Macroeconomics II, Lecture VIII: Burdett-Mortensen

Erik Öberg

Recap

- Search models offers a theory of unemployment and wage dispersion
- Today we will dig deeper into understanding wage dispersion
- The McCall model: search frictions + offer distribution $\Rightarrow$ reservation wage strategy
- Generates a theory of residual wage dispersion that makes sense
- But, the model had no chance in coming close to empirical measures of wage dispersion
- And, how is an exogenous wage dispersion consistent with firm wage posting in the first place (Rothschild critique/Diamond paradox)?

Today

- Today, we will introduce a class of models that speaks to both these problems
  - In contrast to McCall, we will explicitly model firm behavior and study *equilibrium* wage formation
- Core idea: job ladders
- Employed workers can search while on the job and, as a consequence, they will sequentially move from worse to better jobs
- Realistic feature of most labor markets
- Generates more residual wage dispserion beacuse ex-ante identical workers are different not only because initial offers are different, but also because some have climbed further up the job-ladder than others
- Solves the Diamond paradox, as firms face a trade-off when posting wages
  - Higher wage attracts more workers
  - Higher wage reduces per-worker profit
- But first: something more on the nature of wage dispersion in the data

Agenda

1. The Abowd-Kramarz-Margolis regression
2. The Burdett-Mortensen model
   - Setup
   - Solution
   - Predictions
3. Discussion and extensions

The AKM regression

The AKM regression

- Remember Mincer regression

$$\log y_{it} = \mu_y + \beta \mathbf{X}_{it} + \epsilon_{it}$$

  where, typically, $R^2 < 0.3$

- Abowd-Kramarz-Margolis (Ecmtra 1999) were first to use (French) matched employer-employee data to estimtate

$$\log y_{it} = \mu_y + \beta \mathbf{X}_{it} + \theta_i + \Psi_{j(i,t)} + \epsilon_{it}$$

  for individual i working for firm $j(i,t)$ at time t

- Reduced-form empirical framwork for studying labor market sorting and inequality
  - Card-Heining-Kline (QJE 2013); Bloom-Guvenen-Price-Song-von Wachter (QJE 2019); Fredrikson-Hensvik-Skans (AER 2018); Eliason-Hensvik-Kramarz-Skans (JE 2023);

- θ_i is identified from variation in worker earnings within firms; $\Psi_{J(i,t)}$ is identified from variation in worker earnings when switching jobs

- AKM find:
  - No fixed effects: $R^2 \approx 0.3$
  - Firm fixed effects only: $R^2 \approx 0.55$
  - Person fixed effects only: $R^2 \approx 0.75$
  - Both fixed effects: $R^2 \approx 0.85$

The AKM regression

- How to interpret these findings?
- Considerable variation is due to firm and individual fixed effects
  - Some workers are persistently paid better across all their jobs compared to other, otherwise similar, workers
  - Some firms are persistently paying more to all their employees although they are similar to employees at other firms
  - Does this mean that unobserved heterogeneity, as opposed to frictions, explain most of residual wage dispersion?
- Theory will guide our interpretation...

The Burdett-Mortensen (IER, 1998) model

Overview

- Continuous time; infinite horizon
- Measure 1 of ex-ante identical firms, measure 1 of ex-ante identical households
- One-to-many matching: each firm can employ many workers
  - Each match produces y output flow
- Separation rate σ, discount rate r, unemployment utility b
- Firm decide on which wage w to post, producing offer distribution $F(w)$
- Unemployed workers search for jobs at rate λ_u, drawing opportunities from offer distribution $F(w)$
- Employed workers search for jobs at rate λ_e, drawing opportunities from the same offer distribution $F(w)$
- Problem of a worker is to accept or reject offer
- We focus on steady state

Worker value functions

- Unemployed:

$$rU = b + \lambda_u \int_{\mathbb{W}} \max\{W(w) - U, 0\} dF(w)$$

- Employed:

$$rW(w) = w + \lambda_e \int_{\mathbb{W}} \max\{W(w') - W(w), 0\} dF(w') + \sigma(U - W(w))$$

- What are the optimal acceptance strategies?

