

# Restoring productivity: Does management matter?

**John Van Reenen (LSE)**

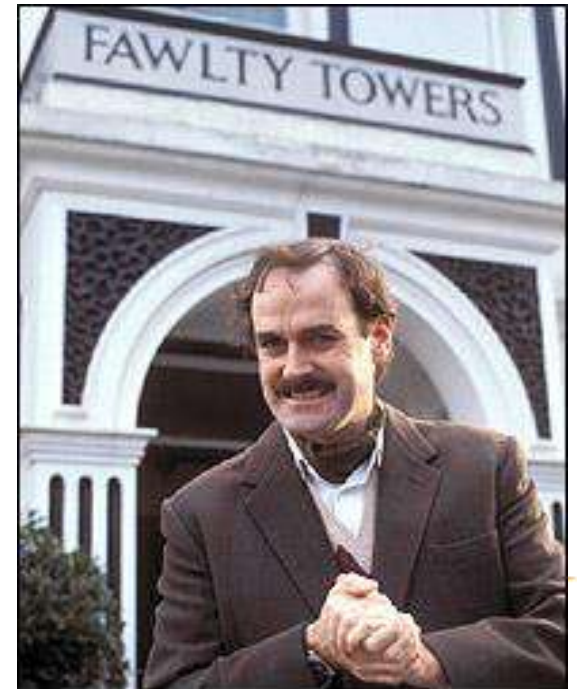
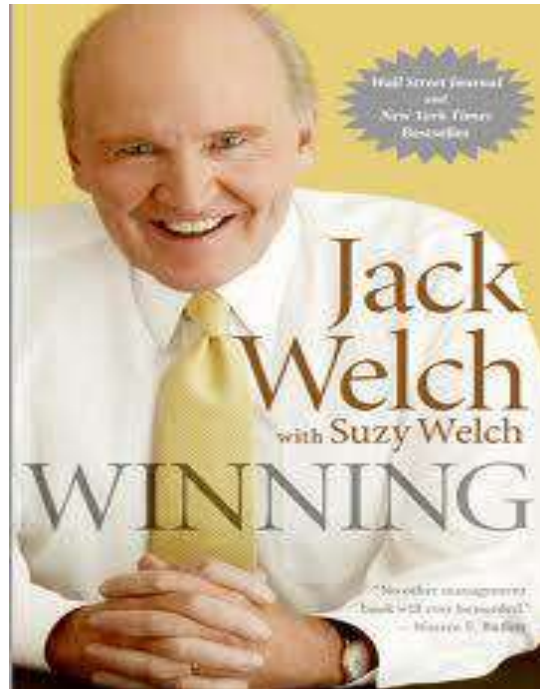
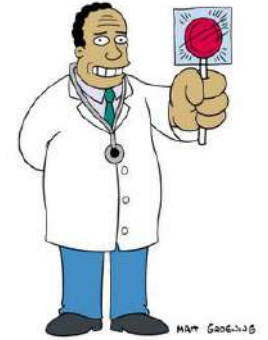
July 2<sup>nd</sup> 2015

CE<sup>2</sup> Conference, Warsaw

Draws heavily on joint work with Nick Bloom (Stanford) and  
Raffaella Sadun (HBS)



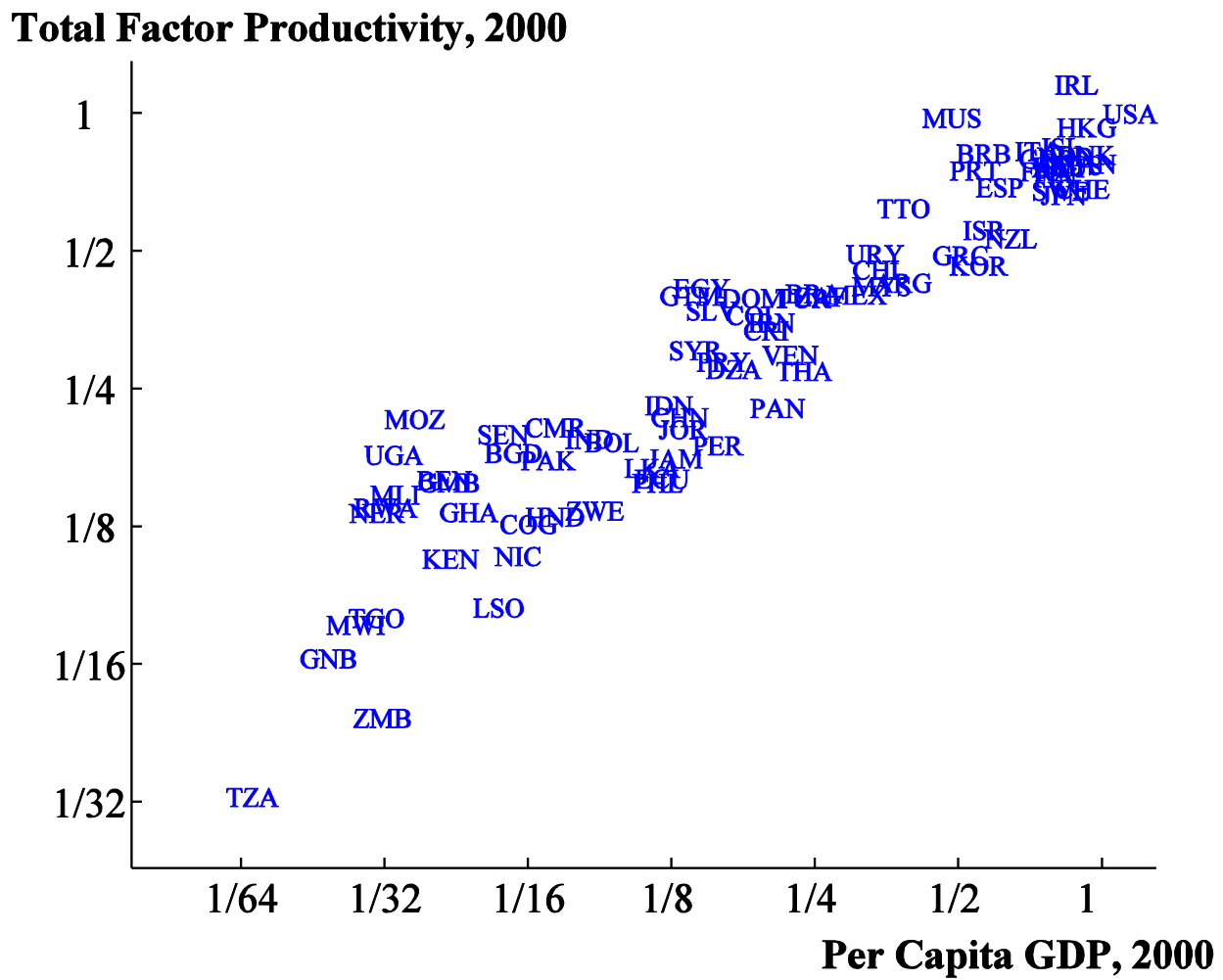
# OR... BOSS-ONOMICS



# MOTIVATION

- Evidence of extensive firms & plant productivity (TFP) differences (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** (cf. Woodward, 1958)
  - Management matters a lot in explaining TFP gap with US across countries (~30% on average)

# LARGE PRODUCTIVITY DIFFERENCES BETWEEN COUNTRIES



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 managerial 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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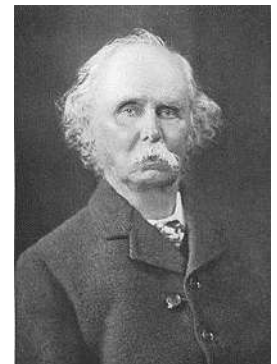
*...r (Quarterly Journal of Economics, 1887)*

# FIRM HETEROGENEITY HAS LONG BEEN RECOGNIZED WITH POSSIBLE LINK TO MANAGEMENT



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Alfred Marshall (*QJE*, July 1887,  
1(4)) response



# But there is still a wide debate – many people claim management is just “hot air”

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

- Chad Syversson (2011, Journal of Economic Literature)





# **Measuring Management**

Management Models

Data Description

Empirics

# BLOOM - VAN REENEN (2007) SURVEY METHODOLOGY

## 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 200 MBA types (loud, assertive & business experience)

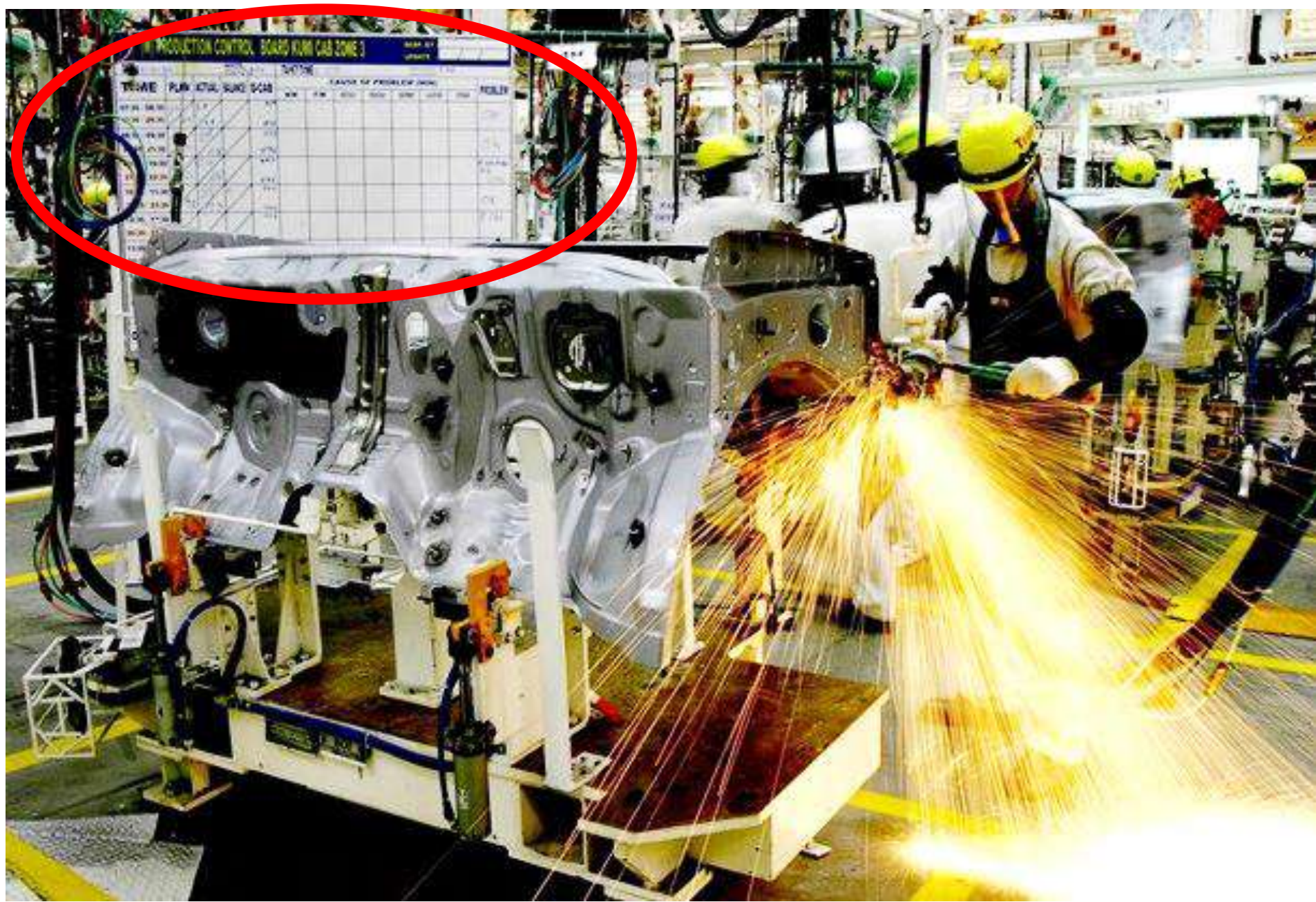
# MONITORING – e.g. “HOW IS PERFORMANCE TRACKED?”

