANAGEMENT

• Management as Design
  – Organizational Economics (Gibbons and Roberts HOE, 2013) e.g. Personnel Economics
  – Contingent management School (Woodward, 1958)
  – Optimal “styles” of management

• Management as a Technology (MAT)
  – Management a part of firm’s TFP
  – Consider simple model (cf Bartelsman, Scarpetta & Haltiwanger, 2013, AER): GE with firm heterogeneity (in productivity and distortions) & imperfect competition
Example of a *stylized* “Management As a Technology” (MAT) model

Production Function: $Y = AK^\alpha L^\beta M^\gamma$ where $M =$ management capital

Firms invest in $M$ (intangible capital) but (like Hopenhayn, 1992; Melitz, 2003) have an endowment at entry

Other assumptions:

- $\tau$ % of sales lost to distortions (bribes, regulations etc)
- $M$, $A$ & $\tau$ drawn randomly at entry ($K_0=0$) from known distribution
- Changing $M$ & $K$ involves adjustment costs ($L$ flexible)
- Monopolistic competition (Iso-elastic demand, $e$)
Timing of firms decisions

1. Entrants pay a sunk cost \( \kappa \) for a draw on \((A,M,\tau)\). 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 \( M \& K \) (adjustment costs higher for \( M \))

5. Choose labor (fully flexible)

- Simulate numerically for a long-run steady state (allow 75 training periods before analysing steady state)
Basic theory predictions from MAT

1) Performance ↑ in management

- Graph showing Lowess smoother trend
- Notes: Simulate 2,500 firms per year in the steady state. Plots normalized log(management)

2) Management ↑ in competition

- Bar chart showing increasing management levels
- Notes: Management increasing → Competition increasing
3) More distorted economies have less reallocation (lower covariance between management & size)

**Notes:** Simulate 2,500 firms per year in the steady state.
Very stylized model with obvious extensions

- Governance & principal-agent issues: initial draw of Ma a reduced form way of proxying these problems

- Multi-factor: currently 1-dimensional M, but under “Design” model sub-components of management styles

- Management technology could be (partially) non-rival so spillovers (e.g. Bloom, Schankerman & Van Reenen, 2013, Econometrica)

- Dynamics: maybe management also changes adjustment costs, information (forecasting) and factor prices

- Co-ordination: e.g. Gibbons & Henderson (2012)
Measuring Management

Management Models

Data Description

Empirics
MANAGEMENT PRACTICE SCORES ACROSS COUNTRIES

Note: Unweighted averages taken across all firms within each country; 9,995 obs
Data includes 2013 survey wave as of Jan 2014
Average management scores across countries are strongly correlated with GDP per capita.

Data includes 2013 survey wave as of 9/20/2013. Africa data not yet included in the paper.
HUGE VARIATION IN MANAGEMENT SCORES ACROSS FIRMS WITHIN COUNTRIES

Note: Bars are the histogram of the actual density. Scores from 9,995 management interviews across 20 countries.
MULTINATIONALS APPEAR TO ACHIEVE GOOD MANAGEMENT PRACTICES WHEREVER THEY LOCATE

Sample of 7,303 manufacturing firms, of which 4,926 are purely domestic and 2,377 are foreign multinationals. Domestic multinationals are excluded – that is the domestic subsidiaries of multinational firms (like a Toyota subsidiary in Japan).
FAMILY-RUN FIRMS TYPICALLY HAVE THE WORST MANAGEMENT

Management scores after controlling for country, industry and number of employees. Data from 9085 manufacturers and 658 retailers. “Founder owned, founder CEO” firms are those still owned and managed by their founders. “Family firms” are those owned by descendants of the founder “Dispersed shareholder” firms are those with no shareholder with more than 25% of equity, such as widely held public firms.
Following MAT we can estimate contribution of management to cross-country TFP differences

1. Estimate country differences in size weighted management

2. Impute impact of this on differences in TFP

Requires many assumptions, so only rough magnitude calculation
“OLLEY PAKES” (OP) DECOMPOSITION OF WEIGHTED AVERAGE MANAGEMENT SCORE (M) IN GIVEN COUNTRY

