Aalto University
School of Business

Topics in Labor Economics II

Superstar Effects: Individuals, Industries, Firms

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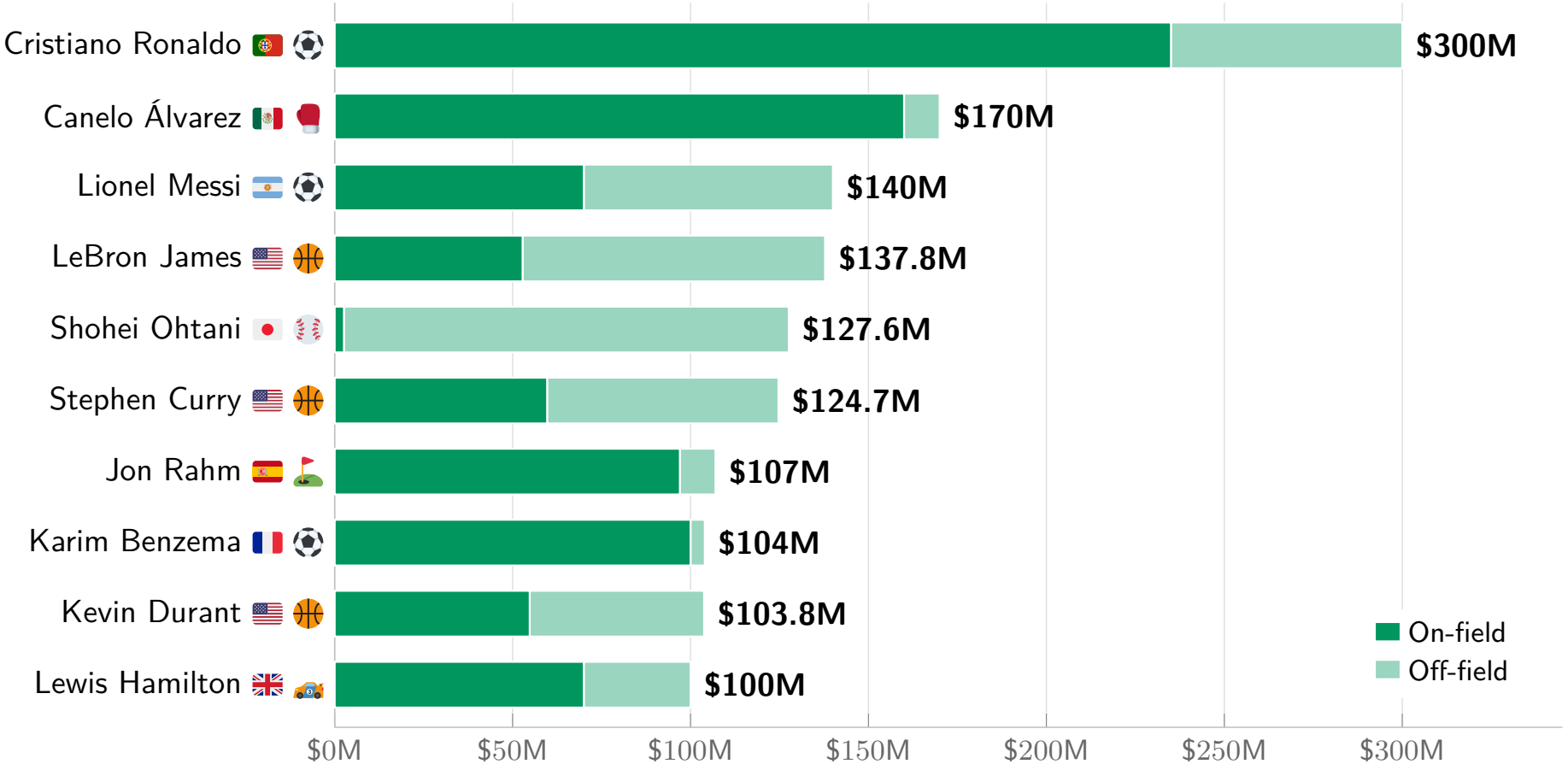
Introduction

How do differences in abilities and tastes translate into wage differences?

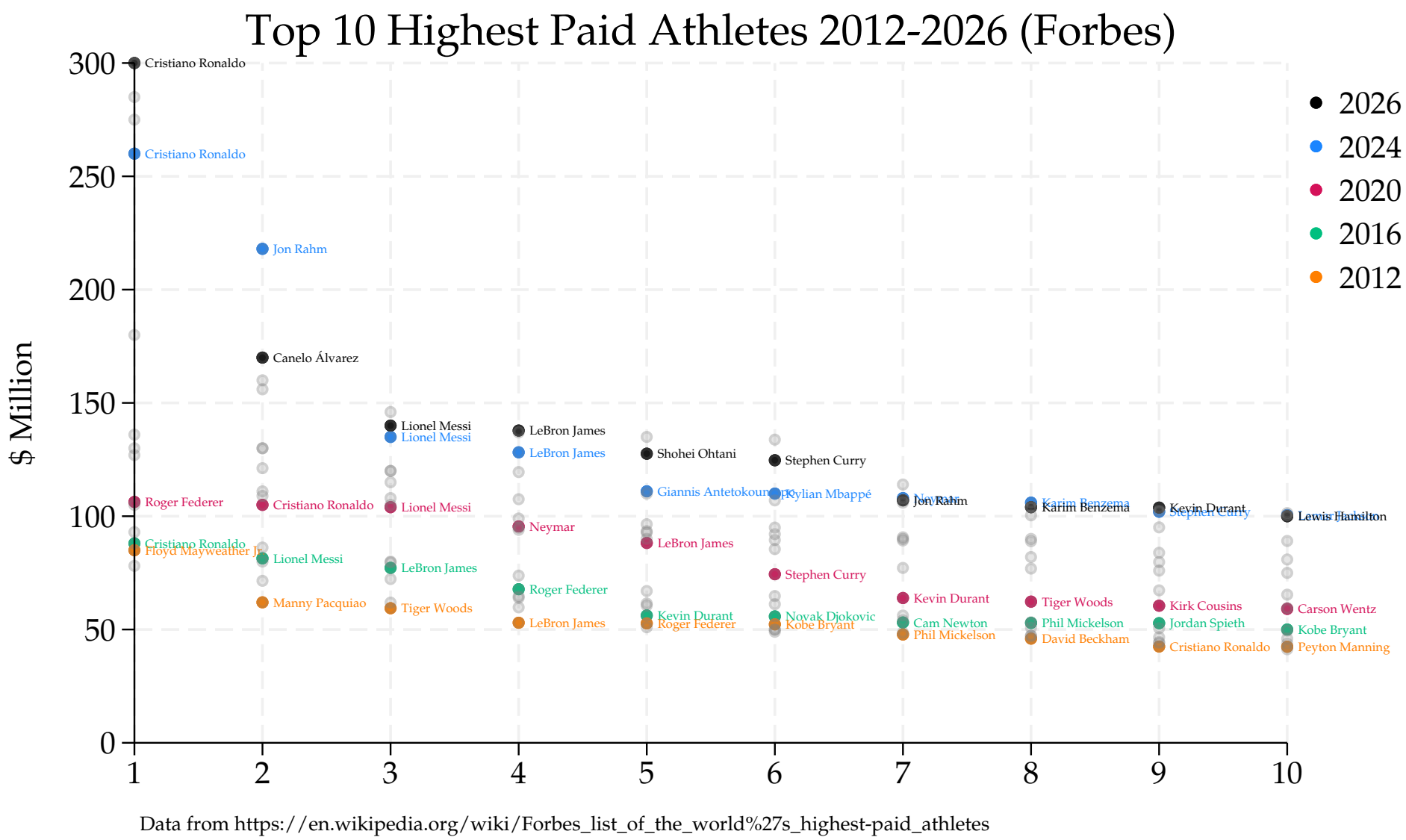
1. How much you produce depends on who/what you produce with
   - Ability rents*
   - Scale effects (scale of operations, span of control)
   - Matching workers with co-workers (team production)
   - Matching workers and firms/jobs
   - Superstar effects
2. Compensating differentials

