Dominant Firms in the Digital Age

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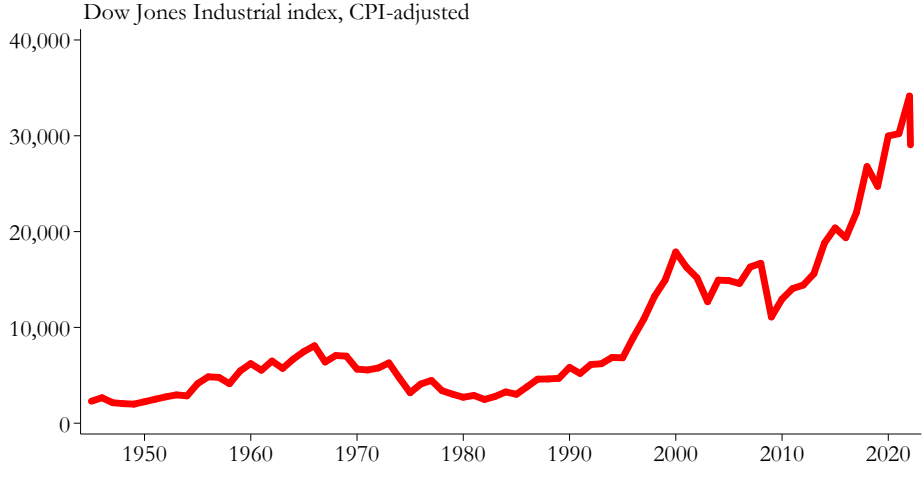
Bojos per l'Economia

24 January, 2026

Dow Jones


Dow Jones Industrial index, CPI-adjusted
40,000
30,000
20,000
10,000
0
1950
1960
1970
1980
1990
2000
2010
2020

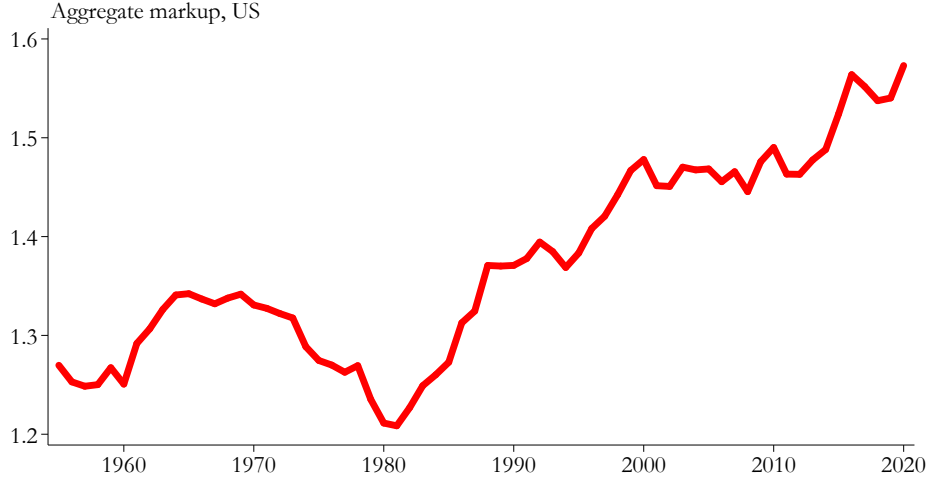
Rise in Economy-wide market power

Economy-wide market power...

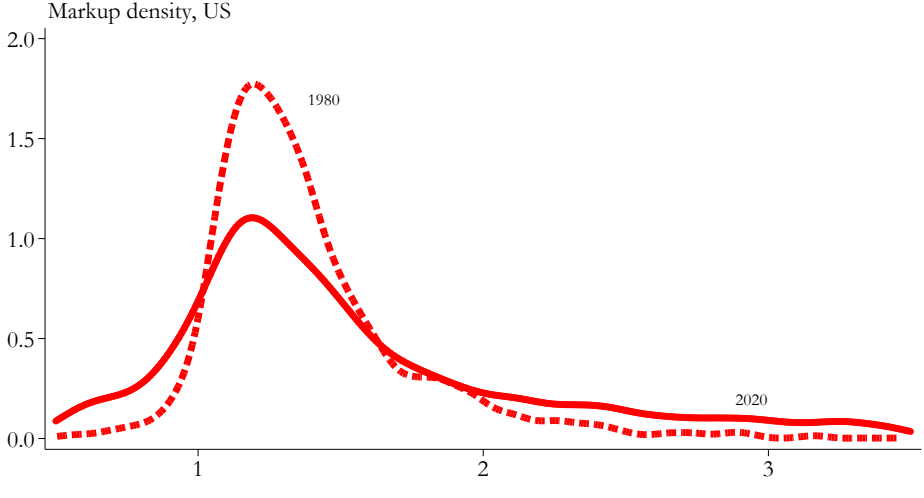
- Stock market valuations: p.a. growth $< 1\% \rightarrow 7\%$
- Markups: $1.2 \rightarrow 1.6$
- Profit rates: $1\% \rightarrow 8\%$