Worker strategies

- For employed, optimal acceptance rule is to accept all wages $w' \geq w$:

$$rW(w) \quad = \quad w + \lambda_e \int_{w' \geq w} (W(w') - W(w))dF(w') + \sigma(U - W(w))$$

- $W(w)$ is increasing in w (see below) $\Rightarrow$ optimal acceptance rule of unemployed is a reservation wage w_R (as in McCall):

$$rU \quad = \quad b + \lambda_u \int_{w \geq w_R} (W(w) - U)dF(w)$$

- Characterizing worker behaviour boils down to finding w_R, given $F, b, \lambda_e, \lambda_u, \sigma$.

- In doing so, we assume that F has bounded support - we will later prove that this follows from firm optimization.

Finding the reservation wage I

- Reservation wage satisfies

$$W(w_R) = U$$

- From employed worker's value function equation:

$$\begin{aligned} rW(w_R) &= w_R + \lambda_e \int_{w' \geq w_R} \big(W(w') - W(w_R)\big)\, dF(w') + \sigma(U - W(w_R)) \\ &= w_R + \lambda_e \int_{w' \geq w_R} \big(W(w') - W(w_R)\big)\, dF(w') \end{aligned}$$

- Using $rW(w_R) = rU$ and the unemployed worker's value function equation:

$$\begin{aligned} & w_R + \lambda_e \int_{w \geq w_R} (W(w) - U) dF(w) = b + \lambda_u \int_{w \geq w_R} (W(w) - U) dF(w) \\ \Leftrightarrow \quad & w_R - b = (\lambda_u - \lambda_e) \int_{w \geq w_R} (W(w) - U) dF(w) \end{aligned}$$

Finding the reservation wage II

- We have found our reservation wage equation:

$$w_R - b = (\lambda_u - \lambda_e) \int_{w \geq w_R} (W(w) - U) dF(w) \tag{1}$$

- Interpretation
  - $\lambda_u > \lambda_e \Rightarrow w_R > b$: workers find better opportunties while unemployed $\Rightarrow$ unemployed workers demand compensation for giving up the option value of searching
  - $\lambda_u < \lambda_e \Rightarrow w_R < b$: workers find better opportunties while employed $\Rightarrow$ unemployed workers accept a wage lower than b in anticipation than they will get better offers faster as employed

- To solve for w_R, we need to evaluate $\int_{w \geq w_R} (W(w) - U) dF(w)$. Two steps
  1. Compute $W'(w)$
  2. Use intergration by parts

Finding the reservation wage III, computing $W'(w)$

- Rewrite employer value:

$$(r+\sigma)W(w) = w + \lambda_e \int_{w' \geq w} (W(w') - W(w)) dF(w') + \sigma U$$

- Apply Leibniz's rule (using bounded support):

$$\begin{aligned}
(r+\sigma)W'(w) &= 1 + \lambda_e (W(w_{max}) - W(w)) \frac{\partial F(w_{max})}{\partial w} \\
&\quad - \lambda_e (W(w) - W(w)) \frac{\partial F(w)}{\partial w} + \lambda_e \int_{w' \geq w} -W'(w) dF(w') \\
&= 1 - \lambda_e W'(w) \int_{w' \geq w} dF(w') \\
&= 1 - \lambda_e W'(w)(1 - F(w))
\end{aligned}$$

