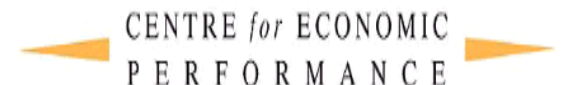


# **Economic performance in US & EU: Productivity, Management & Policy**

**John Van Reenen**

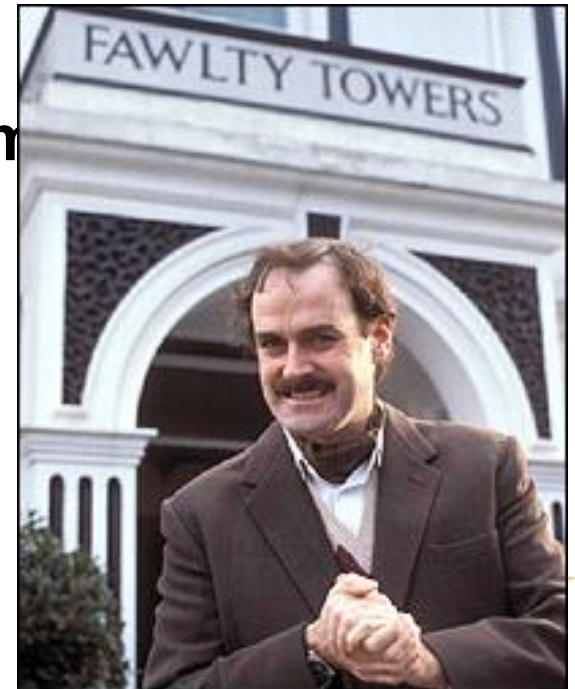
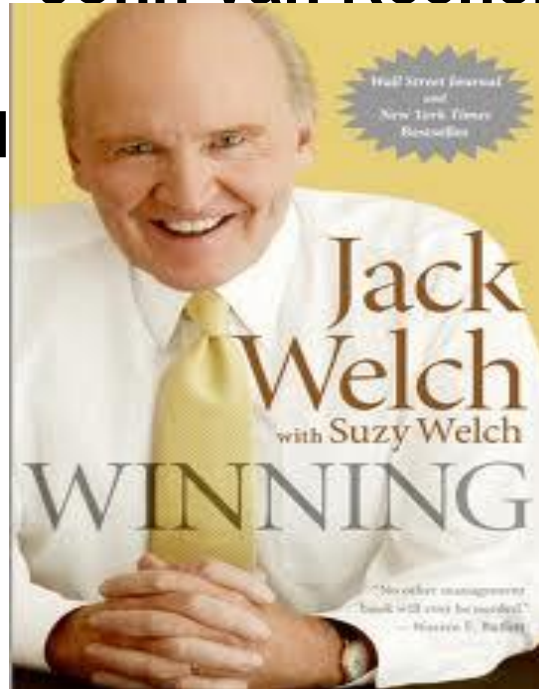
**London School of Economics**

Peterson Institute, September 28<sup>th</sup> 2012



# Economic performance in US & EU: Productivity, Management & Policy

John Van Reenen



# INTRODUCTION

- US has longstanding productivity advantage over EU
  - Relates to management practices, not just technology
  - Competition, meritocratic CEO selection & labor regulations (within & reallocation effects)
- Since mid 1990s, US productivity growth stronger than EU (& even more pronounced during crisis)
  - Higher IT productivity when combined with good management
- US Problems
  - Inequality: Skills slowdown
  - Labor markets: Fall in employment rate during Great Recession (like EU in 1980s) started pre-2008
- Policies: Demand, Supply, Politics

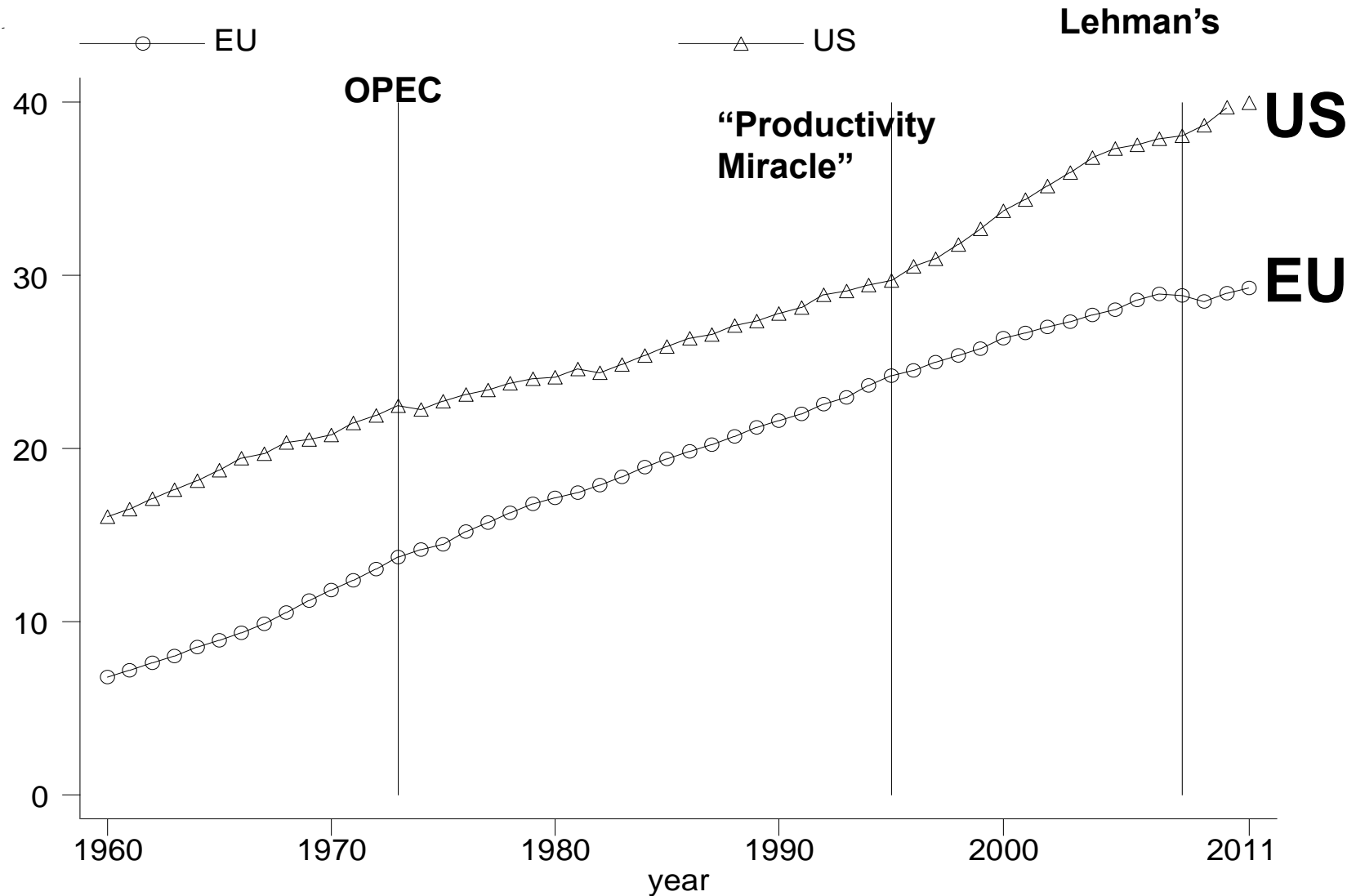
# **The US Productivity Advantage**

Measuring & Describing Management

Management Drivers & policies

Challenges

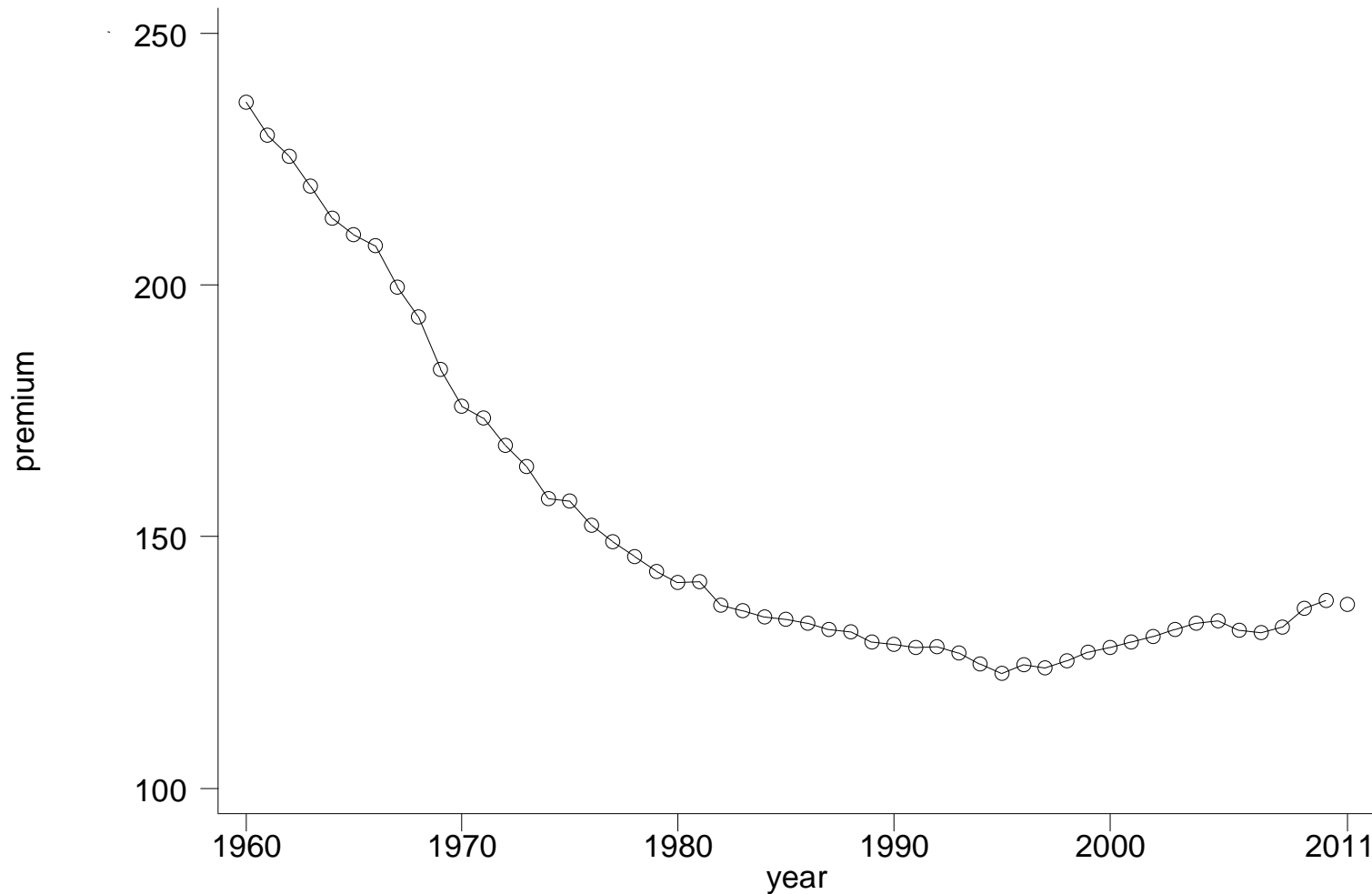
# GDP PER HOUR IN US AND EU-17, 1960-2011



**Source:** Conference Board (2012), author's calculations, 1990 US\$ GK

**Notes:** EU-17 are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, UK

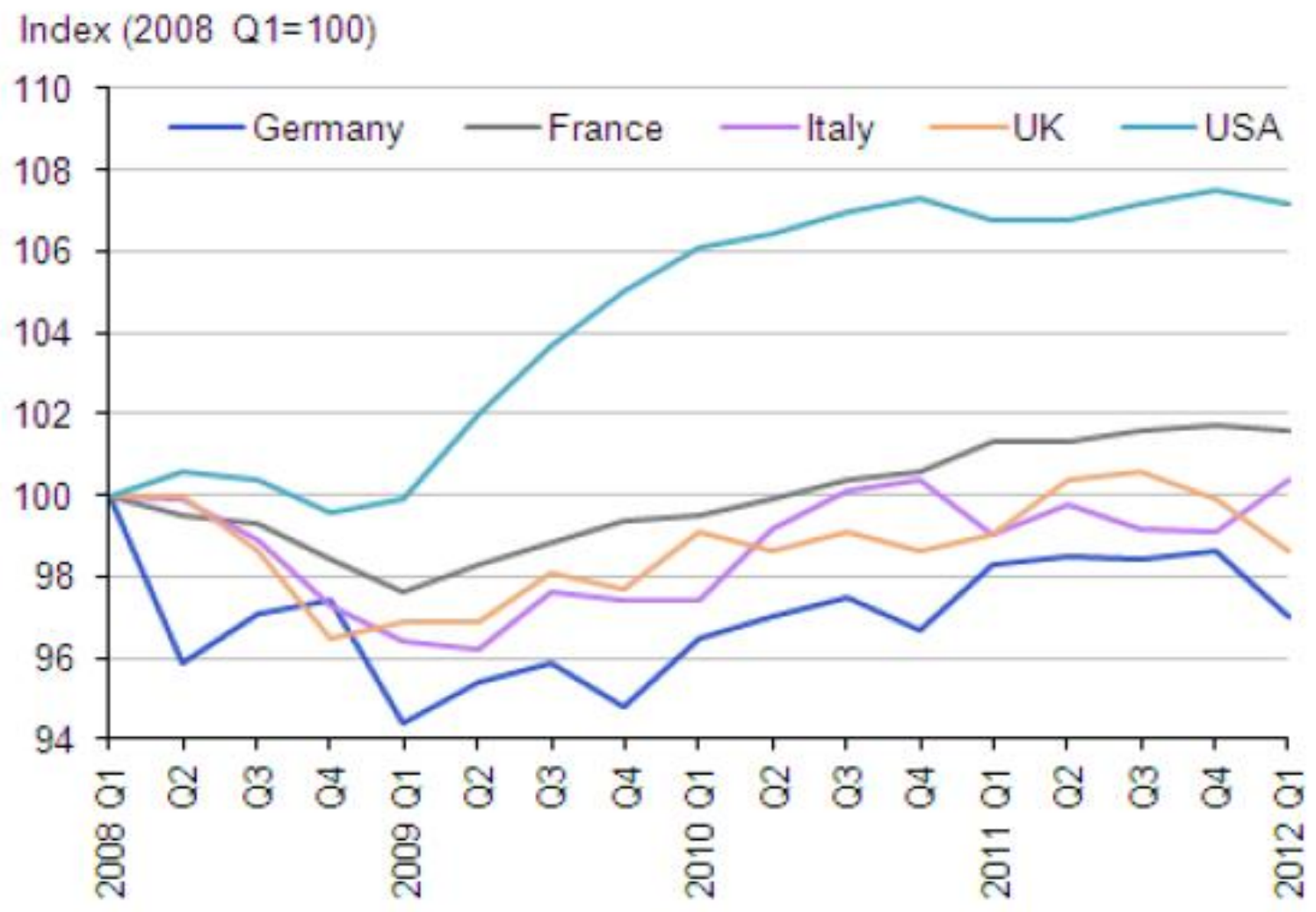
# PRODUCTIVITY (GDP/HOUR) GAP BETWEEN US & EU: CONVERGENCE THEN DIVERGENCE US=100



**Source:** Conference Board (2012), author's calculations, 1990 US\$ GK

**Notes:** EU-17 are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, UK

# GDP/HOUR ACROSS COUNTRIES SINCE CRISIS



Source: Office for National Statistics

# The US Productivity Advantage

## **Measuring & Describing Management**

Management Drivers & policies

Challenges

# THE SURVEY METHODOLOGY (BLOOM & VR, 2007)

## 1) Developing management questions

- Scorecard for 18 monitoring, targets and people
- ≈45 minute phone interview of manufacturing plant managers

## 2) Obtaining unbiased comparable responses (“Double-blind”)

- Interviewers do not know the company's performance
- Managers are not informed (in advance) they are scored
- Run from LSE, with same training and country rotation

## 3) Getting firms to participate in the interview

- Introduced as “Lean-manufacturing” interview, no financials
- Official Endorsement: Bundesbank, Bank of Italy, RBI, etc.
- Run by ~100 MBA-types (loud, assertive, business experience)

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

<b>Score</b>	<b>(1): Measures tracked do not indicate directly if overall business objectives are being met. Certain processes aren't tracked at all</b>	<b>(3): Most key performance indicators are tracked formally. Tracking is overseen by senior management</b>	<b>(5): Performance is continuously tracked and communicated, both formally and informally, to all staff using a range of visual management tools</b>
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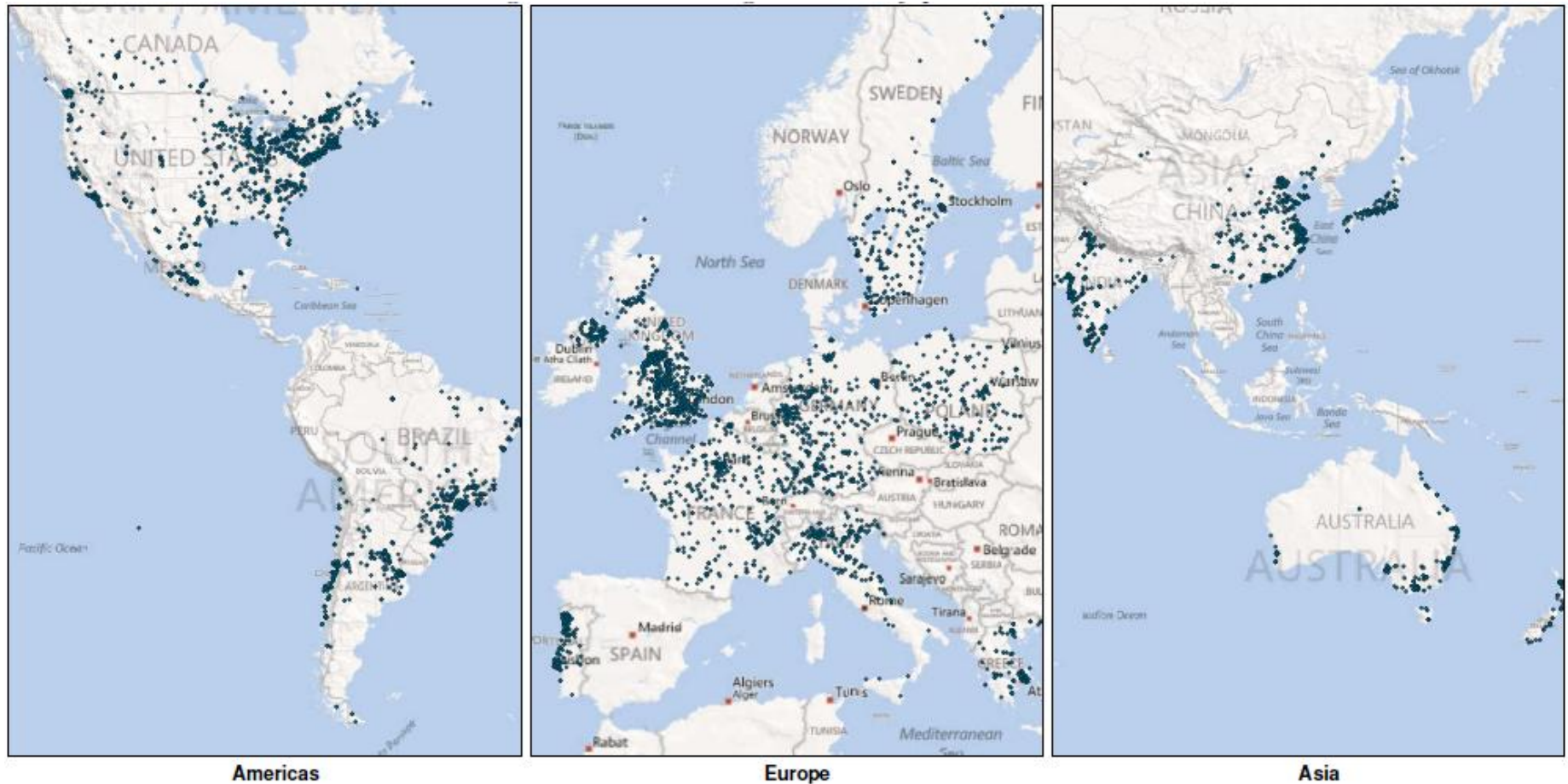
**Note:** All 18 dimensions and over 50 examples in Bloom & Van Reenen (2006)

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

<b>Score</b>	<b>(1) People are promoted primarily upon the basis of tenure</b>	<b>(3) People are promoted upon the basis of performance</b>	<b>(5) We actively identify, develop and promote our top performers</b>
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**Note:** All 18 dimensions and over 50 examples in Bloom & Van Reenen (2006)

