“Spillover effects from voluntary employer Minimum Wages” by Derenoncourt, Noelke and Weil

Discussion by

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2018: Amazon raises minimum wage to $15 per hour

Overview

- Fantastic paper –Important area, rich data & great design

- What is impact of national minimum wage set by mega-firms like Amazon, Walmart, Target and CostCo on workers in **other** employers in the same local labor market?

- Standard Competitive model would say no effect, but in reality big spillovers: e.g. a 10% increase in Amazon's advertised hourly wage led to a 2.6% wage increase by other firms in same Commuting Zone (CZ)

- Small employment losses: elasticities between -0.04 and -0.13

- Implies strategic interaction in wage setting (oligospony)

Method

- **Burning Glass Data:** employer-occupation-CZ ("job")-month hourly wage postings since 2010
- Amazon $15 min wage in Oct '18. **Exposure** = % job postings below $15 in a cell (188 CZ by 800 occupations) in non-Amazon firms in year prior to introduction (Oct '17-Sept '18).
- Include fixed effects for (i) firm, (ii) OCC*month, (iii) CZ*month

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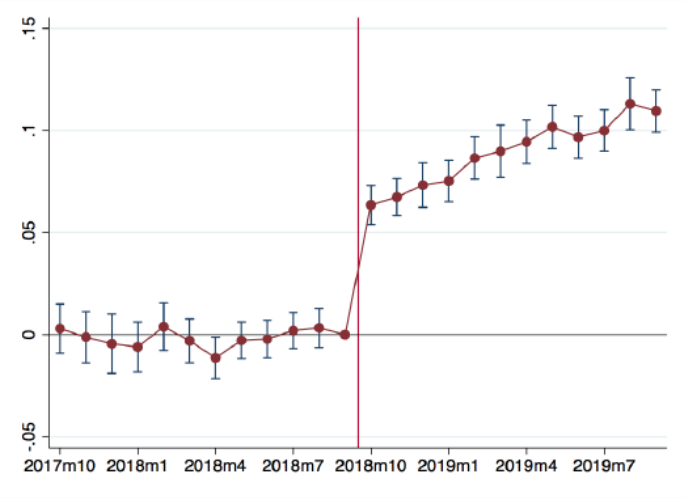
Figure 4: Spillovers in advertised wages from Amazon's $15 MW, 2018



Notes: This figure plots the regression coefficients on job-level exposure to Amazon's minimum wage policy for non-Amazon employers interacted with month fixed effects, where the dependent variable is log posted hourly wage. Exposure is defined as the fraction of non-Amazon postings in each occupation-employer-CZ cell with wages below $15 in the year before treatment. Employer-by-occupation-by-CZ, month-by-occupation, and month-by-CZ fixed effects are included. Sample restricted to non-Amazon employers' postings with valid wage data and hourly rate of pay, employer name, county, and occupation. 95% confidence intervals shown. *Source*: Burning Glass Technologies online vacancy data.

Comments on paper

1. Econometric quibbles
2. Why Did Amazon Do It?
3. What model of labor market explains these patterns?
4. What is the role of Product Market Power?

1. Econometric Quibbles

- Could be a local contemporaneous shock causing all employers to raise pay for (low wage) occupations. **Unlikely:**
  - No Pre-trends & Sharp timing of event
  - Bunching of wages around new minimum
  - Still identify with CZ*OCC*time & Employer*time FE

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- **Narrow sample?** Need 2 years of monthly wage data in narrow employer-occupation-CZ cell in BGT.
  - How do these jobs/employers compare to others in BGT?
  - Is this why a lot of wage data is winsorized (10%). Some cells with very few workers (no BGT quantity data)
  - Only 20% of BGT ads have wages. (But do show that no change in fraction posting with exposure measure)
  - What % of Amazon type low wage workers are employed in jobs that do not advertise online, so BGT misses?
- Matters because we want to know who is responding. Maybe many firm wages (CPS jobs sample?) are not responding

2. Why did Amazon et al. choose to do this?

- Unlike a regulation, this is an employer choice
- Political pressure (Bernie Sanders, unions, etc.). Generated good PR for Amazon

Fact: We recognized front-line employees by investing $2.5 billion in additional pay in 2020.

