Superstar Economics

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Insead Tech Talk – Abu Dhabi 2020

What do these three have in common?

- Christiano Ronaldo

- Justin Bieber

- J.K. Rowling

All examples of a broad economic trend: Superstars

Pelé and Ronaldo

Pelé

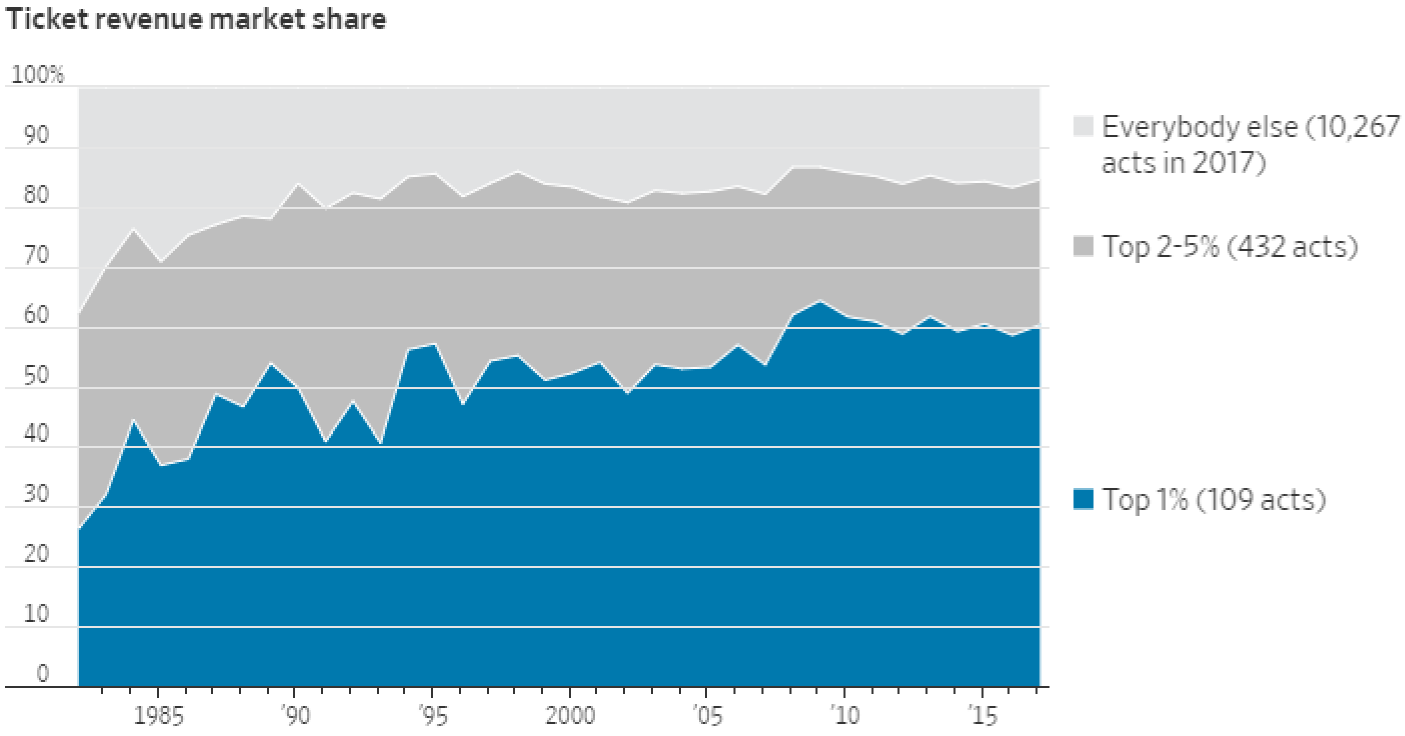
- Debuted at the world cup in 1958
- Santos paid him yearly salary of 1.3 mill (2019 $)

Christiano Ronaldo

- Won European Cup with Portugal 2016
- Juventus pays him $35 million a year
- + sponsors: around $100 million

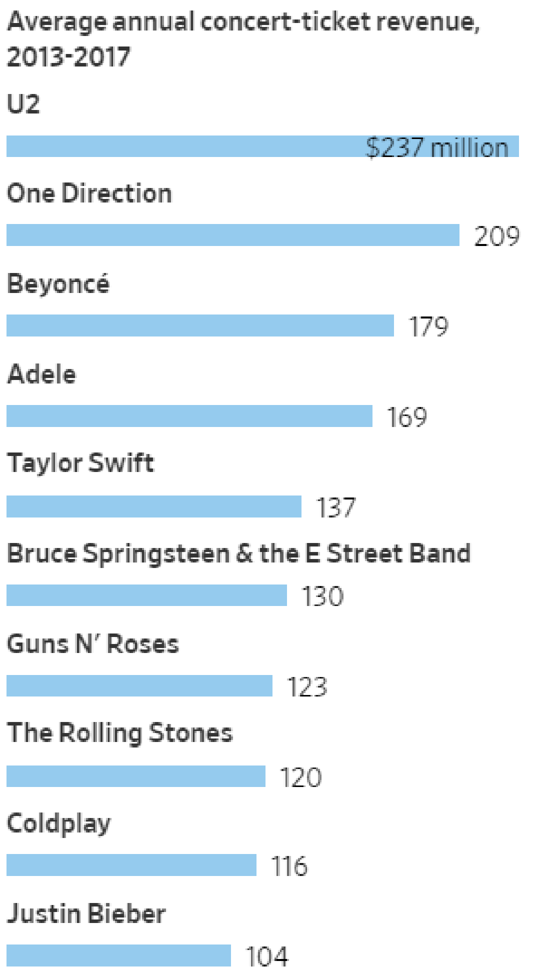
Bieber and The Music Industry

- In 1982: 26% of concert revenue went to top 1% of performing artists
- In 2017: share had increased to 60%



Note: Excludes non-music acts.
Source: Alan Krueger's calculations based on Pollstar Boxoffice Database

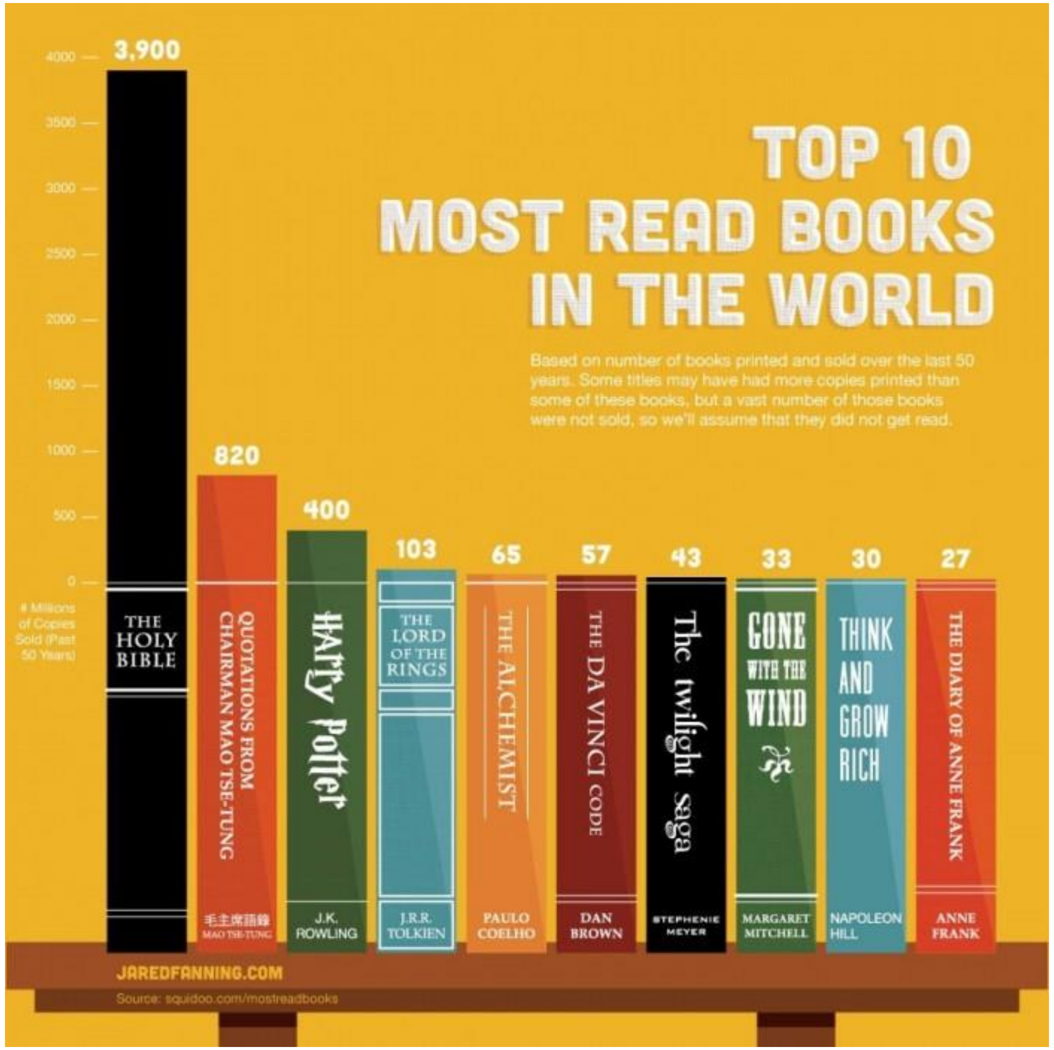
Large differences within top performers as well



Note: Average revenue calculated using the number of years the act toured during the period.
Source: James Reeves using Pollstar data from Alan Krueger

J.K. Rowling

- J.K. Rowling: Best-selling author (after God and Mao)
- Total sales of Harry Potter: 500 mil.