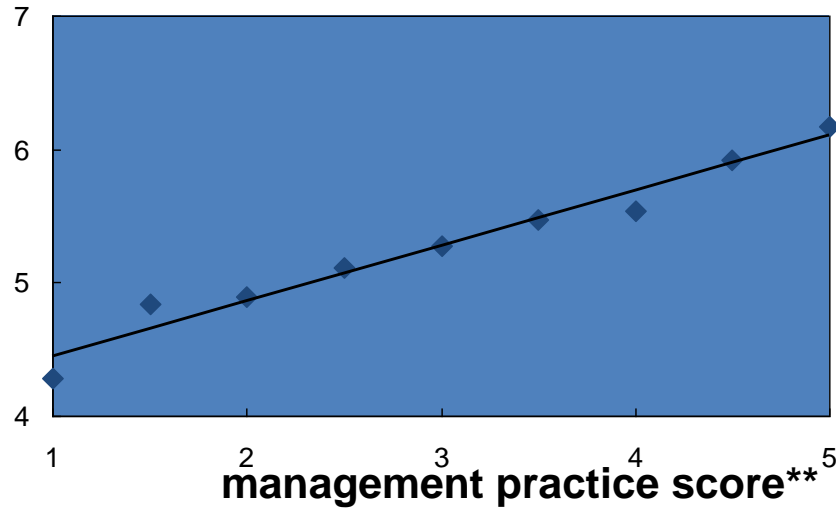
## Plant locations from World Management Survey (~8,000 firms, 3 major waves: 2004, 2006, 2009; 20 countries)



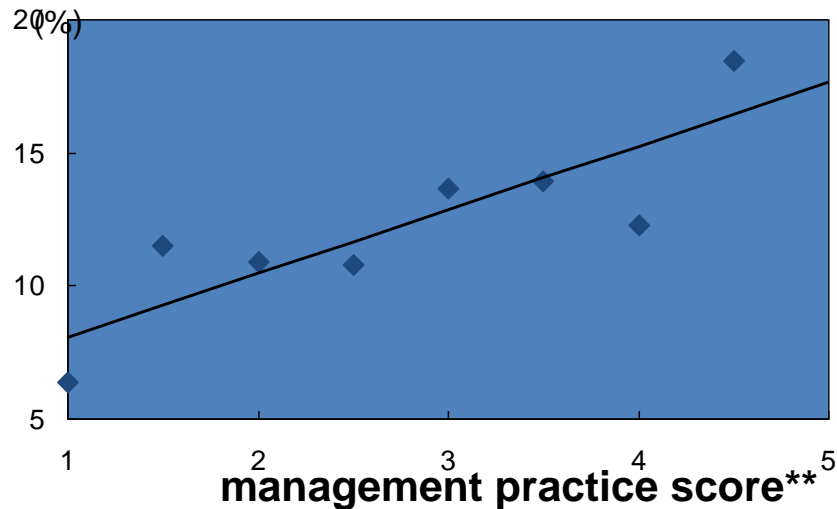
Medium sized manufacturing firms(50-5,000 workers, median $\approx$ 250)  
Now extended to Hospitals, Retail, Schools, etc. (& MOPs)  
45% response rate (uncorrelated with performance measures)

# EXTERNAL VALIDATION: MANAGEMENT SCORE CORRELATES WELL WITH PERFORMANCE INDICATORS

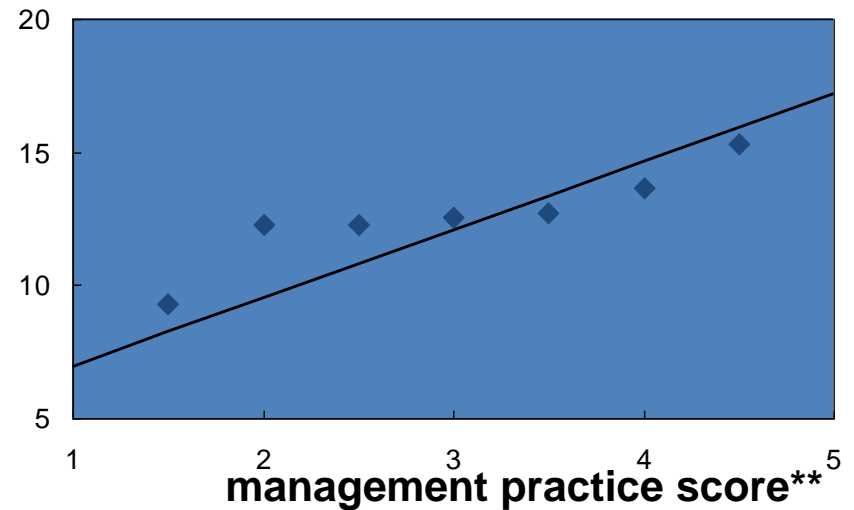
## Labour productivity\*



## Return On Capital Employed, ROCE



## Sales growth (%)

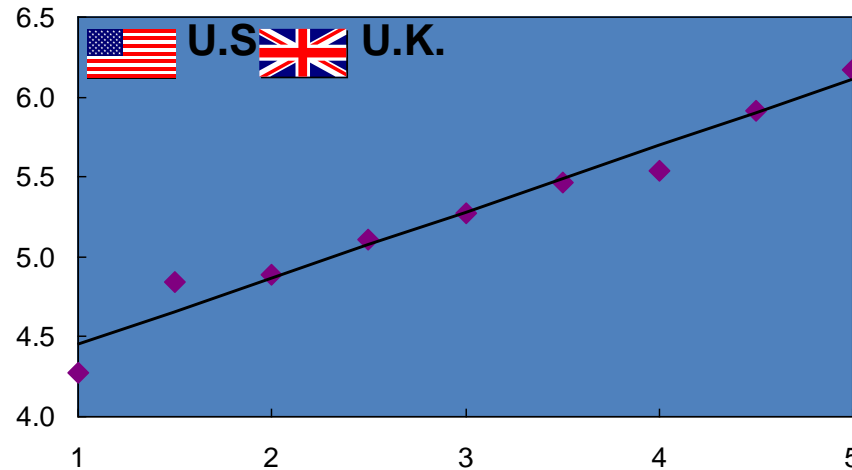


\* Log scale

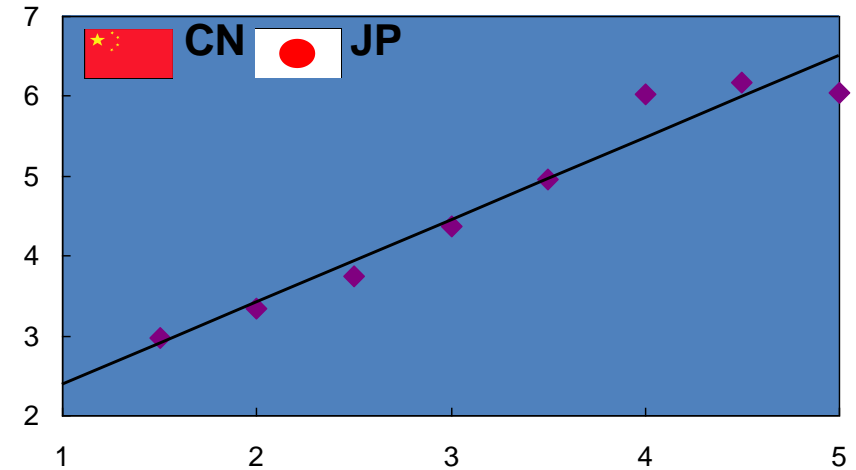
\*\* Firms are grouped in 0.5 increments of assessed management score

# THE LINK BETWEEN PRODUCTIVITY AND MANAGEMENT HOLDS TRUE ACROSS DIFFERENT COUNTRIES

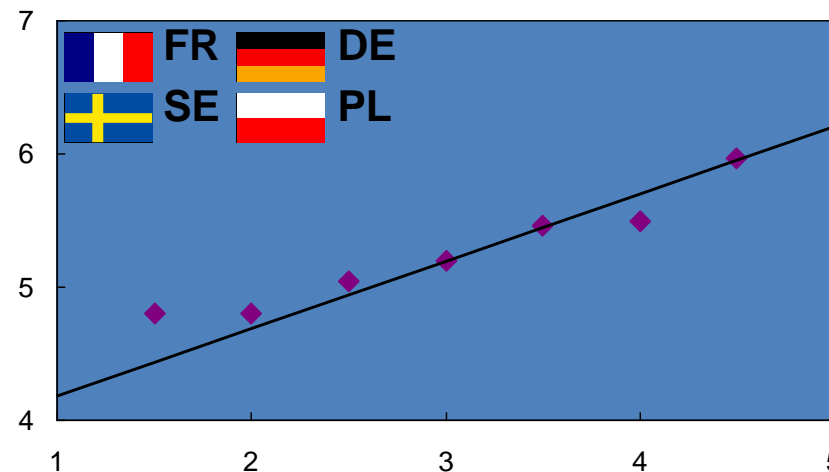
Labour productivity\*



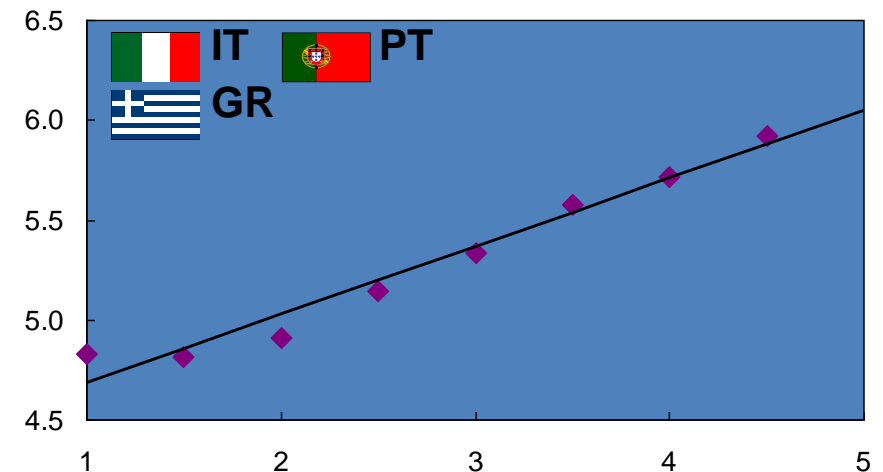
Labour productivity\*



Labour productivity\*



Labour productivity\*



\* Log scale (sales per worker)

\*\* Firms are grouped in 0.5 increments of assessed management score

# **BUT DOES MANAGEMENT REALLY CAUSE HIGHER PRODUCTIVITY? BLOOM ET AL (2011)**

- Run experiment on plants in Indian textile firms outside Mumbai
- Randomized “treatment” plants get heavy management consulting; “control” plants get very light consulting (just enough to get data)
- Collect weekly performance data on all plants from 2008 to 2010
  - Improved management practices led to large and significant improvements in productivity (~20% increase in TFP) and profitability (~\$300k pa)

# MANY PARTS OF THE FACTORIES ARE DIRTY AND UNSAFE



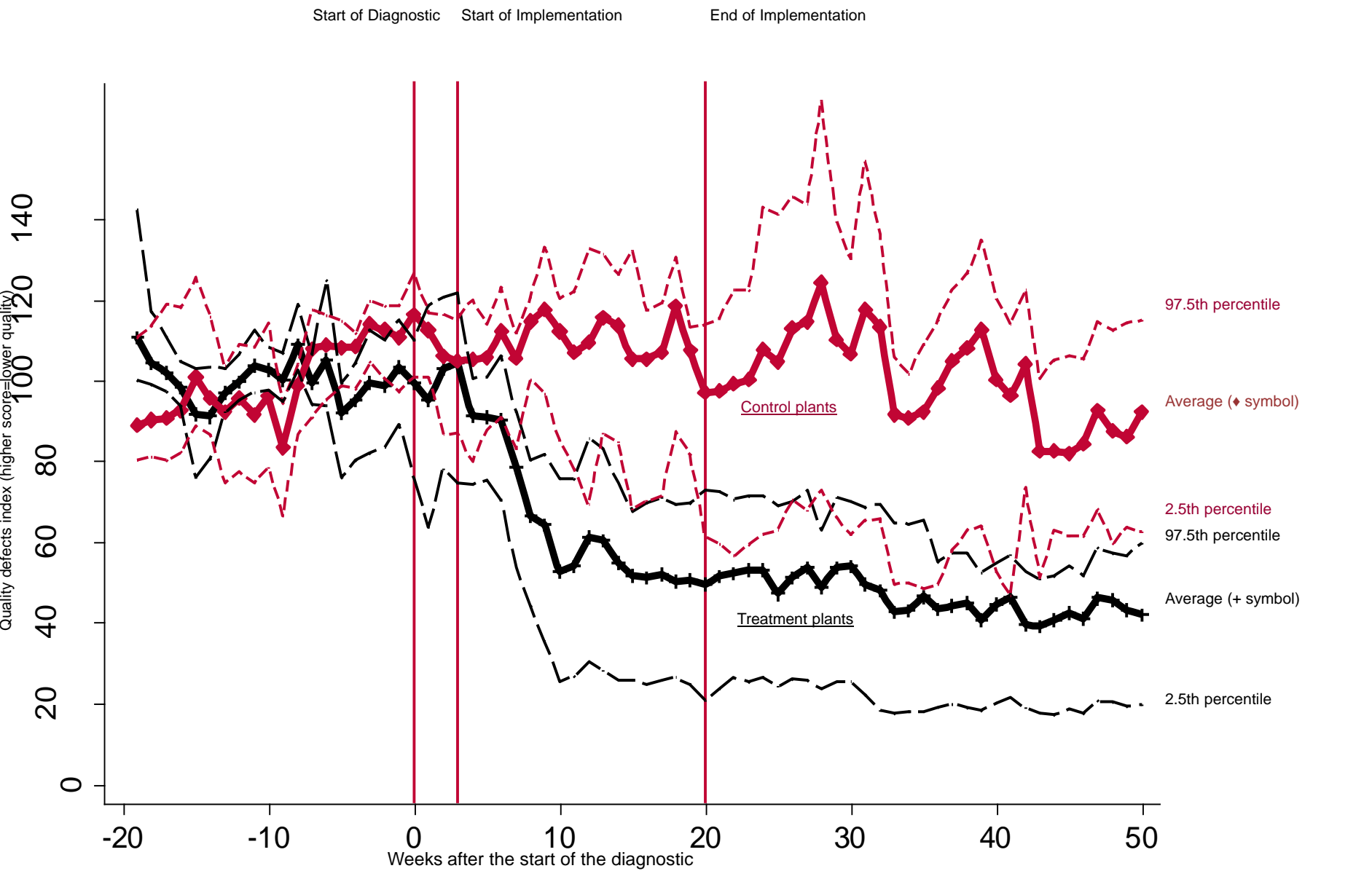
# THE TREATED FIRMS INTRODUCED BASIC INITIATIVES

Worker involved in “5S” initiative on the shop floor, marking out the area around the model machine



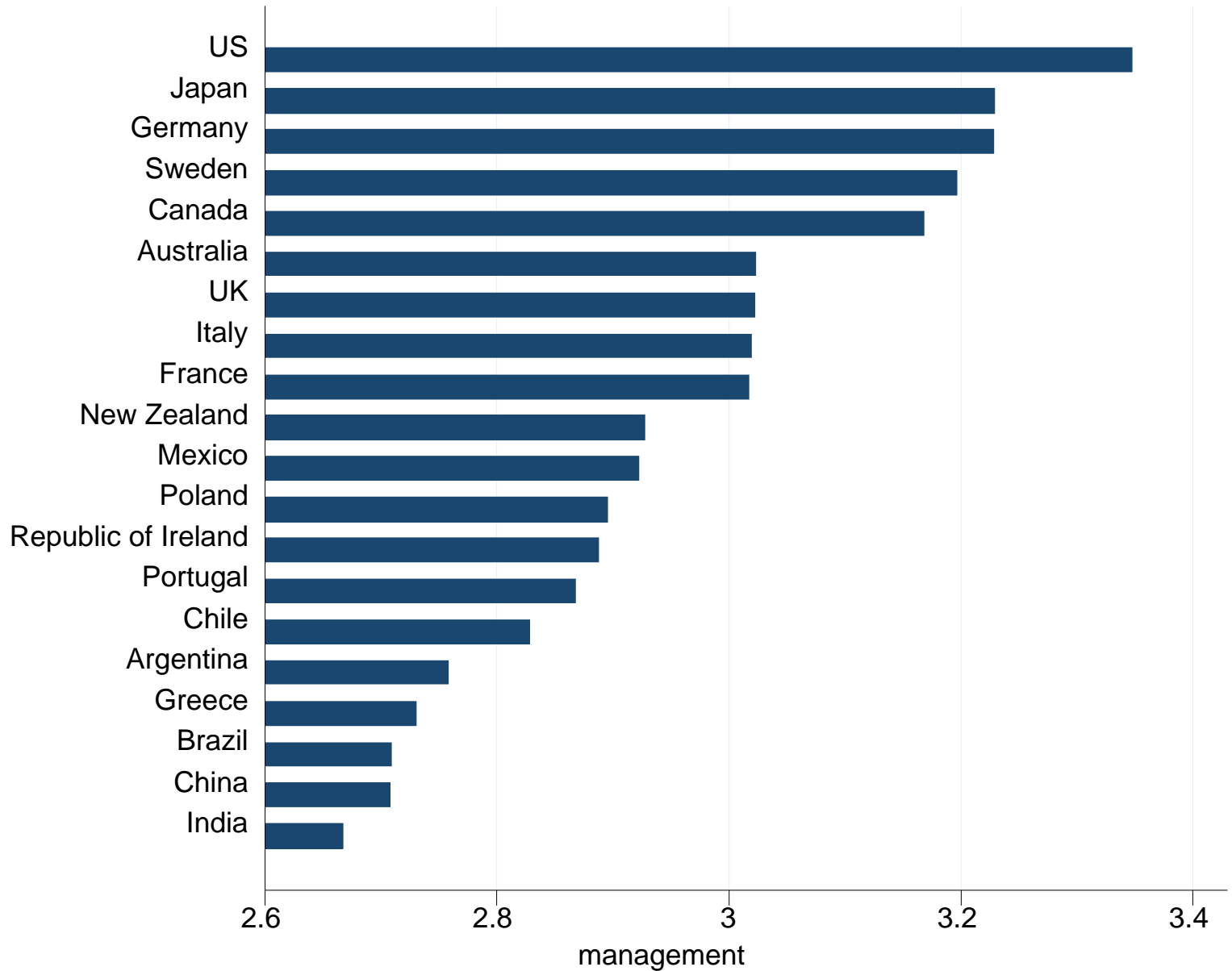
Snag tagging to identify the abnormalities on & around the machines, such as redundant materials, broken equipment, or accident areas. The operator and the maintenance team is responsible for removing these abnormalities.

# QUALITY DEFECTS INDEX: TREATMENT & CONTROL PLANTS



Notes: Displays the average weekly quality defects index, which is a weighted index of quality defects, so a higher score means lower quality. This is plotted for the 14 on-site treatment plants (+ symbols) and the 6 on-site control plants (♦ symbols). Values normalized so both series have an average of 100 prior to the start of the intervention. To obtain confidence intervals we bootstrapped the firms with replacement 250 times.

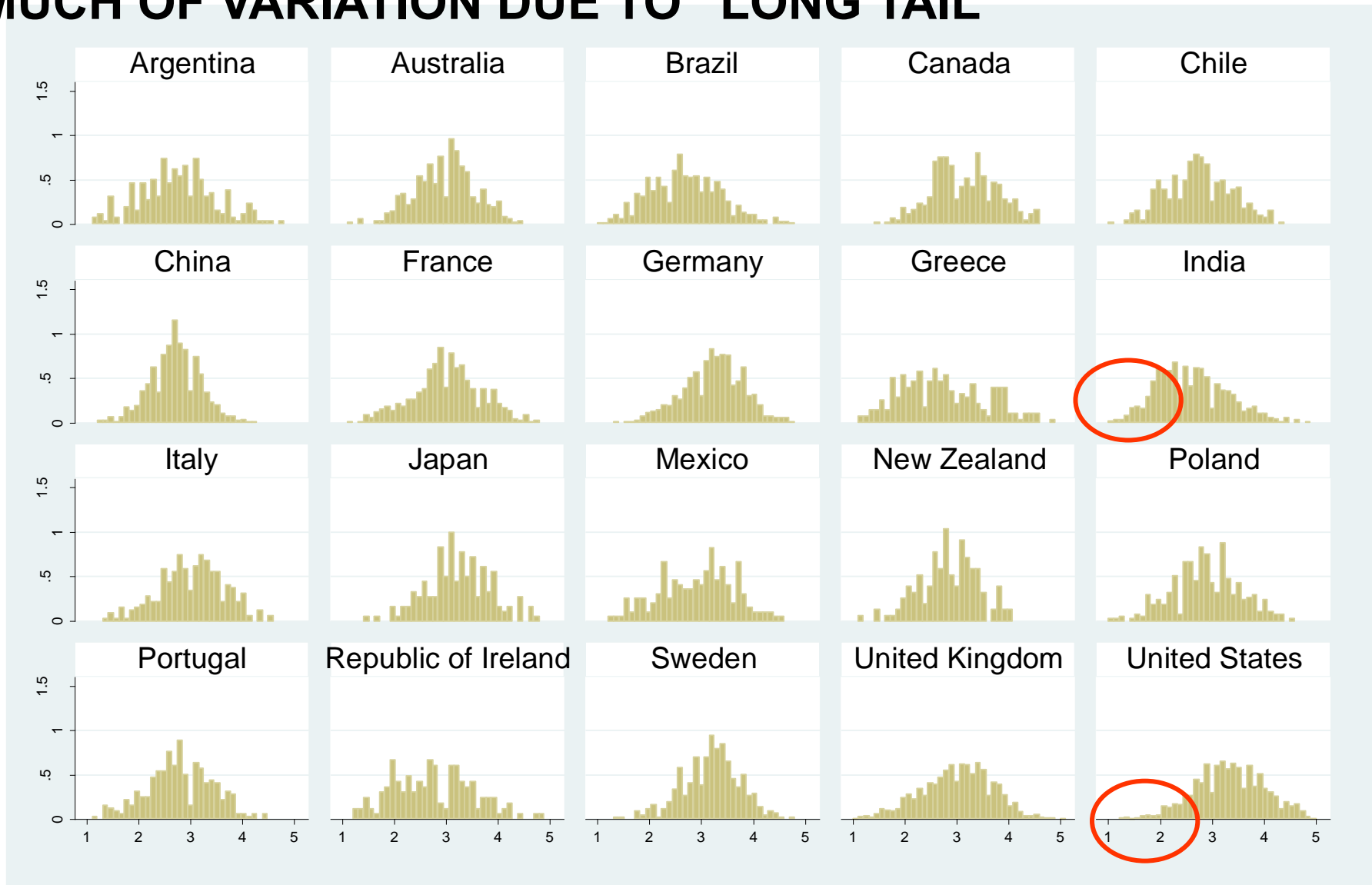
# MANAGEMENT PRACTICE SCORES ACROSS COUNTRIES



Note: Averages taken across all firms within each country.

