Monopsonistic Competition: Diagnosis and Remedies

Paul Fontanier

Harvard University

February 24, 2020

Introduction

- Monopsonistic labor markets
  - Explosion of research
  - No disemployment after minimum wage — Cengiz et. al (2019)
- Heterogeneity matters
  - Exit of firms on the margin — Luca & Luca (2019)
  - Price increases
- Recent theoretical advances
  - Thisse & Ushchev (2016)
  - Dhingra & Morrow (2019)
  - Baqaee & Farhi (2020)

Introduction

- Monopsonistic labor markets
  - Explosion of research
  - No disemployment after minimum wage — Cengiz et. al (2019)
- Heterogeneity matters
  - Exit of firms on the margin — Luca & Luca (2019)
  - Price increases
- Recent theoretical advances
  - Thisse & Ushchev (2016)
  - Dhingra & Morrow (2019)
  - Baqaee & Farhi (2020)

Key Questions

1. Does monopsony $\implies$ inefficient competitive equilibrium?
2. Which sufficient statistics matter?
3. WHen can a minimum wage improve welfare?

This Paper

- Foundation of monopsonistic competition:
  1. Micro to Macro
  2. Yields general Kimball aggregator
  3. Links shape of aggregator to individual elasticities
- Welfare analysis of monopsonistic competition:
  1. Heterogeneous Firms $\implies$ Rich allocation patterns
  2. General functional forms $\implies$ Variables markups and markdowns
  3. Entry $\implies$ Non-trivial efficiency
- Minimum wage:
  1. Interacts will entry, misallocation, and selection
  2. Identifies elasticities needed for assesment

Literature

- Labor Market Power : Robinson (1933), Manning (2003), Staiger, Spetz and Phibbs (2010), Manning (2011), Azar, Marinescu and Steinbaum (2017), Dube, Jacobs, Naidu and Suri (2018), Card et al (2018), Schubert, Stansbury, and Taska (2019), Azar, Berry and Marinescu (2019), Macaluso et al. (2019), Berger, Herkenhoff and Mongey (2019), Jarosh, Nimczik and Sorkin (2019)

- Monopolistic Competition: Dixit and Stiglitz (1977), Krugman (1979), Kimball (1995), Vives (1999), Melitz (2003), Melitz and Ottaviano (2008), Zhelobodko et al. (2012)

- Welfare with Imperfect Competition and Entry: Behrens, Mion, Murata, Suedekum (2018), Edmond, Midrigan and Xu (2019), Bilbiie, Ghironi, and Melitz (2019). Dinghra and Morrow (2019), **Baqaee and Farhi (2020)**

Outline

1. Micro to Macro
2. Macroeconomic Framework
3. Welfare
4. Minimum Wage

Outline

1. Micro to Macro

2. Macroeconomic Framework

3. Welfare

4. Minimum Wage

Monopsonistic Competition

- **Goal:** aggregation to a canonical macro model
- Monopsonistic power of firms comes from preferences of RA:

$$U(C, L) = \frac{c^{1-\gamma}}{1-\gamma} - L$$

With a Kimball aggregator for labor:

$$\int \mathcal{K}\left(\frac{l_i}{L}\right) di = 1$$

- So elasticity of labor supply is finite:

$$w_i = W\, \mathcal{K}'\left(\frac{l_i}{L}\right)$$

- So what matters for welfare will be first-order and second-order elasticities of the aggregator $\mathcal{K}$
- Key is how to estimate them?

Micro to Macro: Setup

- **Thisse & Ushchev (2016)**
- Discrete choice model
- Idiosyncratic preferences for working at some firm i
- Given posted wages workers can work at any firm they wish
- Idiosyncratic tastes drawn from Gumbel distribution
- Probability to choose a given firm $\rightleftharpoons$ logit choice probabilities

CES example (1)

- A CES system arises when the indirect utility at the micro level is logarithmic.
- Specifically, an individual i has a disutility of supplying h_j to firm j equal to:

$$V_{ij}(h_j) = ln(h_j) + \mu\epsilon_{ij}$$

  where the term ϵ_{ij} is worker-firm specific, and is i.i.d. under a Gumbel density.
- If a worker wants to earn an income y, then given the wage w_j offered by the firm his disutility would become:

$$V_{ij}(h_j) = ln(w_j) - ln(y) + \mu\epsilon_{ij}$$

  which is the expression the worker solves to find the optimal firm to work at.