$\rightarrow$ For a few dominant firms: distribution and reallocation

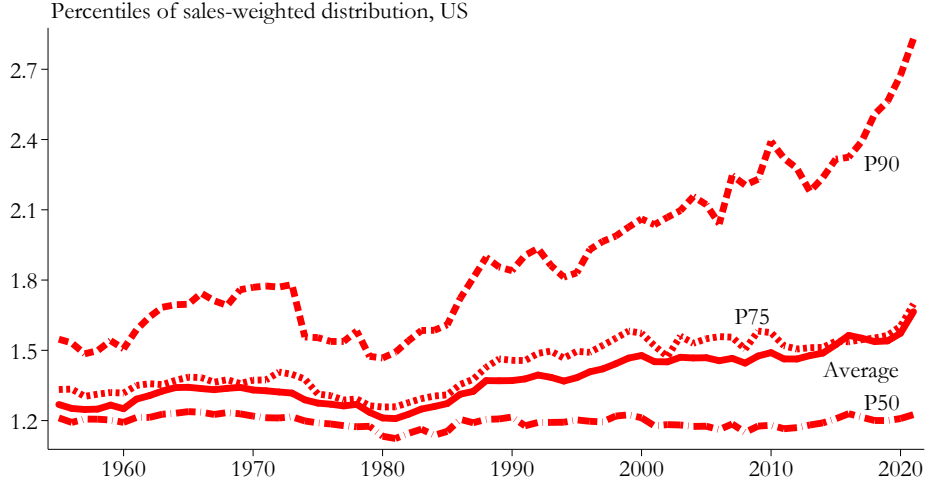
Aggregate Markup



Markup Distribution



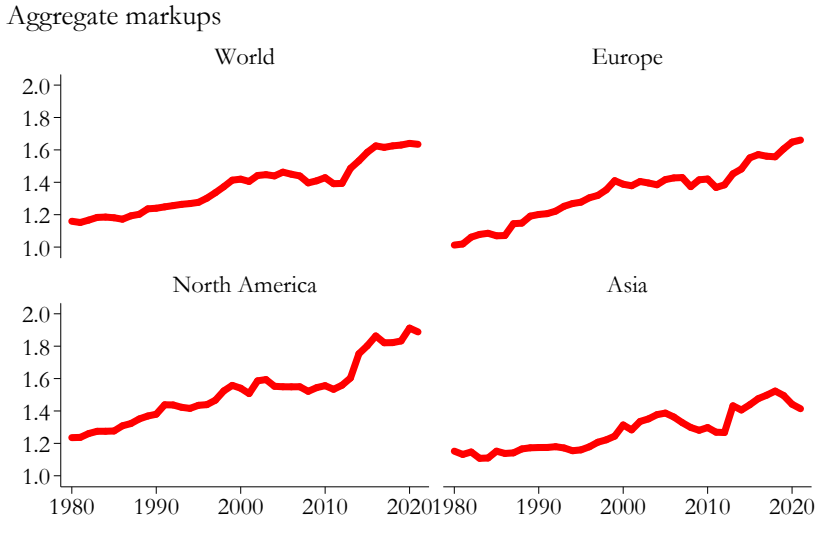
Markup Distribution: weighted percentiles



Markup Distribution

- Decomposition: within-sector, not between sectors
- Large reallocation to productive firms: Autor-Dorn-Katz-Patterson-Van Reenen (2020)
- In all sectors, from Tech to Textiles
- But, tech plays a role, Teulings-Van 't Klooster (2021)

A Global Phenomenon



History

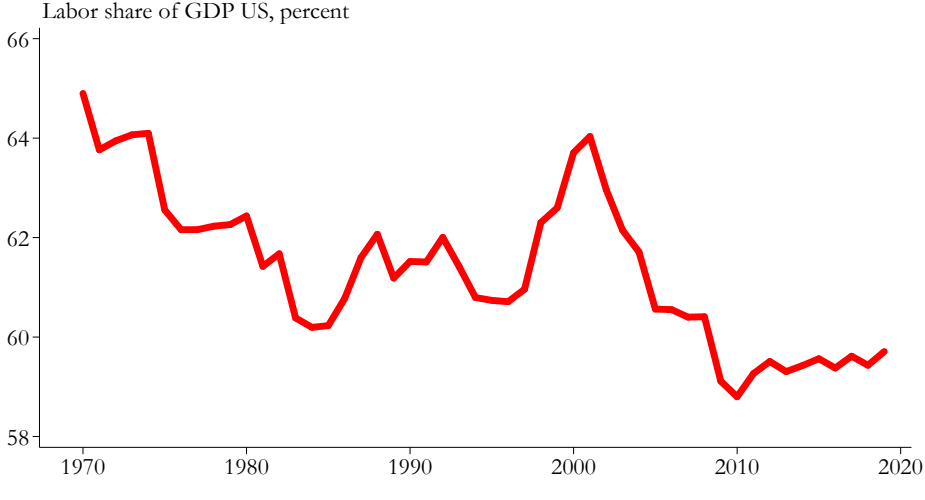
- Market Power has always been part of economics:
  - Ancient Greece: Monopoly power granted by sovereign
  - British East India Company: built on monopoly power (origin of US independence)
  - First formal models economics: Cournot oligopoly in 1838
  - Any business person knows: gain and exploit market power to make money
  - Schumpeter: (temporary) market power is necessary for growth (creative destruction)
- Has its own discipline, Industrial Organization (IO)
- Macro: Monetary policy; Input-output connections and aggregate fluctuations
- Antitrust Policy: Herfindahl-Hirschman Index (HHI)