# HUGE VARIATION IN MANAGEMENT SCORES ACROSS FIRMS

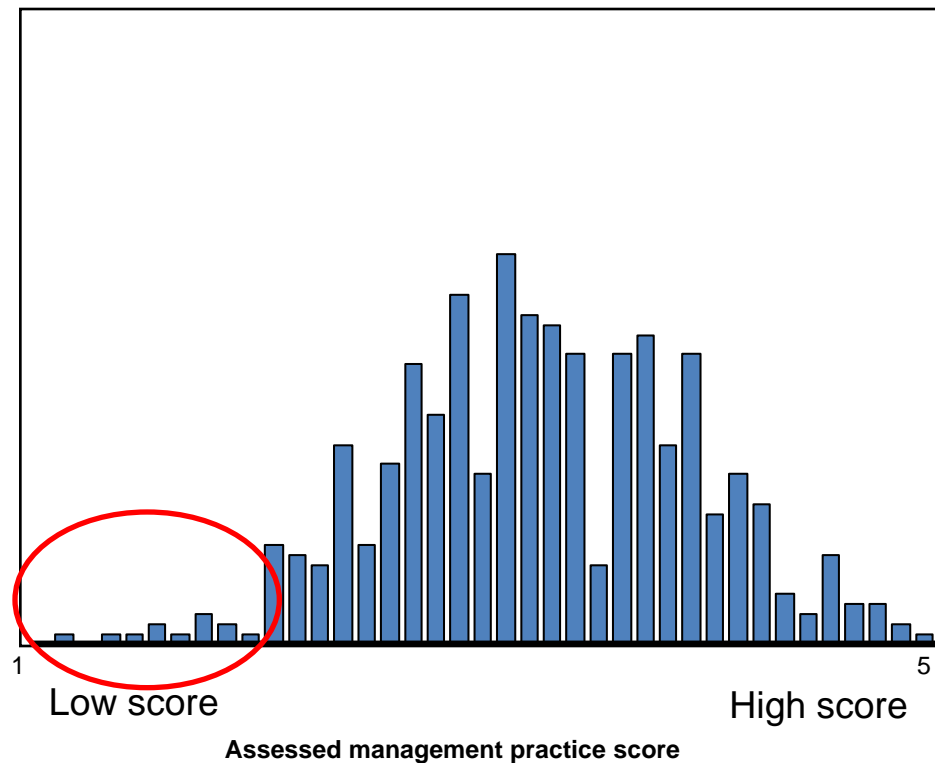
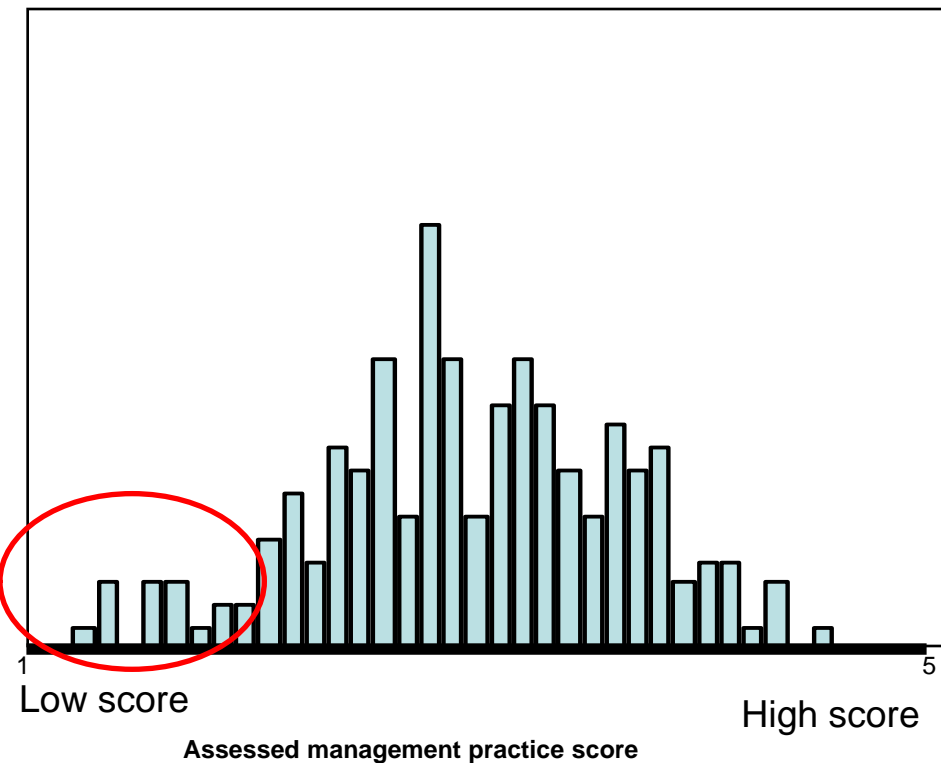
## - MUCH OF VARIATION DUE TO “LONG TAIL”



**Note:** Bars are the histogram of the actual density. Scores from 9,995 management interviews across 20 countries.

# MUCH OF THE CROSS-COUNTRY DIFFERENCES DUE TO THE “LOWER TAIL”

Distribution of firm level management practice scores



# MY FAVOURITE QUOTES:

## The traditional British Chat-Up

[Male manager speaking to an Australian female interviewer]

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

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

# MY FAVOURITE QUOTES:

## The traditional Indian Chat-Up

*Production Manager:* “Are you a Brahmin?”

*Interviewer* “Yes, why do you ask?”

*Production manager* “And are you married?”

*Interviewer* “No?”

*Production manager* “Excellent, excellent, my son is looking for a bride and I think you could be perfect. I must contact your parents to discuss this”

The US Productivity Advantage

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Challenges

# COMPETITION & MODELS OF MANAGEMENT

Various ways that competition may influence management

- Selection – badly run firms more likely to exit
- Effort – forces badly run firms to try harder to survive

We find competition is strongly linked with better management through a mixture of selection & effort

# COMPETITION & MODELS OF MANAGEMENT

Various ways that competition may influence management

- Selection – badly run firms more likely to exit
- Effort – forces badly run firms to try harder to survive

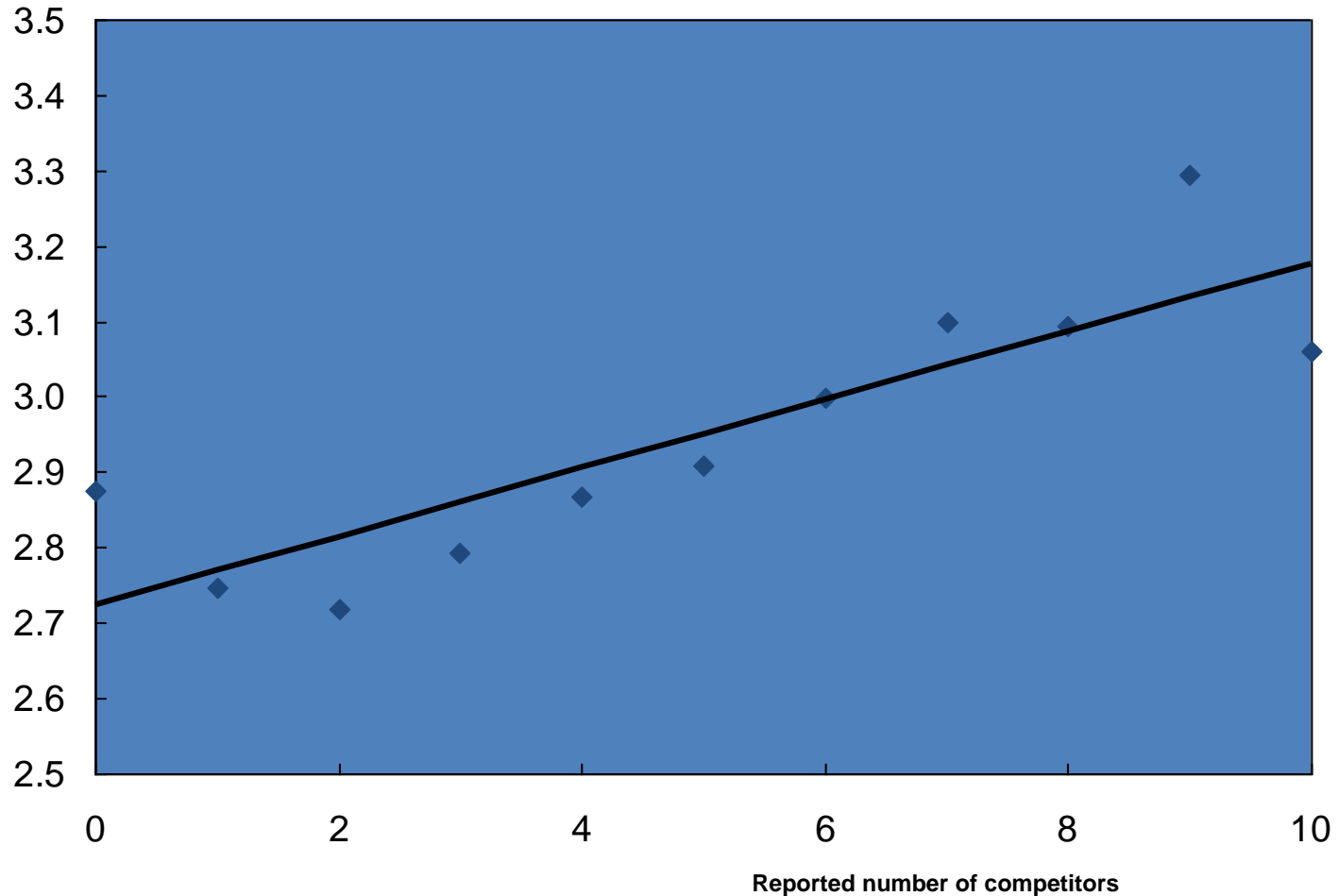
We find competition is strongly linked with better management through a mixture of selection & effort

**Example:** Use China Accession to WTO quotas abolished 2001-2005 in many industries & at different rates (Bloom, Draca & Van Reenen, 2012)

- Rapid improvement in productivity & management quality
- Aggregate performance improves from within firm & reallocation

# MORE COMPETITION IS ASSOCIATED WITH BETTER MANAGEMENT PRACTICES

Assessed management practice score

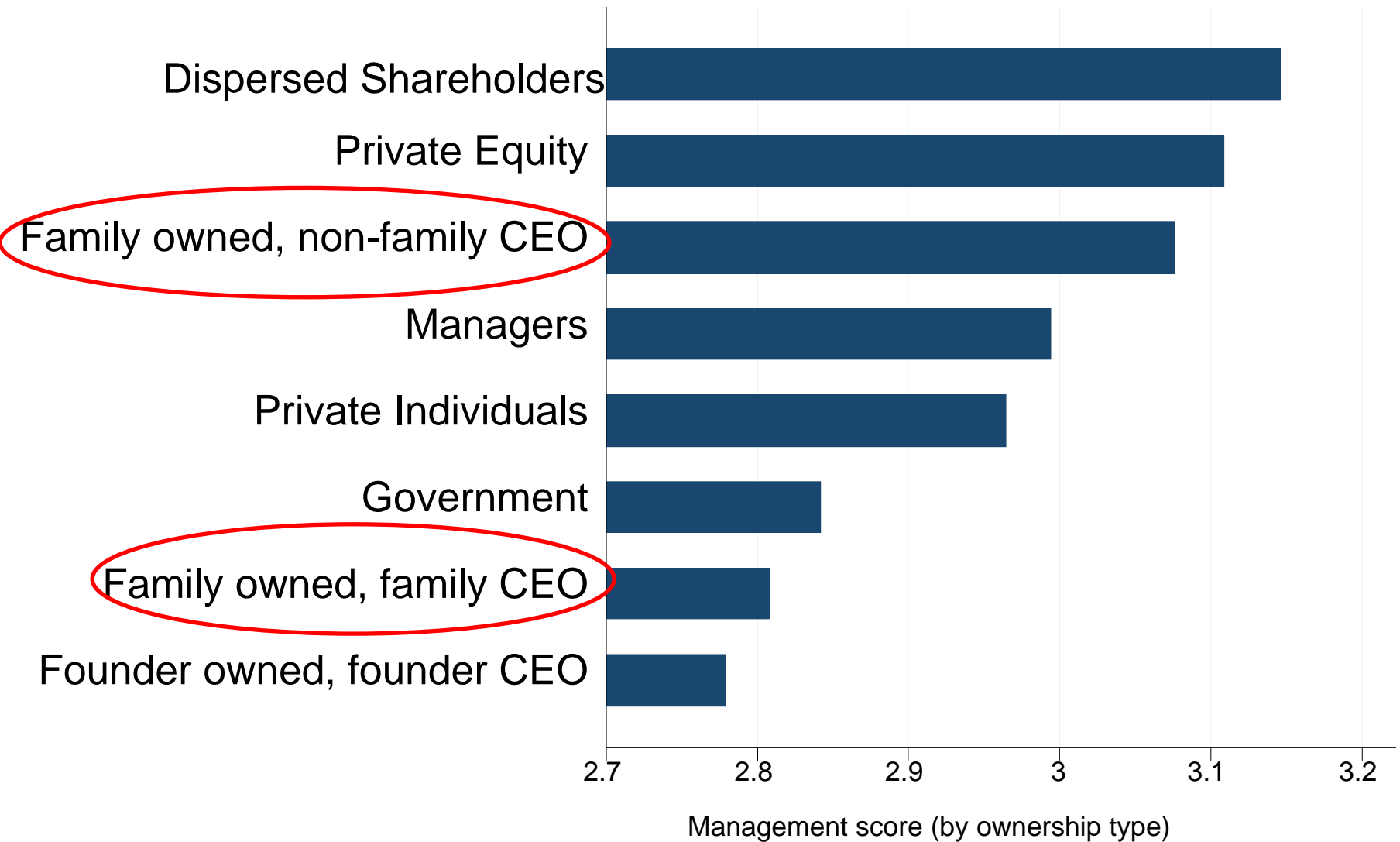


# FAMILY FIRMS AND MODELS OF MANAGEMENT PRACTICES

Impact of family firms depends on involvement

- Ownership but not management probably positive
  - Concentrated ownership so better monitoring
- Management probably negative
  - Smaller pool to select CEO from
  - Possible “Carnegie” effect on future CEO’s
  - Less career incentive for non-family managers
- US has fewer family firms than EU
- German Mittlestandt has many family owned firms but with external CEOs
- UK/France have more family-run firms (especially PG)

# FAMILY FIRMS TYPICALLY HAVE THE WORST MANAGEMENT

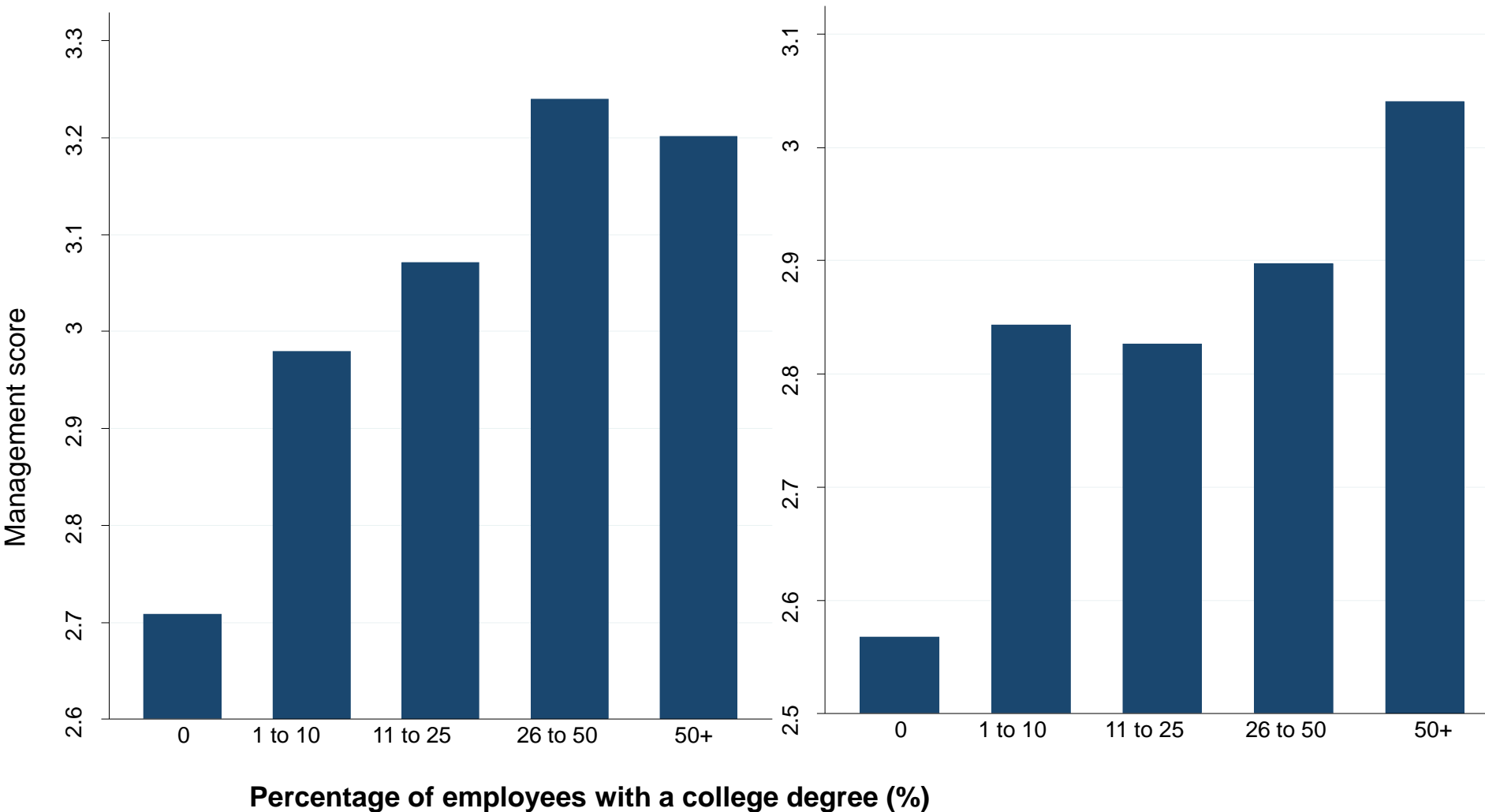


Management scores after controlling for country, industry and number of employees. Data from 9085 manufacturers and 658 retailers. “Founder owned , founder CEO” firms are those still owned and managed by their founders. “Family firms” are those owned by descendants of the founder “Dispersed shareholder” firms are those with no shareholder with more than 25% of equity, such as widely held public firms.

