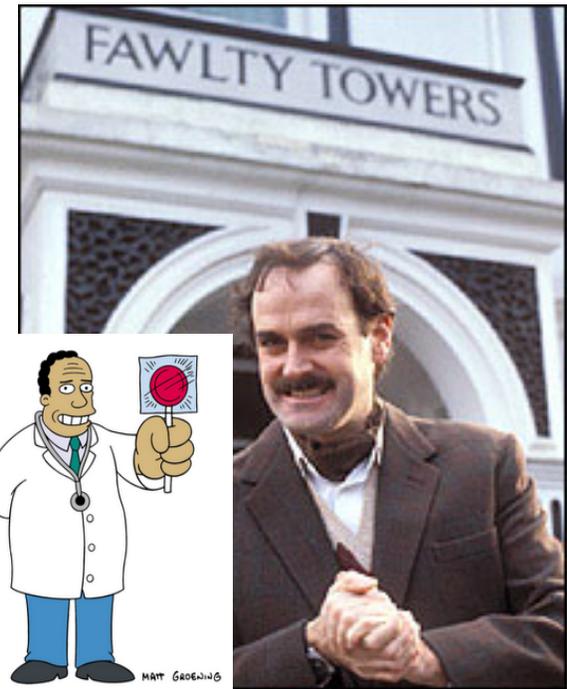


What Drives Management?

John Van Reenen

MIT Organizational Economics, March 18th 2021



Summary of last lecture

- New WMS data on management
- New RCT evidence that management important for firm performance. Consistent with non-experimental evidence from WMS that management matters at a firm and country level
- Why do so firms adopt better management practices? What factors drive changes in management?

Why don't all firms adopt managerial best practice?

Rivkin (2000) 'Shuns for a Leader)

- Information ["I don't know I am bad"]
- Human Capital ["I know I'm bad, but don't know what to do"]
- Frictions ["I know I'm bad & what to do, but I'm not motivated to do it"] Examples:
 - Regulation
 - Weak Product Market Competition
 - Trade Costs
 - Governance (e.g. family run firms not π -maximizing)
- ["I know I'm bad, know what to do & I'm well motivated, but can't get the organization to go along with me"]
 - Relational contracts

What Drives Differences in Management Practices?[†]

By NICHOLAS BLOOM, ERIK BRYNJOLFSSON, LUCIA FOSTER, RON JARMIN,
MEGHA PATNAIK, ITAY SAPORTA-EKSTEN, AND JOHN VAN REENEN*

Partnering with the US Census Bureau, we implement a new survey of “structured” management practices in two waves of 35,000 manufacturing plants in 2010 and 2015. We find an enormous dispersion of management practices across plants, with 40 percent of this variation across plants within the same firm. Management practices account for more than 20 percent of the variation in productivity, a similar, or greater, percentage as that accounted for by R&D, ICT, or human capital. We find evidence of two key drivers to improve management. The business environment, as measured by right-to-work laws, boosts incentive management practices. Learning spillovers, as measured by the arrival of large “Million Dollar Plants” in the county, increases the management scores of incumbents. (JEL D22, D24, L25, L60, M11, M50)

The interest of economists in management goes at least as far back as *On the Sources of Business Profits* by Francis Walker (1887), the founder of the American

Aim of paper

- Simplify WMS methodology and match with data from statistical agencies like US Census
- Look at managerial variation within firm, but across plants
- Test hypotheses on key drivers of management. Look at causal effects.

One Problem with WMS is scale – we’ve collected ~20k interviews over 18 years like this



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



Survey run with the US Census Bureau (MOPS)

1st Wave delivered in 2011 to ~48k manufacturing plants (US ASM) asks about practices in 2010 and 2005.
2nd Wave covered 2015 & 2010 practices
3rd Wave will cover 2020 & 2019 practices (delivered in 2021). Has some COVID related questions

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

The image shows a form titled "2010 MANAGEMENT AND ORGANIZATIONAL PRACTICES SURVEY" from the U.S. Census Bureau. The form includes the following sections:

- Header:** U.S. DEPARTMENT OF COMMERCE, Economic and Statistics Administration, U.S. CENSUS BUREAU, FORM MP-10002 (DRAFT), OMB No. 0607-0963: Approval Expires 2/28/2014.
- Form ID:** 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

Management and Organizational Practices Survey asks similar questions to WMS. For example, performance monitoring

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"/>

The Management and Organizational Practices survey asks about targets e.g.

8 In 2005 and 2010, who was aware of the production targets at this establishment? *Check one box for each year*

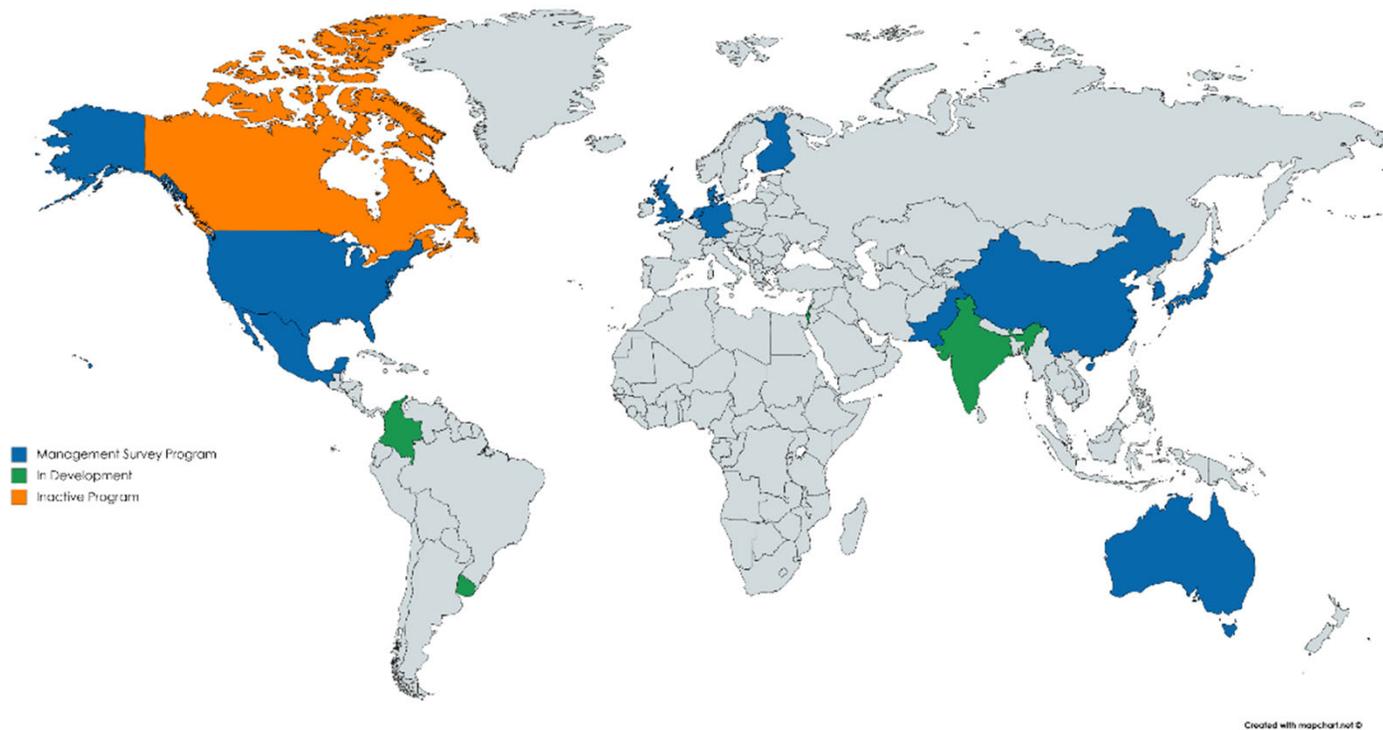
	2005	2010
Only senior managers	<input type="checkbox"/>	<input type="checkbox"/>
Most managers and some production workers	<input type="checkbox"/>	<input type="checkbox"/>
Most managers and most production workers	<input type="checkbox"/>	<input type="checkbox"/>
All managers and most production workers	<input type="checkbox"/>	<input type="checkbox"/>



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.

Coverage of International MOPS



PLUS: Related programs from EU; World Bank Enterprise Surveys; World Bank Finance, Competitiveness, and Innovation

Survey

Management and performance

Management: Plants vs Firms

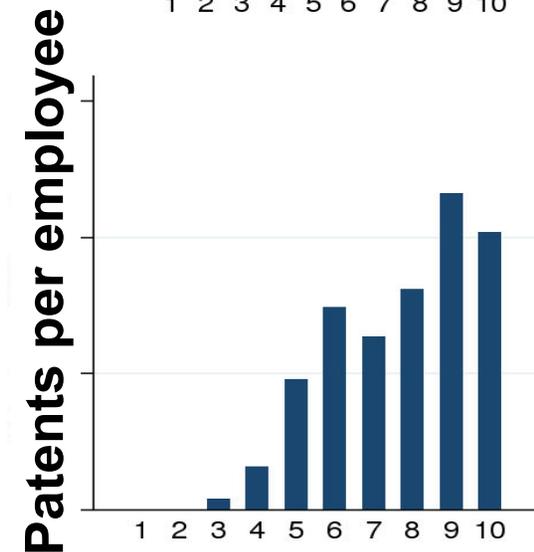
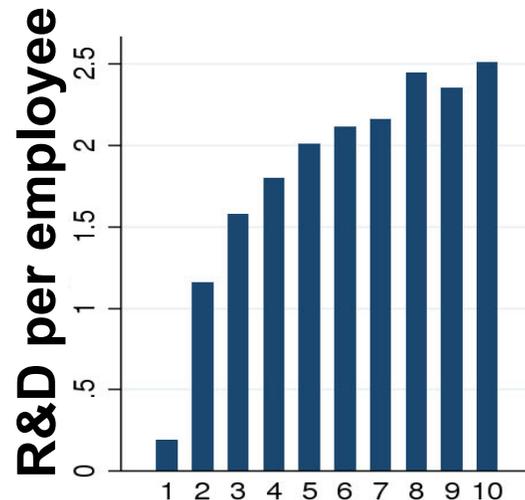
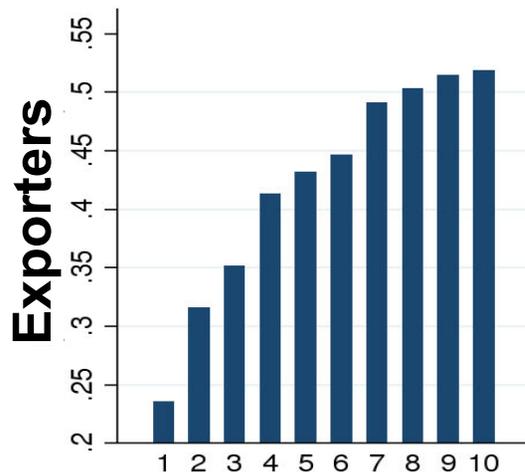
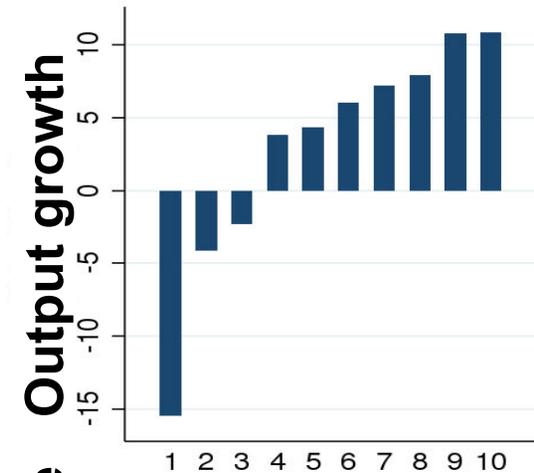
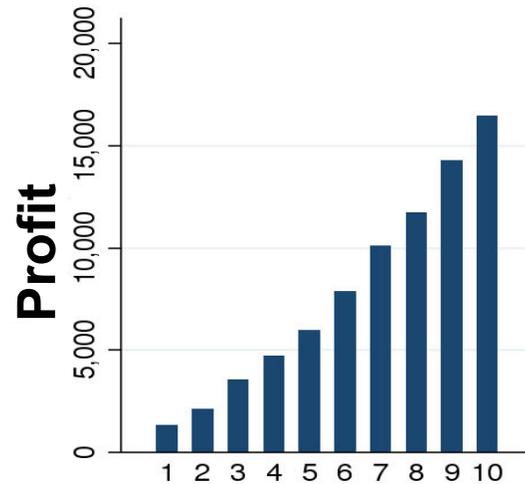
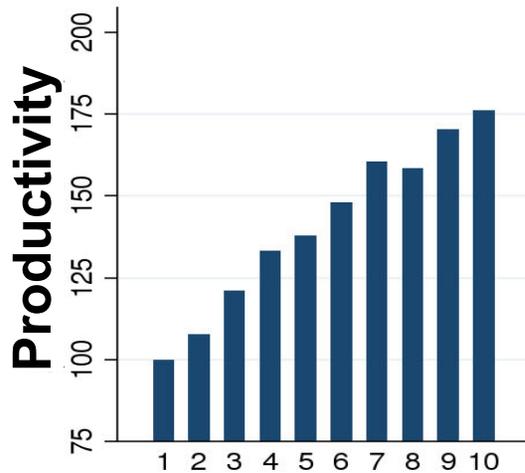
Drivers of Management

Do these management score variations matter – look at two metrics

- 1) Share of productivity gap accounted for
- 2) Predictive power for future growth and survival

Note these are accounting decomps not causal relationships

Management score strongly correlated with all performance measures we observe in the Census



Management score decile

Management strongly correlated with productivity even across plants within firms

Dependent Variable	Log(Output/Emp)				
	(1)	(2)	(3)	(5)	(8)
Management	1.351*** (0.039)	0.209*** (0.013)	0.079*** (0.030)	0.074*** (0.025)	0.105** (0.045)
Log(Capital/Emp)		0.100*** (0.003)	0.012 (0.010)	0.096*** (0.005)	0.004 (0.017)
Log(Material/Emp)		0.495*** (0.004)	0.333*** (0.016)	0.534*** (0.009)	0.309*** (0.030)
Log(Emp)		-0.027*** (0.002)	-0.192*** (0.019)	-0.053*** (0.005)	-0.217*** (0.034)
Share employees w. a college degree		0.223*** (0.015)	0.013 (0.031)	0.179*** (0.024)	0.064 (0.066)
Observations	~82,500	~82,500	~33,000	~43,000	~10,000
Fixed Effects	None	Industry	Establish.	FirmXYear	Establish.

Accounting for Measurement Error

MOPS 2010 fortunate to have ≈ 500 plants in which two *different people* responded to the same survey

Find this variation (measurement error) about 50% of variation, and independent of plant size, TFP etc.

