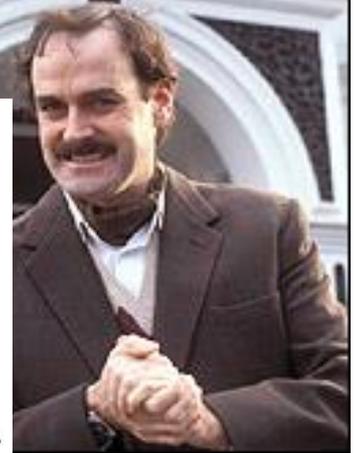
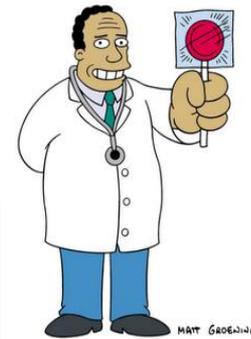


Explaining Firm Productivity: Management

John Van Reenen

Organizational Economics, 2020



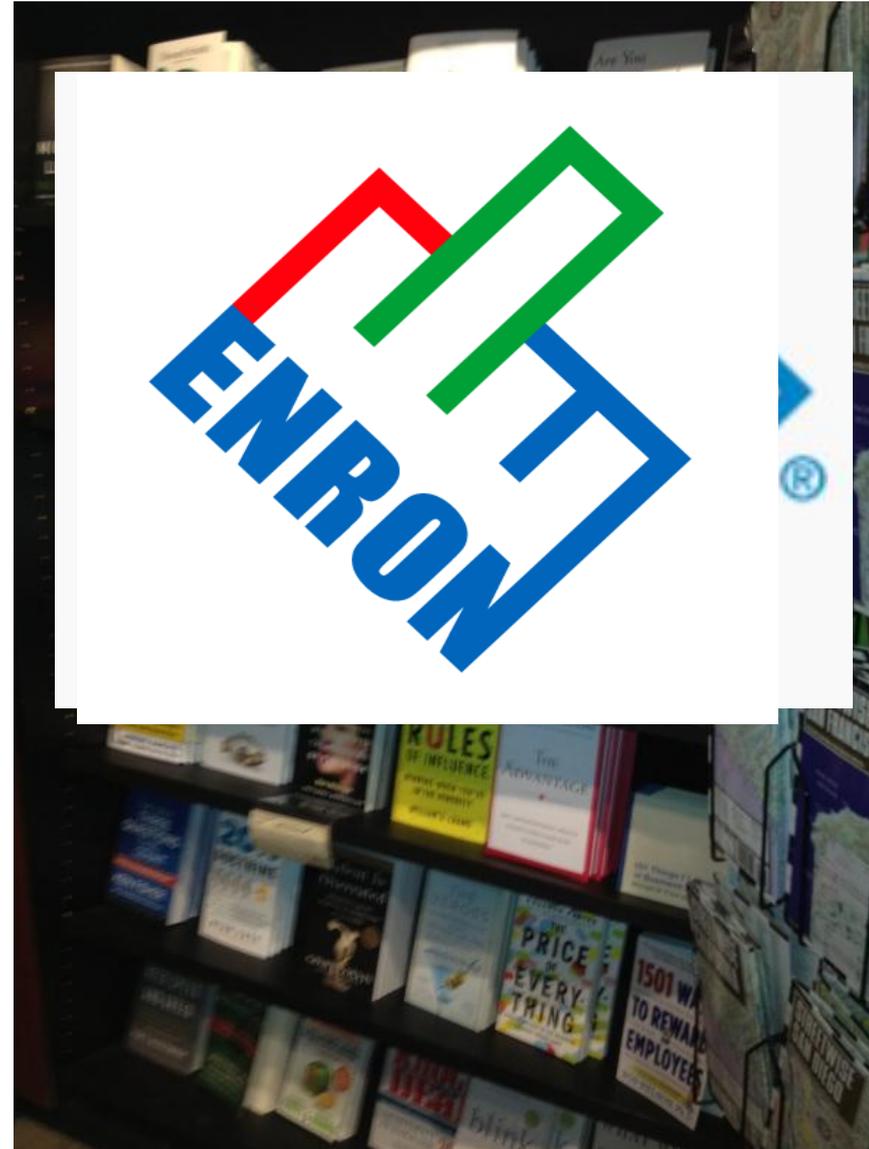
EXPLAINING TFP HETEROGENEITY

- **Proximate causes**
 - **“Hard” Technologies.** R&D, patents, diffusion (e.g. hybrid corn, ICT, internet, robots, AI, etc.)
 - But only explains part of TFP
 - And much evidence that impact of technology on firm performance depends on management practices
 - **Management?**

The evidence on management is limited

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

Chad Syversson (2011, JEL)



STRUCTURE FOR NEXT LECTURES ON MANAGEMENT-BASED EXPLANATIONS OF PRODUCTIVITY DISPERSION

- 1. Managers vs. Management Practices**
- 2. Measuring management practices: data**
- 3. Impact of management on performance**
- 4. Determinants of management: Deeper structural causes**
 - Information;
 - Market structure (product, financial, labor);
 - Governance;
 - Internal Politics

STRUCTURE FOR NEXT LECTURES ON MANAGEMENT-BASED EXPLANATIONS OF PRODUCTIVITY DISPERSION

1. Managers vs. Management Practices

- Perhaps to understand productivity dispersion all that matters is CEO/Founder/most senior managers? Or more broadly, individual employee human capital/talent
- Alternative view is that TFP of firm is more than just CEO, or even sum of human capital of employees (“management practices”)
- Some attempts to bring together both strands: Dessenin & Prat (2017); Bloom, Sadun & Van Reenen (2017)

2. Measuring management practices: data

3. Impact of management on performance

4. Determinants of management: Deeper structural causes

Top Managers

Measuring Management Practices

Describing Management

TFP AS RESIDING IN ENTREPRENEUR-MANAGERIAL TALENT: EXAMPLE OF LUCAS SPAN OF CONTROL MODEL

Lucas
(1978)

Rosen
(1992)

Garicano
(2000)

Caliendo & Rossi-
Hansberg (2012)

Garicano & Rossi-
Hansberg (2006)



LUCAS (1978, BELL JOURNAL)

- Entrepreneurial-Managerial ability is the primitive (TFPQ); Cannot be transferred between individuals
- In an efficient equilibrium more output is allocated to the more talented managers. Leveraging managerial talent.
 - Could be literally owner-entrepreneur-CEO a la Lucas
 - Alternative assortative matching between most productive firms & most talented CEO (Edmans & Gabaix, 2015)
- Lucas (1978) gives a theory of the firm-size distribution (recall the power law of firm size)
- Also, a theory of occupational choice: agent below an (endogenous) ability threshold are workers. Others are entrepreneurs (self employed a middle case).

SOME EXTENSIONS OF LUCAS (1978)

- Rosen (1992)
 - Workers all earn same wage in Lucas (1978) as no other skills apart from management. But what if two skills: production & management?
 - Agents specialize in their comparative advantage (Roy, 1957)
 - Assortative mating: “good” managers match with “good” workers
- Lucas model just CEO plus production workers. Garicano (2000) extends to multi-layer (Lecture 5)
- Gabaix & Landier (2010): if globalisation allows span of control to increase this will increase firm size and earnings of CEOs. Edmans & Gabaix (2015 survey). Lecture 8
- Lucas model can be extended to incorporate regulation (e.g. Garicano, Lelarge & Van Reenen, 2016, AER)

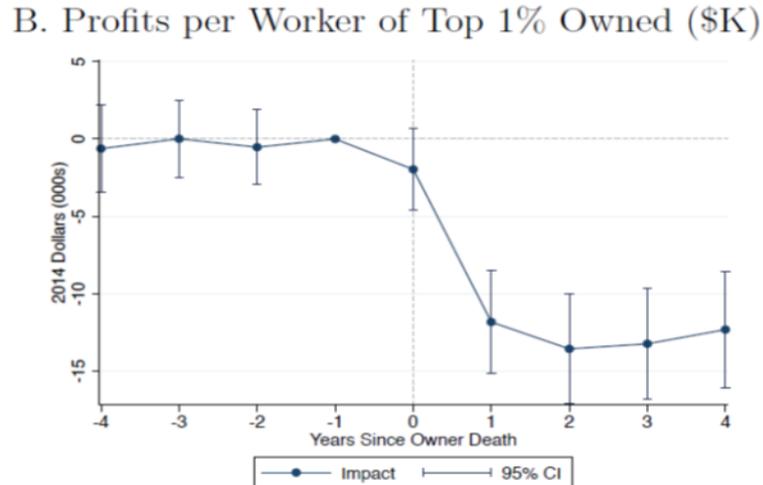
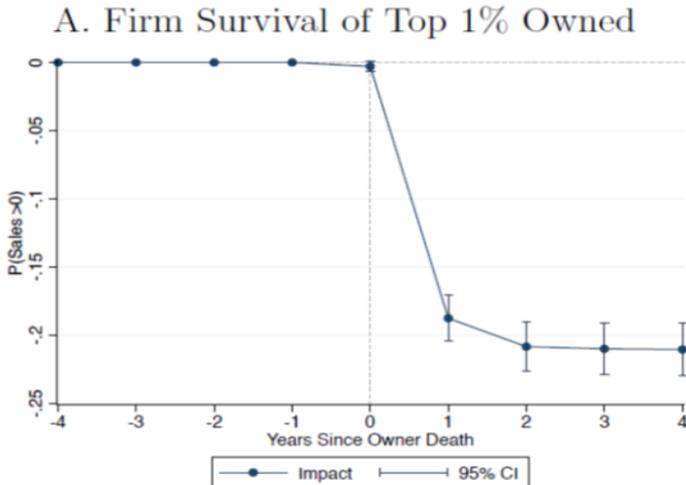
HOW DO WE KNOW IF TOP MANAGERS MATTER?

- Lots of case studies, autobiographies, etc. of “leadership”
- Basic motivation of Principal-Agent model (& main evidence) assumes CEO is critical player (vs. shareholder as represented by the Board)
- Corporate finance – look at Board and CEO structure and characteristics.
- But well performing firms may attract better CEOs. Or top CEOs brought in to deal with crisis.