# EDUCATION FOR NON-MANAGERS AND MANAGERS APPEAR LINKED TO BETTER MANAGEMENT

Non-managers

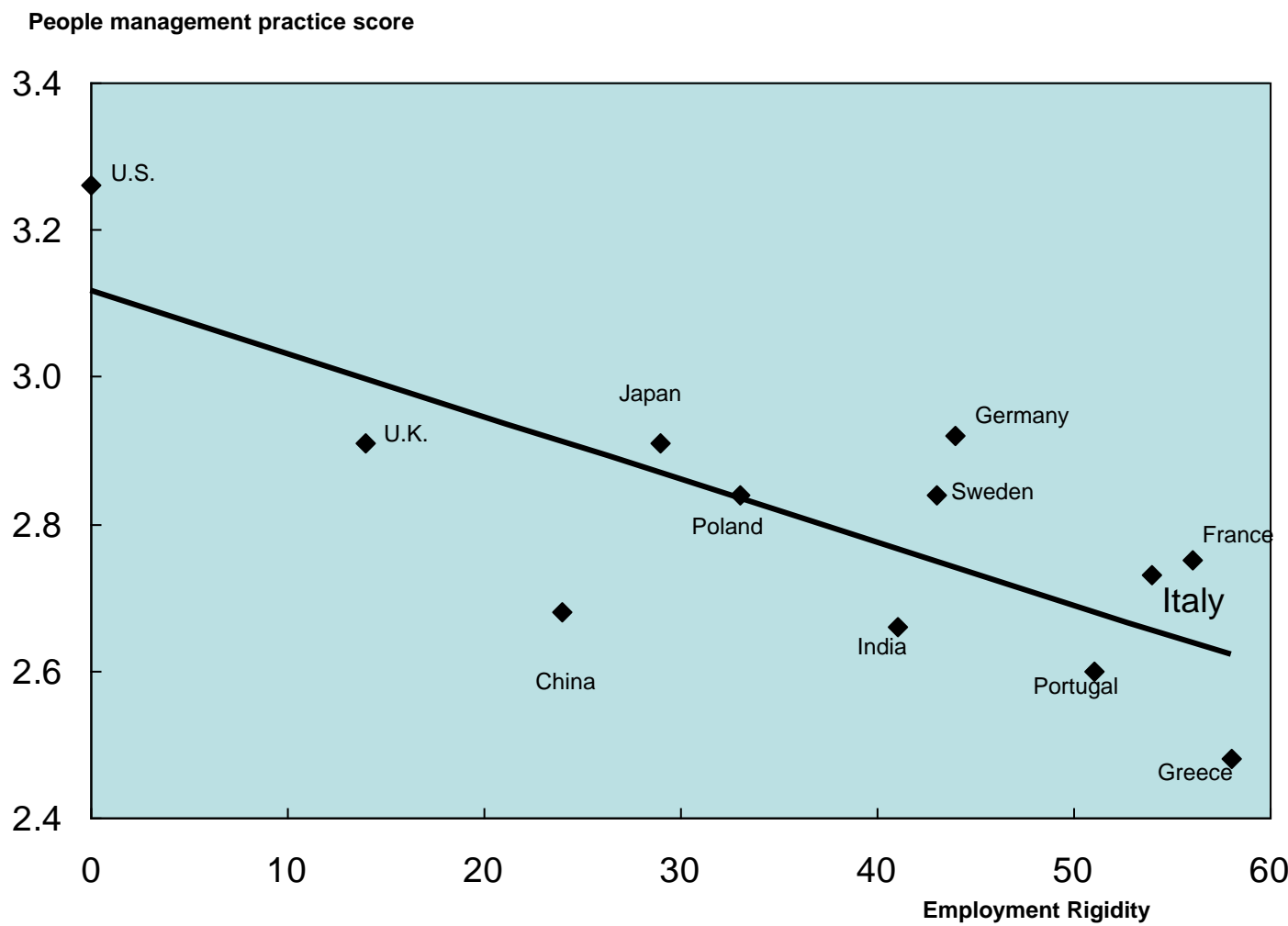
Managers



Sample of 8,032 manufacturing and 647 retail firms.

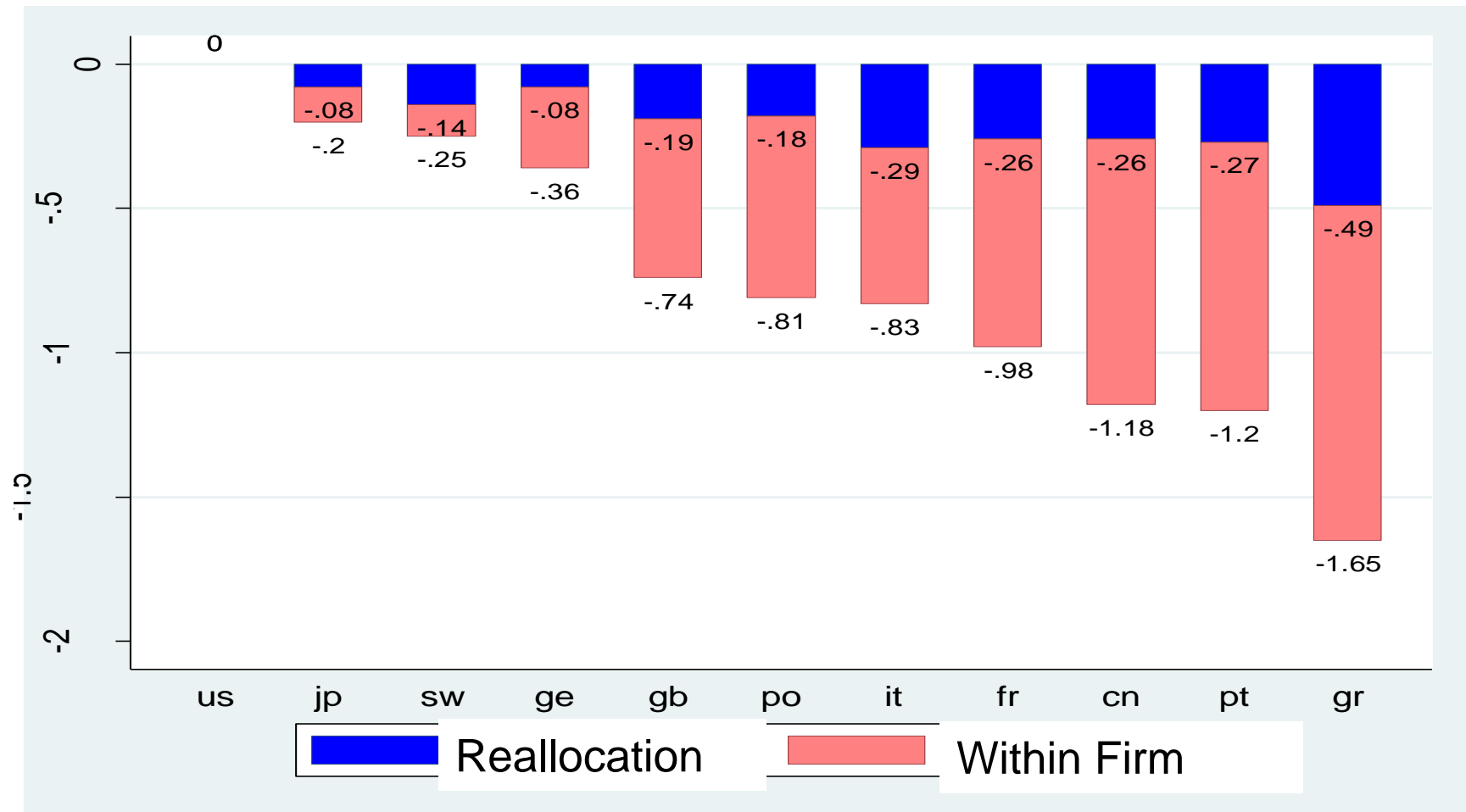
# RIGID LABOUR MARKET REGULATION LOWERS PEOPLE MANAGEMENT SCORES

Labour market rigidity\* vs people management practice score – by country



\* World Bank "Employee rigidity index"  
Source: World Bank; Management Matters dataset

# COUNTRY MANAGEMENT SCORES & REALLOCATION ACROSS COUNTRIES RELATIVE TO THE US LEVEL

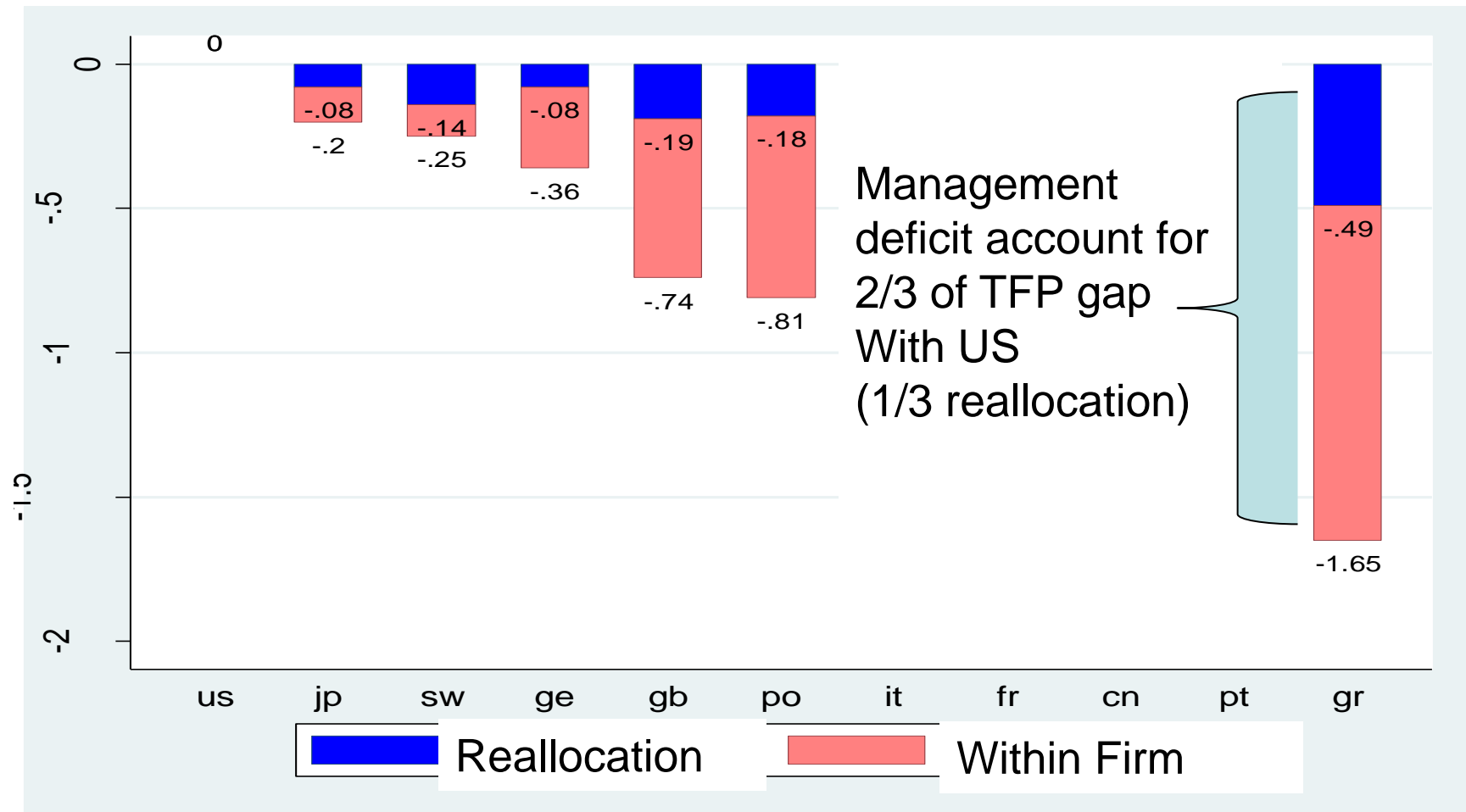


**Source:** Bloom, Sadun & Van Reenen (2012)

**Notes:** Total weighted mean management deficit with the US is the number on top of bar. This is decomposed into (i) reallocation effect (OP, blue bar) and (ii) unweighted average management scores (sd=1, red bar) . Domestic firms, scores corrected for sampling bias

Similar ranking to Bartelsman, Haltiwanger & Scarpetta (2012)

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Similar ranking to Bartelsman, Haltiwanger & Scarpetta (2012)

# SUMMARY OF DETERMINANTS OF MANAGEMENT (& PRODUCTIVITY)

- Product market competition
  - Meritocratic CEO selection
  - Human Capital
  - Labor regulations
- 
- These account for almost all of the management gap between EU and US
- 
- Accounts for ½ of faster productivity growth difference, EU vs. US after 1995 (complementarity with IT; see Bloom, Sadun & Van Reenen, 2012, AER)

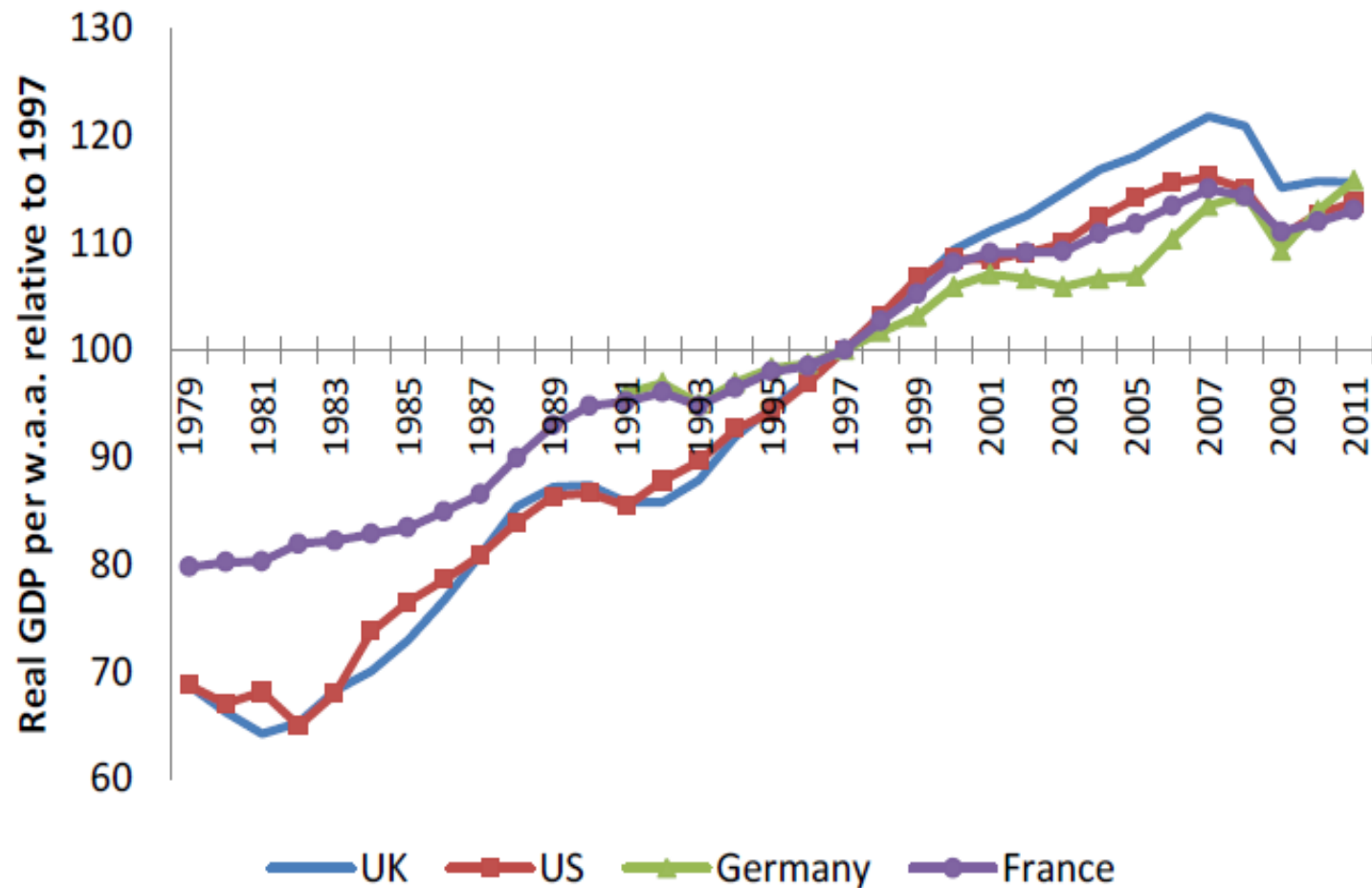
The US Productivity Advantage

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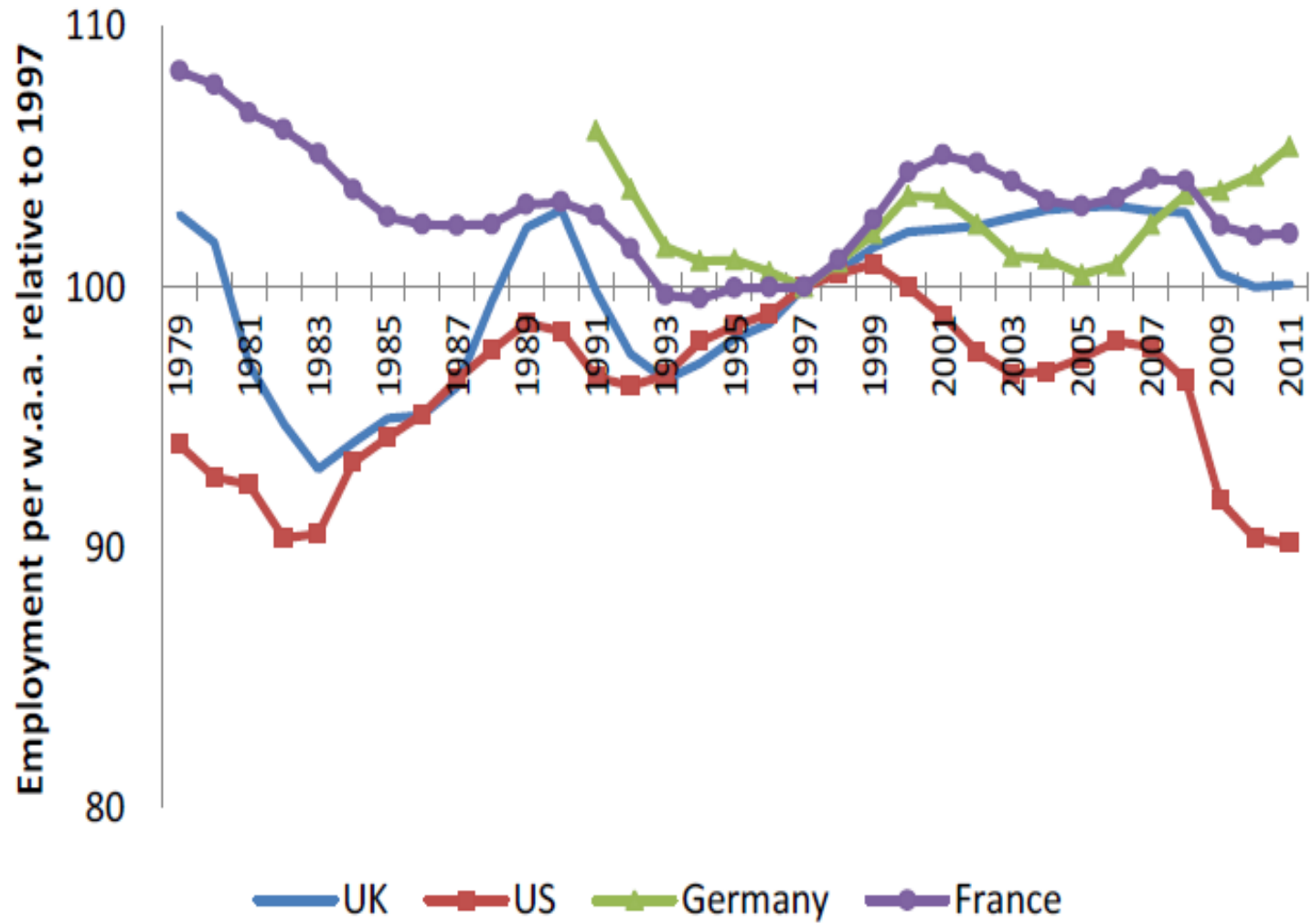
**Challenges for the US**