- Hence,

$$W'(w) = \frac{1}{r + \sigma + \lambda_e (1 - F(w))} \tag{2}$$

- Btw, we have now also shown that $W(w)$ is increasing in w

Finding the reservation wage IV, integration by parts

$$
\begin{aligned}
\int_{w \geq w_R} (W(w) - U) dF(w) &= (W(w) - U)F(w)|_{w_R}^{w_{max}} - \int_{w \geq w_R} F(w) d(W(w) - U) \\
\text{(use differentiability)} &= (W(w) - U)F(w)|_{w_R}^{w_{max}} - \int_{w \geq w_R} F(w) W'(w) dw \\
\text{(add/subtract)} &= (W(w) - U)F(w)|_{w_R}^{w_{max}} - \int_{w \geq w_R} F(w) W'(w) dw \\
&\quad + (W(w) - U)|_{w_R}^{w_{max}} - (W(w) - U)|_{w_R}^{w_{max}} \\
\text{(use } W(w_R) = U,\ F(w_R) = 0,\ F(w_{max}) = 1\text{)} &= -\int_{w \geq w_R} F(w) W'(w) dw + (W(w) - W(w_R))|_{w_R}^{w_{max}} \\
\text{(evaluate second term)} &= -\int_{w \geq w_R} F(w) W'(w) dw + \int_{w \geq w_R} W'(w) dw \\
\text{(rearrange)} &= \int_{w \geq w_R} (1 - F(w)) W'(w) dw \qquad (3)
\end{aligned}
$$

Finding the reservation wage V

- Plug (2) and (3) into reservation wage equation (1):

$$\begin{aligned} w_R - b &= (\lambda_u - \lambda_e) \int_{w \geq w_R} (W(w) - U) dF(w) \\ &= (\lambda_u - \lambda_e) \int_{w \geq w_R} (1 - F(w)) W'(w) dw \\ &= (\lambda_u - \lambda_e) \int_{w \geq w_R} \frac{1 - F(w)}{r + \sigma + \lambda_e (1 - F(w))} dw \end{aligned} \tag{4}$$

- LHS increasing
- Integrand is positive: RHS decreasing
- $\Rightarrow$ (4) implicitly determines w_R given $F(w)$

Worker distribution I

- We have now characterized worker behaviour, taking offer distribution $F(w)$ as given
- Before going to firm problem (this is where $F(w)$ comes from), we will derive the worker distribution $G(w)$, taking $F(w)$ as given
- Unemployment law of motion;

$$\dot{u} = \sigma(1 - u(t)) - \lambda_u(1 - F(w_R))u(t)$$

- Steady state

$$\begin{aligned} u &= \frac{\sigma}{\sigma + \lambda_u(1 - F(w_R))} \\ &= \frac{1}{1 + k_u(1 - F(w_R))} \end{aligned} \tag{5}$$

where $k_u = \frac{\lambda_u}{\sigma}$

Worker distribution II

- $G(w) =$ the share of workers with wage $\leq w$

- $G(w)(1-u(t)) =$ the *mass* of workers with wage $\leq w$

- Law of motion for $G(w,t)(1-u(t))$:

$$\begin{aligned}\frac{d}{dt}G(w,t)(1-u(t)) \quad &= \quad \lambda_u \max\{F(w)-F(w_R),0\}\,u(t) \\ &\quad -\sigma G(w,t)(1-u(t)) \\ &\quad -\lambda_e(1-F(w))G(w,t)(1-u(t))\end{aligned}$$

  - inflow: unemployed households that find job wage in interval $[w_R, w]$
  - outflow 1: employed households with wage $\leq w$ that separate at rate σ
  - outflow 2: employed households with wage $\leq w$ that find job with wage $> w$

- Using steady state condition $\frac{d}{dt}G(w,t)(1-u(t)) = 0$ and Eq. (5), we solve for $G(w)$:

$$G(w) = \begin{cases} 0 & \text{if } w < w_R \\ \frac{[F(w)-F(w_R)]/(1-F(w_R))}{1+k_e(1-F(w))} & \text{if } w \geq w_R \end{cases} \tag{6}$$

where $k_e = \frac{\lambda_e}{\sigma}$

Illustration of worker distribution in steady state

- Example: assume offer distribution $F(w)$ is normal, compute w_R from (4), then $G(w)$ from (6)
- Why is pdf $g(w)$ "to the right of" pdf $f(w)$?

