Management and Productivity

Nick Bloom (Stanford)

ABFER Masterclass 24th 2018

Ohio, USA

Maharashtra, India
Francis Walker (1840-1897), the founding President of the AEA

Walker ran the 1870 and 1880 Censuses

Based on this Walker wrote his 1887 paper “On the Source of Business Profits” published in the first volume of the QJE.

It claimed management was the major source of performance differences across US firms.
But 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)
Part of a research group looking scientifically at management, and summarize 15+ years research
Summary key findings

1) Massive variation in productivity across firms

2) About $\frac{1}{4}$ to $\frac{1}{2}$ variation appears to be due to management

3) Management driven by regulation, ownership, competition, education and knowledge spillovers

4) Managers matter – large fixed effects and variations in style

Great opportunities – huge areas almost nothing is know about. Strategy, diversity, work-life balance, manager RCTs etc.
(1) Productivity – “A Tale of Two Facts”

(2) Management Practices

(3) Management field experiments

(4) Managers (the people at the top)
Macro Fact: US productivity growth has been slowing (where is the IT revolution)?

Source: US Bureau of Labor Statistics, growth of real output per hour (labor productivity), series PRS84006092
Macro Fact: Productivity growth is slowing across almost all countries (including Singapore)

Source: OECD, Syverson (2018)
But what exactly is productivity?

Labor Productivity (basically GDP per hour worked):

\[ LP_{i,t} = va_{i,t} - l_{i,t} \]

Three factor TFP (control for capital):

\[ TFP^3_{i,t} = y_{i,t} - \alpha_l l_{i,t} - \alpha_k k_{i,t} - \alpha_m m_{i,t} \]

Five factor TFP (e.g. control for capital, energy and computers):

\[ TFP^5_{i,t} = y_{i,t} - \alpha_l l_{i,t} - \alpha_k k_{i,t} - \alpha_m m_{i,t} - \alpha_e e_{i,t} - \alpha_c c_{i,t} \]

Note: \( va = \log(\text{value added}) \), \( l = \log(\text{labor force}) \), \( k = \log(\text{tangible capital}) \), \( m = \log(\text{materials}) \), \( e = \log(\text{energy}) \), \( c = \log(\text{IT}) \). If IT included need to remove from tangible capital.
Micro Fact: Economists also noticed massive productivity spreads across firms.

Source: Hsieh and Klenow (2008); mean=1
Is this productivity spread just bad data (all measurement error) - unlikely

1. Productivity is strongly linked with exit and growth

2. In very homogeneous industries (e.g. boxes, white pan bread, carbon black) still see this spread – e.g. Foster, Haltiwanger and Syverson, 2008 AER
Are low **macro** productivity growth and **micro** productivity dispersion related?

Define a macro productivity as $P_t$

$$P_t = \sum s_{i,t} \omega_{i,t}$$

Where:

$\omega_{i,t}$ is the productivity of establishment $i$ in period $t$ (i.e. \(\log(\text{labor productivity})\) or \(\log(\text{TFP})\))

$s_{i,t}$ is the share of establishment $i$ in the economy in period $t$ (i.e. the share of employment)
Decomposing productivity

\[ P_t - P_{t-1} = \sum s_{i,t} \omega_{i,t} - \sum s_{i,t-1} \omega_{i,t-1} \]

\[ = \sum s_{i,t-1} (\omega_{i,t} - \omega_{i,t-1}) \quad \text{Within term} \]

\[ + \sum (s_{i,t} - s_{i,t-1}) \omega_{i,t-1} \quad \text{Between term} \]

\[ + \sum (s_{i,t} - s_{i,t-1})(\omega_{i,t} - \omega_{i,t-1}) \quad \text{Cross term} \]

\[ + \sum s_{i,t}^{\text{Entry}} (\omega_{i,t}^{\text{Entry}} - \omega_{i,t}^{\text{Average}}) \quad \text{Entry term} \]

\[ - \sum s_{i,t}^{\text{Exit}} (\omega_{i,t}^{\text{Exit}} - \omega_{i,t}^{\text{Average}}) \quad \text{Exit term} \]

This is the Bailey, Hulten and Campbell (1992) decomposition
These two effects are well known to cricket fans

Within batsman (each batsman improves)

Between batsman (more time for your best batsman, to raise your “batting average”)
In economics this led to a recent explosion of papers on “reallocation” and “misallocation”
Two ways to collect management data

- Telephone Surveys
- National Statistical Office Surveys
MEASURING AND EXPLAINING MANAGEMENT PRACTICES ACROSS FIRMS AND COUNTRIES*

NICHOLAS BLOOM AND JOHN VAN REENEN

We use an innovative survey tool to collect management practice data from 732 medium-sized firms in the United States, France, Germany, and the United Kingdom. These measures of managerial practice are strongly associated with firm-level productivity, profitability, Tobin's Q, and survival rates. Management practices also display significant cross-country differences, with U.S. firms on average better managed than European firms, and significant within-country differences, with a long tail of extremely badly managed firms. We find that poor management practices are more prevalent when product market competition is weak and/or when family-owned firms pass management control down to the eldest sons (primogeniture).