Common for all three industries

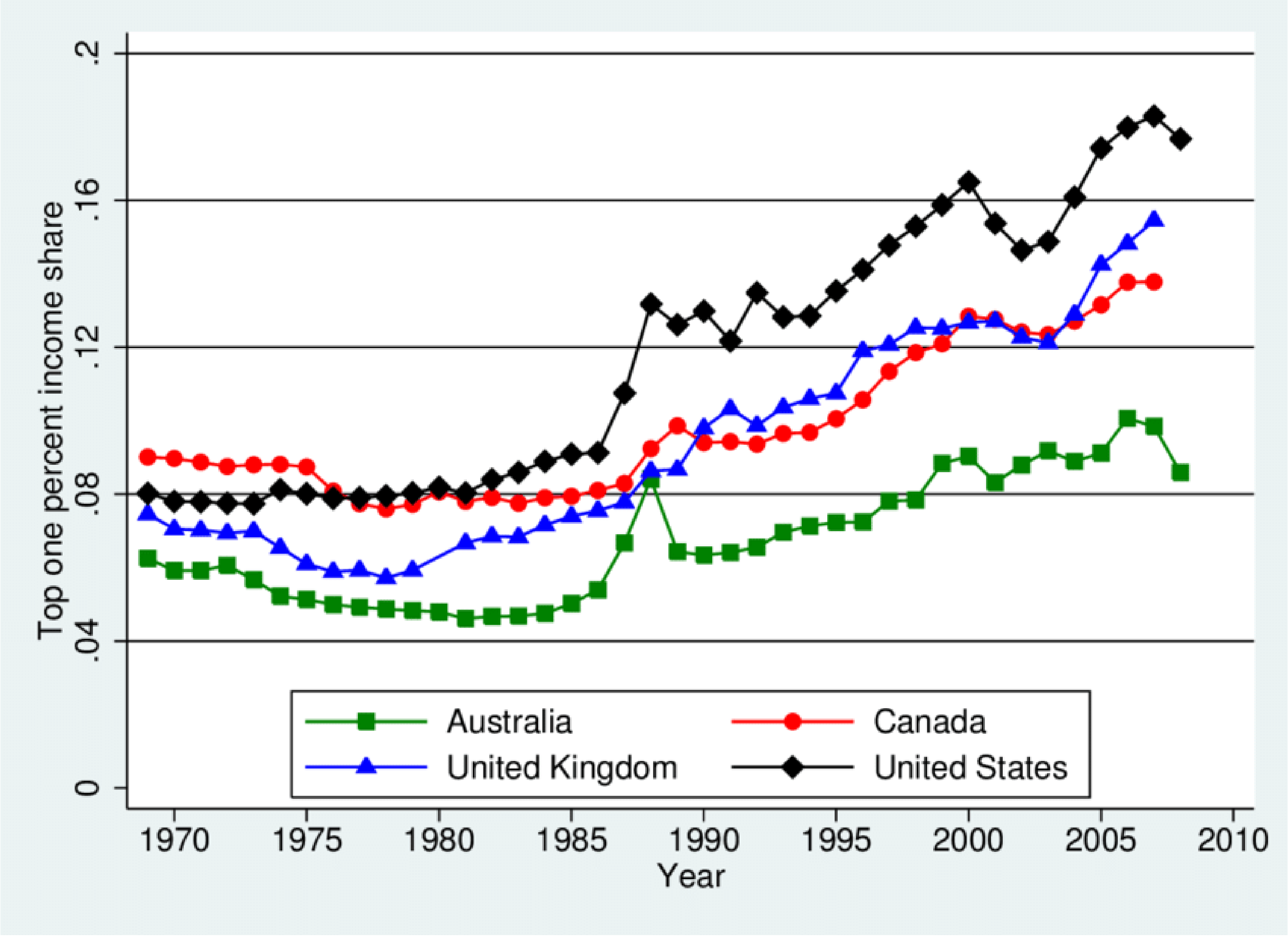
- Very large increases in pay for top performers
- Concentration of total income amongst top performers, even higher concentration amongst the very top performers
- Globalization enables the reach of a much bigger audience.
- Same story could have been told with movies, comedians, tv-shows etc.

- Paradox: We have more choice than ever, yet increasingly we listen/read/watch the same

Why? What is going on?

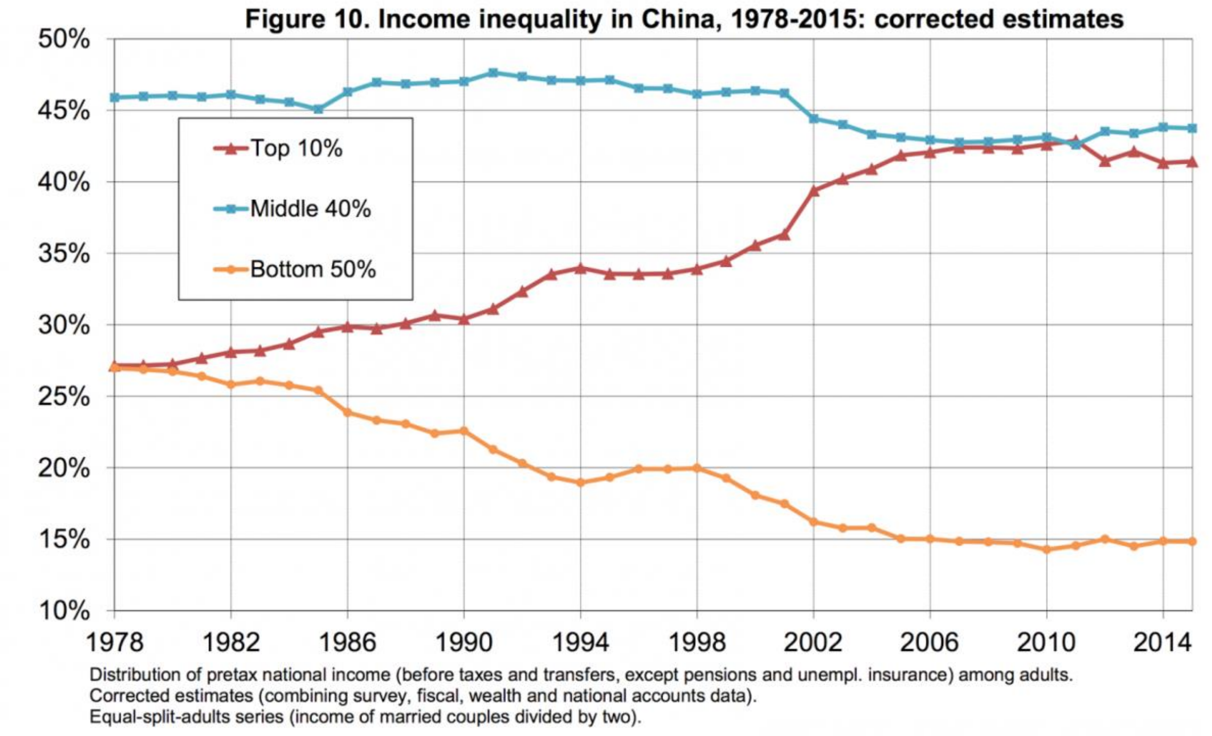
- But first, what about the rest of the economy?