CES microfoundations (2)

- The probability that worker i chooses firm j is then:

$$\mathbb{P}_j = \frac{e^{ln(w_j/y)/\mu}}{\int_k e^{ln(w_k/y)/\mu}} = \frac{w_j^{1/\mu}}{\int_k w_k^{1/\mu}}$$

  the familiar CES formulation.
- CES hence directly comes from logarithmic disutility of labor.

The Kimball case (1)

- The supply curve for labor is of the form:

$$w_i = \frac{\mathcal{K}'\left(\frac{l_i}{L}\right)}{\int \frac{l_j}{L}\mathcal{K}'\left(\frac{l_j}{L}\right) dj}$$

- Which has a flavor of probability like in the CES case
- Rewrite to have the amount of labor supply to firm i:

$$l_i = \frac{\int_j l_j w_j}{w_i} \frac{\frac{w_i}{W}(\mathcal{K}')^{-1}(\frac{w_i}{W})}{\int_j \frac{w_j}{W}(\mathcal{K}')^{-1}(\frac{w_j}{W})}$$

- The first term $\int_j l_j w_j$ is income
- Change the micro utility to get l_i as a probability to work at firm i

The Kimball case (2)

- Set the individual utility as:

$$\ln\left(\psi\left(\frac{w_i}{W}\right)\right) + \epsilon_i$$

- Assume further that given the wage offered, each worker needs to make in total $y \sim F(y)$, hence to work y/w_i hours

- Then hours supplied to firm i will be equal to:

$$l_i = \frac{\bar{y}}{w_i} \frac{\frac{w_i}{W}\psi(\frac{w_i}{W})}{\int_j \frac{w_j}{W}\psi(\frac{w_j}{W})}$$

- Which is our Kimball expression when $\bar{y}$ is income and $\psi = (\mathcal{K}')^{-1}$

- Individual utility is:

$$\ln\left((\mathcal{K}')^{-1}\left(\frac{w_i}{W}\right)\right) + \epsilon_i$$

Estimation

- For a set of wages $\{w_i\}$, once we construct the wage index W, the theory implies that the probability of a worker to work at firm i is:

$$\mathbb{P}_i = \frac{\frac{w_i}{W}\psi(\frac{w_i}{W})}{\int_j \frac{w_j}{W}\psi(\frac{w_j}{W})}$$

- Because the fraction is a normalizing coefficient, it is the same for every firm and we can write it:

$$\ln \mathbb{P}_i = \ln\left(\frac{w_i}{W}\psi(\frac{w_i}{W})\right) - C$$

- AKM flavor: what explains that similar workers are choosing different firms offering different wages?

- Estimating this relationship allows for recovering the shape of $x \cdot \psi$, and so indirectly the shape of $(\mathcal{K}')^{-1}$

Relation with Literature and CES

$$\ln \mathbb{P}_i = \ln\left(\frac{w_i}{W}\psi(\frac{w_i}{W})\right) - C \tag{1}$$

- The usual estimation equation for labor supply elasticity is:

$$\ln h_i = \beta_i \ln w_i + controls + \epsilon_i$$

- The two equations are similar when:

$$\phi(w) = w^{\beta-1}$$

- This is equivalent to the CES model:

$$\mathcal{K}(x) = x^{\frac{\beta}{\beta-1}}$$

because the linear regression is implicitly saying that the elasticity of labor supply is constant.

