



Human Capital Development in the Workplace and During the Working Years

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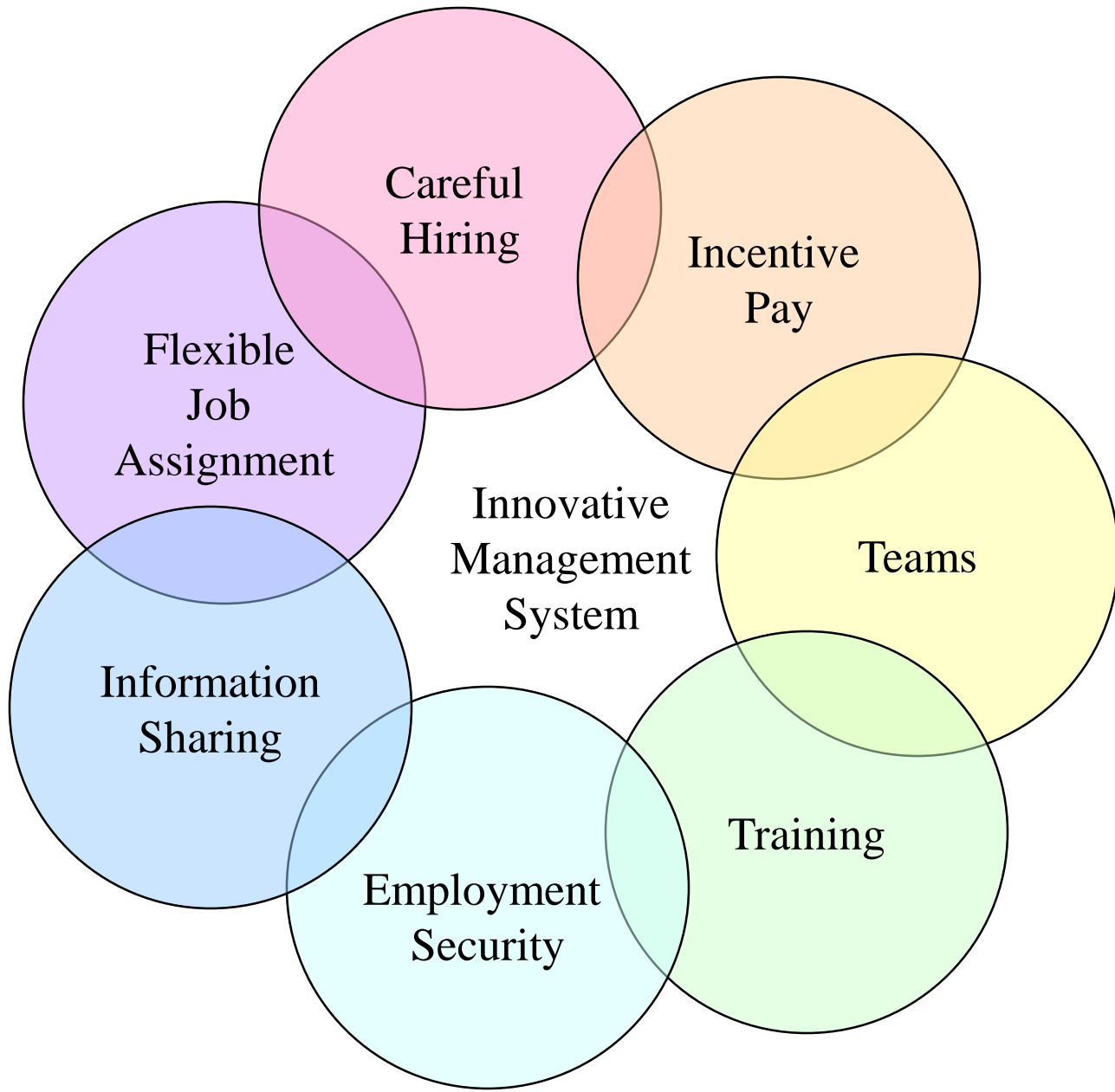
ABFER, SINGAPORE

MAY 25, 2015

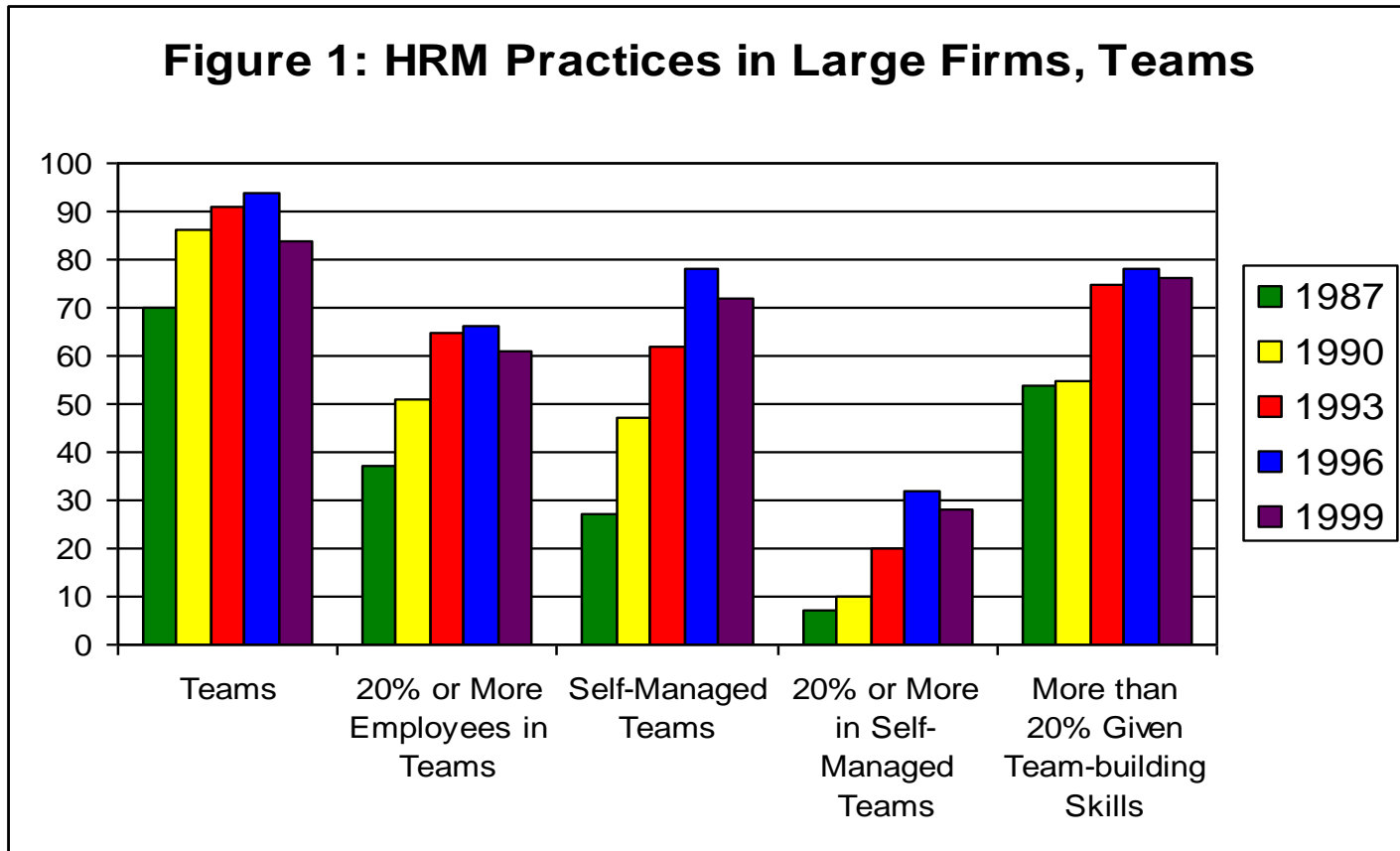
Five Key Points

1. Firms are adopting modern management methods.
2. A primary goal of modern management is to increase the problem solving activities of employees.
3. Enhanced human capital investment is a cornerstone of modern management.
4. The return to training is substantial for the worker and the firm.
5. Firms should invest in human capital when this investment is aligned with their competitive strategy.

Key Point 1: Firms are adopting modern management methods.

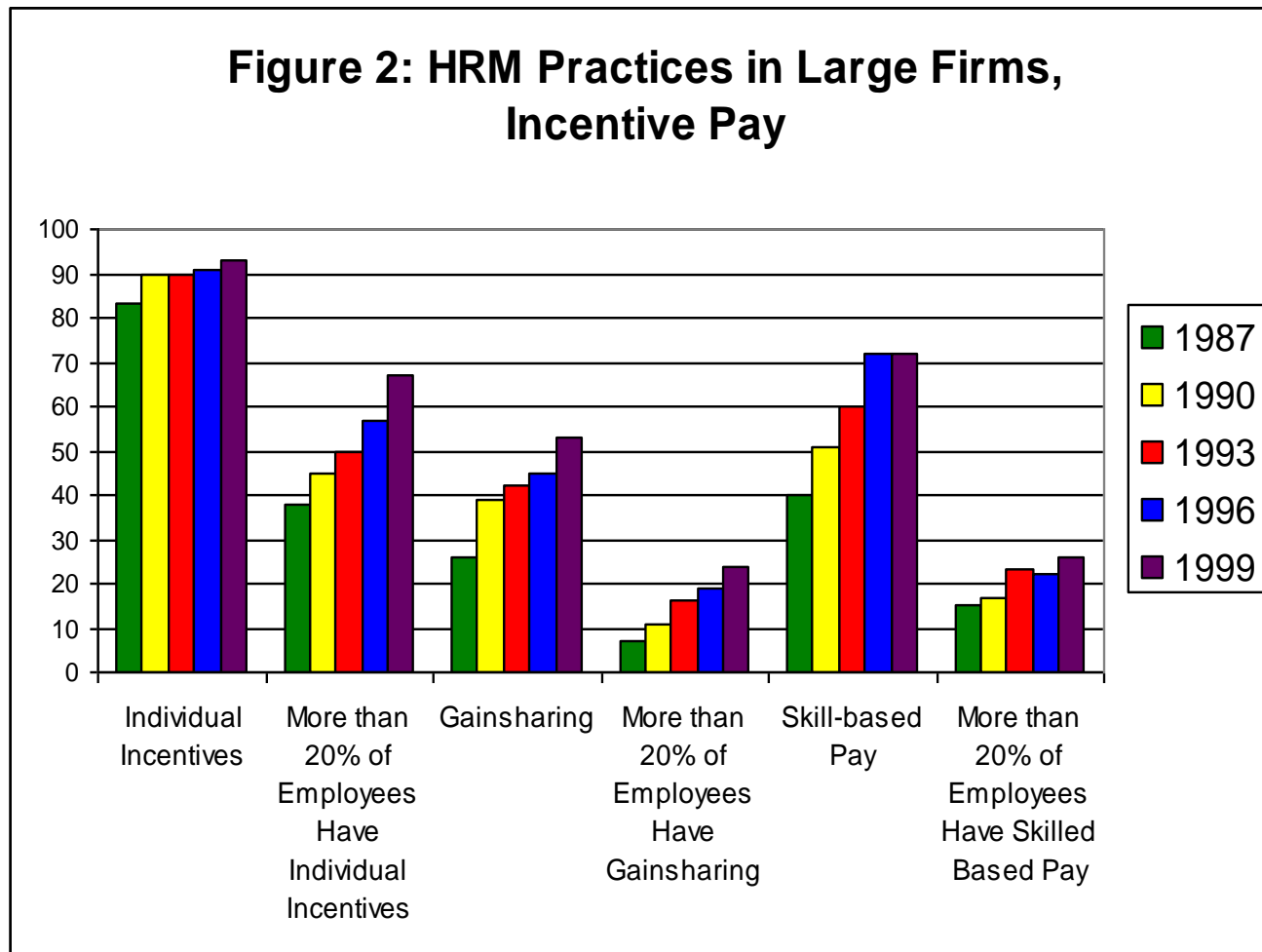


The “HR Technology Shocks” of the past have been sizable.
(Increased Team Use)



