

# Measurement and Policy Implications of Labor Market Power

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# Outline

- 1 Measuring Labor Market Power Two Ways (Azar, Marinescu, and Steinbaum, 2019)
- 2 Antitrust and Labor Market Power (Azar, Marinescu, and Steinbaum, 2019)
- 3 Economics of Gig Economy Labor Platforms

# Multiple Measures of Labor Market Power

- Recent literature: negative association between labor market concentration and wages (Rinz, 2018; Benmelech, Bergman and Kim, 2018; Azar, Marinescu and Steinbaum, 2017; Qiu and Sojourner, 2018).
- Traditionally, monopsony literature estimated labor market power based on the elasticity of labor supply.
- Less elastic labor supply to individual firms → employers can reduce wages without causing workers to leave.
- Wage < Marginal Product of Labor
- This paper: estimate labor supply elasticity, and compare that to concentration.
- Application elasticity increases with population density.
- Higher application elasticity associated with lower HHI across markets.
- Wages are lower in markets with higher HHI or lower application elasticity.

# Oligopsony Theory

- Cournot competition in the labor market: wage  $w(L)$  a function of total employment  $L$ .
- Firm-specific rate of exploitation  $E_i$ :

$$E_i = \frac{MRP_i - w}{w} = \frac{L_i}{L} \cdot \frac{1}{\eta}$$

where  $MRP_i$  is firm  $i$ 's marginal revenue product and  $\eta$  is the market-level labor supply elasticity.

- If  $E$  is the average (employment-weighted) firm markdown in this labor market,

$$E = \sum_{i=1}^n E_i \cdot \frac{L_i}{L} = \frac{1}{\eta} \cdot HHI \rightarrow \frac{HHI}{\eta} = E$$

## CareerBuilder Data

- Data from CareerBuilder.com, most frequent occupations, 2010Q1-2013Q4.
- HHI calculated based on firms' vacancy shares by CZ by SOC-6 (the market  $m$ ), by quarter.
- Total number of vacancies on CareerBuilder.com represents 35% of the total number of vacancies in the US in January 2011 as counted in the Job Openings and Labor Turnover Survey
- Broadly representative of jobs and job seekers in the US (Marinescu and Rathelot, 2018)
- Occupations were selected based on counts of jobs posted between 2009 and 2012 on CareerBuilder: at the broad SOC level, i.e. SOC-5 digits, the 13 most frequent occupations were selected.
- We also added the three most frequent occupations in manufacturing and construction (17-2110, 47-1010, 51-1010).
- About 20% of the CareerBuilder vacancies post salary information.

# The Hypothetical Monopsonist Test for Market Definition

- Hypothetical monopolist test used in merger reviews: the relevant antitrust market is the smallest market for which a hypothetical monopolist that controlled the market would find it profitable to implement a “small significant non-transitory increase in price” (SSNIP). In practice, small price increase = 5%.
- Critical Loss Analysis (Harris, 1991): method to determine SSNIP based on a critical price elasticity of demand. If the elasticity is below the critical level, then the market is well defined, otherwise the market is too broad.
- Can apply same method for a hypothetical monopsonist test, using the elasticity of labor supply to a given candidate antitrust labor market.
- Elasticity of labor supply is likely higher the smaller the candidate market.

# Labor Supply Elasticity and Market Definition

- Most estimates of the elasticity of labor supply to the *individual* firm are below critical elasticity of 2 (see e.g. Manning, 2011, Dube et al., 2018).
- In the perfectly competitive case, the elasticity to an individual firm is infinity.
- The firm is already a plausible market.
- Estimated impact of posted wages on applications on CareerBuilder.com is *negative* within a 6-digit SOC code (Marinescu and Wolthoff, 2018).
- This is because much heterogeneity within a 6-digit SOC: senior accountant jobs pay more and receive fewer applicants than junior accountant jobs.
- The impact of posted wages on applications is only positive within a *job title* (Marinescu and Wolthoff, 2018).
- SOC-6 is a conservative definition of a market: likely to be too broad, and therefore underestimate HHI in “actual” labor markets.