I. INTRODUCTION

Economists have long speculated on why such astounding differences in productivity performance exist between firms and plants within countries, even within narrowly defined sectors. For example, labor productivity varies dramatically even within the

* More details can be found in the working paper version of this paper (Bloom and Van Reenen 2006). We would like to thank the Economic and Social Research Council, the Anglo-German Foundation, and the Advanced Institute for Management for their substantial financial support. We received no funding from the global management consultancy firm we worked with in developing the survey tool. Our partnership with John Dowdy, Stephen Dorgan, and Tim Rippin has been particularly important in the development of the project. The Bundesbank and the UK Treasury supported the development of the survey. Helpful comments have been received from many people including Larry Katz, Ed Glaeser, and four anonymous referees, as well as seminar audiences at Berkeley, Chicago, Columbia, Cornell, the Federal Reserve Board, Harvard, Hebrew University, LSE, Maryland, Minnesota, MIT, NBER, Northwestern, NYU, Princeton, PSE, Stanford, UCL, Wharton, and Yale.

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1) Developing management questions
   • Scorecard for 18 monitoring, targets & people management practices ≈ 45 minute phone interview of plant managers

2) Getting firms to participate in the interview
   • Introduced as “Lean-manufacturing” interview, no financials
   • Official Endorsement: Bundesbank, RBI, World Bank, BOJ 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

Professor Nicholas Bloom
Department of Economics
Stanford University

Dear Nick Bloom,

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

Gail Tum
Senior Director
Economic and Private Sector Development Department

Toshihiko Fukui
GOVERNOR
Bank of Japan

July 4, 2006

Sir Howard Davies
Director
The London School of Economics and Political Science
Houghton Street
London WC2A 2AE
United Kingdom

Dear Howard,

Thank you for your letter regarding your international project on comparative productivity in manufacturing companies around the world.

Given the increasing global linkage of economic activities, your initiative to expand the

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 (G2 Panel 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 will be valuable in understanding managerial strengths and weaknesses. Personally he welcomes this project. He suggests that Professor Van Reenen approach the concerned
1) Developing management questions
   • Scorecard for 18 monitoring, targets & people management practices ≈45 minute phone interview of plant managers

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   • 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. Many processes aren’t tracked at all | (3): Most key performance indicators are tracked formally. Tracking is overseen by senior management | (5): Performance is continuously tracked and communicated, both formally and informally, to all staff using a range of visual management tools |

**Note:** All 18 questions & 50+ examples in [http://worldmanagementsurvey.org/](http://worldmanagementsurvey.org/)
Examples of performance metrics – Heathrow
Example of *no* performance metrics: Textile Plant
**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 |

**Note:** All 18 questions & 50+ examples in [http://worldmanagementandsurvey.org/](http://worldmanagementandsurvey.org/)
Wide spread of management in manufacturing

Average Management Scores, Manufacturing Firms
Management also varies heavily within countries

Firm level average management scores, 1 (worst practice) to 5 (best practice)
These management scores are positively *correlated* with firm performance – even with many controls.

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Productivity</th>
<th>Profits (ROCE)</th>
<th>5yr Sales growth</th>
<th>Share Price (Tobin Q)</th>
<th>Exit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimation</td>
<td>OLS</td>
<td>OLS</td>
<td>OLS</td>
<td>OLS</td>
<td>Probit</td>
</tr>
<tr>
<td>Firm sample</td>
<td>All</td>
<td>All</td>
<td>All</td>
<td>Quoted</td>
<td>All</td>
</tr>
<tr>
<td>Management</td>
<td>28.7***</td>
<td>2.018***</td>
<td>0.047***</td>
<td>0.250***</td>
<td>-0.262**</td>
</tr>
<tr>
<td>Firms</td>
<td>3469</td>
<td>1994</td>
<td>1883</td>
<td>374</td>
<td>3161</td>
</tr>
</tbody>
</table>

Includes controls for country, industry, year, firm-size, firm-age, skills etc. All firms (public and private) for which accounts data is available.

Significance levels: *** 1%, ** 5%, * 10% (clustered by firm)
Now run surveys in 35+ countries and counting

www.worldmanagementsurvey.com

RESEARCH

We have worked with thousands of managers from nearly 40 countries to measure performance in their firms.

DATE FOR YOUR CALENDARS: NEXT EMPIRICAL MANAGEMENT CONFERENCE AT MIT ON DECEMBER 8-9, CALL FOR PAPERS COMING IN JULY.

NEW PAPER: INTERNATIONAL DATA ON MEASURING MANAGEMENT PRACTICES

benchmark your organization

Using our web-based tool, answer a set of questions to benchmark your organization against our full dataset in the four main sectors of the WMS research.

Survey Data
Four things this experience taught me:

1. Focus on topics if you feel they matter

2. Take ideas from wherever – we copied McKinsey!

3. Surveys can collect great data (if you are creative)

4. Share data, set-up websites (The “Raj Chetty” strategy)

### Looking ahead to the 2017 calendar year, what is the approximate dollar value of products shipped you would anticipate for this establishment in the following scenarios, and what likelihood do you assign to each scenario?

