



# Improving Productivity: Private, Social and Public Sector Perspectives

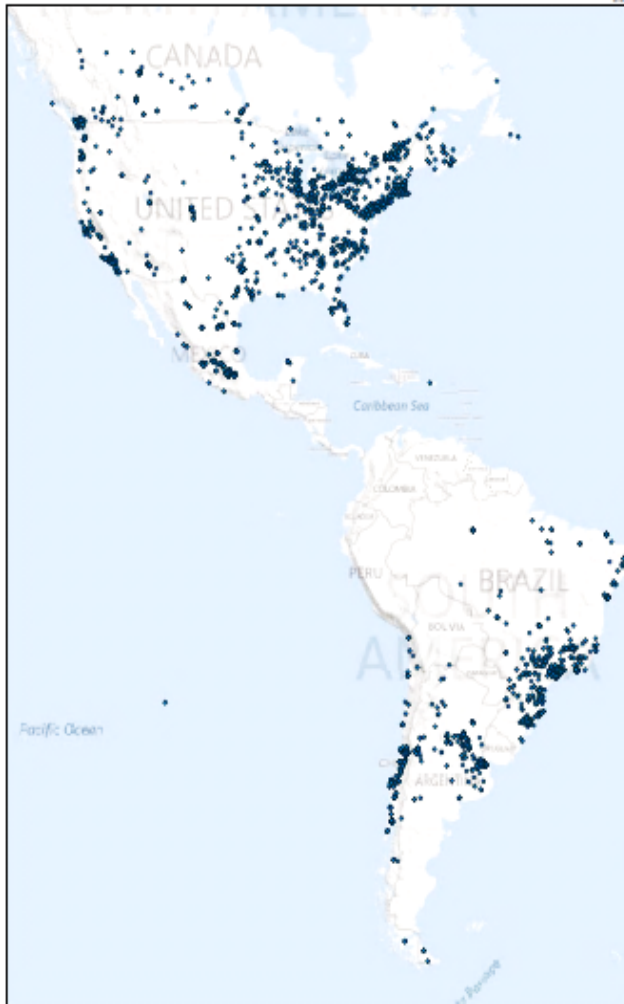
Remarks by Steven J. Davis

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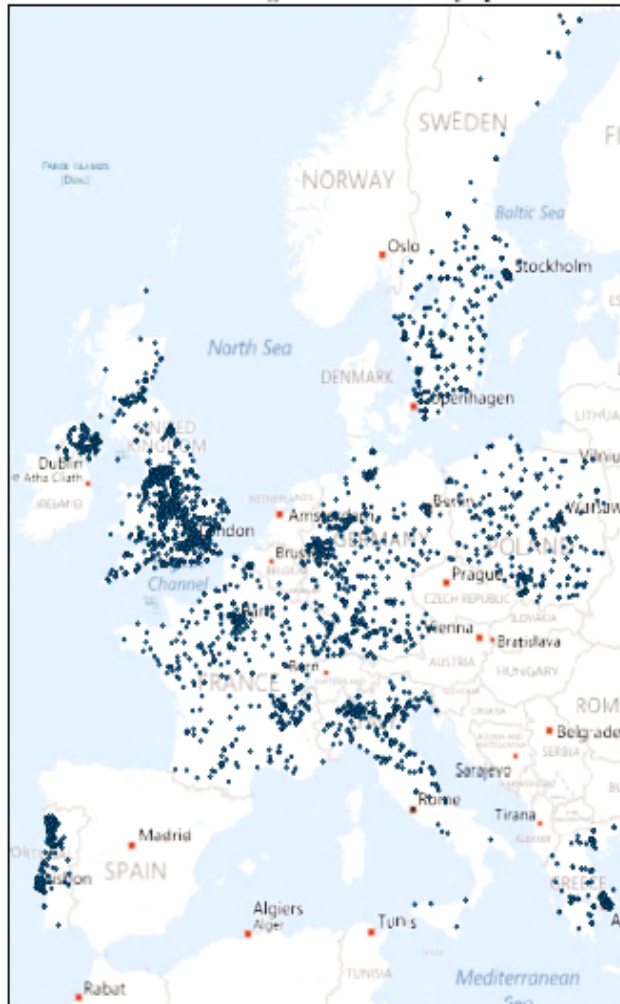
**The University of Chicago Center in Delhi**  
**29 March 2014**

