Estimating the Elasticity of Labor Supply to a Firm
Results from a Field Experiment

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Models of monopsonistic labor markets, where employers set wages below workers' marginal products, have gone from textbook curiosities to features of mainstream discussion of labor issues in the past 15 or so year.

Bloomberg’s Noah Smith in 2018 went so far to say:

We need to change the textbooks.

Instead of supply-and-demand, we need to start with the monopsony model of labor markets.

Monopsony should be Econ 101 from now on.
He’s not alone either!

**Why Aren’t Americans Getting Raises? Blame the Monopsony**

Instead of bidding up wages, firms collude to keep pay low and enforce noncompete clauses.

More and more companies have monopoly power over workers’ wages. That’s killing the economy.

The trend can explain slow growth, “missing” workers, and stagnant salaries.

By Suresh Naidu, Eric Posner, and Glen Weyl | Apr 6, 2018, 9:50am EDT

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**The Curse of Econ 101**

When it comes to basic policy questions such as the minimum wage, introductory economics can be more misleading than it is helpful.

**JAMES KWAK** JAN 14, 2017
What evidence exists for Monopsony?

- Two main bodies of evidence used:
  - Indirect Evidence for Monopsony
    - Under a monopsony, a minimum wage of the proper size could increase employment.
    - Several large studies have found muted or no effects on employment, although increases in employment have become less commonly found since the 1990s.
    - The results are seen as strong evidence for monopsony.
    - The debate continues to rage, however.
  - Direct Evidence for Monopsony
    - Measures of market concentration (Azcar et al. (2019))
    - Measures of the distance between wage and marginal Product (Issen (2013))
    - Measures of the elasticity of labor supply to the firm
Sokolova and Sorensen (2018) report that the mean elasticity of labor supply to the firm in the literature is 3.75, which implies workers are paid 78% of their marginal products. However, the standard deviation of these estimates is 36.9!

The most precise estimates come from identification strategies using the rate of worker separations, which have a mean of 2.75 and a tighter confidence interval of 1.21 to 4.29. Looking at worker separations alone, there seems to be strong evidence for monopsony power!
Two main goals:

- Assess the elasticity of labor supply of *new workers* to a firm.
- Determine the degree of monopsony power present in the restaurant industry, which is often concluded as being very high from the minimum wage literature, but has not been directly observed.

What’s the best way to figure out the elasticity of labor supply to a firm? The obvious, but overlooked way is to...
Using county and metropolitan area level data from the Bureau of Labor Statistics, I used nearest neighbor matching to identify matching areas based on...

- Restaurant Establishments (County)/ Restaurant Location Quotient (Cities)
- Total Restaurant Employment
- Mean Weekly Wages

For example, one city match was Charlotte, NC and Pittsburgh, PA
Team Member

Pareto's Pizza - Charlotte, NC

Employer Provided Salary: $10-$11 Per Hour

Get ahead of others. Apply now.

Pareto's Pizza is seeking crew members for our new Charlotte-Concord-Gastonia locations. This position offers the opportunity for career growth and experience in a fast-paced dynamic restaurant environment. We offer flexible hours to work with your schedule and competitive pay with benefits, including free meals while on shift! While prior restaurant experience is preferred, we encourage anyone who works well with a team and is willing to learn to apply.
My name is Tucker Omberg. I'm a doctoral student studying Labor Markets at George Mason University. Unfortunately, there is no job being offered at Pareto's Pizza, which is not a real employer.

Instead, the job posting you clicked on is part of a research project studying what determines how many applicants a job gets. I posted "job listings" in multiple cities, which linked to pages like this one, and recorded how many hits they each got. Since I'm only looking at the number of views that this page gets, I am not collecting any personal or identifying information for this project.

If you have any questions, please email me at romberg@gmu.edu, call me at (804) 833-7327, or you may contact the George Mason University Institutional Review Board office at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research using reference number 1380575-1. Otherwise, good luck with your job search, and have a great day.
For an alternative strategy, I also conducted the experiment with a single location, posting the above ad twice: one with the title of “Crew Member” paying 10.50/hr and another with the title of “Dishwasher” paying 7.50/hr. This has the advantage of avoiding any possibility of imprecise matches, but posting two ads on the same board could make the low wage offer seem marginally less appealing with a direct comparison posting directly above it.
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<thead>
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<th>$7.50/hr</th>
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\(^1\)Note that, in this case, Arc Elasticity cannot exceed 6.0. It is for this reason that I treat the point elasticity as my preferred estimate.
### Results: In-Place *In Progress*

<table>
<thead>
<tr>
<th>Area</th>
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95% confidence intervals bound the finite elasticity of labor supply to a restaurant between 7.87 and 18.39.

Replacing the infinite elasticities with the highest finite value and recalculating yields a 95% confidence interval of 11.61 to 20.9.

Using the formula that \( w = MRP \frac{\epsilon}{1+\epsilon} \), we can conclude that restaurant workers are likely hired at wages which are between 92% and 95% of their marginal product.

This also implies that minimum wage increases of 8% or greater should have disemployment effects. The optimal federal minimum wage would between $7.61 and $7.83!
Conclusions

- These results, especially if they are interpreted as short-run elasticities, are significantly higher than elasticities estimated from worker separations, and imply a considerably smaller degree of wage-setting power for employers.

- What are possible explanations?
  - Restaurants have less wage setting power than other employers.
  - Workers are hired at wages close to their marginal products, but then see their marginal product grow at a faster rate than their wage.
Other recent papers have also suggested that firms only possess monopsony power over workers that they have already hired at competitive wages:

- Tucker (2017) concluded that “Although my results provide clear evidence that labor markets are imperfect even at hiring, they also strongly suggest that firms hold comparatively little monopsony power of their new hires compared to their existing workers” (p. 1).

- Kline et al. (2017), using firms’ responses to patent grants, concluded that: “...because the wages of new hires are unresponsive to patent allowances, we cannot reject that the entry market is perfectly competitive. By contrast...among firm stayers, the wage elasticity of labor supply falls to approximately 1, or to 1.5...” (p. 26-27).

- Matsudaira (2014) found that nursing facilities "initially out of compliance with the new [minimum staffing] law did not have to raise their wage offers relative to their competitors in order to hire more nurses" (p. 92).
My results specifically explain recent empirical results in the minimum wage literature:

- Jardim et al. (2018) found in their study of Seattle's minimum wage that "the entirety of these gains [from the minimum wage increase] accrued to workers with above-median experience at baseline; less-experienced workers saw no significant change in pay" (p. 2).

- Meer and West (2013) argue that "the minimum wage will impact employment over time, through changes in growth rather than an immediate drop in relative employment levels" (p. 500).

Under such a model, the lowest paid workers in an organization are likely the ones being "exploited" the least!

Solutions to monopsony power like minimum wages and sectoral wage boards (Dube, 2019), would likely only reduce hiring without increasing pay for workers making above their starting wage but below their marginal product.
I look forward to your feedback and exploring this fascinating topic more!