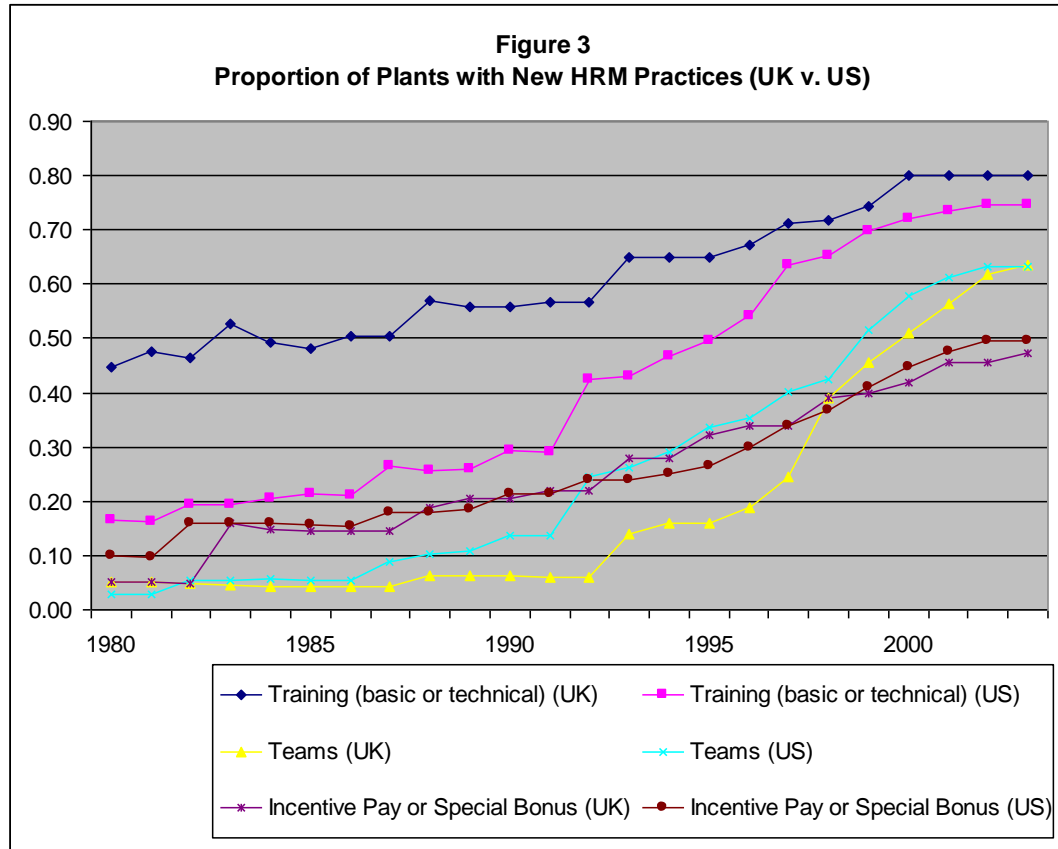
Original data: see also Lawler, Mohrman, and Benson (2001), Shaw (2003a,b), Lazear and Shaw (2007).

The “HR Technology Shocks” of the past have been sizable
(Increased Incentive Pay.)



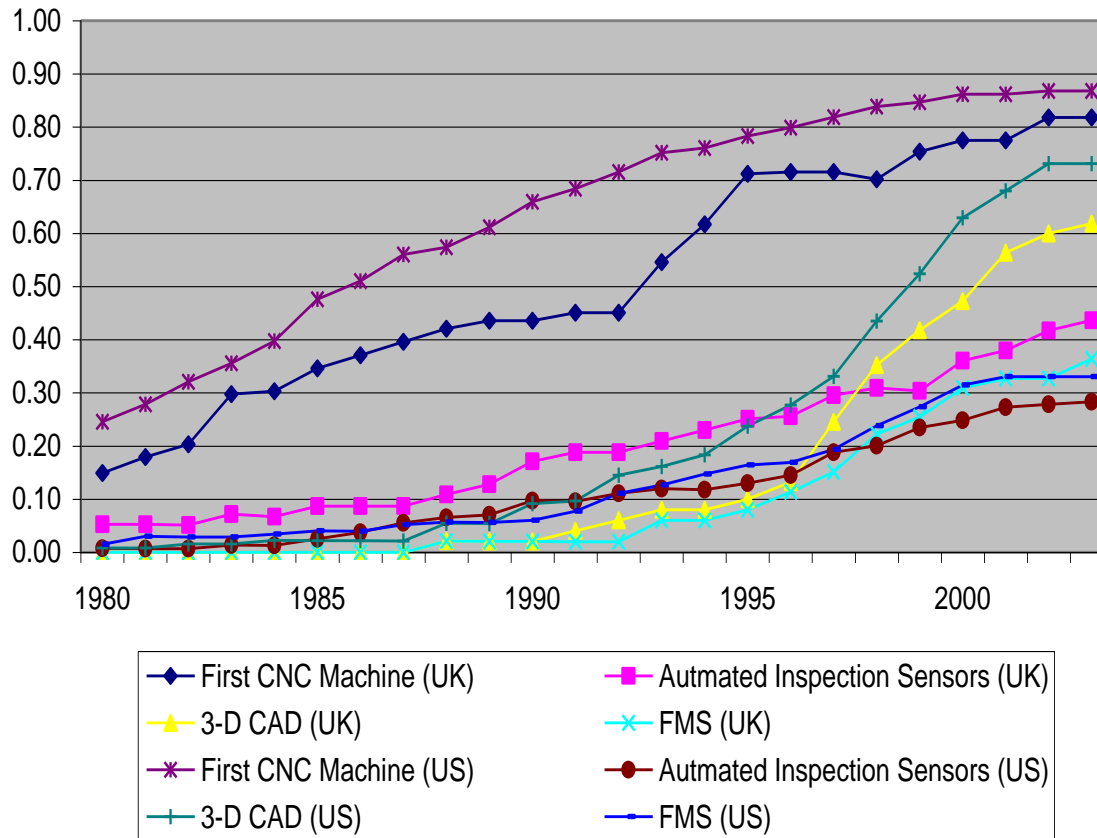
See footnote to Figure 1.

Innovations in Management Practices Began in the 1980s (Proportion of Valve-Making Plants with New HRM Practices, UK and US)



Source: Bartel, Ichniowski, Shaw (*QJE*, 2007)

HR Innovations are Combined with IT Innovations (Proportion of Valve-Making Plants with Computer-Aided Production Technologies, UK and US)



Source: Bartel, Ichniowski, Shaw (*QJE*, 2007)

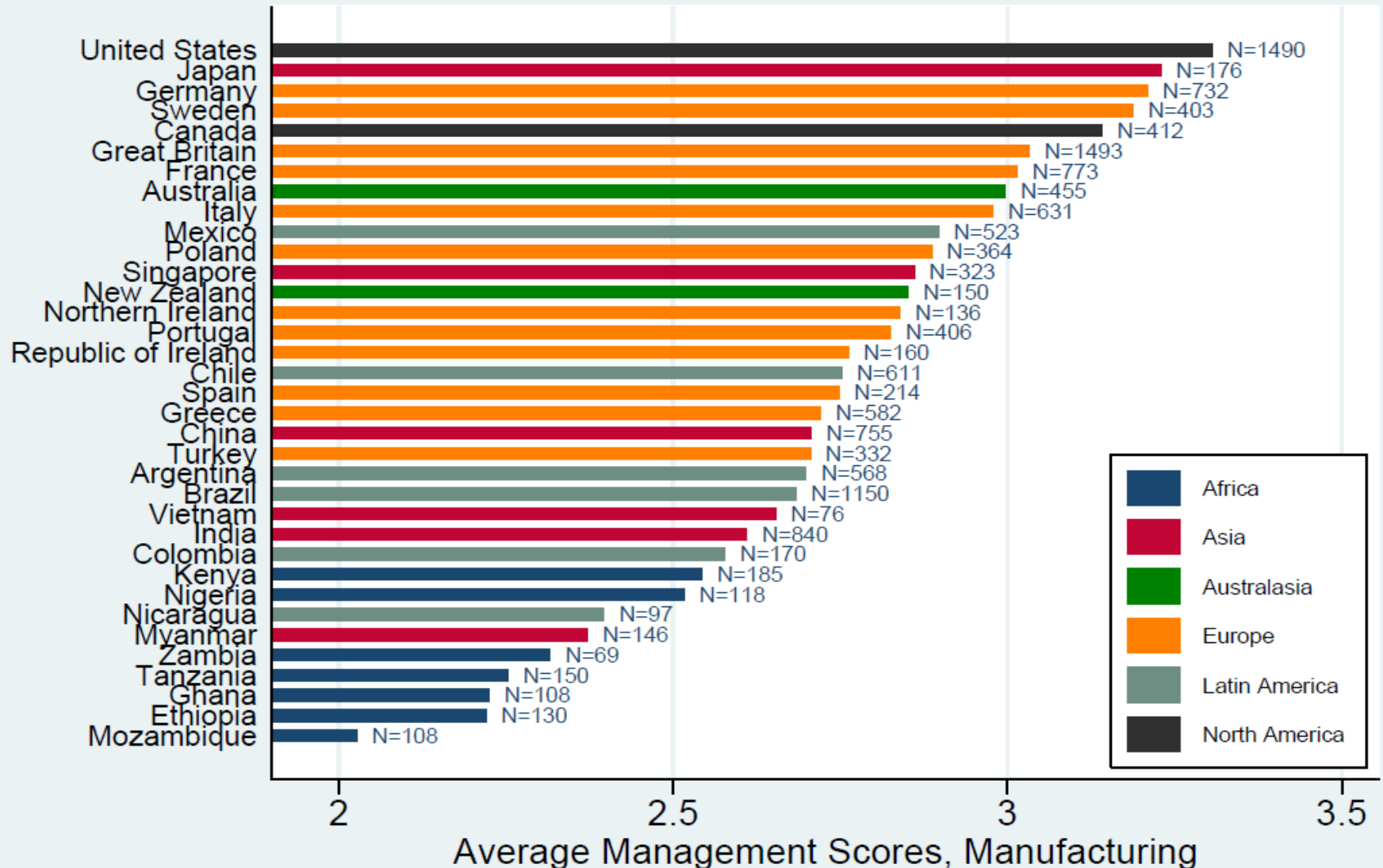
The Spread of Modern Management

- Developed countries are adopting modern management first. The U.S. leads.
- Developing countries lag.
- Innovations in information technology are driving innovations in management practices.