Estimation: W

- Issue: the construction of W (for it to be model-consistent) depends on the aggregator $\mathcal{K}$ that we are trying to recover
- The wage index is:

$$W = \int \frac{l_j}{L} \mathcal{K}' \left(\frac{l_j}{L} \right) dj = \int \frac{l_j}{L} \psi^{-1} \left(\frac{l_j}{L} \right) dj$$

  where l_i is measurable in the data, and L too once you have $\mathcal{K}$ by:

$$\int \mathcal{K} \left(\frac{l_j}{L} \right) dj = 1$$

- Proposal: fixed-point algorithm:
  1. Construct W just by taking the average wage
  2. Estimate the relationship with w/W
  3. Recover the shape of $\mathcal{K}$
  4. Construct a new W with the recovered aggregator
  5. Repeat until convergence of the wage index

Outline

1. Micro to Macro
2. Macroeconomic Framework
3. Welfare
4. Minimum Wage

Representative Consumer

- The representative consumer consumes a final good and supplies differentiated labor:

$$U(C,L)=\frac{c^{1-\gamma}}{1-\gamma}-L$$

- With a Kimball aggregator for labor:

$$\int \mathcal{K}\left(\frac{l_i}{L}\right) di = 1$$

- Labor/leisure condition job-by-job:

$$w_i = c^{\gamma}\frac{\mathcal{K}'\left(\frac{l_i}{L}\right)}{\int \frac{l_j}{L}\mathcal{K}'\left(\frac{l_j}{L}\right) dj} = W\,\mathcal{K}'\left(\frac{l_i}{L}\right)$$

- $\mathcal{K}$ convex
- CES: $\mathcal{K}(x)=x^{\frac{\eta+1}{\eta}}$

Final good

- Final good produced competitively using an aggregate of differentiated goods:

$$\int \Upsilon\left(\frac{y_i}{Y}\right) di = 1$$

- Pricing condition good-by-good:

$$p_i = \frac{\Upsilon'\left(\frac{y_i}{Y}\right)}{\int \frac{y_j}{Y} \Upsilon'\left(\frac{y_j}{Y}\right) dj} = P\, \Upsilon'\left(\frac{y_i}{Y}\right)$$

- Υ concave

- CES: $\Upsilon(x) = x^{\frac{\sigma}{\sigma+1}}$

Intermediate producers

- Profit maximization with productivity A:

$$\max_y yp - \frac{y}{A}w$$

- Take effect on price *and* wage into account:

$$\max_y yP\,\Upsilon'\left(\frac{y}{Y}\right) - \frac{y}{A}W\,\mathcal{K}'\left(\frac{y}{AL}\right)$$

- Price and wage elasticities :

$$\sigma_{y,i} = -\frac{\Upsilon'\left(\frac{y_i}{Y}\right)}{\frac{y_i}{Y}\Upsilon''\left(\frac{y_i}{Y}\right)} \quad ; \quad \sigma_{w,i} = \frac{\mathcal{K}'\left(\frac{l_i}{L}\right)}{\frac{l_i}{L}\mathcal{K}''\left(\frac{l_i}{L}\right)}$$

- Constant with CES. Can take any shape with Kimball

Markups, Markdowns

- Profit maximization:

$$p_i \underbrace{\left(1 - \frac{1}{\sigma_{y,i}}\right)}_{\mu_{y,i}^{-1}} = \frac{w_i}{A_i} \underbrace{\left(1 + \frac{1}{\sigma_{w,i}}\right)}_{\mu_{w,i}^{-1}}$$

- Total markup (multiplicative effect):

$$p_i = \frac{w_i}{A_i} \cdot \frac{\mu_{y,i}}{\mu_{w,i}}$$

- With CES, total markup is:

$$\frac{\mu_{y,i}}{\mu_{w,i}} = \frac{\sigma}{\sigma - 1} \cdot \frac{\eta + 1}{\eta}$$