# World Management Survey

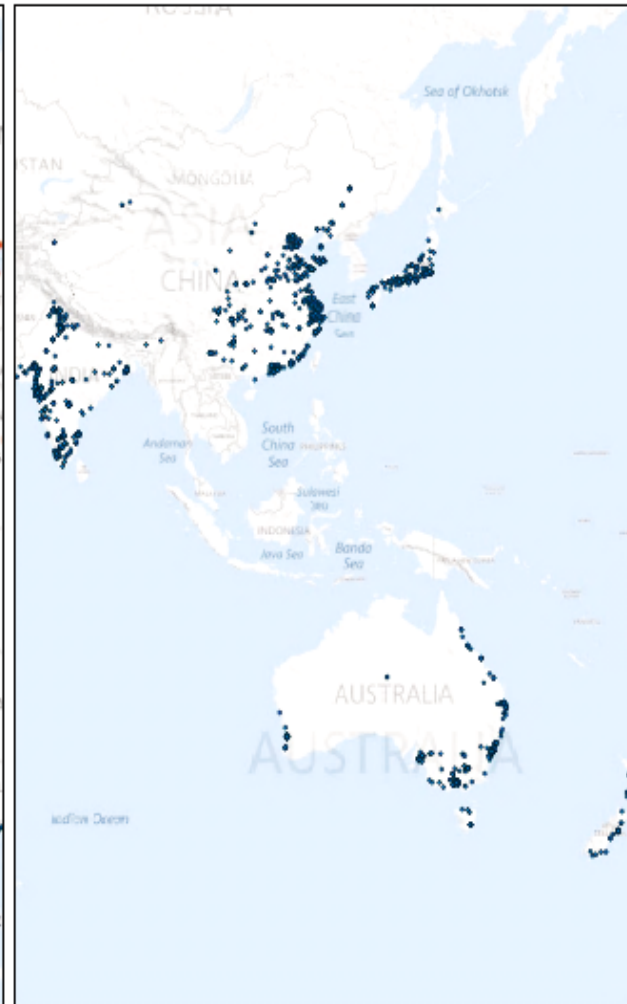
Phone interviews of 15,000 manufacturers  
with 50 to 5,000 workers each in 30 countries



Americas



Europe



Asia

# How Did the Survey Work?

**45-minute phone interview of plant manager, designed to create a scorecard for 18 practices that pertain to monitoring, business targets & people management**

Example question: *“How does the promotion system work?”*  
Based on plant manager response, interviewer assigns score:

<b>Score</b>	<b>(1) People are promoted primarily on the basis of tenure, irrespective of performance (ability &amp; effort)</b>	<b>(3) People are promoted primarily upon the basis of performance</b>	<b>(5) We actively identify, develop and promote our top performers</b>
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# SELECTED INTERVIEW EXCERPTS

## A Traditional British Chat-Up

[Male manager speaking to an Australian female interviewer]

*Production Manager:* “Your accent is really cute and I love the way you talk. Do you fancy meeting up near the factory?”