Firm size distribution I

- Given G and F, we can also characterize firm size distribution

- Limit argument: determine who many firms offer jobs and how many workers have jobs on interval $[w-\epsilon, w]$ and let $\epsilon \to 0$

- Workers on interval $[w-\epsilon, w]$: $[G(w) - G(w-\epsilon)] \times (1-u)$

- Firms on inteval $[w-\epsilon, w]$: $[F(w) - F(w-\epsilon)] \times 1$

- Average number of workers per firm on interval $[w-\epsilon, w]$:

$$\frac{G(w) - G(w-\epsilon)}{F(w) - F(w-\epsilon)}(1-u)$$

- Average firm size at point w:

$$l(w) = \lim_{\epsilon \to 0} \frac{G(w) - G(w-\epsilon)}{F(w) - F(w-\epsilon)}(1-u) \tag{7}$$

Firm size distribution II

- Given our solution of u and G, we can solve for l
- We have not assumed that F is continuous:
  - We don't know if $\lim_{\epsilon \to 0} F(w - \epsilon) = \lim_{\epsilon \to 0} F(w + \epsilon)$, i.e., we don't know if F has mass points
- Denote $F(w^-) = \lim_{\epsilon \to 0} F(w - \epsilon)$
- Plug in solution of G, u into firm size distribution (7), and do the algebra:

$$l(w) = \begin{cases} 0 & \text{if } w < w_R \\ \frac{k_u(1+k_e(1-F(w_R)))/(1+k_u(1-F(w_R)))}{(1+k_e(1-F(w)))(1+k_e(1-F(w^-)))} & \text{if } w \geq w_R \end{cases} \tag{8}$$

- $l(w)$ is increasing in w - why?
- $l(w)$ is continuous everywhere where F is continuous

Firm problem

- Firms maximize the discounted sum of expected profits
- For simplicity, we assume that $r \to 0 \Rightarrow$ firms only care about the steady state value of profits
- Firms post wage w to maximize

$$\pi = \max_{w} (y - w) l(w) \tag{9}$$

where $l(w)$ is the firm size distribution, taking the behavior of workers (w_R) and other firms (F) as given

- Equilibrium must have $\pi(w) = \pi(w')$ for all $w, w' \in F$
- Why don't all firms set $w = w_R$ (as in the wage posting equilibrium of McCall model)?

Equilibrium definition

- An equilibrium is a triple $\{w_R, \pi, F\}$ such that
  1. Given F, each worker behaves optimally: w_R solves reservation wage equation (4)
  2. Given F and w_R, each firm behaves optimally: π follows from (9)
  3. $F, \mathbb{W}_F$ are such that there is no arbitrage:

$$(y-w)l(w)\begin{cases} <\pi & \text{if } w \notin \mathbb{W}_F \\ =\pi & \text{if } w \in \mathbb{W}_F \end{cases}$$

     where $\mathbb{W}_F$ is the support of F

Solution strategy

- Given the progress we made on characterizing worker behaviour and firm size distribution, the equilibrium can be solved with the following 5 steps:
  1. Establish that F has bounded support $[\underline{w}, \bar{w}]$
  2. Establish that F is continuous
  3. Establish $\underline{w} = w_R$
  4. Solve for F
  5. Solve for w_R, π

Step 1: bounded support

- No worker accept a wage $w < w_R \Rightarrow \pi(w < w_R) = 0$
- Also, $\pi(w > y) < 0$
- Ergo, F has bounded support $[\underline{w}, \bar{w}] \subset [w_R, y]$

Step 2: continuity

- Proof strategy: If F has a mass point $\hat{w}$, you make excess profits by offering $\hat{w}+\epsilon$
- Assume F has a mass point at $\hat{w}$: (Draw graph on whiteboard)

$$F(\hat{w}) = F(\hat{w}^{-}) + v_1(\hat{w}) \text{ where } v_1(\hat{w}) > 0$$

- Then, average firm size l is discontinuous at $\hat{w}$: (Do on whiteboard)