- $\implies$ Hard to distinguish markups from markdowns

Entry and Selection

- Firms draw a productivity φ from distribution $g(\varphi)$
- Produce only if:

$$p_\varphi y_\varphi \left(1 - \frac{\mu_{w,i}}{\mu_{y,i}}\right) \geq f_o$$

- Free entry:

$$\int_{\varphi^*}^{+\infty} \left[p_\varphi y_\varphi \left(1 - \frac{\mu_{w,i}}{\mu_{y,i}}\right) - f_o\right] g(\varphi) d\varphi = f_e$$

- In equilibrium mass of firm M

$$M \int_{\varphi^*}^{\infty} \Upsilon\left(\frac{y_\varphi}{Y}\right) g(\varphi) d\varphi = 1 \quad ; \quad M \int_{\varphi^*}^{\infty} \mathcal{K}\left(\frac{l_\varphi}{L}\right) g(\varphi) d\varphi = 1$$

Estimation: Markups

- With the full shape of $(\mathcal{K}')^{-1}$, one can recover the labor supply elasticity:

$$\sigma_{w,i} = \frac{\mathcal{K}'\left(\frac{l_i}{L}\right)}{\frac{l_i}{L}\mathcal{K}''\left(\frac{l_i}{L}\right)}$$

- However we need a boundary condition to recover the first-order elasticity:

$$\delta_{w,i} = \frac{\mathcal{K}\left(\frac{l_i}{L}\right)}{\frac{l_i}{L}\mathcal{K}'\left(\frac{l_i}{L}\right)}$$

Estimation:Markups (2)

- If we can estimate markups separately, then we get:

$$\mu_i = \frac{1 - \frac{1}{\sigma_{y,i}}}{1 - \frac{1}{\sigma_{w,i}}}$$

- And because we already know $\sigma_{w,i}$ we recover $\sigma_{y,i}$

- Similarly we need a boundary condition to infer from this the infra-marginal surplus for consuming a new variety

Production Function Estimation: Markdowns

- Hershbein, Macaluso and Yeh (2020): Separate markups from markdowns
- Assume you have flexible material inputs and labor chosen statically
- Use the material inputs m to estimate total markups:

$$\frac{\mu_{i,y}}{\mu_{i,l}} = \frac{\theta_i^m}{\alpha_i^m}$$

  with output elasticity and revenue share of the material inputs m
- Now do the same think with labor and you only get:

$$\mu_{i,y} = \frac{\theta_i^l}{\alpha_i^l}$$

  using output elasticity and revenue share of the labor inputs
- You can isolate markdowns by:

$$\mu_{i,l} = \frac{\theta_i^l}{\alpha_i^l}\frac{\alpha_i^m}{\theta_i^m}$$

Outline

1. Micro to Macro

2. Macroeconomic Framework

3. Welfare

4. Minimum Wage

Welfare

- Follow **Baqaee & Farhi (2020)**:
- Potentially distorted margins:
  1. Entry M
  2. Relative allocation $l_{\varphi_1}/l_{\varphi_2}$
  3. Selection φ^*
- Welfare:

$$\mathcal{W} = \frac{c^{1-\gamma}}{1-\gamma} - L$$

- Infinitesimal reallocation and resulting effect on welfare

$$d\log L = \underbrace{\mathbb{E}[s_w \delta_{w,\varphi}] d\log M}_{1.} + \underbrace{\mathbb{E}[s_w d\log l_\varphi]}_{2.} - \underbrace{\frac{g(\varphi^*)}{1-G(\varphi^*)} s_{w,\varphi^*} \delta_{w,\varphi^*} d\varphi^*}_{3.}$$