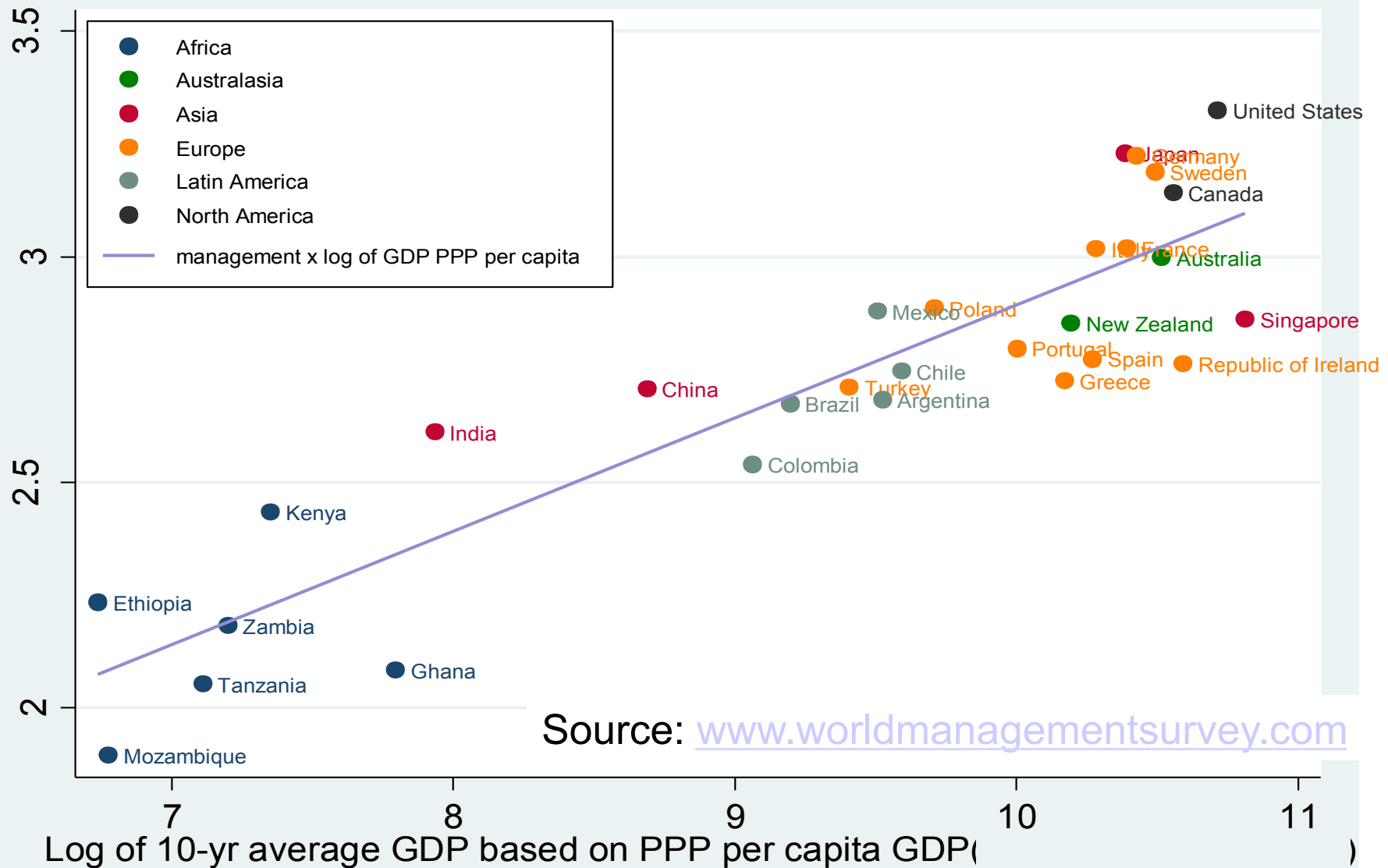
*Interviewer* “Sorry, but I’m washing my hair every night for the next month....”

## An American Geography Quiz

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

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

# Management Scores and Real GDP Per Capita



Note: April 2013, World Economic Outlook (IMF) indicator

# Does management cause GDP differences between firms and countries?

Massive literature of case-studies and surveys but no consensus

Syverson (2011, JEL) “*no potential driving factor of productivity has seen a higher ratio of speculation to empirical study*”.





# Two Recent Studies

1. “Does Management Matter? Evidence from India” by Nicholas Bloom, Benn Eifert, Arajit Mahajan, David McKenzie and John Roberts, *Quarterly Journal of Economics*, February 2013.

- A field experiment involving free management consulting to large textile plants, with 70 to 500 employees, near Mumbai.

2. “Private Equity, Jobs and Productivity” by Steven J. Davis, John Haltiwanger, Kyle Handley, Ron Jarmin, Josh Lerner and Javier Miranda, March 2014, forthcoming in the *American Economic Review*.

- A study involving 3,000+ U.S. firms acquired in private equity buyouts from 1980 to 2003.

**20 large textile plants near Mumbai, randomized into treatment (improved management) & control groups**





# How Did the Study Work?

- **Diagnostic visits** (15 days over four weeks) by consulting teams to the 20 experimental plants covered by the study.
- **Purpose:** Evaluate 38 management practices in 5 broad areas:
  - **Factory Operations:** maintenance, breakdown records, floor layout, ...
  - **Quality Control:** recording and analyzing defects and quality problems, formalizing defect reduction, ...
  - **Inventory:** Sorting, labeling, daily monitoring, optimal inventory levels, tracking of information on computers, ...
  - **Human Resources Management:** Job descriptions, performance-based incentives, ...
  - **Sales and Orders:** Tracking production at the order level, prioritizing orders, pricing to order-level costs, ...