# GDP/ADULT ACROSS COUNTRIES, 1997=100



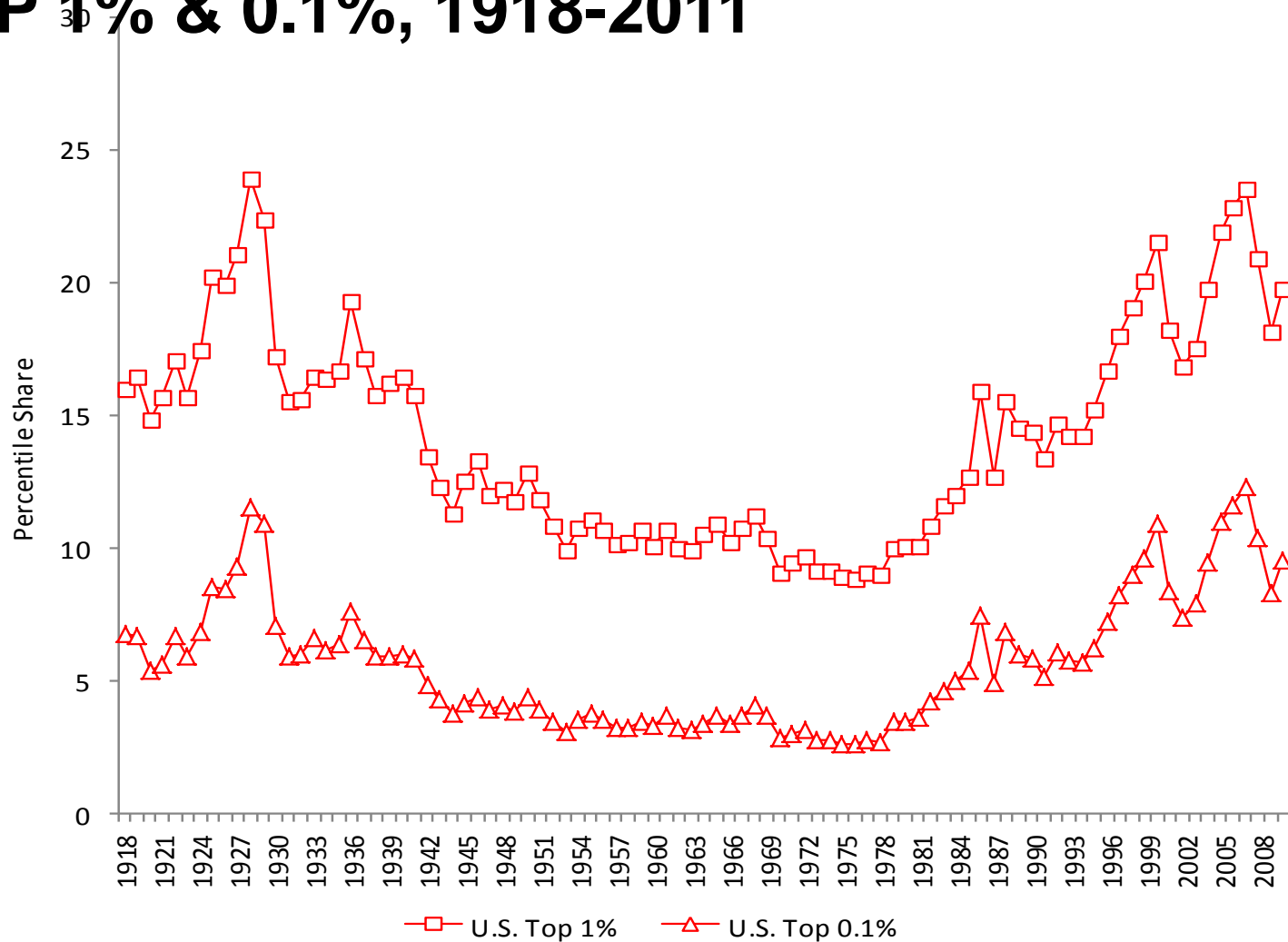
*Notes: GDP per adult trends (1997=100) so a value of 116 in 2011 means GDP per adult 16% higher in 2011 than 1997. Data from Conference Board (2012)*

# EMPLOYMENT RATE,



Source: Pessao & Van Reenen (2012)

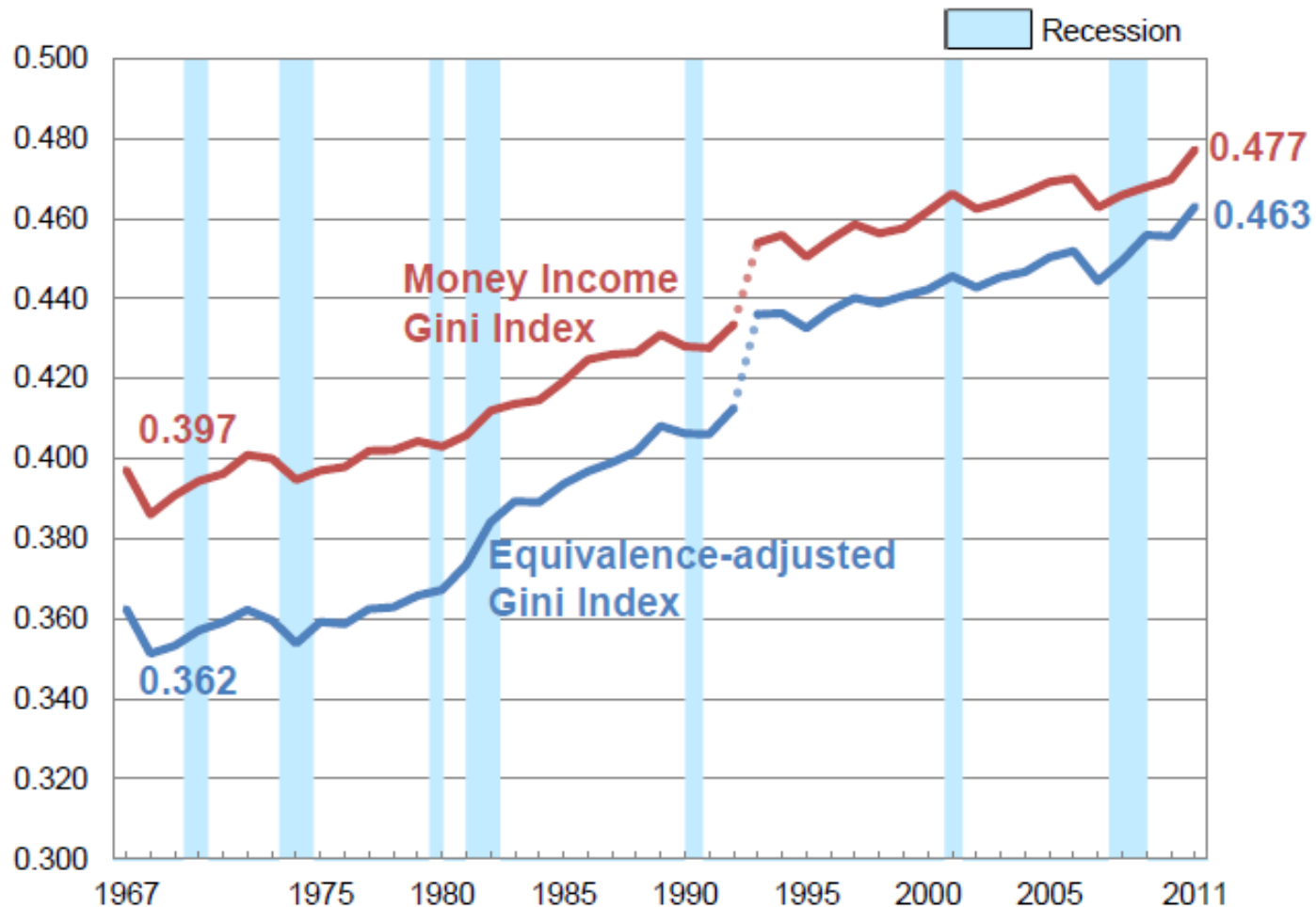
# INEQUALITY: SHARE OF INCOME HELD BY THE TOP 1% & 0.1%, 1918-2011



**Source:** Atkinson et al (2012) World Top Incomes Database

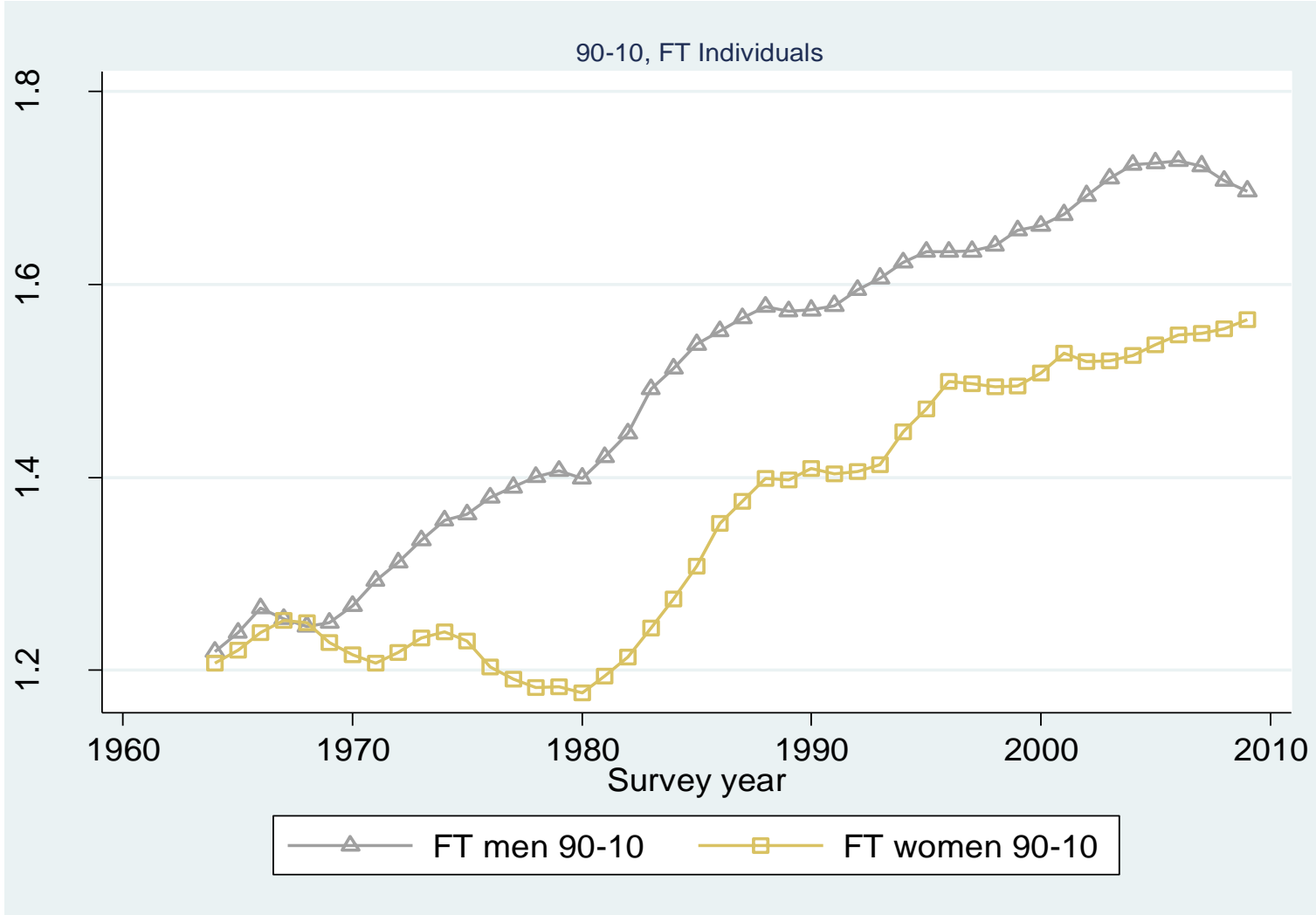
<http://g-mond.parisschoolofeconomics.eu/topincomes/>.

# Gini Index of Equivalence-Adjusted Income Compared to Money Income: 1967 to 2011



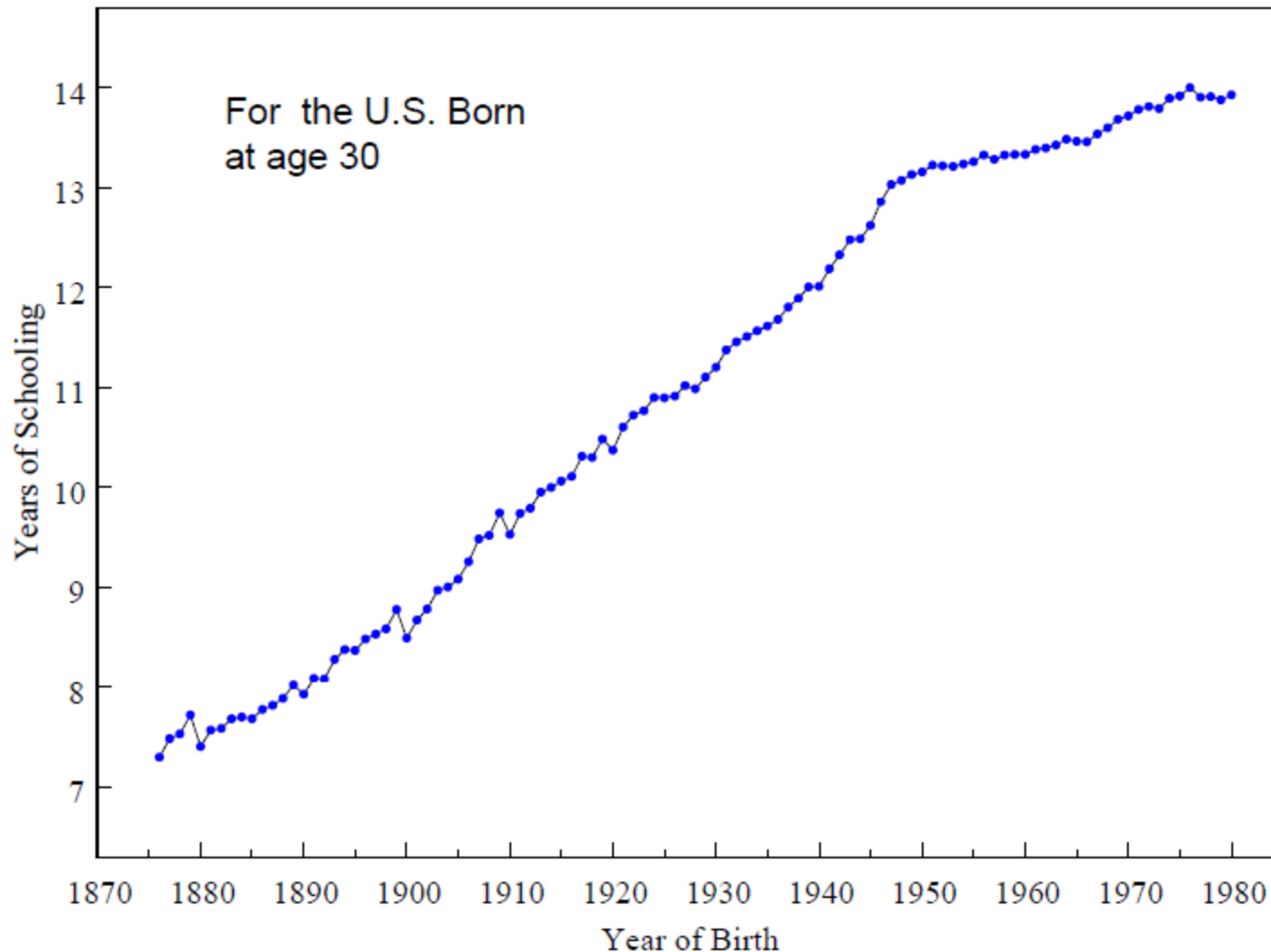
**Source: Census Bureau (September, 2012)**

# INEQUALITY: 90-10 LOG(WAGE) DIFFERENTIAL



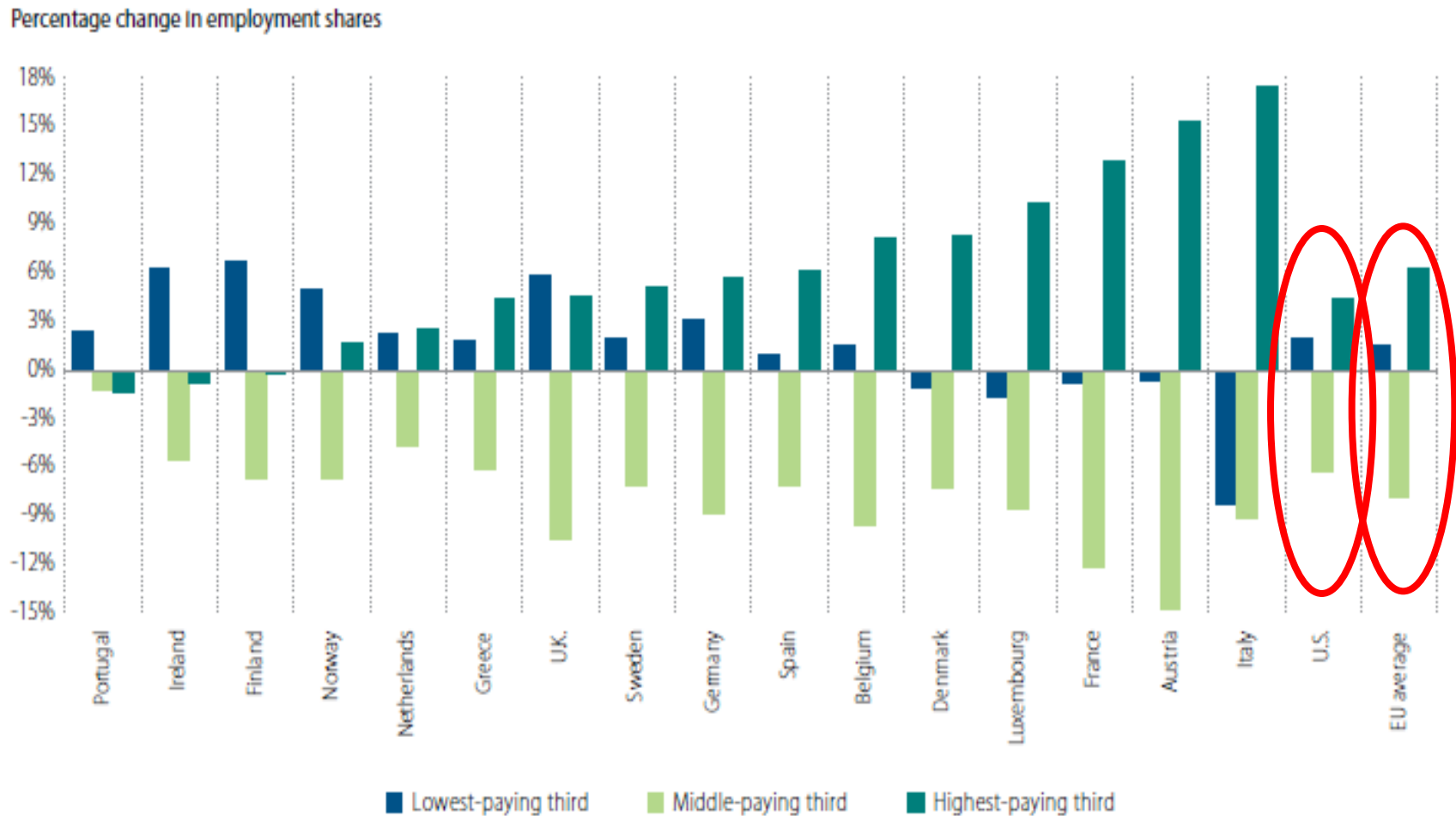
**Source: CPS, Machin, Murani & Van Reenen (2012)**

# MEAN YEARS OF SCHOOLING BY BIRTH COHORT



**Source:** Goldin & Katz (2010), IPUMs, MORG

# CHANGE IN EMPLOYMENT SHARES BY OCCUPATION IN 16 EU COUNTRIES, OCCUPATIONS GROUPED BY WAGE TERCILE 1993-2006



**Source:** Autor (2010) based on data in Goos, Manning & Salomons (2010)

# CONCLUSIONS

- US maintains productivity advantage over EU in levels & trends
  - Linked to management practices
  - Policy lessons for EU over reform of product & labor markets
- US faces challenge over inequality & labor market
  - Human capital critical, especially school reform
  - Distributional, especially “squeezed middle”

# MY FAVOURITE QUOTES:

## Staff rewards the American way

*Production Manager:* “For example, if an employee suggests a company slogan, and his name is used, he gets a TV.  
If he is employee of the month, he gets a parking space”

## Staff retention the UK way

*Interviewer:* “How would you persuade your top performers to stay?”  
*UK Chairman:* “Sex is a great thing! If the employee finds a new girlfriend somewhere else, I can’t do anything!”