Management “Best Practices” in Manufacturing

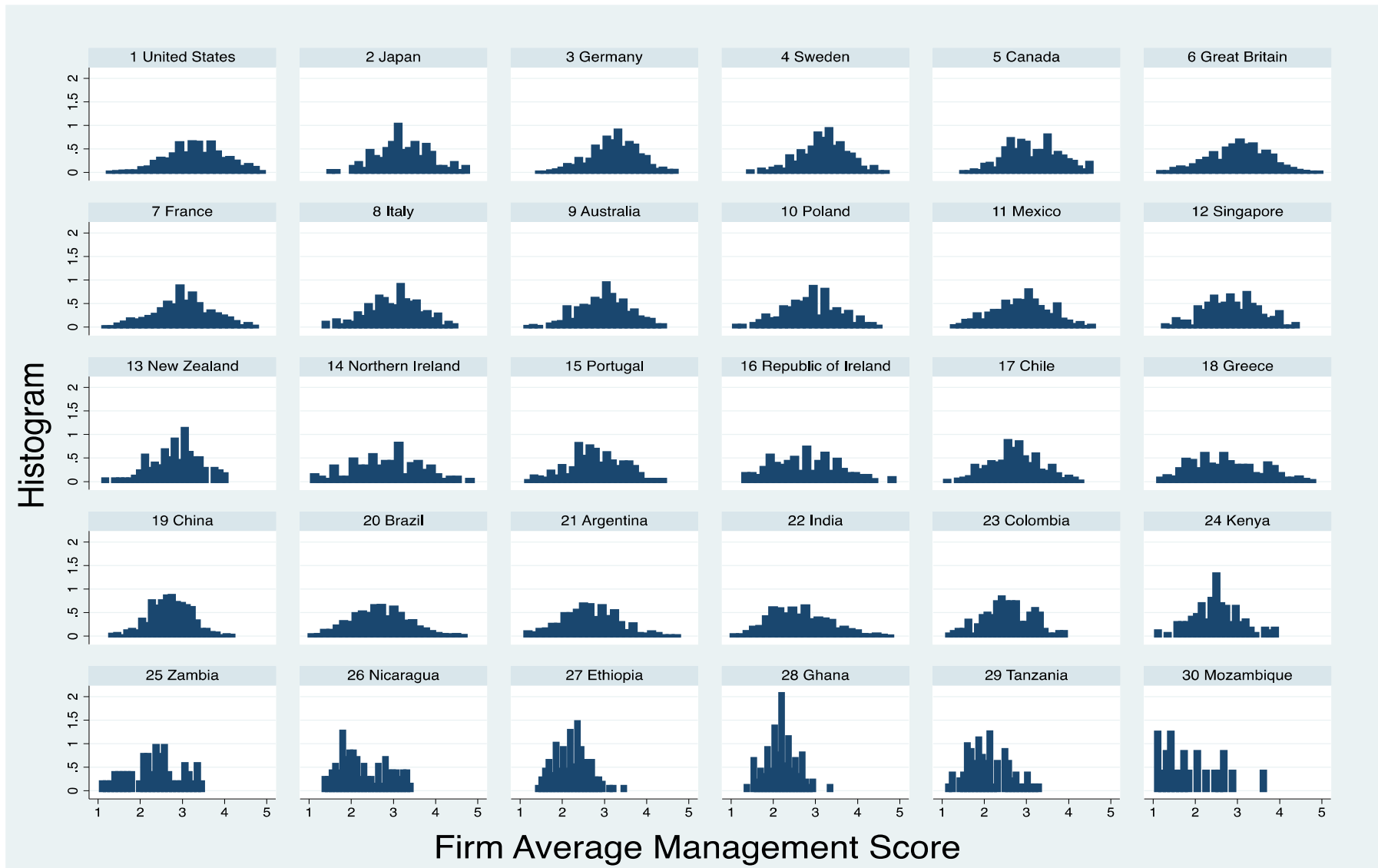
- Focus on “good” practices:
 - Lean manufacturing (using quality improvement methods to control production and pull system not push)
 - Problem solving by workers
 - Monitoring of production performance and correcting problems
 - Reviewing KPI (Key Performance Indicators) and setting standards to target higher values
 - Setting targets that everyone aims for and shares
 - Using incentives, with appraisal system, intolerance for under performing, and pay for performance
- ➔ Using these questions, create a Management Score
- ➔ Based on 18 practices, rated 1 to 5.

The Index of Modern Management Shows Varying Adoption Across Countries



Firms with 100 to 5000 employees randomly surveyed from country population. Dec 2014. Source Bloom, Lemos, Sadun, Scur and Van Reenen (2014).

There is a Large Variance in Management Scores within Countries

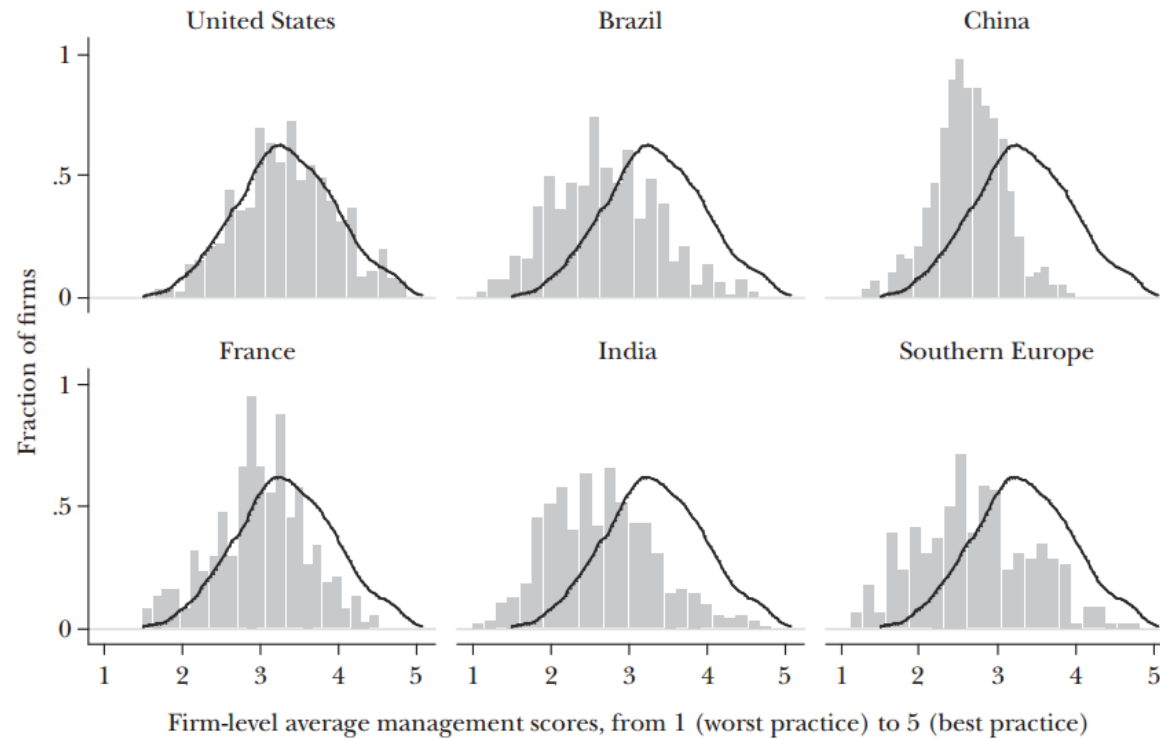


Firms with 100 to 5000 employees randomly surveyed from country population. Dec 2014. Source Bloom, Lemos, Sadun, Scur and Van Reenen (2014).

Other Countries Lag the U.S. in the Distribution of Scores

Figure 2

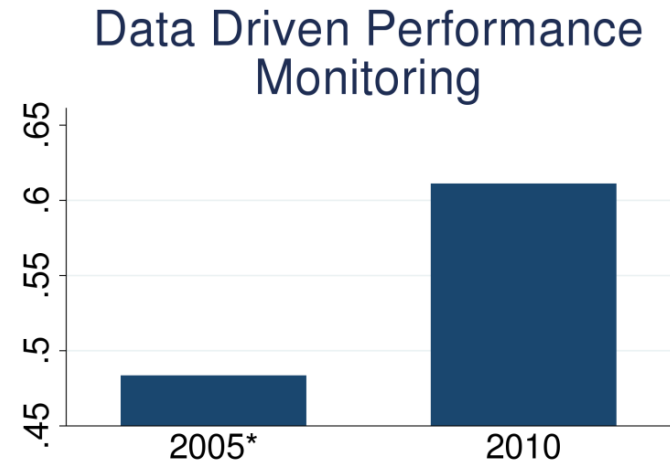
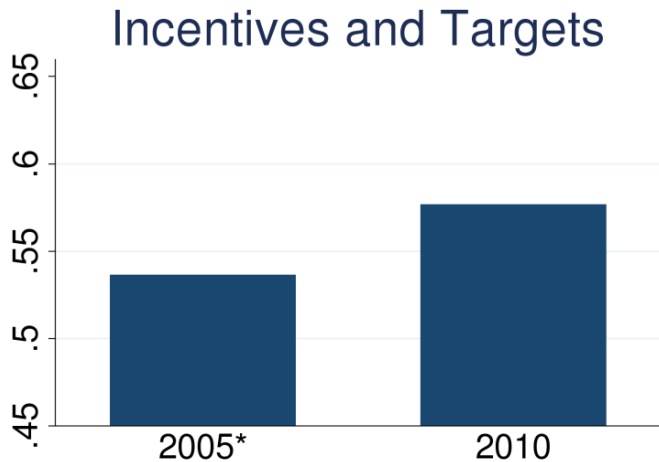
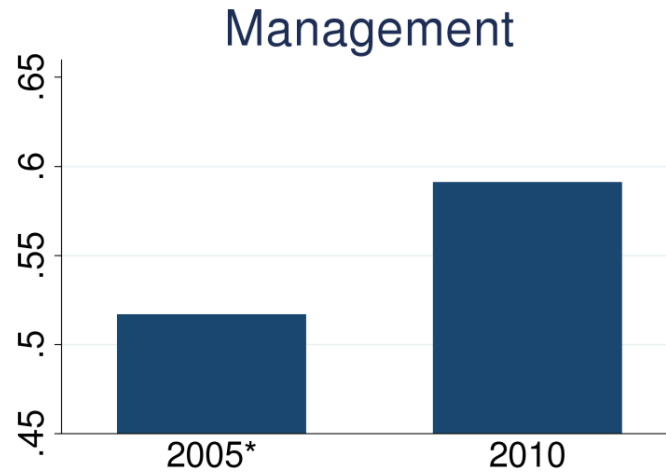
Management Practice Scores across Firms



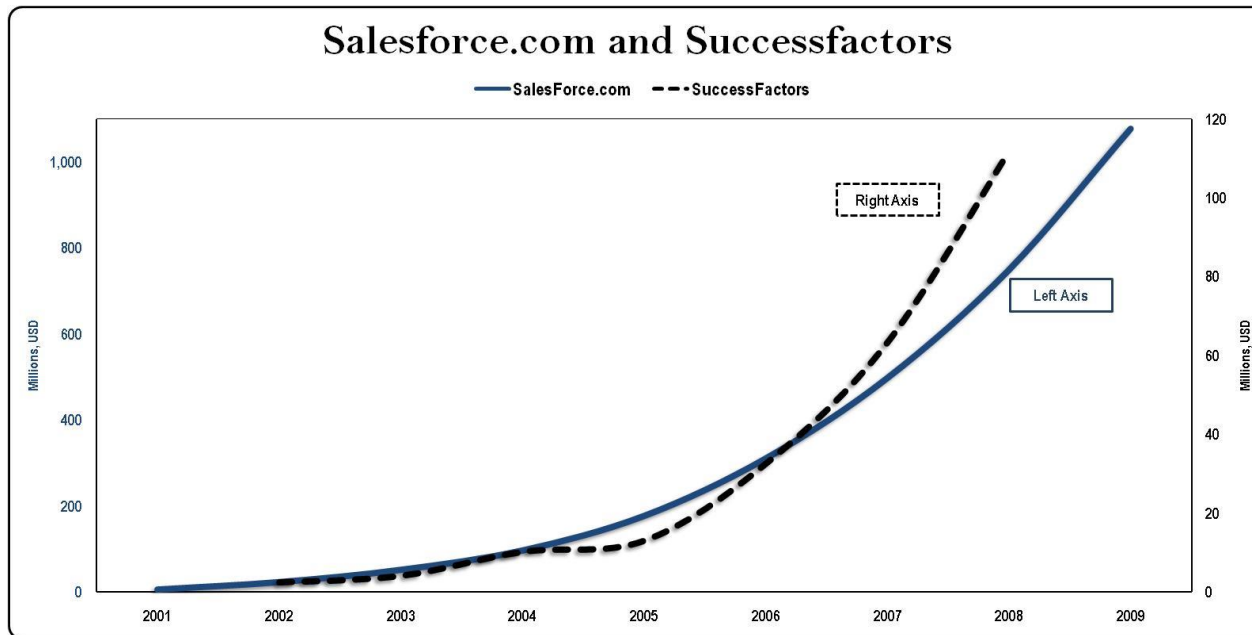
Source: Bloom, Genakos, Sadun, and Van Reenen (2009).