# How Did the Study Work?

- **Implementation Phase:** Additional visits for another four months (3 or 4 days per week) to the 14 treatment plants.
- **Goal:** Based on diagnostics, introduce key management practices at treatment plants, try to persuade management to adopt them, and assist with adoption.
- **Measurement:** Track plant-level outcomes daily or weekly:
  - Productivity (output per worker)
  - Defect rates
  - Inventory levels and spoilage/loss
  - Energy use
- **How Much Consulting?** An average of 781 hours for 14 treatment plants and 273 hours for 6 control plants.

## Inventory Control: Before

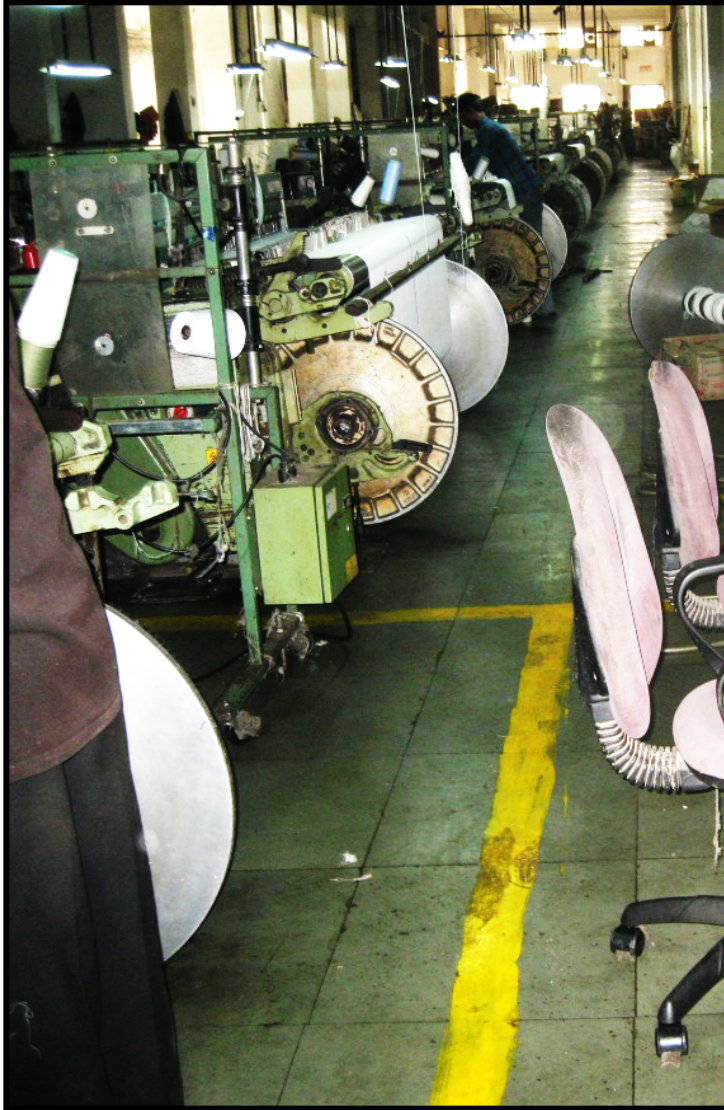


# Inventory Control: After





# Factory operations: Before





## Factory operations: After



# Factory information: Before

**FABRICS PVT. LTD.**

Design No. 5A 1600912 Beam Length 1150 Getting Date : \_\_\_\_\_  
 Batch No. 464 No. of Pieces 10 x 100 Finish Date : \_\_\_\_\_  
 Reel 5215 Total Ends 100 + 5180 + 100 Beam Weight : \_\_\_\_\_  
 Reed Space 65" Selvage 8396 Warp Weight : \_\_\_\_\_  
 Picks 74 Gage 723 15-51-49-38 Weft Weight : \_\_\_\_\_  
 Loom No. 13 Total Quality Weight : 21-000