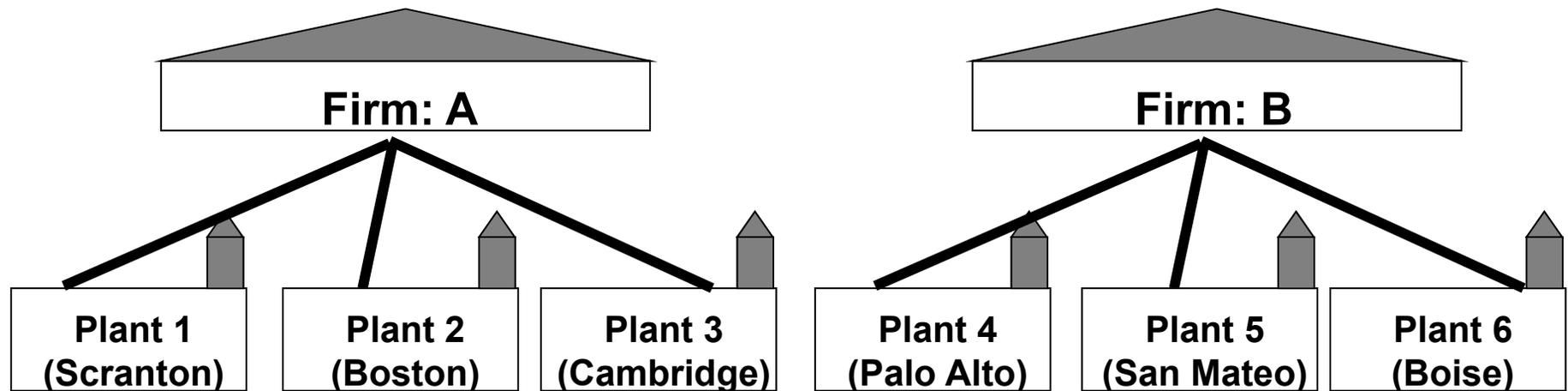
Survey

Management and performance

Management: Plants vs Firms

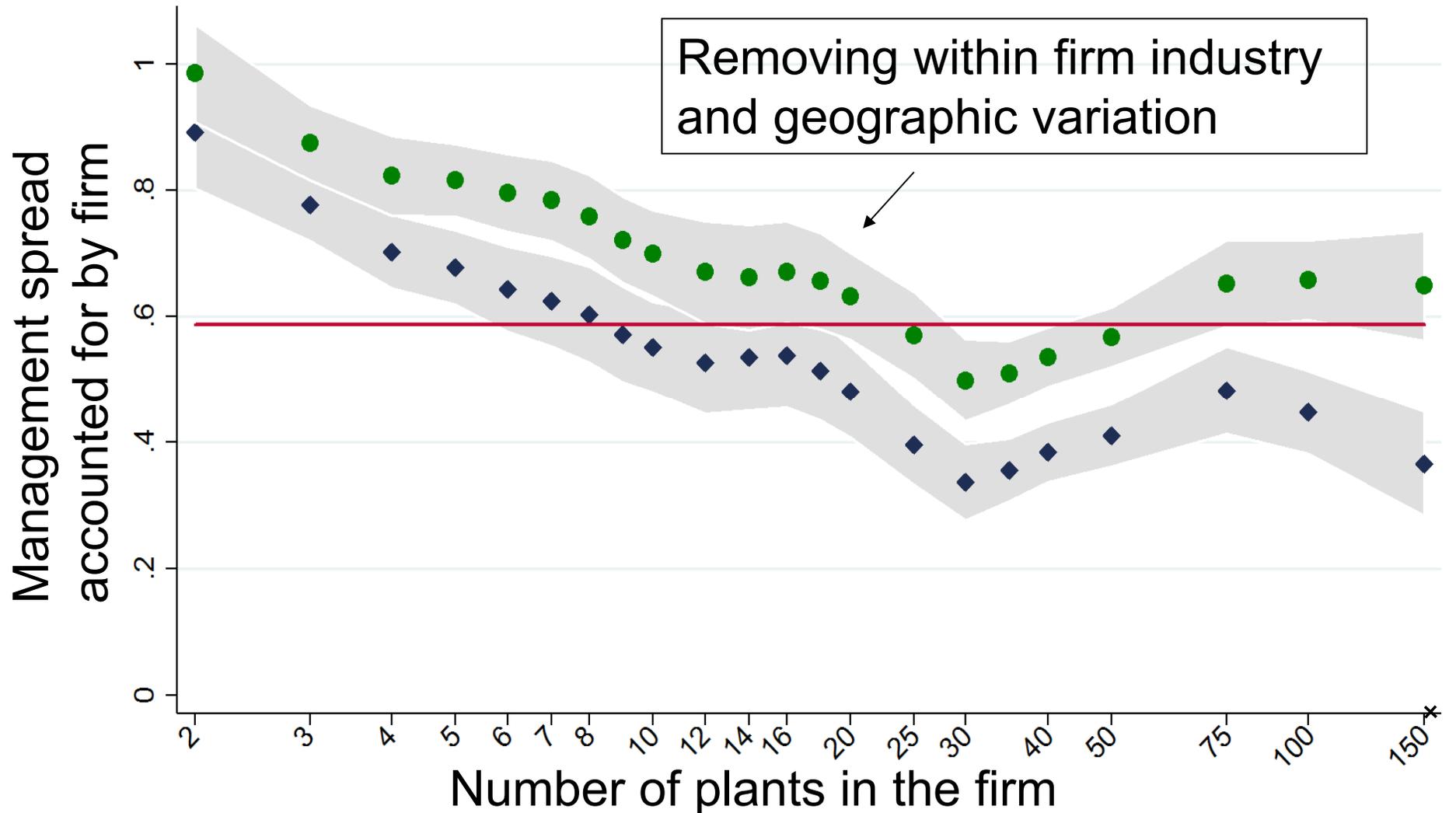
Drivers of Management

Old question: how much is within vs between firms?



- Need to strip out measurement error - pervasive (in all data) and for variance decompositions generates bias
- Recall: Measurement error accounts for 45.4% of variation

About 40% of variation in management scores is across plants within the same firm



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. After removing the 45.4% accounted for by measurement error. The bootstrap sampled 95% confidence interval shown in grey shading. Sample of 16,500 establishments across the 3100 firms with 2+ establishments in the 2010 MOPS survey. Industry variation captured by 6-digit NAICS code and geographic variation by MSA dummies (State is the MSA if missing).

Survey

Management and performance

Management: Plants vs Firms

Drivers of Management

Drivers we look at

Main focus:

- 1) Regulation (via “right-to-work” laws in states: RTW ban requirements that non-union employees have to pay union dues)
- 2) Spillovers (via Multinationals): information & human capital

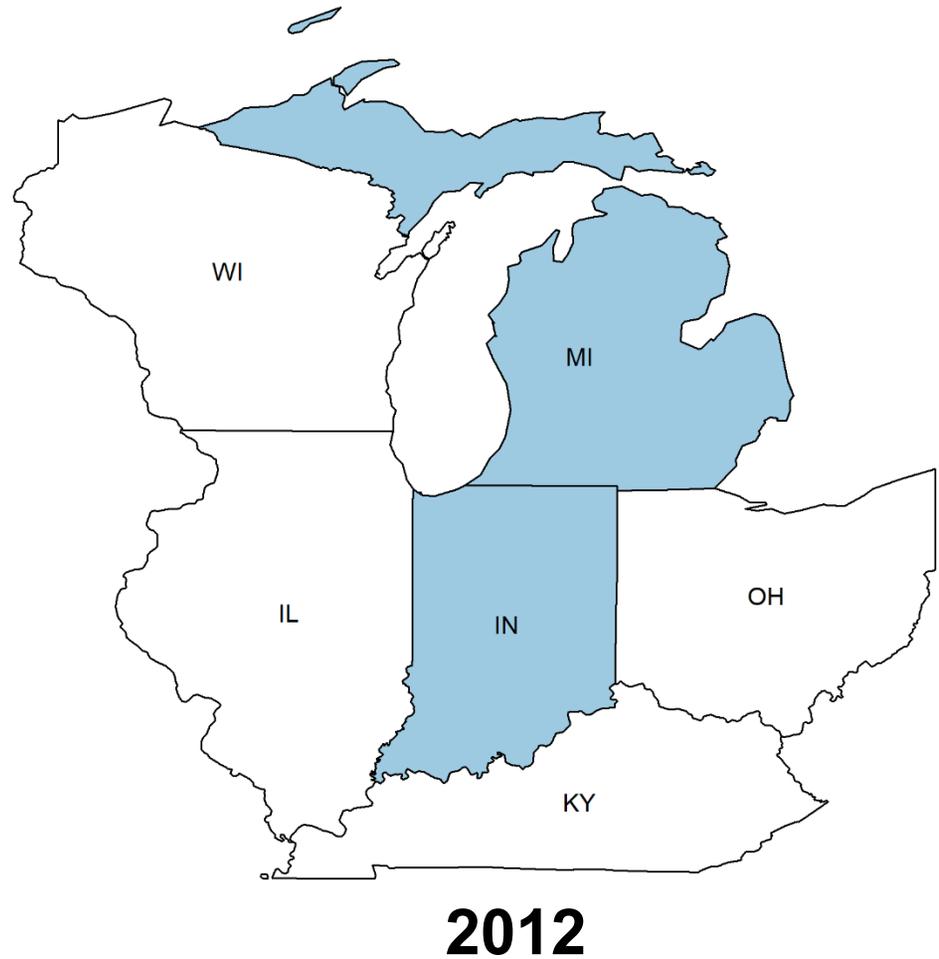
Other drivers (see paper and Working Paper):

- 1) Education (via land grant colleges)
- 2) Competition (via trade and exchange rate variations)

How to identify Causal Effect of RTW?

First approach:

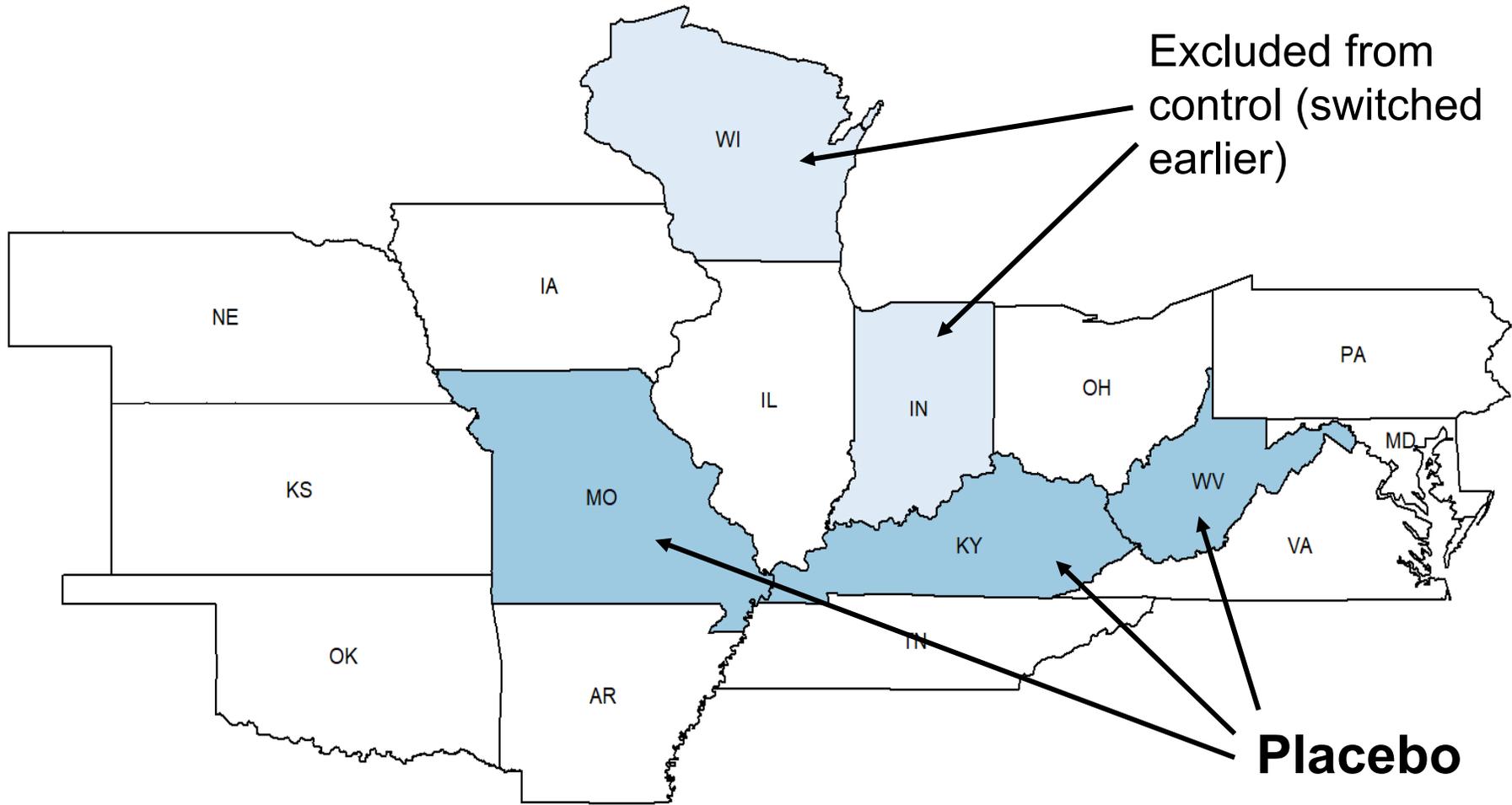
Diff-in-diff comparing
Michigan and Indiana
(switched 2012) to
neighboring states



RTW Switch Increases Use of Incentives Practices

	Overall management (1)	Incentive management (2)	Non- incentive management (3)
<i>Panel A. DID estimates for the effect of right-to-work</i>			
Post × Treat	0.006 (0.005)	0.013 (0.006)	-0.000 (0.005)
<i>Panel B. Placebo in states in years before right-to-work introduction</i>			
Post × Treat	0.007 (0.005)	0.014 (0.006)	0.002 (0.005)
Pre × Treat	-0.004 (0.006)	-0.002 (0.007)	-0.007 (0.007)
<i>Panel C. DID estimates controlling for NAICS trends and state trends</i>			
Post × Treat	0.016 (0.008)	0.021 (0.011)	0.003 (0.006)
Observations	~17,000	~17,000	~17,000

Use States Switching after 2015 as Placebo



Late Switchers:

West Virginia (2016), Kentucky (2017), Missouri (2017, but postponed after referendum)