The World's Highest-Paid Athletes 2026

Estimated earnings between May 1, 2025 and May 1, 2026, before taxes and agents' fees



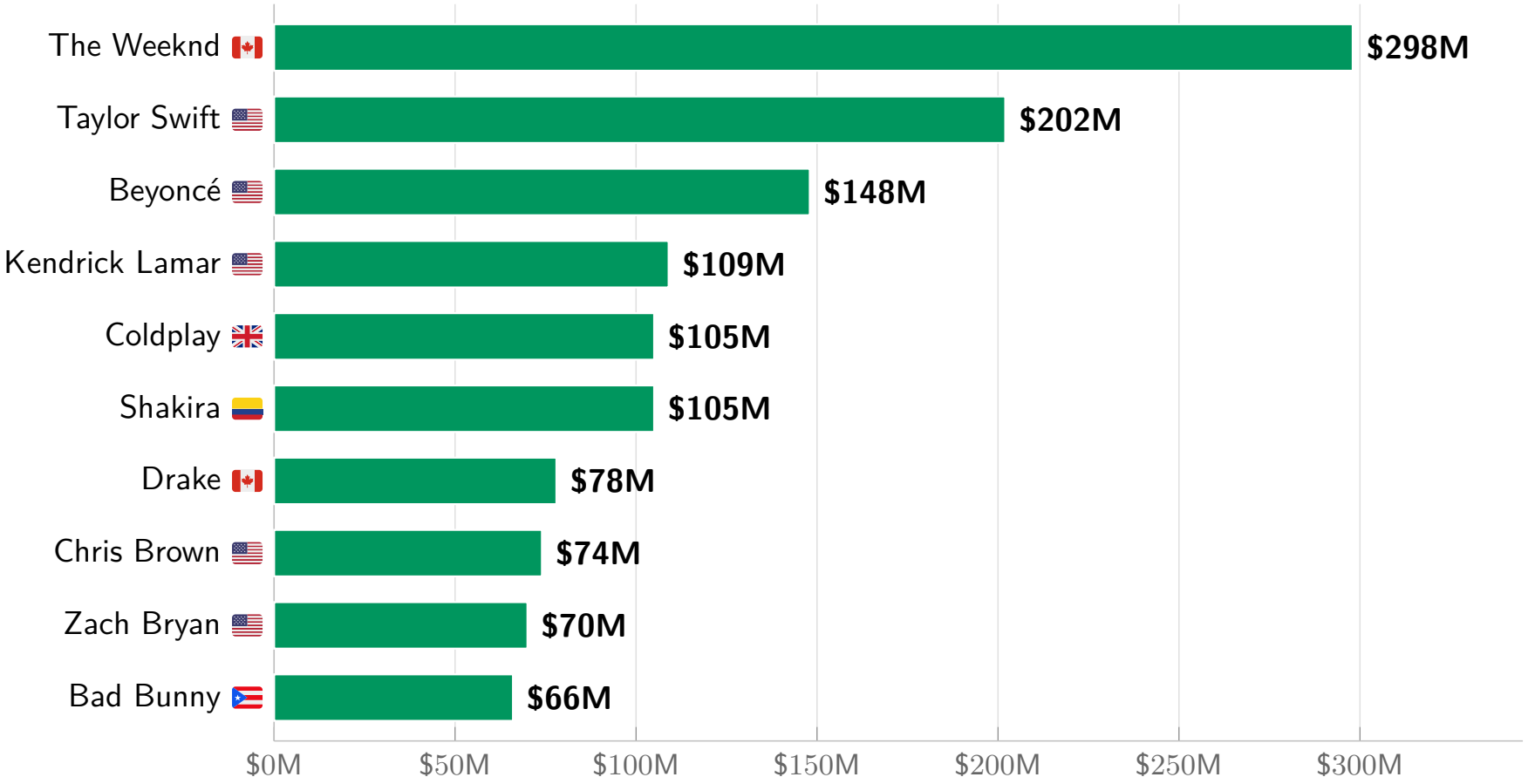
Source: Forbes, via Wikipedia



Data from https://en.wikipedia.org/wiki/Forbes_list_of_the_world%27s_highest-paid_athletes

The World's Highest-Paid Musicians 2025

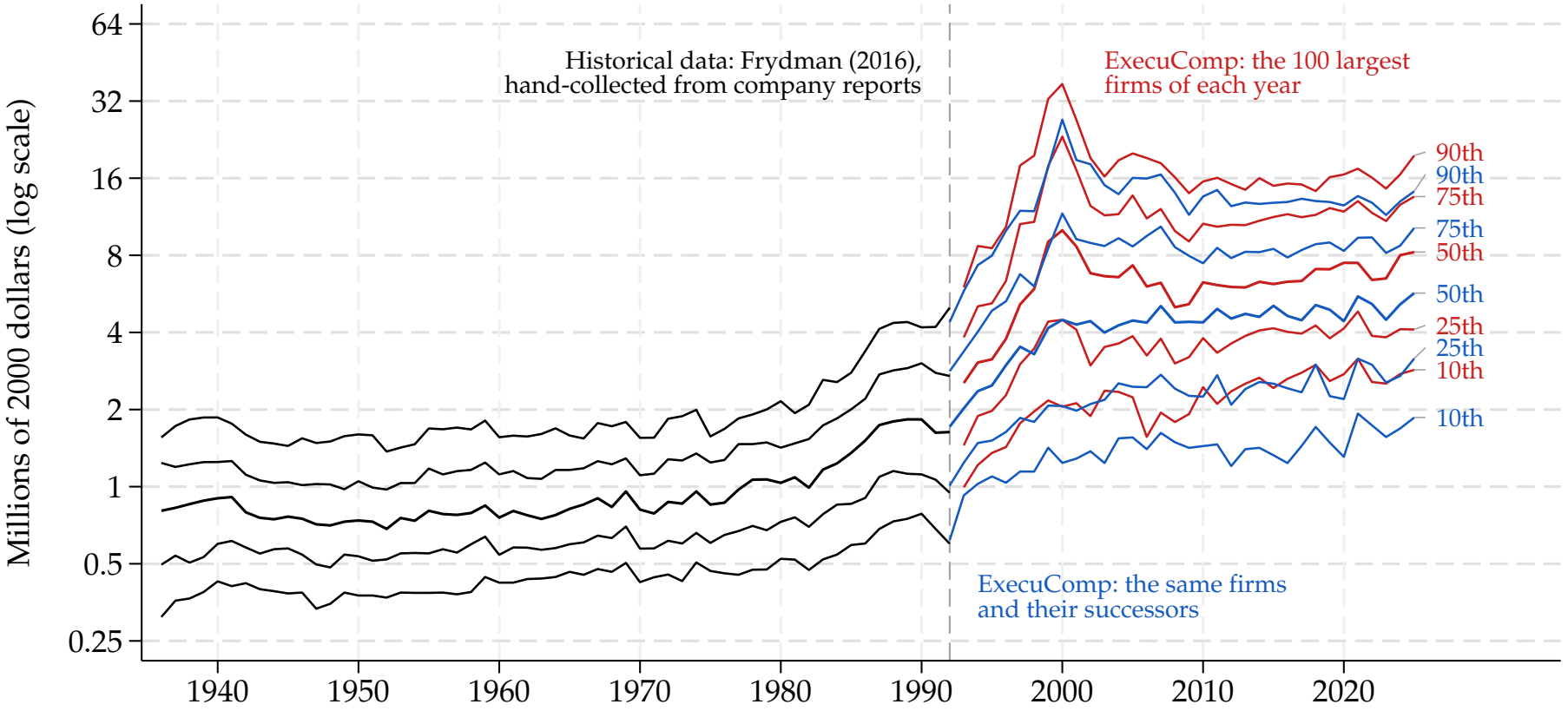
Estimated earnings in calendar year 2025, before taxes



Source: Forbes
The Weeknd's total includes about $200M from a catalogue deal (Forbes estimate).