WARP PATTERN	DRAWING PATTERN	PEG PLAN
21-A	1-2-3-4-5-x4	1-2-3-5-7
1-B	6-7-8-9-10	1-3-4-5-3
1-A	1-2-3-4-5-x4	1-2-3-4-6
1-B	4-3-2-1-5	1-2-4-5-8
21-A	2-4-1-3-5	2-3-4-5-10
21-C	4-3-2-1-5	5 PIR
5-A	12 dent / 60 cent	
1-C		
5-A		
21-C		

60 EPR

A - 160 den. black 1113/507  
 B - 160 den. white top  
 C - 160 den. black right white

8180  
100 x 2 x 100  
100 x 1  
8180

1176  
1176

selvage  
12 dent = 26 x 100 1113  
2-1152  
8 dent = 11-1152  
2-1152  
25 dent = 108 ends



**Before** Mending was recorded only to cross-check against customers' claims for rebates

7/5/2008

1291 36 68 61 68

1292 36 69 61 68

1293 37 62 57 84

1294 37 62 57 84

1295 31 38 38 84

1296 31 39 38 84

1297 24 459 56 76

1298 24 458 56 76

1299 43 4719 28 76

1300 43 4720 28 76

1291 36 68 61 68

1292 36 69 61 68

1293 37 62 57 84

1294 37 62 57 84

1295 31 38 38 84

1296 31 39 38 84

1297 24 459 56 76

1298 24 458 56 76

1299 43 4719 28 76

1300 43 4720 28 76

[illegible]