Placebo shows no effect

	Overall management (1)	Incentive management (2)	Non- incentive management (3)
<i>Panel A. DID estimates for the effect of right-to-work</i>			
Post × Treat	0.006 (0.005)	0.013 (0.006)	-0.000 (0.005)
<i>Panel B. Placebo in states in years before right-to-work introduction</i>			
Post × Treat	0.007 (0.005)	0.014 (0.006)	0.002 (0.005)
Pre × Treat	-0.004 (0.006)	-0.002 (0.007)	-0.007 (0.007)
<i>Panel C. DID estimates controlling for NAICS trends and state trends</i>			
Post × Treat	0.016 (0.008)	0.021 (0.011)	0.003 (0.006)
Observations	~17,000	~17,000	~17,000
<i>Panel D. Placebo using West Virginia, Kentucky, and Missouri</i>			
Post × Treat	0.001 (0.005)	0.004 (0.007)	-0.001 (0.006)
Observations	~27,000	~27,000	~27,000

Placebo: States that switched 2016-2017

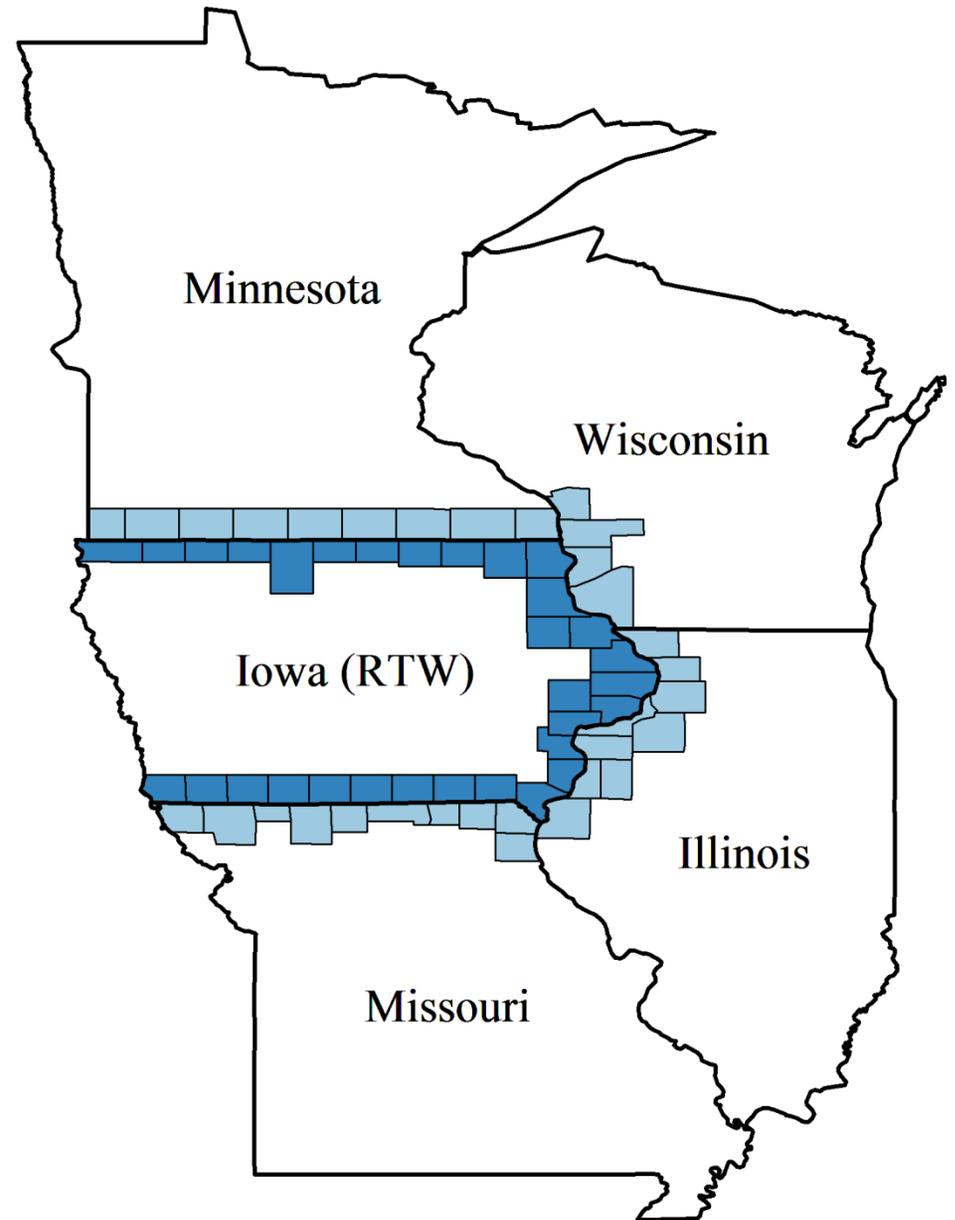
How to Tease Out the Causal Effect of RTW?

First approach:

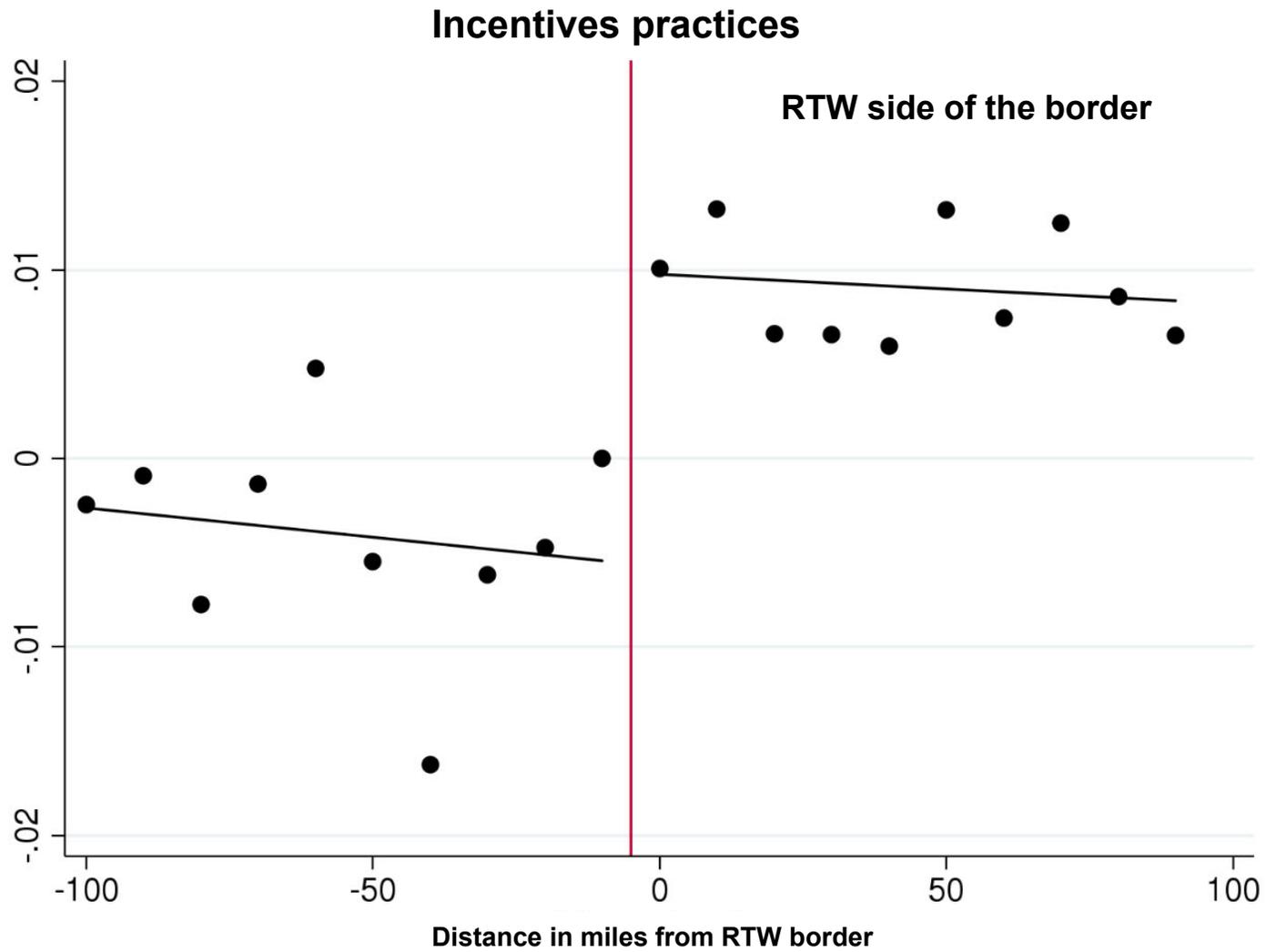
Diff-in-diff comparing Michigan and Indiana (switched 2012) to neighboring states

Second approach:

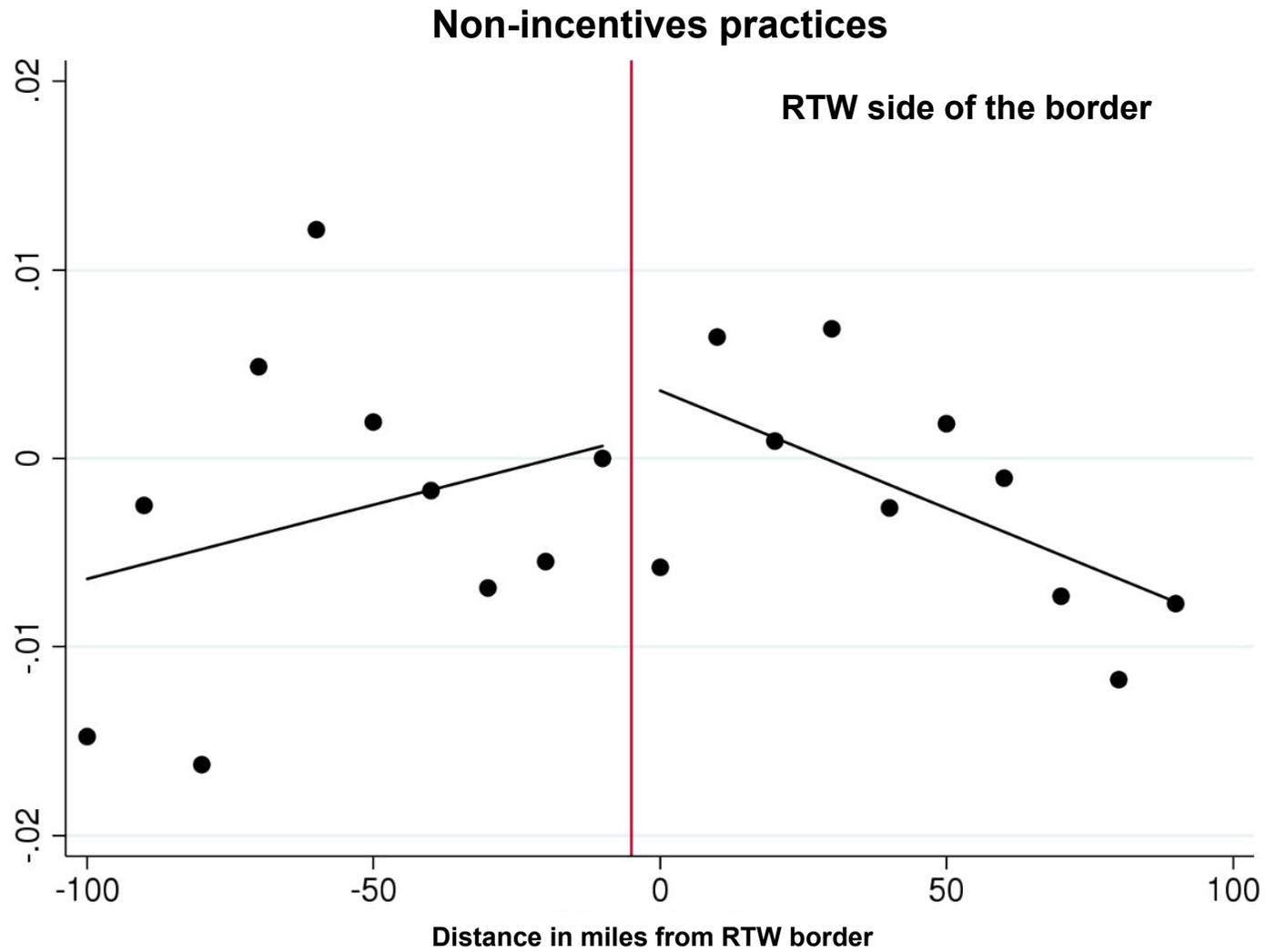
Regression discontinuity over RTW borders (inspired by Holmes 1998)



Discontinuity in Incentives Practices



No Discontinuity in non-Incentives Practices



Spillovers - Look at impact of winning a “Million Dollar Plant” versus being the runner up

Following Greenstone, Hornbeck & Morretti (2010) use Site Selection magazine to look at impact of winning an MDP

Magazine has monthly stories about winning county and runner up counties, which we supplement with news coverage

Spillovers - Look at impact of winning a “Million Dollar Plant” versus being the runner up

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Spillovers - Look at impact of winning a “Million Dollar Plant” versus being the runner up

Toyota Motor Corp. – Huntsville, Ala. \$220 million; 350 jobs

One of the Southeast's most prized catches of the year landed in Huntsville, Ala., where Japanese automaker Toyota Motor Corp. announced that it would locate a \$220 million, 350-job manufacturing plant for V-8 engines for the Toyota Tundra pickup.