Share of top income earners (Economic super stars)

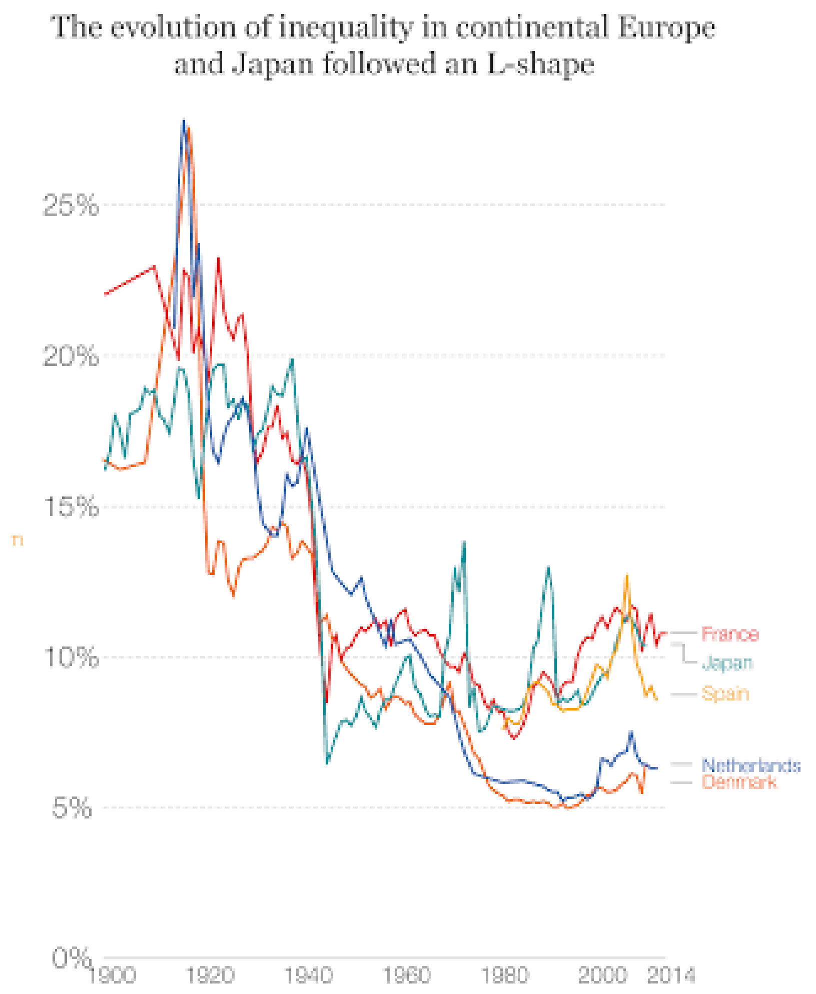


Source: Peter Levell

Other Countries



Source: national bureau of Statistics China / China labour bulletin



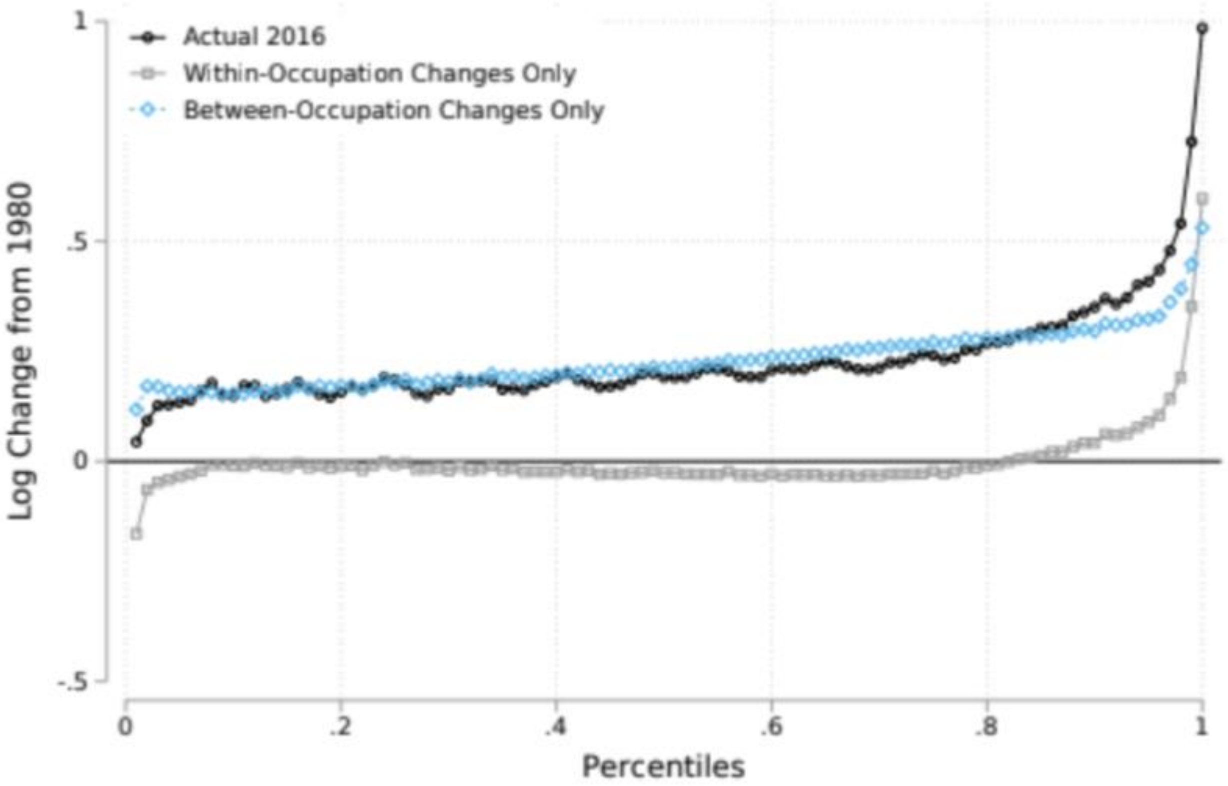
Source: Our World in Data

A general phenomenon, but with some noticeable exceptions, primarily in Europe

How has income inequality increased (USA)?

- Do the following exercise:
  - In 1980: Rank everybody from lowest earner to highest earner: Calculate the average income within each percentile (100 bins).
  - In 2016: Same exercise
  - Take the difference (corrected for inflation)

Rise in income inequality (black line)



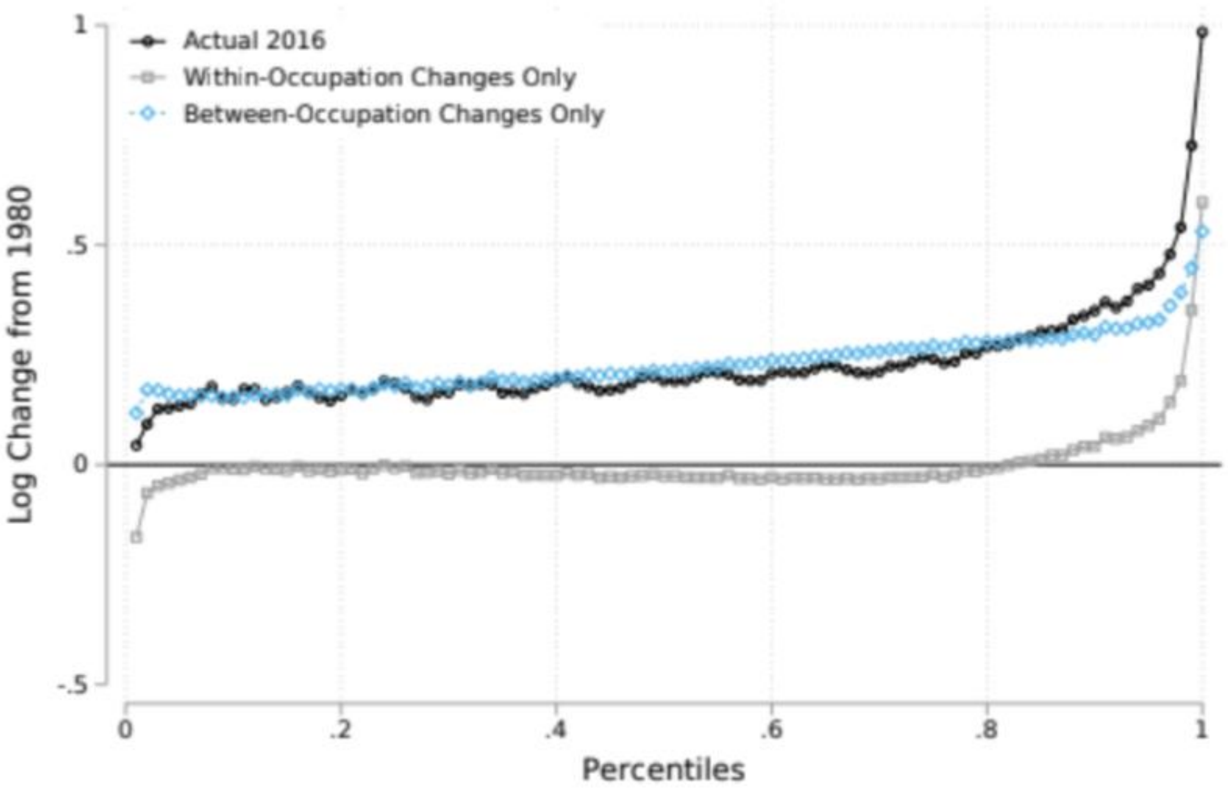
Source: Gottlieb, Hicks, Hemous, Olsen (2018)

How has income inequality increased (USA)?

