Personnel Economics in Context

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AEA Econometric Society Special Session, January 2015
Personnel Economics

- Personnel Economics focus on people management
  - Pay, promotion, hiring, retention, firing, training, job design, decentralization, etc.
  - In response to environment (especially market but also technological, regulatory, etc.)

- PE Part of Organizational Economics (Gibbons & Roberts, 2013). Two elements in Org Econ:
  - Internal organization
  - Boundary between firm & market
  - Org Econ includes other (“non-people” management practices (e.g. monitoring, targets, etc.))

- PE theory has generated a rich empirical agenda

- PE strong focus on relationship to firm productivity
Firm Heterogeneity

Top Managers

Measurement of management practices

Management & Performance

Causes of management heterogeneity

Management & Cross country TFP differences
Some aspects of firm heterogeneity

• Firm management practices (e.g. personnel practices) – case studies, but also see later based on World Management Survey (WMS with Bloom & Sadun)

• Firm size distribution (Gibrat, 1931)

• Firm productivity distribution (Syverson, 2011 JEL)

http://worldmanagementsurvey.org/
Power laws in firm size: US & France

Source: Garicano, Lelarge and Van Reenen (2014)
Heterogeneity in Productivity: basic facts

- Typical gap between 10\textsuperscript{th} and 90\textsuperscript{th} percentiles within same US four digit industry (Syverson, 2004, 2011)
  - Total factor productivity 2:1 ratio

- These ratios are even larger in other countries (e.g. Bartelsman, Haltiwanger & Scarpetta, 2013)

- Spreads are persistent:
  - Transition matrix of TFP over a 5 year period (Bailey et al, 1993): 2/3 of plants in top TFP quintile were also there 5 years later
Is it just measurement problems?

- Classical measurement error? But:
  - Productivity is strongly linked with exit & long-run growth
- Conventional revenue based “TFPR” affected by firm-specific price-cost margins
  - When looking at micro-industries where we measure plant output & input prices (e.g. boxes, bread, carbon black, concrete, etc.) still see big spread in “TFPQ” (Foster, Haltiwanger and Syverson, 2008 AER)
FIRM HETEROGENEITY HAS LONG BEEN RECOGNIZED

“...we have the phenomenon in every community and in every trade, in whatever state of the market, of 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)
FIRM HETEROGENEITY HAS LONG BEEN RECOGNIZED

...we have the phenomenon in every community and in every state of the market, of some employers realizing no profits at all, while others are making fair profits; others, again, large profits; others,
MACRO-ECONOMIC IMPORTANCE OF MICRO HETEROGENEITY

• Bailey, Hulten & Campbell (1992)
  – About half of aggregate TFP growth is reallocation from less productive to more productive firms

• Hsieh & Klenow (2009)
  – India would increase TFP by 40% if reduced misallocation of output to US levels
Explanations of firm heterogeneity?

- “Hard” technologies (e.g. R&D, patents)
- Senior managers: CEO entrepreneurial ability (Lucas, 1978)
- Management practices more widely
- **Deeper causes:** competition, regulations, financial frictions, information, contracts, trust, etc.
Firm Heterogeneity

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One explanation for variation in performance is differences in “top managers”

- Large case study large literature on CEOs – e.g. Jack Welch, Steve Jobs, Alex Ferguson, Jack Ma, etc.
- **Systematic Evidence:** e.g. Bertrand & Schoar (2003, QJE)
Bertrand and Schoar (2003) approach

- Panel tracking top managers across S&P500 publicly traded US firms. Estimate model allowing for firm & CEO fixed effects:
  \[ y_{ijt} = \theta_i + \vartheta_j + \mu_t + \pi x_{ijt} + e_{ijt} \]
  - \( y_{ijt} \) outcomes in firm \( j \) that CEO \( i \) works for at time \( t \)
  - \( \theta_i \) CEO fixed effects
  - \( \vartheta_j \) firm fixed effects
  - \( \mu_t \) time dummies
  - \( x_{ijt} \) time-varying CEO & firm characteristics

- Abowd, Kramarz & Margolis (1999) estimate these 2-way FE model with wages as outcome (productivity proxy). CEOs have bigger effect on firm performance than single worker

- Many problems (endogenous switching) – see Card, Hening, Kline (2013)
Some Findings in Bertrand and Schoar

1. Important CEO fixed effects on firm strategy; e.g. M&A, dividends, debt ratios
   — Managers have “styles” & these styles correlated with observable CEO characteristics like birth cohort & MBA

2. Managers are also absolutely “better” or “worse” – i.e. performance fixed effects exist
   — Linked to compensation & governance (e.g. concentrated ownership increases CEO performance FE & pay)
   — But still only accounts for small fraction of variance in firm performance

• Related approaches in Lazear, Shaw & Stanton (2013); Bender, Bloom, Card, Van Reenen & Wouter (2014).
Firm Heterogeneity

Top Managers

**Measurement of management practices**

Management & Performance

Causes of management heterogeneity

Management & Cross country TFP differences
Measuring management practices

• Historically have also been case study based – e.g. Ford, GM, Toyota, GE, Mayo Clinic, Dabbawala, etc.