Notes: Bars are the histogram of the actual density. The line is the smoothed (kernel) of the U.S. density for comparison. Southern Europe combines Greece and Portugal.

Structured Management scores for data use have improved in particular, presumably because of the growing use of IT in modern firms

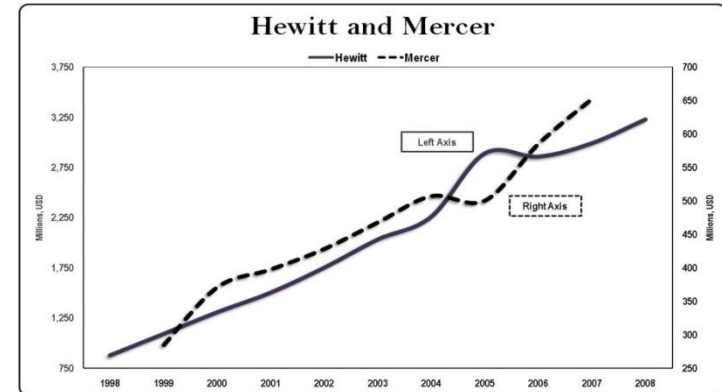
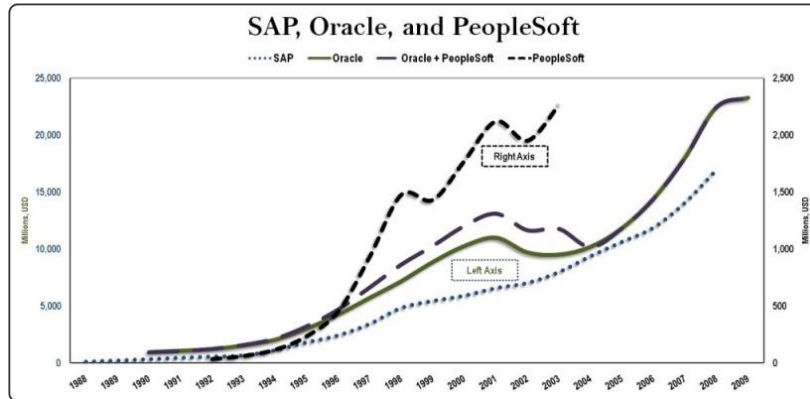


Firms are Investing Heavily in People Management



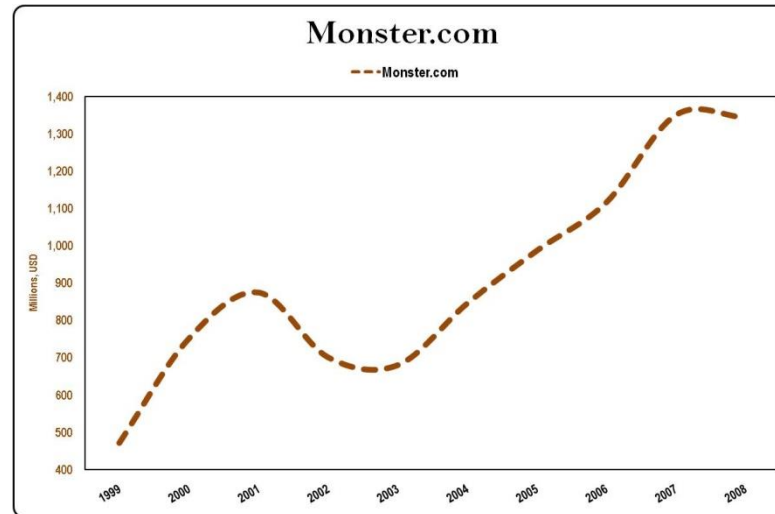
SuccessFactors creates online software for companies to conduct performance evaluation of workers' productivity.

Management-focused software firms and HR consulting firms continue to grow.



- The IT management-focused firms, of SAP and Oracle, keep growing. Part of this growth is absorbing other firms.
- The aim of innovative firms is to make people management part of operations.

Firms offering specific People Management Software grew – often quite dramatically – during this decade.

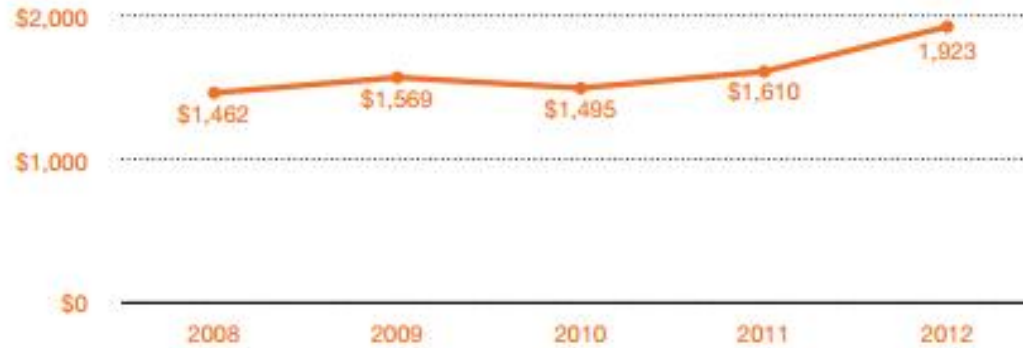


Monstor.com maintains a large percent of in-house company hiring websites worldwide.

Source: Calculations by Nick Obradovich from annual reports for operating revenue

Investment in HR Continues to Increase

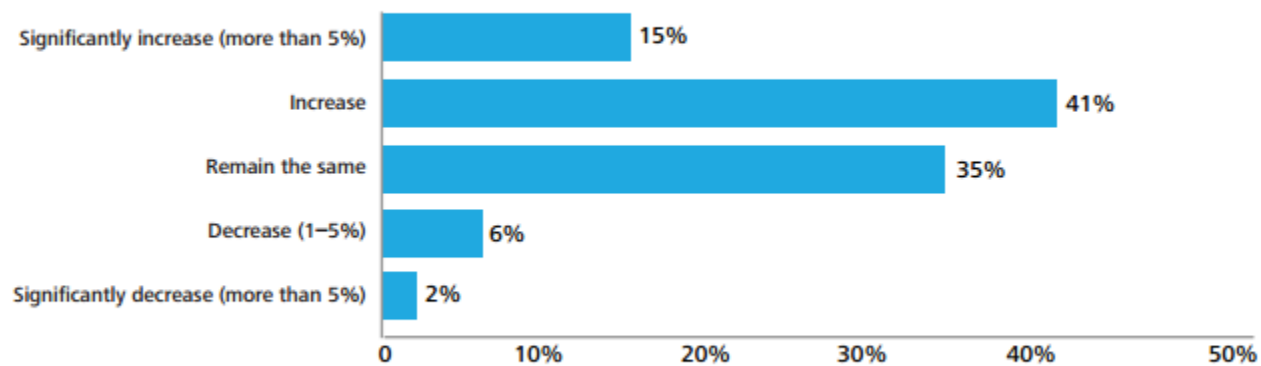
Figure 11: Investment per employee



State of the workforce: Results from PwC Saratoga's 2013/2014 US Human Capital Effectiveness Report

Most Firms Plan on Increasing HR Investment

Figure 7. Plans to invest in HR over next 12–18 months

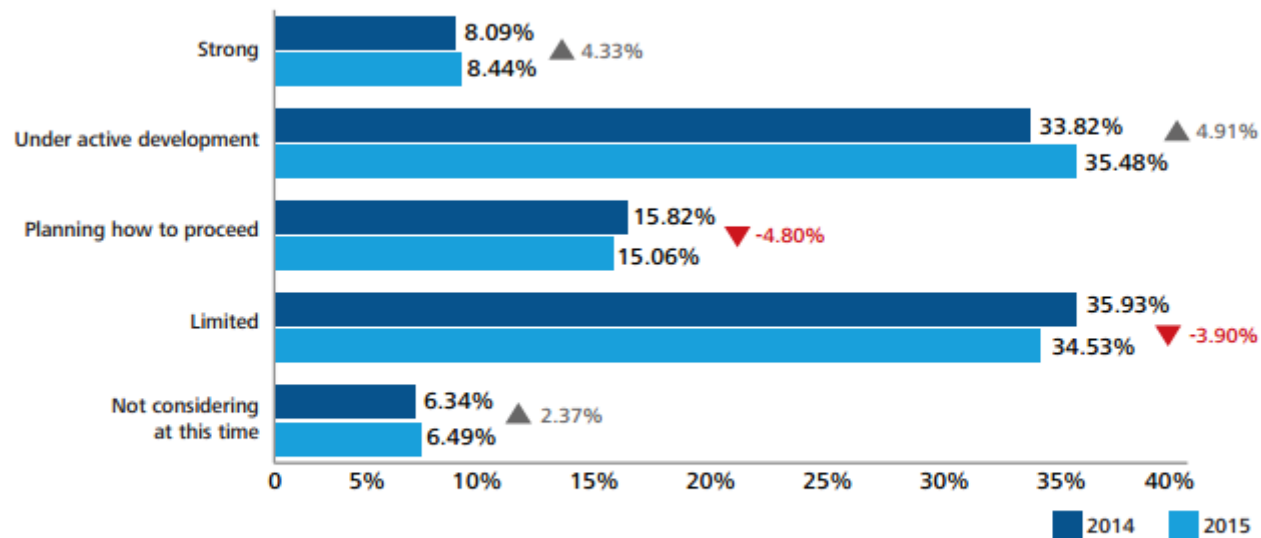


Note: Percentages may not total 100 percent due to rounding.

Graphic: Deloitte University Press | DUPress.com

Firms are Developing HR Capabilities

Figure 8. Current state of HR analytics capabilities, 2014 and 2015



Excludes respondents who answered "not applicable." Percentages are displayed to two decimal places to show the differences between the 2014 and 2015 results.

Graphic: Deloitte University Press | DUPress.com

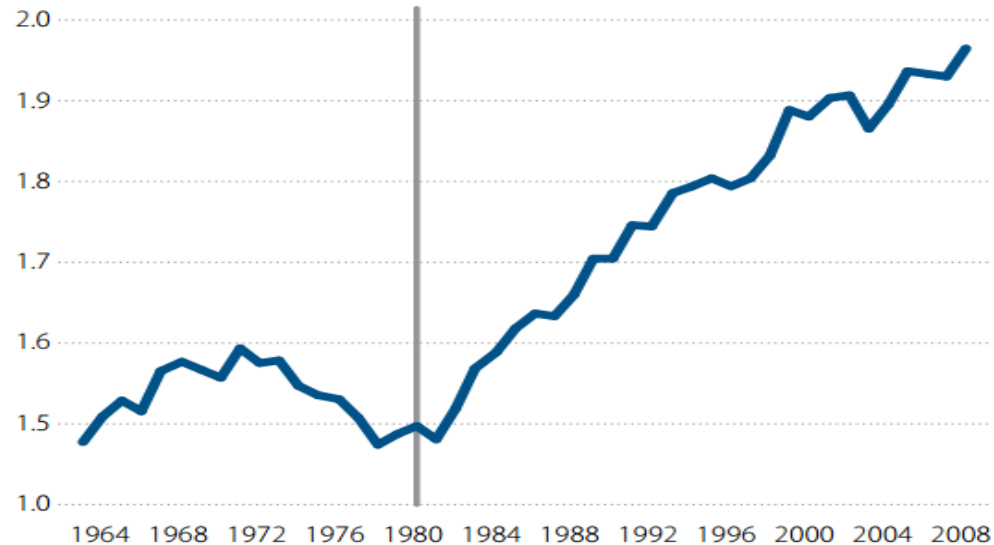
Key Point 2: A primary goal of modern management is to increase the problem solving activities of employees.

The return to education has risen.