$$l(\hat{w}^{+}) = l(\hat{w}) + v_2(\hat{w}) \text{ where } v_2(\hat{w}) > 0$$

- Then,

$$\begin{aligned}
\lim_{\epsilon\to 0} \pi(\hat{w}+\epsilon) - \pi(\hat{w}) &= \lim_{\epsilon\to 0} (y-\hat{w}-\epsilon) l(\hat{w}+\epsilon) - (y-\hat{w}) l(\hat{w}) \\
&= \lim_{\epsilon\to 0} (y-\hat{w})(l(\hat{w}+\epsilon) - l(\hat{w})) - \epsilon l(\hat{w}+\epsilon) \\
&= \lim_{\epsilon\to 0} (y-\hat{w})(l(\hat{w}+\epsilon) - l(\hat{w})) \\
&= (y-\hat{w}) v_2(\hat{w}) \\
&> 0
\end{aligned}$$

- You can make excess profits by offering wage contract $\hat{w}+\epsilon$ because
    - per worker profit decrease continuously
    - firm competition decrease discretely

Step 3: $\underline{w} = w_R$

- Step 1: $\mathbb{W}_F = [\underline{w}, \bar{w}] \subset [w_R, y]$
- Step 2: F is continuous:

$$
\begin{aligned}
l(w) &= \frac{k_u(1 + k_e(1 - F(W_R)))/(1 + k_u(1 - F(w_R)))}{(1 + k_e(1 - F(w)))(1 + k_1(1 - F(w^-)))} \\
&= \frac{k_u(1 + k_e(1 - F(w_R)))/(1 + k_u(1 - F(w_R)))}{(1 + k_e(1 - F(w)))^2}
\end{aligned}
$$

  for $w \geq w_R$.

- Moreover $F(\underline{w}) = 0$, which in turn implies $F(w_R) = 0$
- Hence,

$$
l(\underline{w}) = \frac{k_u(1 + k_e)/(1 + k_u)}{(1 + k_e)^2} = \frac{k_u/(1 + k_u)}{(1 + k_e)}
$$

- Expected firm size at $\underline{w}$ is independent of the particular value of $\underline{w}$!
- Therefore, $\underline{w} = w_R$, since if $\underline{w} > w_R$, a firm could offer w_R and get the same amount of workers and higher per worker profits $\Rightarrow$ excess profits

Step 4: solve for F

- In equilibrium, $\pi(w) = \pi(w')$ for all $w, w' \in \mathbb{W}_F$
- In particular, $\pi(w) = \pi(w_R)$ for all $w \in \mathbb{W}_F$
- Solve $\pi(w) = \pi(w_R)$, using our solutions for $l(w), l(w_R)$:

$$\begin{aligned}(y-w)l(w) &= (y-w_R)l(w_R) \Leftrightarrow \\ (y-w)\frac{k_u(1+k_e)/(1+k_u)}{(1+k_e(1-F(w)))^2} &= (y-w_R)\frac{k_u/(1+k_u)}{(1+k_e)}\end{aligned}$$

- Do the algebra to find

$$F(w) = \frac{1+k_e}{k_e}\left[1-\left(\frac{y-w}{y-w_R}\right)^{1/2}\right] \tag{10}$$

- Using that $F(\bar{w}) = 1$, we see that $\bar{w} < y$:

$$\bar{w} = y - \frac{y-w_R}{(1+k_e)^2} < y \tag{11}$$

Step 5: solve for w_R

- Our reservation wage equation (4):

$$w_R - b = (\lambda_u - \lambda_e) \int_{w \geq w_R} \frac{1 - F(w)}{r + \sigma + \lambda_e(1 - F(w))} dw$$

- For simplicity, we use the assumption $r \to 0$ again:

$$w_R - b = (k_u - k_e) \int_{w \geq w_R} \frac{1 - F(w)}{1 + k_e(1 - F(w))} dw$$

- Plug in the solution of F:

$$w_R - b = \frac{(k_u - k_e)}{k_e} \int_{w_R}^{\bar{w}} \left[1 - \frac{1}{1 + k_e} \left(\frac{y - w}{y - w_R} \right)^{-\frac{1}{2}} \right] dw$$

- Solve the integral and use the solution to $\bar{w}$ to find:

$$w_R = \frac{(1 + k_e)^2 b + (k_u - k_e) k_e y}{(1 + k_e)^2 + (k_u - k_e) k_e} \tag{12}$$

- Summary: a continuous offer distribution with $b < \underline{w} = w_R < \bar{w} < y$!