Do CEOs matter? (Unexpected) CEO deaths

- **Johnson et al (1985)** event study positive abnormal returns after death of a founder CEO; but negative returns from non-founder
- **Bennedson et al (2007b)** declines in profitability after CEO death. If relative of CEO takes over after death profits decline by even more (attention/effort reduction by family loss? Or ability issue)
- **Jenter et al (2018)**: 458 deaths (162 sudden cause 2.3% CAR ↓); 1980-2012
- **Smith et al (2019)** IRS data: Firm (S-Corp) performance down after premature death of owner (2,509 firms of non-elderly top 1% owners)

Figure 5: Impact of Top 1% and Top 0.1% Owner Death on Firm Performance



More general approach: Bertrand and Schoar (2003, QJE)

- Built a panel dataset tracking managers across S&P500 publicly traded US firms, allowing for firm and top manager fixed effects
 - ExecuComp, CEOs & some other top Execs. Details in Proxy statement and accounts
 - Compustat
- Average size of firms about 10,000 employees – so impact of strategy by the top managers of huge firms

Econometric model

- Estimate a “two way” fixed effect model,

$$y_{ijt} = \theta_i + \vartheta_j + \mu_t + \pi'x_{ijt} + e_{ijt}$$

- y_{ijt} are different outcomes in firm j that CEO i works for at time t such as: profitability; leverage; M&A activity; dividend pay-out
- θ_i are CEO fixed effects identified from switchers across firms (actually consider CEOs, CFOs & other very senior execs)
- ϑ_j are firm fixed effects;
- x_{ijt} are some time-varying CEO characteristics and time-varying firm characteristics
- **Intuition:** are there CEOs that raise performance no matter which firm they work for (big $\text{var}\theta_i$)?

Econometric model – linking with general literature

- This kind of model used a lot in labor literature when employer-employee panel data available: see Abowd, Kramarz & Margolis (1999, ECMA) on French panel data.

$$\ln(wage)_{ijt} = \theta_i + \psi_{J(i,t)} + \mu_t + \pi'x_{ijt} + e_{ijt}$$

- $J(i,t)$ index function: gives identity of firm of individual i in t
 - Emphasises that firm effect (partially) identified from wage evolution of stayers. All workers in “connected set” (for CEOs we only have one per firm)
- Wages a proxy for productivity
- Unlike CEOs, a worker only likely to have very small effect on overall firm performance, so using firm characteristic on LHS wouldn't make sense (we don't usually observe individual productivity)
- Card et al (2017) recent survey. Firm effects very important & help explain inequality levels & trends (in some countries)

Lots of extensions of AKM model

- **Extensions of AKM model**

- Germany (Card, Hening & Kline, 2013): since early 1990s big part of rise in inequality is increased between firm dispersion.
- US (Song et al, 2019): ~70% of individual wage inequality increase is between firms. Argue mainly sorting
- Gender pay gaps: Card et al (2016)
- Methodological issues: Bonhomme et al (2019)

- **Rent sharing**

- Explicit characteristics of firms that could shift quasi-rents to be shared with workers
- Productivity/profits or more fundamental shifters such as technological innovation (Van Reenen, 1996; Kline et al, 2019) or trade

Back to Bertrand and Schoar (2003, QJE)

Key findings:

1. Manager fixed effects exist in strategies M&A, dividend policy, debt ratios and cost-cutting

TABLE III
EXECUTIVE EFFECTS ON INVESTMENT AND FINANCIAL POLICIES

Panel A: Investment policy					
<i>F</i> -tests on fixed effects for					
	<i>CEOs</i>	<i>CFOs</i>	<i>Other executives</i>	<i>N</i>	<i>Adjusted R</i> ²
Investment				6631	.91
Investment	16.74 (<.0001, 198)			6631	.94
Investment	19.39 (<.0001, 192)	53.48 (<.0001, 55)	8.45 (<.0001, 200)	6631	.96
Inv to <i>Q</i> sensitivity				6631	.95
Inv to <i>Q</i> sensitivity	17.87 (<.0001, 223)			6631	.97
Inv to <i>Q</i> sensitivity	5.33 (<.0001, 221)	9.40 (<.0001, 58)	20.29 (<.0001, 208)	6631	.98
Inv to CF sensitivity				6631	.97
Inv to CF sensitivity	2.00 (<.0001, 205)			6631	.98
Inv to CF sensitivity	0.94 (.7276, 194)	1.29 (.0760, 55)	1.28 (.0058, 199)	6631	.98
N of acquisitions				6593	.25
N of acquisitions	2.01 (<.0001, 204)			6593	.28
N of acquisitions	1.68 (<.0001, 199)	1.74 (.0006, 55)	4.08 (<.0001, 203)	6593	.36

Panel B: Financial policy					
<i>F</i> -tests on fixed effects for					
	<i>CEOs</i>	<i>CFOs</i>	<i>Other executives</i>	<i>N</i>	<i>Adjusted R</i> ²
Leverage				6563	.39
Leverage	0.99 (.5294, 203)			6563	.39
Leverage	0.86 (.9190, 199)	1.43 (.0225, 54)	1.21 (.0230, 203)	6563	.41
Interest coverage				6278	.31
Interest coverage	0.56 (.99, 193)			6278	.31
Interest coverage	0.35 (.99, 192)	13.85 (<.0001, 50)	2.61 (<.0001, 192)	6278	.41
Cash holdings				6592	.77
Cash holdings	2.52 (<.0001, 204)			6592	.78
Cash holdings	2.48 (<.0001, 201)	3.68 (<.0001, 54)	2.53 (<.0001, 202)	6592	.80
Dividends/earnings				6580	.65
Dividends/earnings	5.78 (<.0001, 203)			6580	.71
Dividends/earnings	4.95 (<.0001, 199)	1.07 (.3368, 54)	1.74 (<.0001, 203)	6580	.72

a. Sample is the manager-firm matched panel data set as described in subsection III.A and Table I. Details on the definition and construction of the variables reported in the table are available in the Data Appendix.

b. Reported in the table are the results from fixed effects panel regressions, where standard errors are clustered at the firm level. For each dependent variable (as reported in column 1), the fixed effects included are row 1: firm and year fixed effects; row 2: firm, year, and CEO fixed effects; row 3: firm, year, CEO, CFO, and other executives fixed effects. Included in the "Investment to *Q*" and "Investment to cash flow" regressions are interactions of these fixed effects with lagged Tobin's *Q* and cash flow, respectively. Also the "Investment," "Investment to *Q*," and "Investment to cash flow" regressions include lagged logarithm of total assets, lagged Tobin's *Q*, and cash flow. The "Number of Acquisitions" regressions include lagged logarithm of total assets and return on assets. Each regression in Panel B contains return on assets, cash flow, and the lagged logarithm of total assets.

c. Reported are the *F*-tests for the joint significance of the CEO fixed effects (column 2), CFO fixed effects (column 3), and other executives fixed effects (column 4). For each *F*-test we report the value of the *F*-statistic, the *p*-value, and the number of constraints. For the "Investment to *Q*" and "Investment to Cash Flow" regressions, the *F*-tests are for the joint significance of the interactions between the manager fixed effects and Tobin's *Q* and cash flow, respectively. Column 5 reports the number of observations and column 6 the

Summary of Bertrand and Schoar (2003, QJE)

Key findings:

1. Manager fixed effects exist in strategies M&A, dividend policy, debt ratios and cost-cutting
- 2. Managers have “styles” - more/less aggressive, internal/external growth focus. These are correlated with observables such as CEO birth cohort & MBA**
 - Example: MBAs more financially aggressive; CEOs growing up in Great Depression more conservative

Summary of Bertrand and Schoar (2003, QJE)

Key findings:

1. Manager fixed effects exist in strategies M&A, dividend policy, debt ratios and cost-cutting
2. Managers have “styles” - more/less aggressive, internal/external growth focus. These are correlated with observables such as CEO birth cohort & MBA
 - MBAs more financially aggressive; those growing up in Great Depression more conservative
3. **Managers are also absolutely “better” or “worse” – performance fixed effects exist, are correlated to higher CEO compensation & better governance (e.g. concentrated ownership increases CEO perform FE & pay)**

Issues

- Only identified from switchers – “connected set” of overall data
- Assumes that CEO switching is exogenous (or more precisely, that the shock to unobservable firm characteristics are uncorrelated with shock causing CEO to move)
 - Firms that are improving may attract CEOs who are “on the rise”
 - Fee, Hadlock and Pierce (2013) show evidence suggesting much endogenous selection
 - Key issue for AKM type models (CHK diagnostics)
- Alternative approach in “family firm” literature....

Family firms (Bertrand & Schoar, 2006, JEP)

- **Family Ownership**

- Concentration may help resolve agency issues
- But tunneling risk for minority owners

- **Family member as CEO (typically Primogeniture)**

- ***Negatives***

- Less competition for talent (Warren Buffet on Olympics)
- Knowing you will inherit reduces incentives to accumulate human capital (“Carnegie” effect)
- Non-family managers know there is no chance to make it to the top

- ***Positives***

- Occupation specific human capital
- Overcomes problems of trust (e.g. in countries with poor contract enforcement)
- Longer-term perspective

Perez-Gonzalez (2006, AER)

- Looks at the 335 management transitions in US publicly quoted firms (1980-2001) with **concentrated family holdings**
- Found that the *announcement* that the founding CEO will step-down leads to:
 - Big stock *rise* if the next CEO is not a family-member
 - Big stock *drop* if the next CEO is a family member, driven by the family members from “non-selective colleges” (defined as outside top 189 US Colleges)
- **Bennedsen et al** (2007a QJE) looks at family CEOs in Denmark, using gender of first born as an instrument
 - *Larger* negative impact of family CEOs in IV than OLS
 - **Because transitions to non-family members usually only happen in crisis**

Other Family Firms evidence

- Other negative findings: Bandiera et al., 2012; Bertrand et al., 2008, Cai et al., 2013, Claessens et al., 2002, Villalonga and Amit, 2006.

Other papers on individual Manager importance

- **Huber, Lindenthal and Waldinger (2018)**
 - Look at impact of “Aryanization” in Nazi Germany which penalized firms where senior managers had many Jews
 - Aggregate market value of publicly listed firms in Berlin fell by 1.8% of GNP due to this policy
- **Lazear, Shaw and Stanton (2015)**
 - Importance of middle managers/supervisors. Personnel records in a single firm
 - June, 2006 to May, 2010. 23,878 workers & 1,940 bosses. 5.7 million worker-day observations
 - Replacing boss from 90th percentile with one from 10th same as adding one worker to a nine worker team

But what do CEOs actually do?