Huntsville beat out Clarksville, Tenn., and Buffalo, W.Va.

annual payroll of \$20.75 million, or about \$85,000 per job



Senator Jeff
Gov. Don Sieg
the future p

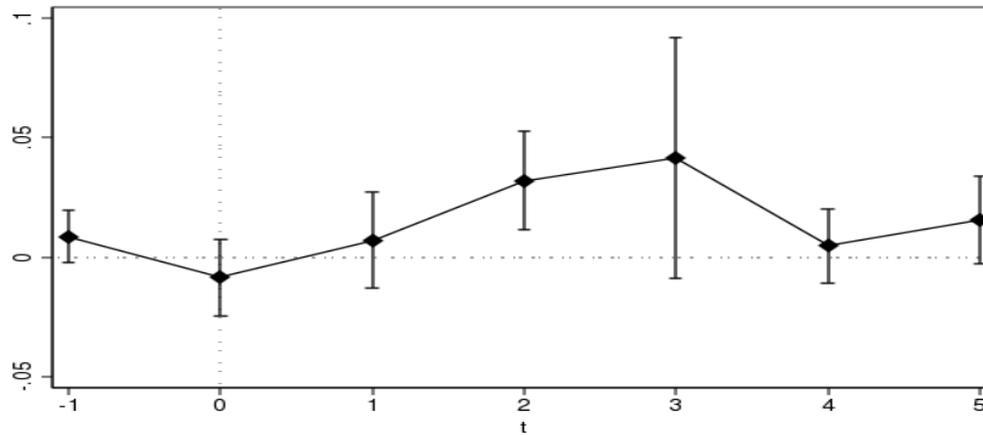
Major new plants lead to localized increases (spillovers) in management, TFP and employment

TABLE 8—MANAGEMENT KNOWLEDGE SPILLOVERS

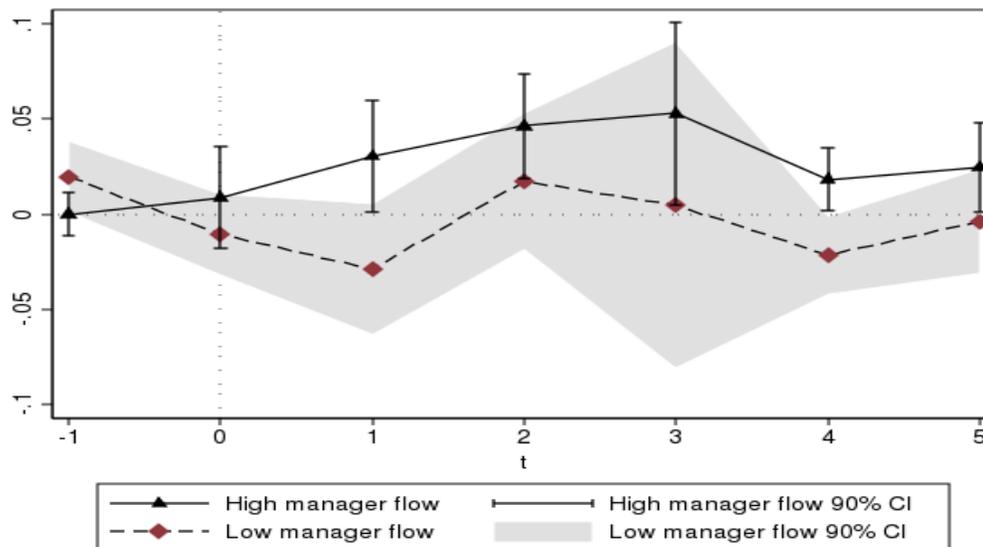
	Change in management (1)	Change in log(TFP) (2)	Employment growth (3)
<i>Panel A. All industries pooled</i>			
MDP opens	0.018 (0.007)	0.024 (0.017)	0.014 (0.005)
<i>Panel B. Split high/low manager flow</i>			
MDP opens × high	0.031 (0.008)	0.069 (0.019)	0.017 (0.006)
MDP opens × low	-0.005 (0.011)	-0.050 (0.034)	0.009 (0.01)
<i>p</i> -value for equality	0.007	0.004	0.495

Channel: The effect is driven by establishments with high managers flow from the MDP industry

Figure 5: Event Studies of impact of Million Dollar Plants on incumbent plants



Panel A:
Overall Treatment Effect



Panel B:
Breaking MDP Treatment Effect
down by High and Low managerial
flow Industries

Notes: These are event studies estimated in a window of one year before the MDP arrives ($t = -1$) through to five years afterwards ($t = 5$). Panel A is the dynamic version of the results in Table 8 Panel A column (1) with the same controls variables (dummy for each pair of MDP winner and loser, recall dummy, and NAICS and state dummies). Panel B allows MDP effect to differ by whether incumbent plant in industry where there is a high frequency of job flows between the MDP's industry and the plant's industry (above median is "High" and below median is "Low"). Sample is all MOPS observations 11 or more non-missing responses to management questions (recalls only considered if respondent had at least 7 years of tenure). We also require (1) successful match to ASM; (2) positive values of value added, employment, materials, and capital; (3) all observations appear in at least 2 years (out of 2005, 2010 and 2015) in a county which either had an MDP established between 2005 and 2016 ("winner"), or competed for an MDP and lost ("loser").

More information on www.managementresearch.com

The screenshot displays the Management Research website with a navigation bar at the top containing: BENCHMARK, RESEARCH, METHODOLOGY, TEAM (with a dropdown arrow), MEDIA, WMS, and INTERNATIONAL. The main content area is divided into sections for different countries:

- Germany:** Features the German flag, the title "Germany", and a paragraph explaining the importance of management practices in explaining productivity differences. Below the text is a dark blue button labeled "GERMANY MOPS". Underneath, a section titled "GERMANY TEAM" lists three team members with their photos and names: Holger Gorg, Marie-Christine Laible, and Stephanie Wolter.
- Japan:** Features the Japanese flag, the title "Japan", and a paragraph describing the JP MOPS survey. Below the text is a section titled "JAPAN TEAM" which lists three team members with their photos and names: Ryo Kambayashi, Takuma Kawamoto, and Atushi Ohyama.
- Mexico:** Features the Mexican flag, the title "Mexico", and a paragraph describing the ENAPROCE 2015 survey.
- China:** Features the Chinese flag, the title "China", and a paragraph describing the Global Hospital Management Survey - China (GHMS-China). Below the text is a dark blue button labeled "CHINA MOPS".

On the left side of the page, there is a partial view of a sidebar with the text: "We are a team of researchers w... variation in the use of structure... of structured management pra... in China, Finland, the UK and P...".

Conclusions on “Drivers”

- “Closed question” approach of MOPS generates useful data
- Effects of MOPS management on performance broadly consistent with WMS.
- Large spread in management practices within firms across plants (helps adjudicate theories)

Causal Drivers of management:

- Light regulation increases adoption of incentive management practices
- Spillovers from multinationals increase management locally

Issues

- Not much on heterogeneity of managerial effects
- Regulation has differential effects on types of management

Relational Contracts, Management Practices and Performance

MIT Organizational Economics

John Van Reenen, March 18th 2021



Blader, Gartenberg & Prat (2020)

- RCT to look at relational contracts. Much theory & Case study evidence in Gibbons & Henderson (2013), but little systematic quantitative evidence
- BGP illustrates many of the empirical issues in trying to test such theories

Review of Economic Studies (2020) 87, 721–749 doi:10.1093/restud/rdz034
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The Contingent Effect of Management Practices

STEVEN BLADER
New York University

CLAUDINE GARTENBERG
The Wharton School

ANDREA PRAT
Columbia University

First version received September 2016; Editorial decision May 2019; Accepted June 2019 (Eds.)

This article investigates how the success of a management practice depends on the underlying values articulated by the management. A large U.S. transportation company is in the process of fitting its trucks with an electronic on-board recorder (EOBR) to provide drivers with information on their driving performance. The company also has commenced a multi-year initiative to remake its internal operations, the first phase of which focuses exclusively on changing values toward a greater emphasis on teamwork and empowerment. In this setting, a natural question is whether the optimal managerial practice consists of: (1) letting each driver know his or her individual performance only; or also (2) providing drivers with information about their performance with respect to other drivers. Using the EOBR-provided driver performance data, we randomize these practices across sites. The main result of our experiment is that (2) leads to better performance than (1) in a particular site if and only if the site has not yet received the values intervention, and worse performance if it has. The result is consistent with the presence of a conflict between competition-based managerial practices and a shift to a cooperation-based value system. More broadly, it highlights the role of intangible factors in determining the optimal set of managerial practices.

Key words: Management practices

JEL Codes: D22

1. INTRODUCTION

There is a growing consensus that management practices are an important explanation for the large observed variation in productivity among firms (Syverson, 2011). Different firms often adopt different practices, even within a narrowly defined industry (Bloom and Van Reenen, 2007). In turn, others have speculated this heterogeneity is related to heterogeneity in less tangible firm

Idea: Collectivist vs individualist cultures

- Some management practices like Relative Performance Evaluation (RPE) work well in “individualist” culture
- But RPE may work poorly/negatively in “collectivist” settings. One reason is that if agent A improves effort then this could come at expense of agent B (as benchmark improves)
 - In Benabou & Tirole (2003) framework, altruistic preferences will deliver this result (like an externality). This is model Blader et al use
 - But also fear of reprisal by low productivity workers would do the same thing – Bandiera, Barankay & Rasul (2010) find evidence for this
- In either case impact of RPE heterogeneous (like a complementarity): will be positive in individualist culture, but negative in collectivist one

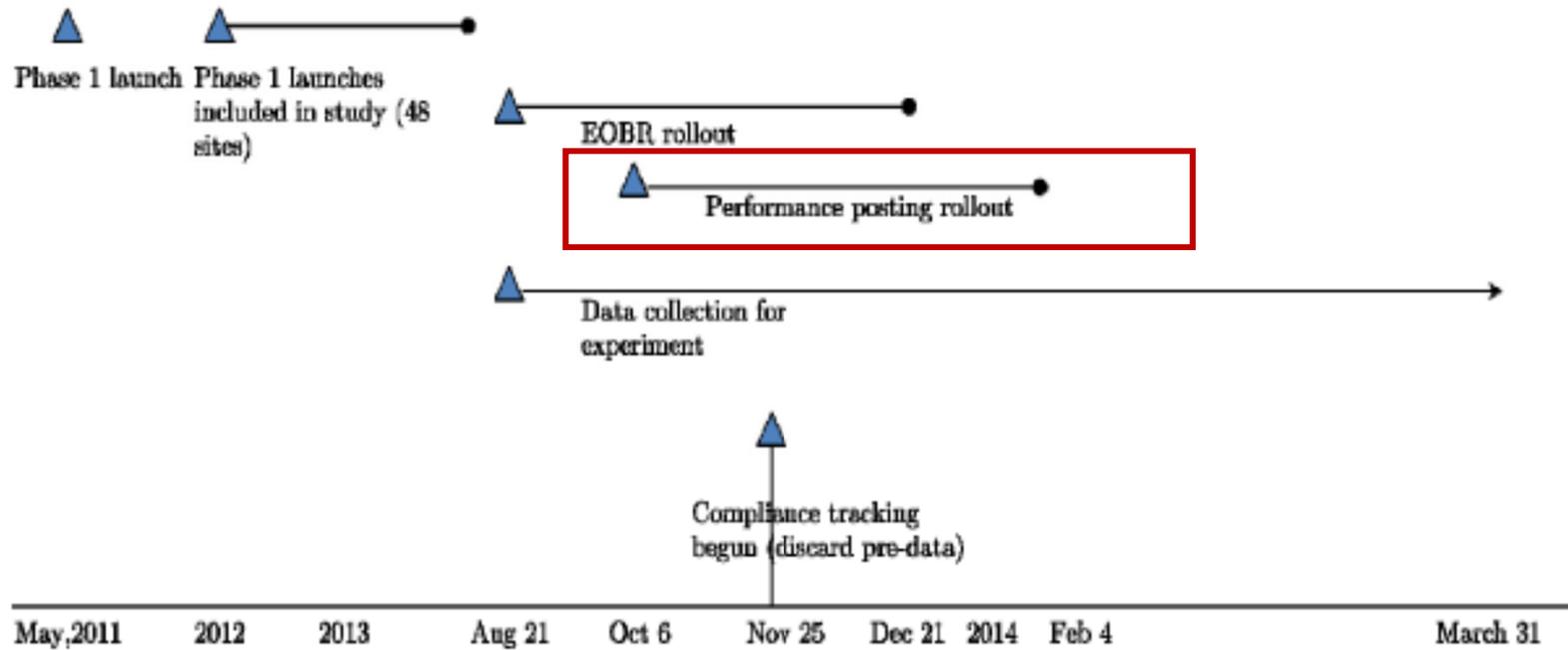
Setting

- Big US Trucking company (“less than truckload” segment)
- RCT across sites within the company: treatment is explicit comparison of the weekly productivity of drivers
 - **Treatment 1:** Public Posting (names)
 - **Treatment 2:** Anonymous Posting (only Driver ID, IDed)
- Technologically feasible because company has Electronic On-Board Recorder (EOBR) which collects this data (from Aug 21 & completed in all sites by Dec 2013)
- Firm has also started roll-out of Toyota “lean manufacturing.” Phase 1 (from May 2011) of this is a cultural intervention to make sites more collectivist based on team work instead of traditional individualist system (“last American cowboys”)
- Employees, not contractors (unlike Baker & Hubbard, 2003). Under 200 miles shipments

Timeline

Lean roll-out: pre-RCT

Figure 1: Timeline of Experiment



Setting

- Researchers randomized the RPE treatments based on whether the site had introduced Phase 1 of Lean at least 3 months ago (since Lean may take a while to have an effect)
- Other WMS elements of lean (Phases 2-5) not introduced yet anywhere
- ~5,000 drivers in 143 sites - 47 in control; 50 in named postings (Treatment 1), 46 in IDed postings (Treatment 2, anonymous)
- Look 30 days prior to treatment, 30 days after & discarded 5 days around implementation: 93,313 driver-days

Figure A2: Phase 1 Evaluation Criteria

<i>Safety</i>	Employees have a formal avenue to openly voice, share, and regularly address safety concerns at the facility
	Safety concerns are addressed in a timely manner by a cross-functional, integrated team of employees, supervision, and management.
<i>Safety and leadership</i>	What level of leader is involved in the safety journey?
	What organizational levels originated, supported, and have advocated the lean implementation initiative in the facility?
<i>Power distance</i>	Management availability to team members. Do employees feel that management is approachable?
	What percentage of the day do Supervisors spend on the Dock, during normal working hours?
	What percentage of the day do Managers spend on the Dock, during normal working hours?
<i>Employee recognition</i>	Individuals who meet, exceed, or achieve objectives are recognized on a regular basis through an employee recognition program?
	Groups who meet, exceed, or achieve objectives are recognized on a regular basis through a group recognition program?
<i>Management style</i>	Feedback and concerns are encouraged and included before making changes and taking actions.
	Employees, Supervisors, and Managers are encouraged/empowered to try improvement ideas, using innovation and creativity to enrich job responsibilities.
	The organizational level involved in determining and leading facility, function, and CIR Goals.
<i>Teamwork and empowerment</i>	Daily work activities are organized into team functions.
	SMEs are utilized as initial point of contact for problem-solving, resolution, and employee directing activities.
	Problem-Solving activities are organized into team functions.
	Employees are empowered, utilized, participate, initiate, and lead problem-solving activities autonomously, without significant management involvement.
<i>Communication</i>	There is an avenue for workers to openly share common concerns, issues, and problems regularly with other employees, supervisors, and management.
	Employee concerns and questions are addressed in a timely manner.
	Are there daily meetings with employees and supervision/management where the daily plans, performance, etc. are shared?

These criteria are taken from a formal assessment tool used by managers to score how successful the business transformation rollout has been at any given site. Sites are assessed formally in a two-day process at least once per year to certify their progression in adopting the new culture and practices.