<b>Score</b>	<b>(1): Measures tracked do not indicate directly if overall business objectives are being met. Certain processes aren't tracked at all</b>	<b>(3): Most key performance indicators are tracked formally. Tracking is overseen by senior management</b>	<b>(5): Performance is continuously tracked and communicated, both formally and informally, to all staff using a range of visual management tools</b>
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**Note:** All 18 questions and over 50 examples in Bloom & Van Reenen (2007)

<http://worldmanagementsurvey.org/>

# Examples of performance metrics – Car Plant



# Examples of a performance metrics – Hospital



# **INCENTIVES - e.g. "HOW DOES THE PROMOTION SYSTEM WORK?"**

<b>Score</b>	<b>(1) People are promoted primarily upon the basis of tenure, irrespective of performance (ability &amp; effort)</b>	<b>(3) People are promoted primarily upon the basis of performance</b>	<b>(5) We actively identify, develop and promote our top performers</b>
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**Note:** All 18 questions and over 50 examples in Bloom & Van Reenen (2007)

<http://worldmanagementsurvey.org/>

# World Management Survey (~10,000 firms, 4 major waves: 2004, 2006, 2009, 2014; 34 countries)



**WMS**  
World Management Survey

Home

Policy & Business Reports

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Teaching Material

Survey Data

Media

Network



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

## Featured publications

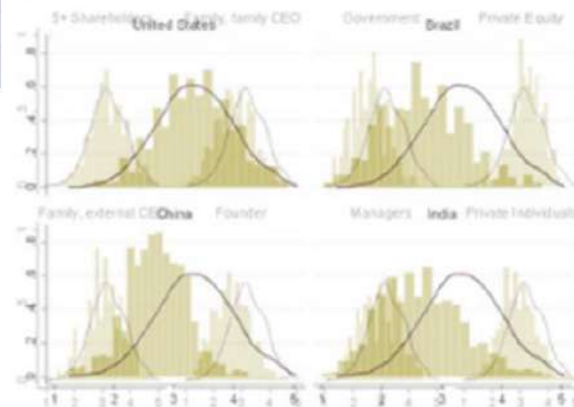
- » [Why do management practices differ across firms and countries?](#)
- » [Management Practice and Productivity: Why They Matter](#)
- » [Management in Healthcare: Why good practice really matters](#)

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 type

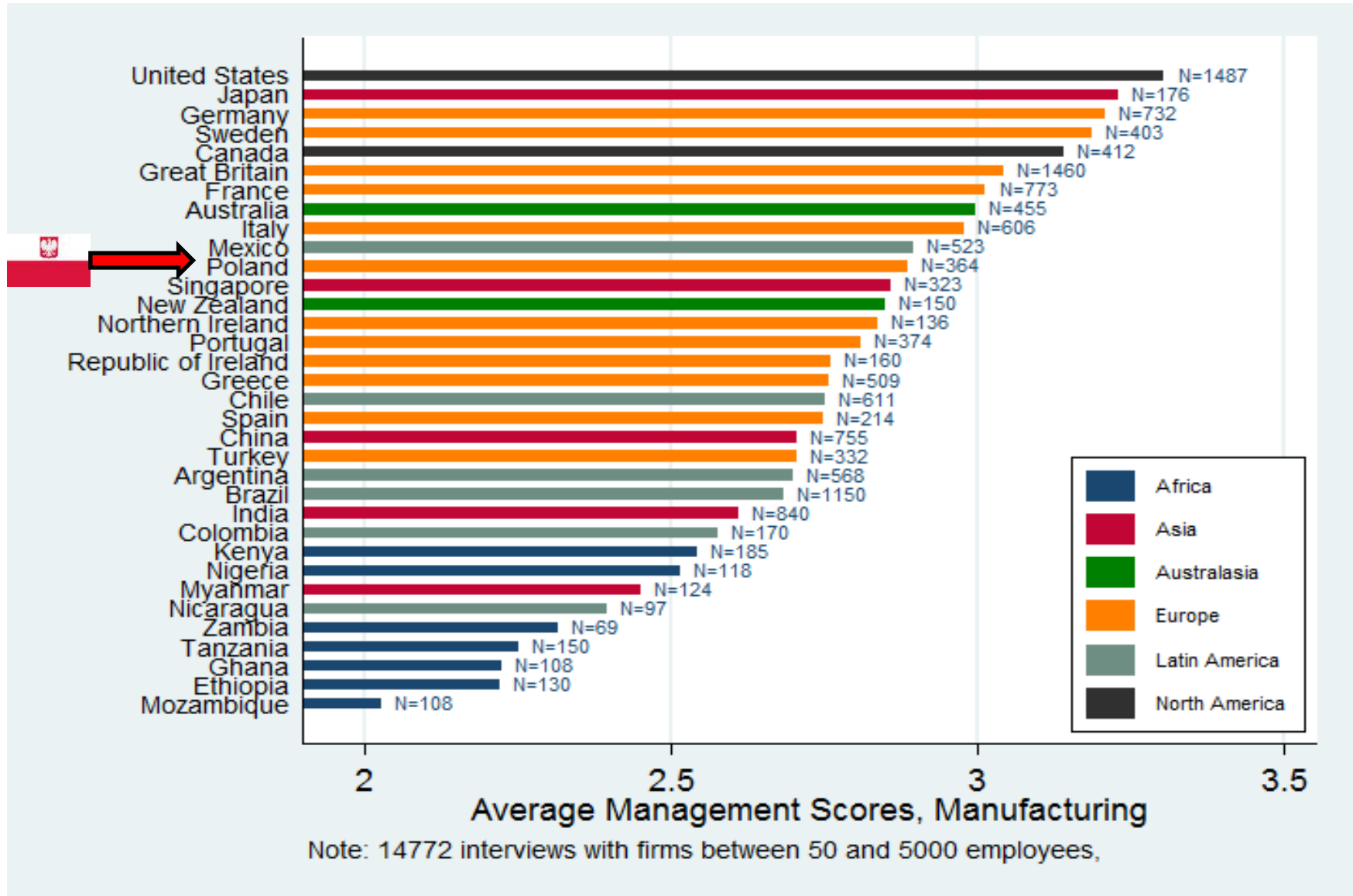
WMS team analyses the distribution of management practices within countries by type.



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

Now extended to Hospitals, Retail, Schools, etc.