# CareerBuilder Summary Statistics

Table: **Summary statistics from CareerBuilder Data**

	Mean	Std. Dev.	Min	Max	Obs.
Real Wage	41547.36	36216.76	4.71	5504385	61017
Vacancies	82.95	224.39	1	17928	61017
Applications	3612.96	14416.02	0	528289	61017
Searches	441156.09	1385720.05	0	78808601	61017
Log Tightness	-2.9	1.36	-7.64	4.48	60200
Number of Firms	20.03	35.78	1	571	61017



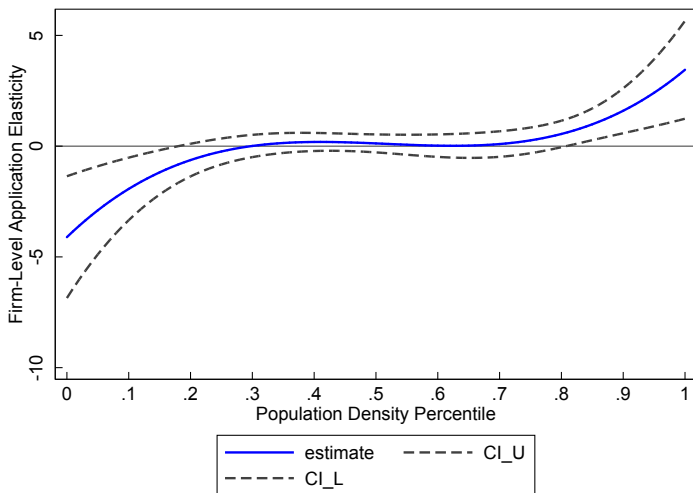
# Estimating Elasticity

- Firm-level application elasticity (in logs) estimated as:

$$y_{ijmt} = w_{ijmt} \cdot f(d_m) + \gamma \cdot \mathbf{x}_{ijmt} + \varepsilon_{ijmt}$$

- $y$  is number of applications to vacancy posted by firm  $i$ , job title  $j$ , market  $m$ , quarter  $t$ .
- $w_{ijmt}$  is instrumented with average wage in same firm but other CZs & other occupations.
- $f(d_m)$  is a polynomial in population density (flexible effect of geography on wage-applications relationship).
- $\mathbf{x}_{ijmt}$ : log of vacancy duration, year-quarter fixed effects, CZ  $\times$  SOC  $\times$  job title fixed effects.
- Average elasticity across the whole sample is estimated to be 0.42.

# Firm-level application elasticity increases with pop. density



Firm-level application elasticity as a function of Commuting Zone population density.

# Application elasticity and labor market concentration

	Application Elasticity			
	(1)	(2)	(3)	(4)
Log Population Density	0.0649 (0.0628)		0.0162 (0.0641)	
Log HHI		-0.219*** (0.0659)	-0.215*** (0.0679)	-0.218** (0.105)
CZ Fixed Effects				✓
Observations	500	500	500	474
R-squared	0.002	0.022	0.022	0.350

Standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Data are for the period 2010Q1-2013Q4, aggregated by CZ-SOC. We restrict the sample to CZ-SOCs with at least 50 observations. Observations are weighted by the inverse variance of the estimated elasticities, and observations with elasticities above the 99th percentile and below the 1st percentile of the distribution are dropped from the sample.

## Wages, application elasticities, and HHI

	Log Real Wage			
	(1)	(2)	(3)	(4)
$\eta_m$	0.103*** (0.0112)		0.0996*** (0.0113)	0.115*** (0.0116)
Log HHI		-0.0576*** (0.0178)	-0.0358** (0.0167)	-0.0545** (0.0238)
CZ Fixed Effects				✓
Observations	500	500	500	500
R-squared	0.146	0.021	0.154	0.555

Standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Data are for the period 2010Q1-2013Q4, aggregated by CZ-SOC. We restrict the sample to CZ-SOCs with at least 50 observations. Observations are weighted by the inverse variance of the estimated elasticities, and observations with elasticities above the 99th percentile and below the 1st percentile of the distribution are dropped from the sample.

# Implications

- Concentration of employers in labor markets and elasticity of firm-level labor supply are both measures of employer power in labor markets.
- Monopsony power is endemic, but it is also responsive to varying labor market concentration.
- If employers have labor market power, then profit maximization implies anti-competitive wage reductions if that market power increases.
- Wages are “surprisingly” high, not “surprisingly” low.

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# Review of Monopsony Indicators

- Finite labor supply elasticity to the firm.
- Negative concentration-earnings relationship at the labor market level.
- Inter-firm earnings inequality.
- Firm-size wage premium.
- Infrequent outside job offers.
- “Job lock” for workers who might otherwise switch employers or leave and re-enter the labor market.
- Flattening earnings-tenure relationship for a given worker-firm job match.
- All of these are born out in the recent empirical literature on labor markets, and they all point to an endemic lack of competition.