Performance Measures (Higher value indicates LOWER productivity)

- **Gap Score**: difference between actual & “potential” (optimal EOBR estimate given weather & route characteristics) miles per gallon
- **Shift Score**: “shifting events” due to excess revving, etc.
- **Excess Idle Time**: engine idling wastes fuel
- **Total Fuel Lost**: Aggregate measure of fuel wasted from idling, inefficient shifting, speeding & gearing

- They look at all 4 measures

No significant effect on productivity of either treatment (remember lower value better)

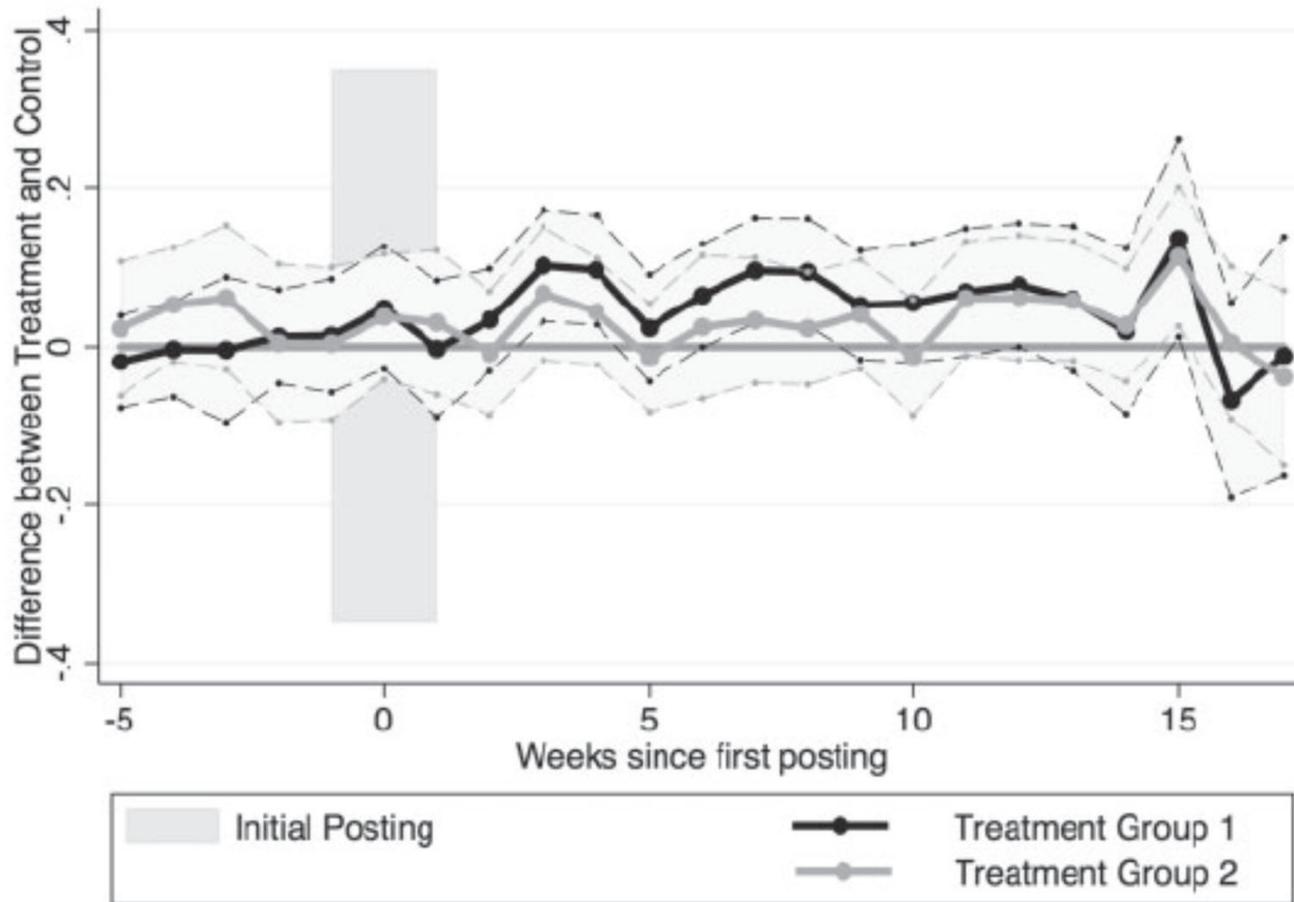


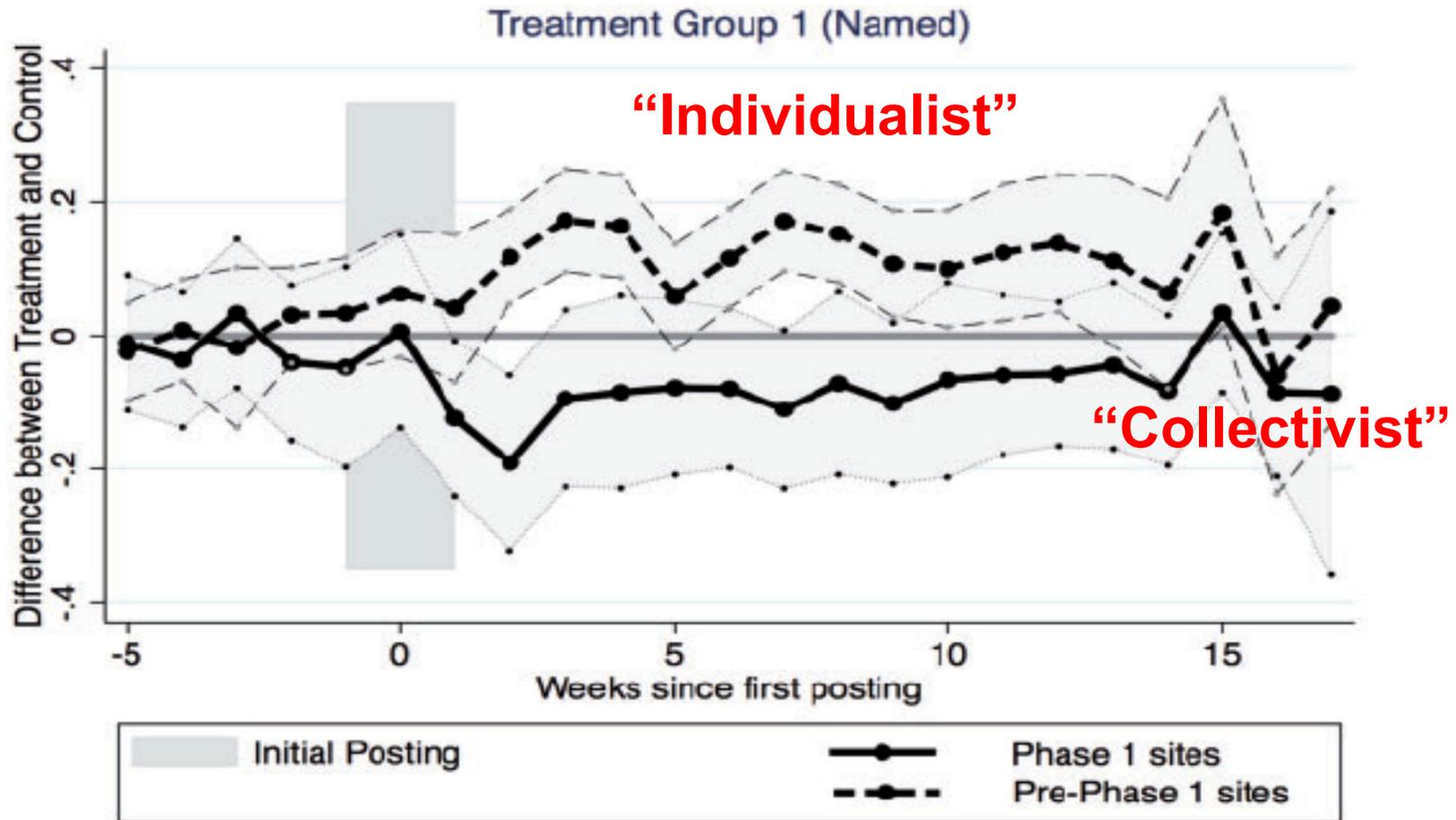
FIGURE 2

Impact of postings on driver performance

Look at treatment heterogeneity depending on whether site had Lean Phase 1 (“collectivist spirit”)

- Idea that Relative Performance Evaluation will be beneficial when there is an individualist culture but counter-productive when there is a collectivist culture

For named postings (Treatment 1), performance improves in sites without Phase 1 (individualist), but negative effect in sites with Phase 1 (collectivist)



Major problem: Is it really Lean causing the heterogeneous treatment effect

- Recall RCT is over **posting** treatment, NOT over Lean itself
- Lean Phase 1 not random. Sites which had the early introduction look systematically different from those that did not
- Example: lots more tractor per site (bigger); productivity better in sites where Lean introduced first (Gap, Shift significantly different)

Look at treatment heterogeneity depending on whether site had Lean Phase 1 (“collectivist spirit”)

Table 2: Balance Between Phase 1 and Pre-Phase 1 Sites

	Full sample			Matched sample		
	Pre-Phase 1 Mean	Phase 1 Mean	Diff p-value	Pre-Phase 1 Mean	Phase 1 Mean	Diff p-value
<i>Site characteristics</i>						
# sites	95	48	n/a	41	41	n/a
Tractors / site	20.35	33.25	0.000	25.95	27.51	0.581
Distance / trip	128.04	127.53	0.609	128.04	127.53	0.937
Eastern region	0.27	0.39	0.155	0.37	0.38	0.865
Central region	0.41	0.37	0.626	0.44	0.38	0.626
Western region	0.32	0.24	0.357	0.20	0.23	0.701
Control group	0.35	0.29	0.480	0.39	0.27	0.245
Treatment Group 1	0.39	0.27	0.149	0.32	0.24	0.467
Treatment Group 2	0.26	0.44	0.027	0.29	0.49	0.072
<i>Pre-treatment driver performance</i>						
Miles per gallon	6.90	6.72	0.039	6.76	6.71	0.602
Gap score	2.14	2.04	0.537	2.00	2.03	0.838
Shift score	90.35	91.55	0.076	91.62	91.66	0.950
Excess idle time	0.12	0.13	0.781	0.12	0.13	0.815
Fuel lost	0.34	0.33	0.473	0.32	0.33	0.753

See Table 1 caption for variable definitions.

Doesn't look balanced on observables (so implement matching)

Solutions?

1. Use propensity score matching to get common support for Lean and non-Lean sites (82 from 143 sites)
 - But requires conditional independence assumption

Solutions?

1. Use propensity score matching to get common support for Lean and non-Lean sites (82 from 143 sites)
2. Comparison of Treatment 1 vs. Treatment 2
 - But concern over randomization
 - T2 looks like T1 but noisier
 - Is RPE really anonymous? Informal comparison

For anonymous postings (Treatment 2, IDed), no significant interaction effects

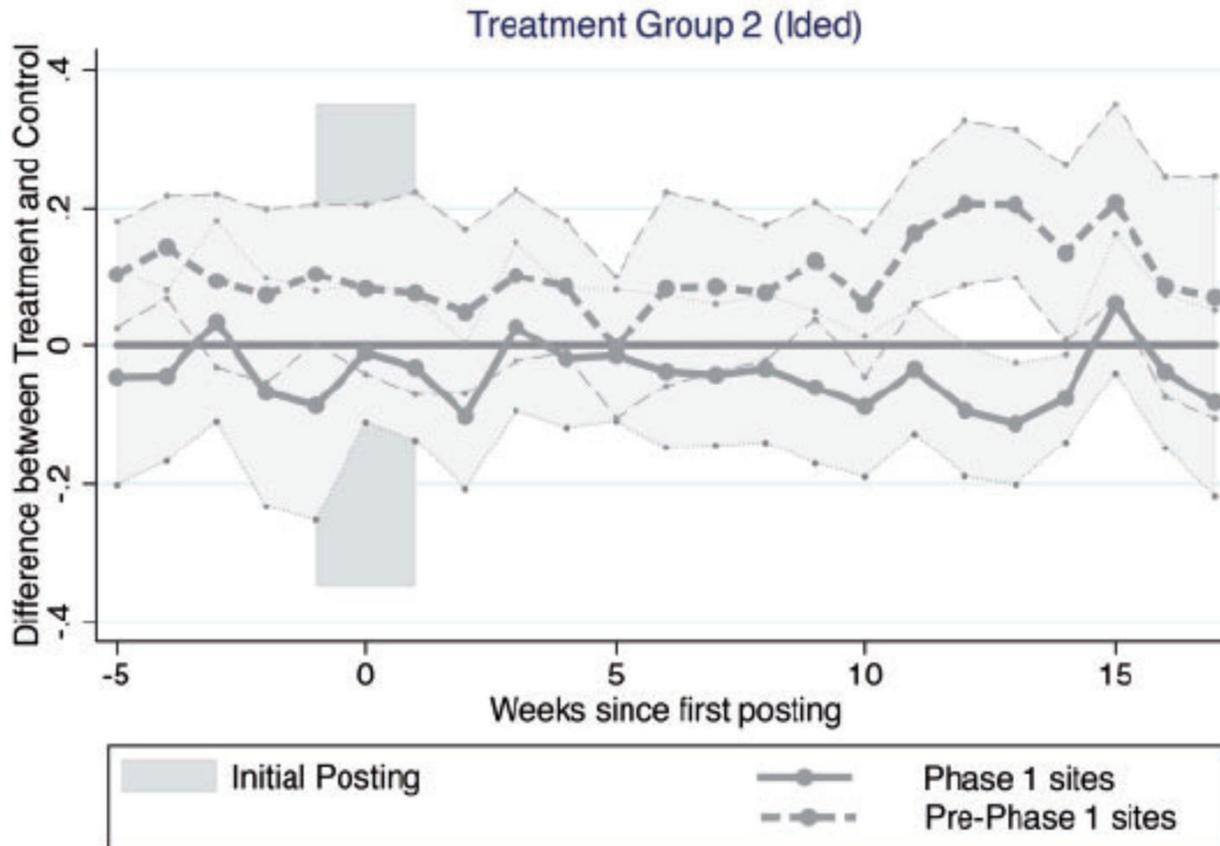


FIGURE 3

Solutions?

1. Use propensity score matching to get common support for Lean and non-Lean sites (82 from 143 sites)
2. Comparison of Treatment 1 vs. Treatment 2
 - But concern over randomization
 - T2 looks like T1 but noisier
 - Is RPE really anonymous? Informal comparison

Solutions?