- Surprisingly little hard information. Mintzberg (1973) shadowed 5 CEOs for a week
- Bandiera, Hansen, Prat & Sadun (2019, JPE) – 1,114 CEOs in manufacturing firms in US, UK, Germany, France, Brazil & India
 - Hired a team of 40 analysts who call the CEO/his PA at the start/end of every day for 1 week
 - Code all activities scheduled for that day (start) and those that effectively took place (end)
 - Code all available activity features: duration, type and number of participants, location, planning horizon etc
 - Record in 15 min chunks of CEO day
 - Found entry of new CEO with “hands on” style has big improvements in performance

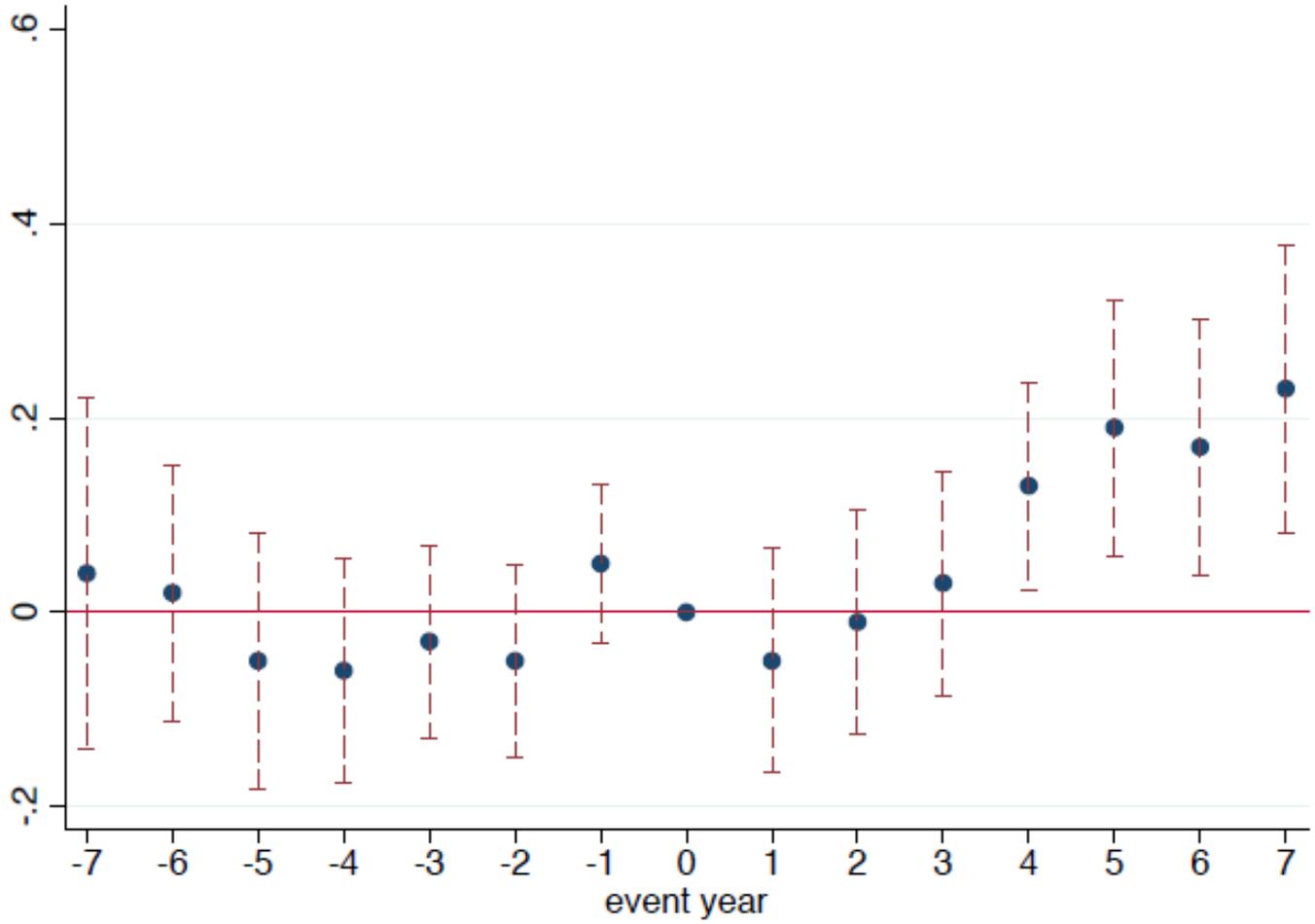
Machine Learning

- Use an algorithmic approach that projects the High dimensional feature space onto a lower-dimensional type space: Latent Dirichlet Allocation (Blei, Ng, Jordan 2003)

0="micromanager"	1="coordinator"	likelihood ratio (1vs 0)
short (30-60m)	long (60m +)	1.17
unplanned	planned	1.17
one function	many functions	1.5
production	c-level suite	.5/10

Source: Bandiera et al (2019)

Productivity before vs after “co-ordinator” CEO joins



robust to different trends, different measurement lags

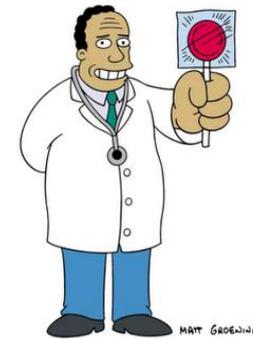
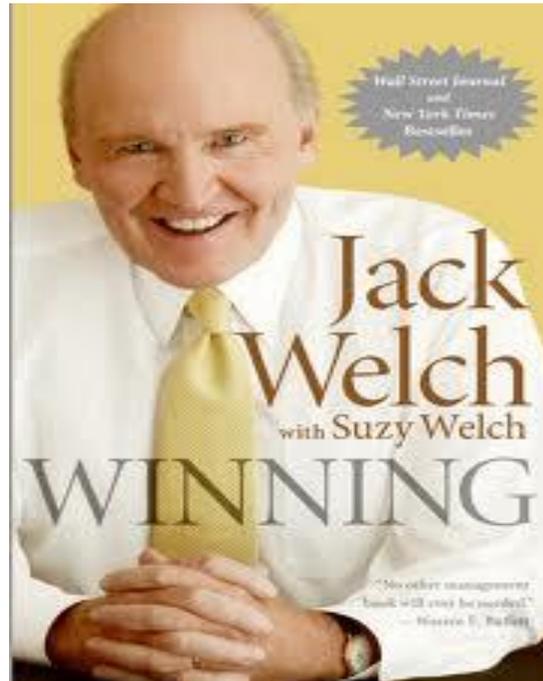
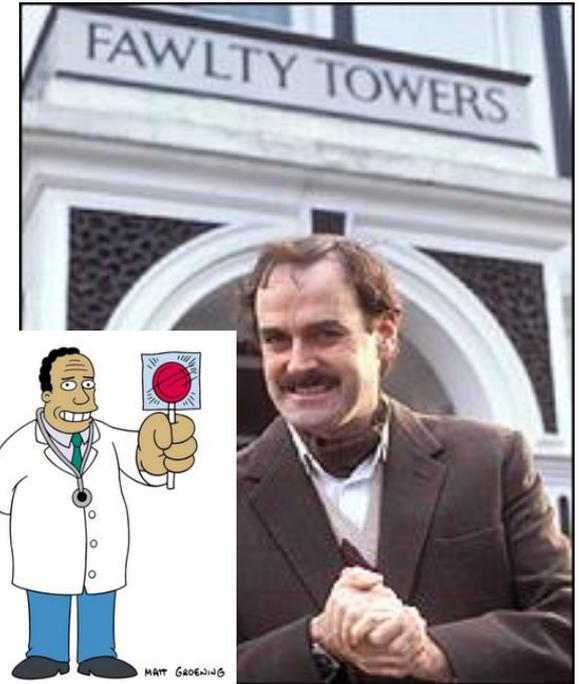
Source: Bandiera et al (2019)

Summary on Evidence of TFP & “Top Managers”

- Evidence that identity of the top manager/CEO matters
- But effects tend not to be large – suggests that management is more than simply identity of leader
- Evidence that some firms remain very successful even after the founder/last CEO leaves (e.g. Toyota, IBM)
- How are firms “put together”?
 - TFP is corporate DNA, culture, etc.
 - Try to make this more precise. And later will show potentially how to test using combination of managerial fixed effects & management practice data (Bender, et al, 2018)

Explaining Firm Productivity: Measuring Management

John Van Reenen, 2020



Top Managers

Measuring Management Practices

Describing Management

Measuring management practices

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

Case-studies helpful for intuition and illustration, but potentially misleading because very small & selected sample

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

Challenges to measuring management practices

Despite sounding easy, “measuring management” is fraught with difficulties, which has held back research.

- 1) How to quantify management practices
- 2) How to obtain data from firms – participation
- 3) How to get the truth – e.g. will badly managed firms lie?
- 4) Building a representative population – e.g. not just targeting Compustat firms – especially important for cross-country work

First generation surveys: single-country focus with direct survey techniques

Black & Lynch (2001, 2004) Surveyed ~3,000 US establishments

1. **Quantify:** Asked a series of questions on employee recruitment, work organization, meetings and modern production practices
2. **Get data:** Administered by the US Census Bureau
3. **Truth:** Told respondents their answers were confidential
4. **Population:** stratified from the Census establishment database

Findings

- Large variations in management; Strong correlation of management practices & performance in cross section
- But in panel relationship between management & productivity disappears. Why?
 - Really no relationship
 - Measurement error & attenuation bias
 - Endogeneity

Second wave surveys: try to address biases with indirect surveys

Problems with direct surveys: People often do not tell the complete truth in open surveys:

- Schwartz (1999, American Psychologist)
- Opinion poll-evidence

Bloom and Van Reenen (2007, QJE) example of a second wave of management survey

World Management Survey (~20,000 interviews, 4 major waves: 2004, 2006, 2009/10, 2013/14; 34 countries)



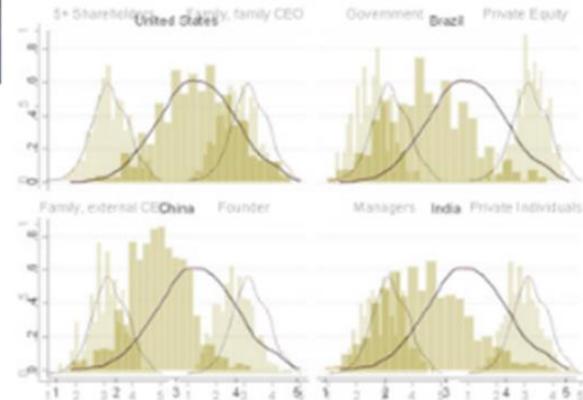
Home	Policy & Business Reports	Academic Research	Teaching Material	Survey Data	Media	Network
------	---------------------------	-------------------	-------------------	-------------	-------	---------



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

Benchmark your organization

Management scores across firms: **ownership**
WMS team analyses the distribution of management practices within: **countries** **ship type**.