Evolution of CEO Pay (US)

Percentiles of pay of top executives: Frydman (2016) and ExecuComp



Three highest-paid officers of the 50 largest US firms of 1940, 1960 and 1990 (101 firms). Total pay: salary, bonus, long-term incentive pay, stock and options granted. Deflated by the CPI. Sources: to 1992, Frydman (2016), read off the charts; from 1992, the same firms and their successors in ExecuComp (WRDS), own calculation.
Red: the three highest-paid executives of the 100 largest firms of each year by market value in ExecuComp, from 1993.

Superstar effects: Rosen (1981)

1801 Elizabeth Billington, 300$\times$ median wage

2011 Lady Gaga, 3500$\times$ median wage

2023 Taylor Swift (touring only) 4000$\times$ median wage

2023 Taylor Swift (all income) 10000$\times$ median wage (Forbes)

In Rosen (1981) indivisible ability and a scale effect in production

Consumers: quantity and producer ability are imperfect substitutes

At the same unit price, consumers would only buy from the highest-quality producer, but the best cannot serve all due to DRS

Implication of superstar economics:
The winner-take-more tendency of (most?) technological progress

Superstar effects: the megatrend

Marshall (1890), as cited in Rosen (1981)

"so long as the number of persons who can be reached by a human voice is strictly limited, it is not very likely that any singer will make an advance on [...] Mrs Billington [in 1801]"

Now consider long-run technological change

- Distribution of entertainment: concert hall, radio, recordings, web
- Design & handicraft vs Design & mass production
- Hardware vs Software
- Globalization, increasing dominance of English
- Sports, entertainment, management
- Complementary services to any of the above. . .

Hausman & Leonard (1997): Superstars in the NBA

Nielsen TV ratings of NBA games, 1989–93.

Random absences due to injuries

Superstar opponent with All-Star status:

- Jordan $+28\%$, Bird $+27\%$, Magic $+31\%$ (local TV)
- Jordan $+44\%$ on national network TV

Jordan's value to the *other* 26 teams, 1991–92: \$53m

- TV \$36m, merchandise \$15m, gate \$2.5m
- His salary from the Bulls: about \$3m

Externality $\rightarrow$ talent too concentrated in big markets

Hendricks & Sorensen (2009): Music sales

Weekly album sales, 355 artists, 1993–2002

Debut albums: 90th pct sells 10$\times$ the median

A new album raises sales of the artist's old ones:

- Album 1 sales $+$40–55% after album 2, for months
- More than double if album 2 is the first hit

$\rightarrow$ consumers discover artists from new releases (radio)

Full information: top debut sells 30$\times$ the median, not 90$\times$

Digitization (Aguiar & Waldfogel 2018):

- New releases tripled 2000–08, hits hard to predict
- More draws: surplus gain 20$\times$ "the usual long tail"

Terviö (2009): Superstars and mediocrities

Talent revealed only on the job, “nobody knows” in advance

Novices can neither pay for a first job nor commit to stay

Externality between firms: why hire the uncertain novice, if they turn out to be good someone will poach them

$\rightarrow$ too few novices tried, too little exit of mediocre veterans

- Mediocrities: better than average, but should give way
- Output price too high, wages higher - top wages most

Real jobs require real resources $\Rightarrow$ known talent scarce, even if talent is not

Independent of Rosen’s superstar effect, both raise top pay

Kaplan & Rauh (2013): It's the market

Rent extraction by managers, or a market for top talent?

Top pay rose where pay is set very differently (2010 $):

- S&P 500 CEOs: steady at 2–2.75$\times$ the top 0.1% since 1997
- Salaried executives: 38% $\rightarrow$ 20% of the top 0.1% (1979–2005)
- Top 25 hedge fund managers: \$134m $\rightarrow$ \$537m (2002–12)
- Top 50 law firms, profit per partner: \$0.7m $\rightarrow$ \$1.6m (1994–2010)
- Top 25 athletes: pay $\times$2.5 to $\times$5.8 (1993–2009)

Forbes 400, 1982 $\rightarrow$ 2011: first generation to run the business 40% $\rightarrow$ 69%, grew up wealthy 60% $\rightarrow$ 32%

$\rightarrow$ scale and technology, rather than managerial power

Koenig (2023): Rollout of television

The rollout of television associated with

1. Fraction of entertainers with top 1% incomes doubled
2. Total employment of entertainers declined 13%

Causal?

Tech shock 1. Rollout of local television across many labor markets in 1940s & early 50s

Placebo. Exogenous permitting shock: cancellation of planned rollout in some markets 1948–1952

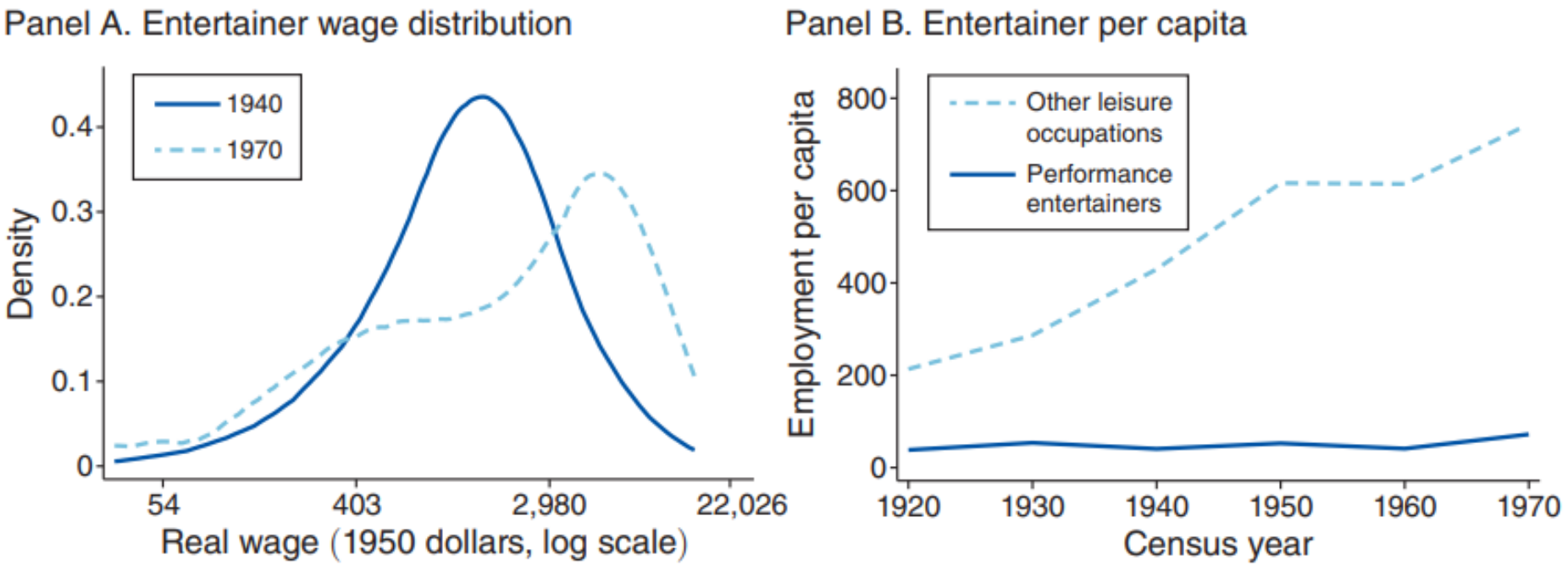
Tech shock 2. Introduction of taped television (multi-market/national television) after 1956

Koenig (2023): Rollout of television

Data from 722 CZs in the US

Decennial census: occupation and income

Hand-coded: television signal and permit rollout by CZ-year



Koenig (2023): Rollout of television

Superstar matching model: performers of various ability, matched with employers of various size.

$$Y(a, b) = (ab)^x$$

where $x \uparrow$ captures "Scale-Related Technical Change" (SRTC) enables the best to serve a larger fraction of the market