# MY FAVOURITE QUOTES:

**India is such an interesting place...**

*Interviewer: "How do you identify your star performers?"*

*Manager: "This is India, everyone thinks he is a star performer!"*

**Americans on geography**

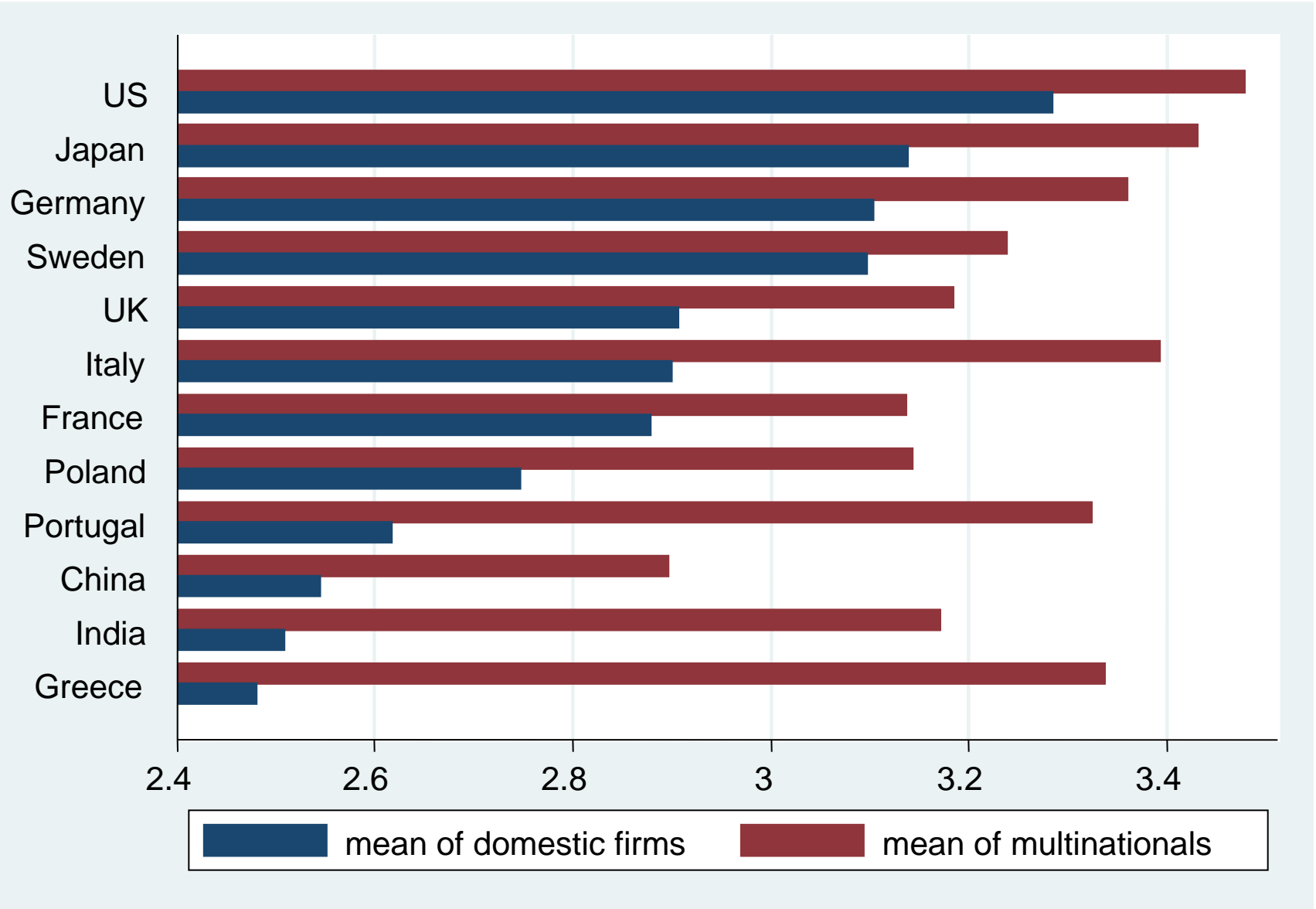
*Interviewer: "How many production sites do you have abroad?"*

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

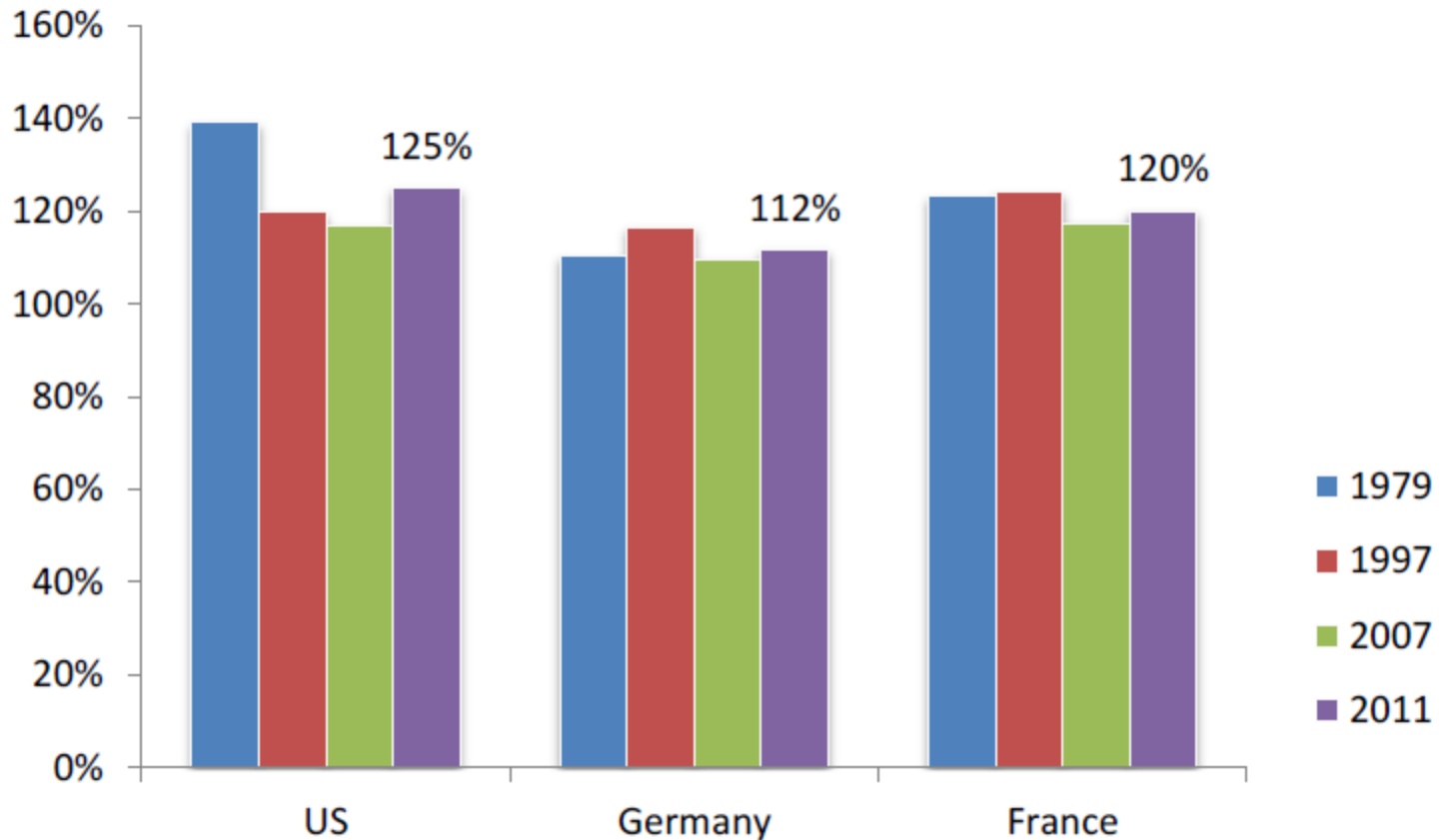
# Further Reading

1. Bloom and Van Reenen (2007) "Measuring and Explaining Management practices across firms and nations" *Quarterly Journal of Economics*, 122(4), 1351–1408 <http://cep.lse.ac.uk/pubs/download/dp0716.pdf>
2. Bloom and Van Reenen (2010) *Journal of Economic Perspectives* (2010) 24(1) 203-224  
<http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.24.1.203%20>
3. Bloom, Sadun and Van Reenen (2012) "Americans do IT better" *American Economic Review*  
<http://cep.lse.ac.uk/pubs/download/dp0788.pdf>

# FOREIGN MULTINATIONALS APPEAR TO BE WELL MANAGED IN ALL COUNTRIES

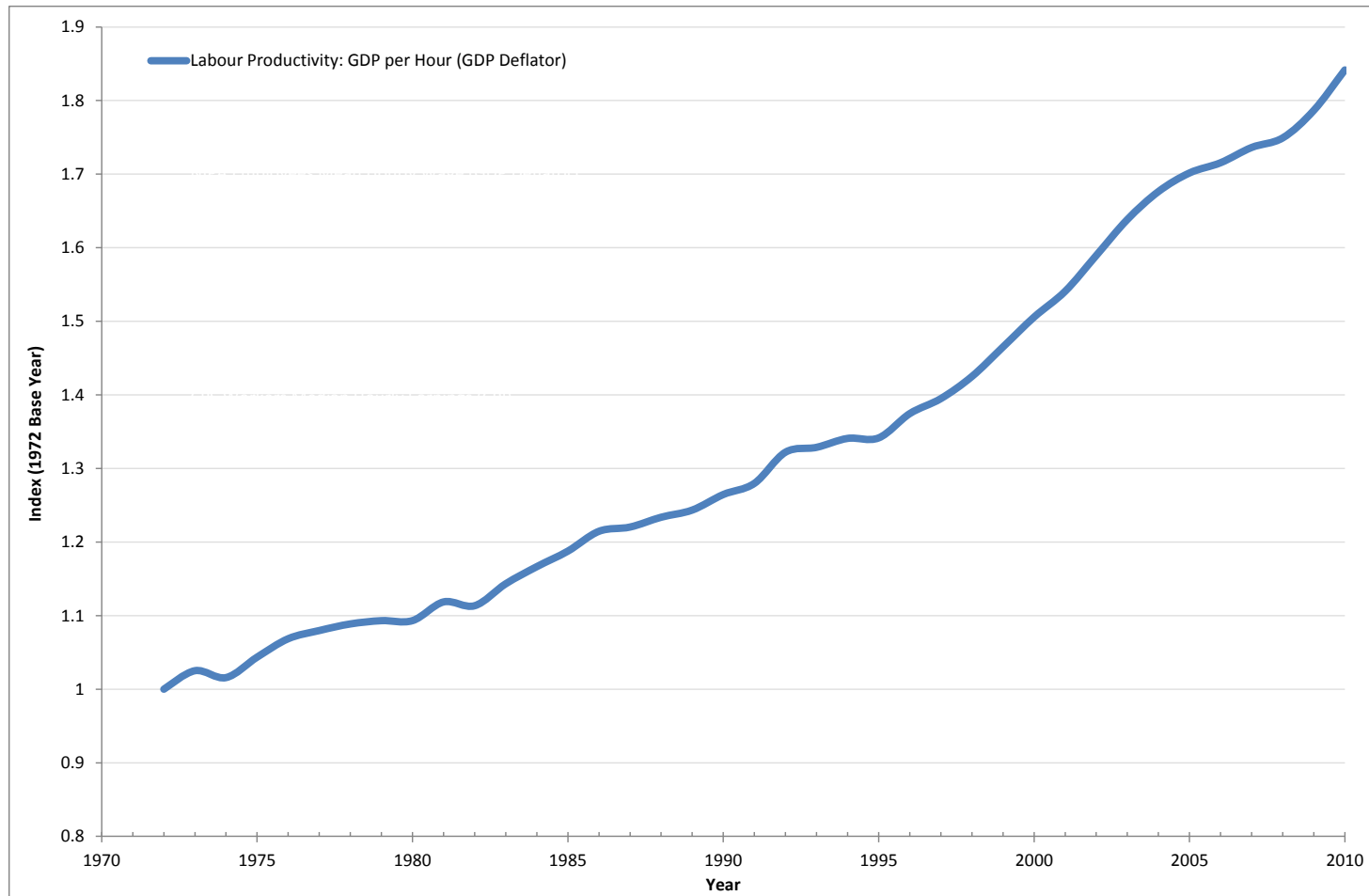


# GDP PER HOUR LEVELS (PREMIUM OVER UK)



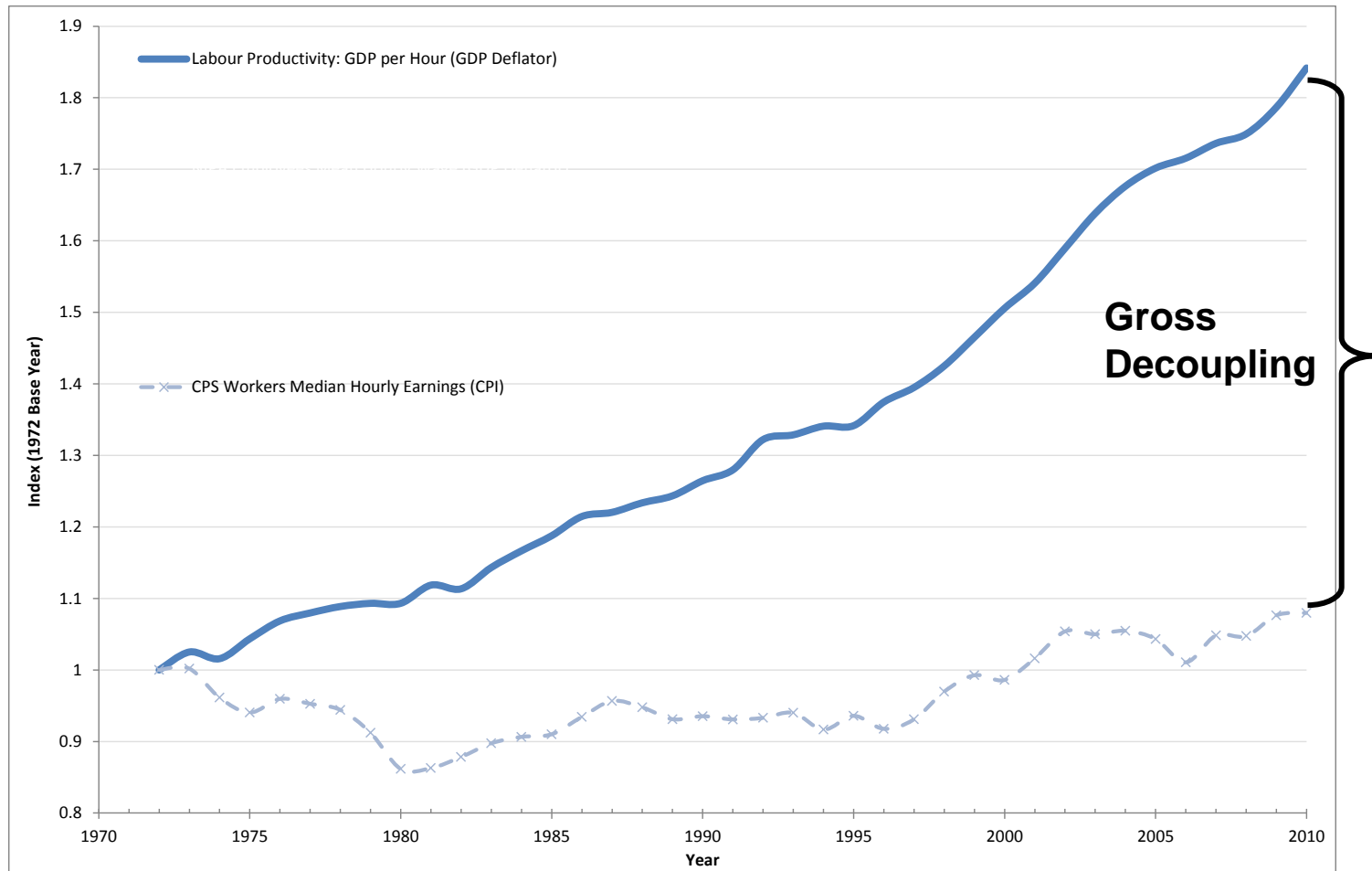
*Notes:* Analysis based on Conference Board data (2012). GDP is US\$, constant prices, constant PPPs, CB base year (2011).

# DECOUPLING: GROWTH OF GDP PER HOUR (1972=1)



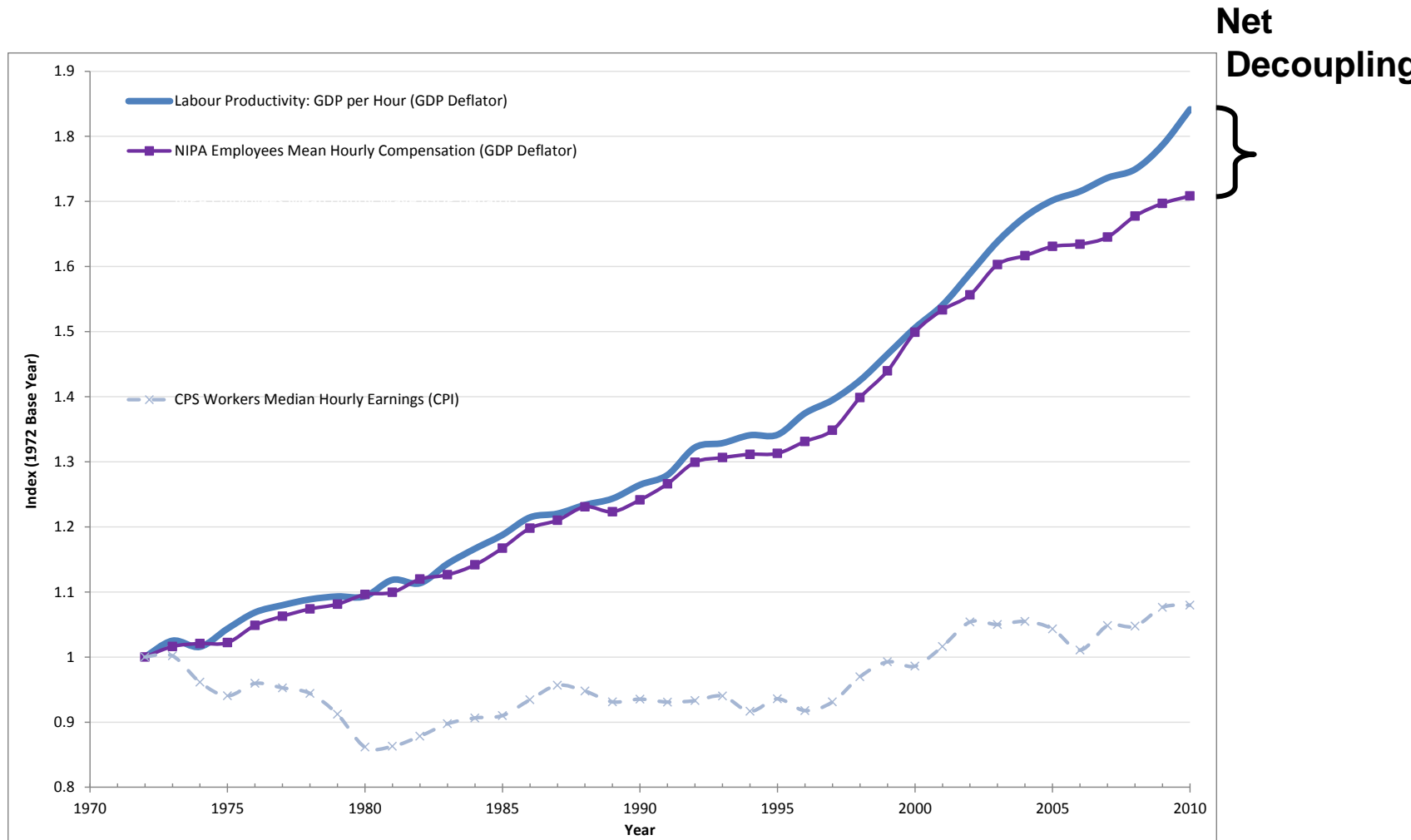
**Source: Pessao & Van Reenen (2012)**

# GROWTH OF REAL GDP PER HOUR VS. MEDIAN WORKER WAGE (DEFLATED BY CPI)



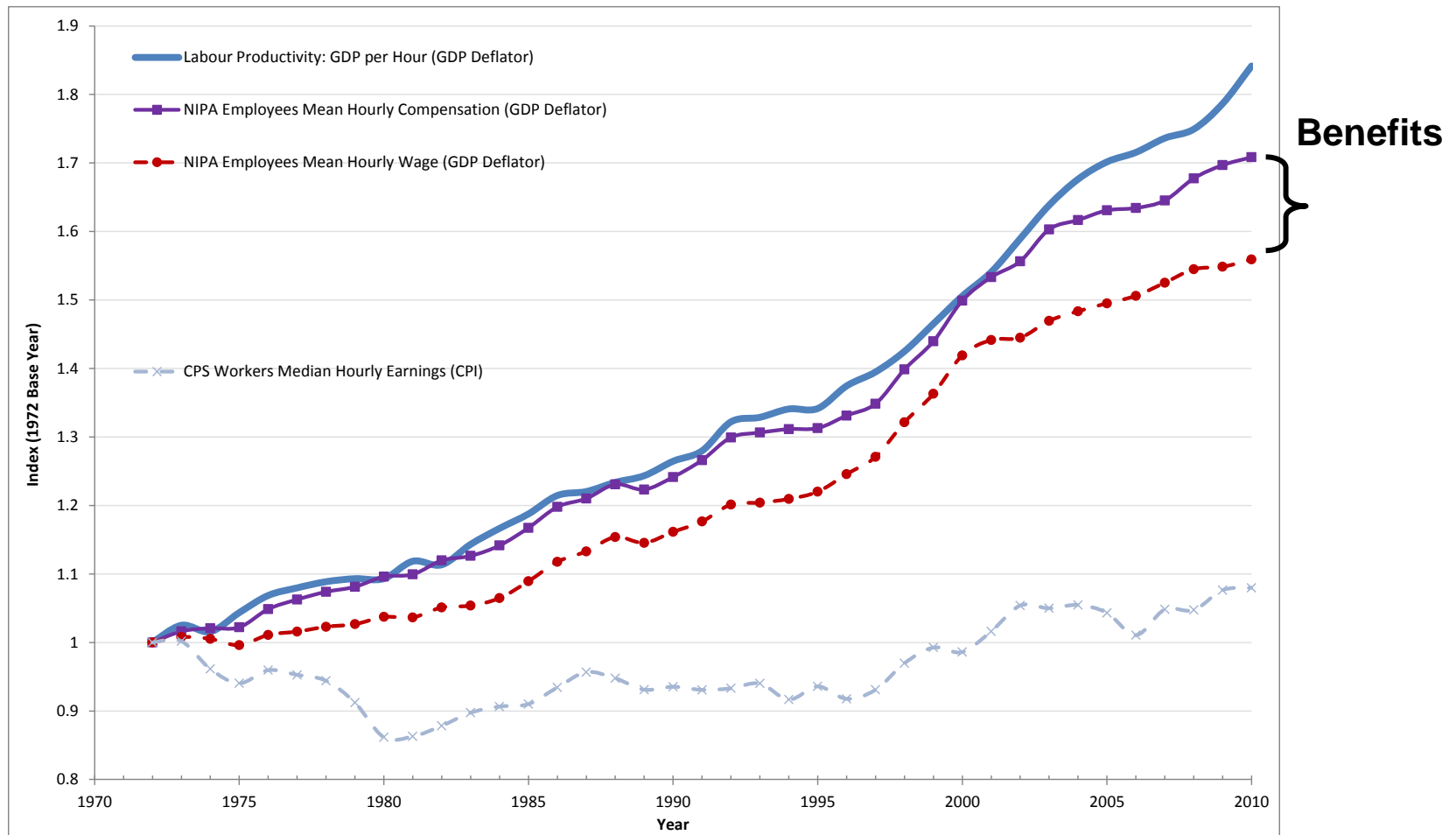
Source: Pessao & Van Reenen (2012)