Macroeconomic Implications

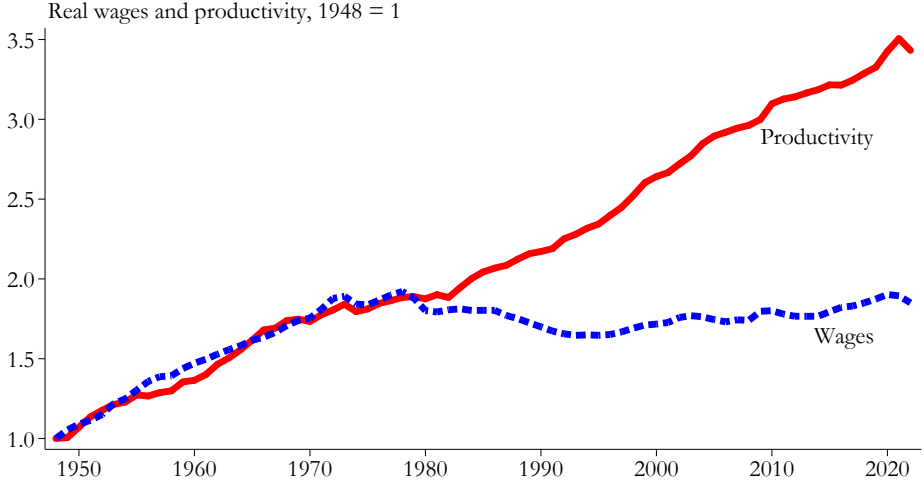
Economy-wide market power ... has an economy-wide impact

- Declining labor share
  - Wage stagnation (wedge productivity–wages)
  - Falling labor force participation
- Declining business dynamism
  - Labor reallocation
  - Startup rate
- Rising Wage Inequality