# Average Management Scores by Country

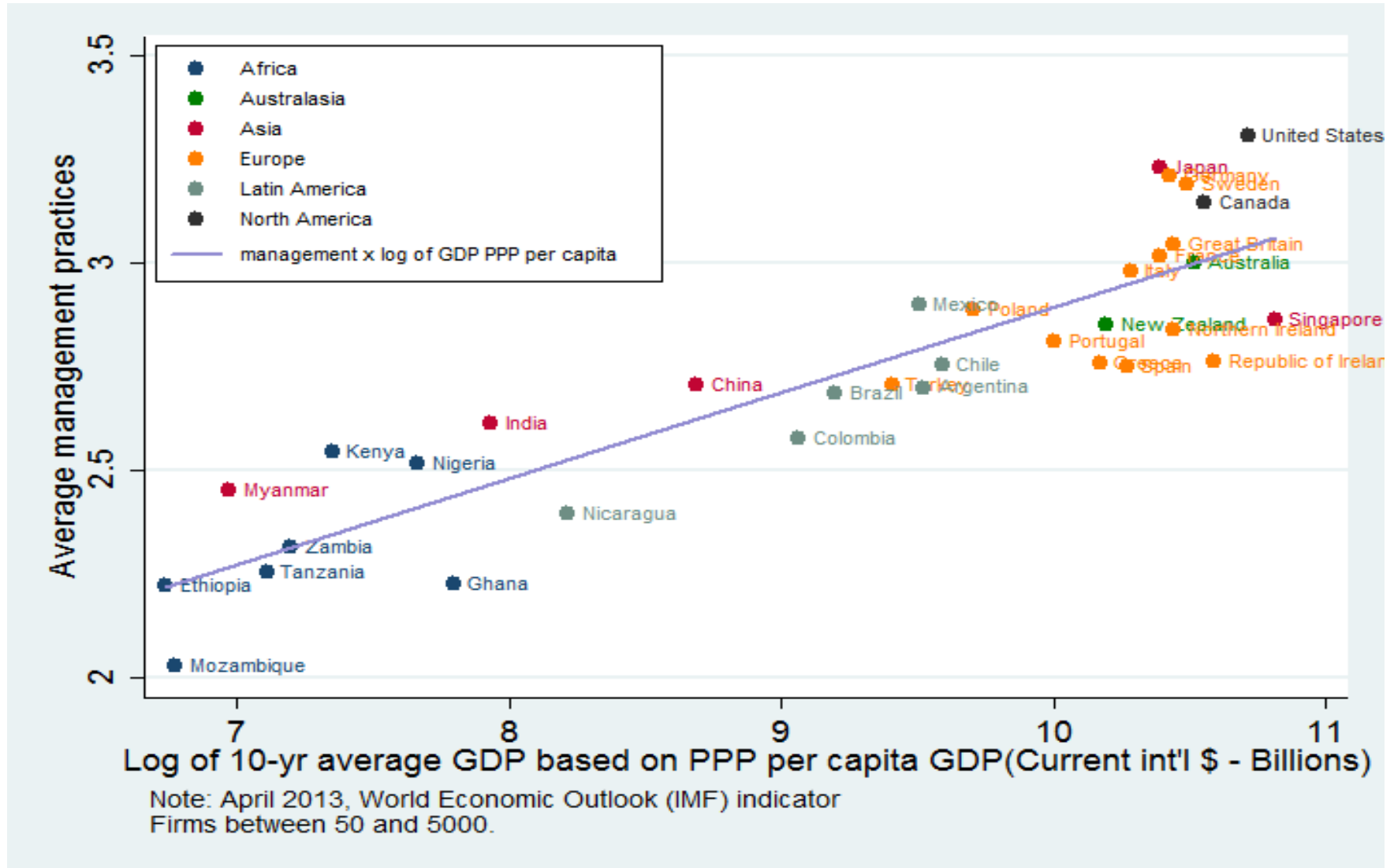


Note: 14772 interviews with firms between 50 and 5000 employees,

**Note:** Unweighted average management scores (raw data) with number of observations. All waves pooled (2004-2014)



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



**Note:** Unweighted average management scores (raw data) with number of observations. All waves pooled (2004-2014)

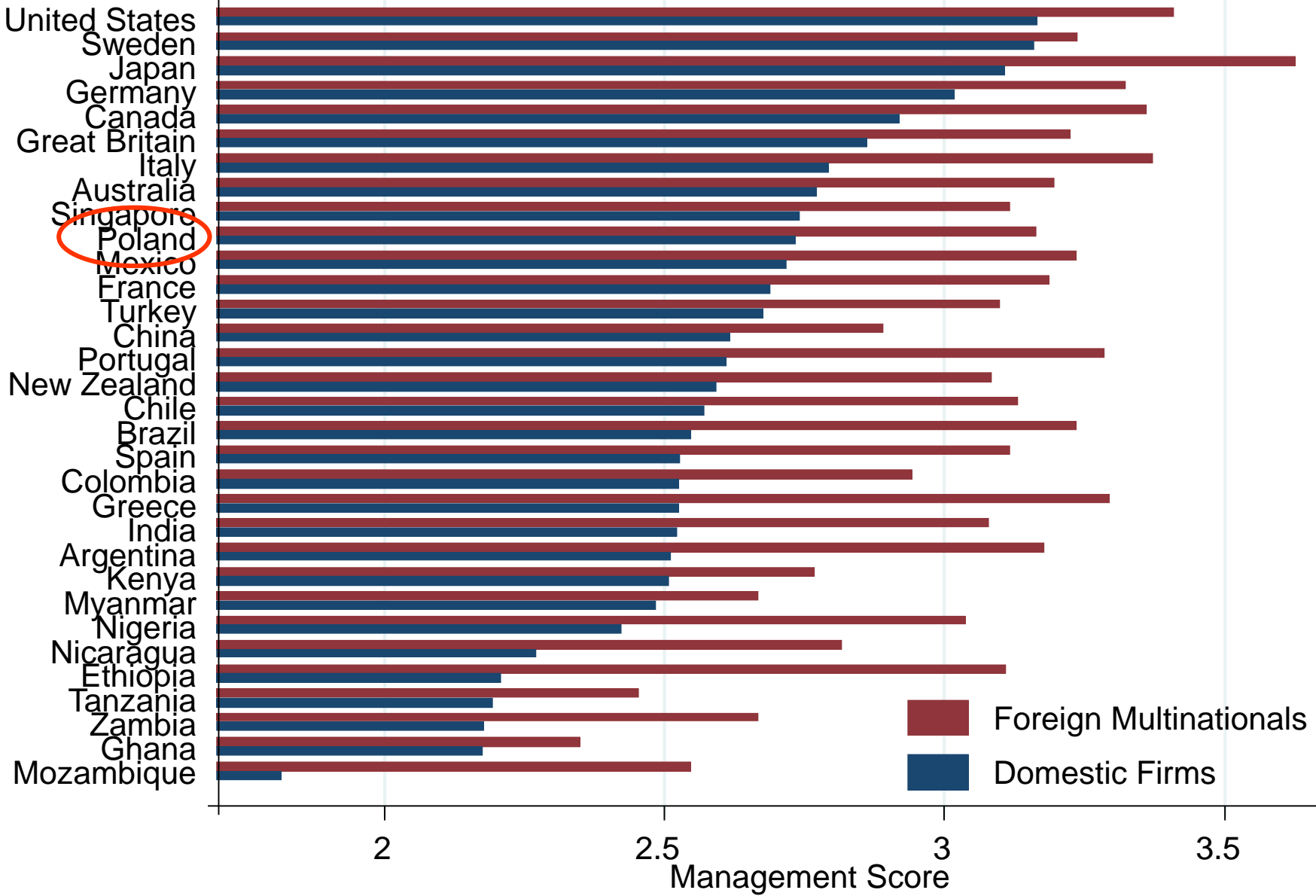
# Large variation of firm management within countries



Graphs by country\_rank

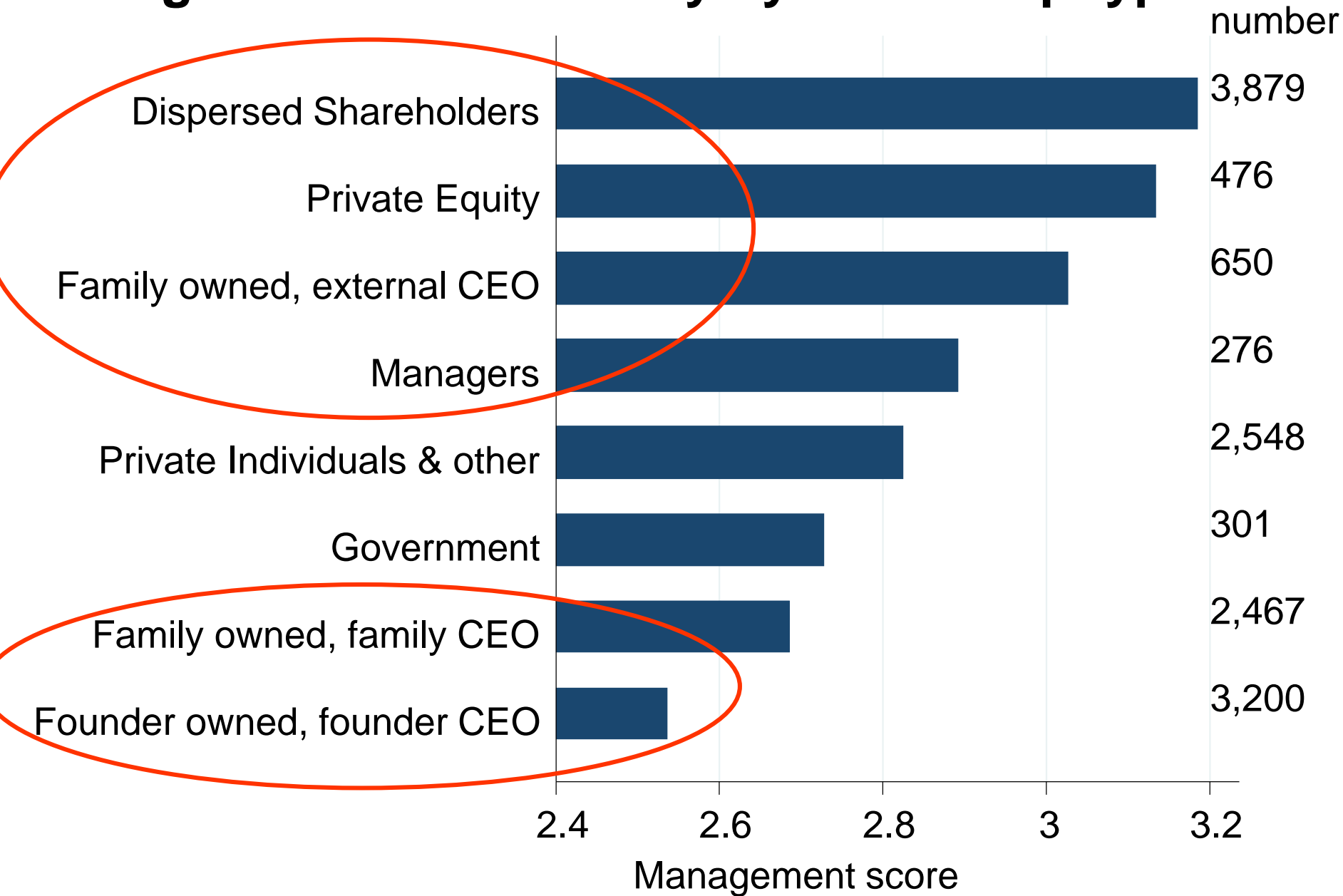
Firms with 50 to 5000 employees randomly surveyed from country population. Mar 2014.

# Foreign Multinationals appear to transplant management overseas



Source: Bloom, Sadun and Van Reenen (2015) "Management as a technology"

# Management varies heavily by ownership type



**Notes:** Data from 14,686 firm interviews. Created May 2015. Source: [www.worldmanagementsurvey.com](http://www.worldmanagementsurvey.com)

Measuring Management

**Management Models**

Data Description

Empirics

# 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 (intangible capital)
- Consider simple model: dynamic equilibrium model with firm heterogeneity in productivity & imperfect competition

# We define a *stylized* Management As a Technology (MAT) model (Bloom, Sadun & Van Reenen, 2015)

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

Firms invest in  $M$  (intangible capital) which depreciates like  $K$ , but unlike  $K$ , firms draw an endowment at entry (Hopenhayn, 1992; Melitz, 2003)

Other assumptions:

- $A$  also drawn randomly at entry ( $K_0=0$ ) from known distribution. Hit by ongoing  $A$  shocks
- Changing  $M$  &  $K$  involves adjustment costs ( $L$  flexible)
- Monopolistic competition (Iso-elastic demand,  $e$ )
- Sunk entry cost ( $\kappa$ ) & fixed per period operating cost ( $F$ )

# Timing of firm decisions

1. Entrants pay a sunk cost  $\kappa$  for a draw on  $(A, M)$ . Free entry condition determines number of firms
2. Each period firm gets TFP shock,  $\varepsilon_{it}$ ;  $\ln A_{it} = \rho \ln A_{it-1} + \varepsilon_{it}$
3. Pay fixed operating cost  $F$  per period (or exit)
4. Invest in  $M$  &  $K$  (investment “price” + quadratic adjust cost)
5. Choose labor (fully flexible)



# Model has 15 parameters – 9 taken from prior literature, 2 normalized, and 4 estimated by SMM

## Predefined parameters

Parameter	Symbol	value	Rationale
Capital – output elasticity	$\alpha$	0.3	NIPA factor share
Labor – output elasticity	$\beta$	0.6	NIPA factor share
Management – output	$\gamma$	0.1	Bloom et al (2013)
Demand elasticity	$e$	5	Bartelsman et al (2013)
Standard deviation of $\ln(\text{TFP})$	$\sigma_A$	0.31	Bloom (2009)
AR(1) parameter on $\ln(\text{TFP})$	$\rho$	0.885	Cooper and Haltiwanger(2006)
Discount Factor	$\phi$	0.9	Standard 10% interest rate
Capital depreciation rate	$\delta_K$	10%	Bond and Van Reenen (2007)
Capital resale loss	$\phi_K$	50%	Ramey and Shapiro (2001)

Notes: Fixed cost normalized at 100 and mean of TFP at 1

# Estimate the four remaining parameters by SMM

## Panel A: Structurally estimated parameter values

Parameter	Symbol	Value
Depreciation rate of management	$\delta_M$	0.082
Adjustment cost parameter for management	$\gamma_M$	0.387
Adjustment cost parameter for capital	$\gamma_K$	0.150
Sunk cost of entry	$\kappa$	86.9

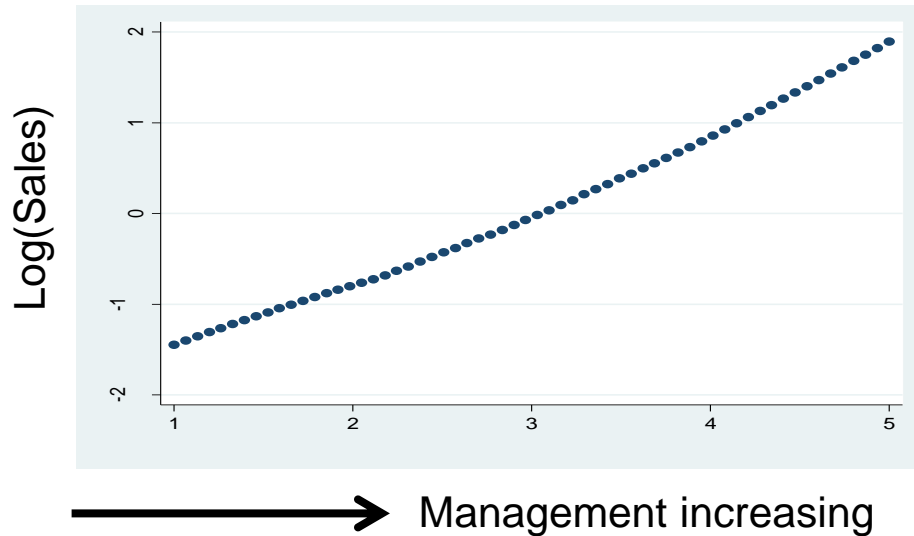
## Panel B: Empirical Moments used

Parameter	Data Value	Estimated value
Standard deviation of 5 year management growth	0.564	0.560
Standard deviation of 5 year sales growth	0.980	0.980
Standard deviation of 5 year capital growth	0.887	0.888
Annual Exit rate	4.43%	4.44%

**Notes:** Estimation by SMM using management panel data 2004-2014. Calibrate 11 parameters – see Table 1: 9 from literature and two normalizations (Fixed cost=100 and mean of  $\ln A=1$ ). Run 100 years until steady state. Keep last 10 years of data

# Predictions from numerical MAT model (Note not directly used in structural SMM estimation)

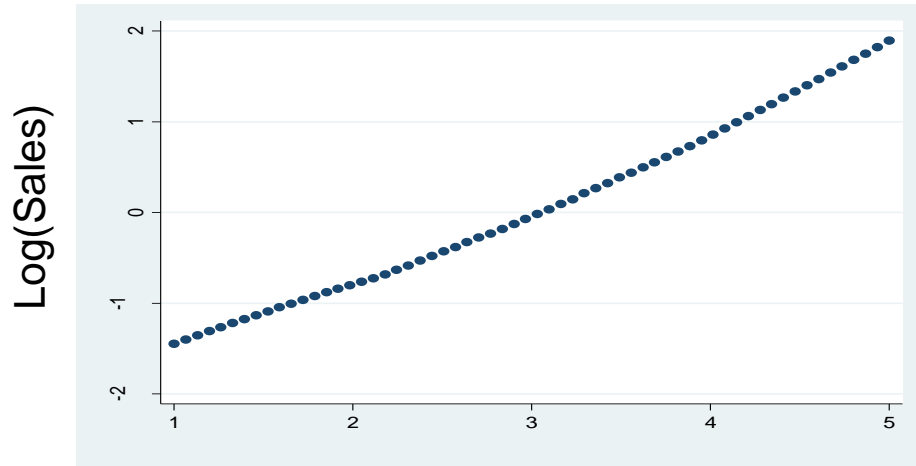
## 1) Performance $\uparrow$ in management



**Notes:** Simulate 5,000 firms per year in the steady state using estimated parameters from SMM and calibrated parameters.