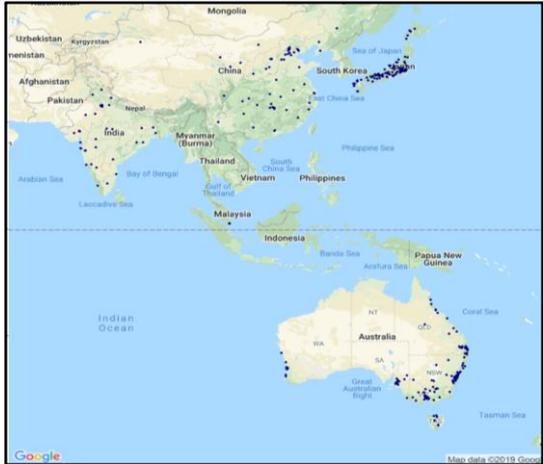
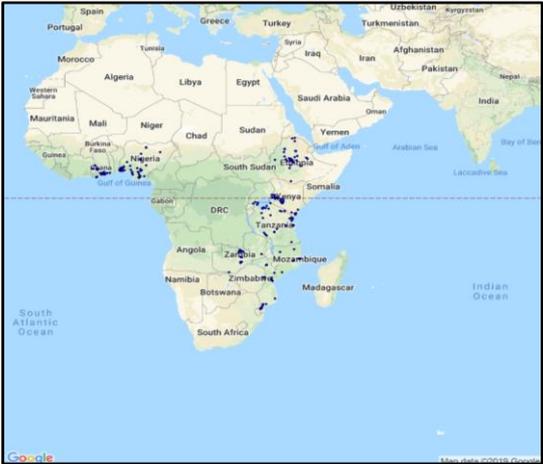
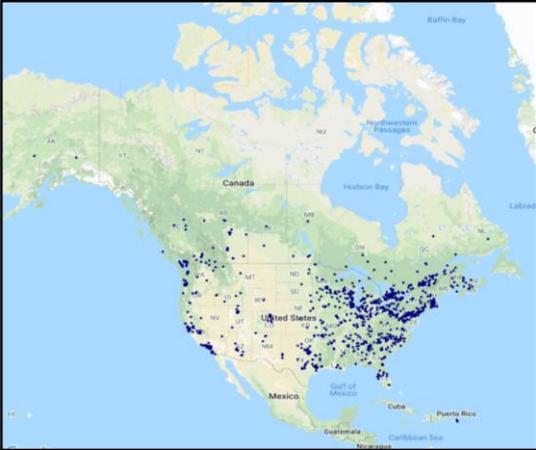
Featured publications

- » [Why do management practices differ across firms and countries?](#)
- » [Management Practice and Productivity: Why They Matter](#)
- » [Management in Healthcare: Why good practice really matters](#)

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

Now extended to Hospitals, Retail & Schools [& more]

World Management Survey has covered >20,000 firms in 35 countries



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


भारतीय रिज़र्व बैंक
RESERVE BANK OF INDIA
 www.rbi.org.in

मुख्य महासंचालक
 Chief General Manager

RECEIVED
 21 APR 2006
 LIC
 LIC Office

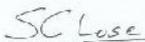
HRDD No. 2843 / 0240.01 / 2005-06 April 18, 2006

Dear Prof. Bloom

I would like to confirm the official support of Reserve Bank of India in your joint London School of Economics and Stanford project talking to managers across India. Continually improving our productivity and management practices is important for ensuring economic growth and employment, and we believe this project would be very helpful in pursuing this.

With regards

Yours sincerely


 (Sandip Ghose)

Prof. Nick Bloom
 PI Program Director
 Centre for Economic Performance
 London School of Economics
 Houghton Str
 London WC2


BANQUE DE FRANCE
 LE SOUS-GOUVERNEUR

भारत विकास विकास नि
 191-22
 Human Resources Development Dept
 Tel: 191-2


MINISTERSTWO SKARBU PAŃSTWA

Warszawa, dnia 17 maja 2006r.

Sekretarz Stanu
 Paweł Szalamacha
 MSP / 000299 / 06

Prof. Nick Bloom
 Director of the Productivity
 And Innovation Program
 Centre for Economic Performance
 London School of Economics

Szanowny Panie Profesorze,

Chciałbym wyrazić poparcie dla badań naukowych prowadzonych przez London School of Economics w porozumieniu z Uniwersyteciem w Cambridge i Uniwersyteciem Stanforda dotyczących praktyk zarządzania i badania produktywności w małych i średnich firmach. Cieszę się również, że do badań prowadzonych w wielu krajach świata planujecie państwo włączyć około 200 polskich firm.

Uważam, że taki projekt obok oczywistych walorów naukowych, ma olbrzymi walor praktyczny, a dane uzyskane dotyczące Polskich firm przyczynia się do lepszej ich konkurencyjności na globalnym rynku.

Życzę Panu i Pani zespołowi wielu sukcesów w realizacji tego ambitnego projektu i jestem zainteresowany jego rezultatami.

Z wyrazami szacunku,



World Bank
 INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
 INTERNATIONAL DEVELOPMENT ASSOCIATION

1818 H Street N.W.
 Washington, D.C. 20433
 U.S.A.

(202) 473-2111
 Cable Address: World Bank
 Cable Address: World Bank

May 28, 2013

Professor Nicholas Bloom
 Department of Economics
 Stanford University

Dear Nick Bloom, Renata Lemos and Daniela Scur,

I would like to confirm our enthusiastic support for the joint project between academia 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,



FROM : FAX NO. : 2007.09.18 09:08 P1


中國人民銀行
THE PEOPLE'S BANK OF CHINA
 32 Chungfang Street, West District, Beijing, China 100800

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

September 12, 2007

Dear Professor Nicholas Stern,

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 IG 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 would be valuable in understanding managerial strengths and weaknesses. Personally he welcomes this project. He suggests that Professor Van Reenen approach the concerned firms directly. I believe many Chinese firms looking for international acknowledgement would be happy to take part in such a high-level academic survey.

With my best regards,

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

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

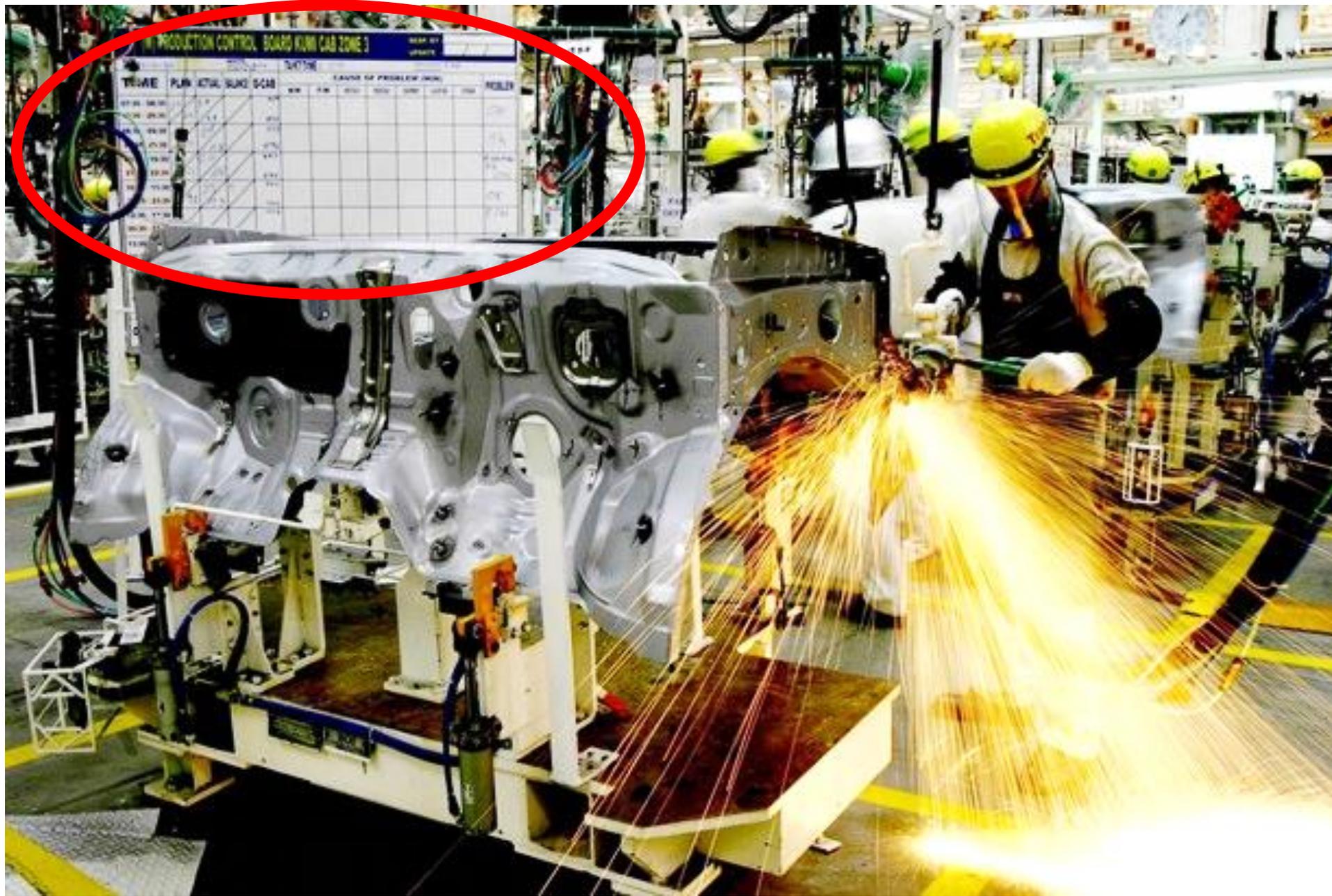
Score

(1): Measures tracked do not indicate directly if overall business objectives are being met. 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

Examples of performance metrics – Car Plant



Examples of a performance metrics – Hospital



INCENTIVES - Removing poor performers

- If you had an employee who could not do her job adequately, what would be done? Could you give me a recent example?**
- How long would underperformance be tolerated?**
- Do some individuals always just manage to avoid being re-trained/fired?**

Score

(1): Poor performers are rarely removed from their positions

(3) Suspected poor performers stay in a position for a few years before action is taken

(5): We move poor performers out of the hospital/department or to less critical roles as soon as a weakness is identified

Example incentives question, scored based on questions starting with “*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
--------------	---	--	---

The full 18 question survey (1/2)...