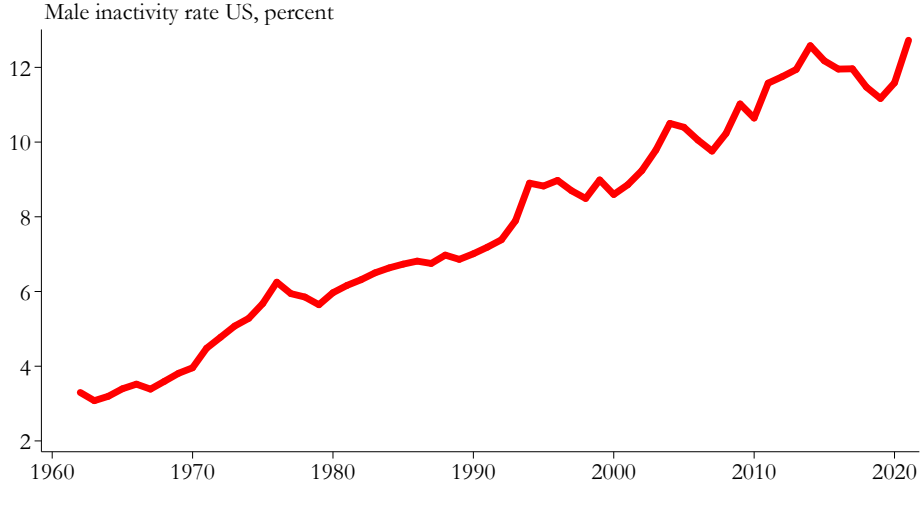
Labor Share


Labor share of GDP US, percent
66
64
62
60
58
1970
1980
1990
2000
2010
2020

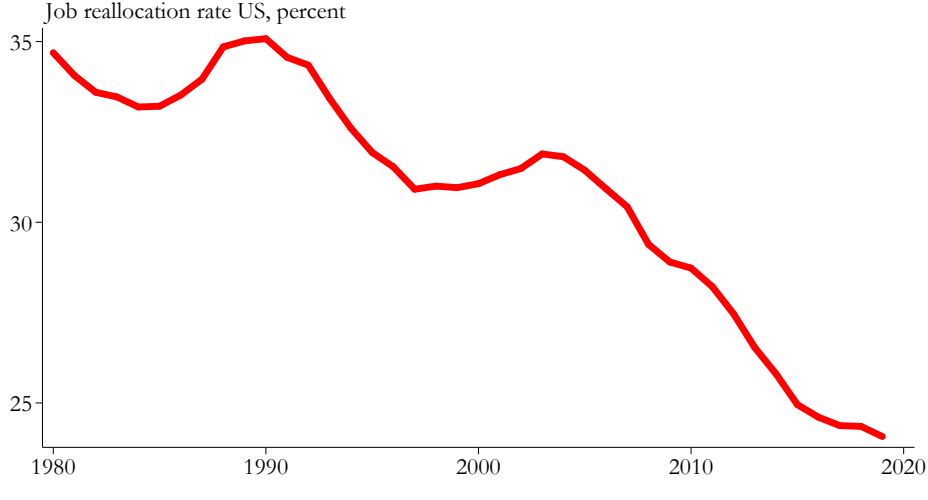
Labor Share: Wage Stagnation



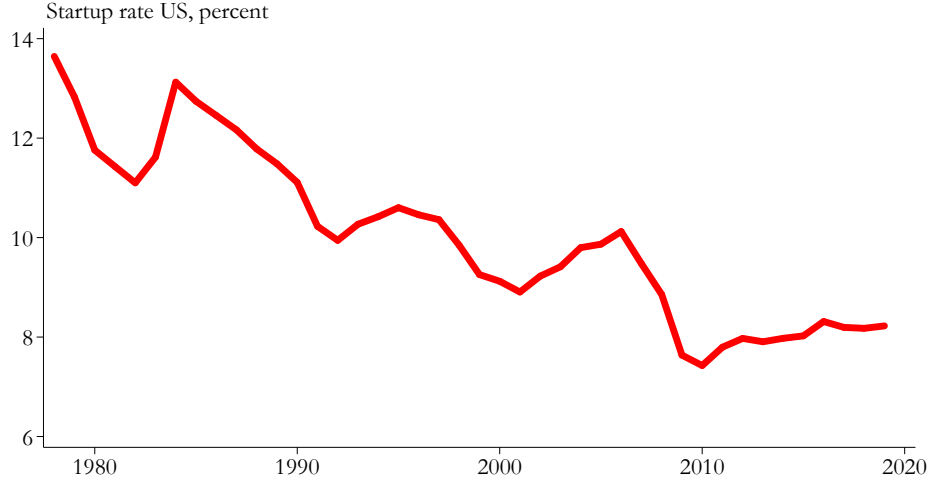
Labor Share: Labor Force Participation



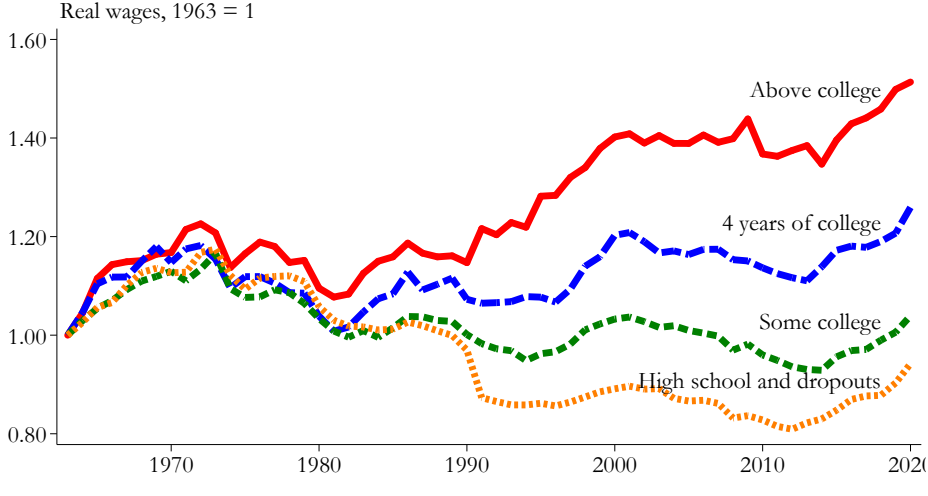
Business Dynamism: Job Reallocation



Business Dynamism: Startups



Wage Inequality

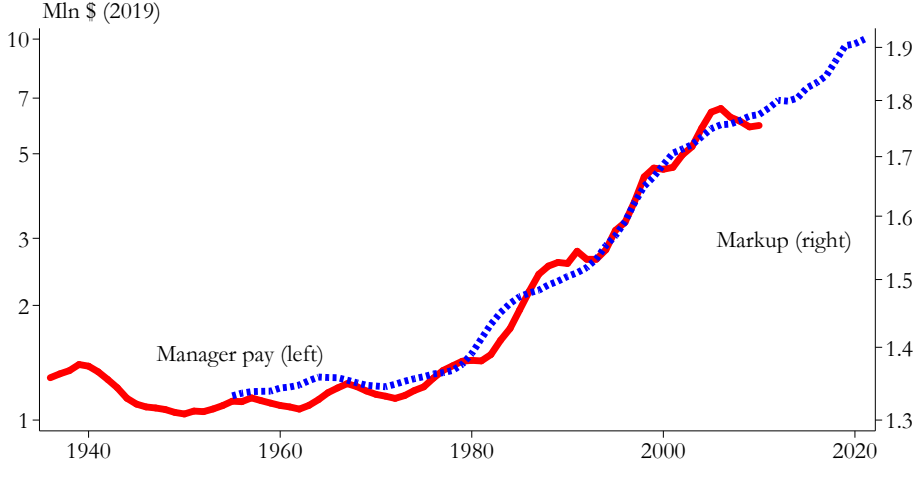


Wage Inequality

The role of Market Power

- Between-firm inequality: increases due to market power ($> 50\%$)
- Wage stagnation: wage decline even without technological regress