See all facts 1 / 10

Why Amazon Supports a $15 Minimum Wage

In 2018, Amazon raised its starting wage for all U.S. employees to at least $15 an hour. We've seen the positive impact this has had on our employees, their families, and their communities. Since then, we've been lobbying Congress to increase the federal minimum wage—which has been stuck at $7.25 since 2009.

See how Amazon

2. Why did Amazon et al. choose to do this?

- Unlike a regulation, this is an employer choice
- Political pressure (Bernie Sanders, unions, etc.). Generated good PR for Amazon
- Broader issue is that many/most large employers have national (regional or international) pay policy (e.g. Hay's job points), even in absence of unions
  - Strange to economists because of very different local labor markets. But standard HR company policies. Justified as "Fairness", "Simplicity"
  - Similar issues in **price-setting** (e.g. Dellavigna & Shapiro, 2019). Same prices despite very different local costs
  - Maybe complementary sets of broad management practices?
- Could you do rough cost to Amazon, with & without responses on other margins (rival reactions, productivity, emp, etc)

3. What model of the labor market could explain the patterns you find?

- Monopsony
  - Monopsonistic competition (Card et al, 2018; Lamadon et al, 2020; Kroft et al, 2021) atomistic firms
  - We expect positive employment effects

- Appeal to oligospony class of models a bit vague. Try to sharpen connection to theory
  - Berger et al (2019) & Arnold (2021) are Cournot-like oligopsony models. Imply that (local) labor market shares govern the degree of strategic interaction.
  - Does this adequately represent the data (i.e. those closest in market share would respond most)? Or is it more Stackelberg leader-follower in structure? Which firms are "closest" to Amazon in "job space" (use the occupation-task information more, not just geography cf BLP)

4. What is role of *Product* Market Competition (PMC)

- A feature of all these mega firms is that they likely have power in **product** market as well as labor market. By revenue: Walmart #1, Amazon #2, Target #10 firms in US

- Most labor models focus only on the labor market power & try to abstract away from PMC. Ironic, as techniques labor economists importing from IO are designed to look at PMC!

- One implication is that firms may (partially) absorb wage shocks in their profits. e.g. Draca et al. (2011)
  - Looks at introduction of UK National Minimum Wage in 1999. Micro data on all firms & specific analysis of nursing care homes
  - Low wage increase, little jobs effect but big fall in profit markups (esp. for firms with product market power)

More General Observations on wage determination in labor economics

1. Imperfect Competition and Role of firms

2. Rise of Superstar Firms

3. Which model? A framework & applications to wages and labor share

1. Imperfect Competition and Role of Firms

- In standard competitive labor market model, firms are just "containers" for human capital
  - Institutions, regulations, taxes, etc. cause distortions from this, but benchmark remains

- Recent work with better data and designs strongly implies
  - Need to take imperfect competition seriously
  - Fundamental feature is role of **firms:** the identity of the organization you work for really matters for your outcomes

- Heterogeneous firms under imperfect competition is benchmark for IO (and more recently) trade & (some) macro

- **Note:** These are equilibrium long-run differences (e.g. in wage distributions for homogeneous workers) not just temporary deviations through dynamics

Role of Firms is empirically critical: Evidence

1. Firm fixed effects in wage equations

- AKM (1999), CHK (2013), Card et al (2018), Bonhomme et al (2019)

2. Impact of **observable shocks to firms** (e.g. technology, demand) on wages.

- Abowd & Lemieux (1993), Van Reenen (1996), Card et al (2014), Lamadon et al (2019), Kline et al (2019), Kroft et al (2021)

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3. Impact of **labor market structure on wages & jobs**, e.g. local concentration, M&A

- Azar et al (2019, 2020), Arnold (2021), Rinz (2020)