- Do the following exercise:
  - In 1980: Rank everybody from lowest earner to highest earner: Calculate the average income within each percentile (100 bins).
  - In 2016: Same exercise
  - Take the difference (corrected for inflation)

- Perform the following exercise:
  - Suppose everybody had been given the average income of their occupation, i.e. all doctors make the average for doctors etc.
  - Perform the same exercise from 1980 to 2016 on this "artificial" data. Call this "between occupation" changes

Rise in income inequality (black line)



Source: Gottlieb, Hicks, Hemous, Olsen (2018)

For most of the distribution changes in income inequality is between occupations: (i.e. higher wage growth for engineers than school teachers). In the top it's happening within occupations

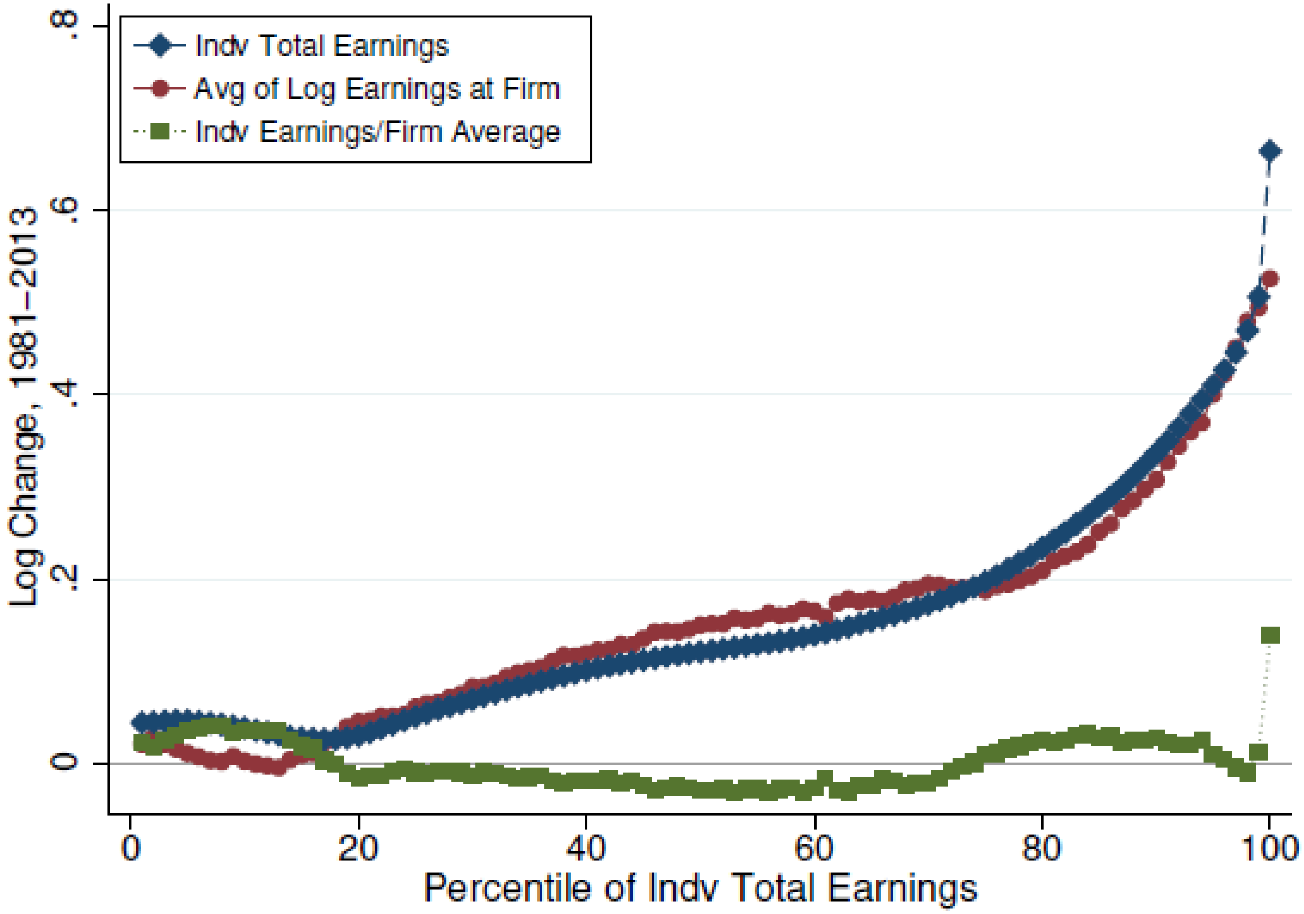
Dramatic increases in income inequality within occupations

Table 11 -- Divergence: ratio of 1979-2005 growth rate of real income (excluding capital gains) in the top 0.1 percent of income distribution, to growth rate at p99 to p99.5, by job, holding job shares in top percentiles constant at 1979 levels, 1979-2005

Occupation	Ratio
Executive, non-finance	7.0
Supervisor, non-finance	4.2
Skilled sales (except finance or real estate)	2.9
Business operations (nonfinance)	2.5
Arts, media, sports	2.5
Computer, math, engineering, technical (nonfinance)	2.2
Entrepreneur not elsewhere classified	2.2
Professors and scientists	2.0
Medical	2.0
Manager, non-finance	1.9
Real estate	1.9
Lawyers	1.8
Financial professions, including management	1.7
Farmers & ranchers	-1.2
Mean	2.4

Source: Bakija, Cole and Heim (2012)

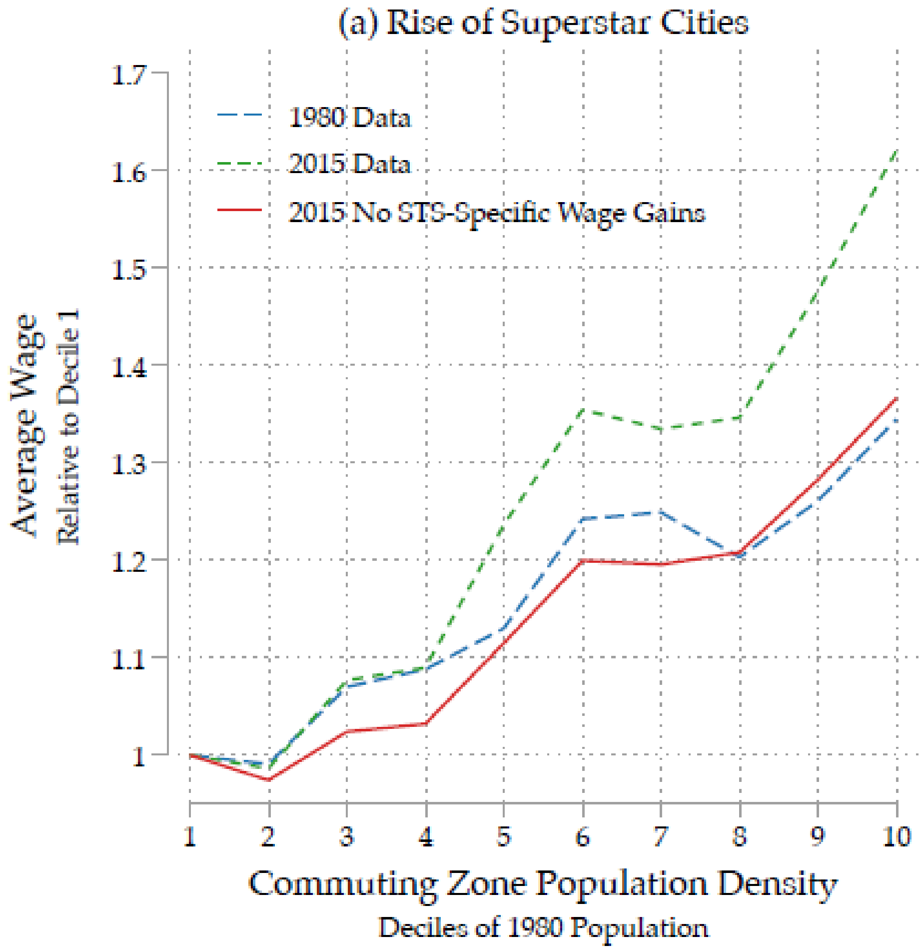
Do the same exercise with firms in place of occupations