Utility Elasticities

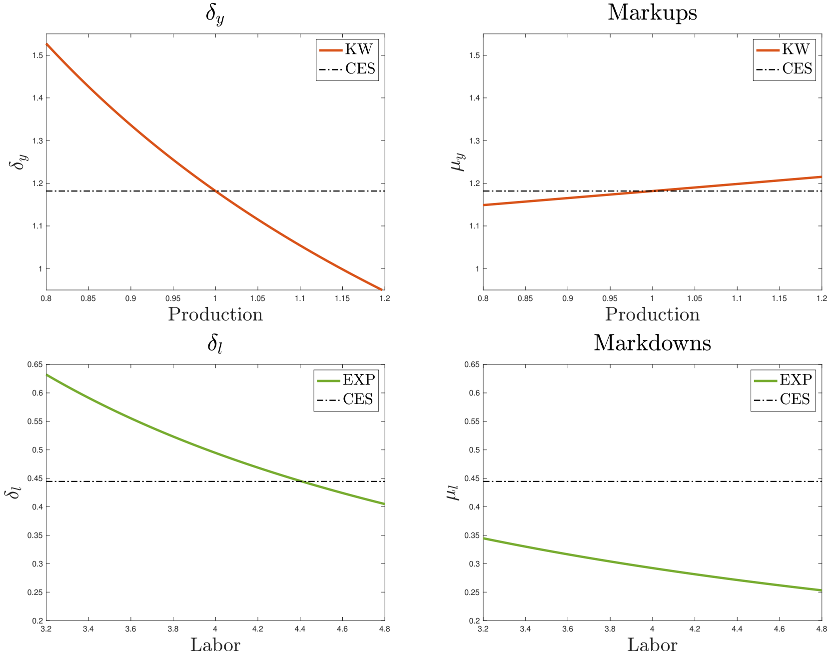
$$d\log L = \underbrace{\mathbb{E}[s_w \delta_{w,\varphi}]d\log M}_{1.} + \underbrace{\mathbb{E}[s_w d\log l_\varphi]}_{2.} - \underbrace{\frac{g(\varphi^*)}{1-G(\varphi^*)} s_{w,\varphi^*}\delta_{w,\varphi^*} d\varphi^*}_{3.}$$

- Cost share s_w
- Utility and disutility inverse elasticities (**Baqaee & Farhi, 2020**):

$$\delta_{y,i} = \frac{\Upsilon\left(\frac{y_i}{Y}\right)}{\frac{y_i}{Y}\Upsilon'\left(\frac{y_i}{Y}\right)} \quad ; \quad \delta_{w,i} = \frac{\mathcal{K}\left(\frac{l_i}{L}\right)}{\frac{l_i}{L}\mathcal{K}'\left(\frac{l_i}{L}\right)}$$

- $\delta \risingdotseq$ surplus from marginal variety
- CES $\implies \delta = \mu$

Elasticities patterns



Welfare: Entry inefficiency

- Perturb the equilibrium while keeping the selection cutoff and the disutility of labor constant, *job-by-job*:

$$d \log y_\varphi = -\delta_{l,\varphi} d \log M$$

- Can we increase welfare?

$$d\mathcal{W} \propto d \log M \int_{\varphi^*}^{+\infty} s_{y,\varphi} \left[\delta_{y,\varphi} - \delta_{l,\varphi} - \left(1 - \frac{\mu_{w,i}}{\mu_{y,i}}\right)\right] g(\varphi) d\varphi$$

- The inefficiency depends now on the *weighted average* of the comparison between marginal surpluses and markups/markdowns
- With CES, the weighting effect disappears because all the quantities are constant

Welfare: Entry inefficiency (2)

$$d\mathcal{W} \propto d\log M \int_{\varphi^*}^{+\infty} s_{y,\varphi} \left[\delta_{y,\varphi} - \delta_{l,\varphi} - \left(1 - \frac{\mu_{w,\varphi}}{\mu_{y,\varphi}}\right) \right] g(\varphi) d\varphi$$

- The planner values new varieties for consumers as $\delta_{y,\varphi} - \delta_{l,\varphi}$
- But the incentives for firms to enter are proportional to average markups $\mu_{y,\varphi}/\mu_{w,\varphi}$
- This difference is weighted by sales $s_{y,\varphi}$ along the whole distribution
- **Not enough** entry for CES

Welfare: Misallocation (1)