MANUFACTURING INTERVIEW GUIDE

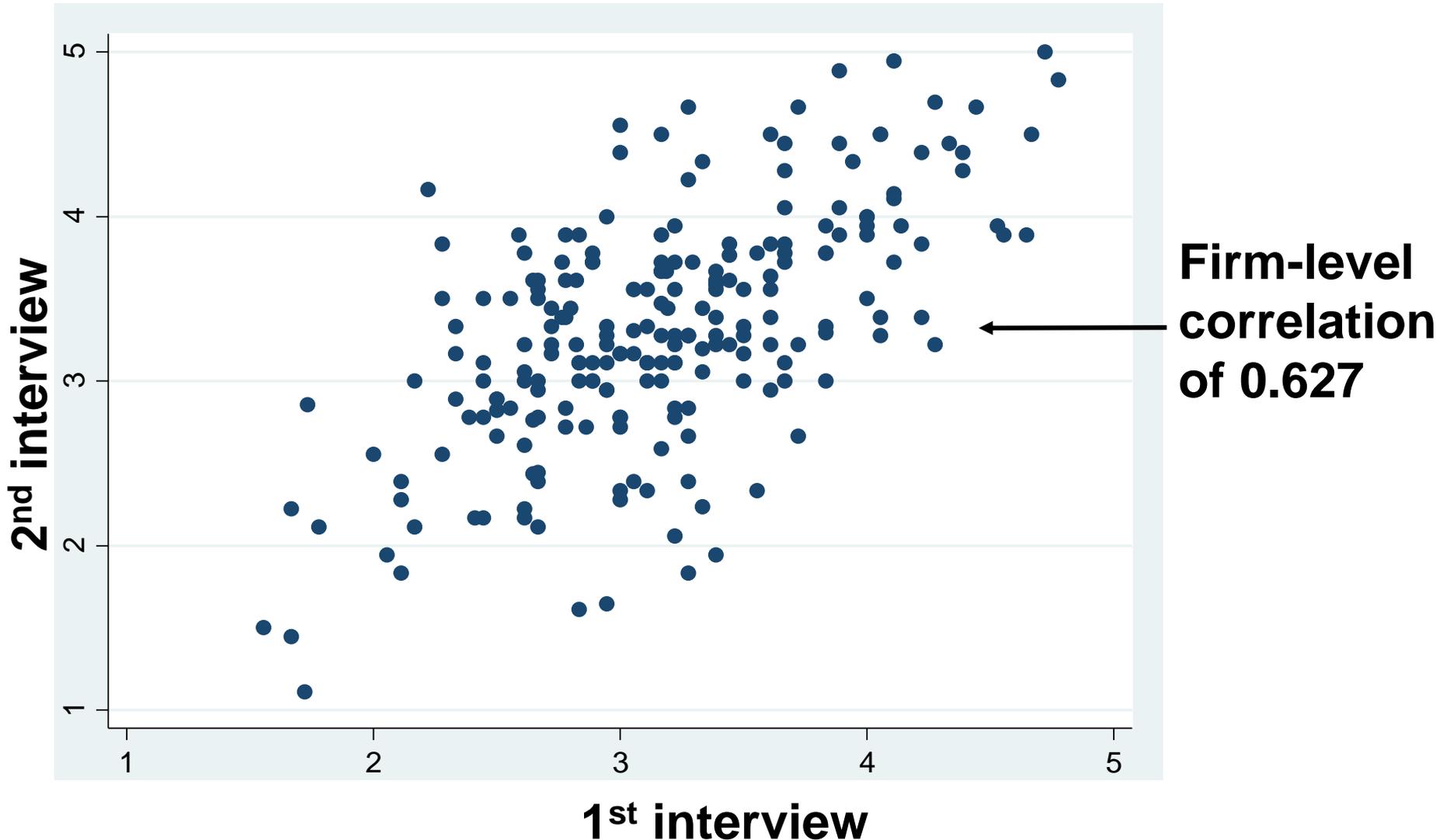
		Score 1	Score 3	Score 5
1	Introduction of lean (modern) manufacturing techniques	Other than JIT delivery from suppliers few modern manufacturing techniques have been introduced, (or have been introduced in an ad-hoc manner)	Some aspects of modern (lean) manufacturing techniques have been introduced, through informal/isolated change programmes	All major aspects of modern/lean manufacturing have been introduced (Just-in-time, automation, flexible manpower, support systems, attitudes and behaviour) in a formal way
2	Rationale for lean (modern) manufacturing techniques	Modern (lean) manufacturing techniques were introduced because others were using them.	Modern (lean) manufacturing techniques were introduced to reduce costs	Modern (lean) manufacturing techniques were introduced to enable us to meet our business objectives (including costs)
3	Process documentation	No, process improvements are made when problems occur.	Improvements are made in 1 week workshops involving all staff, to improve performance in their area of the plant	Exposing problems in a structured way is integral to individuals' responsibilities and resolution occurs as a part of normal business processes rather than by extraordinary effort/teams
4	Performance tracking	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.
5	Performance review	Performance is reviewed infrequently or in an un-meaningful way e.g. only success or failure is noted.	Performance is reviewed periodically with both successes and failures identified. Results are communicated to senior management. No clear follow-up plan is adopted.	Performance is continually reviewed, based on indicators tracked. All aspects are followed up ensure continuous improvement. Results are communicated to all staff
6	Performance dialogue	The right data or information for a constructive discussion is often not present or conversations overly focus on data that is not meaningful. Clear agenda is not known and purpose is not stated explicitly	Review conversations are held with the appropriate data and information present. Objectives of meetings are clear to all participating and a clear agenda is present. Conversations do not, as a matter of course, drive to the root causes of the problems.	Regular review/performance conversations focus on problem solving and addressing root causes. Purpose, agenda and follow-up steps are clear to all. Meetings are an opportunity for constructive feedback and coaching.
7	Consequence management	Failure to achieve agreed objectives does not carry any consequences	Failure to achieve agreed results is tolerated for a period before action is taken.	A failure to achieve agreed targets drives retraining in identified areas of weakness or moving individuals to where their skills are appropriate
8	Type of targets	Goals are exclusively financial or operational	Goals include non-financial targets, which form part of the performance appraisal of top management only (they are not reinforced throughout the rest of organisation)	Goals are a balance of financial and non-financial targets. Senior managers believe the non-financial targets are often more inspiring and challenging than financials alone (e.g. 60% market share by 2003)

The full 18 question survey (2/2)...

9	Interconnection of goals	Goals are based purely on accounting figures (with no clear connection to shareholder value)	Corporate goals are based on shareholder value but are not clearly cascaded down to individuals	Corporate goals focus on shareholder value. They increase in specificity as they cascade through business units ultimately defining individual performance expectations.
10	Time horizon	Top management's main focus is on short term targets	There are short and long term goals for all levels of the organisation. As they are set independently, they are not necessarily linked to each other	Long term goals are translated into specific short term targets so that short term targets become a "staircase" to reach long term goals
11	Goals are stretching	Goals are either too easy or impossible to achieve; managers low-ball estimates to ensure easy goals	In most areas, top management pushes for aggressive goals based on solid economic rationale. There are a few "sacred cows" that are not held to the same rigorous standard	Goals are genuinely demanding for all divisions. They are grounded in solid, solid economic rationale
12	Clarity of goals and measurement	Performance measures are complex and not clearly understood. Individual performance is not made public	Performance measures are well defined and communicated; performance is public in all levels but comparisons are discouraged	Performance measures are well defined, strongly communicated and reinforced at all reviews; performance and rankings are made public to induce competition
13	Instilling a talent mindset	Senior management do not communicate that attracting, retaining and developing talent throughout the organisation is a top priority	Senior management believe and communicate that having top talent throughout the organisation is a key way to win	Senior managers are evaluated and held accountable on the strength of the talent pool they actively build
14	Building a high performance culture	People within our firm are rewarded equally irrespective of performance level	Our company has an evaluation system for the awarding of performance related rewards	We strive to outperform the competitors by providing ambitious stretch targets with clear performance related accountability and rewards
15	Making room for talent	Poor performers are rarely removed from their positions	Suspected poor performers stay in a position for a few years before action is taken	We move poor performers out of the company or to less critical roles as soon as a weakness is identified
16	Developing talent	People are promoted primarily upon the basis of tenure	People are promoted upon the basis of performance	We actively identify, develop and promote our top performers
17	Creating a distinctive employee value proposition	Our competitors offer stronger reasons for talented people to join their companies	Our value proposition to those joining our company is comparable to those offered by others in the sector	We provide a unique value proposition to encourage talented people join our company above our competitors
18	Retaining talent	We do little to try and keep our top talent.	We usually work hard to keep our top talent.	We do whatever it takes to retain our talent.

Internal Validation

Re-interviewed 5% of the sample to have a different interviewer speak to a different management in the same firm



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

MY FAVOURITE QUOTES:

The difficulties of defining ownership in Europe

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

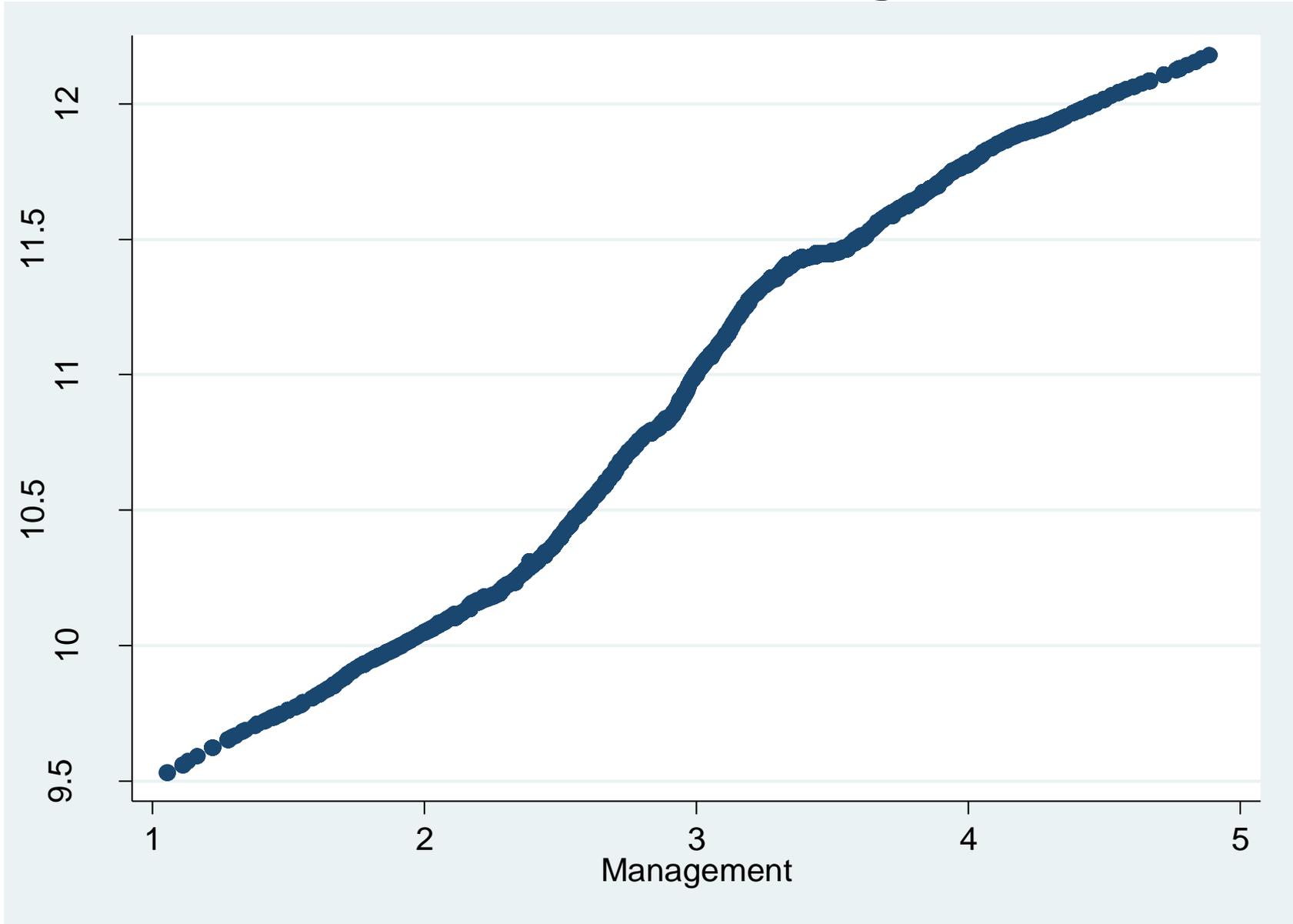
Interviewer: “I think that’s the “*Other*” category.....although I guess I could put you down as an “*Italian multinational*” ?”