4. Responsiveness of wages to policy changes by labor market "rivals"

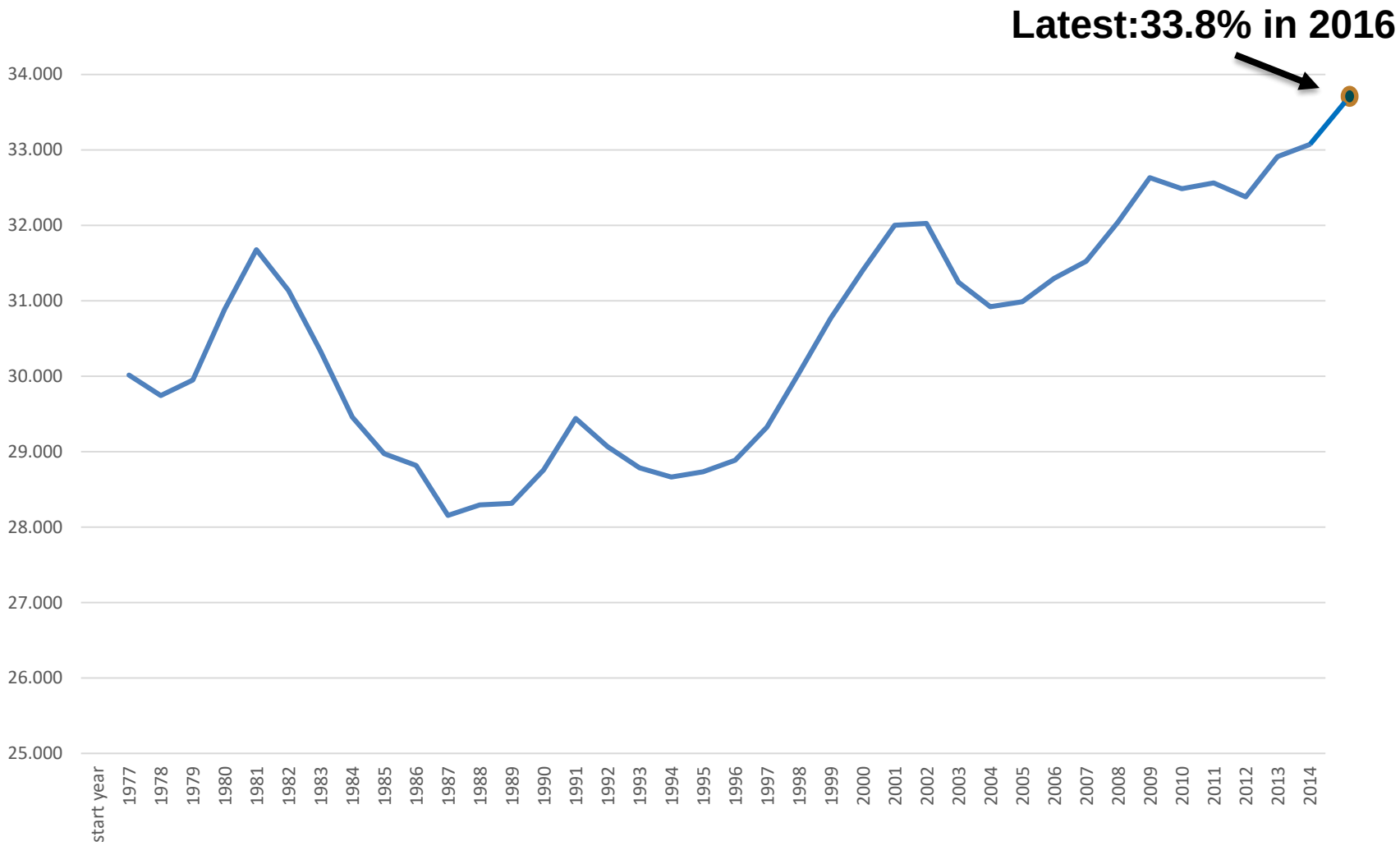
- Derenoncourt et al (2021). Strategic complementarity in wages