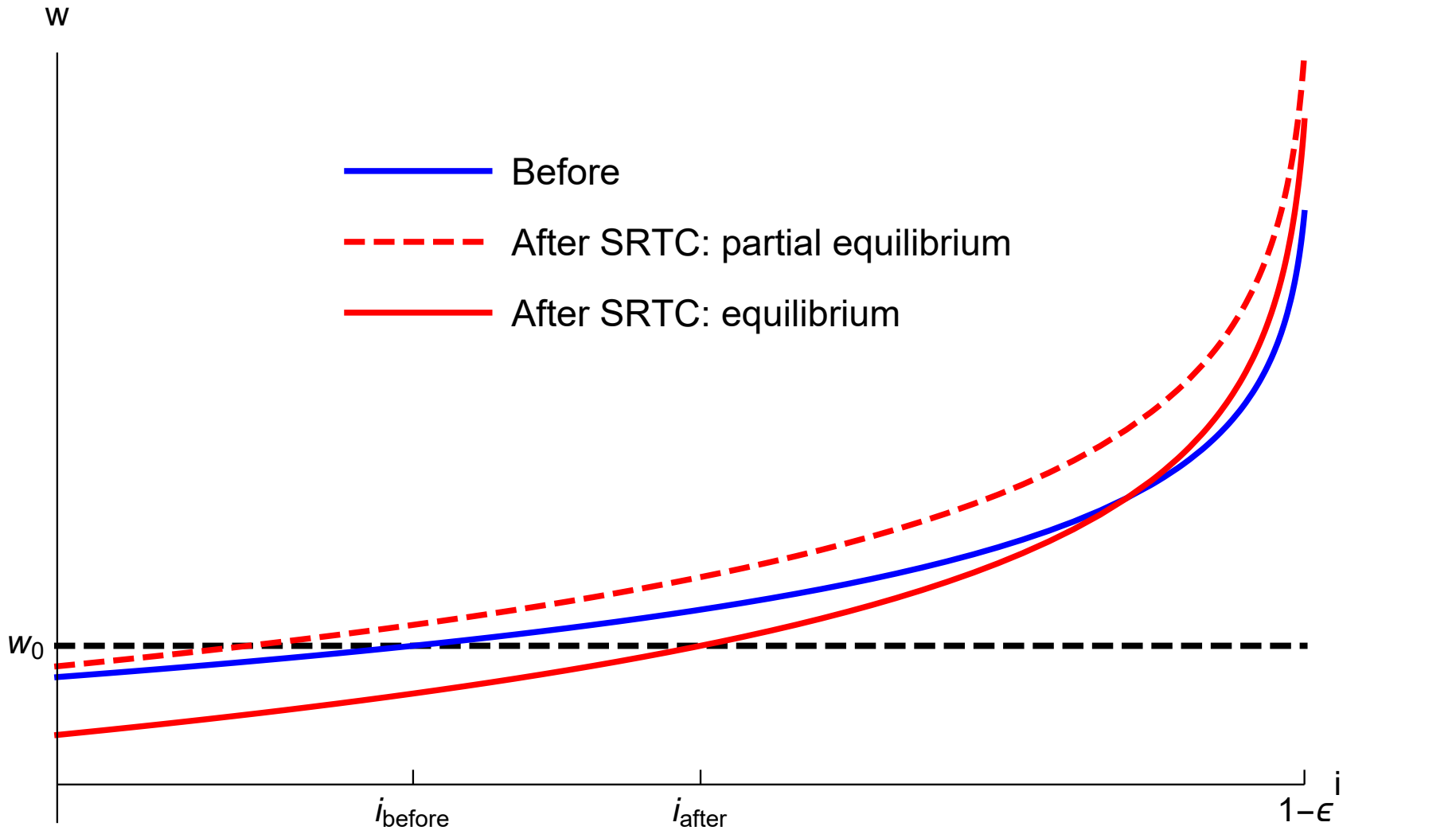
a,b have stable distributions (assumed Pareto)

Model predicted impact of SRTC

1. Wages more right-skewed, top wages and wage shares grow
2. Midlevel wage decline (unless demand very elastic)
3. Employment loss, lowest abilities exit