1. Use propensity score matching to get common support for Lean and non-Lean sites (82 from 143 sites)
2. Comparison of Treatment 1 vs. Treatment 2
3. Try to bound the bias by using Altonji et al (2005) approach to say that bias on unobservables can't be bigger than bias on observables
 - Not a strong test
4. Use a separate Employee Engagement Survey
 - Suggests higher collectivism in Lean/Phase 1 sites

TABLE 8
Effect of ranking and engagement on driver performance

Dependent variables	Driving efficiency index			
	(1)	(2)	(3)	(4)
Post*Treatment Group 1*Collective Index	-0.2436** (0.1008)	-0.2505** (0.0984)	-0.1724** (0.0716)	-0.1892** (0.0710)
Post*Treatment Group 2*Collective Index	-0.0429 (0.0846)	-0.0618 (0.0807)	-0.0355 (0.0608)	-0.0469 (0.0576)
Post*Treatment Group 1*Instrumental Index	0.1027 (0.0765)	0.1015 (0.0682)	0.0373 (0.0493)	0.0492 (0.0488)
Post*Treatment Group 1*Instrumental Index	0.0567 (0.0726)	0.0685 (0.0687)	0.0371 (0.0592)	0.0379 (0.0552)
Post*Treatment Group 1	0.3957** (0.1910)	0.4023** (0.1921)	0.4129** (0.1537)	0.4316*** (0.1493)
Post*Treatment Group 2	-0.2170 (0.2658)	-0.1852 (0.2554)	-0.1449 (0.1864)	-0.0954 (0.1753)
Post*Collective Index	0.1103 (0.0776)	0.1214 (0.0762)	0.0887* (0.0487)	0.0995** (0.0464)
Post*Instrumental Index	-0.0543 (0.0430)	-0.0712* (0.0370)	-0.0337 (0.0336)	-0.0410 (0.0334)
Treatment Group 1*Collective Index	-0.1265 (0.1004)	-0.1361 (0.1048)		
Treatment Group 2*Collective Index	0.0410 (0.0951)	-0.0047 (0.0973)		
Treatment Group 1*Instrumental Index	-0.0053 (0.1127)	-0.0196 (0.0980)		
Treatment Group 2*Instrumental Index	-0.0036 (0.1010)	-0.0043 (0.0919)		
Post	-0.0391 (0.2185)	0.0680 (0.1810)	-0.0944 (0.1343)	-0.1257 (0.1390)
Collective Index	-0.0073 (0.0691)	0.0058 (0.0797)		
Instrumental Index	0.0485 (0.0825)	0.0483 (0.0778)		
Treatment Group 1	0.4687 (0.3048)	0.4785* (0.2506)		
Treatment Group 2	-0.1940 (0.2536)	-0.3313 (0.2929)		
Constant	-0.1732 (0.1815)	0.3330 (0.3424)	-0.0128 (0.0319)	0.0828 (0.1549)
Controls	N	Y	N	Y
Fixed effects	N	N	Y	Y
Observations	29,774	29,774	29,774	29,774
# Drivers	486	486	486	486
# Sites (clusters)	43	43	43	43
Adjusted R ²	0.047	0.079	0.540	0.553

This table reproduces the analysis of Table 4 substituting the indices constructed from the engagement survey for Phase 1

Solutions?

1. Propensity score matching
2. Comparison of Treatment 1 vs. Treatment 2
3. Bounding the bias
4. Use a separate Employee Engagement Survey
 - But....
 - Only available for a small sub-sample of sites (43 of the 143)
 - Information gathered after the experiment, so could be outcome
 - Unclear if Phase 1 actually shifted any culture. Indeed, usually thought that culture is very hard to change

Conclusions on Blader et al (2020)

- In my view, probably best attempt so far to get at some causal evidence over relational contracts
 - RCT in clean-ish single firm setting
 - Does show that RPE has roughly zero effect
- But would be better to use a long-standing measure of culture (like employee engagement) PRIOR to the RCT
 - Unclear than having the quasi-experiment of Lean is helpful at all to tackle the problem
 - Unclear if real evidence for relational contract causing heterogeneity
- **Would be even better to do a cultural intervention to see if it actually worked in an RCT**

Wrap Up on Management and Firm Performance

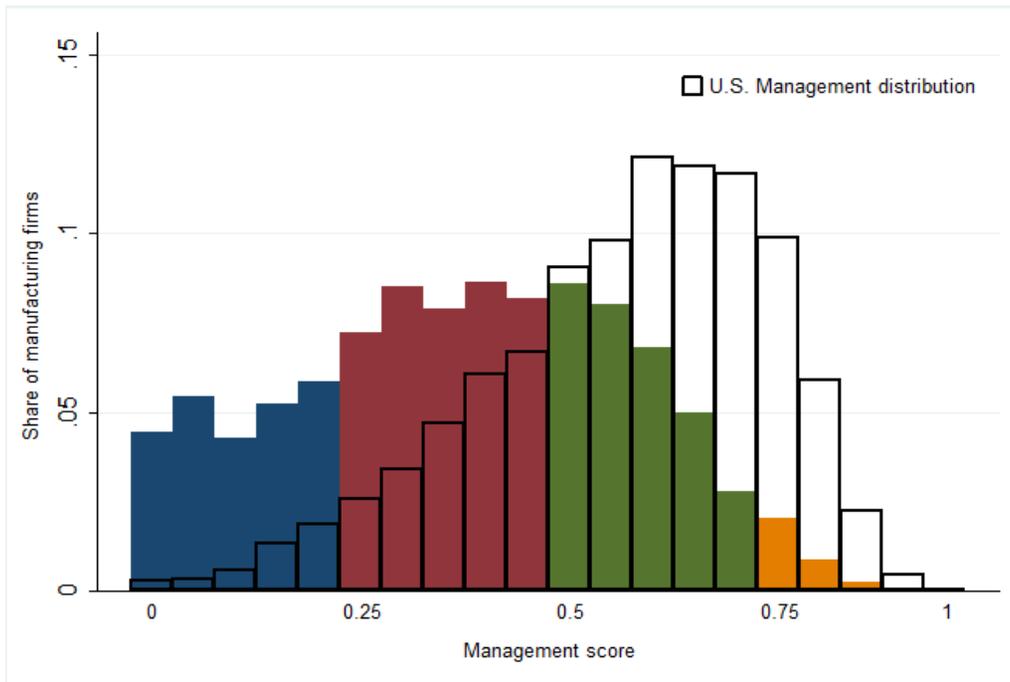
- Rich new “Big Data” on within-firm organizational factors (e.g. WMS, MOPS) as well as more focused samples on individual firms
- Management practices appear important in explaining firm (and country) productivity
 - Certainly has contingent element
 - But some practices to appear to be broadly successful
- Less understanding of what drives the huge variation, but starting to build better picture
- And what are best policies? (UK Budget just put \$650 million into “Help To Grow” management training)
- Rich area for research!

BACK UP

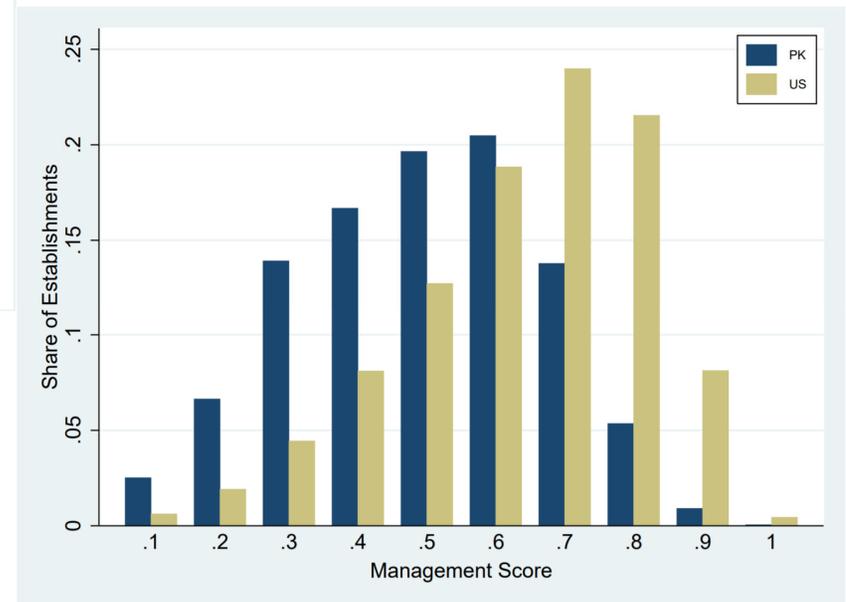
Magnitude: management score can accounts for ~20% spread in TFP, similar or greater to other variables we measure in the Census

Dependent Variable:	(1)	(2)	(3)	(4)	(5)
	Firm Level Log(Labor Productivity)				
Management score	0.864*** (0.043)				0.612*** (0.043)
R&D		0.133*** (0.010)			0.095*** (0.010)
ICT/worker			0.062*** (0.006)		0.047*** (0.006)
Skills (% employees with college degree)				0.800*** (0.064)	0.208*** (0.060)
Observations	~18,000	~18,000	~18,000	~18,000	~18,000
Share of 90-10 explained	0.216	0.216	0.120	0.159	
Share of S.D explained	0.193	0.219	0.134	0.142	0.282

In developing countries find management scores lower mean, higher variance (but lower L covariance)

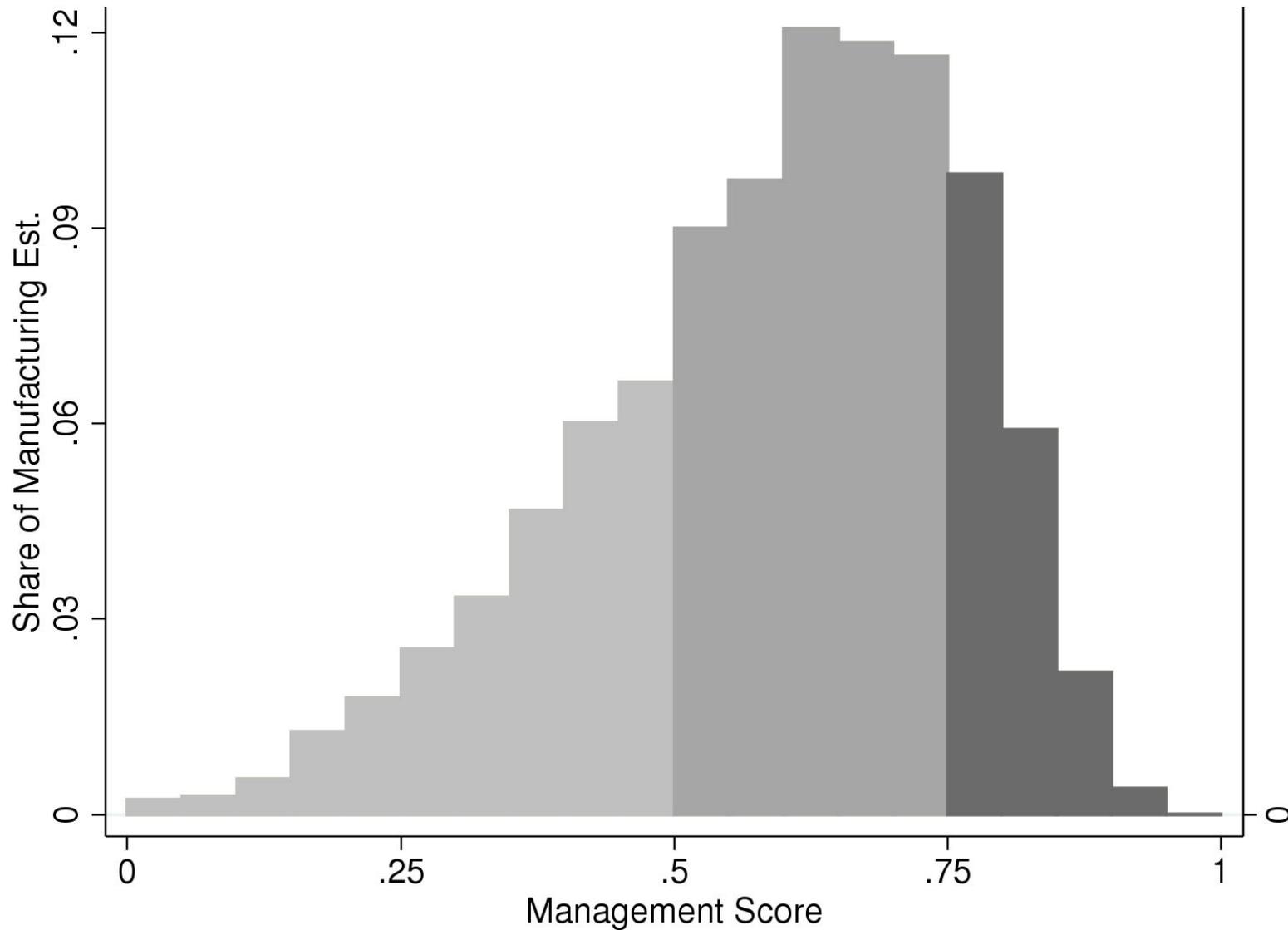


Notes: **Mexican** manufacturing plants from Bloom, Iacovone, Pereira-Lopez and Van Reenen (2018), "Explaining management: evidence from Mexico". Survey run by INEGI (Mexican national stats office)



Notes: **Pakistan** manufacturing plants from Choudhary, Bloom, Lemos and Van Reenen (2018), "Management practices in Pakistan". Survey overseen by State Bank of Pakistan.

Spread of structured management: establishments



Note: The management score is the average of the scores for each of the 16 questions, where each question is normalized on a 0-1 scale (from least to most structured).

Regulation – particularly “Right to work” - is a controversial, with seven states (IN, WI, MI, OH, WV, KY and MO) voting on this since 2012

THE WALL STREET JOURNAL.  OPINION Nicholas's Journal  [Live Help](#)

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1 of 12  Inside the War Against Islamic State

2 of 12  Life Without Fannie and Freddie

3 of 12  Schoolyard Bullies in the Nation's Capi...

 The Benefits of Liberty  

OPINION

Unions vs. the Right to Work

Collective bargaining on a broad scale is more similar to an antitrust violation than to a civil liberty.

 Email  Print  530 Comments      

By ROBERT BARRO
Updated Feb. 28, 2011 12:01 a.m. ET

How ironic that Wisconsin has become ground zero for the battle between taxpayers and public-employee labor unions. Wisconsin was the first state to allow collective bargaining for government workers (in 1959), following a tradition where it was the first to introduce a personal income tax (in 1911, before the introduction of the current form of individual income tax in 1913 by the federal government).



Regulation – particularly “Right to work” - is a controversial, with seven states (IN, WI, MI, OH, WV, KY and MO) voting on this since 2012

Q SEARCH

The New York Times

The Opinion Pages
ROOM for DEBATE

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What Happens as More States Curtail Labor’s Rights?

Are “right to work” laws worthwhile?

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DEBATERS

-  **Income Rises When These Laws Are Passed**
RICHARD VEDDER, ECONOMICS PROFESSOR
-  **Wages Are Lower in States With These Laws**
ELISE GOULD, ECONOMIC POLICY INSTITUTE
-  **A Key to Economic Growth**
SCOTT MANLEY, WISCONSIN MANUFACTURERS AND COMMERCE
-  **Call It ‘Right-to-Work-for-Less’**
GEORGE GRESHAM, 1199SEIU UNITED HEALTHCARE WORKERS EAST
-  **Both Sides Exaggerate Its Effects**
BARRY HIRSCH, ECONOMICS PROFESSOR

Call It ‘Right-to-Work-for-Less,’ Not Right-to-Work

 George Gresham is the president of [1199SEIU United Healthcare Workers East](#).