# The Consumer Welfare Standard

- The consumer welfare standard equates legal liability for anti-competitive behavior with harm to consumers, not competitors.
- If “antitrust protects competition, not competitors,” are workers “competitors,” or are they consumers?
- This ideology has led to under-enforcement against harms to competition in labor markets.
- No mergers challenged on grounds of harm to competition in labor markets.
- Reduced scrutiny for vertical restraints on workers, and on franchising no-poach agreements.
- Job loss considered an “efficiency.”



# Recommendations

- Reductions in wages, wage shares, employment, and hiring should be considered prima facie harm to competition in labor markets, and should not be traded off against price or output effects.
- The exercise of monopsony power is not efficient and should not be an “efficiency” for antitrust purposes.
- More work needs to be done to distinguish productive efficiencies and their potentially monopsonistic effects.
- Conduct analyzed under the Rule of Reason due to its potential for pro-competitive benefits in output markets should not automatically be analyzed under the Rule of Reason when its labor market effects are at issue.

# Market Power in Labor Markets

We propose indicia of market power in labor markets, in addition to market share thresholds.

- Standard market definition: commuting zone by SOC-6 occupation.
- Threshold of 50% of employment or job vacancies in a labor market.
- The ability to set wages or to wage-discriminate.
- The ability to unilaterally impose disadvantageous non-wage contractual terms without compensation.

# Conduct and Merger Review

- The following should be illegal for firms with market power:
  - Noncompete clauses.
  - No-poaching agreements.
  - Restrictions on sharing wage information.
  - Re-classification of workers as independent contractors.
  - Mandatory arbitration clauses or class-action waivers.
- Merger review should expand to examine competitive effects in labor markets as a matter of course.
- Burden of proof should be on the merging parties to prove market definition wider than commuting zone by SOC-6 occupation.

# Monopsonization

- Monopsonization (of a labor market) should be an offense.
- Proof of monopsonization would consist of two parts:
  - Market power, as previously defined.
  - Anti-competitive acts to extend or maintain that market power.
- Examples of such anti-competitive acts include:
  - Anti-competitive mergers.
  - Conduct such as no-poaching agreements or noncompete clauses.
  - Non-disclosure agreements pertaining to the terms of employment.
  - Unfair labor practices as defined by labor regulations.
  - Employment mis-classification.

# Countervailing Power

- Too many enforcement resources have been focused on horizontal coordination among workers or professionals.
- A greater priority is the power wielded by powerful buyers, against which horizontal coordination can be an effective counter-measure.
- The antitrust labor exemption should be extended to non-employee workers, but it should not immunize labor platforms that coordinate non-employee workers from liability.
- It's not always obvious where the balance of power lies in a given labor market. But the present bias against horizontal restraints and in favor of vertical ones is misplaced, given the evidence of monopsony.

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# What is a Gig Economy Labor Platform?

- Shift from facilitating bilateral matching to controlling prices and conditions of service.
- Earlier: platforms mitigated search frictions in labor markets (Buchholz 2016, for example).
- Customer elasticity of demand (Cohen et al 2016) and provider elasticity of supply (Hall et al 2017) are both very high, so “dynamic” pricing generates a huge surplus.
- Now: platforms mitigate moral hazard by closely monitoring workers (Liu et al 2018).
- Gig workers are spare capacity the platform doesn't have to pay for unless they are activated, and activation is at the discretion of the platform.

# Uber Job Ad for Economists

The Economic Research team, under the Chief Economist, Jonathan Hall, is responsible for research on the dynamics of Uber and its interactions with labor markets and cities. The Business Economics team uses such research to inform business strategy, operations, and product decisions. For instance, **we know that the flexible work model is very valuable to Uber drivers (see Chen et al., Angrist et al.) and that dynamic pricing is vital in protecting the health and efficiency of the dispatch market (see Castillo et al.); however, it's likely that consistency (e.g., of pricing or earnings) also carries some value for riders and drivers.** What values should we put on these opposing virtues, and how should we alter the product to reflect them? The Policy Economics team uses research to inform policy decisions and to explain Uber to policy makers and the public. They have ongoing projects with top academics on safety/quality, discrimination, labor market dynamics, occupational licensing, and transportation systems in developing cities.



# Non-linear Bonus-based Pay

- Bonuses for accepting a given percentage of gigs in a certain time window or in a given geography.
- Penalties for foregoing offered gigs.
- Rebates can be exclusionary.