Americans on geography

Interviewer: “How many production sites do you have abroad?”

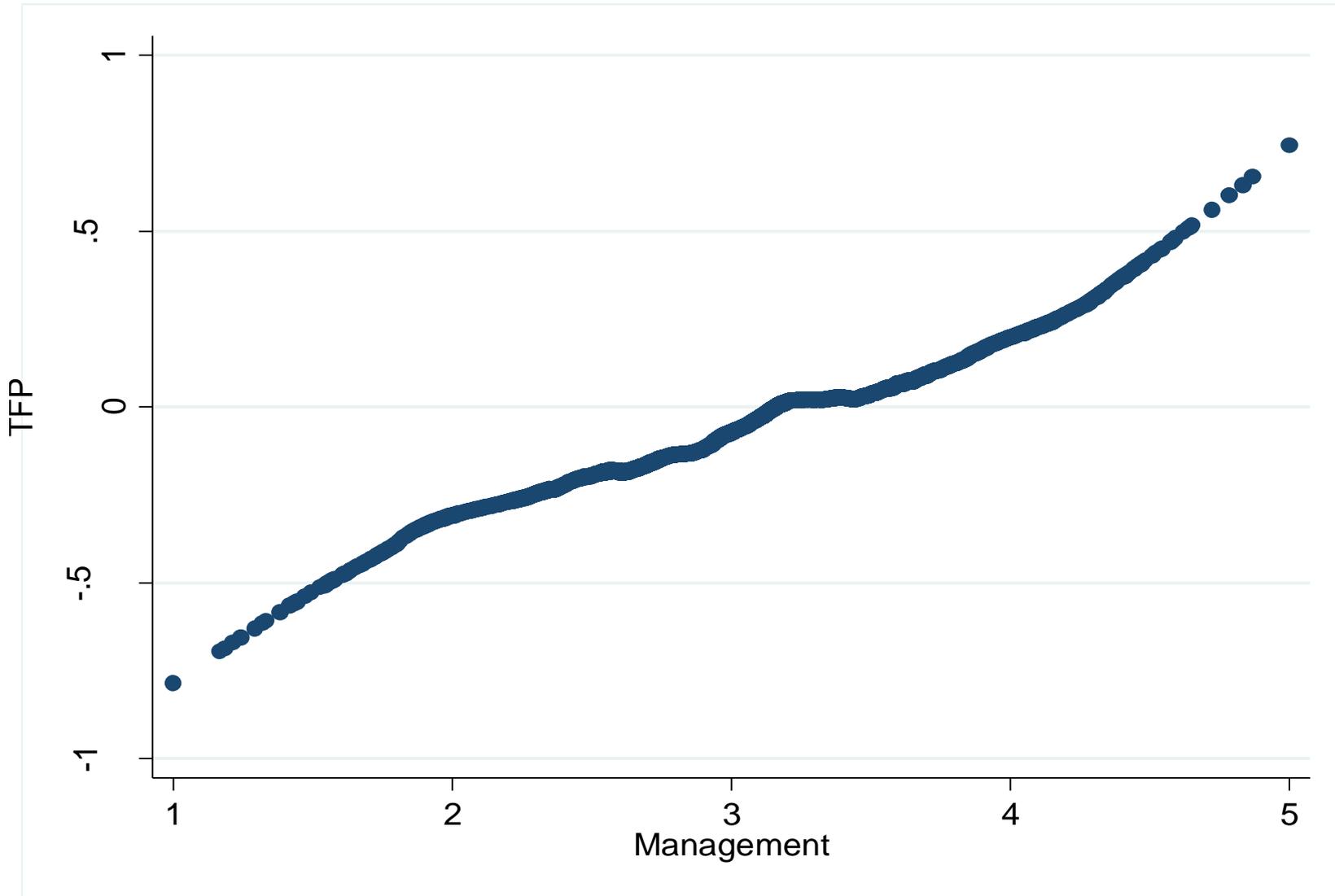
Manager in Indiana, US: “Well...we have one in Texas...”

External Validation: Size & Management correlation



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

External Validation: TFP & Management correlation



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. $N=10,900$. **Source:** Bloom, Sadun and Van Reenen (2017)

One Problem with WMS is scale – we've collected ~20k interviews over 15 years like this



To get 35k in one quick wave we'd need this



First Census survey run with the US Census

Delivered to 47,534 manufacturing plants in 2011 (US ASM) asking about practices in 2010 and 2005.

Quick and easy to fill out - & mandatory - ~80% of plants responded

2nd US MOPS in 2016; also being done in many other countries (Canada, Japan, Mexico, Pakistan, UK, etc.)

3rd wave next year



U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU
FORM
MP-10002 (DRAFT)

2010 MANAGEMENT AND ORGANIZATIONAL PRACTICES SURVEY

OMB No. 0607-0963; Approval Expires 2/28/2014

MP-10002

Need help or have questions about filling out this form?
Visit www.census.gov/econhelp/mops
Call 1-301-763-4673, between 8:00 a.m. and 4:30 p.m., Eastern time, Monday through Friday.
- OR -
Write to the address below. Include your 11-digit Census File Number (CFN) printed in the mailing address.

Mail your completed form to:

U.S. CENSUS BUREAU
1201 East 10th Street
Jeffersonville, IN 47132-0001

(Please correct any errors in this mailing address.)

YOUR RESPONSE IS REQUIRED BY LAW. Title 13, United States Code, requires businesses and other organizations that receive this questionnaire to answer the questions and return the report to the U.S. Census Bureau. By the same law, **YOUR CENSUS REPORT IS CONFIDENTIAL.** It may be seen only by persons sworn to uphold the confidentiality of Census Bureau information and may be used only for statistical purposes. Further, copies retained in respondents' files are immune from legal process.

INTERNET REPORTING OPTION AVAILABLE - We encourage you to complete this survey online at: www.census.gov/econhelp/mops

User ID: Password:

Public reporting burden for this collection is estimated to be 30 minutes. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: Paperwork Project 0607-0963, U.S. Census Bureau, 4600 Silver Hill Road, ASMD - 3K138, Washington, DC 20233. You may e-mail comments to Paperwork@census.gov; use "Paperwork Project 0607-0963" as the subject.

An Office of Management and Budget (OMB) approval number is printed in the upper right corner of this form. Without displaying this number, we could not collect this information or require your response.

The reporting unit for this form is an **establishment** which is generally a single physical location where business is conducted or where services or industrial operations are performed.

10002012

The Management and Organizational Practices survey asks about performance monitoring e.g.

2 In 2005 and 2010, how many key performance indicators were monitored at this establishment?

Examples: Metrics on production, cost, waste, quality, inventory, energy, absenteeism and deliveries on time.

Check one box for each year

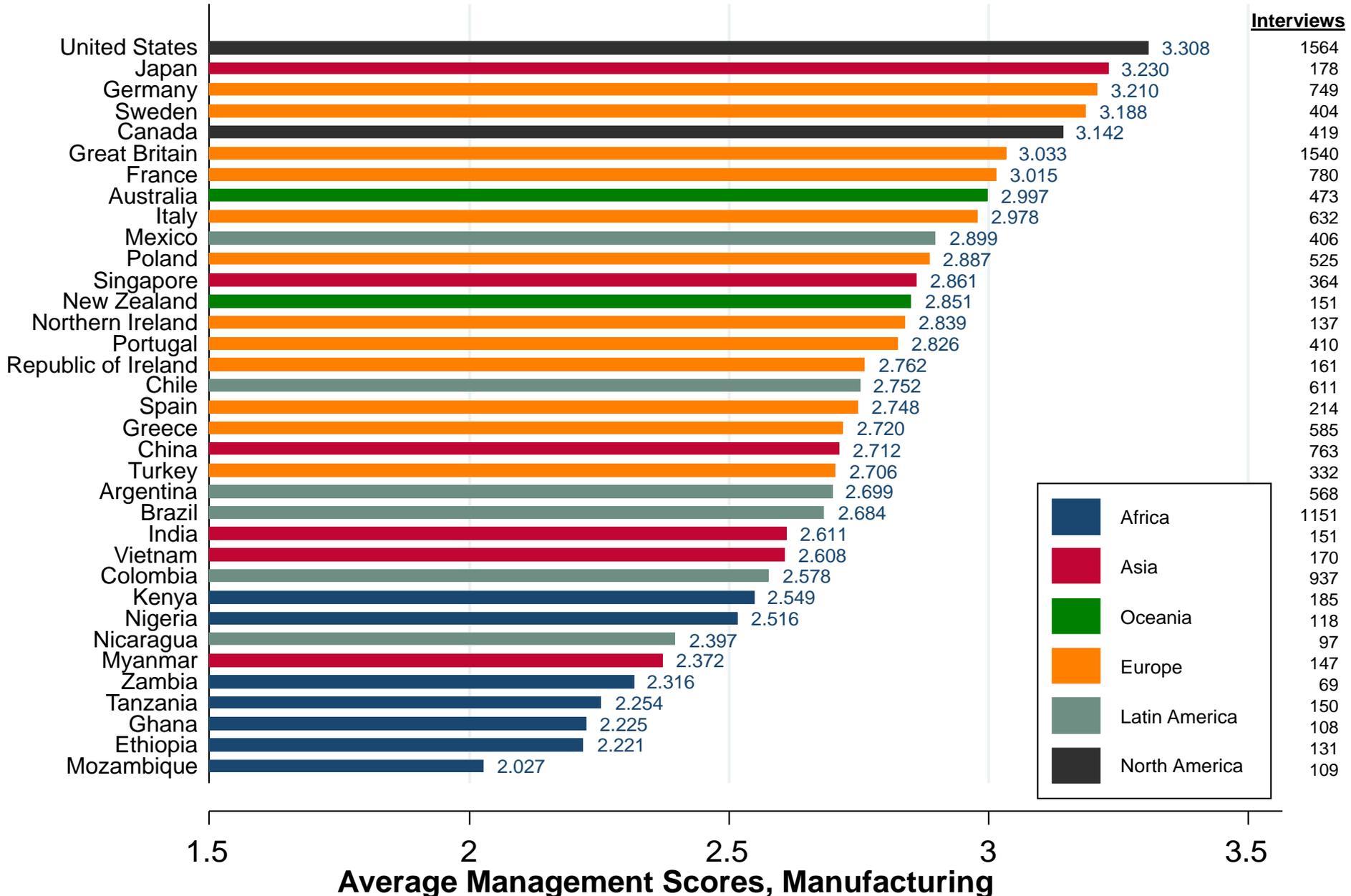
	2005	2010
1-2 key performance indicators	<input type="checkbox"/>	<input type="checkbox"/>
3-9 key performance indicators	<input type="checkbox"/>	<input type="checkbox"/>
10 or more key performance indicators	<input type="checkbox"/>	<input type="checkbox"/>
No key performance indicators (If no key performance indicators in both years, SKIP to 6)	<input type="checkbox"/>	<input type="checkbox"/>