UPDATED MARCH 12, 2015, 12:07 PM

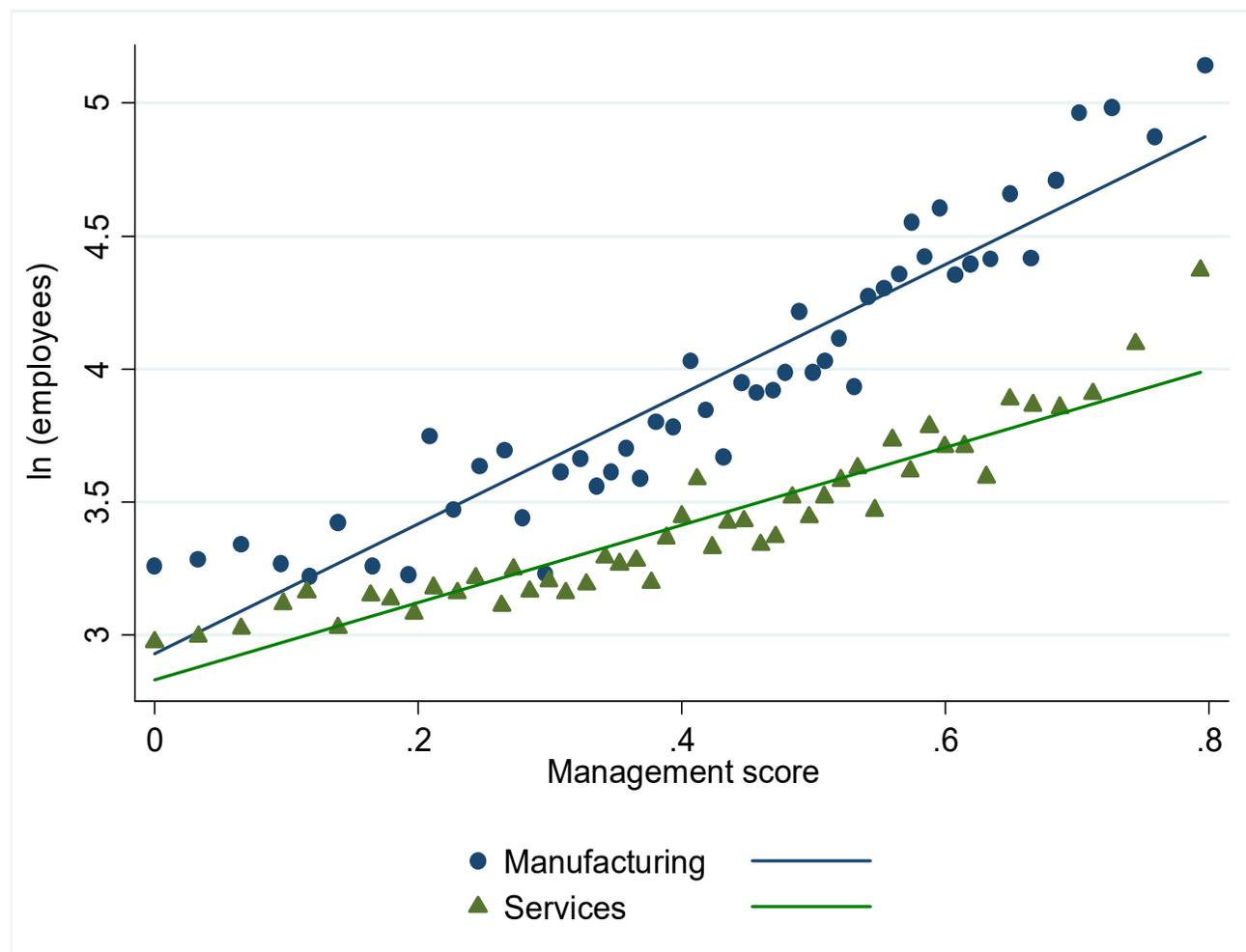
What are called right-to-work laws would more accurately be termed “right-to-work-for-less,” for their aim is to deprive unions of dues and money essential to their ability to represent workers and enforce contracts.

A signal achievement of the New Deal was the Wagner Act of 1935, guaranteeing labor’s rights to organize and bargain collectively. It established that when the majority of workers in a facility votes for union representation, all the members of the bargaining unit are union members and pay membership dues. Unions saw enormous growth, and their strength helped create conditions and legislation that benefited all of society — including the weekend, the 8-hour day, Social Security, unemployment compensation and the elimination of child labor.

But since World War II, we have witnessed a war by corporate America to weaken workers and their unions. The first blow came with the 1947 Taft-Hartley Law, which allowed states to pass “right-to-work” laws.

Its aim is to deprive unions of dues money

In Mexico, manufacturing shows stronger management and size covariance than services (e.g. more reallocation inputs to high TFP firms in manufacturing)



Source: Bloom, Iacovone, Pereira-Lopez and Van Reenen (2018), "Explaining management: evidence from Mexico"

MOPS Coverage and Sample

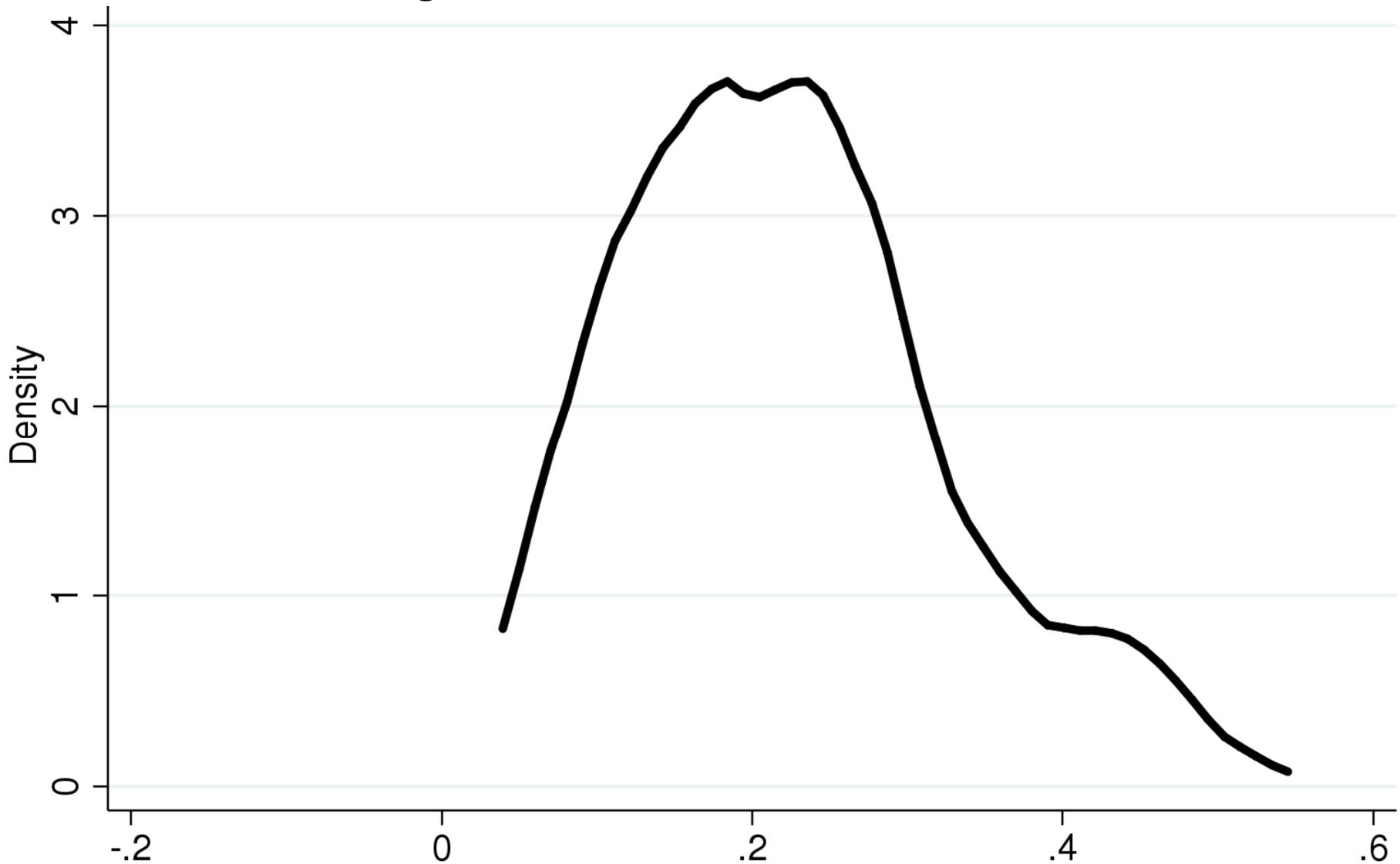
Sample	Source	Sample Criteria	# of estab. (X1,000)	Total emp (X1,000)	Average emp
(1) Universe of establishments	LBD	None	7,041	134,637	19.1
(2) Manufacturing	LBD	NAICS 31-33	298	12,027	40.4
(3) Annual Survey of Manufactures	ASM	NAICS 31-33, and either over 500 employees, or in ASM random sample. Positive employment and sales, and tabbed	51	7,387	143.5
(4) MOPS respondents	MOPS	As in (3), also responded to MOPS	36	5,629	155.8
(5) MOPS clean (baseline sample)	MOPS	As in (4) with 11+ non-missing responses, match to ASM, tabbed in ASM and have positive value added, employment and imputed capital in ASM 2010	32	5,308	167



Descriptive Stats

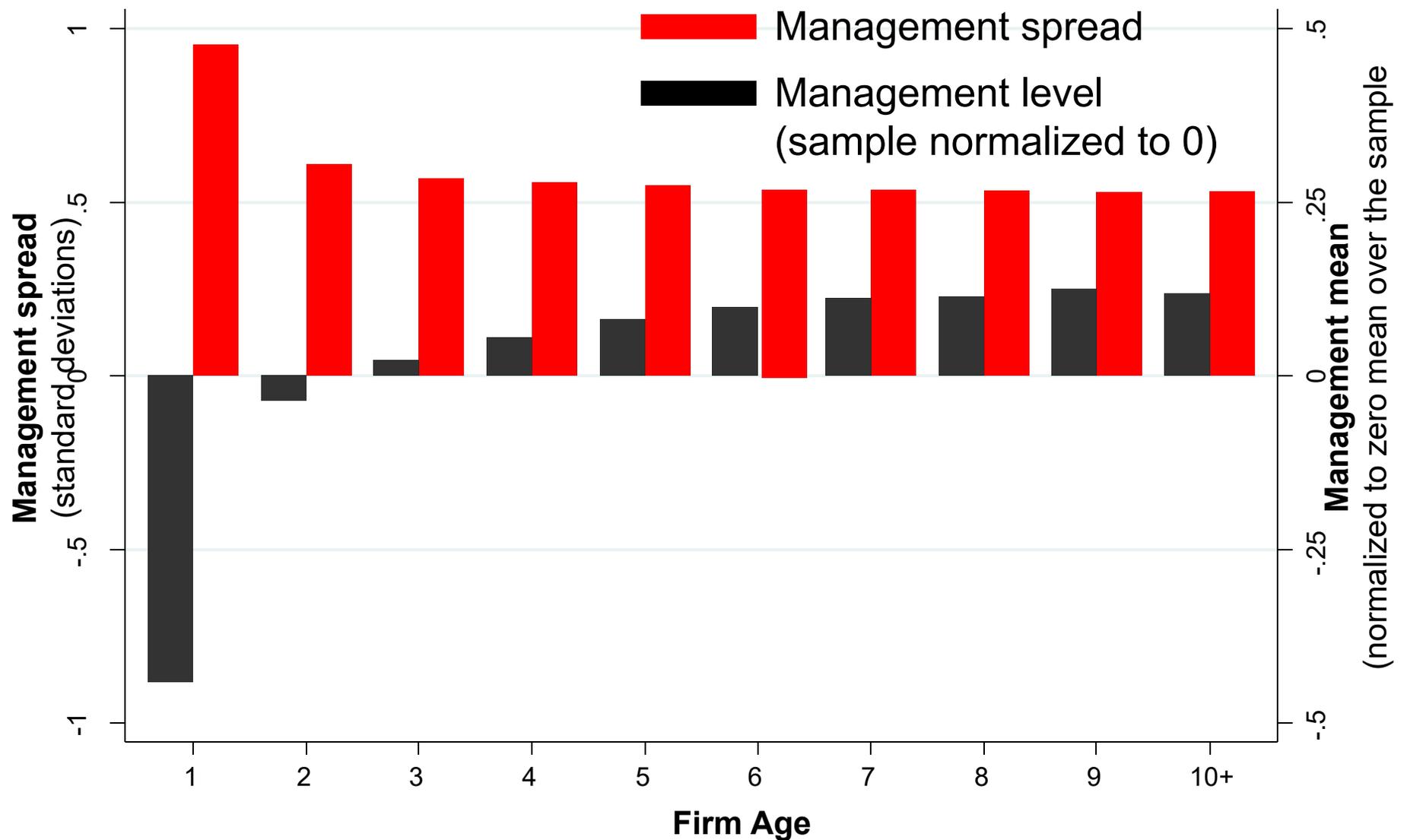
A. Management Descriptives	Mean	S.D.	p(10)	p(25)	p(50)	p(75)	p(90)
Management score	0.615	0.172	0.379	0.521	0.648	0.742	0.806
Data driven performance monitoring	0.643	0.199	0.365	0.521	0.677	0.792	0.865
Incentives and targets	0.583	0.215	0.3	0.474	0.623	0.739	0.819
B. Establishment Characteristics							
Size	177.2	398.5	16.8	36.0	86.0	186.0	382.0
Parent firm size	3359.0	9034.0	25.0	63.4	255.5	1862.0	8424.0
Establishment Age	21.0	10.1	4.0	12.0	25.0	30.0	30.0
Parent firm age	25.4	8.3	10.0	24.0	30.0	30.0	30.0
% of managers with degree	44.0%	30.9%	10.0%	10.0%	44.0%	70.0%	90.0%
% of non-managers with degree	9.8%	12.2%	0%	5.0%	5.0%	15.0%	40.0%
% of union members	12.2%	27.0%	0%	0%	0%	0%	70.0%
Exporter	45.1%	49.8%	0	0	0	1	1
Multi-unit Parent	67.9%	46.7%	0	0	1	1	1

Figure 3: The distribution of the management regression coefficient over 86 NAICS four-digit industries



Note: Smoothed density of management coefficients from allowing the regression coefficient in column (2) of Table 2 to vary over the 86 four-digit manufacturing NAICS codes. The raw regression coefficients are then compressed using an Empirical Bayes Shrinkage procedure. The sample of ~82,500 is all MOPS observations with at least 10 non-missing responses to management questions and a successful match to ASM, which were also included in ASM tabulations, have positive value added, positive employment and positive imputed capital in the ASM. Recalls are used for respondents with at least 7 years of tenure at the establishment.

Predictions from numerical MAT model: Age



Notes: Plots $\ln(\text{management})$ scores weighted by age. Results from simulating 5,000 firms per year in the steady state taking the last 10 years of data and defining age based on the number of observed years. For ease of display management have been normalized to zero across the entire sample.