2. Rise of Mega-firms: Huge inequality between firms & this has increased over time

- p90 establishment twice the TFP of p10 establishment in typical 4 digit SIC US industry
- US Firms getting larger, especially in global sales
- Industries becoming more concentrated (although less clear what trends are at the local level)
- Productivity dispersion increasing

See Van Reenen (2018) and de Loecker, Obermeier and Van Reenen (2021) for surveys of these trends

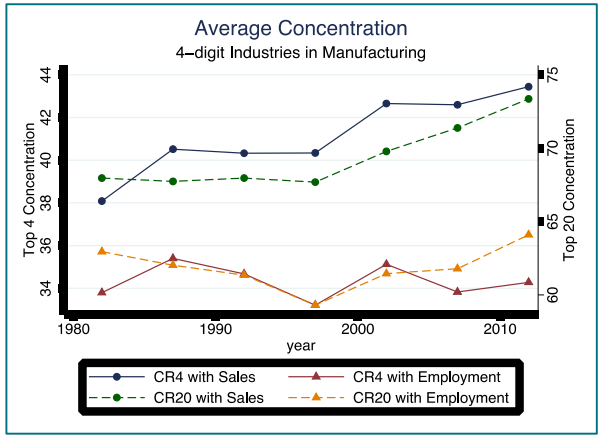
Since mid ’80s Big Firms getting bigger: % jobs in firms with 5,000+ workers rose from 28% in 1987 to 34% in 2016



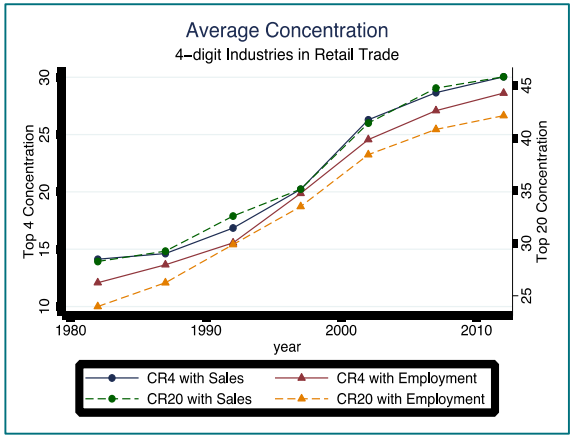
Source: SBA, https://www.sba.gov/advocacy/firm-size-data#susb