- Decrease labor supplied to varieties $[\varphi_2, \varphi_2 + d\varphi]$, add it to production of varieties $[\varphi_1, \varphi_1 + d\varphi]$:

$$d \log l_{\varphi_2} = -\frac{l_{\varphi_1}}{l_{\varphi_2}} \frac{g(\varphi_1)}{g(\varphi_2)} d \log l_{\varphi_1}$$

- This changes consumption, but also disutility of labor L

- Can we increase welfare?

$$d\mathcal{W} \propto d \log l_{\varphi_1} \left[(A_{\varphi_1} p_{\varphi_1} - w_{\varphi_1}) - (A_{\varphi_2} p_{\varphi_2} - w_{\varphi_2}) \right]$$

- Difference in **unit profits**

- Different from earlier results in literature: only markups matter

Welfare: Misallocation (2)

$$d\mathcal{W} \propto d\log l_{\varphi_1}\left[w_{\varphi_1}\left(\frac{\mu_{y,\varphi_1}}{\mu_{w,\varphi_1}} - 1\right) - w_{\varphi_2}\left(\frac{\mu_{y,\varphi_2}}{\mu_{w,\varphi_2}} - 1\right)\right]$$

- Without monopsony power, this boils down to $\mu_{y,\varphi_1} - \mu_{y,\varphi_2}$, hence just a markup comparison
- With monopsony one needs also to control for wages.
- Typically w increasing in total markups
- **Non-zero** for CES: $\propto w_{\varphi_1} - w_{\varphi_2}$

Welfare: Selection

- Increase the selection cutoff by $d\varphi^*$, to increase the mass of firms and keep $dL = 0$:

$$d \log M = d\varphi^* \frac{g(\varphi^*)}{1 - G(\varphi^*)} \frac{s_{w,\varphi^*}\delta_{w,\varphi^*}}{\int s_{w,\varphi}\delta_{w,\varphi}}$$

- Change in production of final good:

$$dY \propto d\varphi^* \left(\frac{s_{w,\varphi^*}\delta_{w,\varphi^*}}{\mathbb{E}[s_w \delta_w]} - \frac{s_{y,\varphi^*}\delta_{y,\varphi^*}}{\mathbb{E}[s_y \delta_y]} \right)$$

- Change in share going to fixed costs:

$$d(Y - c) \propto d\varphi^* \left(\frac{s_{w,\varphi^*}\delta_{w,\varphi^*}}{\mathbb{E}[s_w \delta_w]} - \frac{s_{w,\varphi^*}\left(\frac{\mu_{y\varphi^*}}{\mu_{w\varphi^*}} - 1\right)}{\mathbb{E}[s_w(\frac{\mu_y}{\mu_w} - 1)]} \right)$$

Welfare: Selection (2)

$$dY \propto d\varphi^* \left(\frac{s_{w,\varphi^*}\delta_{w,\varphi^*}}{\mathbb{E}[s_w \delta_w]} - \frac{s_{y,\varphi^*}\delta_{y,\varphi^*}}{\mathbb{E}[s_y \delta_y]} \right)$$

$$d(Y - c) \propto d\varphi^* \left(\frac{s_{w,\varphi^*}\delta_{w,\varphi^*}}{\mathbb{E}[s_w \delta_w]} - \frac{s_{w,\varphi^*}\left(\frac{\mu_{y\varphi^*}}{\mu_{w\varphi^*}} - 1\right)}{\mathbb{E}[s_w(\frac{\mu_y}{\mu_w} - 1)]} \right)$$

- Increasing selection suppresses the firm at the bottom of the distribution (φ^*) to replace it with a firm on the average of the distribution
- **Always efficient** for CES