Employment Share of firm \( i \)

Management score of firm \( i \)

\[
M = \sum_{i} S_i M_i
\]
“OLLEY PAKES” (OP) DECOMPOSITION OF WEIGHTED AVERAGE MANAGEMENT SCORE (M) IN GIVEN COUNTRY

Employment Share of firm i

Management score of firm i

\[ M \equiv \sum_i s_i M_i \]

\[ = \sum_i [(s_i - \bar{s})(M_i - \bar{M})] + \bar{M} \]

Covariance (Olley-Pakes, 1996, reallocation term)

Unweighted mean of management score
DECOMPOSING THE RELATIVE MANAGERIAL DEFICIT BETWEEN COUNTRY $j$ AND THE US ECONOMY

$$M^k - M^{US} = (OP^k - OP^{US}) + (\bar{M}^k - \bar{M}^{US})$$

Difference in aggregate share-weighted Management scores
Difference in reallocation (between firm)
Difference in unweighted Means (within firm)
First 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.
First calculate the employment weighted difference in management (from the US as baseline)

Greece management score 1.6 sd worse than US & 30% 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.
Second, estimate impact of management on TFP using result from field experiments (and micro regressions) that ↑1 SD management ≈ ↑ 10% TFP

<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>0</td>
<td>0%</td>
</tr>
<tr>
<td>Sweden</td>
<td>-0.25</td>
<td>32.2</td>
<td>7.8%</td>
</tr>
<tr>
<td>Japan</td>
<td>-0.35</td>
<td>33.6</td>
<td>10.4%</td>
</tr>
<tr>
<td>Canada</td>
<td>-0.50</td>
<td>22.3</td>
<td>22.4%</td>
</tr>
<tr>
<td>Great Britain</td>
<td>-0.74</td>
<td>20.3</td>
<td>36.5%</td>
</tr>
<tr>
<td>Italy</td>
<td>-0.81</td>
<td>17.2</td>
<td>47.7%</td>
</tr>
<tr>
<td>France</td>
<td>-0.82</td>
<td>25.3</td>
<td>38.7%</td>
</tr>
<tr>
<td>Brazil</td>
<td>-0.98</td>
<td>59.6</td>
<td>16.9%</td>
</tr>
<tr>
<td>China</td>
<td>-1.01</td>
<td>78.3</td>
<td>14.9%</td>
</tr>
<tr>
<td>Argentina</td>
<td>-1.17</td>
<td>57.3</td>
<td>20.6%</td>
</tr>
<tr>
<td>Portugal</td>
<td>-1.18</td>
<td>24.9</td>
<td>48.2%</td>
</tr>
<tr>
<td>Greece</td>
<td>-1.65</td>
<td>51.0</td>
<td>32.4%</td>
</tr>
<tr>
<td>Unweighted av.</td>
<td></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 TFP spread ~1/3

<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></td>
<td>TFP Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>90% 2.7 SDs</td>
<td>30%</td>
<td>Syverson (2004)</td>
</tr>
<tr>
<td>UK</td>
<td>110% 3.0 SDs</td>
<td>38%</td>
<td>Criscuolo, Haskel and Martin (2003)</td>
</tr>
</tbody>
</table>

**Note:** Management share imputed assuming that ↑1 SD management ≈ ↑ 10% TFP
Using US MOPs on entire firm size distribution US figure is 21%
Measuring Management

Management Models

Data Description

Empirics
Empirics

- Management effect on Performance
- Management and Reallocation
- Management and Competition
- Extensions
Moments: Sales are increasing in management

Management is the average of all 18 questions (set to sd=1). Sales is log(sales) in US$. N=10197
Moments: TFP is increasing in management

Management is an average of all 18 questions (set to sd=1). TFP residuals of sales on capital, labor, skills controls plus a full set of SIC-3 industry, country and year dummies controls. N=8314
LINK BETWEEN PRODUCTIVITY & MANAGEMENT HOLDS TRUE ACROSS DIFFERENT COUNTRIES