# US GROSS VS. NET DECOUPLING



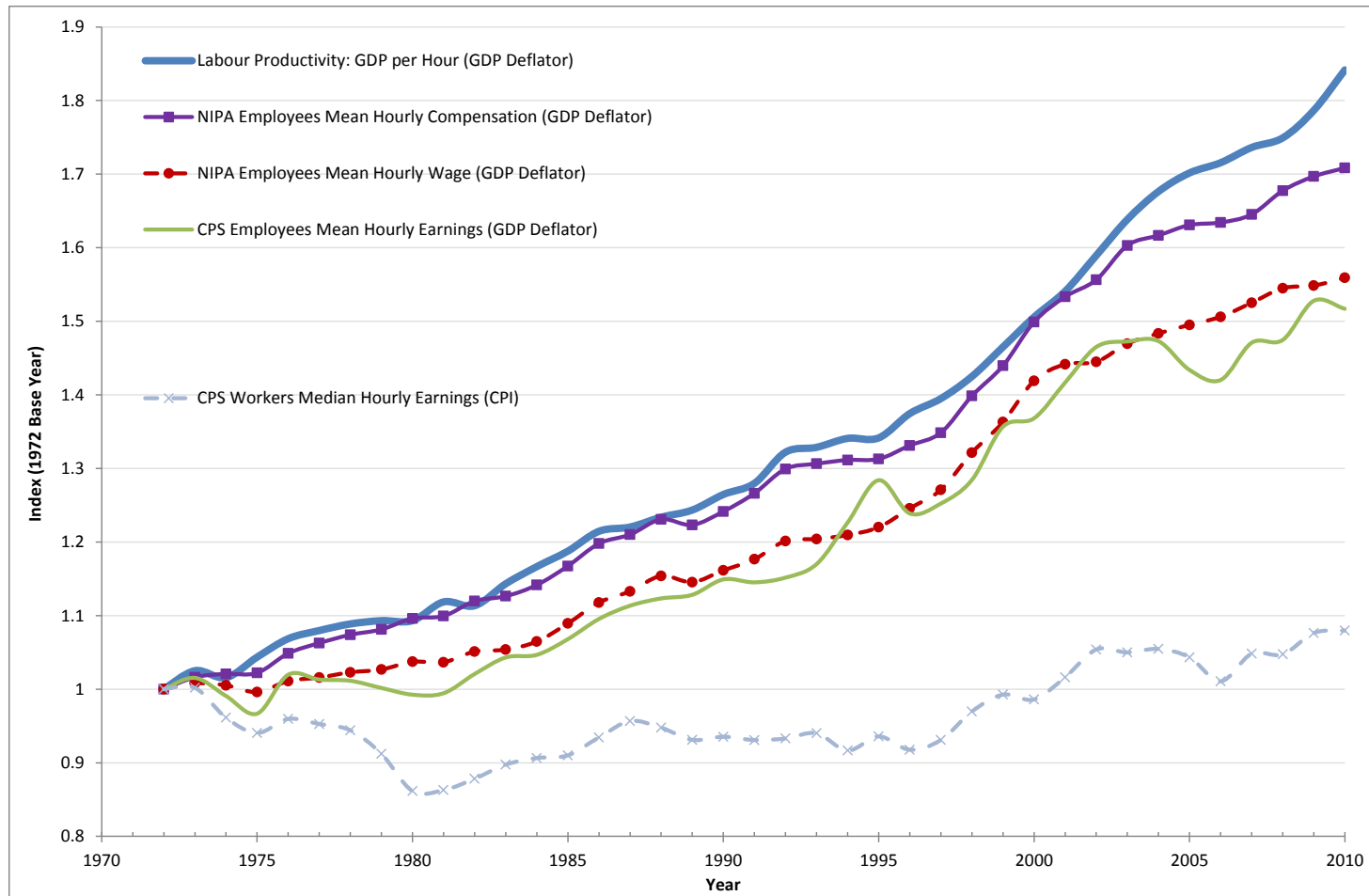
Source: Pessao & Van Reenen (2012)

# US DECOUPLING: BENEFITS



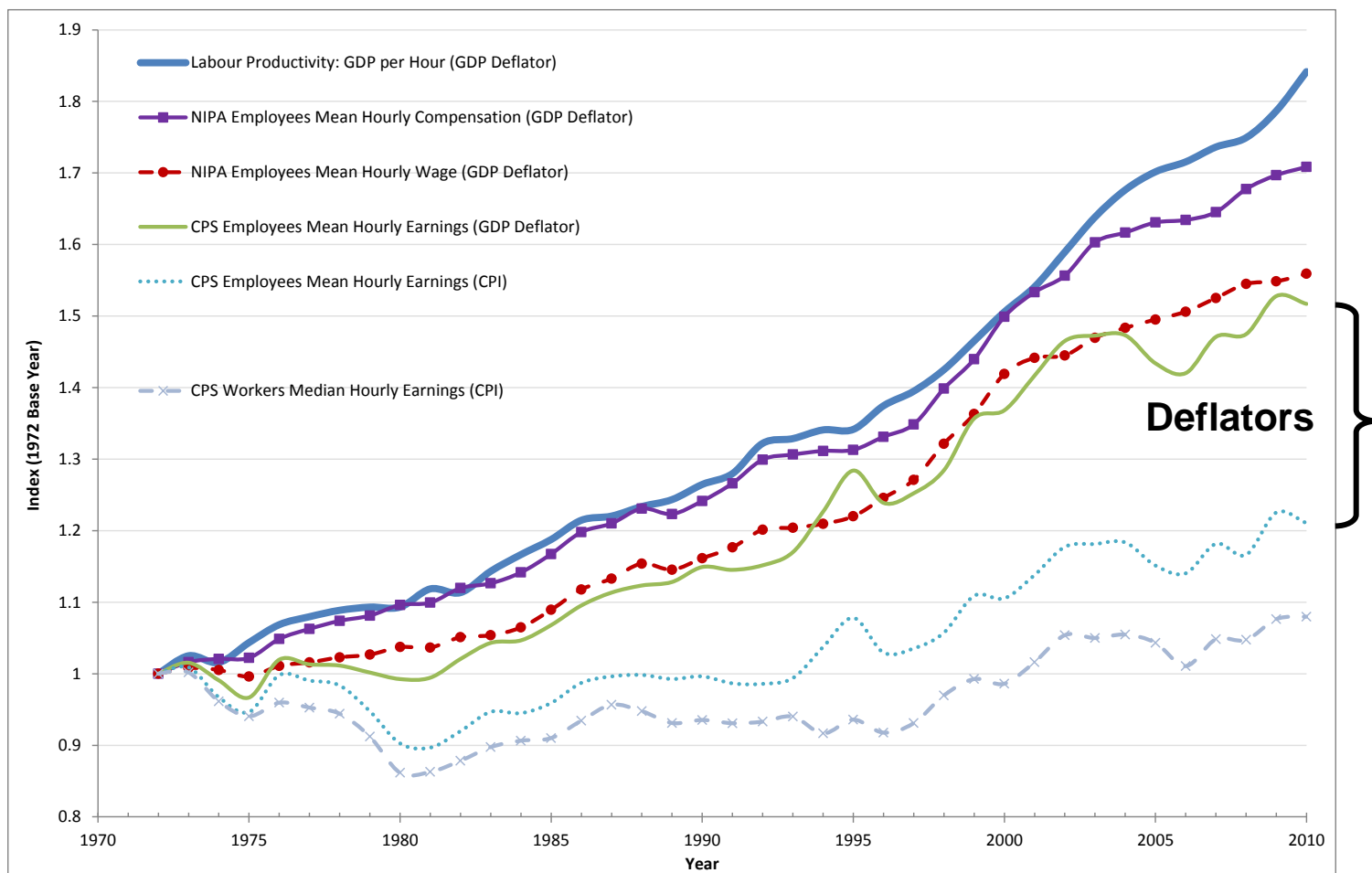
Source: Pessao & Van Reenen (2012)

# US DECOUPLING: NIPA VS. CPS WAGE SERIES



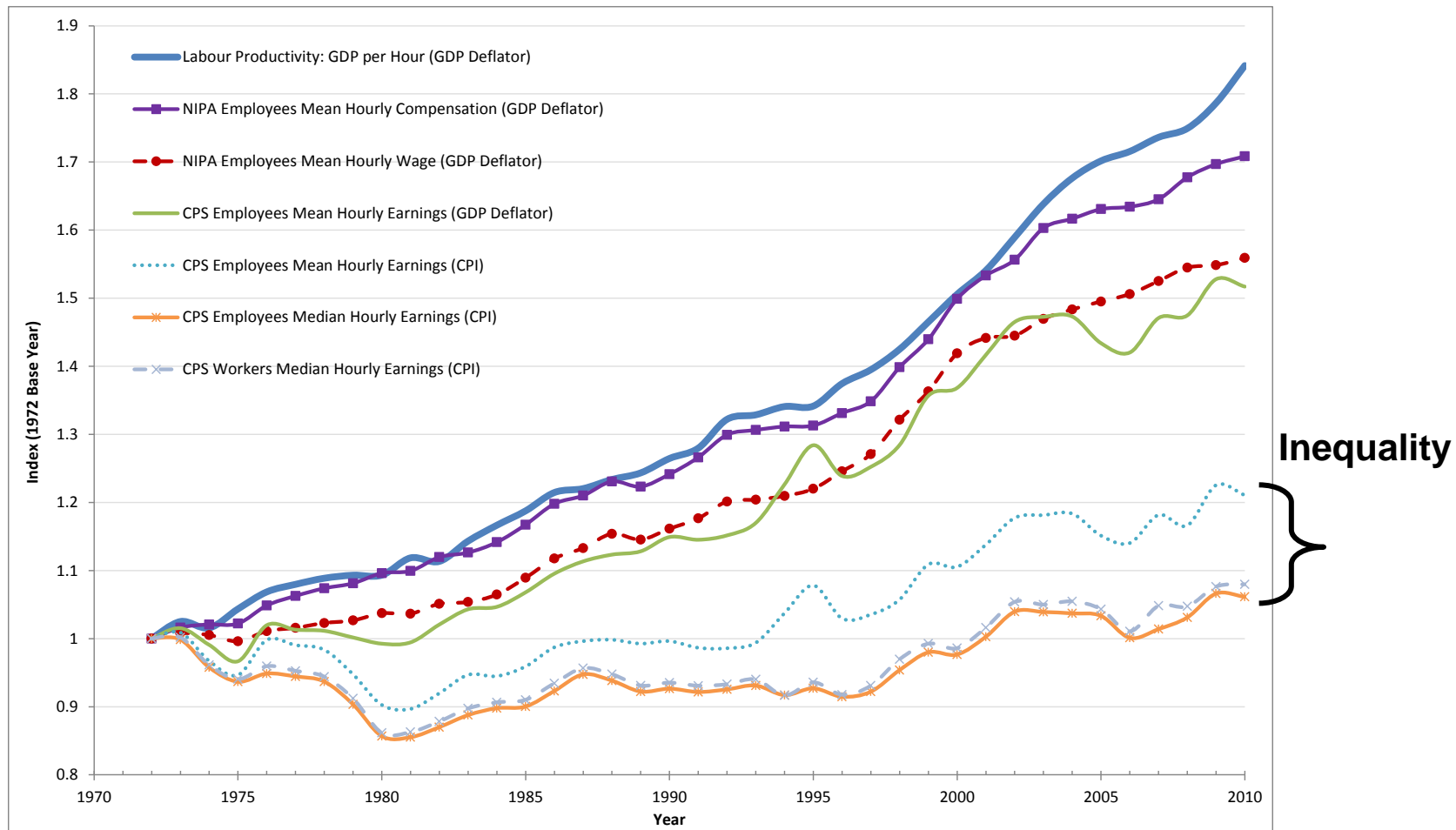
Source: Pessao & Van Reenen (2012)

# US DECOUPLING: DEFLATORS



Source: Pessao & Van Reenen (2012)

# US DECOUPLING: INEQUALITY

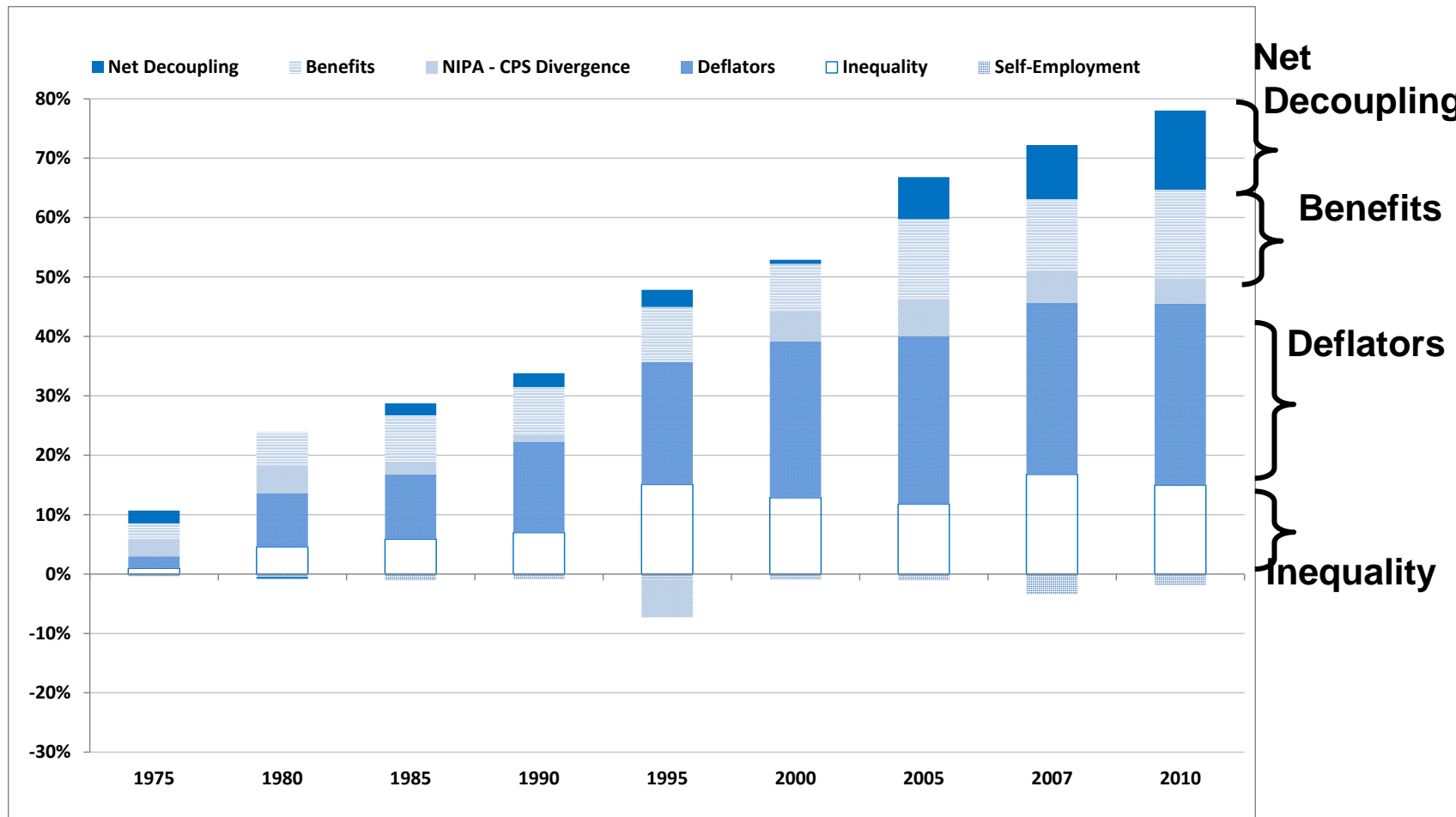


Source: Pessao & Van Reenen (2012)

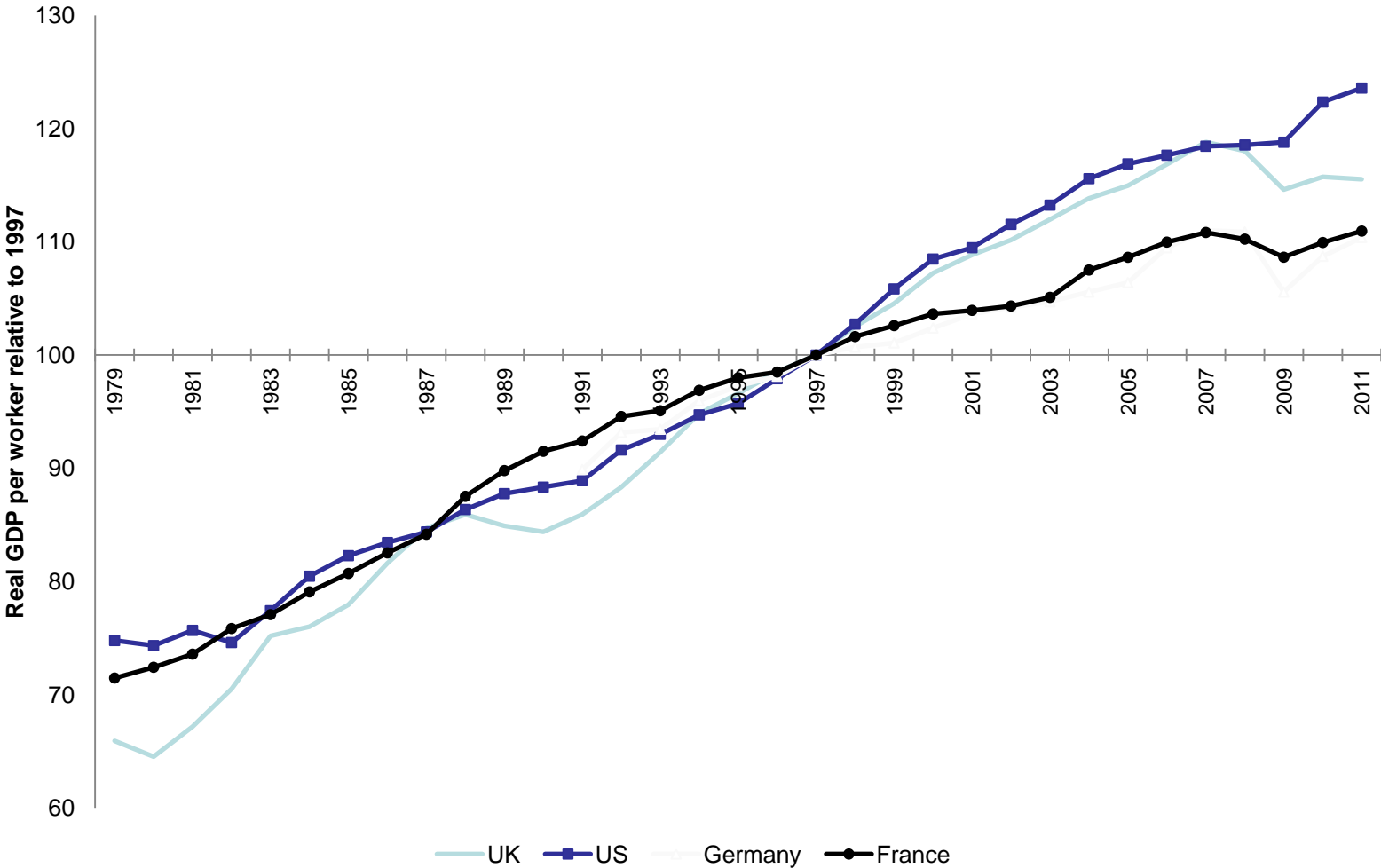
# ACCOUNTING FOR US GROSS DECOUPLING 1972-2010