FIGURE 10

College degree vs. high school diploma weekly wage ratio, 1963–2008

Wage ratio



Source: March CPS data for earnings years 1963–2008. Log weekly wages for full-time, full-year workers are regressed in each year on four education dummies (high school dropout, some college, college graduate, greater than college), a quartic in experience, interactions of the education dummies and experience quartic, and two race categories (black, nonwhite other). The composition-adjusted mean log wage is the predicted log wage evaluated for whites at the relevant experience level (5, 15, 25, 35, 45 years) and relevant education level (high school dropout, high school graduate, some college, college graduate, greater than college). The mean log wage for college and high school is the weighted average of the relevant composition adjusted cells using a fixed set of weights equal to the average employment share of each group. The exponentiated ratio of mean log wages for college and high school graduates for each year is plotted.

See Data Appendix for more details on treatment of March CPS data.

- High performance manufacturing plants are using dense social networks of workers to solve problems.



Sample of Communication Survey

Below is a brief illustration of one page from the survey

Employee's name: _____

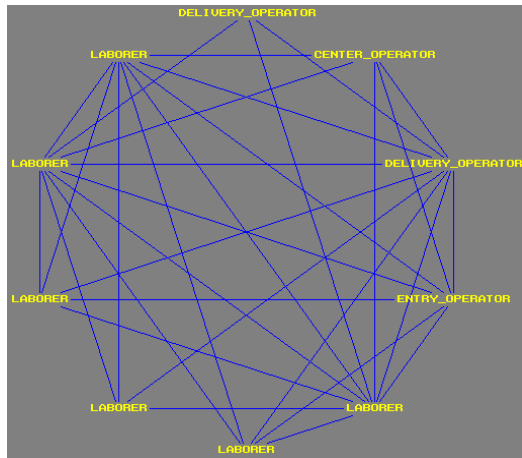
Who do you communicate with about operational issues?

Please check as many names as may be appropriate.

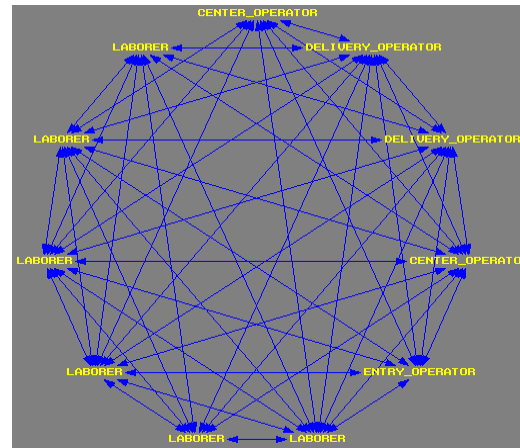
	Daily	Weekly	Monthly or less		Daily	Weekly	Monthly or less
Adams, Fred	[]	[]	[]	Hurley, Stanley	[]	[]	[]
Christopheson, Bill	[]	[]	[]	Marshall, Jim	[]	[]	[]
Haynes, Lester	[]	[]	[]	Smith, Don	[]	[]	[]
Lieman, Mary	[]	[]	[]	Norville, David Jr.	[]	[]	[]
Jordan, Barb	[]	[]	[]	Ostertag, John	[]	[]	[]
Childs, Tim	[]	[]	[]	Patton, Mike	[]	[]	[]

Manufacturing Plants are Run by Workers Solving Problems

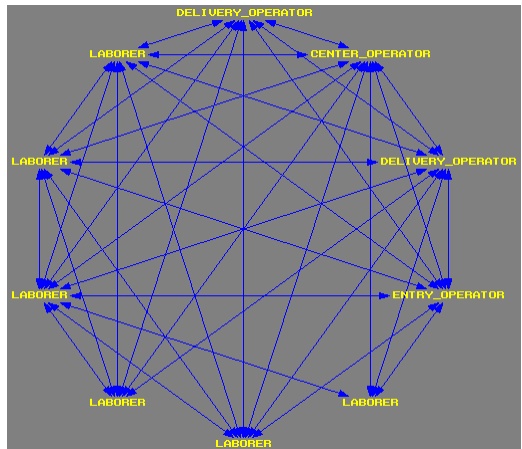
Social Networks Within Crews: High Performance Line



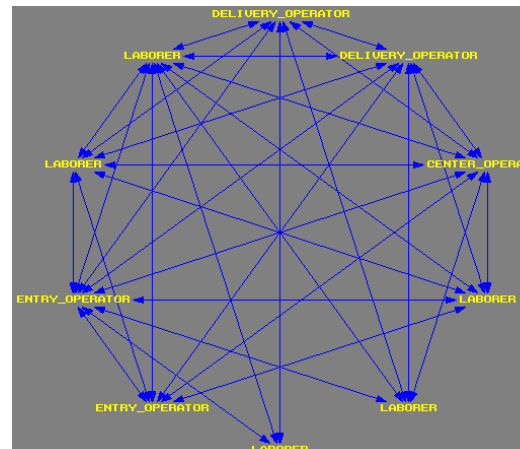
Crew A



Crew B



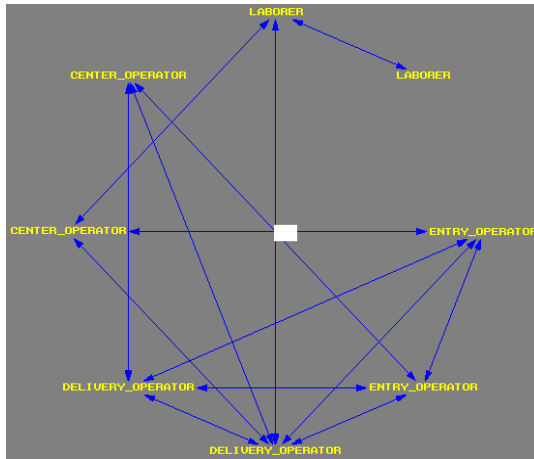
Crew C



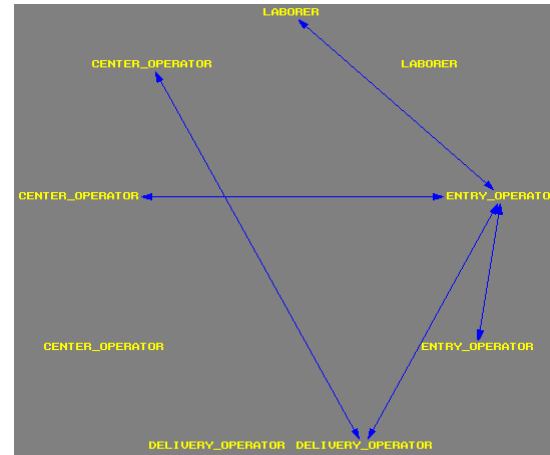
Crew D

Manufacturing Plants are Run by Workers Solving Problems

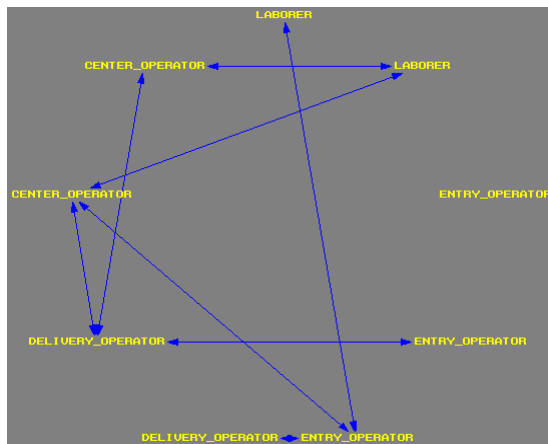
Social Networks Within Crews: Traditional Production Line