Wage Inequality: Superstar Pay



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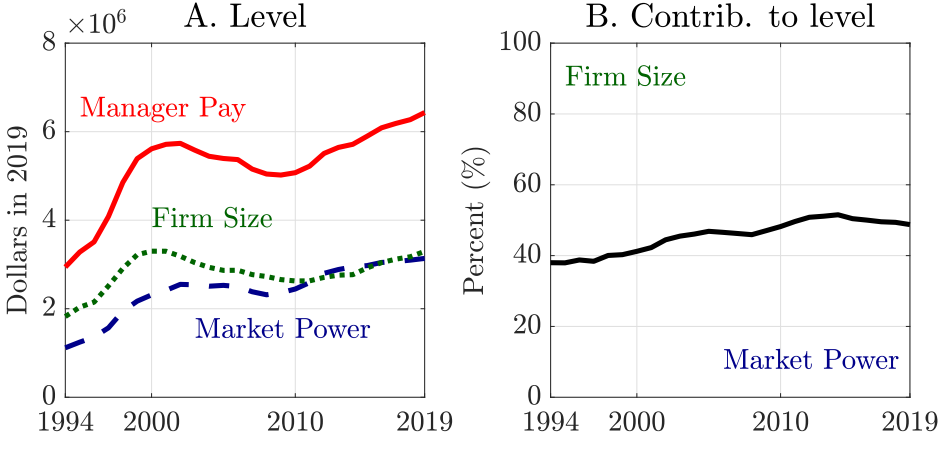

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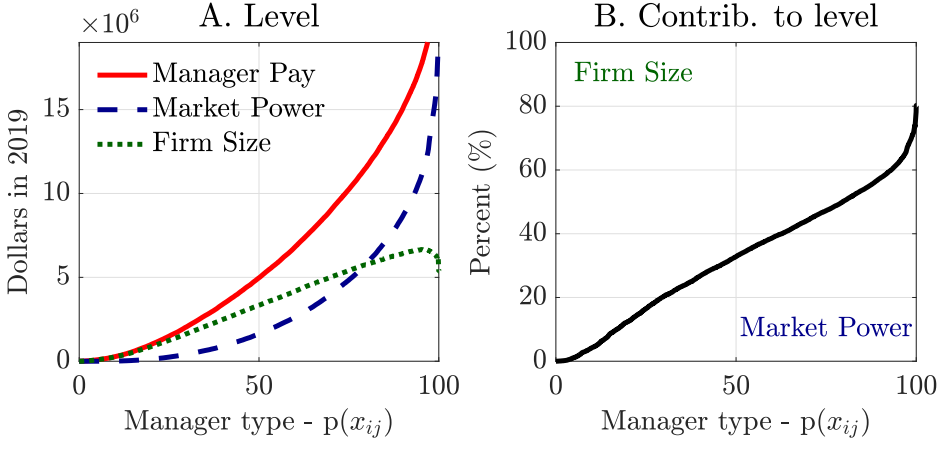

"I don't want a business that's easy for competitors. I want a business with a moat around it. [...] Our managers of the businesses we run, I've got one message for them, which is to widen the moat." – Warren Buffett (2007)

Economic Mechanisms

What are the economic mechanisms (including General Equilibrium effects)

Causes

1. Lax antitrust enforcement – 'Bork doctrine' starts in early 1980s
2. Fast technological change
   - Scale economies: Fixed cost + 40%; Returns to scale: from 1 to 1.05
   - Rising dispersion in productivities: $\sigma = .03 \rightarrow .07$
3. Globalization

Welfare Cost

- Output (and welfare) loss: 8% of GDP – De Loecker e.a. (2022), Edmonds e.a. (2022)
  - Large reallocation towards most productive firms
  - Even larger decline due to rent-extraction (deadweight loss)
- Efficiency gain + market power:
  - price $p \searrow$
  - cost $c \searrow\searrow$
  - markup $\frac{p}{c} \nearrow$

Policy

- Taxation: can redistribute, but cannot get rid of inefficiency
- Only reducing economy-wide market power will reduce inefficiency

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- Only reducing economy-wide market power will reduce inefficiency

- But, current antitrust/regulation
  - focuses on direct harm to consumers and workers
  - has limited tools to deal with (pecuniary) externalities from economy-wide market power

Policy

- More competition
  - Split up firms? Maybe
  - Regulation: interoperability – separate network from operators (pro-competitive)
  - Antitrust policy: merger review, Ex ante regulation, market investigations,...
  - Regulate dominant firms as utilities

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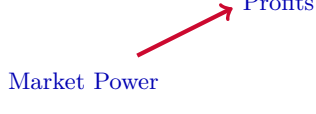
- Vicious circle:



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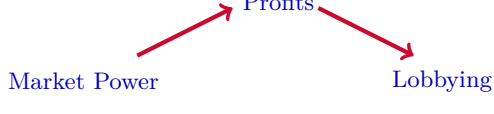

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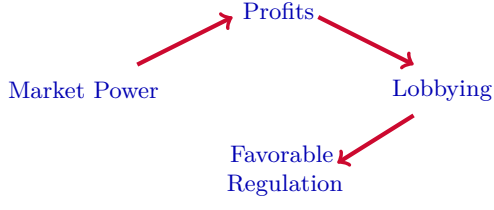

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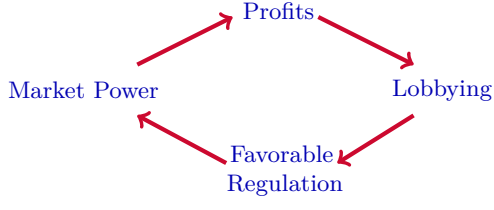

Dominant Firms in the Digital Age

- Fast technological change → market power → economy-wide implications
- Large welfare cost (8% of GDP); future?
- Not first time:
  - 1900, electricity, telegraph, railways → now all are regulated utilities
  - But... it took 2 wars and the great depression to undo market power