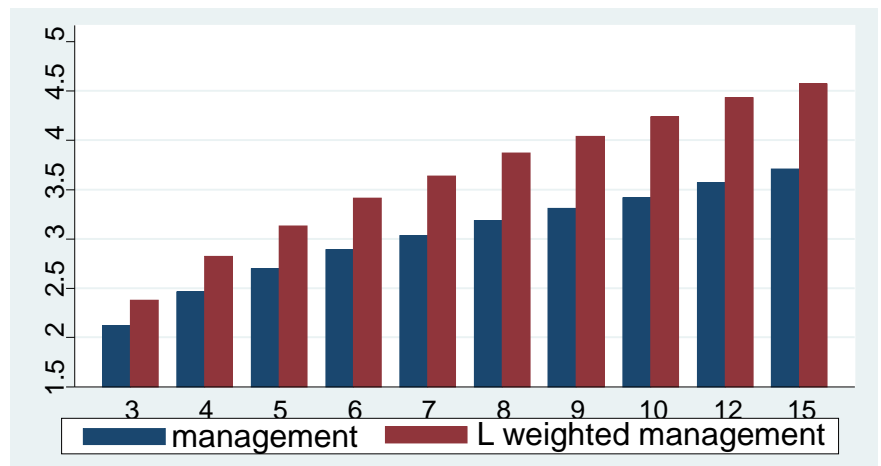
# Predictions from numerical MAT model (Note not directly used in structural SMM estimation)

## 1) Performance $\uparrow$ in management



Management increasing

## 2) Management $\uparrow$ in competition



Competition increasing

**Notes:** Simulate 5,000 firms per year in the steady state using estimated parameters from SMM and calibrated parameters.

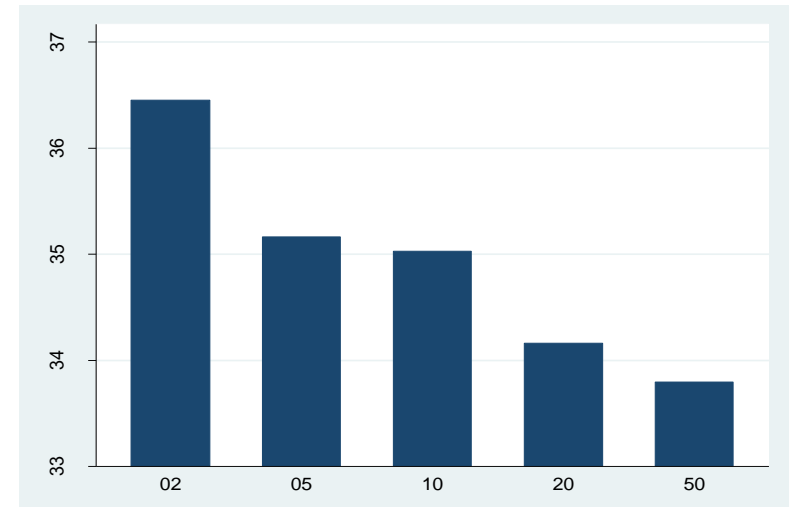
# Predictions from numerical MAT model (Note not directly used in structural SMM estimation)

## 3) Firm Age & management



→ Firm Age increasing

## 4) Management & skill price



→ Management price increasing

**Notes:** Simulate 5,000 firms per year in the steady state using estimated parameters from SMM and calibrated parameters. Plots normalized log(management)

# Very stylized model with many possible extensions

- Governance & principal-agent issues: initial draw of M 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 (Bloom, Schankerman & Van Reenen, 2013)
- More generally, Rivkin (2000) on why better management practices aren’t adopted:
  - Information (later)
  - Incentives (our focus)
  - Co-ordination (Gibbons & Henderson, 2012)

Measuring Data

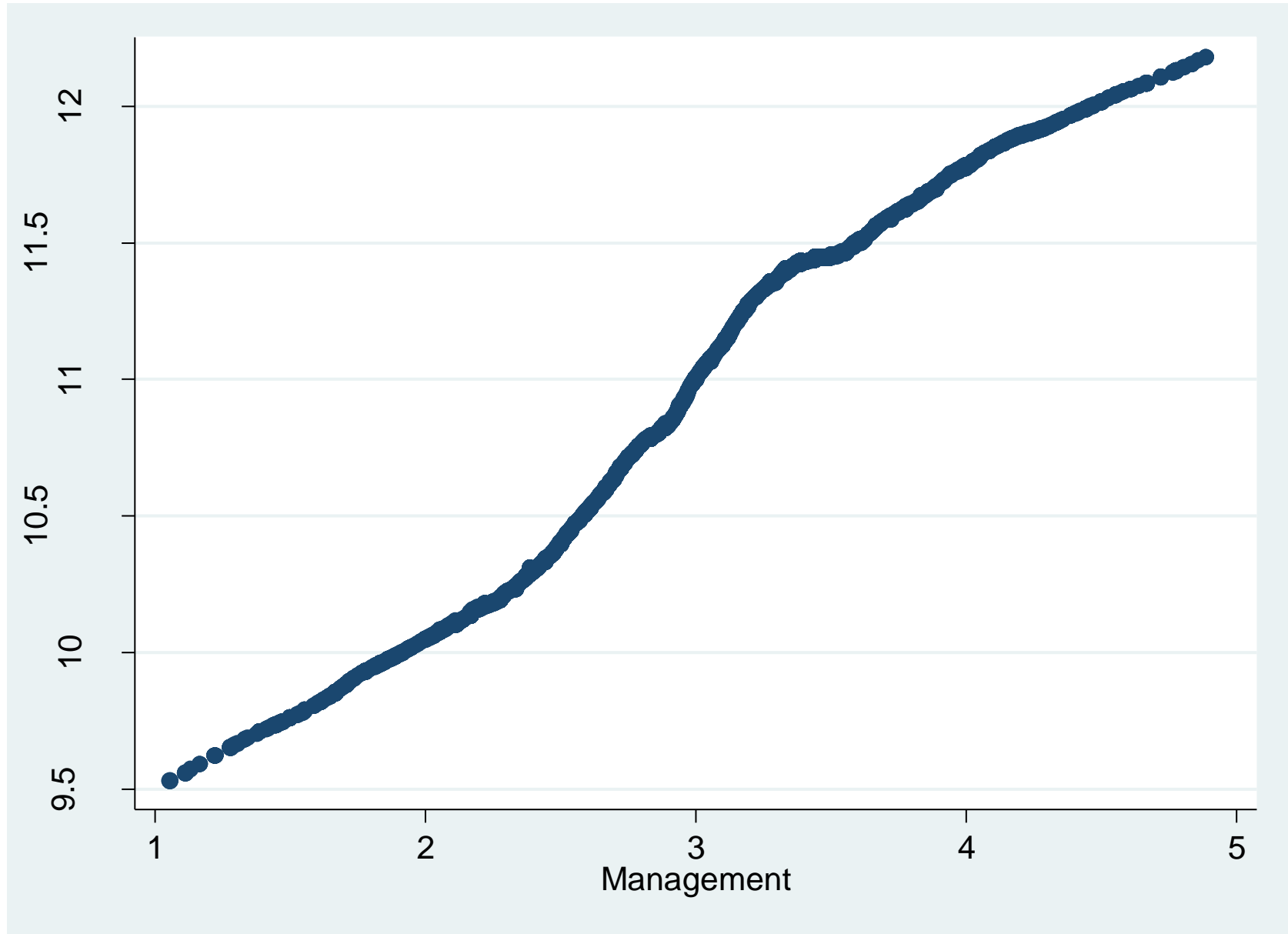
Management Models

**Examining the Model's Predictions**

- **Performance**
- Competition
- Skills
- Age

Management and cross-country TFP

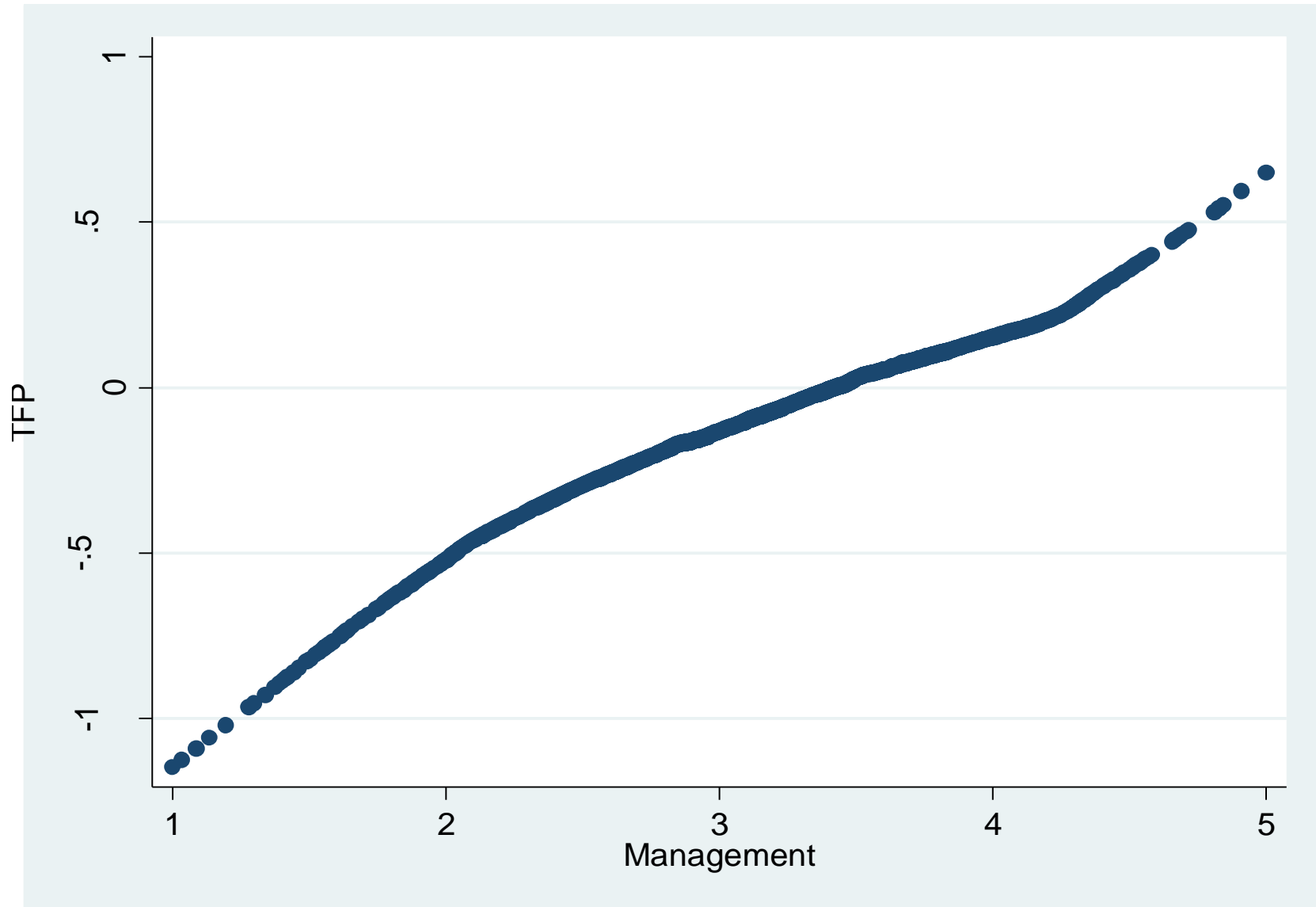
# Data: Sales are increasing in management