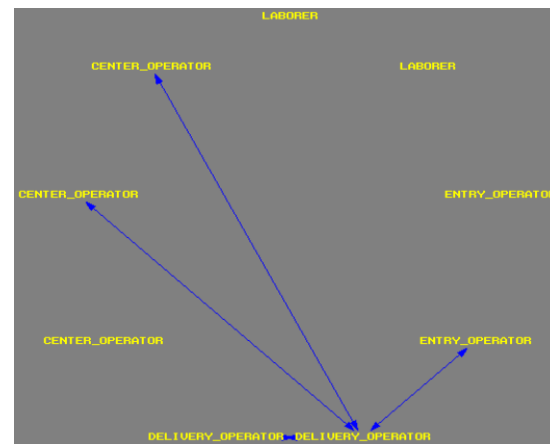
Crew A



Crew B



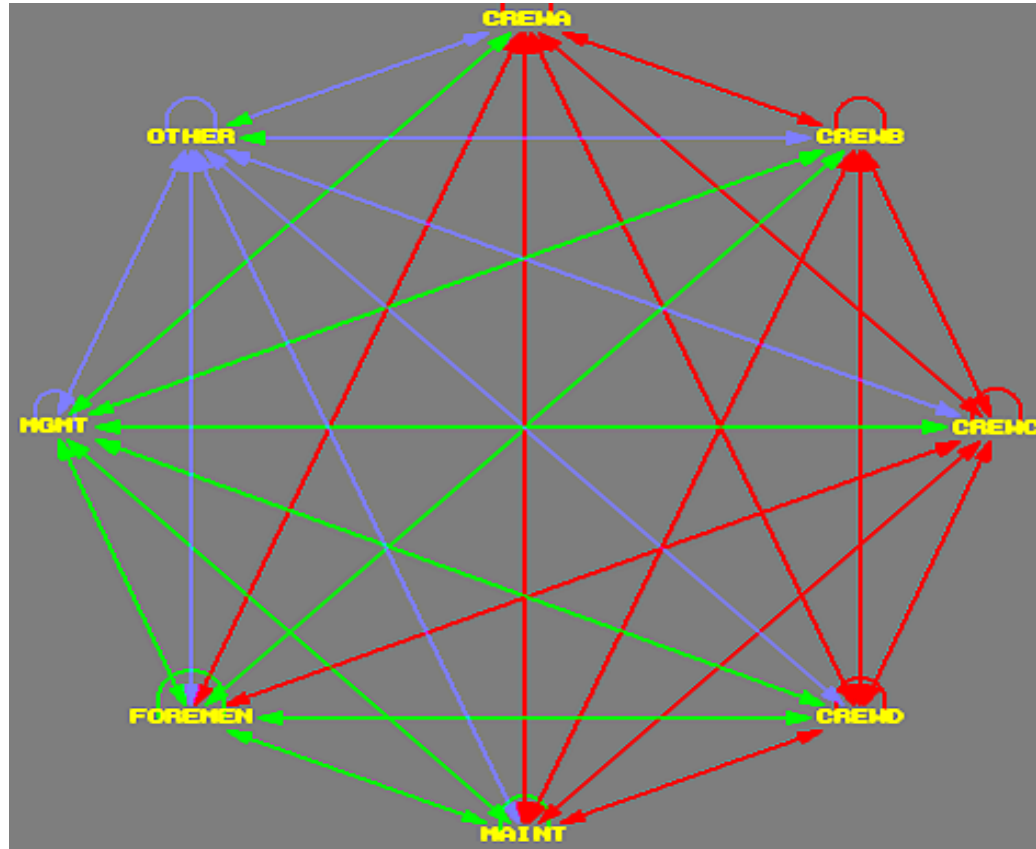
Crew C



Crew D

Manufacturing Plants are Run by Workers Solving Problems

Social Networks Across Groups: High Performance Line



Level of Inter-group Communication

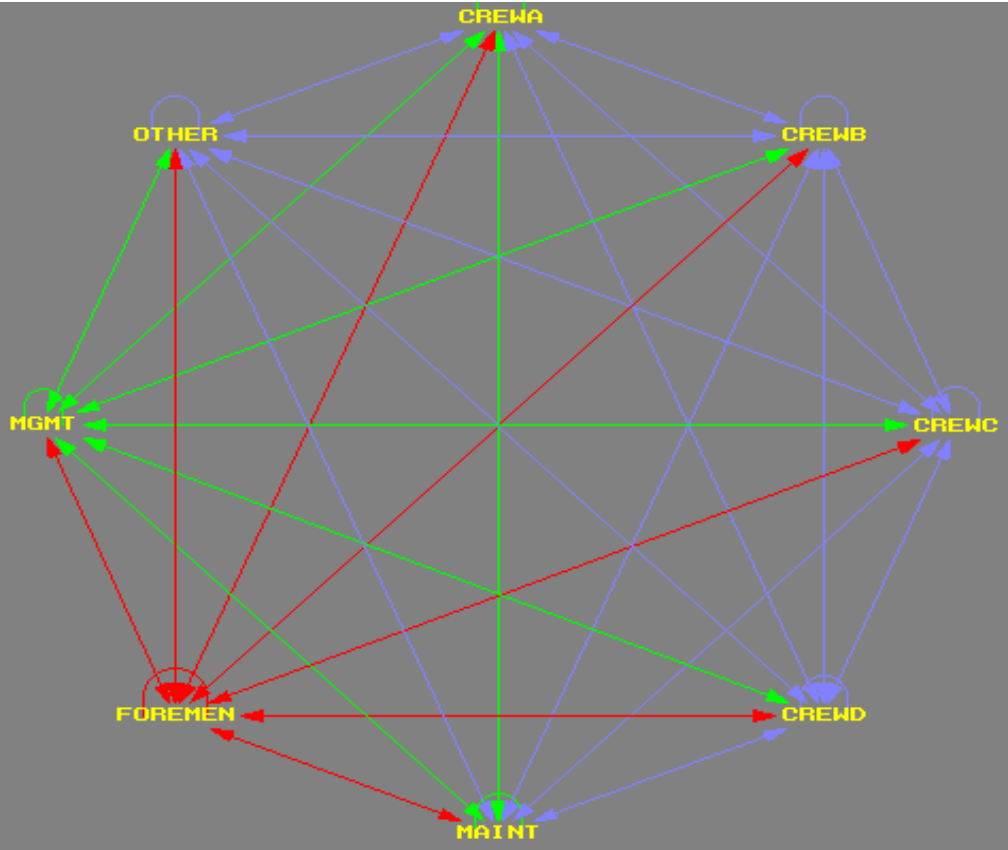
High ———

Med ———

Low ———

Manufacturing Plants are Run by Workers Solving Problems

Social Networks Across Groups: Traditional Line



Level of Inter-group Communication

- High — red —
- Med — green —
- Low — blue —

Key Point 3: Enhanced human capital investment is a cornerstone of modern management.

The Investment in Human Capital

- Workers invest in “general” skills that are transferable across firms.
- Firms invest in “firm-specific” skills that are not transferable across firms.

Workers Invest: Massive Open Online Courses

Growth of MOOCs

Cumulative number of courses started/scheduled

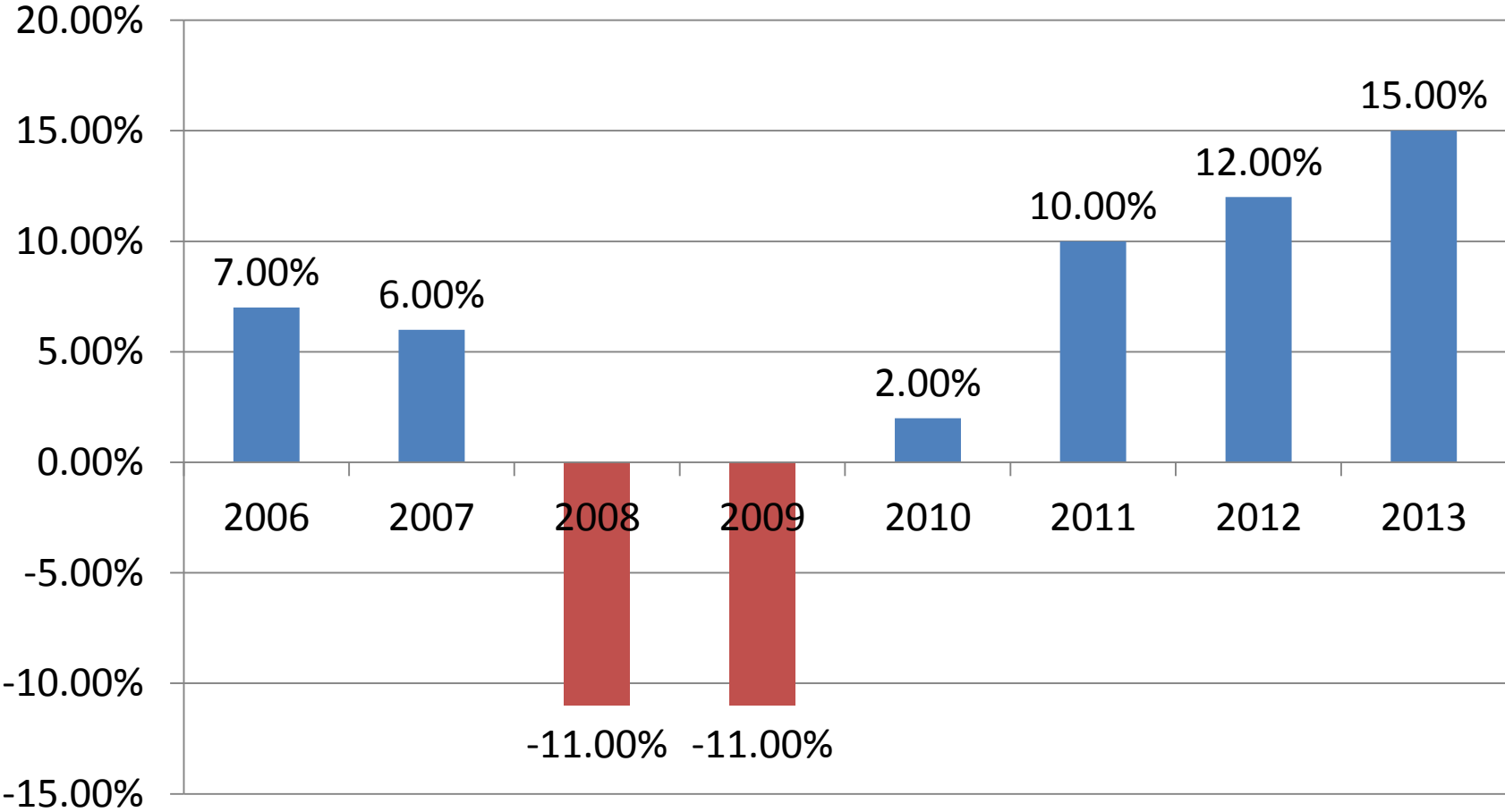


Corporate Learning in 2013

There is investment in formal training activities:

- Organizations across the U.S spent \$1,169 per learner, on average, on learning and development initiatives in 2013
 - Technology companies spent \$1,847 per learner on average.
 - Leadership development claims 35% of the Leadership & Development budget
- ➔ These numbers substantially underestimate the true investment in human capital that occurs on the job.

Year-Over-Year Change in Training Spending in the U.S.



Source: Bersin by Deloitte, 2013

Investment in Training Rewards the Firm

Table 3. Firm productivity, profitability, and market valuation, by training investments

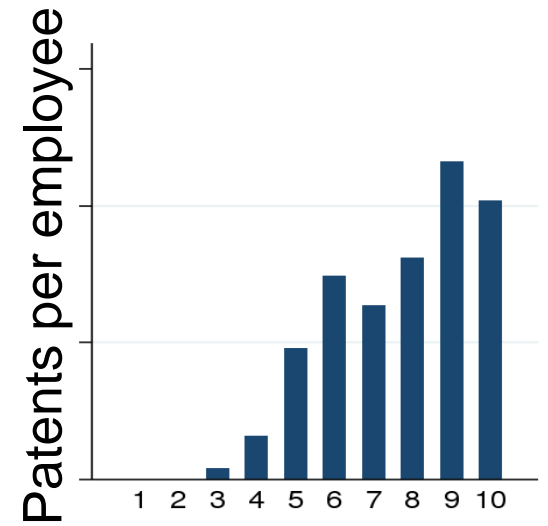
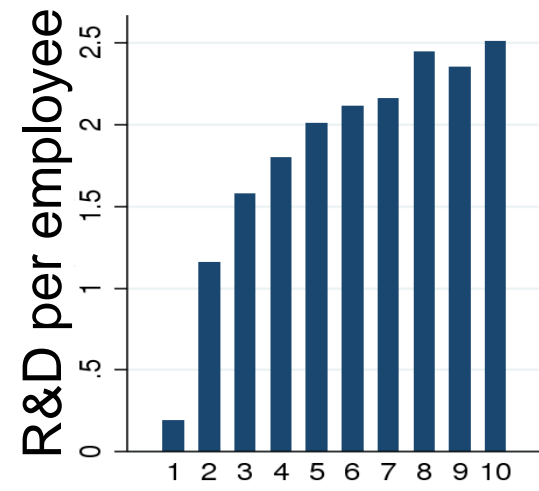
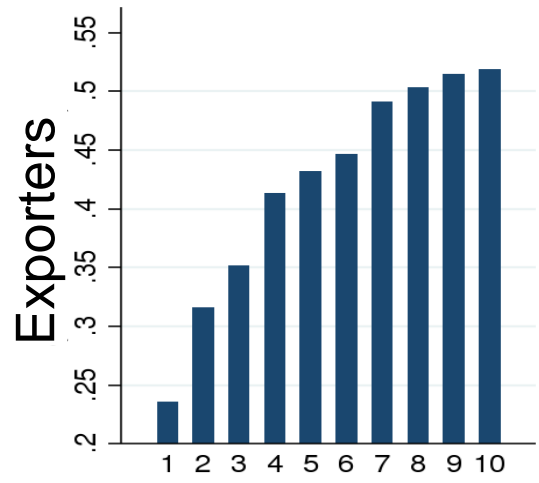
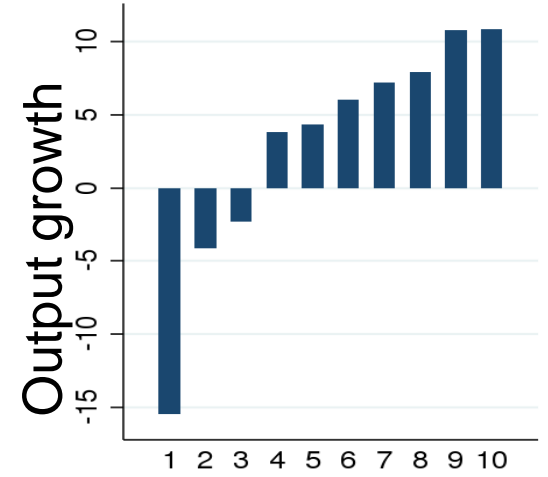
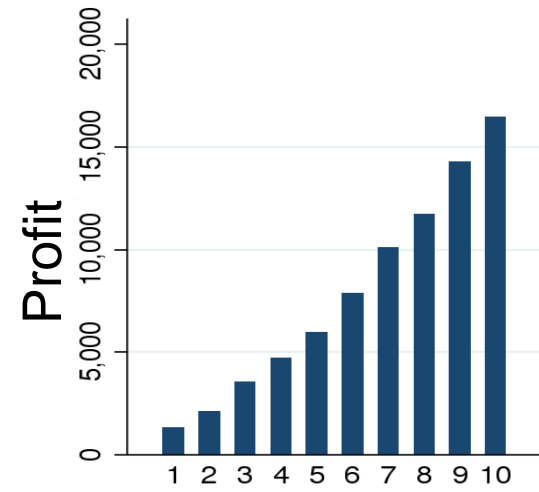
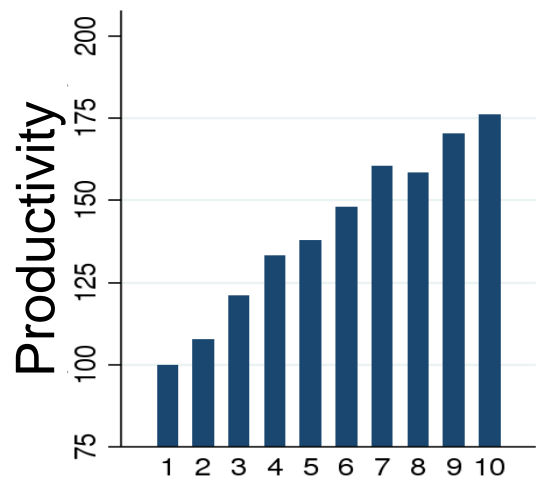
	Quartiles of training expenditures per employee			
	Bottom quartile	2 nd quartile	3 rd quartile	Top quartile
N=	118	120	121	117
Annual stock market price return (% change)	15.3	20.0	34.3	30.7
Tobin's Q	1.63	1.42	1.75	1.79
Sales per employee (\$1,000s)	175.7	302.5	343.8	320.8
Income per employee (\$1,000s)	11.5	15.0	19.3	24.5
Gross profit margin	22.8	37.4	35.7	40.4
Return on assets	4.2	4.4	3.2	5.5
Market capitalization per employee (\$1,000s)	263.2	533.5	638.5	668.2

NOTES: Authors' calculations from ASTD training and Compustat data.