** Firms are grouped in 0.5 increments of assessed management score
PERFORMANCE REGRESSIONS

Performance measure

\[
\ln Y_{it} = \alpha_M M_{it} + \alpha_L \ln(n_{it}) + \alpha_K \ln(k_{it}) + \alpha_X x_{it} + u_{it}
\]

- Management (z-score each question, average & z-score again)
- Labor
- Capital
- Other controls

- \( M \), Management Index is average of all 18 questions (sd=1)
- Other controls include: % employees with college degree, average hours worked, firm age, industry, country & time dummies & noise (e.g. interviewer dummies).
TABLE 2: Performance in general is robustly *correlated* with management (consistent with MAT)

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Ln(sales)</th>
<th>TFP</th>
<th>Ln(sales)</th>
<th>Ln(employment)</th>
<th>Profit rate</th>
<th>5yr Sales growth</th>
<th>Exit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS</td>
<td>(Olley-Pakes) Fixed Effects</td>
<td>OLS</td>
<td>OLS</td>
<td>OLS</td>
<td>OLS</td>
<td></td>
</tr>
<tr>
<td>Firm sample</td>
<td>All</td>
<td>2+ surveys</td>
<td>2+ surveys</td>
<td>All</td>
<td>All</td>
<td>All</td>
<td>All</td>
</tr>
<tr>
<td>Management(SD=1)</td>
<td>0.150*** (0.016)</td>
<td>0.134*** (0.020)</td>
<td>0.033** (0.013)</td>
<td>0.338*** (0.015)</td>
<td>1.202*** (0.264)</td>
<td>0.039*** (0.013)</td>
<td>-0.006*** (0.002)</td>
</tr>
<tr>
<td>Ln(emp)</td>
<td>0.645*** (0.024)</td>
<td>0.621*** (0.050)</td>
<td>0.374*** (0.096)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(capital)</td>
<td>0.307*** (0.019)</td>
<td>0.333*** (0.034)</td>
<td>0.237*** (0.096)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obs</td>
<td>8,314</td>
<td>6,364</td>
<td>6,364</td>
<td>15,608</td>
<td>9,163</td>
<td>8,365</td>
<td>7,532</td>
</tr>
</tbody>
</table>

*M*, Management Index is z-score of average 18 questions z-scored (sd=1). Other controls include % employees with college, av hours, firm age, 3-digit industry, country & time dummies & noise controls (e.g. interviewer dummies). Standard errors clustered by firm. In OP coefficients on L and K are from first & second stage estimation procedure.
RANDOMIZED CONTROL TRIALS: BLOOM ET AL (2013)

- Experiment on plants in Indian textile firms outside Mumbai

- Randomized treatment plants get heavy management consulting, control plants get very light consulting (just enough to get data)

- Collected weekly performance data on all plants from 2008 to 2011

- Improved management practices led to large & significant improvements in:
  - **Productivity**: 2sd increase in management index & 20% higher TFP
  - **Profitability**: around $325k p.a. compared to ~$200k market cost of consultancy
MANY PARTS OF THE FACTORIES ARE DIRTY AND UNSAFE
THE FACTORIES ARE ALSO DISORGANIZED

Instrument not removed after use, blocking hallway.

Oil leaking from the machine

Cotton lying on the floor

Instrument blocking the hallway
THE TREATED FIRMS INTRODUCED BASIC INITIATIVES

Worker involved in “5S” initiative on the shop floor, marking out the area around the model machine.

Snag tagging to identify the abnormalities on & around the machines, such as redundant materials, broken equipment, or accident areas. The operator and the maintenance team is responsible for removing these abnormalities.
PRODUCTIVITY IMPROVEMENTS IN RCT ON ADOPTION OF MANAGEMENT PRACTICES

Notes: Weekly average total factor productivity for the 14 treatment plants which adopted modern management practices for quality, inventory and production efficiency and the 6 control plants. All plants make cotton fabric near Mumbai, India, with between 100 and 1000 employees. Values normalized so both series have an average of 100 prior to the start of the intervention. Confidence intervals bootstrapped over firms. Source: Bloom, Eifert Mahajan, McKenzie, Roberts (2013).
Empirics