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



# Data: 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

# Performance in general is robustly *correlated* with management pretty much any way you cut the data

Dependent variable	Ln(sales)	TFP	Ln(sales)	Ln(employment)	Profit rate ROCE	5yr Sales growth	Exit
	OLS	(Olley-Pakes)	Fixed Effects	OLS	OLS	OLS	OLS
Firm sample	All	2+ surveys	2+ surveys	All	All	All	All
Management(SD=1)	0.156*** (0.019)	0.134*** (0.020)	0.034** (0.012)	0.402*** (0.013)	1.034*** (0.296)	0.044*** (0.012)	-0.006*** (0.002)
Ln(emp)	0.621*** (0.028)	0.621*** (0.050)	0.427*** (0.061)				
Ln(capital)	0.297*** (0.022)	0.333*** (0.034)	0.189*** (0.043)				
Obs	8,877	8,877	8,877	24,501	12,578	11,291	7,507

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

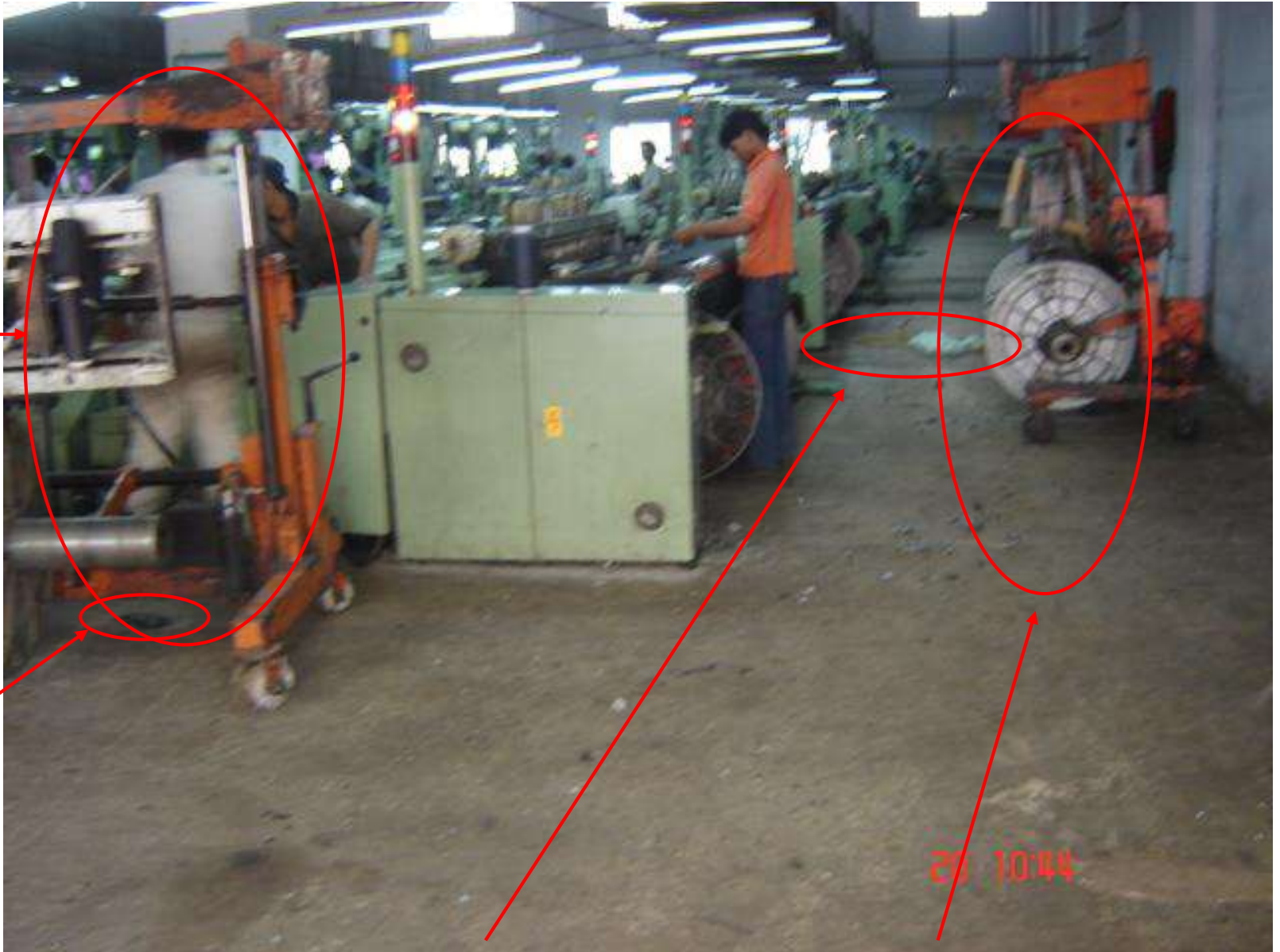
## **Performance: results from randomized control trials also supportive of MAT (Bloom et al, 2013)**

- Experimented on plants in Indian textile firms outside Mumbai
- Randomized treatment plants got heavy management consulting (as in the practices discussed here), control plants got very light consulting
- Collected weekly data & found:
  - Management score improved by 2sd & TFP up by 20%
  - **Implies: 1 SD increase in management index caused 10% increase in TFP**

# 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

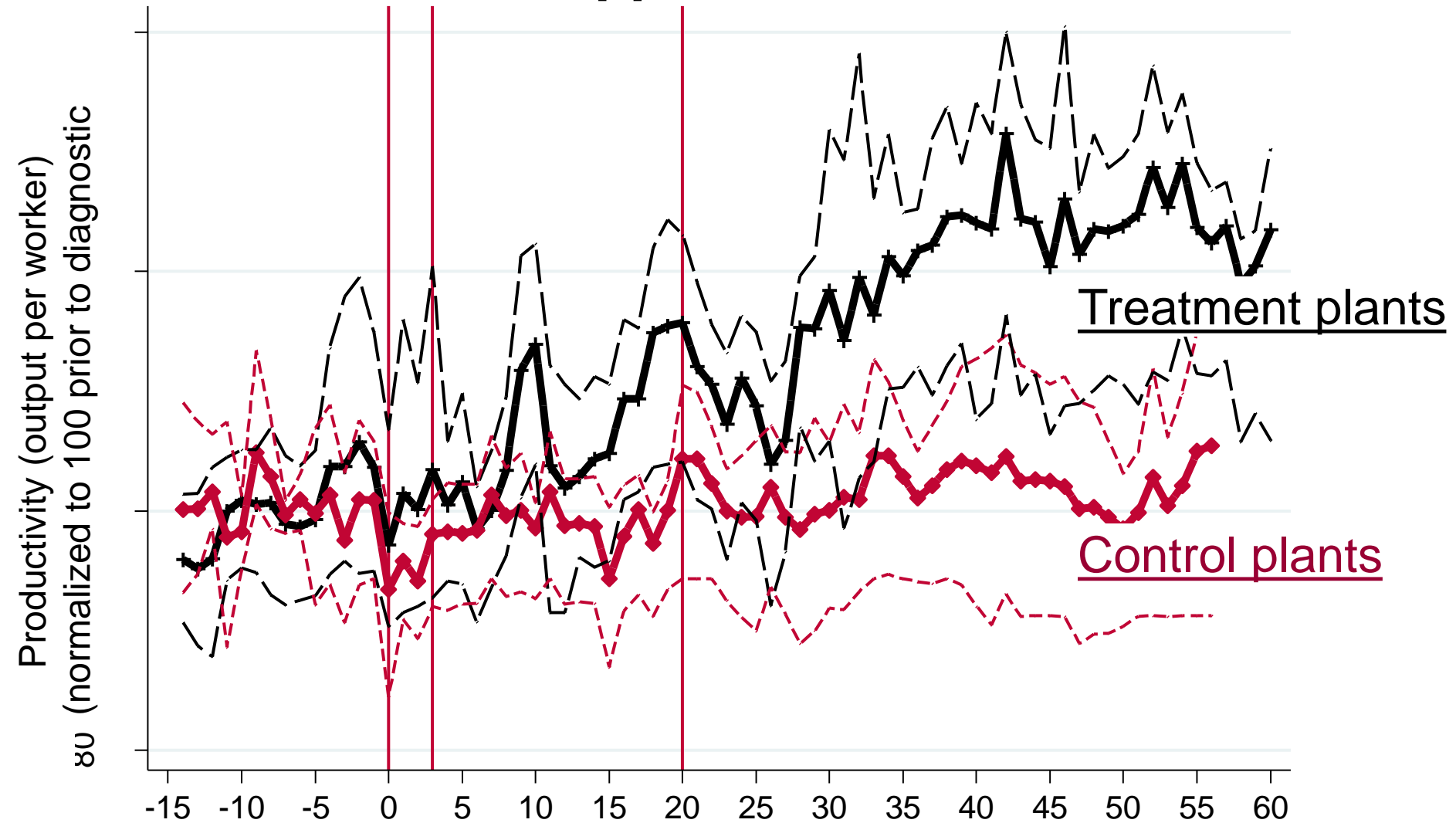
# THE TREATED FIRMS INTRODUCED BASIC INITIATIVES

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.