Outline

Minimum Wage

- Minimum wage changes entry incentives

  $\implies$ interacts with entry inefficiency

- Minimum wage changes the production level of *all* firms

  $\implies$ interacts with misallocation

- Minimum wage forces least productive firms to exit

  $\implies$ interacts with selection inefficiency

- With CES, entry is too weak while selection is always efficient

  $\implies$ unlikely to improve welfare

Minimum Wage: PE Effects

- Introduce a marginal minimum wage $\underline{w}$, infinitesimally higher than w_{φ^*}
- Firms making negative profits with the minimum wage exit
- New selection cutoff φ_1^*:

$$y_{\varphi_1^*} p_{\varphi_1^*} - \frac{y_{\varphi_1^*}}{A_{\varphi_1^*}} \underline{w} = f_o$$

with:

$$p_{\varphi_1^*} = \frac{\underline{w}}{A_{\varphi_1^*}} \mu_{y,\varphi_1^*}$$

- PE effect:

$$d\mathcal{W} = d\varphi^* \left(\mathcal{W}_{\varphi^*} - s_{y,\varphi^*} \frac{g(\varphi^*)}{1 - G(\varphi^*)} \mathcal{W}_M \right)$$

Minimum Wage: GE Effects

- PE change in the selection cutoff causes a change in the aggregate indexes
- All firms in the distribution adapt production *and* markups/markdowns in response to the aggregate shock (reallocation)
- New production structure modifies entry incentives, changing the mass of firm the selection cutoff again
- GE total effect: fixed point of the process

$$
\begin{tikzcd}
 & dM, d\varphi^* \arrow[dl, bend right] \\
dW, dP \arrow[dr, bend right] & \\
 & dy_\varphi, d\mu_\varphi \arrow[uu]
\end{tikzcd}
$$

GE effects of Minimum Wage (1)

In GE, sales shares, costs shares, and markups are also changing with the aggregate indexes

$$d\log s_{y,\varphi} = d\log M - \frac{g(\varphi^*)}{1 - G(\varphi^*)} d\varphi^* + d\log P + \mu_{y,\varphi} d\log\left(\frac{y_\varphi}{Y}\right)$$

$$d\log s_{w,\varphi} = d\log M - \frac{g(\varphi^*)}{1 - G(\varphi^*)} d\varphi^* + d\log W + \mu_{w,\varphi} d\log\left(\frac{y_\varphi}{A_\varphi L}\right)$$

$$\int s_\pi \left[d\log s_{y,\varphi} + d\log\left(1 - \frac{\mu_w}{\mu_y}\right)\right] = d\log M - \frac{g(\varphi^*)}{1 - G(\varphi^*)} d\varphi^* + d\log Y$$

GE effects of Minimum Wage (2)

$$d\log P = -d\log M + \frac{g(\varphi^*)}{1-G(\varphi^*)}d\varphi^* - s_{y,\varphi^*}d\varphi^* + \int \mu_y d\log\left(\frac{y}{Y}\right)$$

$$d\log W = -d\log M + \frac{g(\varphi^*)}{1-G(\varphi^*)}d\varphi^* - s_{w,\varphi^*}d\varphi^* + \int \mu_w d\log\left(\frac{y}{AL}\right)$$

How Large is Labor Market Power?

- Empirical literature estimates extremely low level of labor supply elasticities:
  - Dube, Jacobs, Naidu and Suri (2019) find an elasticity of 0.1
  - Azar, Berry and Marinescu (2019) : between 0.6 and 6
  - Berger, Herkenhoff and Mongey (2019): between 1 and 2
- Suggests very high degree of labor market power
- Sufficient for minimum wage?

$\Longrightarrow$ Welfare theory shows we need the full distribution of elasticities at *all* levels, *and* the marginal surpluses:

$$\sigma_{y,\varphi} \;\; ; \;\; \sigma_{w,\varphi} \;\; ; \;\; \delta_{y,\varphi} \;\; ; \;\; \delta_{w,\varphi} \;\; \forall\varphi$$

Conclusion

- Monopsonistic competition with entry is generically inefficient:
  1. Inefficient entry
  2. Inefficient allocation
  3. Inefficient selection

- A minimum wage policy interacts with these three margins

- Key statistics for its welfare implications:
  1. Markups and Markdowns on the whole distribution
  2. Utility and disutility elasticities on the whole distribution
  3. Sales and Costs shares on the whole distribution