<table>
<thead>
<tr>
<th>2017 scenarios, from lowest to highest</th>
<th>Approximate dollar value of shipments in 2017</th>
<th>Percentage likelihood (values in this column should sum to 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOWEST</td>
<td>$Bil.</td>
<td>Mil.</td>
</tr>
<tr>
<td>LOW</td>
<td>$Bil.</td>
<td>Mil.</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>$Bil.</td>
<td>Mil.</td>
</tr>
<tr>
<td>HIGH</td>
<td>$Bil.</td>
<td>Mil.</td>
</tr>
<tr>
<td>HIGHEST</td>
<td>$Bil.</td>
<td>Mil.</td>
</tr>
</tbody>
</table>

Total 100%
Data sharing website – four examples

The Equality of Opportunity Project

How can we improve economic opportunities for our children?
We use big data to identify new pathways to upward mobility.

Two Americas: Upward Mobility for White vs. Black Children
Average incomes of children growing up in low-income (25th percentile) families

In our most recent study, we analyze racial differences in economic opportunity using data on 20 million children and their parents. We show black children have much lower rates of upward mobility and higher rates of downward mobility than white children, leading to black-white income disparities that persist across generations. While Hispanic and black Americans presently have comparable incomes, the incomes of Hispanic Americans are increasing steadily across generations.

The black-white gap in upward mobility is driven entirely by differences in men's, not women's, outcomes. Black and white men have very different outcomes even if they grow up in two-parent families with comparable incomes, education, and wealth; live on the same city block; and attend the same school. Black-white gaps are smaller in low-poverty neighborhoods with lower levels of racial bias among whites and a larger fraction of black fathers at home. We conclude that reducing the black-white income gap will require efforts aimed at reducing racial bias in society and increasing the economic well-being of all Americans.
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…”
Two ways to collect management data

- Telephone Surveys

- National Statistical Office Surveys
What Drives Differences in Management Practices?

Nicholas Bloom\textsuperscript{1}, Erik Brynjolfsson\textsuperscript{2}, Lucia Foster\textsuperscript{3}, Ron Jarmin\textsuperscript{4}, Megha Patnaik\textsuperscript{4}, Itay Saporta-Elkven\textsuperscript{5} and John Van Reenen\textsuperscript{6}

This version: April 25th, 2018

Abstract: Partnering with the US Census Bureau, we implement a new survey of “structured” management practices in two waves of about 35,000 manufacturing plants each in 2010 and 2015. We find enormous dispersion of management practices across plants, with 40\% of this variation across plants within the same firm. This variation in management practices accounts for about a fifth of the spread of productivity, a similar fraction as that accounted for by R&D, and larger than the fraction explained by ICT and human capital. Management practices are more predictive of long-term survival than productivity. We find causal evidence that two drivers are very important in improving management. Regulation of the business environment (as measured by the Right-to-Work laws) boosts management practices associated with incentives. Learning spillovers as measured by the arrival of large new entrants in the county (“Million Dollar Plants”) increases the management scores of incumbents.

Keywords: Management, productivity, competition, learning

JEL Classification: L2, M2, O32, O33.

Disclaimer: Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the U.S. Census Bureau. All results have been reviewed to ensure that no confidential information was disclosed.

Acknowledgements: Financial support was provided in part by the National Science Foundation, Kauffman Foundation, the MIT Initiative on the Digital Economy, and the Sloan Foundation and administered by the National Bureau of Economic Research. We thank Hyunseob Kim for sharing data on large plant openings. We are indebted to numerous Census Bureau staff for their help in developing, conducting and analyzing the survey; we especially thank Julius Smith, Cathy Buffington, Scott Ohlmacher and William Wisniewski. This paper is an updated version of a working paper previously titled “Management in America” and we thank Stefano DellaVigna and Marianne Bertrand, our anonymous referees, our formal discussants Philippe Aghion, Namrata Kala and Andrea Pratt as well as numerous participants at seminars and conferences for many helpful comments.

\textsuperscript{1} Stanford and NBER, \textsuperscript{2} MIT and NBER, \textsuperscript{3} U.S. Census Bureau, \textsuperscript{4} Stanford, \textsuperscript{5} Tel-Aviv and UCL, \textsuperscript{6} MIT, CEP and NBER
In 2010 raised funding to run a big management survey with the US Census
Management and Organizational Practices Survey 2010

It was delivered to ~50,000 manufacturing plants in 2011 (asking about 2010) and 2016 (asking about 2015). This was quick and easy to fill out - and mandatory - so 74% of plants responded.

In 2010: covering 5.6m employees (>50% of US manufacturing employment)
The Management and Organizational Practices survey asked about two basic types of management practices.

**Monitoring**: data collection and analysis

**Incentives**: rewarding high performers, “fixing” low performers

We call intensive use of these practices “Structured management”
The Management and Organizational Practices survey asks about performance monitoring e.g.

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.

<table>
<thead>
<tr>
<th>Check one box for each year</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 key performance indicators</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3-9 key performance indicators</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>10 or more key performance indicators</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>No key performance indicators (If no key performance indicators in both years, SKIP to 6)</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
The Management and Organizational Practices survey asks about incentives e.g.

14 In 2005 and 2010, what was the primary way managers were promoted at this establishment?

<table>
<thead>
<tr>
<th>Check one box for each year</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotions were based solely on performance and ability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promotions were based partly on performance and ability, and partly on other factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(for example, tenure or family connections)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promotions were based mainly on factors other than performance and ability (for example,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tenure or family connections)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managers are normally not promoted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Found a big spread of management (even in the US!)