- Inequality increases: 15% by 2010
- Compensation growth greater than wages growth (mainly health insurance); 15% by 2010
- GDP deflator rises more slowly than CPI (31% by 2010)
  - ICT investment good price deflator
  - Oil
  - PPI understated? CPI overstated?
  - Other factors?
- Minor factors
  - Differences between NIPA & CPS
  - Self employed

# DECOMPOSITION OF GROSS DECOUPLING SELECTED YEARS - US

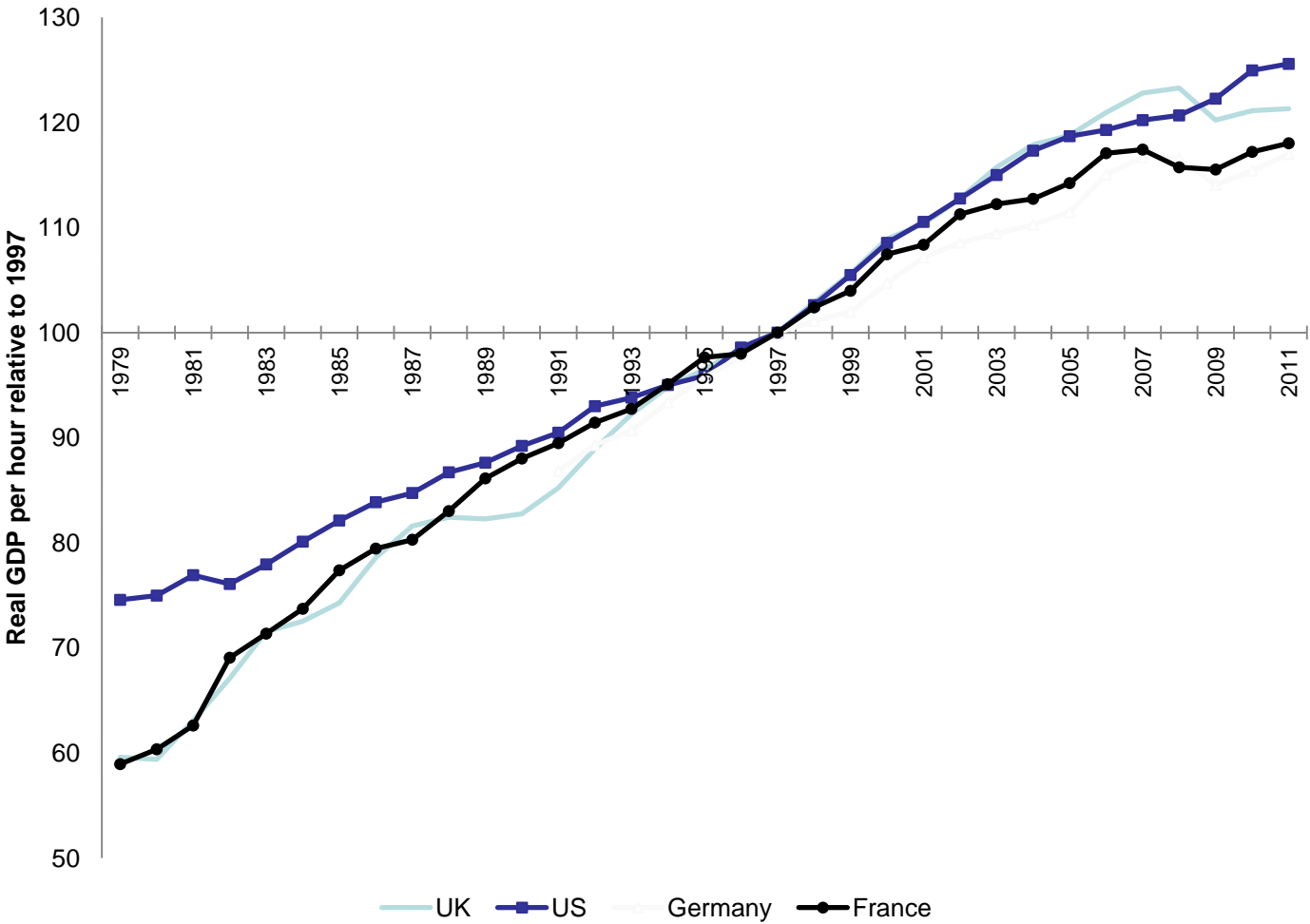


# Productivity: GDP per worker growth (1997=100)



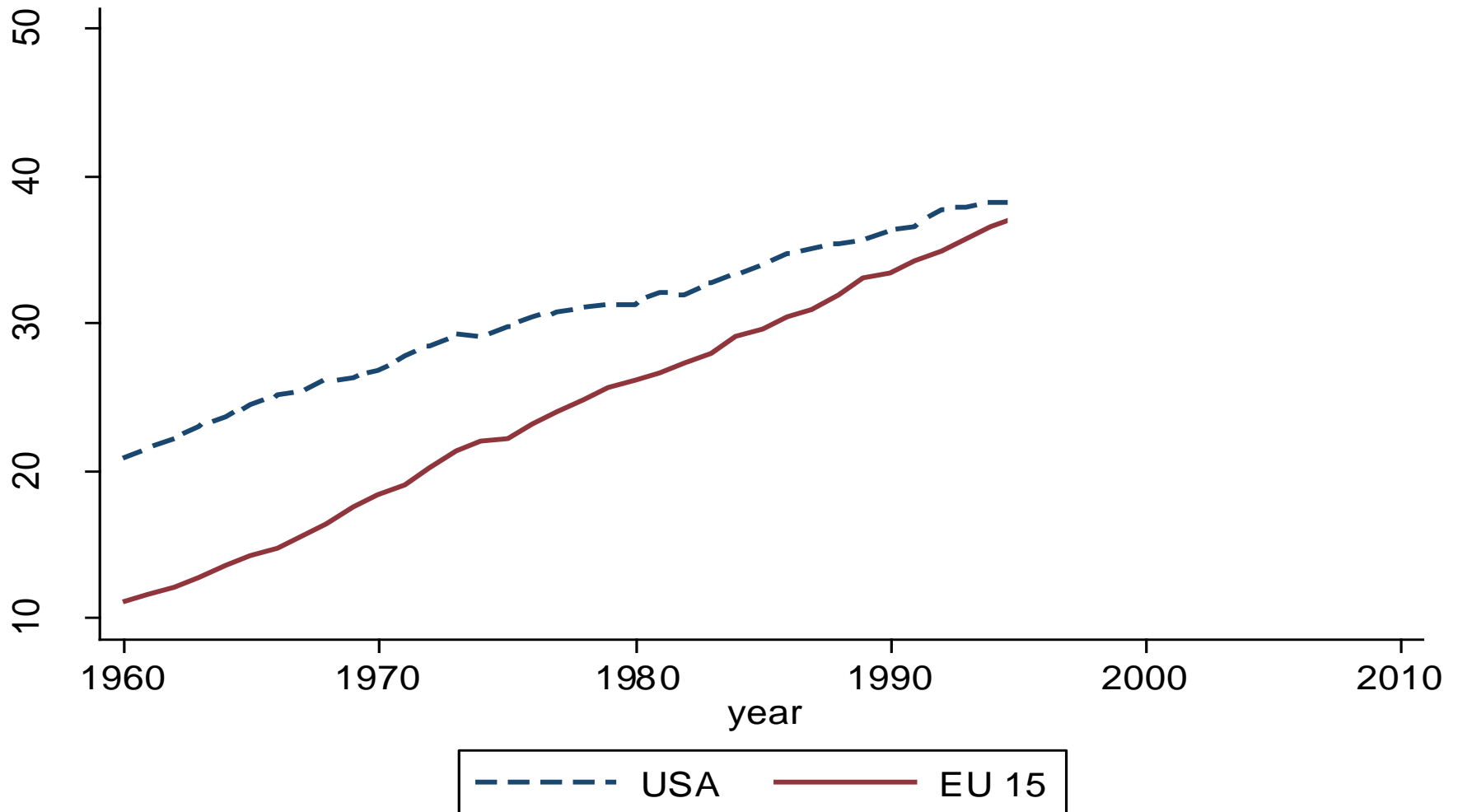
Notes: CB data GDP is US\$, constant prices, constant PPPs, (CB based year: 2011).

# Productivity: GDP per hour growth (1997=100)



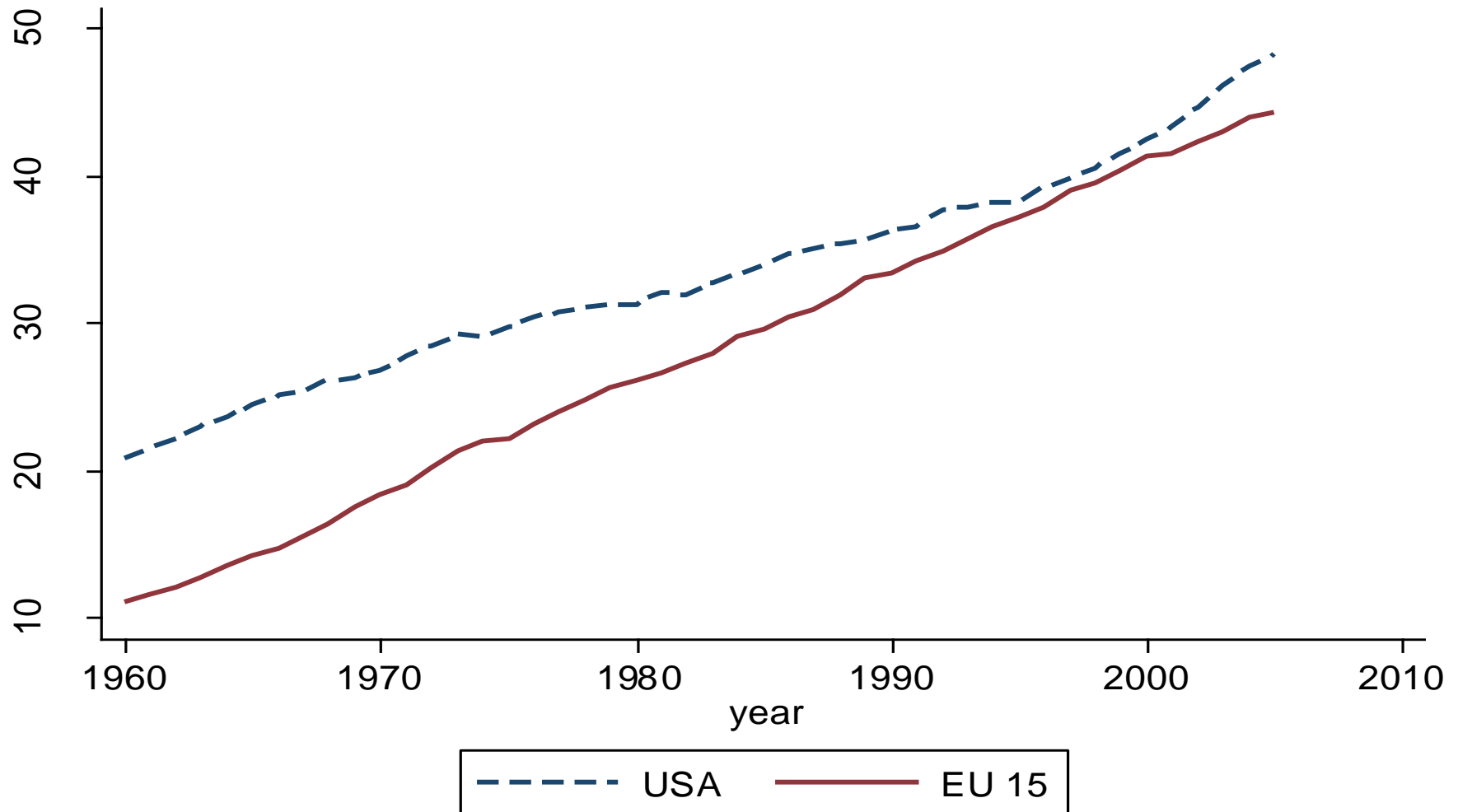
Notes: CB data GDP is US\$, constant prices, constant PPPs, (CB based year: 2011).

# European productivity had been catching up with the US for 50 years...



Source: GGDC Dataset

**...but since 1995 US productivity accelerated away again from Europe.**

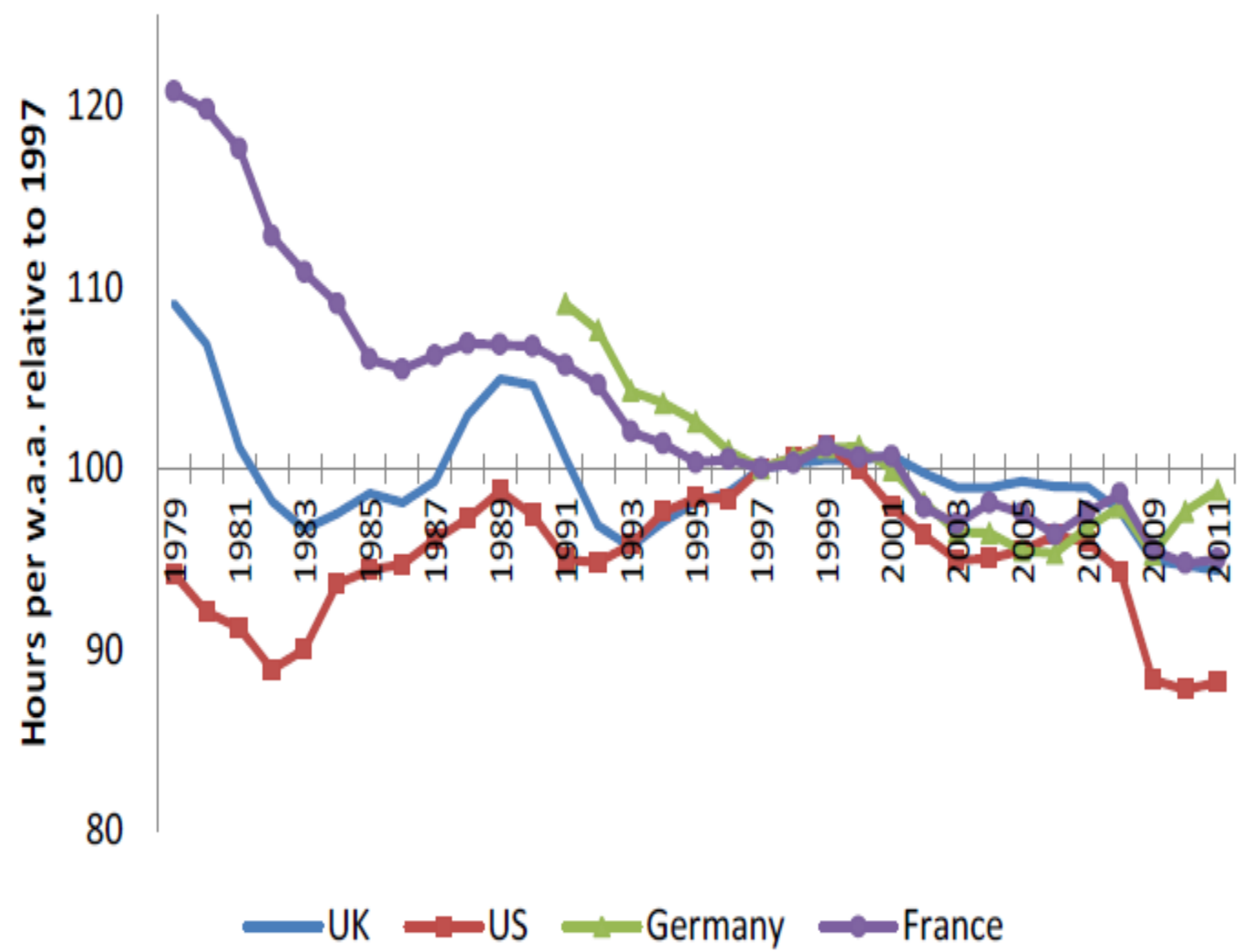


Source: GGDC Dataset

# EMPLOYMENT RATES OF 16-64 YEAR OLDS, SELECTED YEARS

	1984	1997	2007	2011
US	68.1	73.5	71.8	66.6
EU-15	58.6	60.9	67.1	65.7
<i>US-EU Diff</i>	<i>9.5</i>	<i>12.6</i>	<i>4.7</i>	<i>0.9</i>
France	61.2	59.4	64.3	63.8
Germany	(65.9)	63.8	69	72.6
UK	65.9	70.6	72.4	70.4

# HOURS PER ADULT 1979-2011



Source: Pessao & Van Reenen (2012)

**TAB 8: DECOMPOSING AGGREGATE MANAGEMENT GAP INTO REALLOCATION & UNWEIGHTED MEAN DIFFERENCE**

<b>Country</b>	<b>Share-Weighted Average Management Score, M (1)=(2)+(3)</b>	<b>Reallocation effect (Olley-Pakes, OP)</b>	<b>Unweighted Average Management Score</b>	<b>“Deficit” in Share-weighted Management Score relative to US</b>	<b>“Deficit” in Reallocation relative to US</b>	<b>% of deficit in management score due to worse reallocation (6)=(5)/(4)</b>
US	0.67	0.36	0.31	0	0	
Japan	0.47	0.28	0.19	-0.2	-0.08	40%
Sweden	0.43	0.22	0.20	-0.24	-0.14	58%
Germany	0.31	0.28	0.03	-0.36	-0.08	22%
GB	-0.07	0.17	-0.24	-0.74	-0.19	26%
Poland	-0.14	0.18	-0.32	-0.81	-0.18	22%
Italy	-0.15	0.07	-0.23	-0.82	-0.29	35%
France	-0.31	0.10	-0.41	-0.98	-0.26	27%
China	-0.51	0.10	-0.61	-1.18	-0.26	22%
Portugal	-0.53	0.09	-0.62	-1.20	-0.27	22%
Greece	-0.98	-0.13	-0.85	-1.65	-0.49	30%

**TAB 6/7: REALLOCATION WORSE IN COUNTRIES WITH HIGH EMPLOYMENT PROTECTION LAWS (EPL) OR HIGH TARIFFS**

<b>Dependent Variable:</b>	<b>Employment</b>	<b>Employment</b>	<b>Employment</b>	<b>Employment</b>	<b>Employment</b>
<b>Management (MNG)</b>	223.18*** (37.48)	315.02*** (94.53)	344.70*** (55.99)	156.98*** (60.44)	97.93 (67.25)
<b>MNG*Tariff (cty*ind specific Feenstra-Romalis)</b>					-8.13** (3.34)
<b>MNG*EPL (WB, 2008; 1=Low, 100=High; cty level)</b>	-1.46** (0.70)				
<b>MNG*EPL (OECD, 1985-08 1=Low,6=high; cty level)</b>		-68.79* (38.62)			
<b>MNG*Trade Cost (WB, 2008 1=low, 6=high; cty level)</b>			-0.17*** (0.05)		
<b>Tariff (US \$, Feenstra-Romalis, cty-ind specific)</b>				-3.37 (4.10)	-5.26 (4.20)
<b>Observations</b>	5,580	5,504	4,916	1,559	1,559

**Notes:** OLS, clustered by firm; dependent variable is firm employment; Domestic firms only

# EFFECTS OF THE GREAT RECESSION ON REALLOCATION

(DEPENDENT VARIABLE IS SALES GROWTH 2009/8 – 2007/6)

<b>SHOCK</b>	-0.051***	-0.052***		
<b>(COMTRADE)</b>	(0.014)	(0.014)		
<b>Management*SHOCK</b>		0.018*		
<b>(COMTRADE)</b>		(0.010)		
<b>SHOCK</b>			-0.033**	-0.035**
<b>(ORBIS)</b>			(0.014)	(0.014)
<b>Management*SHOCK</b>				0.027**
<b>(ORBIS)</b>				(0.011)
<b>Management</b>	0.001	-0.008	0.002	-0.014
	(0.006)	(0.009)	(0.006)	(0.010)
<b>Firms</b>	1,599	1,599	1,567	1,567
<b>Observations</b>	1,685	1,685	1,653	1,653

**Notes:** SHOCK is defined as the fall in exports (COMTRADE) or sales (ORBIS) in the SIC by CTY cell. All columns include controls for CTY and SIC3

# COVERAGE OF WORLD MANAGEMENT SURVEY: 21 COUNTRIES



Source: World Management Survey, <http://worldmanagementsurvey.org/>