Source: Song, Price, Guvene, Bloom, von Wachter (2015)

Change is happening between firms, not within firms: Superstars are lumping together

The growth is largely in dense cities

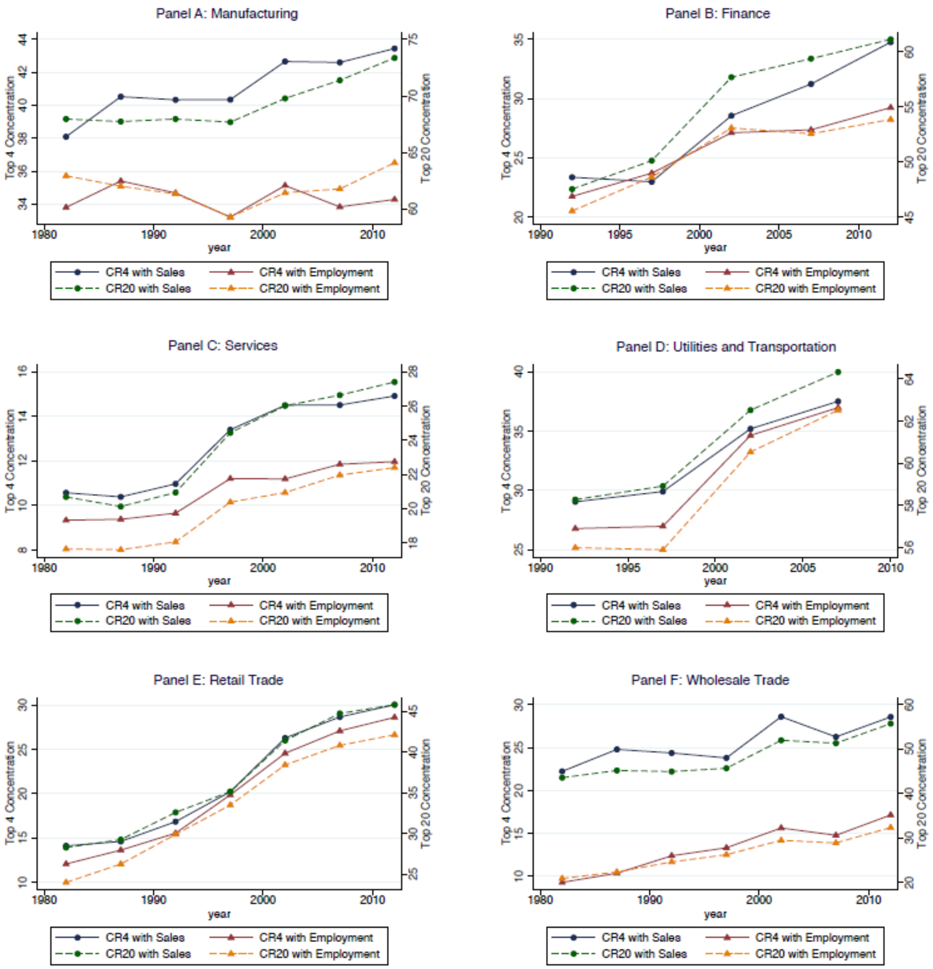


Source: Eckert et. al. (2020)

Dense cities in US see higher wage growth: Same in London, Amsterdam, Copenhagen

Concentration rate is increasing for firms

Figure 4: Average Concentration Across Four Digit Industries by Major Sector



Source: Autor et. al. (forthcoming)

The biggest four firms in an industry have a bigger market share across all industries.

Also true in Europe, albeit less so

Taking Stock

- For “real” superstars
  - Increase in market share of the top
  - Increase in reach of the top
  - Increase in income at the very top
  - Increase in inequality even within very top
- For “economic” superstars
  - Increase in concentration amongst firms
  - Increase in income to the top
  - Increase in inequality even within the very top
  - Inequality is between firms, not within firms
- The two phenomena sure look alike. Same story?

What's the explanation?

- Start with the football players, authors, actors and musicians

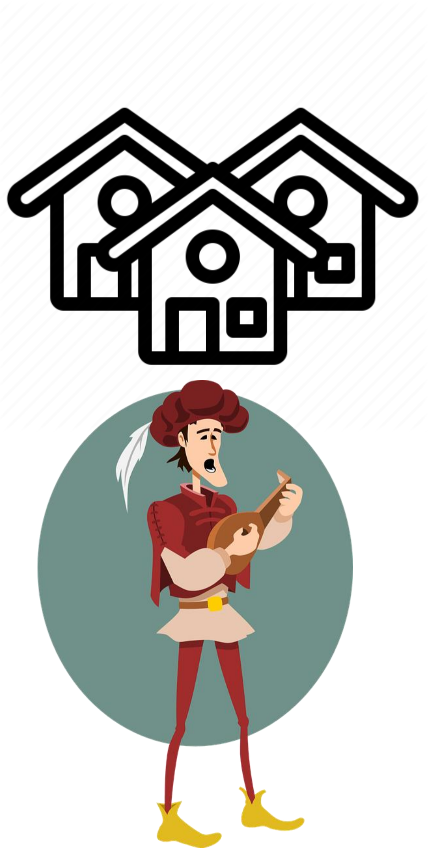
- Note, fundamentally:

Income = Income per unit x # units sold
= p x q

- Justin Bieber doesn't sell expensive tickets, he sells many tickets. Same with Rowling, Tom Cruise and Ronaldo.

A stylized model of improved communication technology

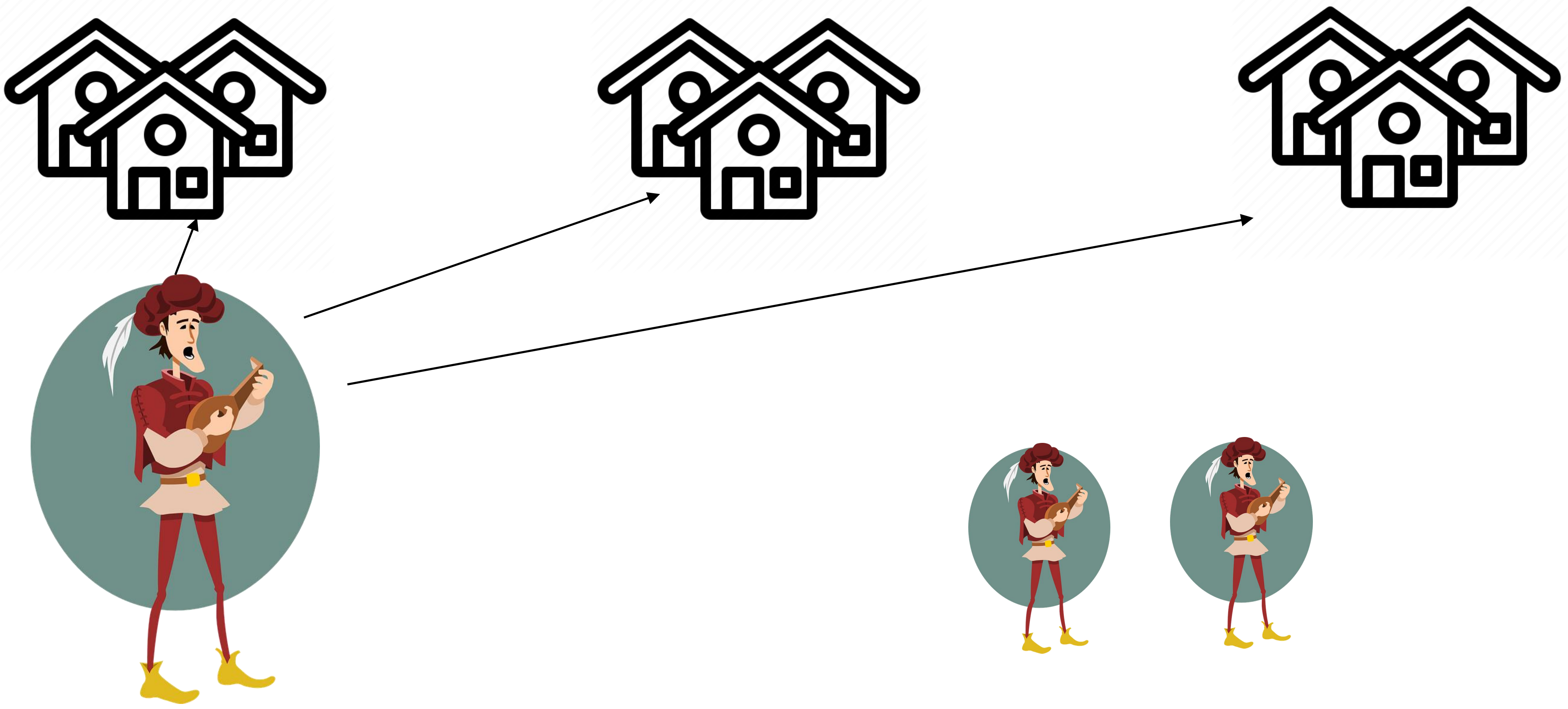
Imagine a world before recording artists