Top Managers

Measuring Management Practices

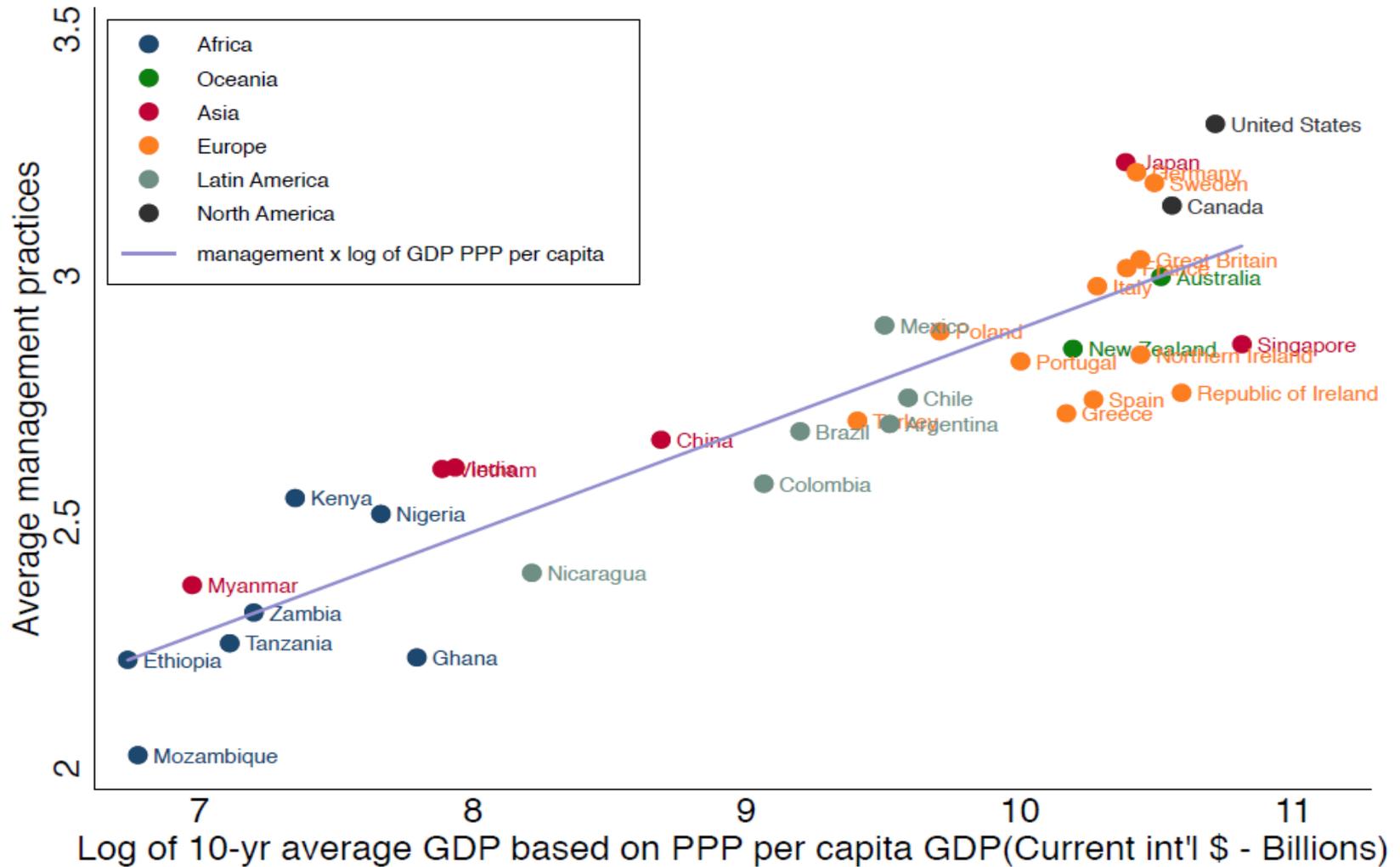
Describing Management

Average Management Scores by Country

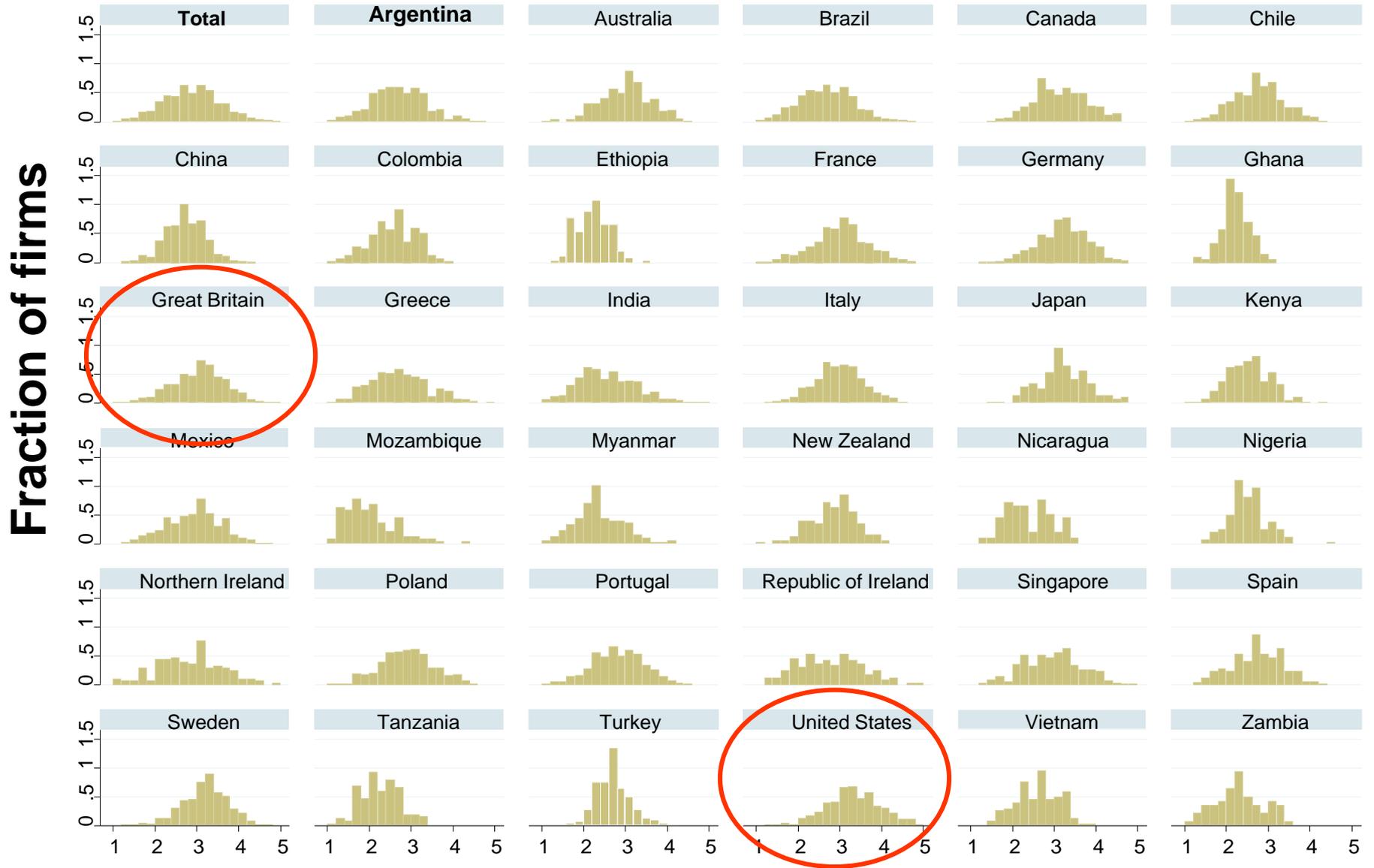


Note: Unweighted average management scores; # interviews in right column (total = 15,489); all waves pooled (2004-2014)

Average management scores across countries are strongly correlated with GDP per capita



Management also varies heavily within countries



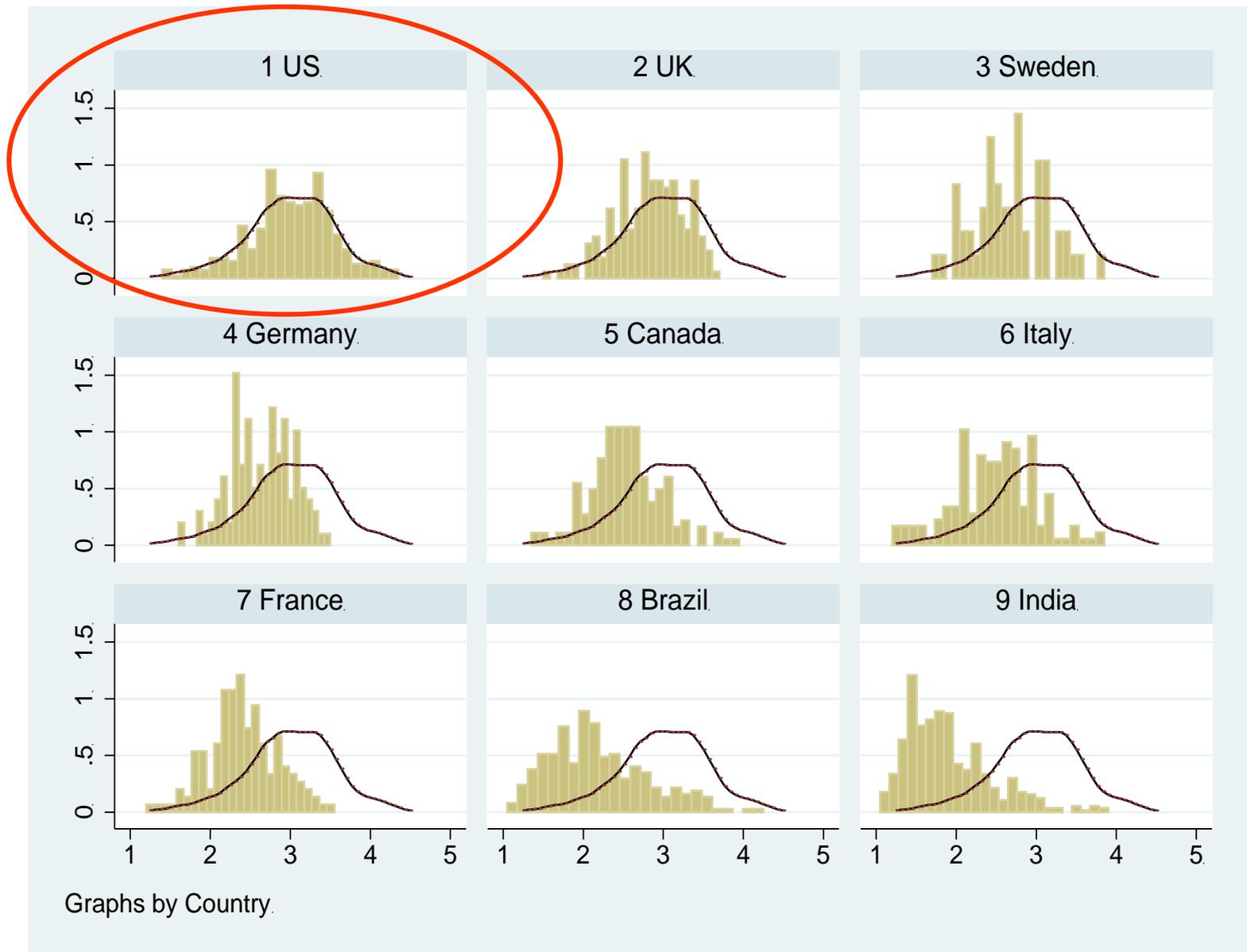
Firm level average management scores, 1 (worst practice) to 5 (best practice)