Measuring Data

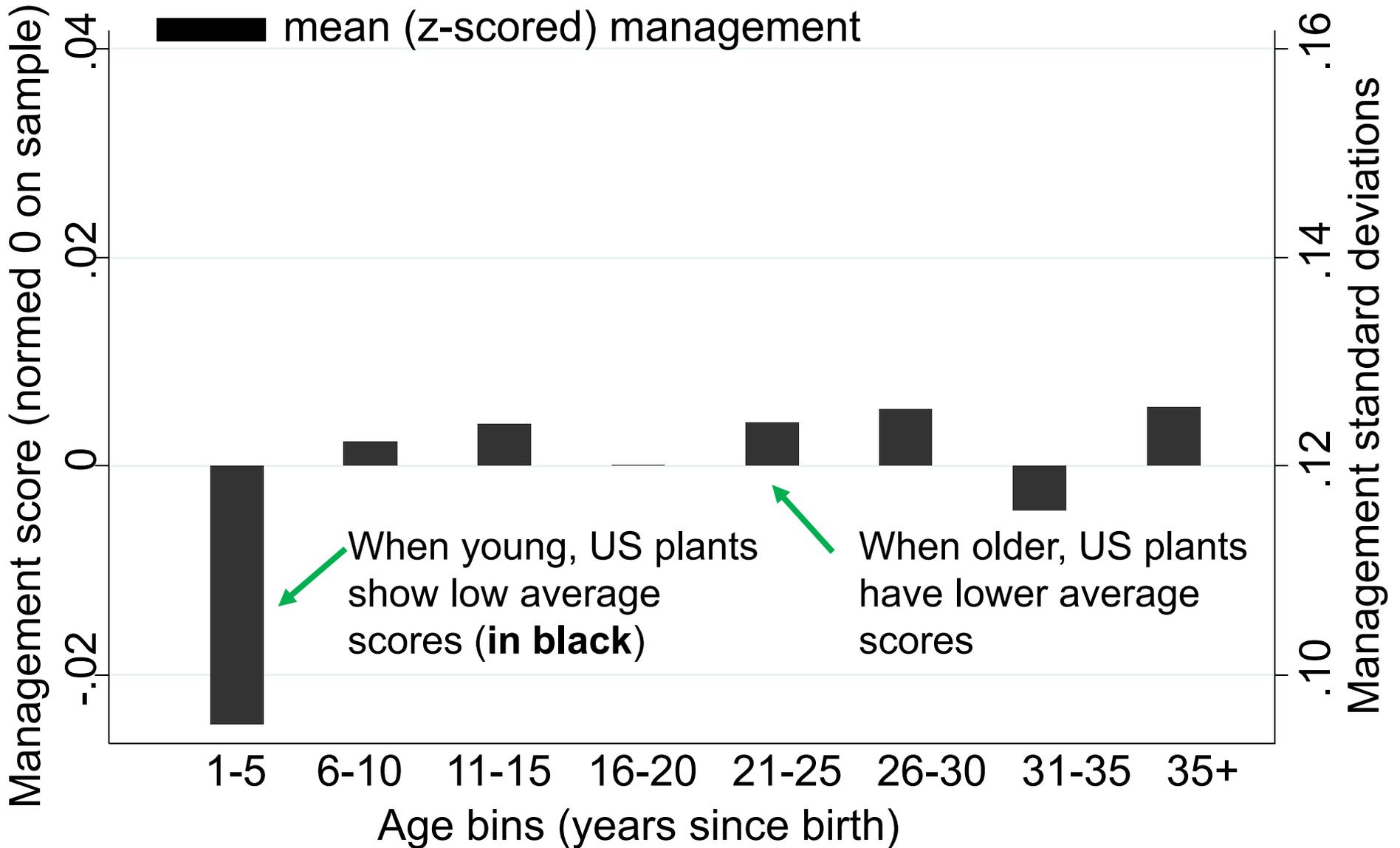
Management Models

Examining the Model's Predictions

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

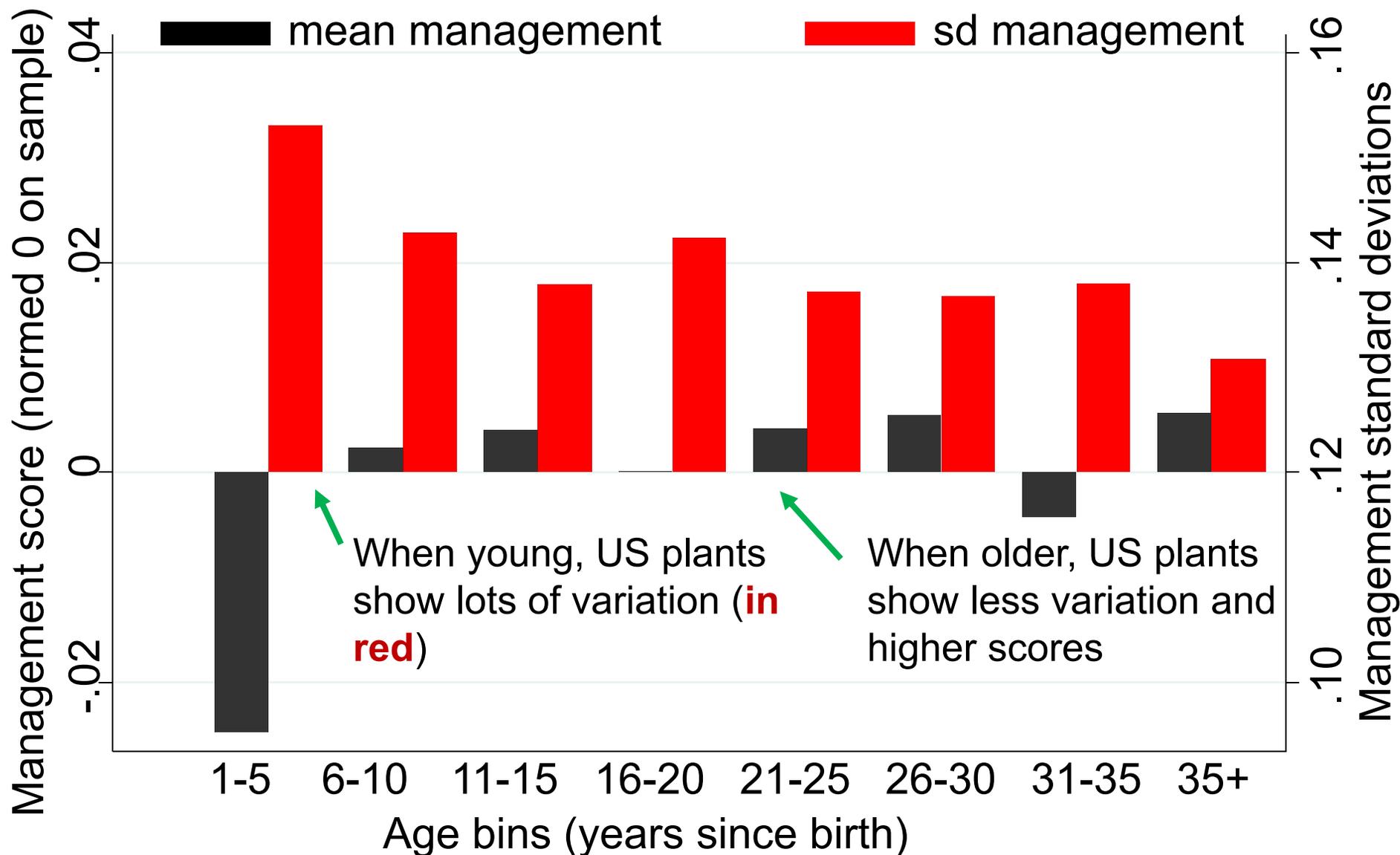
Management and cross-country TFP

Fig 8 - Better managed firms more likely to survive, so mean score rises



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

Fig 8 – Variance of management scores declines as less well managed firms exit



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

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 (AFRICA):

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

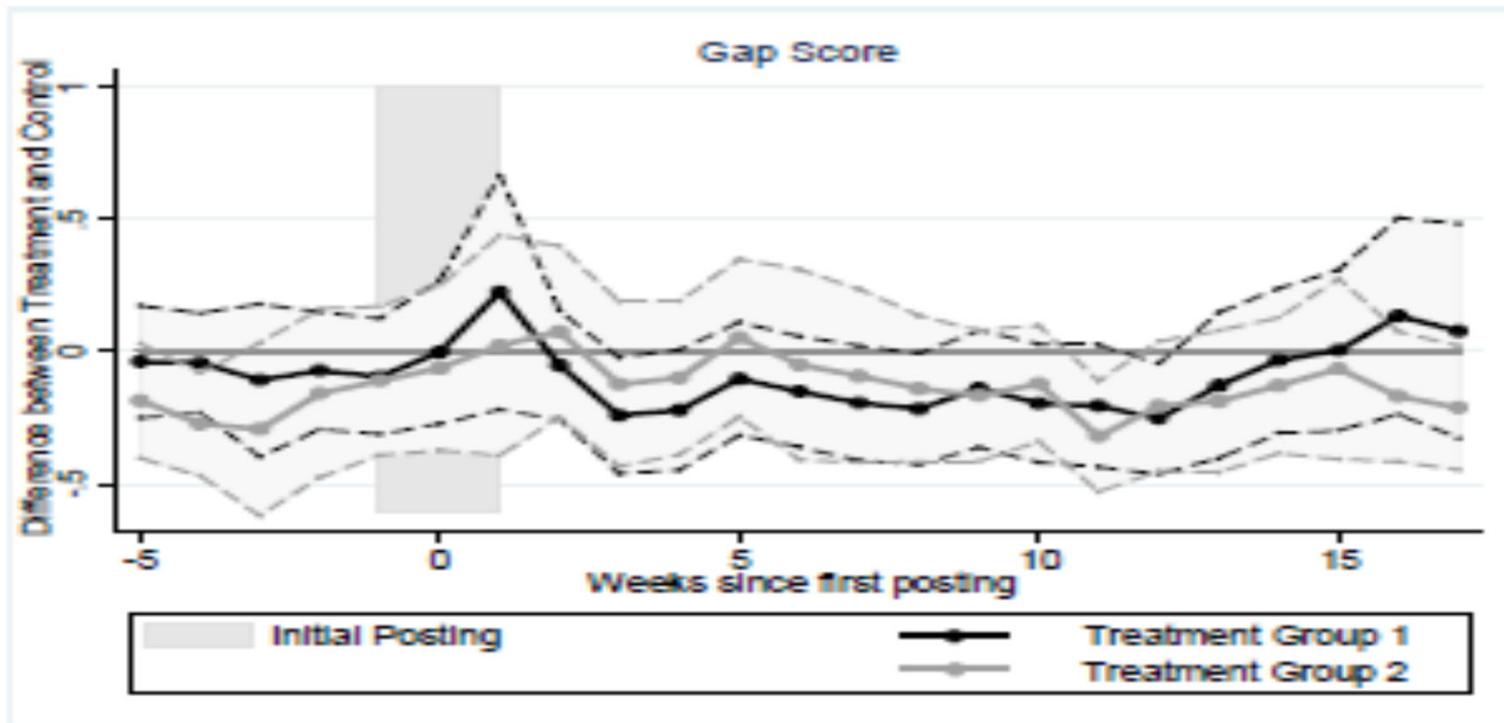
Manager: “Performance tracking? That is the first I hear of this. Why should we spend money to hire someone to track our performance? It is a waste of money!”

Interviewer “How do you identify production problems?”

Production Manager: “With my own eyes”

Coefficients suggest positive productivity effect (remember lower value better), but not significant

Figure 2: Impact of Rankings on Driver Performance



Difference between treatment and control for all sites (Phase 1 and pre-Phase 1 sites pooled together). See caption to Table 1 for definition of variables. Error bars reflect 90% confidence intervals, clustered by site. See Appendix Figure A4 for other outcome measures.

Balance of Experimental Assignment

- Looks reasonably balanced

	Full sample				
	Control Mean	Treat- ment 1 (names) Mean	Diff p-value	Treat- ment 2 (IDs) Mean	Diff p-value
<i>Site characteristics</i>					
# sites	47.00	50.00	n/a	45.00	n/a
Phase 1 status	0.30	0.26	0.681	0.47	0.098
Tractors / site	25.00	25.32	0.924	23.73	0.664
Distance / trip	124.08	130.63	0.309	131.24	0.247
Eastern region	0.44	0.44	0.966	0.30	0.149
Central region	0.33	0.22	0.220	0.39	0.607
Western region	0.22	0.34	0.207	0.32	0.313
<i>Pre-treatment driver performance</i>					
Miles per gallon	6.76	6.88	0.247	6.82	0.558
Gap score	2.18	2.14	0.787	1.98	0.310
Shift score	90.77	90.69	0.902	91.79	0.149
Excess idle time	0.12	0.12	0.838	0.14	0.429
Fuel lost	0.34	0.35	0.722	0.31	0.185

Table 4: Effect of Rankings on Phase 1 and Pre-Phase 1 Sites

Dependent variable:	Log(Gap Score)		Shift Score		Log(Idle Time)		Log(Fuel Lost)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post*Treatment Group 1*Phase 1	0.1351*** (0.0406)	0.1364*** (0.0375)	1.8567** (0.7414)	1.9631*** (0.6711)	0.0397*** (0.0125)	0.0354*** (0.0122)	0.0607*** (0.0136)	0.0549** (0.0121)
Post*Treatment Group 2*Phase 1	0.0207 (0.0498)	0.0312 (0.0451)	0.5047 (0.7248)	0.7213 (0.6709)	-0.0096 (0.0157)	-0.0098 (0.0146)	0.0078 (0.0162)	0.0129 (0.0158)
Post*Treatment Group 1	-0.0475* (0.0257)	-0.0400* (0.0236)	-0.1718 (0.4198)	-0.0960 (0.3900)	-0.0149* (0.0079)	-0.0129 (0.0078)	-0.0224*** (0.0079)	-0.0169** (0.0081)
Post*Treatment Group 2	0.0224 (0.0370)	0.0309 (0.0331)	0.2686 (0.4214)	0.2620 (0.4163)	0.0152 (0.0128)	0.0144 (0.0122)	0.0066 (0.0112)	0.0059 (0.0119)
Post*Phase 1	-0.0393 (0.0332)	-0.0295 (0.0298)	-0.9703 (0.6016)	-0.9613* (0.5432)	0.0024 (0.0084)	0.0016 (0.0082)	-0.0122 (0.0114)	-0.0096 (0.0100)
Treatment Group 1*Phase 1	0.1506* (0.0814)	0.0435 (0.0645)	-0.4987 (0.9923)	-0.7301 (0.7370)	0.0088 (0.0156)	-0.0141 (0.0148)	0.0147 (0.0228)	0.0072 (0.0238)
Treatment Group 2*Phase 1	0.0629 (0.0871)	0.0897 (0.0719)	0.8050 (0.9163)	0.4052 (0.7771)	0.0029 (0.0159)	0.0235* (0.0131)	-0.0004 (0.0246)	0.0313 (0.0278)