It's impossible to be in more than one place at the same. One musician per town. Only way to make it rich is by playing for the king (ie. having a high p)

A stylized model of improved communication technology

What if the artist can record. The best artist can now serve the whole market. The others are relegated to *niche* markets or have to find another job



Rosen (1981)

- Note, this could be true even if the best performer is only slightly better
- Requires that a large market can be served without much of a decline in quality:

Lower communication costs makes it easier to serve a whole market

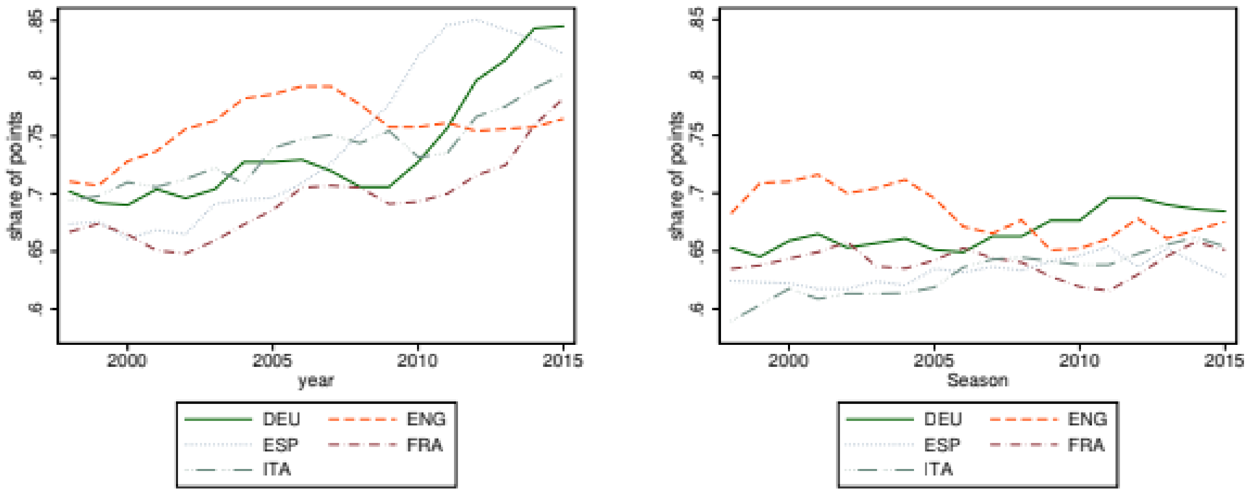
- Literal communication costs
  - Better recording technology, digital transmission, common platforms such as Youtube, concert venues etc.

- Other communication costs
  - Increased globalization and convergence of culture makes products in one place equally suitable for other places

Team Spirits

- Sports has an added dimension: it's a team activity. Ronaldo has a higher chance of winning when playing for Real Madrid than a lesser team.
  - "Positive assortative" matching

(a) 1st division (b) 2nd division



Notes: Own illustration, based on kicker.de and wikipedia.org. The share of points refers to the centered 5-year moving average of the ratio of end-of-season points of the national champion over the maximum achievable number of points. Panel (a) refers to the respective first-division league for each of the five countries, panel (b) to the corresponding second-division league. We thank Stefan Legge for sharing the data on second-division outcomes.

The best teams have become relatively better

Which gives an extreme concentration in value

Seems to be a trend for movies as well…

Taking Stock

- Large concentration in earnings for artists and athletes largely explained by declining costs of reaching a large market.
- The world is converging towards a single market in which the "best" artist can service with no decline in quality due to technological improvements.
- Best athletes are in the same clubs, just like best workers are in the best firms. The whole world watches the 4 best football leagues

- Can the same story help us explain concentration for "economic superstars"?

Can decline in communication costs explain general superstar phenomenon. The positive case

- To some extent, certainly.

- International trade implies it's easier for firms to dominate world markets (Hemous and Olsen, 2019). Those firms hire the best workers and superstars arise throughout the world.

- Those firms require the best workers and can afford to pay and locate in the most attractive cities. They must have the best CEOs and they pay them accordingly.

This even spills over into occupations without changes in technology

- Some occupations cannot reach the whole world: Doctors can only treat so many patients, personal trainers can only service one client at the same time.

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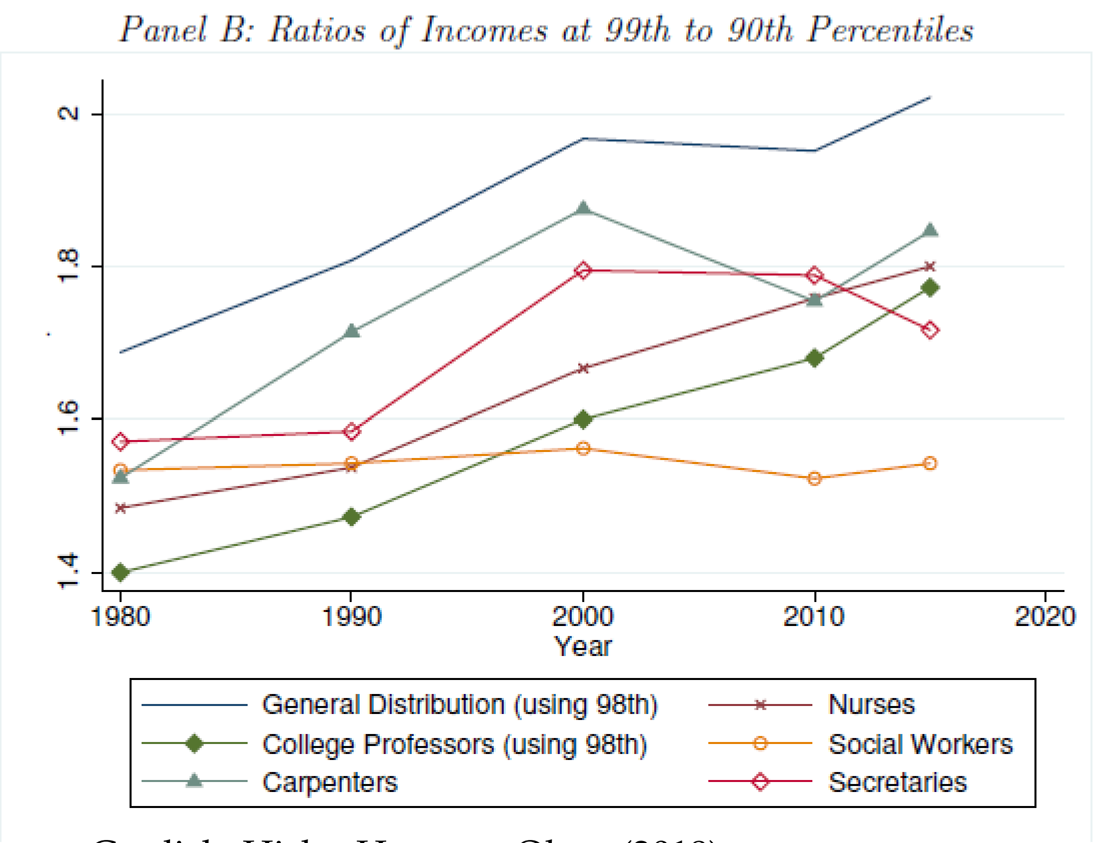
Source: authors' tabulations from Statistics of Income individual income tax return data.