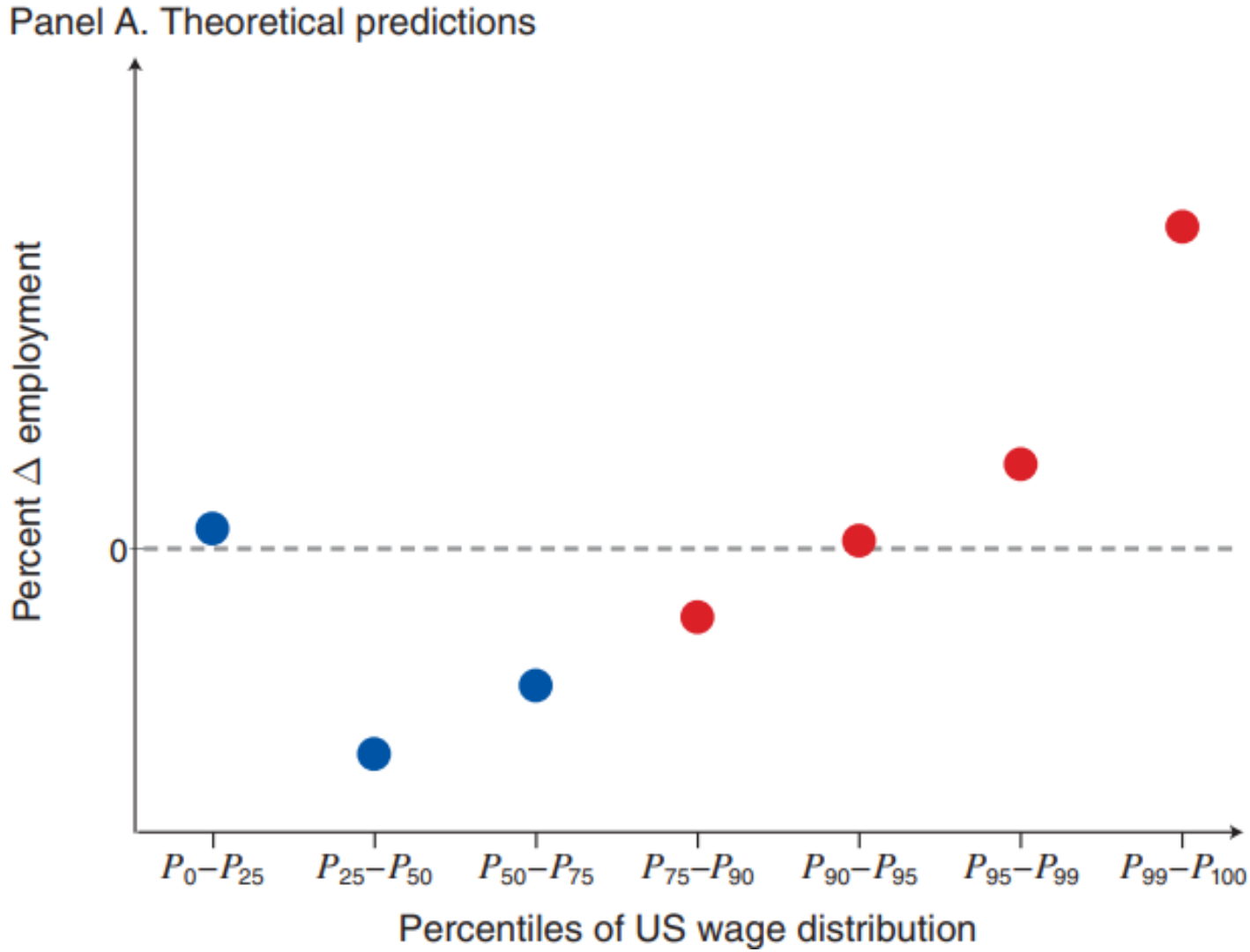
Koenig (2023): Rollout of television

SRTC and equilibrium wages



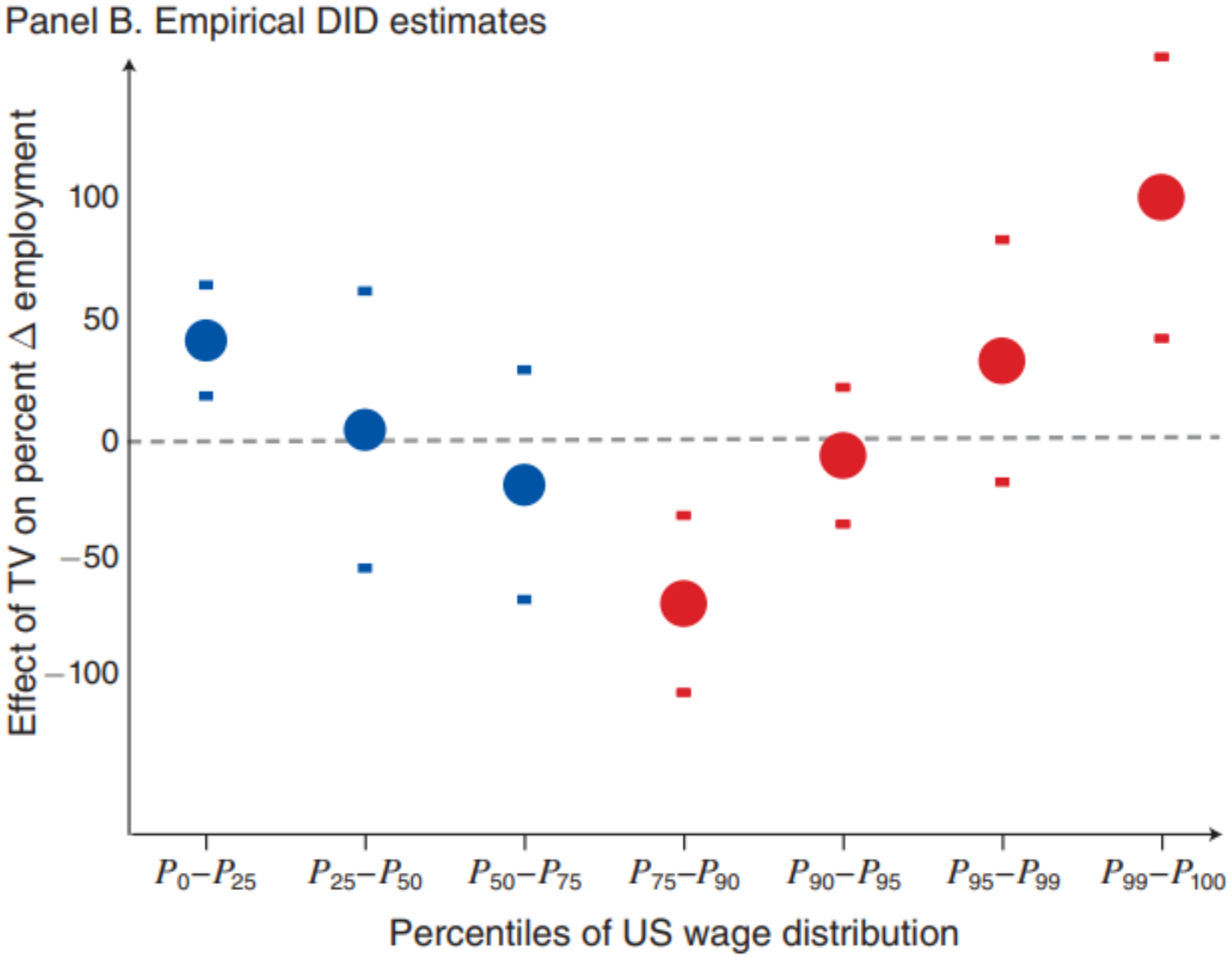
Koenig (2023): Rollout of television

Figure 1A



Koenig (2023): Rollout of television

Figure 1B



Koenig (2023): Rollout of television

TABLE 1—EFFECT OF TV ON ENTERTAINER EMPLOYMENT

	ln(*Employment in Entertainment*)			
	(1)	(2)	(3)	(4)
Panel A. Sample 1940–1970				
TV signal$_t$	−0.128	−0.114	−0.139	
	(0.061)	(0.061)	(0.062)	
Panel B. Placebo sample 1940–1970				
Placebo TV signal$_t$	0.053	0.044	0.053	
	(0.083)	(0.083)	(0.084)	
Panel C. Sample 1930–1970				
TV signal$_{t+1}$				0.039
				(0.033)
TV signal$_t$	−0.133	−0.127	−0.133	−0.123
	(0.059)	(0.059)	(0.061)	(0.060)
Number of CZ cluster	722	722	722	722
Year-Occupation FE	Yes	Yes	Yes	Yes
CZ FE	Yes	Yes	Yes	Yes
Demographics	—	Yes	—	—
CZ level trends	—	—	Yes	—