• More recently work has focused on trying to systematically measure management practices in large samples of firms
  — “First generation”, single country studies & direct questions
  — “Second generation”, international studies & indirect questions. Focus on Bloom & Van Reenen (2007) method
1) Developing management questions
   - Scorecard for 18 monitoring, targets & people management practices ≈45 minute phone interview of plant managers

2) Getting firms to participate in the interview
   - Introduced as “Lean-manufacturing” interview, no financials
   - Official Endorsement: Bundesbank, RBI, World Bank 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
| 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 & 50+ examples in [http://worldmanagementsurvey.org/](http://worldmanagementsurvey.org/)
Obtaining representative cross country samples

- So far about 15,000 interviews in 10,000 manufacturing firms) in 34 countries

- Obtain ~45% coverage rate from sampling frame (with response rates uncorrelated with performance measures)

- Extended to Hospitals, Schools, Law Firms, Nursing homes, Not for Profits, Retail, Civil Service, Universities, etc.
  - So basic concept can be used in different industries
Average (unweighted) Management Scores by Country

Source: Bloom, Sadun & Van Reenen (2014)
Note: Unweighted average management scores (raw data) with number of observations. All waves pooled
Average management scores across countries are strongly correlated with GDP per capita.

Note: Data as of end 2014.
Like TFP, management also varies within countries

Source: Bloom, Sadun & Van Reenen (2014)
Note: Bars are the histogram of the actual density. Scores from 9,995 management interviews across 20 countries.
Multinationals appear to transplant better practices across countries

Management score

Note: 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).
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Identification of effects of management practices on performance

• Bloom & Van Reenen (2011) *Handbook of Labor Economics*

• Mostly conditional correlations
  – A lot of work on people management (esp. incentive pay)

• Before/after studies in small group of firms (e.g. Ichniowski, Shaw, Prennushi, 1997)

• Before/after for a single firm (e.g. Lazear, 2000; Bandiera, Barankay & Rasul 2005, 2007, 2009, 2010)

• Randomized Control Trials (almost all in developing countries)
TFP is increasing in BVR management scores

Source: Bloom, Sadun & Van Reenen (2014); Notes: 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=8,314
Ichniowski, Shaw and Prennushi (1997, AER)

• Collect detailed monthly performance and management data on 36 steel lines owned by 17 firms.

• Findings:
  – These management practices tend to be introduced in bundles
  – Introducing high-performance management systems (not single practice) linked to improved performance
  – Suggests complementarity of practices

• Influential paper, but obvious concerns over endogeneity
Evidence from **single** firms in **developed** countries

- **Example:** Lazear (2000, AER) classic paper on individual incentive pay scheme for Safelite Glass


- Others include Shearer (2004, REStud) on tree planters; Lavy (2008, AER) on teachers; Hamilton et al (2003, JPE) on group incentives in garment factory
RCT evidence from micro-enterprises in developing countries


- **Examples:** Karlan and Valdivia (2011) in Peru; Bruhn, Karlan and Schoar (2012) in Mexico; Karlan and Udry in Ghana; de Mel, McKenzie and Woodruff (2014) in Sri Lanka

- These typically provide a limited amount (≈50 hours) of basic trainings to small firms – e.g. accounting, marketing, pricing, strategy, etc.

- This training is provided randomly and performance measured before and after the intervention
RCT evidence from micro-enterprises in developing countries

• Mixed results: some studies find evidence of positive impact of management training on performance, others do not

• Maybe management does not matter in these small firms, or the intervention is very poor quality?
A management experiment on medium/larger firms (Bloom et al, 2013)

• Management practices delivered by Accenture to plants in medium-sized (~300 person) textile firms in Mumbai, India

• Control firms get one month of diagnostic. Treatment firms get one month of diagnostic, four months of intervention.