Dominant Firms in the Digital Age

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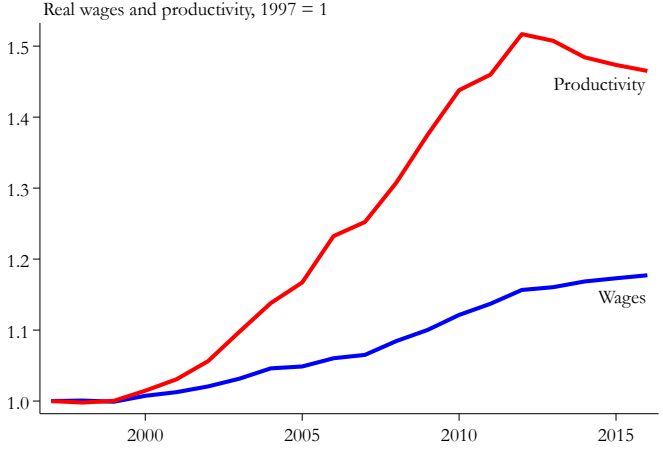
Monopsony Power

Joan Robinson

Wage Stagnation

U.S Census : Tradeable sectors



Mechanisms

- Explore two mechanisms behind wage stagnation:
  1. Monopsony: direct effect from imperfect labor market
     → Lower firm-specific wages for own workers
  2. Monopoly: output market power affects labor demand – General Equilibrium effect
     → Lowers aggregate, economy-wide wages

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∴ Objective:

1. Explain mechanism behind decoupling of wages and productivity
2. Decomposition: measure contribution from Monopsony vs. Monopoly

Findings

1. Competition has decreased over time:
   - Markups increase substantially
   - Markdowns are stable, increase only marginally
2. Wage stagnation: decoupling wages-productivity
3. Decomposition monopoly vs. monopsony: dominant force is monopoly

Firm Optimization

- The firm's first order condition for establishment i can be written as:

$$P_i \underbrace{\left(1+\varepsilon_i^P\right)}_{\mu_i^{-1}} A_i = W_i \underbrace{\left(1+\varepsilon_i^W\right)}_{\delta_i}$$

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- Markups and Markdowns

$$\mu_i = \frac{P_i}{MC_i} = \frac{1}{1+\varepsilon_i^P} \qquad \text{and} \qquad \delta_i = \frac{MRPL_i}{W_i} = 1+\varepsilon_i^W$$

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- Mechanism

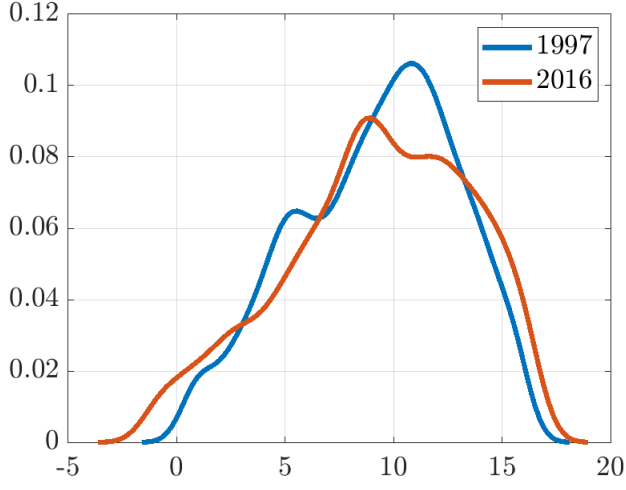
$$P_i A_i \times \mu_i^{-1} \;=\; W_i \times \delta_i \;\;\Rightarrow\;\; \underbrace{W_i}_{\text{Wage}} \;=\; \underbrace{\frac{R_i}{L_i}}_{\text{Rev/worker}} \;\times\; \underbrace{\mu_i^{-1}}_{\text{Markup}} \;\times\; \underbrace{\delta_i^{-1}}_{\text{Markdown}}$$

Quantitative Exercise

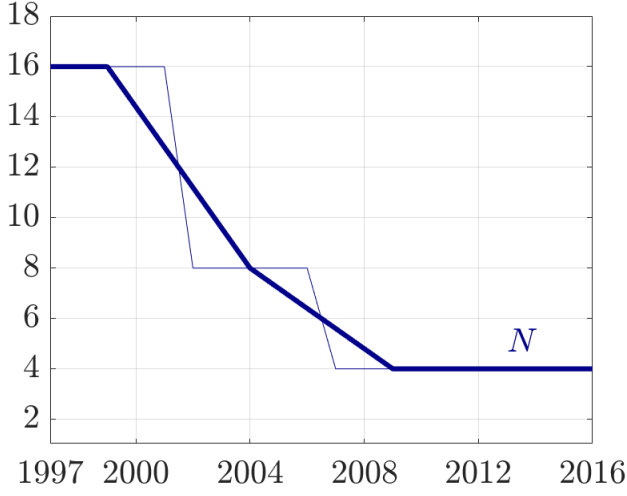
- U.S. Census Bureau Longitudinal Business Database (LBD): Tradeable Sectors
- In the data we observe
  1. Employment by establishment: L_{inj}
  2. Average Wages by establishment: $W_{inj} = \frac{\text{Wage Bill}_{inj}}{L_{inj}}$
  3. Revenue: R_{inj}
  4. Industry classification NAICS, SIC