Source: Bassi, Harrison, Ludwing, McMurrer (2004): The Impact of U.S. Firms' Investments in Human Capital on Stock Prices

Key Point 4: The return to training is substantial for the worker and the firm.

“Structured Management” practices are associated with significantly better performance



Management score decile

The Returns to Training

- Good for the worker (wage increases)
- Good for the firm (productivity increases)

Impact of Training: Productivity Gains Stronger than Wage Gains

- Dearden, Reed, Reenen (2006) :
 - Raising the proportion of workers in an industry who receive training by one percentage point increases value added per worker in the industry by 0.6% and average wages by 0.3%
- Konigs, Vanormelingen (2010):
 - The productivity premium for a trained worker is estimated at 23% while the wage premium is estimated at 12%.

The Impact of Training, Evidence from U.S Firms: Returns to Training v. Schooling

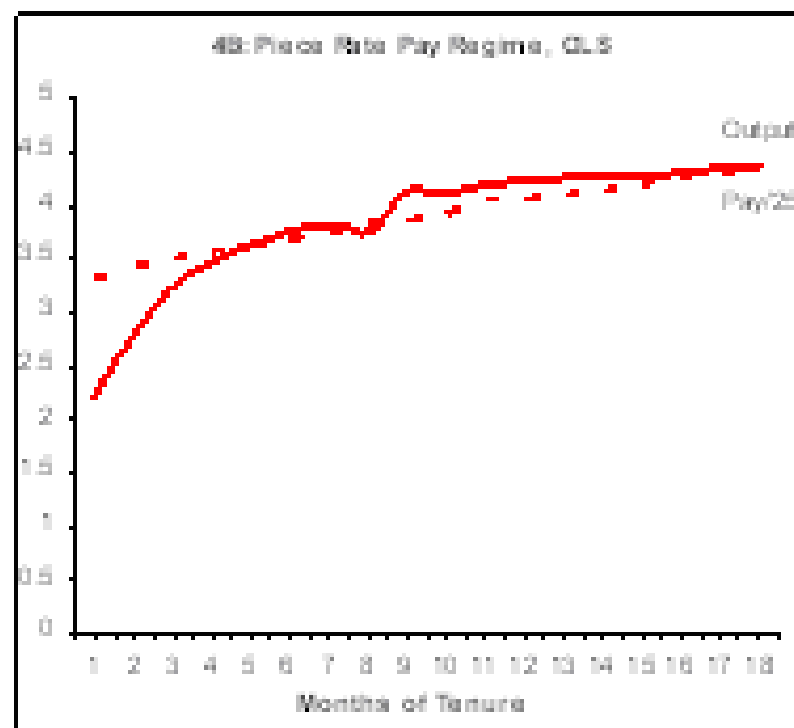
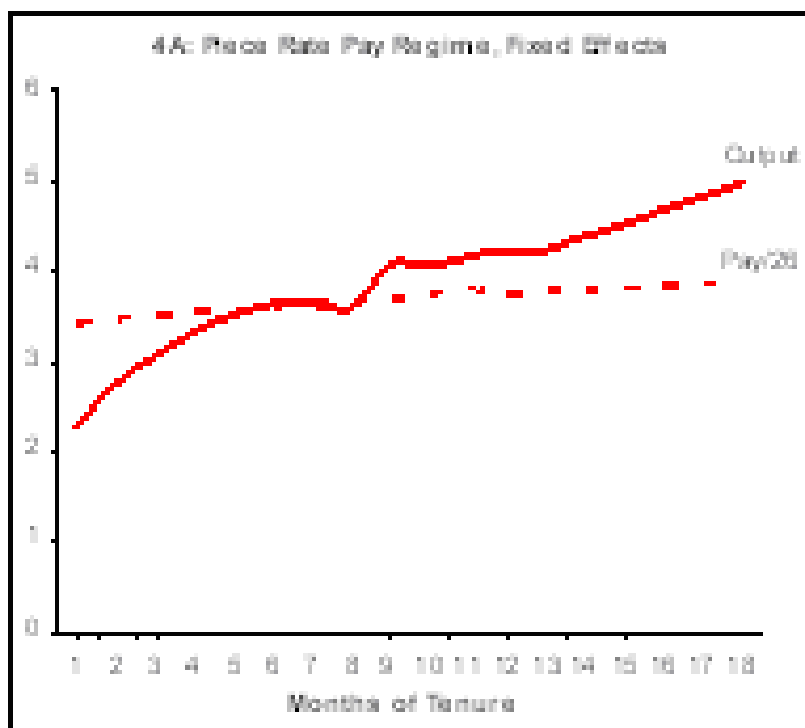
- Frazis and Lowenstein (2005) use the National Longitudinal Survey of Youth (NLSY) and Employer Opportunity Pilot Project (EOPP) to study the rate of return to training over time.
 - They find very large wage returns to formal training that are several times the returns to schooling.
 - They also find higher returns to training in more complicated jobs.
 - There are diminishing returns to investment at higher levels of training.

The Returns to Training: Evidence from U.S Firms

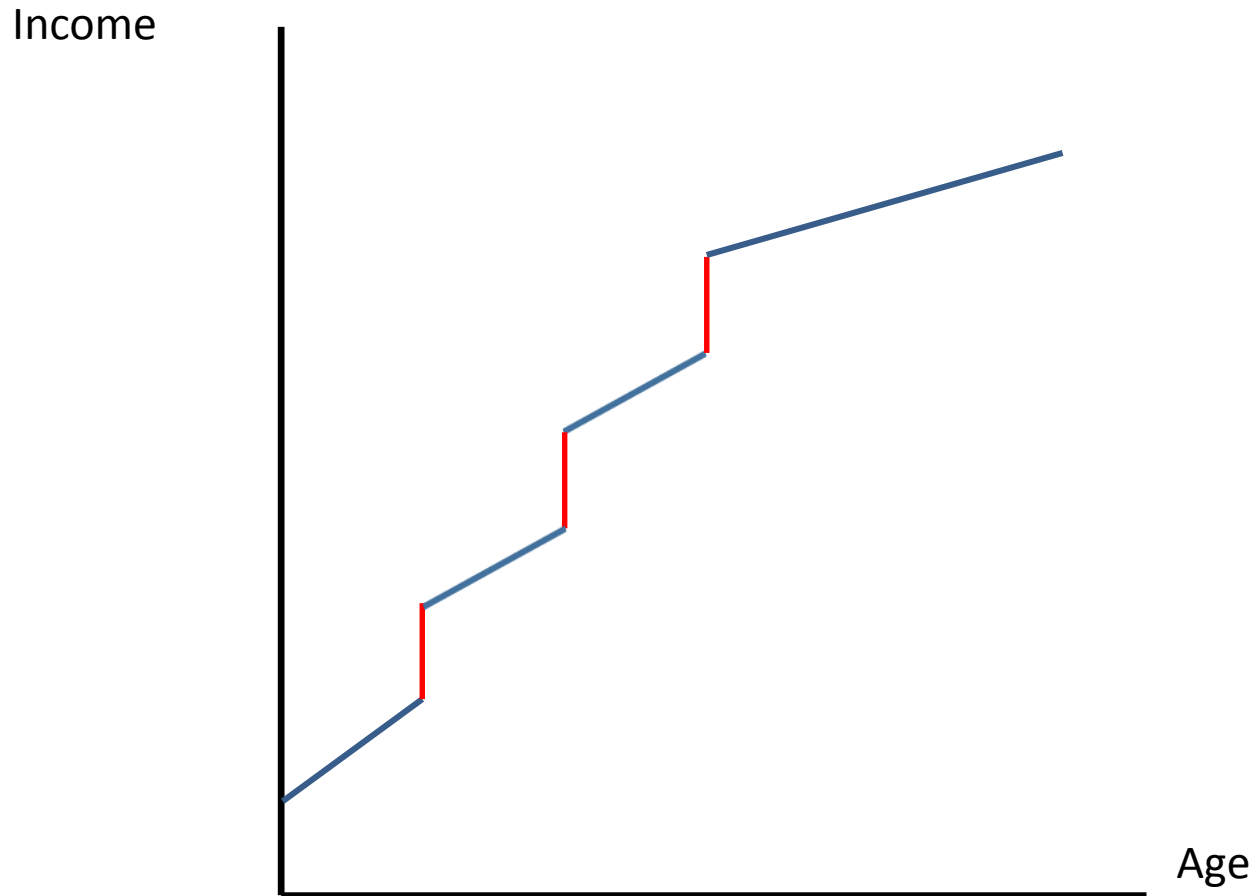
- Xiangmin, and Batt (2007) find significant productivity gains for informal training, with low proficiency workers benefiting more than high proficiency workers.
- Bartel (1995) finds that training increases wages and productivity, and that returns to current tenure exceed returns to prior experience (returns to firm-specific human capital are higher than general human capital).

- Wages rise with experience due to the investment in human capital.

Productivity and Pay Rise with Tenure (Data: windshield installers)