Bakija, cole and Heim (2012)



Gottlieb, Hicks, Hemous, Olsen (2018)

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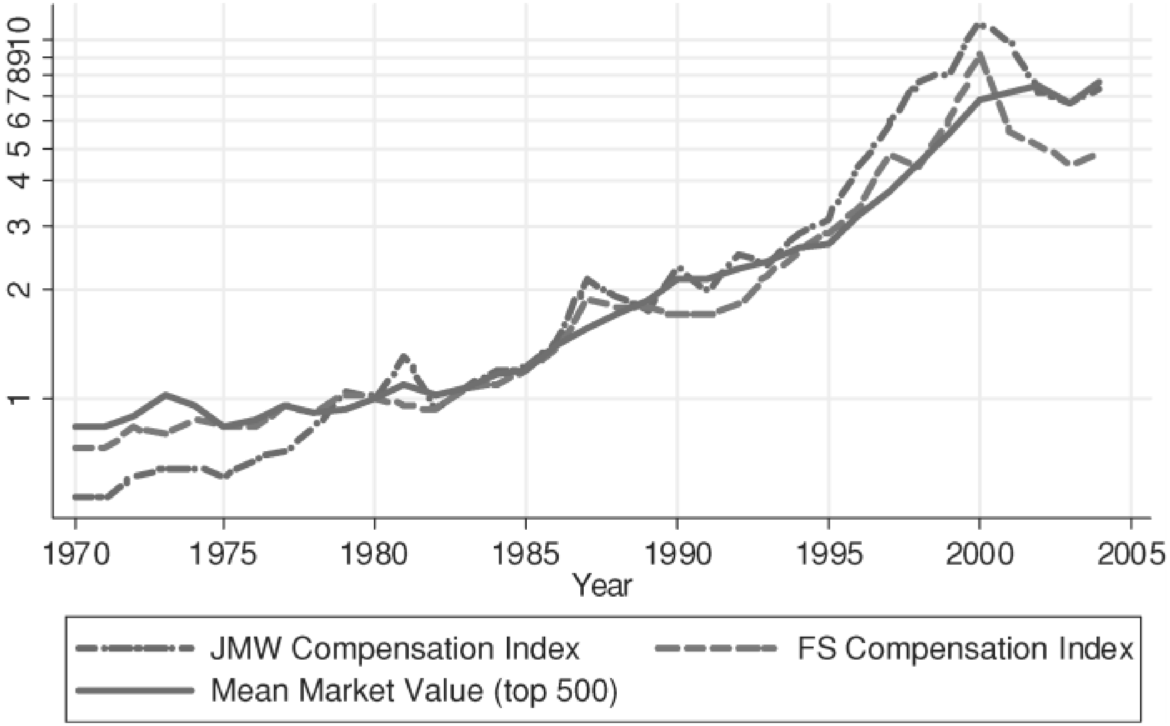
Why is inequality going up here as well?

- Beyonce's personal trainer charges $15,000 for a session
- Best doctors charge thousands of dollars for consultation.
- As income inequality in other occupations increase, the very best doctors and personal trainers can "skim" some of this because their clients are wealthier.
- Same tendency for waiters at high-end restaurants, even carpentry.
- Essential for this: 2 mediocre physical trainers is not the same as one good one.
- Income = p x q, but it's p going up!

US: CEO pay has largely gone up with size of firms

For the US



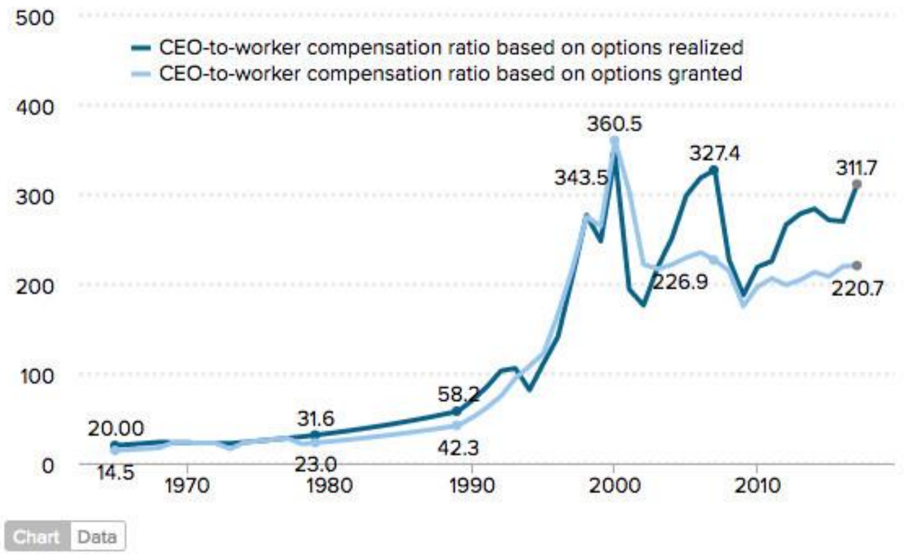
Source: Gabaix and Landier (2008)

Much less true in Europe and Japan

CEO compared to regular worker

CEOs make 312 times more than typical workers

CEO-to-worker compensation ratio, 1965–2017



Notes: CEO annual compensation is computed using the "options realized" and "options granted" compensation series for CEOs at the top 350 U.S. firms ranked by sales. The "options realized" series includes salary, bonus, restricted stock grants, options realized, and long-term incentive payouts. The "options granted" series includes salary, bonus, restricted stock grants, options granted, and long-term incentive payouts. Projected value for 2017 is based on the change in CEO pay as measured from June 2016 to June 2017 applied to the full-year 2016 value. Projections for compensation based on options granted and options realized are calculated separately. "Typical worker" compensation is the average annual compensation of the workers in the key industry of the firms in the sample.

Source: Authors' analysis of data from Compustat's ExecuComp database, the Bureau of Labor Statistics' Current Employment Statistics data series, and the Bureau of Economic Analysis NIPA tables

Economic Policy Institute

CEO-to-Worker Pay Ratio Around the World

36	Austria	1
58	Norway	1
67	Japan	1
84	United Kingdom	1
93	Australia	1
104	France	1
147	Germany	1
148	Switzerland	1
206	Canada	1
354	USA	1

Ceo pay is much higher in the US

Source: Bloomberg

In addition, aren't firms just very different nowadays?

- Agglomeration effects

  - When you buy a fridge you don't care about the brand of your friends' fridge
  - When you choose a social network platform you very much care about your friends' network
  - Google is a better search engine because everybody uses it <-> everybody uses Google because it is a better search engine.

  - However, concentration is happening in old industries as well, not just in shiny new industries!

Basically two competing views

Productive firms outcompete

- Same story as for “real” superstars: better firms can sell everywhere in the world and do so. Less productive firms are outcompeted
- Agglomeration effects require superstar firms to service these markets

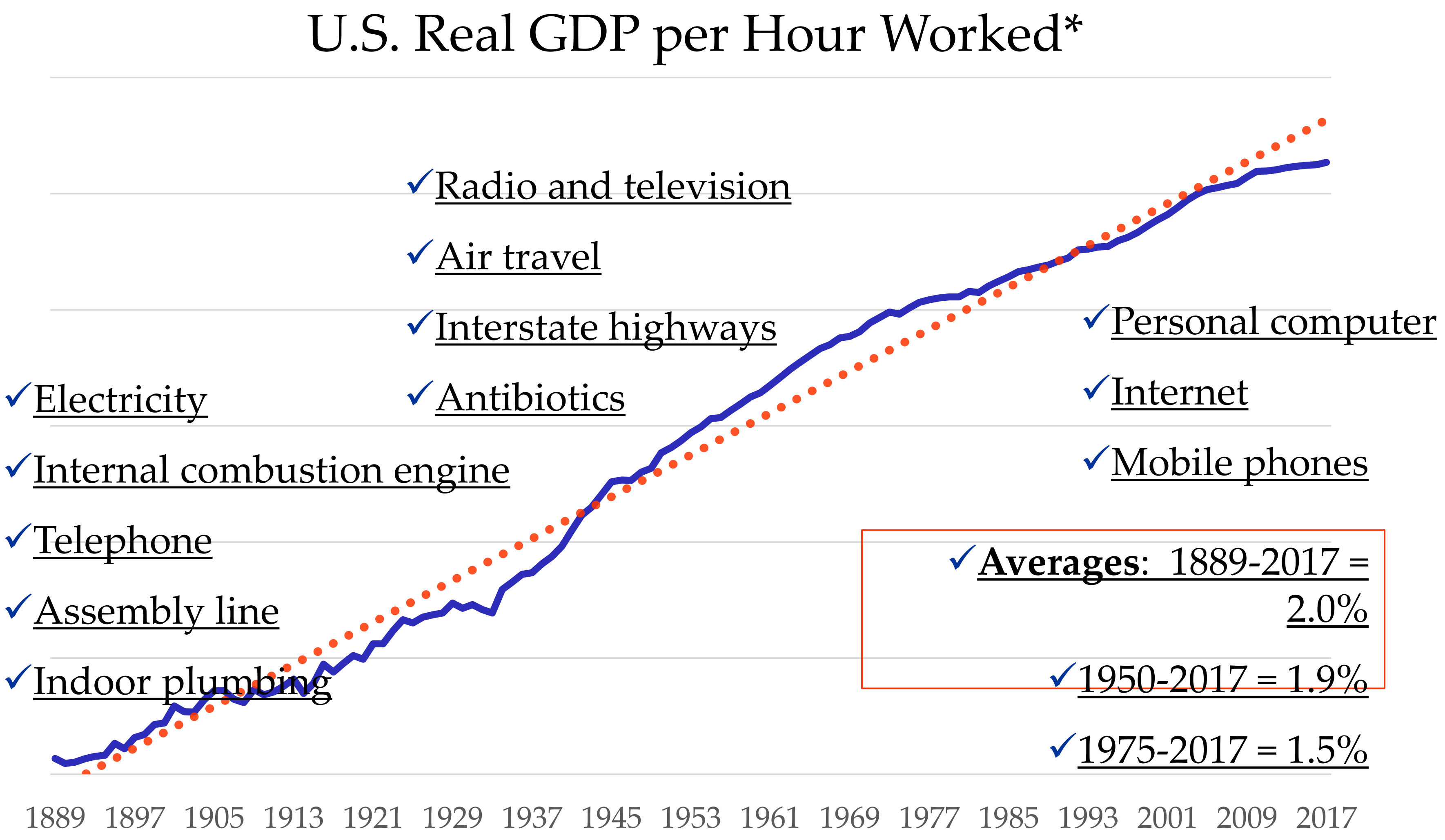
Prediction: productivity growth should be accelerating / large firms should be contributing more / you should be seeing this everywhere