Model summary

- Model components: McCall + on-the-job search + fixed number of optimizing firms
- Importantly, all firms and households are ex ante identical
- Key result: a non-degenerate continuous wage distribution
  - Not possible in simple wage-posting model without on-the-job search
- Intuition?

Taking the model to the data

- Primitives: $b, \lambda_u, \lambda_e, \sigma, r$ - only one new parameter compared to McCall (but also one less!)
- λ_e can be identified from the frequency of job-to-job transitions
- An employed worker with wage w switches job at rate $\lambda_e(1 - F(w))$
- Total job switch rate: $\xi = \int_{w_R}^{\bar{w}} \lambda_e(1 - F(w))dG(w)$
- One can show that, in equilibrium, $\xi = \xi(\sigma, \lambda_e)$ (take-home exericse!)
- λ_u is directly identified from the unemployed workers' job-finding rate, as unemployed worker accept all offers in this model

Predicitions I: wage dispersion

- Wage dispersion. As in the McCall model, a formula for the mean-to-min ratio can be derived:

$$Mm_{BM} \approx \frac{\frac{\lambda_u - \lambda_e}{r+\sigma+\lambda_e} + 1}{\frac{\lambda_u - \lambda_e}{r+\sigma+\lambda_e} + \rho} \qquad Mm_{McCall} = \frac{\frac{\lambda}{r+\sigma} + 1}{\frac{\lambda}{r+\sigma} + \rho}$$

- $\approx$ comes from assuming $r \to 0$
- The BM model generates additional dispersion, as workers do not only differ in initial offers, but also in that some have climbed further up the job-ladder than others
- Hornstein-Krusell-Violante (AER, 2011) reports monthly EE rate = 3.2 percent $\Rightarrow$ $\lambda_e = 0.135$
- $Mm_{BM} = 1.22$, $Mm_{McCall} = 1.05$, $Mm_{data} > 1.8$
- Not there yet, but a big step in the right direction
  - How does this relate to the results from the AKM regression?

Predicitions II: wage correlations

- Worker with wage w finds new job at rate:

$$\lambda_e^* = \lambda_e(1 - F(w)) \tag{13}$$

- Tenure is positively correlated with wage
  - From (13): higher $w \Rightarrow$ lower job-finding rate

- Challenges interpretation of returns-to-tenure as reflecting productivity

- Firm size is positvely correlated with wage
  - From (8): $l(w)$ is increasing in w, beacuse workers continuously climb the job-ladder

- Both true in the data (Mortensen, Book 2003)

Taking stock

- Benchmark model for studying frictional wage dispersion, easily taken to the data
- New predictions: search frictions can rationalize
  - wage-tenure correlation
  - wage-firm size correlation
- We came closer in quantitatively accounting for unobserved wage dispersion
- Also, BM offers an interpretation of the AKM regression results
  - all wage dispersion stems from firm heterogeneity, but all firms are identical in terms of productivity
  - firm fixed effects in AKM should not necessarily be interpreted as firm productivity differentials
- But, no role for search frictions in explaining
  - Within-firm wage dispersion and, therefore, individual-fixed effects in AKM
  - Downward wage mobility