# Performance: causal results from randomized control trials also supportive of MAT



Weeks after the start of the management experiment

**1 SD in management caused 10% increase in productivity**

Measuring Data

Management Models

**Examining the Model's Predictions**

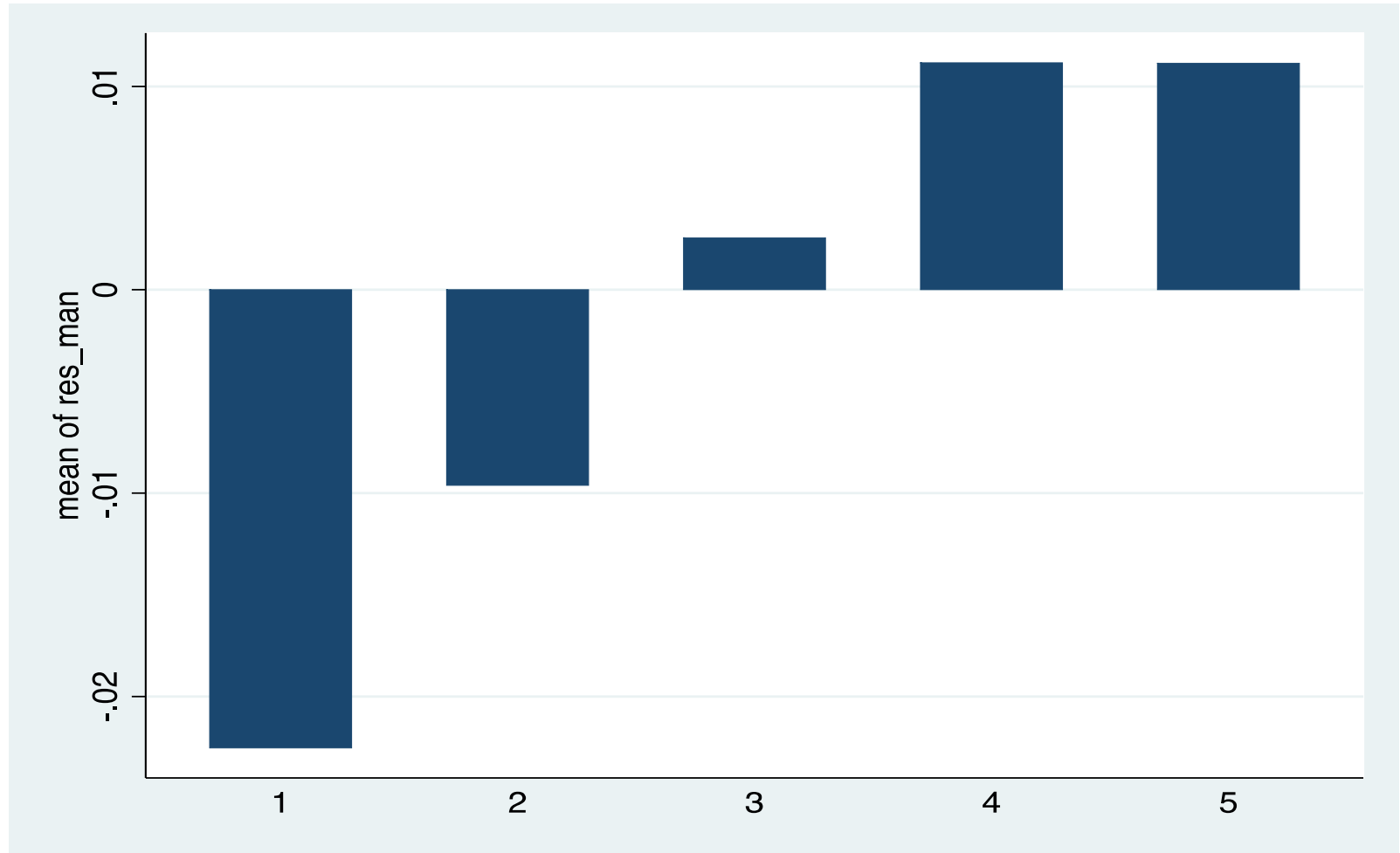
- Performance
- **Competition**
- Skills
- Age

Management and cross-country TFP



# Management increasing in Competition – raw Data

Management index (relative to global industry & country average)



Quintiles of Industry Competition Measure (1- Lerner Index)

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

# Competition associated with improved management (Dependent var.=MNG)

Dependent variable:	MNG	MNG	MNG	MNG	MNG
<b>1- Lerner Index (country by industry)</b>	0.067*** (0.023)			0.479*** (0.185)	
<b># of reported competitors</b>		0.039*** (0.014)			0.067*** (0.023)
<b>Trade Openness (country-industry)</b>			0.095* (0.050)		
<b>Fixed Effects</b>	<b>Industry, Country</b>	<b>Industry, Country</b>	<b>Industry, Country</b>	<b>Industry* Country</b>	<b>Firm</b>
<b>Obs</b>	<b>10,611</b>	<b>14,786</b>	<b>4,554</b>	<b>10,611</b>	<b>14,786</b>

**Notes:** Includes SIC-3 industry, country, firm-size, public and interview noise (interviewer, time, date & manager characteristic) controls. Col 1,3, & 4 clustered by industry\*country, cols 2 & 5 by firm.

# 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 (2015, ReStud)
  - 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, ReStud, 2015)

# Do more competitive (less distorted) markets have more reallocation towards better managed firms?

$$Y_{ijk} = \alpha M_{ijk} + \beta (M * \text{FRICTION})_{ijk} + \gamma \text{FRICTION}_{ijk} + u_{ijk}$$

- $Y_{ijk}$  = *SIZE* (or *GROWTH*) for firm  $i$  in industry  $j$  country  $k$ , and  $M$  is management
- *Frictions* = Proxies for frictions to competition
- Key test is  $\beta < 0$  (more competition = more reallocation)

# Find the US – where markets generally most competitive – has the most reallocation

Dependent Variable	Employees	Employees	Sales growth	
<b>Management (US=base)</b>	201.7*** (19.9)	371.9*** (64.3)	0.069** (0.033)	} Reallocation towards better managed firms significantly worse in other countries than in US
<b>MNG*Africa</b>		-237.0*** (75.9)		
<b>MNG*Americas</b>		-192.1*** (66.7)	-0.068** (0.034)	
<b>MNG*(“Northern” EU)</b>		-164.2* (93.7)	-0.024 (0.037)	
<b>MNG*(“Southern” EU)</b>		-292.0*** (66.9)	-0.047 (0.035)	
<b>MNG*Asia</b>		-131.2* (77.1)	-0.064* (0.037)	
<b>Observations</b>	<b>8,895</b>	<b>8,895</b>	<b>2,627</b>	

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

# Countries & industries with lower trade frictions (more competition) have greater allocation to well managed firms

<b>Dependent Variable:</b>	<b>Employment</b>	<b>Employment</b>	<b>Employment</b>
Management (M)	329.81*** (58.39)	514.31*** (112.59)	208.111*** (34.335)
Management*Trade Costs (World Bank Country Cost)	-0.12*** (0.04)	-0.20*** (0.05)	
Management*Job Regulation		-57.38* (30.13)	
Management*Tariff (country x industry)			-4.309** (2.164)
<b>Fixed Effects</b>	Industry, country	Industry, country	Industry* country
<b>Observations</b>	8,873	7,341	6,064

**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).

Measuring Data

Management Models

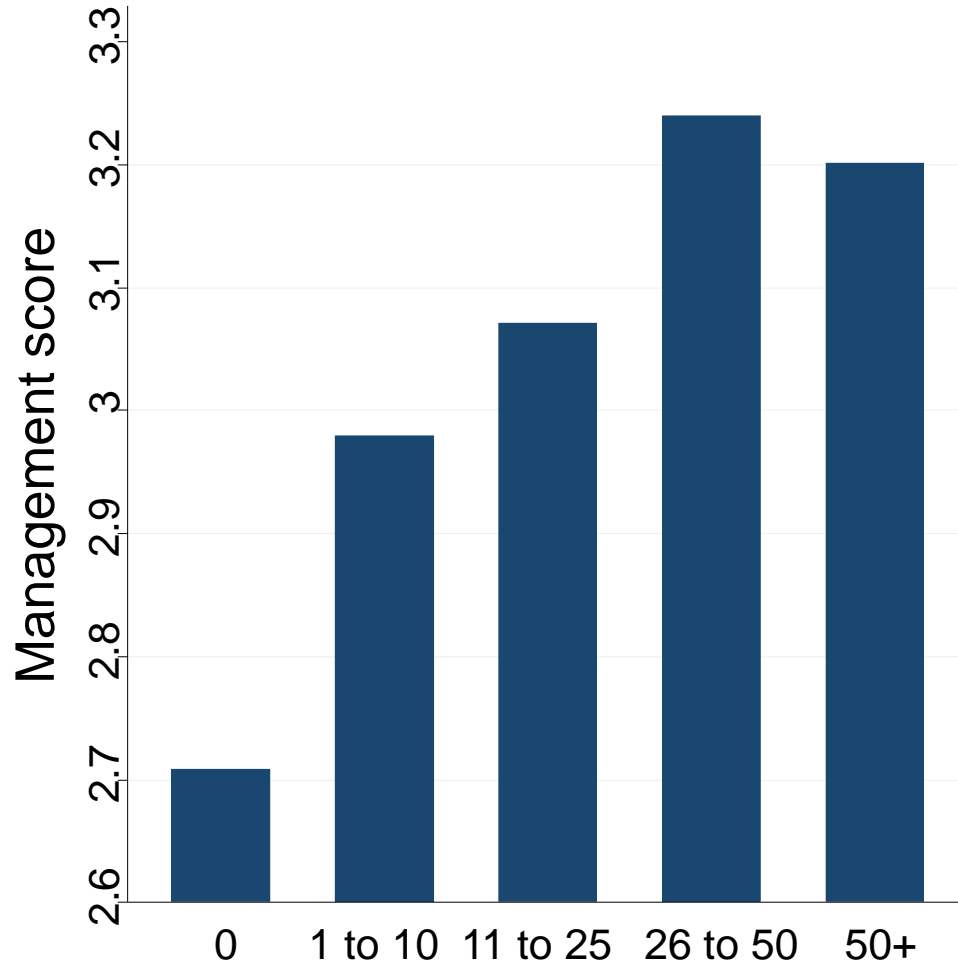
**Examining the Model's Predictions**

- Performance
- Competition
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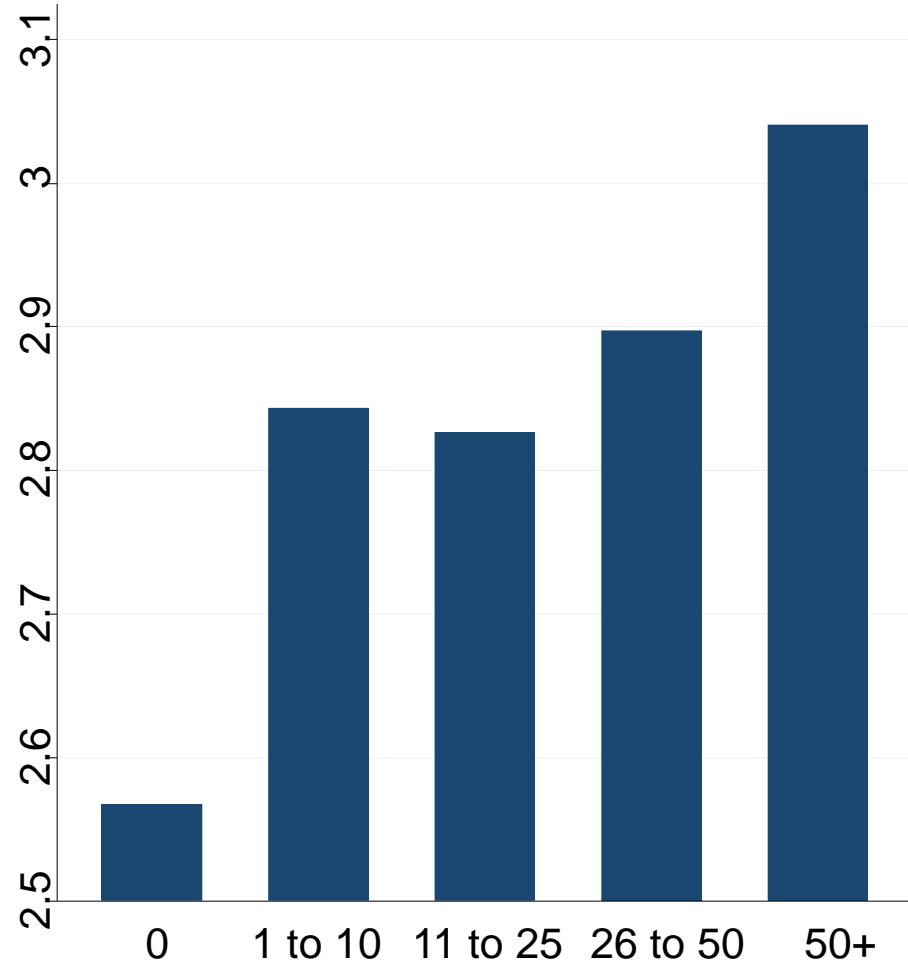
Management and cross-country TFP

# Education (for managers and non-managers) in the raw data is correlated with better management

Non-managers



Managers



Percentage of employees with a college degree (%)

Source: [www.worldmanagementsurvey.com](http://www.worldmanagementsurvey.com)