Koenig (2023): Rollout of television

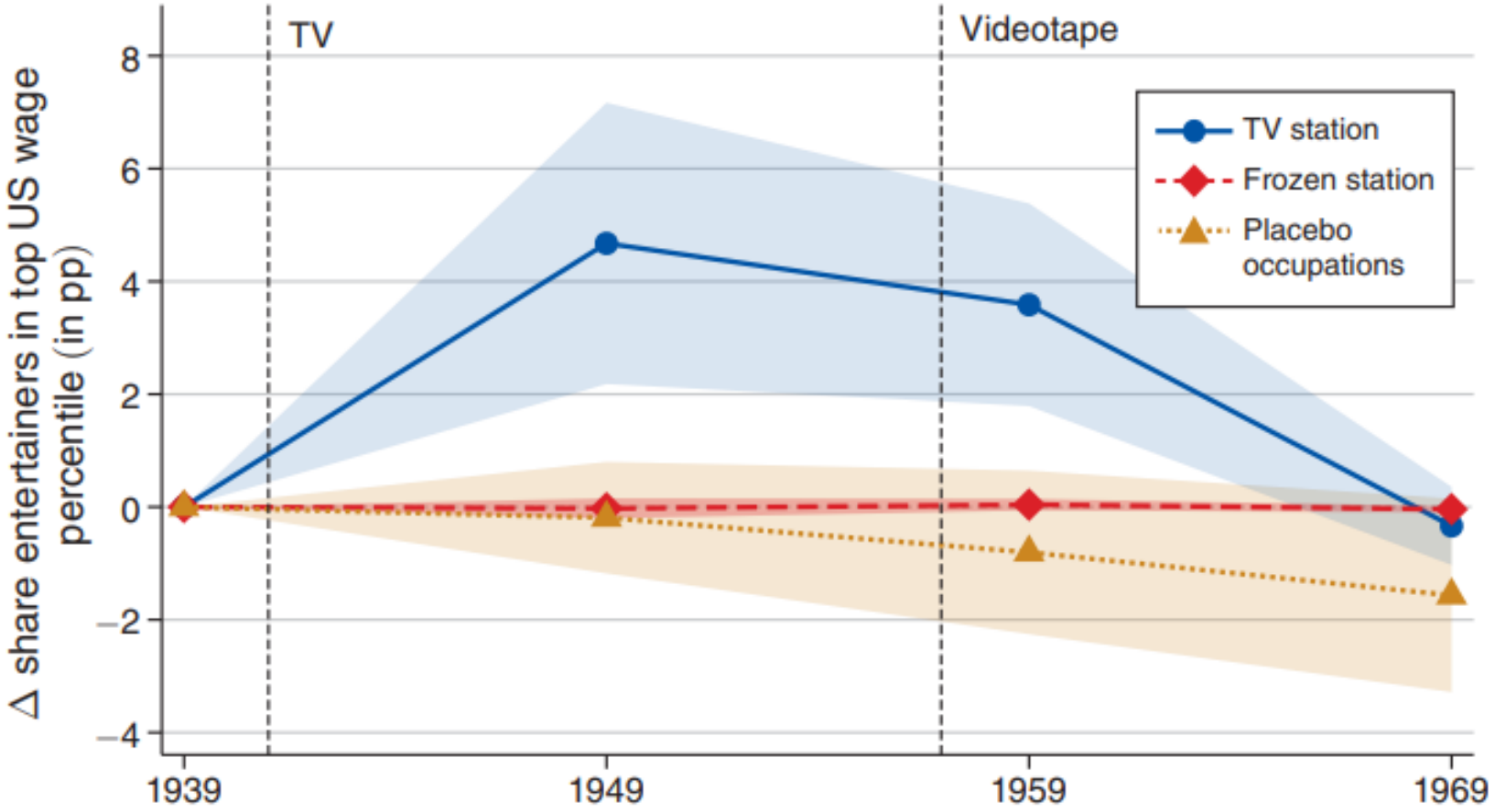
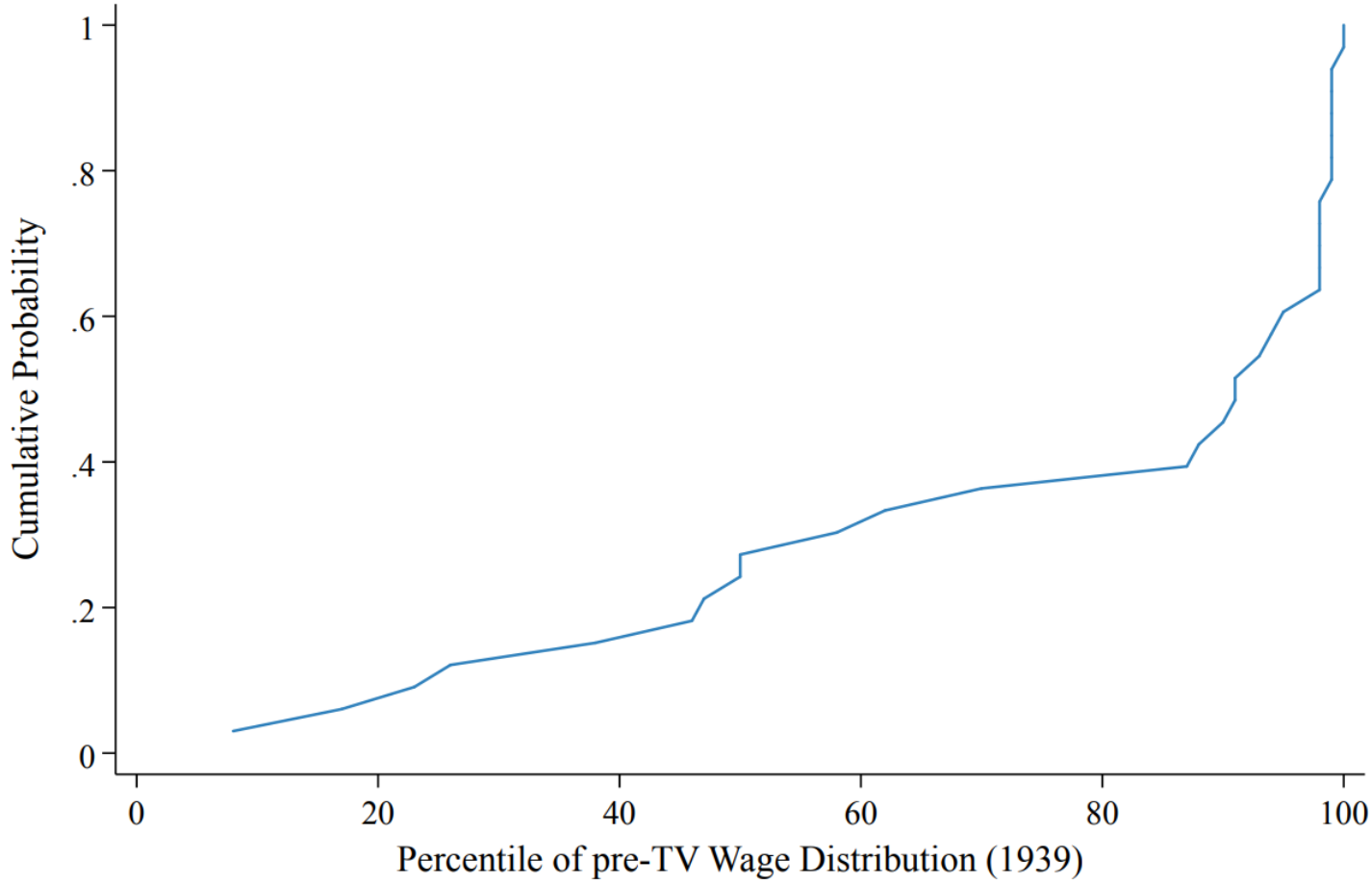


FIGURE 3. DYNAMIC TREATMENT EFFECT OF TV ON CHANGES IN THE SHARE OF ENTERTAINERS IN THE TOP US WAGE PERCENTILE

Koenig (2023): Rollout of television

Addendum with “who is who” lists of TV stars from 1950s

Figure A1. : Wage Rank of Future TV Stars in the 1939 US Wage Distribution



Autor et al. (2020): Superstar firms

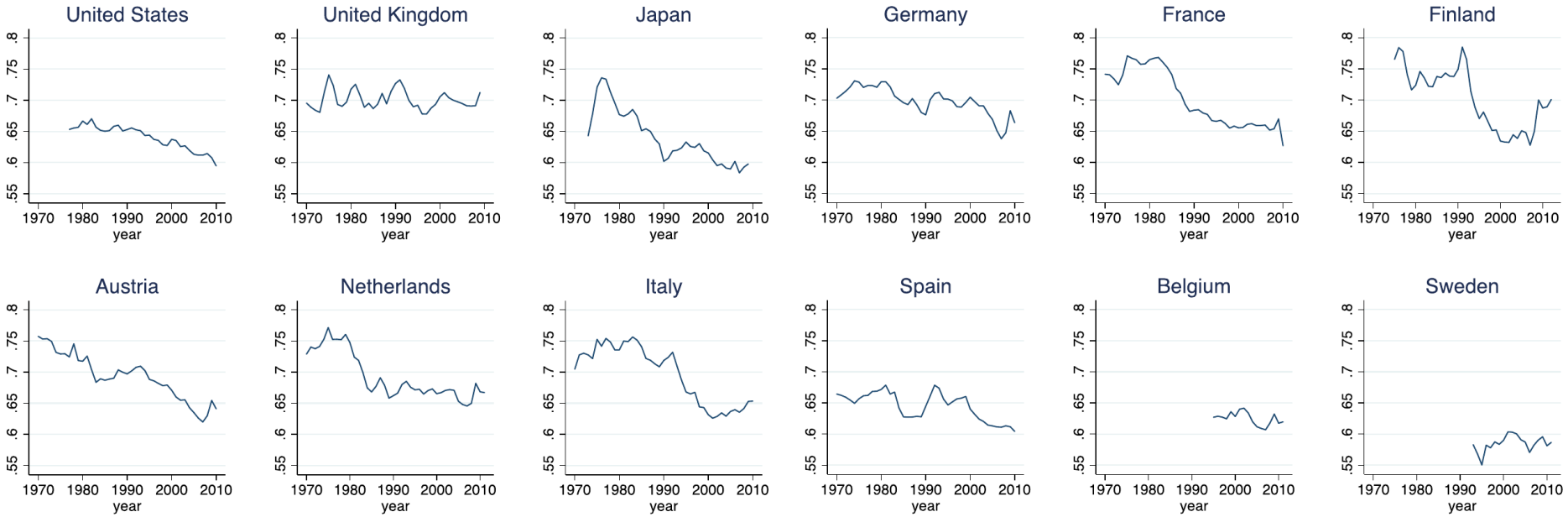
Labor share fell 1980-2010 in the US and many OECD countries

Usual explanations: Cheaper investment goods, trade and offshoring, weaker labor unions,. . .