- Management effect on Performance
- **Management and Reallocation**
- Management and Competition
- Extensions
EXAMINING THE ROLE OF REALLOCATION

\[ Y_{ijk} = \alpha M_{ijk} + \beta (M \ast FRICTIONS)_{ijk} \]
\[ + \gamma FRICTIONS_{ijk} + u_{ijk} \]

- \( Y_{ijk} = \) SIZE (or GROWTH) for firm \( i \) in industry \( j \) country \( k \)
- \( \alpha > 0 \) reallocation towards better managed firms
- \( FRICTIONS = \) Proxies for degree of frictions to reallocation in firm’s environment (\( \beta < 0 : higher \ frictions \ mean \ less \ reallocation \) towards better managed firms). Examples:
  - Set of country dummies, with US as base
  - Explicit policy variables (e.g. country regulation indices) & industry*country policies (e.g. trade barriers)
  - Shocks like Great Recession 2008-09 may speed reallocation (also has industry*country variation)
Table 6: More reallocation to better managed firms in the US where markets generally less distorted (consistent with MAT)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Employees</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management (US=base)</td>
<td>201.9***</td>
<td>359.7***</td>
</tr>
<tr>
<td>MNG*Argentina</td>
<td>-270.9**</td>
<td></td>
</tr>
<tr>
<td>MNG*Australia</td>
<td>-259.3*</td>
<td></td>
</tr>
<tr>
<td>MNG*Brazil</td>
<td>-211.7*</td>
<td></td>
</tr>
<tr>
<td>MNG*Canada</td>
<td>-169.3</td>
<td></td>
</tr>
<tr>
<td>MNG*Chile</td>
<td>-92.6</td>
<td></td>
</tr>
<tr>
<td>MNG*China</td>
<td>-84.9</td>
<td></td>
</tr>
<tr>
<td>MNG*France</td>
<td>-489.5**</td>
<td></td>
</tr>
<tr>
<td>MNG*Germany</td>
<td>-9.0</td>
<td></td>
</tr>
<tr>
<td>MNG*Greece</td>
<td>-355.9***</td>
<td></td>
</tr>
<tr>
<td>MNG*India</td>
<td>-145.4</td>
<td></td>
</tr>
<tr>
<td>MNG*Ireland</td>
<td>-258.8**</td>
<td></td>
</tr>
<tr>
<td>MNG*Italy</td>
<td>-283.1***</td>
<td></td>
</tr>
<tr>
<td>MNG*Mexico</td>
<td>-250.1*</td>
<td></td>
</tr>
<tr>
<td>MNG*New Zealand</td>
<td>-375.7*</td>
<td></td>
</tr>
<tr>
<td>MNG*Japan</td>
<td>-297.3**</td>
<td></td>
</tr>
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<td>-308.1***</td>
<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td>MNG*Sweden</td>
<td>-228.7*</td>
<td></td>
</tr>
<tr>
<td>MNG*UK</td>
<td>-125.1</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>5,842</td>
<td>5,842</td>
</tr>
</tbody>
</table>

Notes: US is the omitted country in columns 2 and 3. Includes year, country, 3-digit SIC dummies, firm and noise controls.
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</table>

Observations 5,842 5,842

Notes: US is the omitted country in columns 2 and 3. Includes year, country, 3-digit SIC dummies, firm and noise controls.
Reallocation stronger in countries with lower labor and trade restrictions (Table 7)

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>Firm Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management (MNG)</td>
<td>231.46***</td>
</tr>
<tr>
<td></td>
<td>(37.12)</td>
</tr>
<tr>
<td>Management*Employment Protection (World Bank Country Index)</td>
<td>-1.43**</td>
</tr>
<tr>
<td></td>
<td>(0.69)</td>
</tr>
<tr>
<td>Management*Trade Costs (World Bank Country Cost)</td>
<td>-0.18***</td>
</tr>
<tr>
<td></td>
<td>(0.05)</td>
</tr>
<tr>
<td>Tariffs (country x industry)</td>
<td>-4.96</td>
</tr>
<tr>
<td></td>
<td>(4.12)</td>
</tr>
<tr>
<td>Management*Tariff</td>
<td>-8.25**</td>
</tr>
<tr>
<td></td>
<td>(3.35)</td>
</tr>
<tr>
<td>Management*country interaction</td>
<td>No</td>
</tr>
<tr>
<td>Observations</td>
<td>5,760</td>
</tr>
</tbody>
</table>