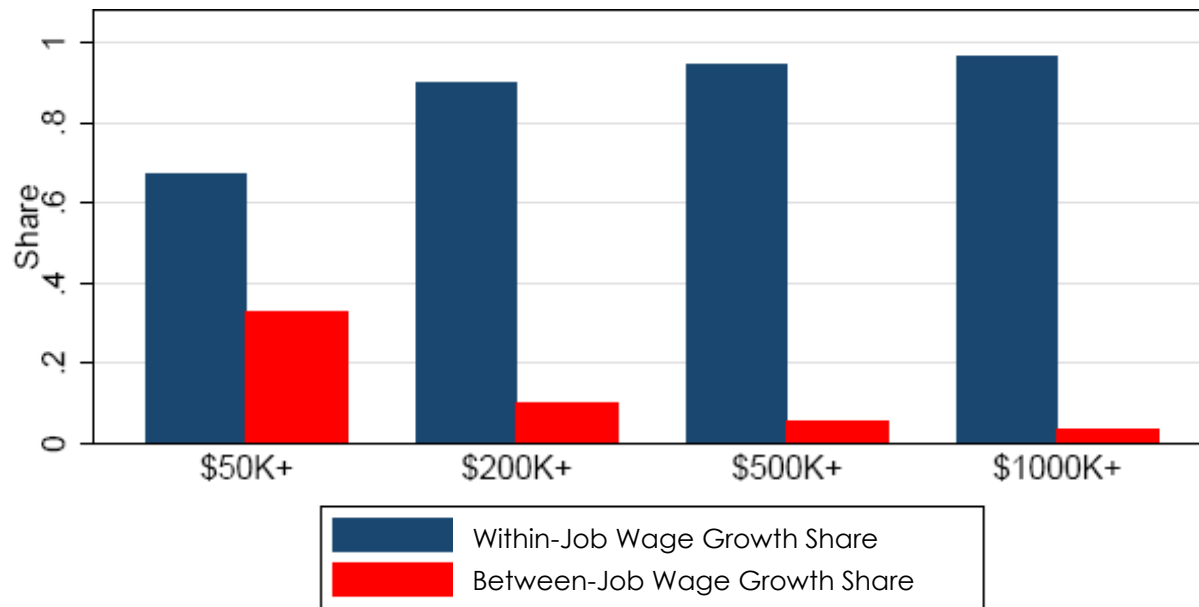


Income Rises with Experience



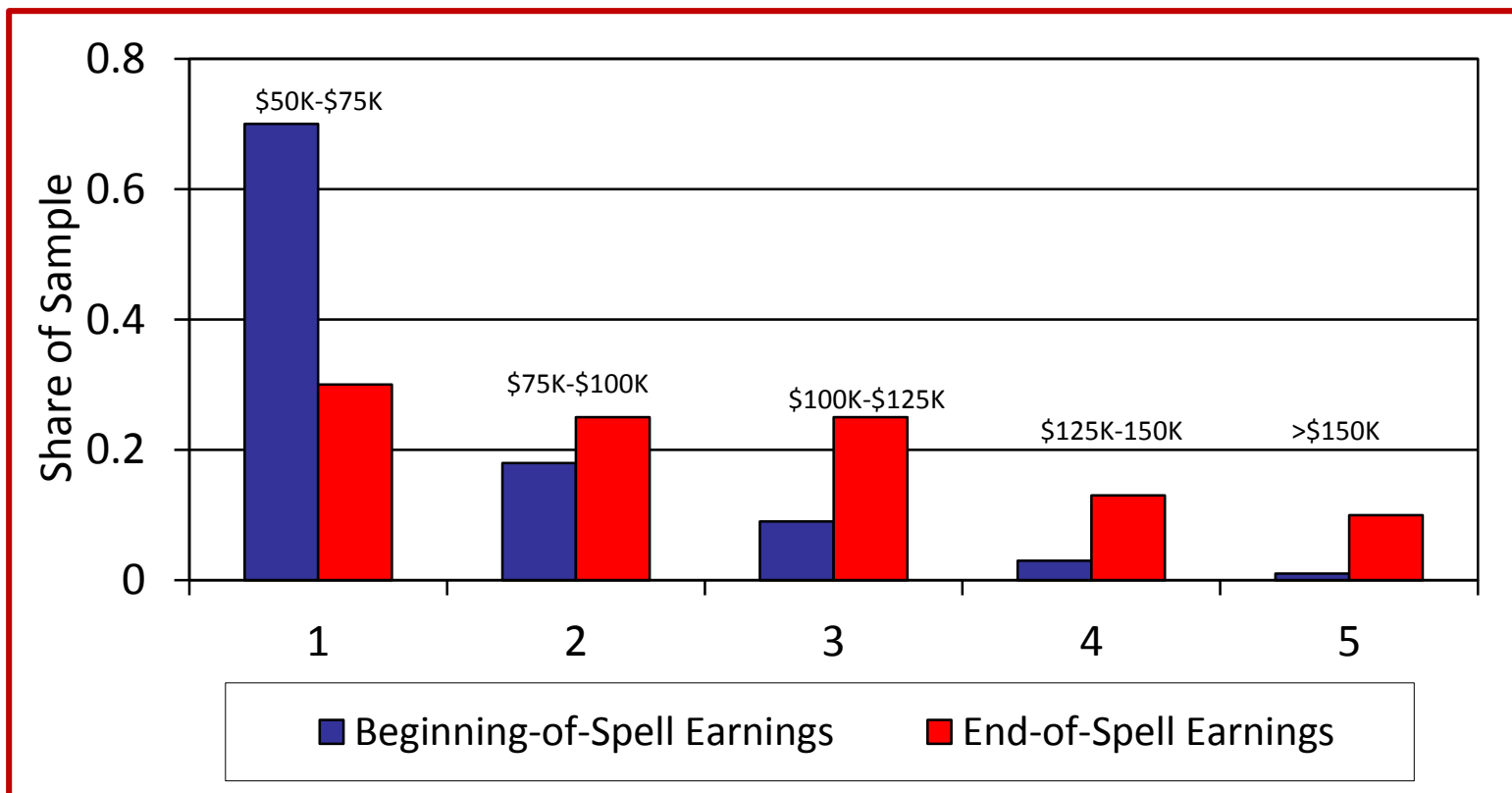
In Software, the High Earners Got There from Income Growth Within the Firm, not Job Hopping Between Firms

Share of Earnings Growth Attributable to within-job-wage-growth and between-job-wage-growth Conditional on End-of-Spell Earnings



Some Data: Starting Earnings and Experienced-Worker Earnings for Software Employees

Beginning-of-Spell is new hires; End-of-Spell Earnings is five years later.
Workers ages 21-44 Earning \$50K+



Key Point 5: Firms should invest in human capital when this investment is aligned with their competitive strategy.

Firms that Garner Higher Returns to Human Capital Investment are Those That...

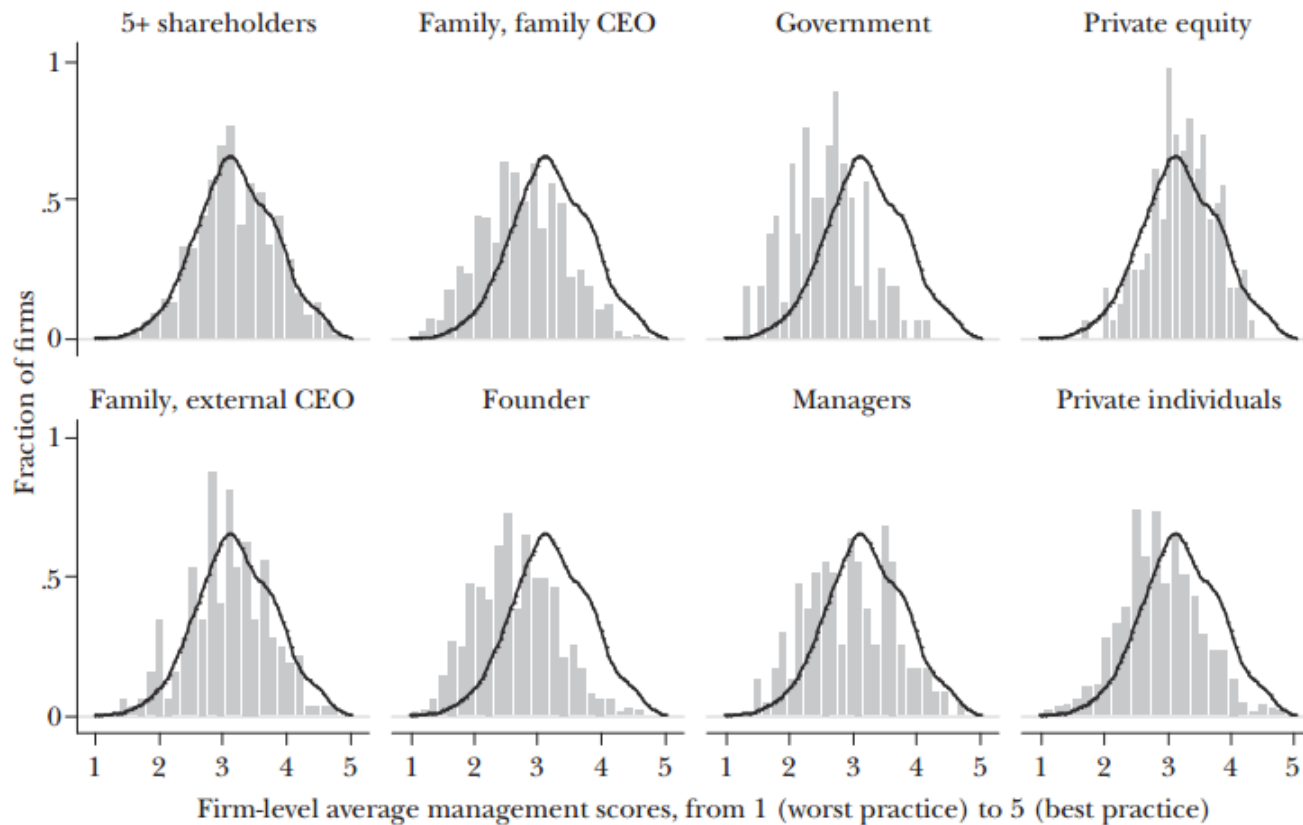
- Are in knowledge intense industries
- Produce for export
- Produce in highly competitive markets
- Produce complex products

Firms that Invest More are Those That...

- Are publically held companies (not family owned or government)
- Are multinationals

Figure 4

Ownership and Management Scores



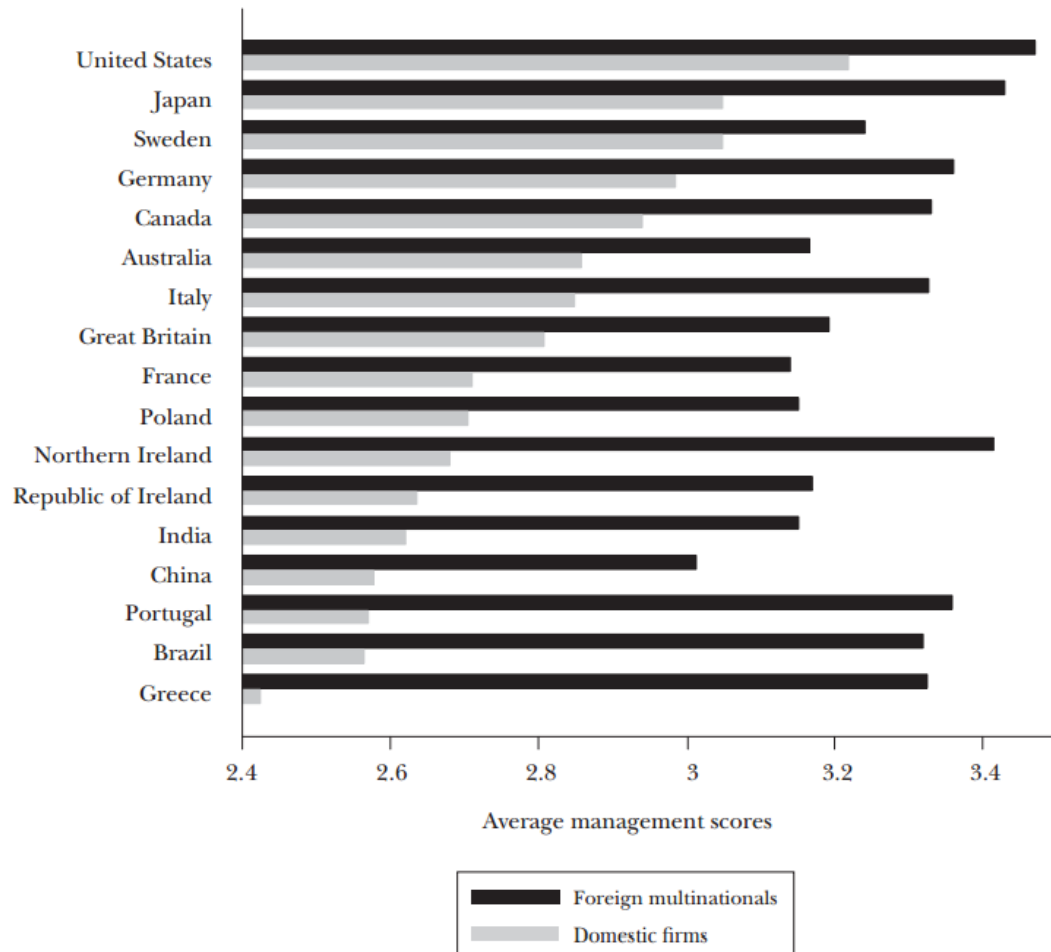
Source: Bloom, Genakos, Sadun, and Van Reenen (2009).

Notes: Graphs show the distribution of firm management scores for firms with different types of management. The overlaid line is the kernel density for dispersed shareholders, the most common U.S. ownership type.

Multinationals adopt more

Figure 5

Multinationals Are Well Managed in All Countries



Source: Bloom, Genakos, Sadun, and Van Reenen (2009).

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