**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).
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

- MOPS 2010 fortunate to have ≈500 plants in which two different people responded to the same survey – find ≈45%
Found about 60% between firms (so 40% within firms)

Management spread accounted for by firm

Removing within firm industry and geographic variation

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 interview 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).
Management score strongly predictive for firm performance, including long-run growth & survival

<table>
<thead>
<tr>
<th>Time Window</th>
<th>2010 to 2015 (5)</th>
<th>2014 to 2015 (6)</th>
<th>2010 to 2015 (7)</th>
<th>2010 to 2015 (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A: Dependent variable: Exit Rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>-0.180***</td>
<td>-0.035***</td>
<td>-0.286***</td>
<td>-0.153***</td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.007)</td>
<td>(0.033)</td>
<td>(0.014)</td>
</tr>
<tr>
<td>Log(Value Added/Emp)</td>
<td></td>
<td></td>
<td></td>
<td>-0.025***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.003)</td>
</tr>
<tr>
<td>Marginal $R^2$ for Management (*100)</td>
<td>0.506</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marginal $R^2$ for Log worker prod (*100)</td>
<td>0.308</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel B: Dependent variable: Employment Growth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>0.412***</td>
<td>0.088***</td>
<td>0.629***</td>
<td>0.326***</td>
</tr>
<tr>
<td></td>
<td>(0.033)</td>
<td>(0.018)</td>
<td>(0.075)</td>
<td>(0.035)</td>
</tr>
<tr>
<td>Log(Value Added/Emp)</td>
<td></td>
<td></td>
<td></td>
<td>0.078***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.007)</td>
</tr>
<tr>
<td>Marginal $R^2$ for Management (*100)</td>
<td>0.394</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marginal $R^2$ for Log worker prod (*100)</td>
<td>0.525</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Fixed Effects</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Observations</td>
<td>~32,000</td>
<td>~29,000</td>
<td>~17,000</td>
<td>~32,000</td>
</tr>
</tbody>
</table>
So what drives differences in management?

Main focus (policy relevant, good identification):
1) Regulation (via “right-to-work” laws in states)
2) Spillovers (Multinationals)

Other drivers (frankly, hard to get good identification):
1) Education (via land grant colleges)
2) Competition (via trade and ex. rate variations)
Regulation – particularly “Right to work” – is a topical issue, with seven states (IN, WI, MI, OH, WV, KY and MO) voting on this since 2012.
How to Tease Out the Causal Effect of RTW?

First approach:
Diff-in-diff comparing Michigan and Indiana (switched 2012) to neighboring states
### Panel A: DID estimates for the effect of RTW

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Management score (1)</th>
<th>Incentives (2)</th>
<th>Non-incentives (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PostX + Treat</td>
<td>0.009*</td>
<td>0.017***</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.007)</td>
<td>(0.006)</td>
</tr>
<tr>
<td>Obs</td>
<td>~15,000</td>
<td>~15,000</td>
<td>~15,000</td>
</tr>
</tbody>
</table>

### Panel C: DID estimates controlling for 6-digit NAICS

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Management score (1)</th>
<th>Incentives (2)</th>
<th>Non-incentives (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PostX + Treat</td>
<td>0.007</td>
<td>0.014**</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.006)</td>
<td>(0.005)</td>
</tr>
<tr>
<td>Obs</td>
<td>~15,000</td>
<td>~15,000</td>
<td>~15,000</td>
</tr>
</tbody>
</table>
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)
Clear Discontinuity in Incentives Practices

Incentives practices

RTW side of the border

Distance in miles from RTW border
No Discontinuity in non-Incentives Practices

Non-incentives practices

RTW side of the border

Distance in miles from RTW border
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. with an annual payroll of $20.75 million, or about $85,000 per job.
Major new plants lead to localized increases (spillovers) in management, TFP and employment

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Change in Management (1)</th>
<th>Change in Log(TFP) (3)</th>
<th>Change in Employment Growth (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A: All industries pooled</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDP Opens</td>
<td>0.012**</td>
<td>0.022</td>
<td>0.011**</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.016)</td>
<td>(0.004)</td>
</tr>
<tr>
<td></td>
<td>0.018***</td>
<td>0.024</td>
<td>0.014***</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.017)</td>
<td>(0.005)</td>
</tr>
<tr>
<td>Panel B: Split high/low manager flow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDP Opens×High</td>
<td>0.023***</td>
<td>0.074***</td>
<td>0.013**</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.027)</td>
<td>(0.006)</td>
</tr>
<tr>
<td></td>
<td>0.031***</td>
<td>0.069***</td>
<td>0.017***</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.019)</td>
<td>(0.006)</td>
</tr>
<tr>
<td>MDP Opens×Low</td>
<td>-0.005</td>
<td>-0.059</td>
<td>0.007</td>
</tr>
<tr>
<td></td>
<td>(0.010)</td>
<td>(0.040)</td>
<td>(0.009)</td>
</tr>
<tr>
<td></td>
<td>-0.005</td>
<td>-0.050</td>
<td>0.009</td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
<td>(0.034)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>P-value for equal</td>
<td>0.056</td>
<td>0.026</td>
<td>0.606</td>
</tr>
<tr>
<td></td>
<td>0.007</td>
<td>0.004</td>
<td>0.495</td>
</tr>
</tbody>
</table>
Running MOPS style surveys in other countries

Dear Sir or Madam,

Please find the questionnaire for the Management and Expectations Survey attached. Please complete for the period 1 January 2016 to 31 December 2016. The questions in this survey are aimed primarily at the most senior person responsible for day-to-day operations of this business. Once completed, the questionnaire can be returned by post or fax using the details in the box below.