Notes: OLS, clustered by firm; Domestic firms only. Controls for firm age, skills, noise, SIC3, country dummies, Employment Protection is “difficulty of hiring” from World Bank (1=low, 100=high). Trade cost is the cost in $ to export to the country (World Bank). Tariffs are MFN country-by-industry rates (in deviations from country & industry mean) from Feenstra and Romalis (2012).
### Reallocation stronger in industry*country pairs hit hardest by Great Recession (Table 3)

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Growth in firm sales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>SHOCK (Industry Sales)</td>
<td>-0.033** -0.035**</td>
</tr>
<tr>
<td></td>
<td>(0.014) (0.014)</td>
</tr>
<tr>
<td>Management⁰⁶*SHOCK</td>
<td>0.027**</td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
</tr>
<tr>
<td>SHOCK (Industry Exports)</td>
<td>-0.051*** -0.052***</td>
</tr>
<tr>
<td></td>
<td>(0.014) (0.014)</td>
</tr>
<tr>
<td>Management⁰⁶*SHOCK</td>
<td>0.018*</td>
</tr>
<tr>
<td></td>
<td>(0.010)</td>
</tr>
<tr>
<td>Management⁰⁶</td>
<td>0.002 -0.014</td>
</tr>
<tr>
<td></td>
<td>0.001 -0.008</td>
</tr>
<tr>
<td></td>
<td>(0.006) (0.010)</td>
</tr>
<tr>
<td></td>
<td>(0.006) (0.009)</td>
</tr>
<tr>
<td>Firms</td>
<td>1,567 1,567 1,599 1,599</td>
</tr>
</tbody>
</table>

**Notes:** SHOCK is a binary indicator for a fall in sales or a fall in exports in the SIC3 by country cell from 2007 to 2009. All columns include controls for skills, firm and plant size, noise, country and industry dummies. Management from 2006
Examining the Predictions

- Performance
- Reallocation
- **Competition**

Management and cross-country TFP

Extensions
COMPETITION IMPROVES MANAGEMENT

Sample of 9469 manufacturing and 661 retail firms (private sector panel) and 1183 hospitals and 780 schools (public sector panel). Reported competitors defined from the response to the question “How many competitors does your [organization] face?”
TABLE 5: Competition associated with improved management

<table>
<thead>
<tr>
<th>Dependent var.=MNG</th>
<th>Estimated in levels</th>
<th>Estimated in 2 year differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import penetration</td>
<td>0.805*** (0.236)</td>
<td>0.608*** (0.230)</td>
</tr>
<tr>
<td>1- Lerner Index(^1)</td>
<td>17.53* (3.85)</td>
<td>20.68** (6.65)</td>
</tr>
<tr>
<td># of reported competitors</td>
<td>0.121*** (0.023)</td>
<td></td>
</tr>
<tr>
<td>Balanced panel</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Obs</td>
<td>2,657</td>
<td>2,819</td>
</tr>
</tbody>
</table>

Notes: Includes SIC-3 industry, country, firm-size, public and interview noise (interviewer, time, date & manager characteristic) controls. Col 1,2, 4 & 5 clustered by industry*country, cols 3 & 6 by firm. Four core countries in 2004 and 2006 (France, Germany, UK and US)
IS COMPETITION EFFECT CAUSAL?