Large firms have captured regulators

- Laxer regulation allows large firms to merge and reduce competition
- Corporate taxes are lower today in Europe and the US.
- Regulation is often counter-productive

Prediction: Productivity growth should be declining and large firms should be contributing less

U.S. Productivity growth is slower since the 1970s



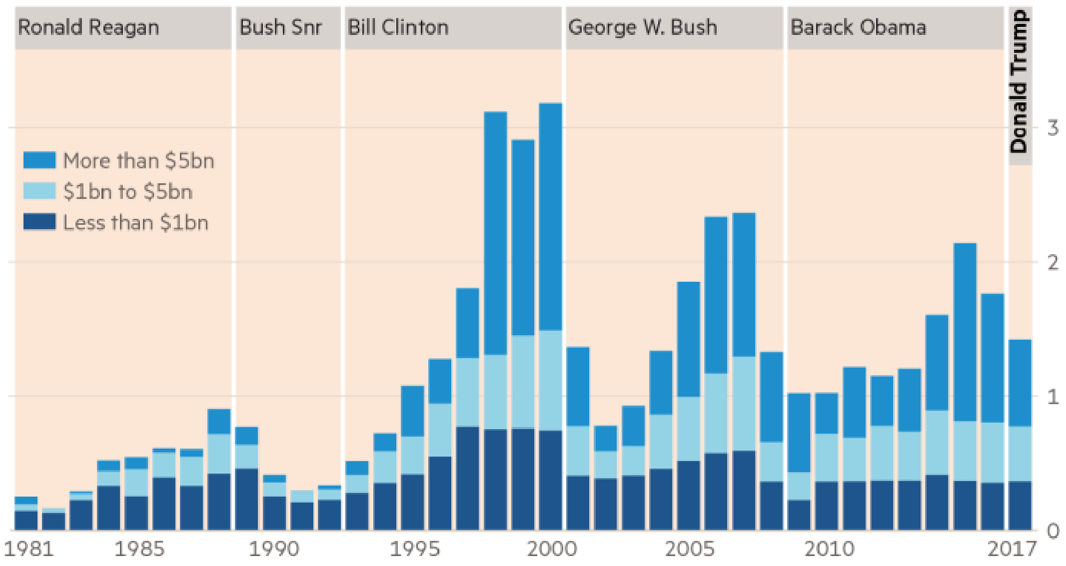
✓*Logarithmic Scale

Further Evidence

- Reduced contribution to productivity from biggest firms
- Declining investment rates
- Rising concentration / reduced market pressure / higher mark-ups.
- Especially in the US

  M&As have been large

Deal value, real terms ($tn)



Source: Thomson Reuters

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In Sum

- Technology allows for the best / most productive firms, artists or footballers to reach a much bigger market

- These trends are broad and are happening across occupations, industries and countries

- In addition, large companies have become better at stifling competition, buying young competitors and keeping regulators on their side. This has reduced competition. This is especially true in the US which has seen much larger increases in income inequality.

What to do?

- Tighten rules for acquisitions. Facebook should not have been allowed to buy Instagram

- Write a regulatory framework that doesn’t benefit large players (Dodd-Frank financial regulation hugely benefitted large banks)

- Allow more and taller construction in biggest cities so people can move where high-paying jobs are.

- Let firms pay what they want, but redistribute through taxes. Today much CEO compensation is taxed at much lower level. Also large difference across countries

Appendix

Why Income Inequality and Not Wealth Inequality

You're wealthier than the bottom 500,000,000 people put together!

Global wealth distribution 2013, adults

Decile	Share (%)	Decile	Share (%)
1	-0.4	8	3.0
2	0.1	9	7.8
3	0.1	10	85.9
4	0.3	Top 5%	74.0
5	0.6	Top 1%	46.4
6	1.0	Gini	0.905
7	1.6	Mean	$51,634

Source: Oxfam

Wealth effects of declining interest rates

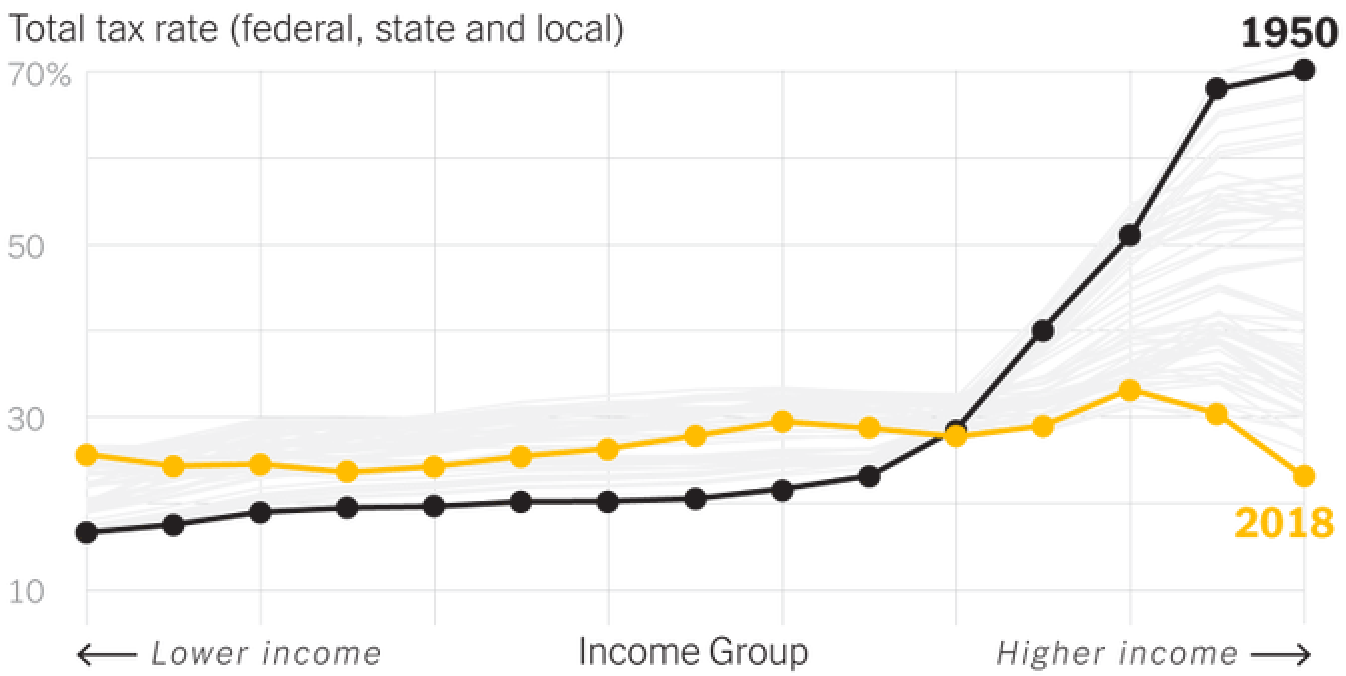
- Suppose you own a house that you rent out for \$10,000 a year.

- At an interest rate of 5% a reasonable price for the house would be
  – Price of house x 5% = \$10,000 or Price of house = \$10,000/(5%)=\$200,000

- Suppose interest rates drop to 1%.
  – Price of house is now: \$1,000,000
  – But you still only collect \$10,000 a year.
  – Same for all other financial assets
  – Evidence that recent declines in interest rates explain a large share of increase in wealth inequality (Zwick et al., 2019)

- Any discussion of wealth has to be careful about these issues and inherently becomes more complicated.

Effective taxes



Source: Gabriel Zucman