Superstar firm hypothesis:
Technology or globalization shifts sales
to the most productive firms in each industry.
These firms have high markups and low labor shares
$\Rightarrow$ aggregate labor share falls, even if no firm's share does

Autor et al. (2020): Superstar firms

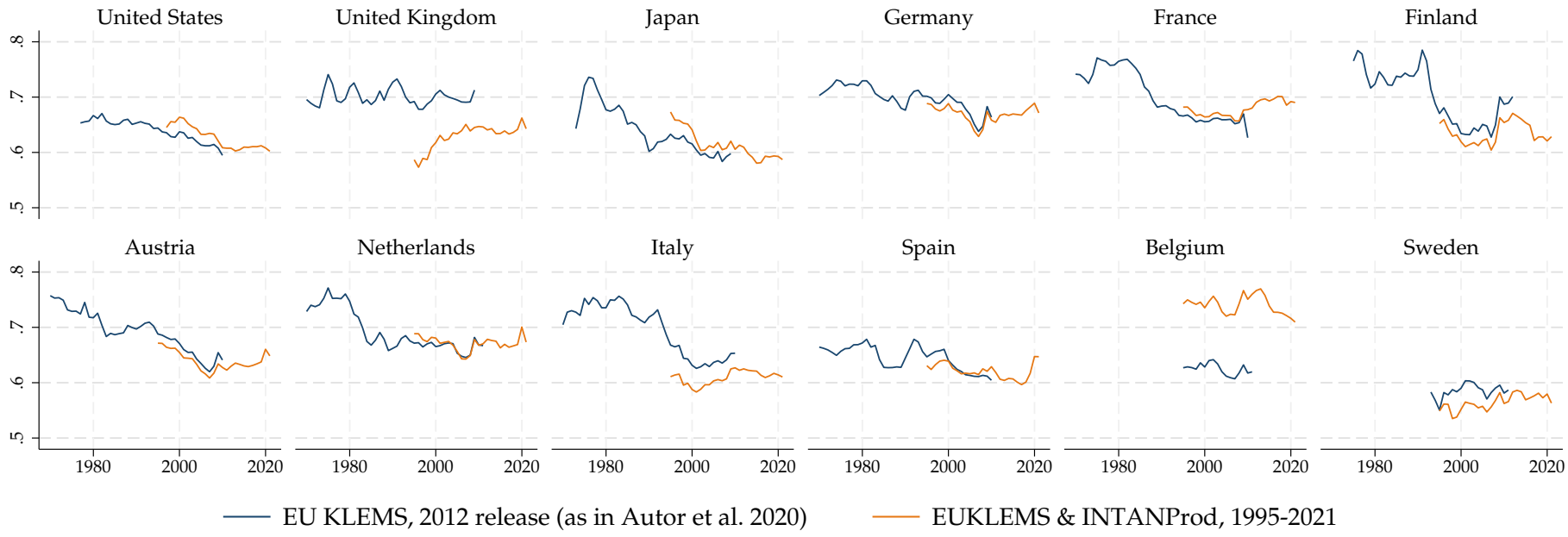
Figure I: Labor share of value added, 12 countries (EU KLEMS)



Decline in almost all countries; in the US particularly since 2000

Update on Autor et al. (2020) stylized facts

Labor share of value added, 12 countries, to 2021 (EU KLEMS)



Since 2010: US flat, Japan falling, Europe mostly flat or rising

Releases differ in levels (data revisions, pay of self-employed)

Autor et al. (2020): Superstar firms

Higher markup $\Rightarrow$ more of revenue is profit, less goes to labor

Most productive firms: lower costs and prices, more sales

If demand is less elastic at higher consumption,

big sellers charge higher markups

$\Rightarrow$ superstar firms have low labor shares

Aggregate labor share = average of firms' shares, weighted by size

Tougher competition, e.g. globalization, online price comparison

within firms: markups fall, labor shares rise

between firms: sales shift to superstars, aggregate share falls

Net fall if productivity is more skewed than Pareto

(Pareto: the two effects cancel exactly)

Autor et al. (2020): Superstar firms

Predictions after markets get “tougher”

1. Sales concentration rises
2. Labor share falls most where concentration rises most
3. Fall mainly from reallocation between firms
4. . . . and this reallocation is largest in the same industries
5. Concentrating industries have faster productivity growth
6. Aggregate markup rises more than the typical firm’s
7. Same patterns in other countries

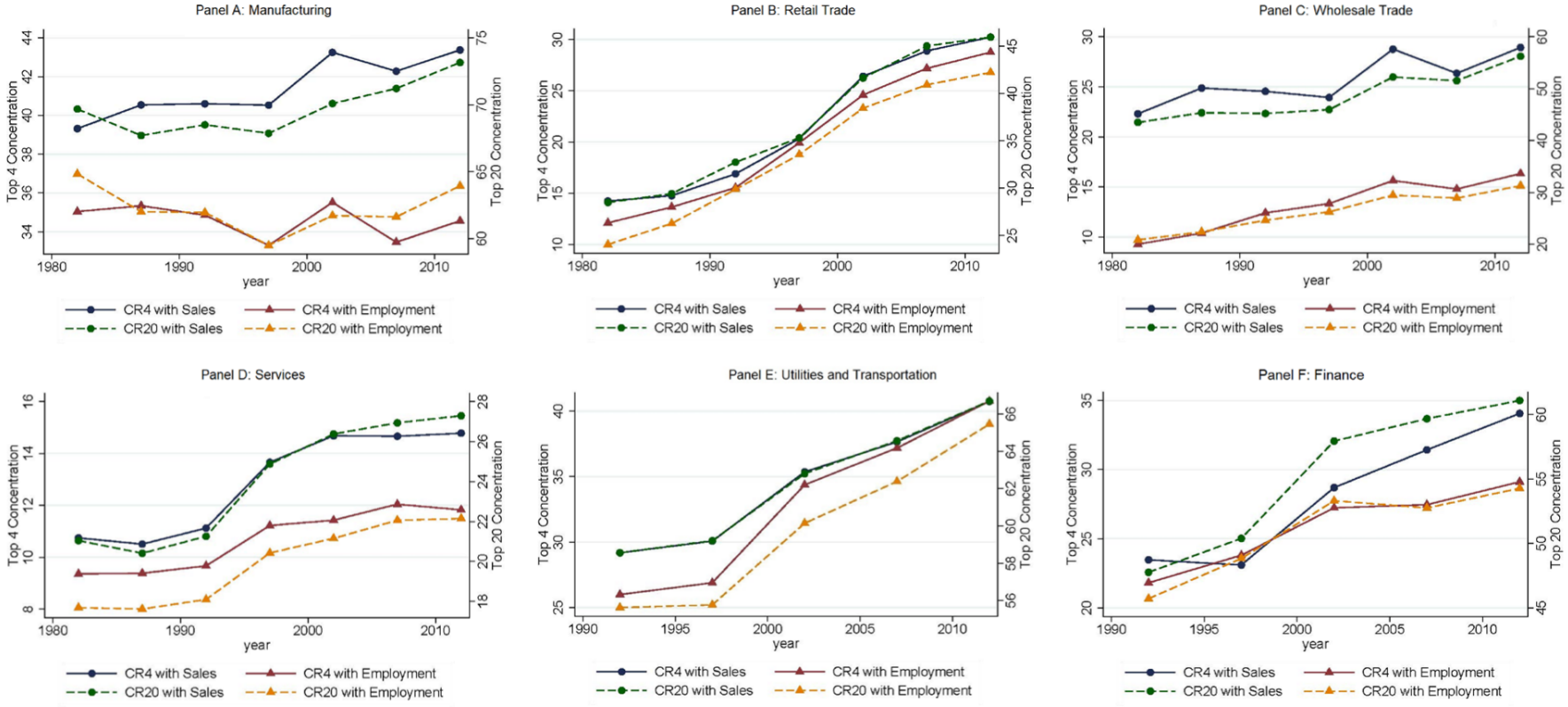
Data: US Economic Census 1982–2012, every 5 years

