Firm Market Power, Worker Mobility and Wages in the US Economy

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NBER Wage Dynamics in the 21st Century Conference
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Secular Trends in US economy: Declining Wages/Productivity

Real Hourly Compensation/Productivity
Non−Farm Business Sector Index (1985:1=1)

Secular Trends in US economy

1. Wages/productivity have declined
   - Real wages are positively related to employer-to-employer (EE) transitions.
Secular Trends in US economy: Declining EE Transitions

Source: Current Population Survey (Fujita, Moscarini & Postel-Vinay, 2020; Blanchard and Diamond, 1990), HP-filtered trend.
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3. Declining Employer Competition for Workers
Secular Trends in US economy: Declining Firms Per Worker

Real Hourly Compensation/Productivity, EE Transitions and Number of Firms per Worker

Source: Business Dynamics Statistics. HP-filtered trend. (Firms Per Worker)
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3. Declining Employer Competition for Workers
   - Lack of job options for workers; anti-competitive practices by firms.
This Paper

What is the role of decreasing competition among employers in explaining declining EE transitions and slowing wages?

- Lower number of firms compete for a worker
  ⇒ Smaller set of outside options for employed workers
  ⇒
  1. Lower opportunities to quit and make EE transitions
  2. Lower wage responses by employers to retain workers
  ⇒ Weak wages relative to productivity
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What I do:

- A model to quantitatively establish the link between no. of firms, EE transitions and normalized wages
- Evidence consistent with predictions of the model
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What I do:

- A model to quantitatively establish the link between no. of firms, EE transitions and normalized wages
- Evidence consistent with predictions of the model

What I find:

Decline in no. of firms per worker explains:

- 2/3rd of the decline in EE transition probability
- 1/5th of the decline in average wages relative to productivity
Model
Model Framework

Workers

Firms

Finite and heterogeneous in productivity. N productivity levels, each with n firms. Post vacancies: either filled or remain vacant. Compete with each other over employed workers (poaching). Firms do not match with re-applicants (Jarosch, Nimczik & Sorkin, 2020).

Matching

Random search. All workers sample from same exog. job offer distribution. Output = firm productivity. Worker paid wage, firm keeps remaining output.

Exogenous separation: worker flows into U, and firm becomes vacant.
Model Framework

Workers
- Unit continuum, homogeneous, and infinitely lived with linear prefs.
- Unemployed: derive value from leisure, and search.
- Employed: provide labor and search on-the-job.

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Wage Determination

Sequential auction framework by Cahuc, Postel-Vinay and Robin (2006):

- Let bargaining share of workers be $\alpha \in [0, 1]$.
- If worker & firm bargain, wage implements a split of match value:
  $\text{Worker's share of match} = (1 - \alpha) \cdot \text{Worker's outside option} + \alpha \cdot \text{Match value}$
- Wages re-bargained when employee poses a credible threat to quit:
  - If poaching firm more productive than incumbent: Worker quits
  - If poaching firm less productive than incumbent: Workers stays with a wage raise
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- Firm market power lowers worker’s outside option:
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- **Firm market power** lowers worker’s outside option:

  1. Finite firms enables decline in no. of potential firms in outside option.

  2. Outside option precludes possibility of getting matched with the same firm.
Calibration

- Simulate model to a monthly frequency.
Simulate model to a monthly frequency.

Calibrate parameters to match labor market transitions of 1985-1990 US economy.
## Calibration

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Moment</th>
<th>Model Value</th>
<th>Targeted Value</th>
<th>Source</th>
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<tbody>
<tr>
<td>Contact probability of E</td>
<td>E[EE], %</td>
<td>2.88</td>
<td>2.83</td>
<td>CPS, 1985-90</td>
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| No. of prod. levels, $N$        | –              | 3           | –              | Fixed                      |
| No. of firms at each prod. level, $n$ | –              | 2           | –              | Baseline                   |
| Worker bargaining share, $\alpha$ | –              | 0.5         | –              | Baseline                   |
## Experiment

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- Vary $n$ to capture the decline in number of firms per worker
As the number of firms decreases:

- Average real wages decline: Employees affected more if one firm is removed from their outside option.

*red point:* denotes calibrated model
As the number of firms decreases:

- EE transitions decline: Employees face lower likelihood of receiving offers from firms high on the job ladder.
Comparative Statics: Wage Growth of Job Stayers and Switchers

As the number of firms decreases:

- Wage growth of job *stayers* declines: Employees less likely to get outside offers that trigger wage renegotiation within jobs.
As the number of firms decreases:

- Wage growth of job switchers increases: Employees likely to stay on the job longer and at a suppressed wage leading to a large wage gain on switching.
Effect of Declining Firms Per Worker, 1985 to 2017

Number of Employer Firms Per Employed Worker

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Number of Employer Firms Per Employed Worker

Data: 13%

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Data: 13%
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- Model explains 2/3rd of the decline in EE transitions rate
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Model explains 20% of the decline in wages/productivity
Summary of Model Predictions

As number of firms per worker ↓:

1. EE transition rate: ↓
2. Wages/productivity: ↓
3. Wage growth of job stayers: ↓
4. Wage growth of job switchers: ↑
Testing the Model Predictions in the Cross-Sectional Data
To test model’s predictions in the data, I utilize:

- Annual cross-MSA-Sector variation in EE transitions from public-use LEHD (2000-18) and Firms Per Worker from BDS
- Annual cross-State-Sector variation in individual wage growth associated with job switches from SIPP (1996-2000) and Firms Per Worker from BDS
Firms Per Worker and EE transitions in the cross-section

\[ \text{EE Rate}_{mjt} = \beta \cdot \text{FPW}_{mjt} + \text{MSA FE}_m + \text{Sector FE}_j + \text{Time FE}_t + \epsilon_{mjt} \]
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<th>Log EE Rate</th>
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<td>Log Firms per Worker</td>
<td>0.062 (0.008)</td>
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<tr>
<td>N (in ’000)</td>
<td>67.7</td>
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<td>( R^2 )</td>
<td>0.85</td>
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- Firms per worker and EE transitions rate are positively related.
- Effect is robust to workforce composition controls, and other measures of EE transitions.
- Similar effects for NE and EN transitions.
Firms Per Worker and Earnings Growth of Job Switchers in the cross-section

Wage Growth_{isjt}^{EE} = \beta \cdot \text{FPW}_{sjt} + \text{State FE}_s + \text{Sector FE}_j + \text{Time FE}_t + \text{Controls}_{isjt} + \epsilon_{isjt}
Firms per worker and wage growth of job switchers is negatively related.

Effect is robust to demographic controls, and growth rate in hourly wages.

\[
\text{Wage Growth}_{isjt}^{EE} = \beta \cdot \text{FPW}_{sjt} + \text{State FE}_s + \text{Sector FE}_j + \text{Time FE}_t + \text{Controls}_{isjt} + \epsilon_{isjt}
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<th>Earnings growth</th>
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<th>(0.006)</th>
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Conclusion

○ Examined the role of declining firms per worker in explaining the decline in EE transitions and slowing wages.

○ Calibrated model implied the decline in firms per worker accounted for 2/3rd of the decline in EE transitions rate and 20% of the decline in wages/productivity.

○ Provided cross-sectional evidence to support implications of the model related to frequency and wage growth associated with EE transitions.

○ Future work:
  - Examine implications of declining firms per worker on UE and EU transitions.
  - Put together more data to support model’s implications.
Thank You!