The Office for National Statistics (ONS) is responsible for producing key economic statistics that are used across Government to respond to and manage the UK economy. Information from this survey will be used to better understand how businesses operate and how this relates to business performance. Understanding the drivers of business performance is essential to understanding the dynamics of the UK economy. Your response to this survey is of great value to government.
What this experience taught me:

1. Statistical Offices can be open to new survey ideas

2. Look for semi-random variation – e.g. Right to Work in US

3. There is a lot we don’t know in management!
(3) Management Field Experiments

- India

- China
Almost all management field experiments are on micro enterprises:


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

- This training is provided randomly and performance measured before and after the intervention.

- Typically find little impact – maybe firms too small, or consulting is too poor quality, or it too light?
In 2008-2010 I ran a large-firm management Randomized Control Trial (RCT)

- Worked with Accenture to provide free management consulting to 17 large (≈250 employee) Indian textile firms running 28 plants

- From these firms, 20 “experimental plants” were randomized into
  – 14 treatment plants (1 month diagnostic, 4 months consulting)
  – 6 control plants

- Then collected 1 year of performance data
Large multi-plant firms operating 24 hours a day
Large multi-plant firms operating 24 hours a day
<table>
<thead>
<tr>
<th>Area</th>
<th>Specific practice</th>
</tr>
</thead>
</table>
| Factory Operations | Preventive maintenance is carried out for the machines  
Preventive maintenance is carried out per manufacturer's recommendations  
The shop floor is marked clearly for where each machine should be  
The shop floor is clear of waste and obstacles  
Machine downtime is recorded  
Machine downtime reasons are monitored daily  
Machine downtime is analyzed at least fortnightly & action plans created and implemented to try to reduce this  
Daily meetings take place that discuss efficiency with the production team  
Written procedures for warping, drawing, weaving & beam gaiting are displayed  
Visual aids display daily efficiency loomwise and weaverwise  
These visual aids are updated on a daily basis  
Spares stored in a systematic basis (labeling and demarked locations)  
Spares purchases and consumption are recorded and monitored  
Scientific methods are used to define inventory norms for spares |
| Quality Control    | Quality defects are recorded  
Quality defects are recorded defect wise  
Quality defects are monitored on a daily basis  
There is an analysis and action plan based on defects data  
There is a fabric gradation system  
The gradation system is well defined  
Daily meetings take place that discuss defects and gradation  
Standard operating procedures are displayed for quality supervisors & checkers |
Intervention aimed at 38 core textile management practices in 6 areas

<table>
<thead>
<tr>
<th>Area</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yarn Management</td>
<td></td>
</tr>
<tr>
<td>1. Inventory Control</td>
<td>Yarn transactions (receipt, issues, returns) are recorded daily. The closing stock is monitored at least weekly.</td>
</tr>
<tr>
<td></td>
<td>Scientific methods are used to define inventory norms for yarn.</td>
</tr>
<tr>
<td></td>
<td>There is a process for monitoring the aging of yarn stock.</td>
</tr>
<tr>
<td></td>
<td>There is a system for using and disposing of old stock.</td>
</tr>
<tr>
<td></td>
<td>There is location wise entry maintained for yarn storage.</td>
</tr>
<tr>
<td>Advance loom planning</td>
<td></td>
</tr>
<tr>
<td>2. Loom Planning</td>
<td>Advance loom planning is undertaken.</td>
</tr>
<tr>
<td></td>
<td>There is a regular meeting between sales and operational management.</td>
</tr>
<tr>
<td>Human Resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There is a reward system for non-managerial staff based on performance.</td>
</tr>
<tr>
<td></td>
<td>There is a reward system for managerial staff based on performance.</td>
</tr>
<tr>
<td></td>
<td>There is a reward system for non-managerial staff based on attendance.</td>
</tr>
<tr>
<td></td>
<td>Top performers among factory staff are publicly identified each month.</td>
</tr>
<tr>
<td></td>
<td>Roles &amp; responsibilities are displayed for managers and supervisors.</td>
</tr>
<tr>
<td>Sales &amp; Orders</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customers are segmented for order prioritization.</td>
</tr>
<tr>
<td></td>
<td>Orderwise production planning is undertaken.</td>
</tr>
<tr>
<td></td>
<td>Historical efficiency data is analyzed for business decisions regarding designs.</td>
</tr>
</tbody>
</table>
Typical organization of one of the textile firms

Directors own all equity and occupy the top positions (CEO, CFO etc). Across the 17 firms in 2008 there were 37 directors, of which 36 were male and all close family (brothers, sons and 1 wife).