Rising Concentration in US since 1982

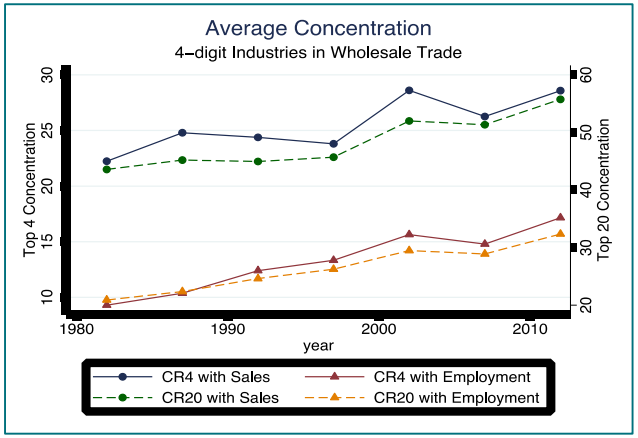
Manufacturing



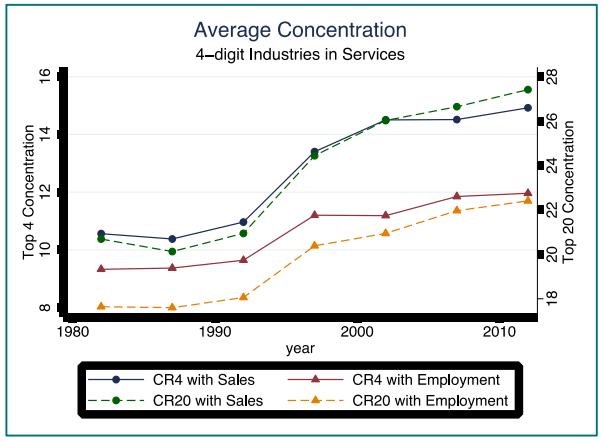
Retail Trade



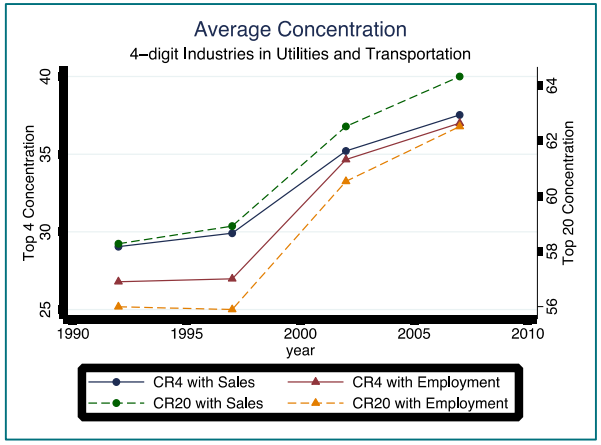
Wholesale Trade



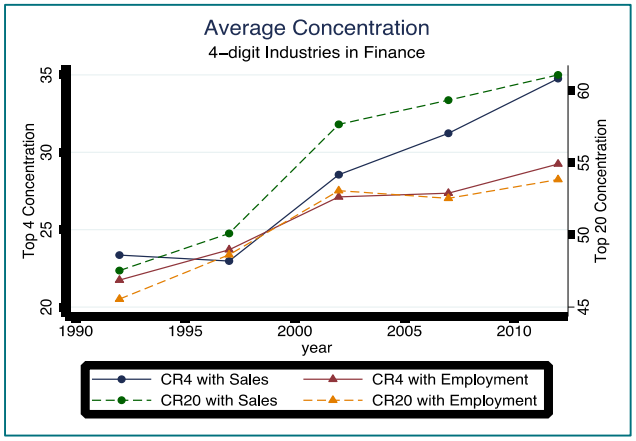
Services



Utilities + Transportation



Finance



Notes: Autor et al (2020) from Economic Census; Weighted av. of concentration across the SIC-4's within each sector. Manufacturing:388 inds; Retail:58; Services:95; Utilities/Transportation:48; Wholesale:56; Finance:31

3. *Which* imperfect competition models?

- **Wage bargaining**
  - Union bargaining models
  - Individual bargaining (Search and Matching, DMP)

- **Wage posting**
  - Classic monopsony
  - Dynamic monopsony (Imperfect worker information): Burdett & Mortensen (1998), Manning (2003)
  - Nonwage amenities: Kline et al (2018); Lamadon et al (2020)
    - Feature of these models is that employer has some degree of market power but cannot offer different wages for different workers
  - **Oligospony.** Non-atomistic labor market with strategic interaction between wage-setters [NB has features of some collective bargaining models, “Shinto” in Japan]

Which imperfect competition models?

Wage Equation I: $W = \left(\frac{1}{\lambda}\right) MRP$

- $\lambda \geq 1$ **= "mark-down",** determines pass through from a firm shock to MRP, Marginal Revenue Productivity of Labor

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Wage Equation I: $W = \left(\frac{1}{\lambda}\right) MRP$

- $\lambda \geq 1$ **= "mark-down",** determines pass through from a firm shock to MRP, Marginal Revenue Productivity of Labor
- *Approach I:* estimate λ from MRP shocks
- *Approach II:* estimate firm-specific labor supply elasticity (ε_W^L) and recover $\lambda = \frac{\varepsilon_W^L}{1+\varepsilon_W^L} \geq 1$
- *Approach III:* Allow ε_W^L to be firm-specific. Cournot-style model (Berger et al, 2021); Nested Logit (Berry et al, 2021). Both structural IO approaches mean elasticities depend on firm labor market shares in jobs (the bigger the market share, the bigger the markdown) and an aggregate elasticity

But what about <u>product</u> market power?