19 17:04

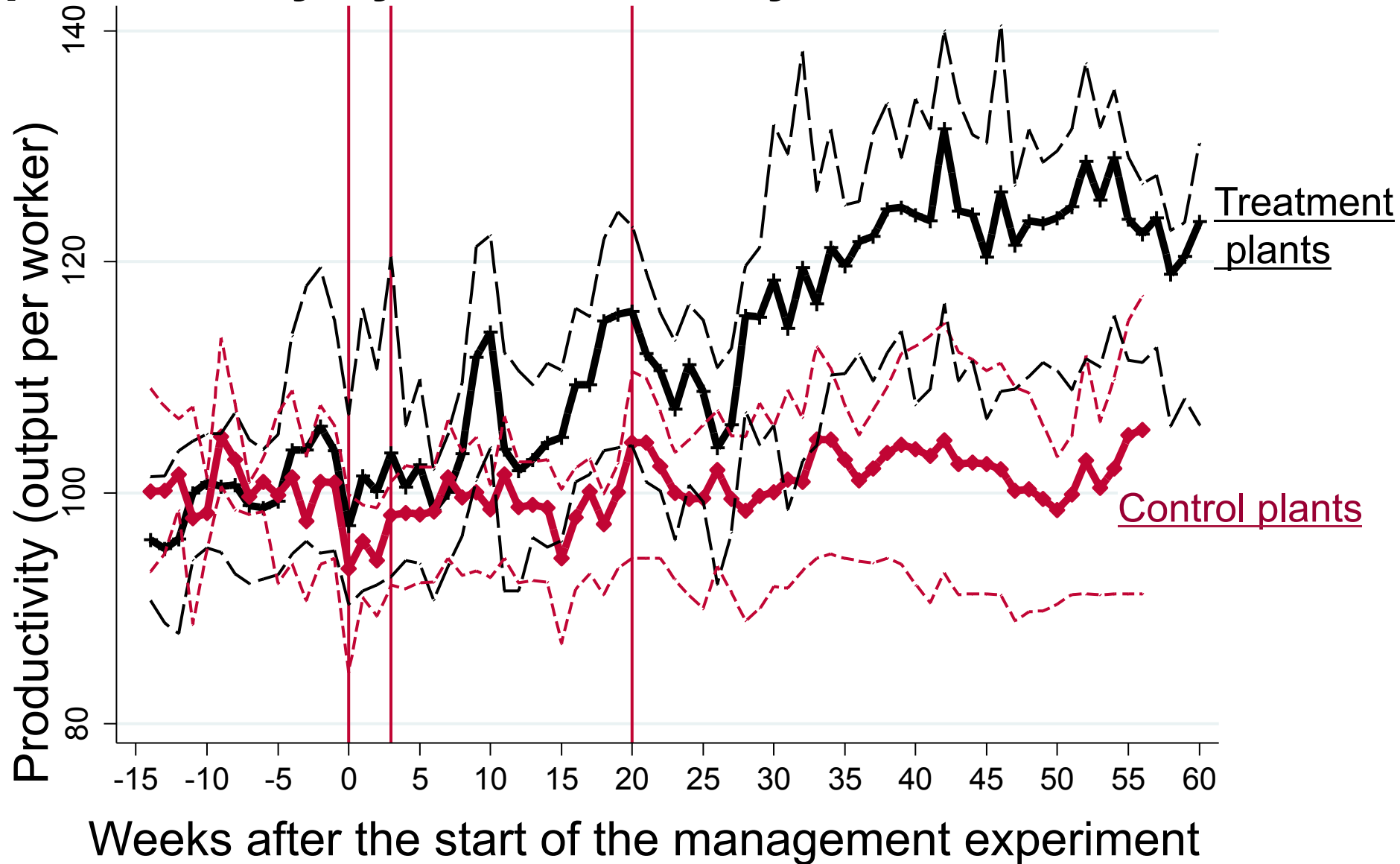


## Factory information: After

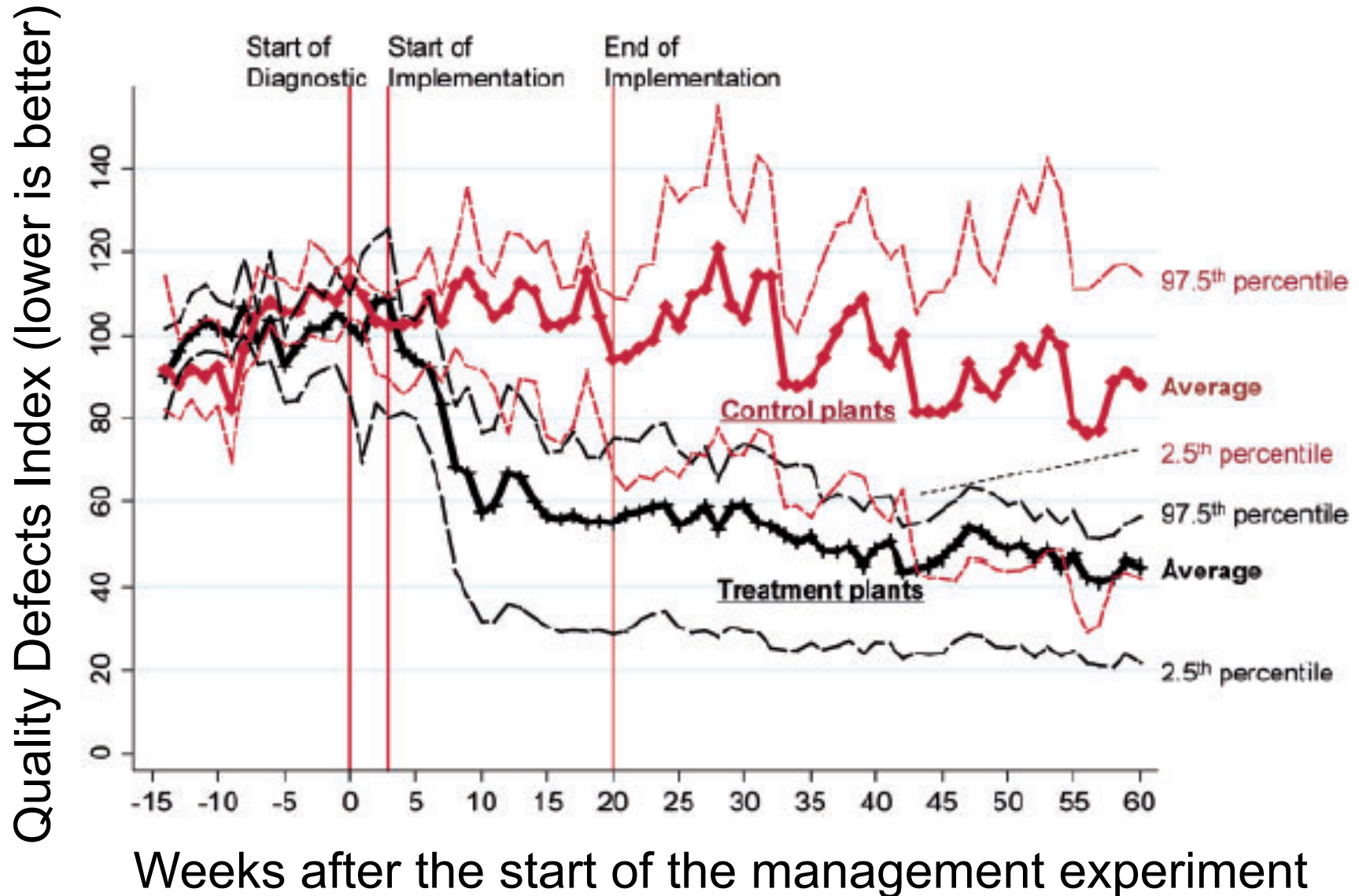




# Simple management improvements increased productivity by 20% within 1 year



# How? Many factors. One source of productivity gain was a sharp reduction in defect rates



# Why do badly managed firms exist?

## Restrictions on Competition:

- Trade barriers
- Entry barriers for new firms (financing needs, licensing)
- Barriers to expansion by highly productive firms (e.g., family size)

Limited Information: Firms either not aware of modern practices or simply do not believe they matter (“not worth it”)

# Private Equity Buyouts

- Controlling equity stakes in target firms by professionally managed partnerships (PE)
  - PE group exercises significant oversight until “exit.”
  - Most PE buyouts are highly leveraged.
  - Some involve a change in management.
- We focus on mature and later-stage target firms – i.e., excluding VC-backed firms.
- Short-hand: “Leveraged buyouts,” “LBOs,” or “buyouts.”

# Worldwide Growth of Private Equity

- Private equity as an asset class and organization form has spread throughout much of the world:
  - Buyout activity remains concentrated in North America and Europe but has grown rapidly in Asia.
- More than 21,000 PE buyouts worldwide from 1970 to 2007 (Kaplan-Stromberg [2009]):
  - Total value of firms (equity + debt) acquired in PE buyouts from 1970-2007 about \$3.6 trillion.
  - \$2.7 trillion from 2000 to 2007 alone.
  - Steep drop in PE activity in the wake of global financial crisis. Some recovery more recently.



# Empirical Method

1. Compare PE targets to controls defined in terms of industry, size, age, and multi-unit status
  - Thousands of PE buyouts from 1980 to 2003.
  - Matched to the universe of firms and establishments in the United States → millions of annual observations on control firms and establishments.
  - Follow targets and controls before and after buyout.