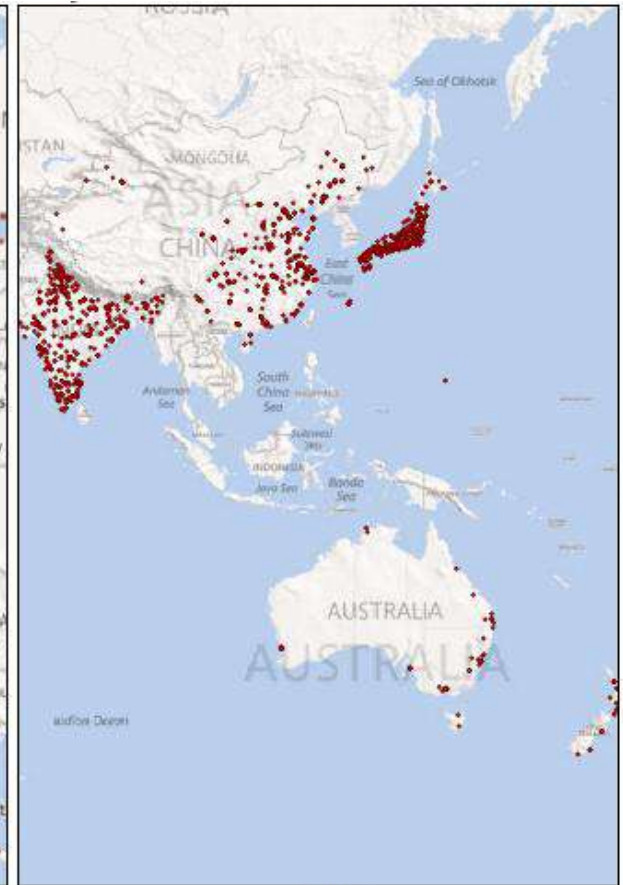
# Management and Education: UNESCO World Higher Education Database university locations (N=9,081)



Americas



Europe



Asia

# Having a university near by is correlated with higher levels of firm skills and management scores

Dependent Variable:	Management	% firm employees with degree	Management	Management
	OLS	OLS	OLS	IV
Drive time to nearest university	-0.049*** (0.019)	-1.534*** (0.423)		
% employees with degree in the firm			0.789*** (0.082)	3.190*** (1.113)
<b>Observations</b>	6,406	6,406	6,406	6,406

**Notes:** Clustered by 313 regions. In final column proportion skilled is instrumented with distance to university. Controls include industry, regional (e.g. US state), local population density, distance to coast, weather and full set of firm and noise controls. Based on Feng (2013)

Measuring Data

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**Examining the Model's Predictions**

- Performance
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- Skills
- **Age**

Management and cross-country TFP

# Not good age information in our firm-level data. So use a Census Management Dataset (MOPS)

It was delivered to 47,534 manufacturing plants in 2011

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

Samples all ages & sizes

U.S. DEPARTMENT OF COMMERCE  
Economic and Statistical 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](http://www.census.gov/econhelp/mops).  
Call 1-301-763-4873, 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.)

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**INTERNET REPORTING OPTION AVAILABLE - We encourage you to complete this survey online at: [www.census.gov/econhelp/mops](http://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, ASDM - 3K138, Washington, DC 20233. You may e-mail comments to [Paperwork@census.gov](mailto:Paperwork@census.gov); use "Paperwork Project 0607-0963" as the subject.

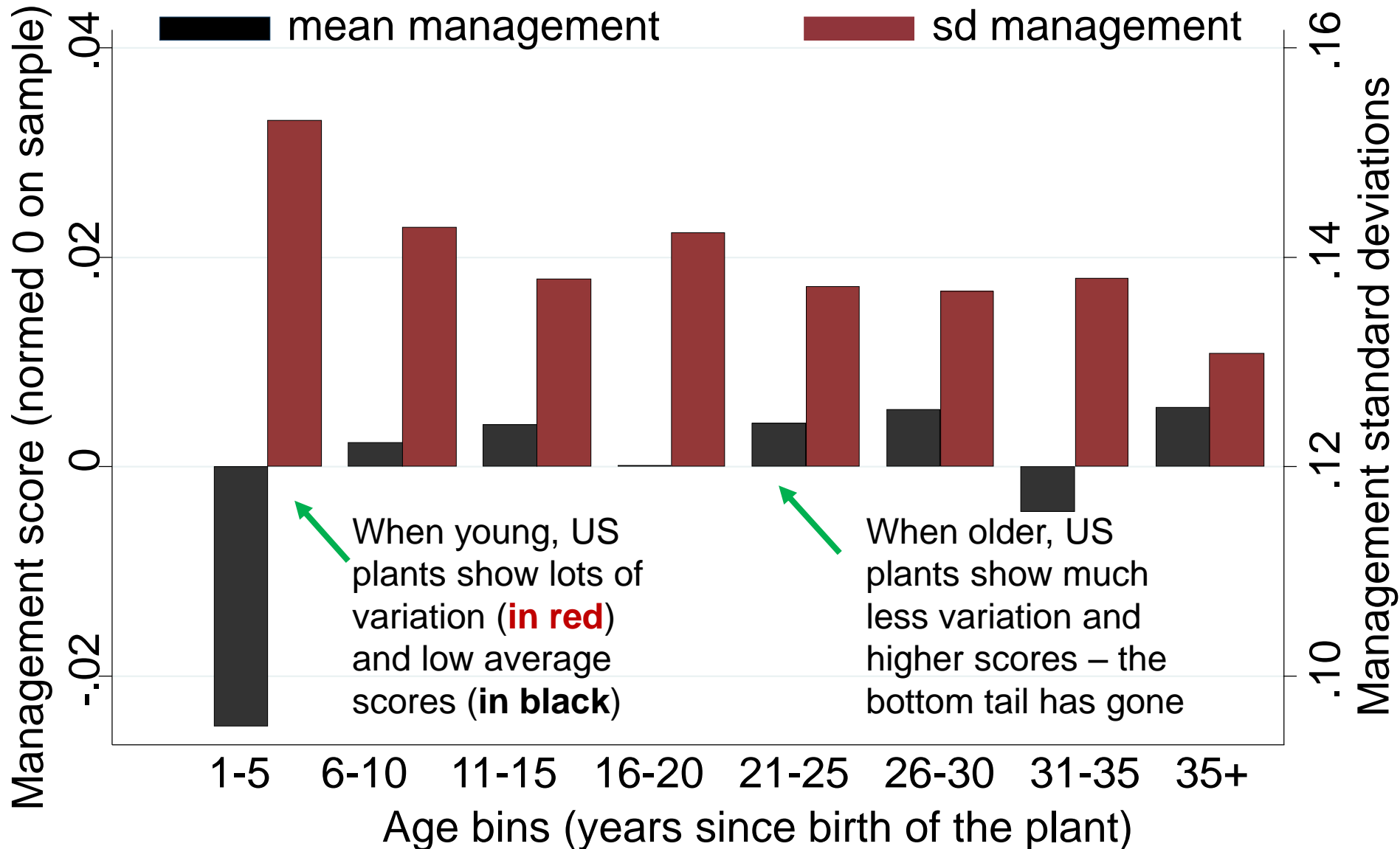
An Office of Management and Budget (OMB) approval number is printed in the upper right corner of this form. Without displaying this number, we could not collect this information or require your response.

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.

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# The impact of competition also shows up in US Census data – badly managed firms improve or exit



Notes: Data from 31,793 plants from the Management and Organizational Practices survey

Measuring Data

Management Models

Examining the Model's Predictions

- Performance
- Competition
- Skills
- Age

**Management and cross-country TFP**

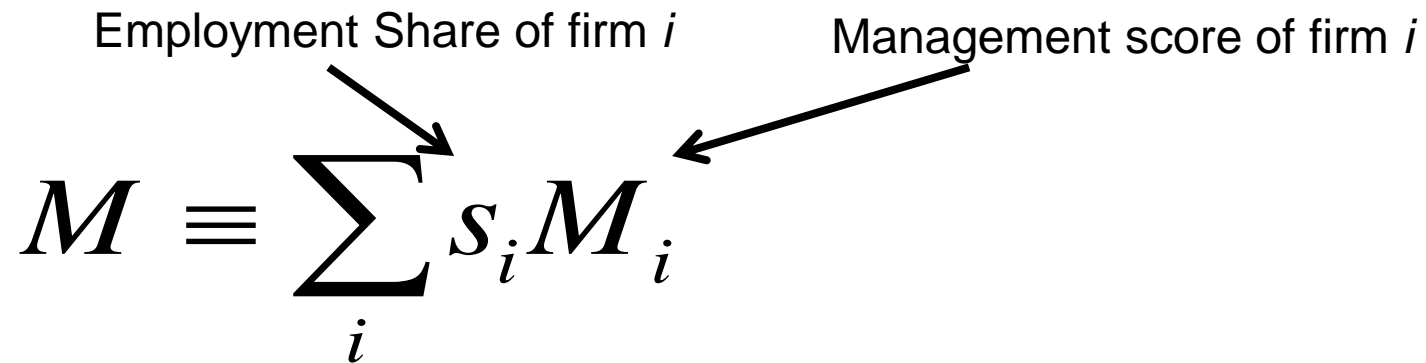
# Following MAT we can estimate contribution of management to cross-country TFP differences

1. Estimate country differences in size weighted management
2. Impute impact of size weighted management on TFP

Requires many assumptions so rough magnitude calculation  
(in spirit of Development Accounting, Caselli, 2005)

# Decomposition of the size weighted management (M) in each country we surveyed

Employment Share of firm  $i$       Management score of firm  $i$


$$M \equiv \sum_i s_i M_i$$



# Decomposition of the size weighted management ( $M$ ) in each country we surveyed

Employment Share of firm  $i$

Management score of firm  $i$

$$M \equiv \sum_i s_i M_i$$

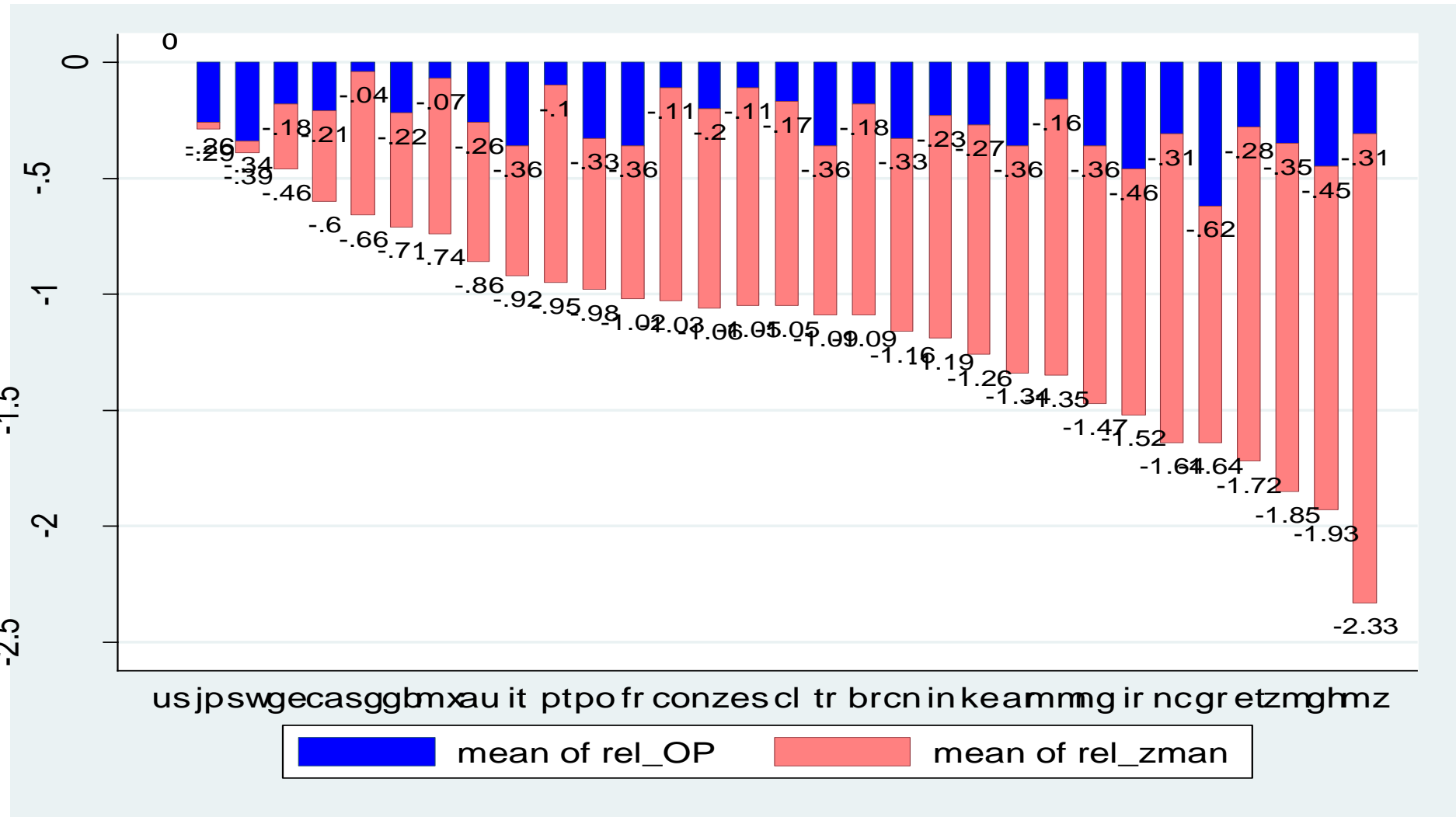
$$= \sum_i [(s_i - \bar{s})(M_i - \bar{M})] + \bar{M}$$