- Directors
- Plant 1 Manager
  - Weaving Manager
  - Workers
- Plant 2 Manager
  - Quality Manager
  - Workers
- Plant 3 Manager
  - Inventory Manager
  - Workers

In charge of individual plants. Mostly outsiders but some family members (e.g. a cousin).

Lower-managers covering various areas – typically 4 or 5 per plant.

Workers are contract employees, who are migrants from poorer states (Bihar, Orissa etc). Typically about 100 per plant across all areas (warping, weaving, mending).
## Experimental design has four types of plants

<table>
<thead>
<tr>
<th></th>
<th>Experimental</th>
<th>Non-Experimental</th>
</tr>
</thead>
</table>
| **Treatment** | 1 month diagnostic  
4 months intervention, 
Performance and management measurement | Management measurement |
| **Control**   | 1 month diagnostic  
Performance and management measurement | Management measurement |
Observed a large increase in the 38 management practices.
Production floor was often cluttered
Production floor was often cluttered
Clean up the production floor
Intervention also focused on data analysis

Before
(not standardized, on loose paper)

After
(standardized, so easy to enter into a computer)
The organization of inventory

Yarn piled up so high and deep that access to back sacks is almost impossible

Different types and colors of yarn lying mixed

Yarn without labeling, order or damp protection

A crushed yarn cone, which is unusable as it leads to irregular yarn tension

Before
The organization of inventory

After
Introduced worker and manager incentives
TFP rose about 20% in treatment plants vs controls
Recently went back to these firms – 8 years later – to ask what happened next?

BGC and McKinsey claim about 2/3 of all management interventions fail in 3 years (e.g. Sirkin et al. 2005)
In January 2017 re-contacted all the firms to collect follow-up management and performance data

All treatment & control firms agreed to work with us again, aided by:

1) The initial intervention has been beneficial to the firms

2) These are large firms, so had same address and contact details

3) The same Accenture manager and partners worked with us again
In January 2017 re-contacted all the firms to collect follow-up management and performance data.

But two caveats:

1) We spent only 2 months with the firms because of a limited budget. So we collected only basic management and performance data.

2) One treatment firm with one plant was closing down after the death of the owner (with no sons), so provided limited data.
Two extreme views on the long-run persistence
The management intervention was surprisingly persistent.

Notes: Sample comprised of the balanced panel of plants from 2008 to 2017 (11 treatment experimental, 6 treatment non-experimental, 6 control experimental and 2 control non-experimental. The letters on the right are the average predicted values from the 3-person Accenture team and 4 co-authors made before re-contacting the firms for the Treatment Experimental (TE) at 0.4, Treatment Non-Experimental (TN) at 0.36, Control Experimental and Control Non-Experimental (CE and CN) both at 0.29 respectively.
Procedure display practices were the least persistent, quality and operations monitoring/feedback were the most

Table A3: Practice stickiness

<table>
<thead>
<tr>
<th>Practice</th>
<th>Adopted</th>
<th>Dropped</th>
<th>Share Dropped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written procedures for work</td>
<td>7</td>
<td>7</td>
<td>1.00</td>
</tr>
<tr>
<td>Standard operating procedures</td>
<td>11</td>
<td>10</td>
<td>0.91</td>
</tr>
<tr>
<td>These visual aids are updated</td>
<td>11</td>
<td>7</td>
<td>0.64</td>
</tr>
<tr>
<td>Visual aids display daily evidence</td>
<td>11</td>
<td>6</td>
<td>0.55</td>
</tr>
<tr>
<td>Daily meetings take place</td>
<td>13</td>
<td>7</td>
<td>0.54</td>
</tr>
<tr>
<td>There is an analysis and action plan</td>
<td>14</td>
<td>7</td>
<td>0.50</td>
</tr>
<tr>
<td>Quality defects are monitored</td>
<td>16</td>
<td>6</td>
<td>0.38</td>
</tr>
<tr>
<td>The shop floor is clear of non-value adding activities</td>
<td>6</td>
<td>2</td>
<td>0.33</td>
</tr>
<tr>
<td>There is a reward system in place</td>
<td>9</td>
<td>3</td>
<td>0.33</td>
</tr>
<tr>
<td>The gradation system is working</td>
<td>8</td>
<td>2</td>
<td>0.25</td>
</tr>
<tr>
<td>The closing stock is monitored</td>
<td>13</td>
<td>3</td>
<td>0.23</td>
</tr>
<tr>
<td>Machine downtime analyzed</td>
<td>15</td>
<td>3</td>
<td>0.20</td>
</tr>
<tr>
<td>Daily meetings take place</td>
<td>19</td>
<td>3</td>
<td>0.16</td>
</tr>
<tr>
<td>Machine downtime is recorded</td>
<td>9</td>
<td>1</td>
<td>0.11</td>
</tr>
<tr>
<td>Machine downtime reasons are known</td>
<td>13</td>
<td>1</td>
<td>0.08</td>
</tr>
<tr>
<td>There is a system for using spares</td>
<td>15</td>
<td>1</td>
<td>0.07</td>
</tr>
<tr>
<td>Preventive maintenance is performed</td>
<td>10</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Spares are stored in a systematic manner</td>
<td>6</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>There is a fabric gradation system</td>
<td>20</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>There is a grading system</td>
<td>9</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>There is a location wise entrance</td>
<td>11</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Roles &amp; responsibilities are assigned</td>
<td>7</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Orderwise production plan is maintained</td>
<td>9</td>
<td>0</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Performance improvements also persisted, with firms actively increasing consulting & marketing practices.