Estimated Technology Distribution

A_{inj}

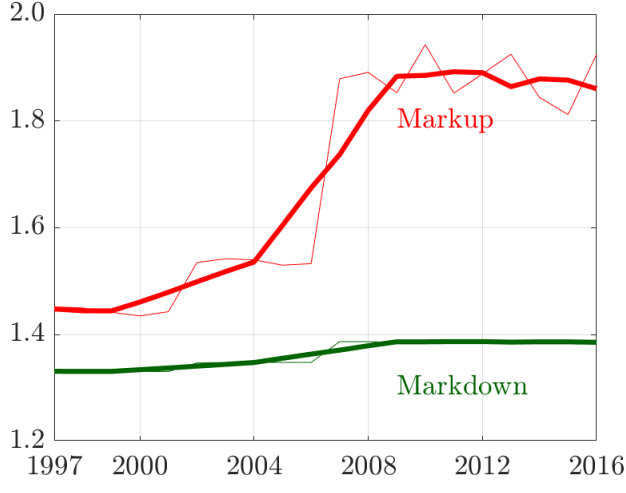


Estimated N

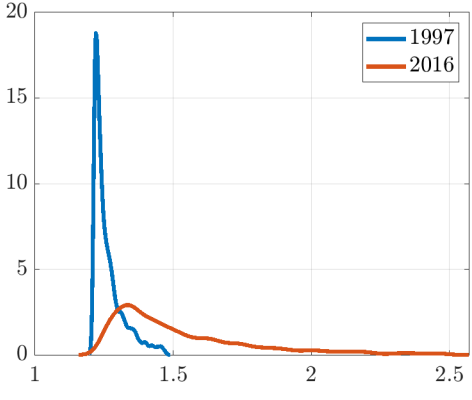


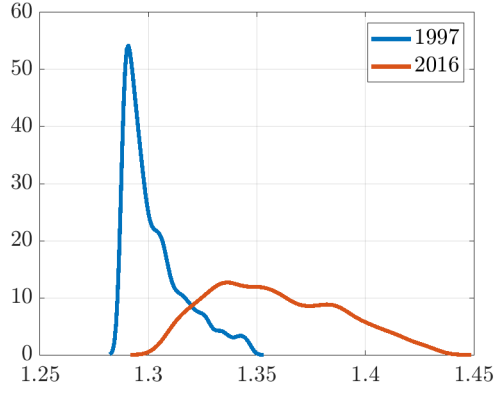
Model Fit

Average Markups and Markdowns



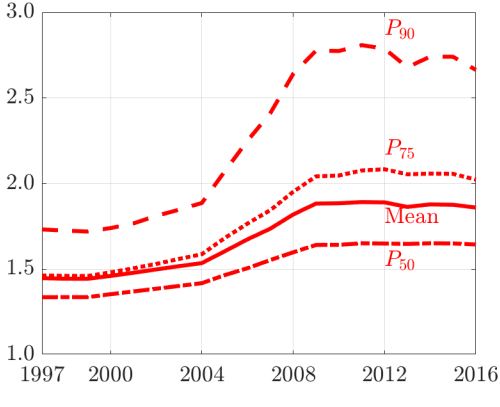
Markup and Markdown Distributions

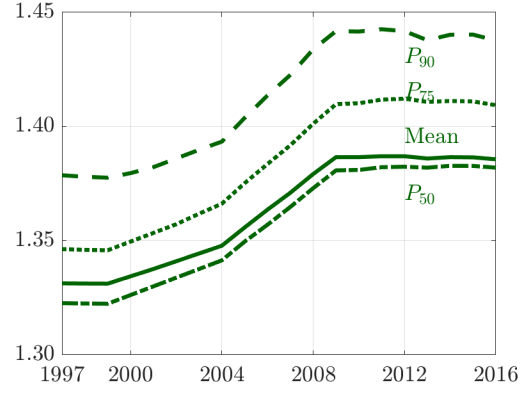




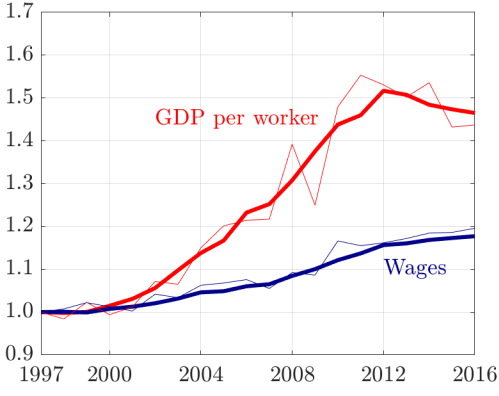
Markup and Markdown Distributions

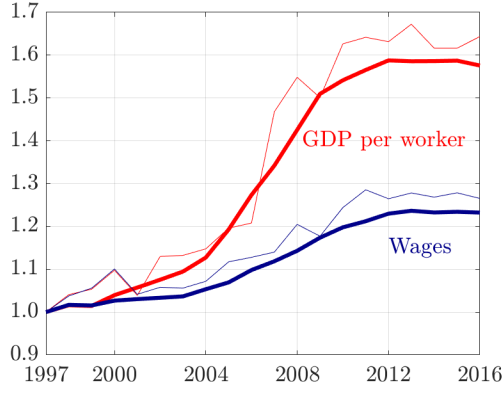
Data vs Model





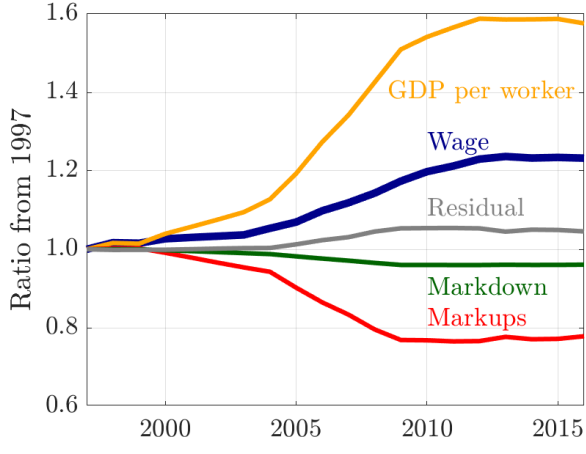
Decoupling Wages-Productivity





Decoupling Wages-Productivity

$$W = \text{GDP/Worker} \times \mu^{-1} \times \delta^{-1} \times \Omega$$



Counterfactual Economies

1. Decentralized Equilibrium: $L_{inj}^{\mu,\delta}$

$$A_{inj} P_{inj} \quad \mu_{inj}^{-1} \quad = \quad W_{inj} \quad \delta_{inj}$$

Counterfactual Economies

2. Social Planner's Solution: $L_{inj}^{1,1}$

$$A_{inj}P_{inj} = W_{inj}$$

Counterfactual Economies

3. Monopoly; No Monopsony: $L_{inj}^{\mu,1}$