$$= OP + \bar{M}$$

“Between Firm”  
Covariance  
(Olley-Pakes, 1996,  
reallocation term)

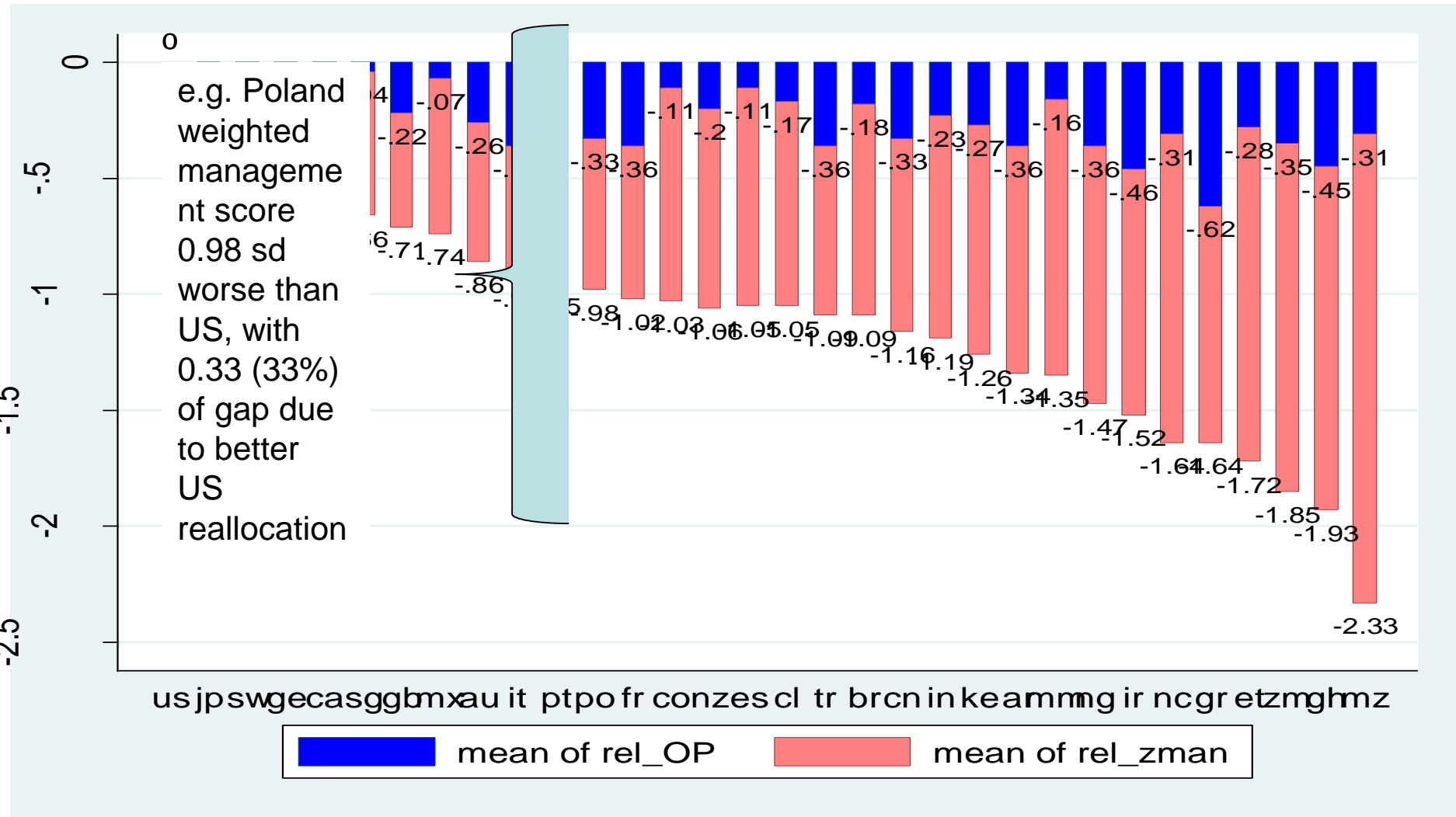
“Within Firm” Unweighted mean  
of management score

# Calculate the size weighted management gap with the US in terms of these “between” (reallocation) and “within” terms



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 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 size weighted management gap with the US in terms of these “between” (reallocation) and “within” terms



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**Step 2: What fraction of country k's TFP gap (with the US) can this management gap (with the US) explain?**

$$\% \text{ TFP gap accounted for by management} = \frac{\gamma \times (\bar{M}^k / \bar{M}^{US})}{\ln(TFP^k / TFP^{US})}$$

*where*  $\gamma$  = impact of M on TFP

# Management accounts for ~30% of TFP Gap with US

	Weighted Mng. Gap with US	TFP Gap With US	% TFP due to Management
US	0	1	
Japan	-.3	.71	8.82
Sweden	-.39	.92	48.46
Germany	-.46	.83	24.46
Canada	-.59	.88	45.55
Britain	-.71	.94	97.81
Mexico	-.74	.73	23.04
Australia	-.86	.83	45.24
Italy	-.92	.82	45.4
Portugal	-.95	.66	23.04
Poland	-.98	.8	44.74
France	-1.02	.84	58.87
Colombia	-1.03	.52	15.69
NZ	-1.05	.79	43.54
Chile	-1.05	.69	28.4
Spain	-1.05	.77	39.41
Brazil	-1.09	.45	13.75
China	-1.16	.41	12.89
India	-1.19	.48	16.38
Kenya	-1.26	.25	9.04
Argentina	-1.34	.69	35.64
Tanzania	-1.43	.26	10.69
Greece	-1.64	.71	47.28
Zambia	-1.84	.05	6.06
Ghana	-1.93	.14	9.64
Mzmbique	-2.33	.33	21.13
<b>Average</b>			<b>31.4</b>

# Preliminary estimates of contribution of management to within-country TFP spread ~1/3

Country	90-10 gap in: TFP	90-10 gap in: Management	% accounted for by management	TFP spread source:
US	90%	2.7 SDs	30%	Syverson (2004)
UK	110%	3.0 SDs	38%	Criscuolo, Haskel and Martin (2003)

**Note:** Management share imputed assuming that  $\uparrow 1$  SD management  $\approx \uparrow 10\%$  TFP  
 Using US MOPs on entire firm size distribution US figure is 21%

# CONCLUSIONS

~30% cross-country & plant TFP spread due to management  
(more speculatively ~ 1/3 of cross-firm TFP spread)

Data fits management as a “technology”,  $Y=AK^\alpha L^\beta M^\gamma$

- Management improves firm performance
- Competition improves average management
- Skill supply positively correlated with M
- Management increasing with firm age

## Some Next Steps:

- Management & managers (German IAB)
- Determinants (e.g. Gibbons and Henderson, 2012)
- Spillover & diffusion
- Plant vs. firm differences (US MOPs)

## 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...”



# MY FAVOURITE QUOTES:

## 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....”

# 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”

## MY FAVOURITE QUOTES:

### Don't get sick in Britian

*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”

# MY FAVOURITE QUOTES:

## Don't get sick in India

*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...]

## 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”

# Further reading for business

**HBR.ORG**  
**Harvard Business Review**  
NOVEMBER 2012  
REPRINT R121D

**SPOTLIGHT ON HBR AT 90**

## Does Management Really Work?

How three essential practices can address even the most complex global problems  
by Nicholas Bloom, Raffaella Sadun, and John Van Reenen

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ment" may sound prosaic, but given the potential  
effect on incomes, productivity, and delivery of criti-  
cally needed services worldwide, it's actually quite  
radical. ❧

**USN Reprint R121D**

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GE

"Yes, I finally landed a corner office and, no, it's rather not discuss it."

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November 2012 Harvard Business Review  
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the world to use thousands of other underperforming  
companies, schools, and hospitals worldwide is ur-  
gent. Awareness is very low: 79% of the organizations  
in our study claimed to have above-average manage-  
able user own practices and compare themselves with  
others'. Managers can quickly benchmark them-  
selves by country and industry on our management  
scoring grid at [worldmanagementsurvey.org](http://worldmanagementsurvey.org).

6 Harvard Business Review November 2012  
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# Further reading for researchers

## THE NEW EMPIRICAL ECONOMICS OF MANAGEMENT

Nicholas Bloom  
Renata Lemos  
Raffaella Sadun  
Daniela Scur  
John Van Reenen

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

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

## IT and Management in America

Nicholas Bloom<sup>1</sup>, Erik Brynjolfsson<sup>2</sup>, Lucia Foster<sup>3</sup>, Ron Jarmin<sup>4</sup>,  
Megha Patnaik<sup>5</sup>, Itay Saporta-Eksten<sup>6</sup> and John Van Reenen<sup>7</sup>

February 2014

The Census Bureau recently conducted a survey of management practices in over 100,000 establishments across the US, the first large-scale survey of management in America. Analyzing the survey reveals several striking results. First, more structured management practices are tightly linked with higher levels of IT intensity in terms of a higher expenditure on IT and more on-line management. Second, more structured management is strongly linked with superior performance: establishments adopting more structured practices for performance monitoring, target setting and innovation enjoy greater productivity and profitability, higher rates of innovation and faster revenue growth. Third, there is a substantial dispersion of management practices across the country. We find that 18% of establishments have adopted at least 75% of these more structured management practices, while 27% of establishments adopted less than 50% of these

## MANAGEMENT AS A TECHNOLOGY?

Nicholas Bloom<sup>a</sup>, Raffaella Sadun<sup>b</sup> and John Van Reenen<sup>c</sup>

November 1st 2013

### Abstract

Are some management practices skin to a technology that can explain company and national performance, or do they simply represent alternative styles? We collect cross sectional and panel data on management practices we believe are related to productivity across 8,000 firms in 20 countries in the Americas, Europe and Asia. We find the US has the highest weighted average management score, with around a quarter of this advantage due to more powerful reallocation effects.

## Management, Product Quality and Trade: Evidence from China

Nick Bloom, Stanford University and NBER  
Kalina Manova, Stanford University and NBER  
John Van Reenen, London School of Economics and CEP  
Zhihong Yu, Nottingham University



# International data on ownership: family firms