• Collect weekly data for all plants from 2008 to 2010

Findings:
• Large increase in productivity: 2 SD increase in management score & 20% higher TFP
Inventory Control: Before
Inventory Control: **After**
### Factory Information: **Before**

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<th>Total Weight</th>
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### Warp Pattern

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<td>1-2-3-5-7</td>
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<td>1 B</td>
<td>6-7-8-9-10</td>
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<td>4-1-2-3-5-7</td>
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<td>1 C</td>
<td>6-7-8-9-10</td>
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<td>4-1-2-3-5-7</td>
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<td>2 A</td>
<td>6-7-8-9-10</td>
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### Weave Pattern

- **A** = 1600 d.no 19112/1702
- **B** = 1600 d.no 19112/1702
- **C** = 1600 d.no 19112/1702

### Details

- **Selvage**
  - 12 def. x 260 mm 3.4 oz. x 2-1112
  - 5 def. x 260 mm 3.4 oz. x 2-1112
  - 5 def. x 260 mm 3.4 oz. x 2-1112

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<td>1-2-3-5-7</td>
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### Notes

- 26 def. x 10500 ends
Quality information: **After**

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<tr>
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<td>680</td>
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<td>T6186</td>
<td>113 12 63</td>
<td>29 110</td>
<td>180</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Timestamp:** 19:17:04
Factory information: After
Firm Heterogeneity

Top Managers

Measurement of management practices

Management & Performance

Some causes of management heterogeneity

Management & Cross country TFP differences
1) Management score increases in product market competition

Quintiles of Industry Competition Measure (1- Lerner Index)

Source: Bloom, Sadun & Van Reenen (2014)

Notes: Management is an average of all 18 questions (set to sd=1) on the y-axis. Lerner is profits over sales ratio. Both are expressed in relation in deviations from the country and global industry average. Competition measure (1-Lerner) is binned into quintiles. 5,982 observations.
**IS COMPETITION EFFECT CAUSAL?**

- Use quasi-experiments to generate exogenous increases in competition
  - Generates improvements via selection & within firms

- Chinese WTO accession & differential import quota abolition in textiles: Bloom, Draca & Van Reenen (2013)
  - Big improvement in management & productivity in more affected sectors

- Hospital competition (Bloom, Propper, Seiler & Van Reenen, forthcoming, Restud)
  - More hospitals in politically marginal districts
  - Competition improves management & reduces hospital death rates
2) Ownership & Governance

Management scores after controlling for country, industry and number of employees. Data from 9085 manufacturers. “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.
3) Labor Market Regulation seems to inhibit People Management

Note: Averaged across all manufacturing firms within each country (9079 observations). We did not include other sectors as we do not have the same international coverage. Incentives management defined as management practices around hiring, firing, pay and promotions. The index is from the Doing Business database [http://www.doingbusiness.org/ExploreTopics/EmployingWorkers/](http://www.doingbusiness.org/ExploreTopics/EmployingWorkers/)
4) Human Capital positively associated with management quality

Sample of 8,032 manufacturing and 647 retail firms. We did not collect comparable education data in hospitals and schools.

- Non-managers
- Managiers

Percentage of employees with a college degree (%)

Sample of 8,032 manufacturing and 647 retail firms. We did not collect comparable education data in hospitals and schools.
What are the deeper causes of failure to adopt better management practices?

• Contingent Management? No better/worse management just different
  — Partially true (e.g. industry specialization)
  — But Indian RCT suggest some non-contingent “best practices”

• Like technology adoption studies, issues of:
  — Information
  — Incentives
  — Co-ordination
Firm Heterogeneity

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Measurement

Management & Performance

Causes of management heterogeneity

Management & Cross country TFP differences
Bloom, Sadun & Van Reenen (2014) “Management as a Technology”)

• Structural dynamic model where firms have an initial idiosyncratic draw of managerial capital but can then invest in upgrading depending on stochastic environment

• Use this to help understand cross-country differences

1. Estimate country differences in size weighted management

2. Impute impact of this on differences in TFP
OLLEY PAKES’ (OP) Decomposition of Size Weighted Average Management Score ($M$) in Given Country

\[ M = \sum_{i} s_i M_i \]

- Employment Share of firm $i$
- Management score of firm $i$
“OLLEY PAKES” (OP) DECOMPOSITION OF WEIGHTED AVERAGE MANAGEMENT SCORE (M) IN GIVEN COUNTRY

\[ M \equiv \sum_{i} s_i M_i \]

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

\[ = OP + \bar{M} \]

Employment Share of firm i

Management score of firm i

Covariance (Olley-Pakes, 1996, reallocation term)

Unweighted mean of management score
Calculate the employment weighted difference in management (from the US as baseline)

Notes: These are the share-weighted management score differences relative to the US (sd=1). Length of bar shows total deficit which is composed of (i) the unweighted average management scores ("rel_zman", light red bar) and reallocation effect ("rel_OP" blue bar). Domestic firms only with management scores corrected for sampling selection bias.
Calculate the employment weighted difference in management (from the US as baseline)