676 four-digit industries in 6 sectors, 80% of employment

Payroll and sales; value added only in manufacturing

Autor et al. (2020): Superstar firms

Figure IV: Share of top 4 (CR4) and top 20 (CR20) firms in industry



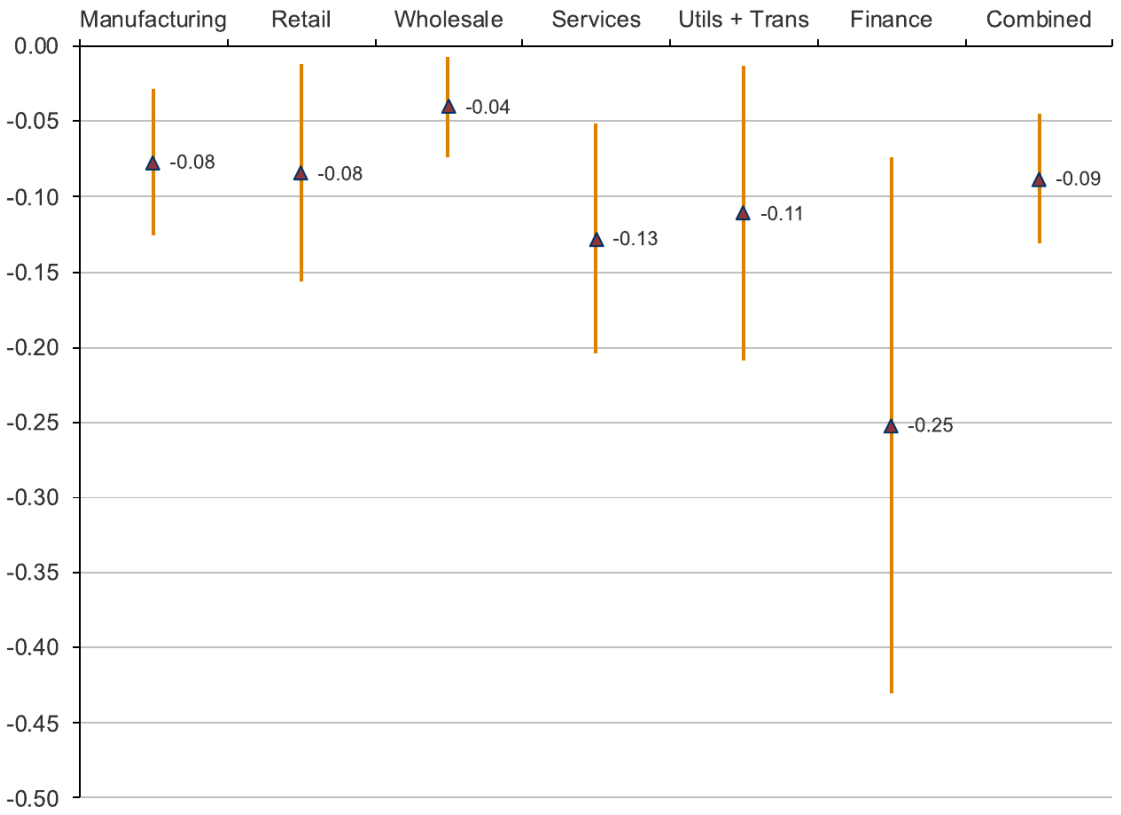
Rising in all sectors, more in sales than in employment

"Scale without mass [of workers]" (Brynjolfsson et al. 2008)

Autor et al. (2020): Superstar firms

Figure VI: Regression of Δ labor share on ΔCR20, by sector

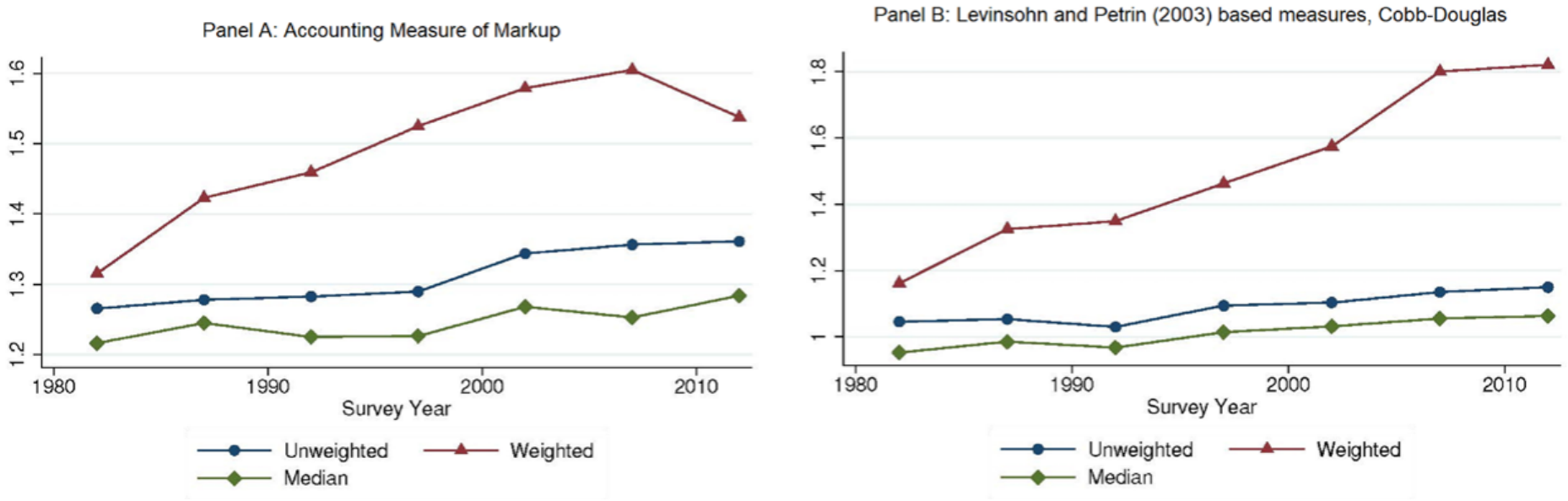
Labor share = payroll/sales; 5-year changes by industry



Negative in every sector

Autor et al. (2020): Superstar firms

Figure X: Markups in manufacturing (two methods)



Value-added weighted mean up, 1.2 to 1.8 in (B), median firm's barely $\Rightarrow$ Aggregate rise driven by reallocation to large, high-markup firms

Autor et al. (2020): Superstar firms

Concentration rose most where patents and TFP grew fastest

Pay per worker not lower in concentrating industries

Import competition from China does not explain the fall

Europe (CompNet): same negative relation in 12 of 14 countries

Top 500 US firms more persistent: share that was in top 500 five years earlier rose from 66% to 82% (2000–2015)

Technology rather than weaker US antitrust?

Concentration rose in Europe too, and more in dynamic industries

Autor et al. (2020): Superstar firms

Superstar effects at the level of firms

Technology lets the best serve more of the market (Rosen 1981)

$\Rightarrow$ fewer, larger firms with higher rewards at the top

A modest productivity edge can bring a large market share

$\Rightarrow$ big reallocation, small gains in aggregate productivity

Compare w assignment model: if top firms grow in scale, then

– pay rises for top managers matched with them

– even as labor's share of value added falls

Conclusion

Small differences in talent, large differences in pay,
when talent can be applied at scale

Technology that extends the reach of the best

- Winner-take-more: top gains, middle loses, fewer make it
- Same among firms: concentration, falling labor share

Talent must be discovered, and trials are costly

- Revealed talent scarce, even if talent is not
- Cheaper trials widen the pool of potential stars

Top pay reflects scale and discovery, not just talent
— and the rents need not go to the star

Food for Thought: AI and Wage Dispersion

Will AI complement or substitute for high ability?

Substitute: AI narrows the gaps

- Call centers: low-skilled gain most (Brynjolfsson et al. 2025)
- AI learns from the best and hands their know-how to all

Complement: AI extends the reach of the best

- Kenyan firms: the best gain, the weakest lose (Otis et al. 2026)
- AI agents do the routine work, the best oversee more

Ide & Talamàs (2025): copilot AI helps the least able, autonomous AI the most able

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Recommended Browsing

- Acemoglu, Daron, and David Autor: Lectures in Labor Economics https://bit.ly/3YvJUS4
- Autor, David: Graduate Labor Economics https://economics.mit.edu/people/faculty/david-h-autor/courses
- Handbook of Labor Economics https://www.sciencedirect.com/handbook/handbook-of-labor-economics/volumes

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