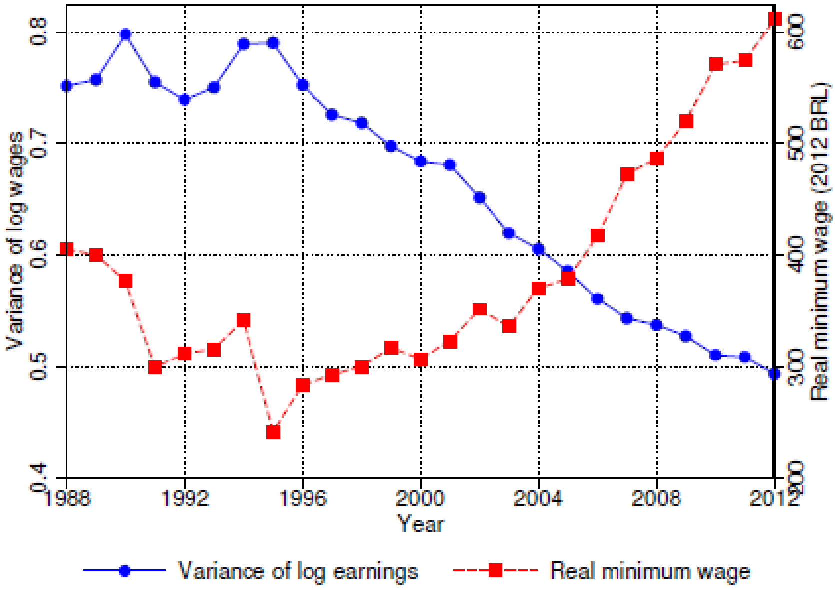
Extensions

- The basic BM model is too stylized to deal with many empirical phenomena
- Because of its parsimony, the model can be extended in various directions: firm heterogeneity, worker heterogeneity etc.
- For quantitative assessments, see Jolivet-{Postel-Vinay}-Robin (EER 2006), Mortensen (Book 2003), Barlevy (ReStud 2008)

Recent applications

- Sorkin (QJE 2018) estimate a BM model for US to quantify the role of compensating differentials in residual wage dispersion
  - Firms offer utility bundles rather than wage contracts.
  - Worker transitions from higher to lower paying firms can be used to infer value of compensating differentials
  - compensating differentials account for over half of the firm component of the variance of earnings
- Gottfries-Jarosch (2023) estimate a BM model for US to quantify how much non-compete practices can surpress wages
  - A BM model with finite number of firms and DRS productions technology - natural laboratory for studying the effects of monopsony power
  - Model "non-competes" as wage offers which does not allow job-to-job transitions
  - Banning "non-competes" raises average wages by 2-15% depending on labor market characteristics
- Engbom-Moser (AER 2023) estimate a BM model for Brazil 1996-2012 following a reform that increased the mandated minimum wage:
  - Key fact: the entire wage distribution became more compressed after the reform, not just the lower end
  - BM theory: Because firms set wage offer strategically in relation to $F(w)$, higher minimum wage affects entire distribution
  - EM finds that 70 percent of the drop in earnings inequality during this period can be attributed to the increased mandated minimum wage

Engbom-Moser (AER 2023)



Is wage posting reasonable benchmark?

- Key question: is wage posting a reasonable approximation for the applications considered?
  - Bilateral bargaining?
    - ★ See next lecture
  - Shouldn't contracts be allowed to be made contingent on observables?
    - ★ Stevens (ReStud 2004); Burdett-Coles (Ecmtra 2003) note that firms can reduce turnover and raise profits by offering wage-tenure contracts
  - Shouldn't firms be allowed to respond to employees' outside offers?

- {Postel-Vinay}-Robin (Ecmtra 2002) construct job-ladder model extended with
  - firm and worker heterogeneity
  - allowing firms to make counteroffers
  - rationalizes within-firm wage dispersion among similar workers as well as downward wage mobility
  - offers a way to quantitatively separate the role of unobserved firm heterogeneity, unobserved worker heterogeneity and luck in residual wage dispersion

Summary

- AKM: Reduced-form model for quantifying sources of residual wage dispersion
- Burdett-Mortensen: Benchmark model for studying frictional wage dispersion
- Key assumptions: on the job-search + firm wage posting
- Key result: non-degenerate distrubition of wages across identical firms due to trade-off in wage-possting decision
  - Higher wage attracts more workers
  - Higher wage reduces per-worker profit
- We endogenized firm wage setting behavior, but not the contact rate
- Next up: endogenzing the contract rate (and thinking about its implications for unemployment)