Also been looking at other sectors: hospitals



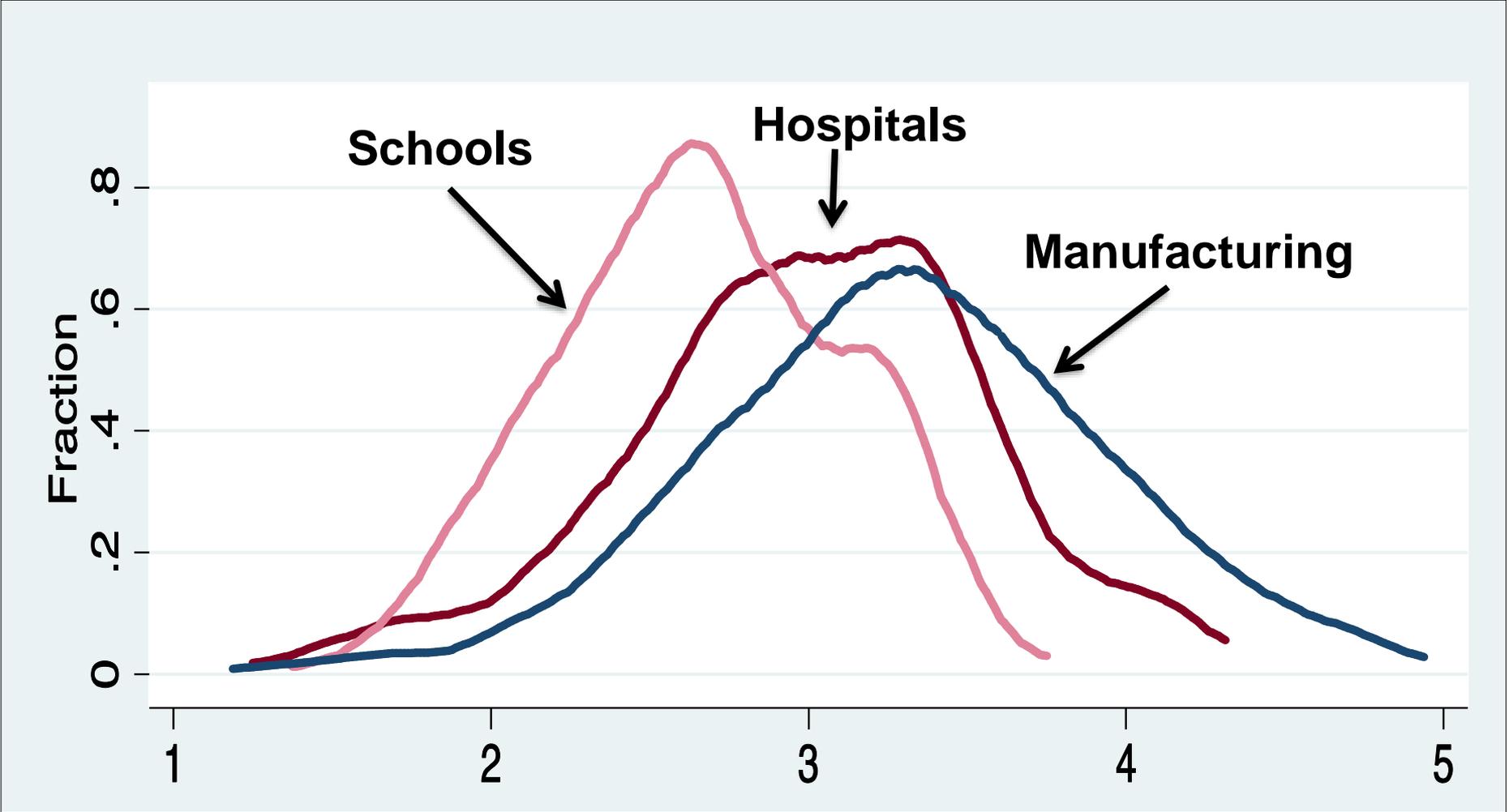
Source: Bloom, Lemos, Sadun & Van Reenen (2019); Randomly surveyed population of hospitals in each country that offer acute care and have orthopaedics and/or cardiology department. Total of 1687 hospitals.

Again see a very wide spread in hospitals



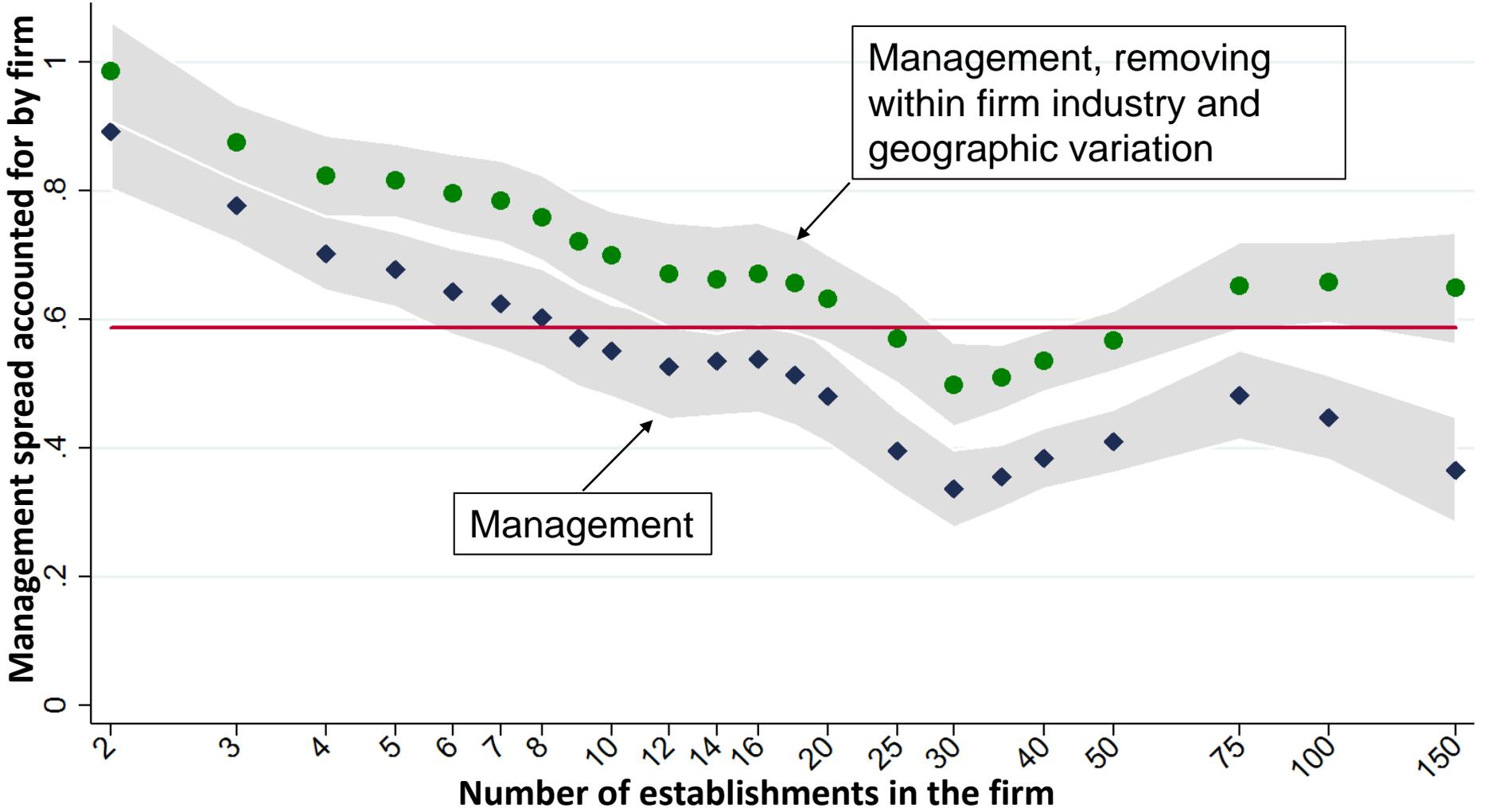
Source: Bloom, Lemos, Sadun & Van Reenen (2019)

On the subset of identical questions in the US can compare across industries of the same practices



Source: Bloom, Lemos, Sadun, Scur & Van Reenen (2014)

MOPS: About 40% of cross sectional variation across plants in management is within firms



Source: Bloom, Brynjolfsson, Foster, Jarmin, Patnaik, Saporta-Eksten & Van Reenen (2019)

Note: Dots show the share of management score variation accounted for by the firm with different numbers of manufacturing establishments ranging from that number to the next value – so for example, 50 plants refers to 50 to 74 plants. The share of variation is shown after removing the 45.4% accounted for by measurement error.

Availability of Data

- WMS open source. For confidential dataset request via website
 - <https://worldmanagementsurvey.org/survey-data/download-data/>
- MOPS available via Census projects
 - Being run in many other countries – Australia, Canada, China, Finland, India, Mexico, Japan, Pakistan, UK, etc.

Summary

- Management more than just managers
- Management practice data now more widely available
- Correlated with performance, but are these causal?
- And what causes different firms to adopt different practices?

MY FAVOURITE QUOTES:

The traditional Indian Chat-Up

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”