$$A_{inj} P_{inj} \quad \mu_{inj}^{-1} \quad = \quad W_{inj}$$

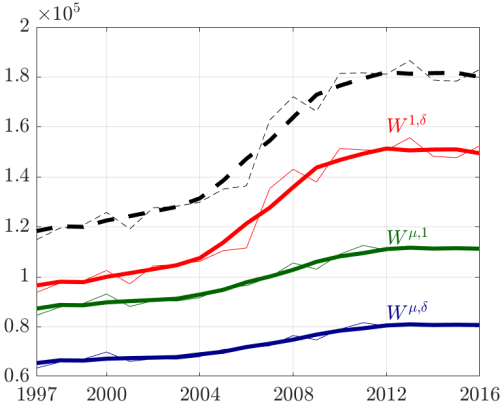
Counterfactual Economies

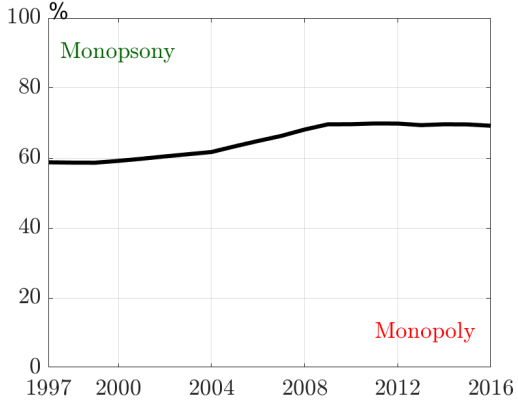
4. No Monopoly; Monopsony: $L_{inj}^{1,\delta}$

$$A_{inj} P_{inj} \quad = \quad W_{inj} \quad \delta_{inj}$$

Counterfactual Economies

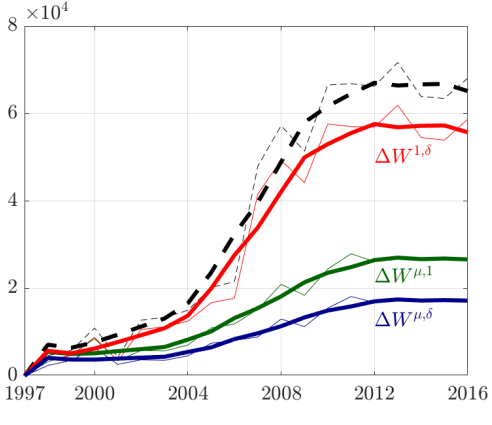
Wage Decomposition

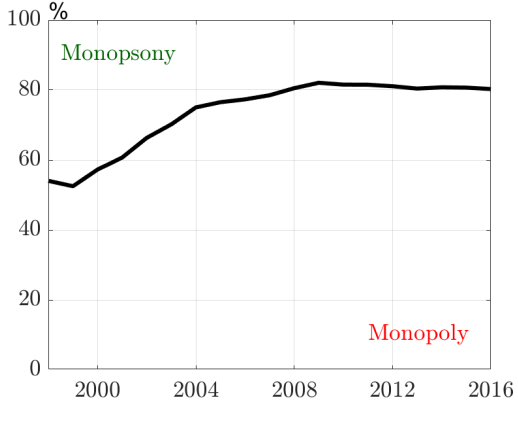




Counterfactual Economies

Wage Growth/Stagnation





Conclusion

- A method to jointly model and measure monopsony and monopoly
- Main Findings:
  1. Market Power has increased over time:
     - Markups increase from 1.45 to 1.93
     - Markdowns are stable, increase only marginally from 1.33 to 1.38
  2. Wage stagnation: decoupling wages-productivity
  3. Decomposition: indirect effect from monopoly dominates direct effect from monopsony

     69% of wage level; 80% of the wage stagnation

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