<table>
<thead>
<tr>
<th>Table 5: Longer-run Plant performance and management changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dep Var</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Panel A: Long-run performance</strong></td>
</tr>
<tr>
<td>Treatment*(Year&gt;=2011)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Permutation Test (p-value)</td>
</tr>
<tr>
<td><strong>Panel B: Experimental and non-Experimental plants</strong></td>
</tr>
<tr>
<td>Experimental<em>Treatment</em>(Year&gt;=2011)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Permutation Test (p-value)</td>
</tr>
<tr>
<td>Non-Experimental<em>Treatment</em>(Year&gt;=2011)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Permutation Test (p-value)</td>
</tr>
<tr>
<td><strong>Panel C: Treatment impact by period</strong></td>
</tr>
<tr>
<td>Treatment*(Year==2011)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Permutation Test (p-value)</td>
</tr>
<tr>
<td>Treatment*(Year==2014)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Permutation Test (p-value)</td>
</tr>
<tr>
<td>Treatment*(Year==2017)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Permutation Test (p-value)</td>
</tr>
<tr>
<td>F-test Treatment*(Year==2014), &amp; Treatment*(Year==2017)</td>
</tr>
<tr>
<td><strong>Control group mean (all in levels)</strong></td>
</tr>
<tr>
<td><strong>Firms</strong></td>
</tr>
<tr>
<td><strong>Plants</strong></td>
</tr>
<tr>
<td><strong>Observations</strong></td>
</tr>
</tbody>
</table>
Practices appear to spread out fully in treatment firms

Note: The three graphs plot the average scores for each of the 38 questions for the 14 (11 in 2017) treatment experimental plants (on the x-axis) and the 6 treatment non-experimental plants (on the y-axis) in 2008 (top-left), 2011 (top-right) and 2017 (bottom-left). The correlations between these scores for the 38 practices are reported as well on the graphs.
What this experience taught me:

1. Working with firms on the ground is great for ideas generation (and photos for presentations….)

2. You can be creative – e.g. work with a government agency to randomize their management interventions

3. There are massive gaps in the management RCT literature
   - Almost nothing on large firms
   - Almost nothing beyond simple incentive interventions
   - Almost nothing on joint interventions (e.g. HR & operations)
   - Whole fields appear to be missed (e.g. strategy, CSR)
Or the role of diversity in firm performance?
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”

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

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

Switchboard: “Yes ma’am we do”

Interviewer: “Do you have an orthopaedic department?”

Switchboard: “Yes ma’am we do”

Interviewer: “What about a cardiology department?”

Switchboard: “Yes ma’am”

Interviewer: “Great – can you connect me to the ortho department”

Switchboard?: “Sorry ma’am – I’m a patient here”
A rising share of employees now regularly engage in working from home (WFH), but there are concerns that this can lead to "shirking from home." We report the results of a WFH experiment at Ctrip, a 16,000-employee, NASDAQ-listed Chinese travel agency. Call center employees who volunteered to WFH were randomly assigned either to work from home or in the office for nine months. Home working led to a 13% performance increase, of which 9% was from working more minutes per shift (fewer breaks and sick days) and 4% from more calls per minute (attributed to a quieter and more convenient working environment). Home workers also reported improved work satisfaction, and their attrition rate halved, but their promotion rate conditional on performance fell. Due to the success of the experiment, Ctrip rolled out the option to WFH to the whole firm and allowed the experimental employees to reschedule between the home and office. Interestingly, over half of them switched, which led to the gains from WFH almost doubling to 22%. This highlights the benefits of learning and selection effects when adopting modern management practices like WFH.

\[\text{JEL Codes: D24, L23, L84, M11, M54, O31}\]

I. INTRODUCTION

Working from home (WFH; also called telecommuting or telework) is becoming an increasingly common practice. In the United States, the proportion of employees who primarily work...
'WORK FROM HOME!!!! EARN THOUSANDS OF DOLLARS MONTHLY!'
Online the image is also negative
And suspicion over WFH was clear in the media after Yahoo’s 2013 decision (to ban WFH)
Ran a working from home RCT
Individuals randomized home (even birthdays)

Working at home

Working at home

Working at home

Working at home
Home based employees were still actively managed.
First, found a massive improvement in performance – 13% more output
Of this 13% found 3.5% from more calls taken per minute and 9.5% from more minutes on the phone.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>(3) Phonecalls</th>
<th>(4) Phonecalls Per Minute</th>
<th>(5) Minutes on the Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period: 11 months pre-experiment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experiment*Treatment</td>
<td>0.122***</td>
<td>0.033**</td>
<td>0.089***</td>
</tr>
<tr>
<td></td>
<td>(0.026)</td>
<td>(0.013)</td>
<td>(0.028)</td>
</tr>
<tr>
<td>Number of Employees</td>
<td>137</td>
<td>137</td>
<td>137</td>
</tr>
<tr>
<td>Number of Weeks</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Observations</td>
<td>9503</td>
<td>9503</td>
<td>9503</td>
</tr>
</tbody>
</table>