French weighted management score is 1.02 sd worse than US, with 0.29 (28%) of the gap due to worse reallocation in France than in US

Notes: These are the share-weighted management score differences relative to the US (sd=1). Length of bar shows total deficit which is composed of (i) the unweighted average management scores (“rel_zman”, light red bar) and reallocation effect (“rel_OP” blue bar). Domestic firms only with management scores corrected for sampling selection bias.
## Management & TFP Gaps (10% M effect)

<table>
<thead>
<tr>
<th>Country</th>
<th>US Management Gap</th>
<th>US TFP Gap</th>
<th>% Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>-0.27</td>
<td>0.32</td>
<td>0.04</td>
</tr>
<tr>
<td>Japan</td>
<td>-0.34</td>
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<tr>
<td>Britain</td>
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<td>0.27</td>
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<tr>
<td>Australia</td>
<td>-0.76</td>
<td>0.23</td>
<td>0.25</td>
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<tr>
<td>Mexico</td>
<td>-0.77</td>
<td>0.60</td>
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<tr>
<td>Poland</td>
<td>-0.81</td>
<td>0.20</td>
<td>0.32</td>
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<td>Italy</td>
<td>-0.82</td>
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<tr>
<td>Spain</td>
<td>-0.93</td>
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<td>0.30</td>
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<tr>
<td>France</td>
<td>-1.02</td>
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<tr>
<td>Brazil</td>
<td>-1.02</td>
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<tr>
<td>Chile</td>
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<td>Mozambique</td>
<td>-2.17</td>
<td>0.79</td>
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Mean (over all): **22%**
Conclusions

• Personnel Economics has been a great success in deepening our understanding of real employment relationships theoretically & empirically

• Part of a broader agenda in Organizational Economics over why management practices vary & how important they are in explaining heterogeneity across firms & countries

• Some areas for future research
  – Managers & Management Practices
  – Structural models of managerial capital
  – Policies towards management (e.g. business support through information)
  – Why so much inertia: how does change happen?
SOME FIRMS SEEMED TO BE TOO TRUTHFUL

Who rules the home in Ireland

*Interviewer:* “Would you mind if I asked how much your bonus is as a manager?”

*Manager:* “I don't even tell my wife how much my bonus is!”

*Interviewer:* “Frankly, that’s probably the right decision...”

Staff retention the American way

*Manager:* “I spend most of my time walking around cuddling and encouraging people - my staff tell me that I give great hugs”

The trusted Secretary

*French secretary:* “You want to talk to the plant manager? There are legal proceedings against him, so hurry up!!”
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”

Don’t do Business in Indian hospitals

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

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 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”
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...]
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”
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 hire someone to track our performance? It is a waste of money!”

Interviewer “How do you identify production problems?”

Production Manager: “With my own eyes”
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…]
This is very much in the spirit of Schumpeter
This is very much in the spirit of Schumpeter

“The fundamental impulse that keeps the capital engine in motion comes from the new consumers’ goods, the new methods of production and transportation, the new markets... [The process] incessantly revolutionizes from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact of capitalism.”
Schumpeter (p. 83, 1942)

Although probably his most famous quote was:
“Early in life I had three ambitions. I wanted to be the greatest economist in the world, the greatest horseman in Austria, and the best lover in Vienna. Well, I never became the greatest horseman in Austria“
Tab A2: Like TFP, management also varies a lot within countries

Note: Bars are the histogram of the actual density. Scores from 9,995 management interviews across 20 countries.
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
POWER LAWS IN FIRM SIZE: US

Source: Axtell (2001)
Competition Appears Linked to Better 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?”

![Bar chart for manufacturing and retail (private sector)]

- Management score
- Number of Reported Competitors
- 0, 1, 2 to 4, 5+ categories

![Bar chart for hospitals and schools (public sector)]

- Management score
- Number of Reported Competitors
- 0, 1, 2 to 4, 5+ categories

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?”
Example monitoring question, scored based on a number of questions starting with “*How is performance tracked?***”

| Score | (1): Measures tracked do not indicate directly if overall business objectives are being met. Many 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 & 50+ examples in [http://worldmanagementssurvey.org/](http://worldmanagementssurvey.org/)
Factory operations: Before
Factory operations: After
Performance: causal results from randomized control trials

1 SD increase in management caused 10% increase in TFP
LARGE PRODUCTIVITY DIFFERENCES BETWEEN COUNTRIES

Total Factor Productivity, 2000

Per Capita GDP, 2000

Source: Jones and Romer (2010). US=1