• Also use natural experiments to generate exogenous increases in competition

• Trade liberalization following China accession to WTO & subsequent phase out of MFA quotas in textiles & apparel industries in 2005. Bloom, Draca & Van Reenen (2013)
  — Strong first stage on Chinese imports into EU
  — Big improvement in management & productivity in more affected sectors

• Hospital competition in UK under Blair reforms (Bloom, Propper, Seiler & Van Reenen, 2013)
Empirics

• Management effect on Performance
• Management and Reallocation
• Management and Competition
• Extensions
  – Management & human capital
  – Information
  – Management as Design
ENDOGENOUS MANAGEMENT: THE COST OF SKILLS.
USE UNESCO World Higher Education Database university locations (N=9,081)
UNESCO World Higher Education Database
business school locations (N=5,724)
EDUCATION FOR NON-MANAGERS AND MANAGERS APPEAR LINKED TO BETTER MANAGEMENT

Sample of 8,032 manufacturing and 647 retail firms.

Percentage of employees with a college degree (%)
### EFFECT OF DISTANCE TO UNIVERSITY ON MANAGEMENT AND SKILLS

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>Manage ment</th>
<th>Manage ment</th>
<th>% firm employees with degree</th>
<th>% firm employees with degree</th>
<th>Manage ment</th>
<th>Manage ment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS</td>
<td>OLS</td>
<td>OLS</td>
<td>OLS</td>
<td>OLS</td>
<td>OLS</td>
</tr>
<tr>
<td>Distance (drive time to nearest university)</td>
<td>-0.070*** (0.018)</td>
<td>-0.049*** (0.019)</td>
<td>-2.267*** (0.403)</td>
<td>-1.534*** (0.423)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% employees with Degree in firm</td>
<td></td>
<td></td>
<td>0.789*** (0.082)</td>
<td>3.190*** (1.113)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>6,406</td>
<td>6,406</td>
<td>6,406</td>
<td>6,406</td>
<td>6,406</td>
<td>6,406</td>
</tr>
</tbody>
</table>

**Source:** Feng (2013)

**Notes:** Clustered by 313 regions. In final column proportion skilled is instrumented with distance to university.
Empirics

• Management effect on Performance
• Management and Reallocation
• Management and Competition
• Extensions
  – Management & human capital
  – Information
INFORMATION: ARE FIRMS AWARE OF THEIR MANAGEMENT PRACTICES BEING GOOD/BAD?

We asked:

“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”

We also asked them to give themselves scores on operations and people management separately
SELF-SCORES UNCORRELATED WITH PRODUCTIVITY

* Insignificant 0.03 correlation with labor productivity, cf. management score has a 0.295
Empirics

- Management effect on Performance
- Management and Reallocation
- Management and Competition
- **Extensions**
  - Endogenous management
  - Information
CONCLUSIONS

• Heterogeneity in firm productivity linked to management
  – ~25% of cross-country TFP gap (reallocation 1/3)
• Management as a “technology”
  – Management improves firm performance
  – Reallocation stronger in US
    • Linked to trade & labor regulations
    • Stronger in Great Recession
  – Competition improves average management quality

• Some Next Steps:
  – Management & managers (German IAB)
  – Dynamics & spillovers (US MOPs)
  – Other determinants of PPDs (co-ordination a la Gibbons and Henderson, 2012)
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…”
Some quotes illustrate the African management approach

*Interviewer* “What kind of Key Performance Indicators do you use for performance tracking?”

*Manager*: “Performance tracking? That is the first I hear of this. Why should we spend money to track our performance? It is a waste of money!”

*Interviewer* “How do you identify production problems?”

*Production Manager*: “With my own eyes. It is very easy”
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”

Hospital Manager: “Oh no, this hospital is only for loss making”
Interviewer: “Do you offer acute care?”

Switchboard: “Yes ma’am we do”

Interviewer: “Do you have an orthopedic 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”
MY FAVOURITE QUOTES:

The bizarre

Interviewer: “[long silence]……hello, hello….are you still there….hello”

Production Manager: “…….I’m sorry, I just got distracted by a submarine surfacing in front of my window”

The unbelievable

[Male manager speaking to a female interviewer]

Production Manager: “I would like you to call me “Daddy” when we talk”

[End of interview…]
More results and data available here

The WMS generates data and reports that help managers and policy makers understand the drivers of better management practice.

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