2. Quantify firm-level productivity changes and isolate the separate roles of changes within production units versus the reallocation of inputs across production units.

# Summary of Results

1. Target firms destroy more jobs post buyout, and they create more new jobs (mostly at new facilities), both at a higher rate than controls.
  - Sum of extra new jobs created and old jobs lost over two years amounts to 14% of initial employment.
  - Net job loss is modest – about 1% of initial employment over two years at targets relative to controls

## 2. Private equity buyouts raise productivity growth rates (this result is for manufacturing only)

- Total factor productivity (TFP) growth rate rises by 2 percentage points at target firms relative to controls over the first two years post buyout
- Three-quarters of the TFP growth effect works through plant entry and exit margins:
  - PE more aggressively shuts down low-productivity plants, and it opens more new high-productivity plants
  - That is, the extra job creation and destruction is directed in a manner that raises overall firm TFP
- Zero productivity gains (on average) within establishments – a dramatic contrast to the study of Indian textile plants

### 3. Private equity buyouts reduce annual earnings per worker (EPW)

- EPW declines by about 4% at target firms relative to controls over two years post buyout.
- EPW effect works mainly through declines at continuing establishments, secondarily through a greater propensity of target firms to divest establishments with high EPW

#### 4. Large positive effects (on average) of PE buyouts on net operating margins:

- TFP results → buyouts improve operating margins by about 2 percentage points over two years
  - Earnings per worker results → wage reductions lower unit costs by another 2 percentage points, assuming a 50% labor cost share
- Operating margins improve by about 4 percentage points
- Resulting profitability gains are magnified in their effect on earning per share by highly levered capital structures at buyout targets