Wage Equation II: $W = \left(\frac{1}{\lambda\mu}\right) MRP$

- $\mu = \frac{P}{c}$; mark-up of price over marginal cost. Determines the pass through from a firm cost shock to consumer prices
- $\mu = \frac{\varepsilon_P^Q}{\varepsilon_P^Q - 1} \geq 1$, function of consumer price elasticity.

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- $\mu = \frac{\varepsilon_P^Q}{\varepsilon_P^Q - 1} \geq 1$, function of consumer price elasticity (ε_P^Q)
- Highlights that greater firm power in product market depresses wages in wage posting models
- Literature tends to abstract away from PMC (e.g. using traded sectors looking within firm across geographical labor markets).
- Markups will also depend on product market structure (e.g. in Cournot sales market share and aggregate elasticity)

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- Markups will also depend on product market structure (e.g. in Cournot sales market share and aggregate elasticity)
- **NB** IO intuition: Cross price elasticities critical to how firms respond. **Cross wage** elasticities play similar role in labor (employment *i* wrt firm *j* wages) like Derenoncourt et al estimates!

Effect of firm-specific shocks on wages

Wage Equation II: $W = \left(\frac{1}{\lambda\mu}\right) MRP$

- Consider (Hicks neutral) tech innovation for firm *i* (e.g. Van Reenen ’96 or Kline et al, ’19). Generally raises productivity & size. MRP larger and some of this is passed through to workers in form of higher wage
- **NB**: Different mechanism than in classical bargaining-over-surplus model. In wage posting, more productive firm needs to hire workers to grow & so moves up labor supply curve

Ambiguity of firm shocks

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- **NB**: Different mechanism than in classical bargaining-over-surplus model. In wage posting, more productive firm needs to hire workers to grow & so moves up labor supply curve
- **But** other effects from tech shock in wage posting include
  - If firm obtains more **product market power**, grows by *less* than in more competitive case. This offsets wage increase
  - If firm obtains more **labor market power**, also grows *less* in order to offset increased wage costs associated with moving up labor supply curve
- Illustrates the benefits of competition for workers.

Links to evolution of Labor Share

$$W = \left(\frac{1}{\lambda\mu}\right) MRP$$

- Cobb-Douglas production function with output-labor elasticity, α. Substitute for MRP means firm *i* Labor share of revenues is:

$$S_i^L = \left(\frac{WL}{pQ}\right)_i = \left(\frac{\alpha}{\lambda\mu}\right)_i$$

- Thus, fall in firm labor share could be due to:
  - **Technology** (e.g. greater automation), $\alpha\downarrow$
  - Higher Employer **Product market power**, $\mu\uparrow$
  - Higher Employer **Labor market power**, $\lambda\uparrow$

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  - **Technology** (e.g. greater automation), $\alpha\downarrow$
  - Higher Employer **Product market power**, $\mu\uparrow$
  - Higher Employer **Labor market power**, $\lambda\uparrow$
- Macro labor share = size-weighted (ω_i) firm labor shares:

$$S^L = \sum(\omega_i S_i^L) = \sum(\omega_i \left(\frac{\alpha}{\lambda\mu}\right)_i)$$

- Large firms have higher markups. If environment becomes more "winner take most", shift to large firms reduces labor share (& raises aggregate markups). These reallocation effects appear to be strong (see Autor et al, 2020)

Conclusions

- The future of labor economics (and very much current direction of travel):
  - Making **firms** more central in understanding labor market outcomes
  - Incorporating *imperfect competition* in labor **and product** market

- This is facilitated by growth of massive amounts of granular data on firms and workers: private and public data sources

- Derenoncourt et al is a wonderful example of this!

- **Final thought:** Is wage posting really the right set-up? Maybe for low-wage, but not as we move further up distribution, bargaining surely becomes more important.