Note: All regressions include a full set of individual and week fixed effects, with standard errors clustered by individual. Treatment=even birthday. Hours worked from log-in data.
Time on the phone rose 9.5%, 2/3 due from more hours per day (better punctuality and less breaks) and 1/3 from more days worked (less “sick” days)

Table 3: Decomposition of the change in labor supply

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1) Minutes on the Phone</th>
<th>(2) Minutes on the Phone</th>
<th>(3) Minutes on the Phone/Hours Worked</th>
<th>(4) Hours Worked/Days Worked</th>
<th>(5) Days Worked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>All</td>
<td>Airfare</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Period: 11 months pre-experiment and 9 months of experiment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experiment*Treatment</td>
<td>0.089***</td>
<td>0.090**</td>
<td>-0.017</td>
<td>0.068**</td>
<td>0.039**</td>
</tr>
<tr>
<td></td>
<td>(0.028)</td>
<td>(0.044)</td>
<td>(0.033)</td>
<td>(0.028)</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Number of Employees</td>
<td>137</td>
<td>89</td>
<td>89</td>
<td>89</td>
<td>89</td>
</tr>
<tr>
<td>Number of Weeks</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Observations</td>
<td>9,503</td>
<td>3531</td>
<td>3531</td>
<td>3531</td>
<td>3531</td>
</tr>
</tbody>
</table>

Note: All regressions include a full set of individual and week fixed effects, with standard errors clustered by individual. Treatment=even birthday. Hours worked from log-in data.
Second, quit rates drop by 50%
Third, choice doubled the impact – after the experiment the firm let all employees choose.
WFH raised profits by $1900 by person per year, leading CTrip to roll out WFH

Reduction in costs per employee WFH per year from:

- Rent: $1,200
- Hiring and training: $400
- Wages (per call): $300

So obvious question is why CTrip (or any other firm) did not do this before?
What this experience taught me:

1. Exploit random chance – I met James sitting in my class

2. In management also consider the less obvious topics – maternity and paternity leave, job-sharing, diversity etc

3. Measure everything – we asked Ctrip to record everything!
Limited performance tracking in African firms

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

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

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

*Production Manager:* “With my own eyes. It is very easy”
Some rather weird 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”
Great managers?  
Well management practices
Actually three strand of literature – e.g.


- **Managers**: Bertrand and Schoar (2003), Bennesden et al. (2007), and Lazear, Shaw and Stanton (2014), Bender et al. (2016), Kaplan and Sorenson (2016), Bandiera et al. (2017), Gow et al. (2017)

Bertrand and Schoar (2003, QJE)

Build a panel dataset tracking managers across S&P500 publicly traded US firms, allowing for firm and top manager fixed effects.

Average size of firms about 10,000 employees – so impact of strategy by the top managers. They find:

1. Manager fixed effect exist (but $R^2$ about 2%, but very significant), for M&A, dividend policy, debt ratios & cost-cutting.

2. Managers have styles - more/less aggressive, internal/external growth focus. These correlated with CEO birth cohort & MBA.

3. Managers are also absolutely “better” or “worse” – performance fixed effects exist, linked to compensation & governance.
Perez-Gonzalez (2006, AER)

• Looks at the 335 management transitions in US publicly quoted firms (1980-2001) with concentrated family holdings

• Find the announcement that the founding CEO will step-down leads to:
  • Big stock rise if the next CEO is not a family-member
  • Big 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)

• Related paper (Bennedsden, Mortenson, Perez-Gonzalez and Wolfenson, 2007 QJE) looks at family CEOs in Denmark, using gender of first born as an instrument, finding large negative impact of family CEOs
Lazear, Shaw and Stanton (2014)

- Look at detailed micro data on workers and team managers in a large service firm (i.e. call center type place)

- Find large “boss-effects” – going from top to bottom 10% equivalent to adding 15% more workers to the team

- Good bosses also reduce workers quit rates and worth about 1.75 workers (also about their salary difference)
Other broad types CEO papers

1. CEO performance papers (just discussed)

2. CEO behavior papers (e.g. Kaplan and Sorenson (2016), Malmendier and Tate (2009), Mullins and Schoar (2013))
   - “people” or “technical”
   - “over optimistic” vs “rational”

3. CEO time use (Mintzberg, 1973), Bandiera, Hansen, Pratt and Sadun 2018) – micromanagers vs coordinators
Summary key findings

1) Massive variation in productivity across firms

2) About \( \frac{1}{4} \) to \( \frac{1}{2} \) variation appears to be due to management

3) Management driven by regulation, ownership, competition, education and knowledge spillovers

4) Managers matter – large fixed effects and variations in style

Great opportunities – huge areas almost nothing is known about. Strategy, diversity, work-life balance, manager RCTs etc.
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RESEARCH

We have worked with thousands of managers from nearly 40 countries to measure performance in their firms.

DATE FOR YOUR CALENDARS: NEXT EMPIRICAL MANAGEMENT CONFERENCE AT MIT ON DECEMBER 8-9, CALL FOR PAPERS COMING IN JULY.

NEW PAPER: INTERNATIONAL DATA ON MEASURING MANAGEMENT PRACTICES