Discussion on “Mismatch Shocks and Unemployment during the Great Recession”
by Furlanetto and Groshenny

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Summary
Question

What are the effects of the mismatch shocks on business cycles, especially on (actual and natural) rate of unemployment during the Great Recession?
Methodology

Build and estimate a medium-scale DSGE model, and use the estimated model to answer the question.
Key Elements of the Model

- Representative-agent RBC model with labor market frictions (Andolfatto (1996), Merz (1995)).
  - Cobb-Douglas matching function.
  - Constant separation rate.
  - No labor force participation decision.

- Mismatch shocks (shocks to match efficiency).

- pre- and post-match hiring costs.

- New Keynesian features:
  - Quadratic adjustment costs for nominal prices and wages.
  - Monopolistically competitive good-producing firms.
  - Central Bank follows a Taylor rule.
Model is solved using log-linearization around the steady state.

8 shocks (TFP, investment, bargaining, mismatch, MP, FP, mark-up, risk-premium).

Mismatch shocks are calibrated (→ next slide).

7 key macro variables ($y$, $c$, $i$, $w$, $\pi$, $R$, $u$).

14 parameters are calibrated.

26 parameters are estimated using Bayesian method.

Estimation period: 1957:1-2010:3

How well does the estimated model match the data?
Estimation: Backed-out Mismatch Shocks

- Basically capturing shifts of the Beveridge curve.
- Mismatch shocks are small, except for the Great Recession period.
Result 1: Nature of Matching Costs

Weight of pre-match cost in the total hiring cost is estimated to be 4%.

- Consistent with literature (Silva and Toledo (2009), Yashiv (2000))
- Silva and Toledo (2009): 0.70 or above, instead of 0.94.
Result 1: Response of $V$ and $U$ to Various Shocks

- Only mismatch shocks raise $U$ and $V$ simultaneously.
- Post-match hiring costs make vacancies volatile.
Result 2: Mismatch Shocks and Business Cycles

Mismatch shocks are irrelevant for business cycles, except for vacancies.

- Due to post-match hiring cost (Furlanetto and Groshenny (2012)).
Result 2: Variance Decomposition

<table>
<thead>
<tr>
<th></th>
<th>Output</th>
<th>Unemp.</th>
<th>Vacancy</th>
<th>Inflation</th>
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<tr>
<td>Technology</td>
<td>30</td>
<td>18</td>
<td>11</td>
<td>16</td>
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<td>Monetary</td>
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<td>2</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Investment</td>
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<td>Matching</td>
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<td>Risk-premium</td>
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<td>9</td>
<td>8</td>
<td>15</td>
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<tr>
<td>Markup</td>
<td>9</td>
<td>26</td>
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<td>6</td>
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<tr>
<td>Bargaining</td>
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<td>12</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Fiscal</td>
<td>14</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>
Result 3: Natural Rate of Unemployment

A negative mismatch shock raises natural rate of unemployment significantly.

- Consistent with popular interpretation of mismatch shocks:
  - Sectoral reallocation.
  - Skill mismatch.
  - Geographical mismatch.
  - Extended UI benefits.
  - Rise in long-term unemployment or non-participation.
A negative mismatch shock raises natural rate of unemployment significantly.

Intuition? Why not other shocks?
During the Great Recession, mismatch shocks raised the natural rate and the actual rate by 2.0 p.p. and 1.25 p.p., respectively.
Comments
How is the dominance of the post-match hiring costs identified?

- This is the most important part of the paper!
- Once the prevalence of the post-match hiring costs is established, most results are found in Furlanetto and Groshenny (2012).
- Under the sticky prices, both pre- and post-match hiring costs can generate a positive correlation between $V$ and $U$.
- Possibly, the volatility of $V$ requires the post-match hiring costs.
UI replacement rate is calibrated at 0.25, which is very low.

- Shimer (2005): 0.4, DOL: 0.431, Anderson and Meyer (1997): 0.4-0.5, Chang and Kim (2012): 0.82, Hagedorn and Manovskii (2008): 0.96.
- Not innocuous, because a higher UI replacement rate with pre-match hiring costs implies a higher volatility of $V$ and $U$.
- Possibly, with a higher UI replacement rate, the estimated weight of pre-match hiring costs goes up.
Comment 3: Constant Separation Rate

Separation rate is fixed.

- In the data, separation rate (from E to U) went up sharply at the beginning of the Great Recession.
- Partly due to time aggregation, as the authors claim.
- Over-emphasis of the mismatch shock?
Comment 3: Monthly Separation and Job-Finding Rates

![Graph showing monthly separation and job-finding rates from 2007/12 to 2011/09. The graph has two scales: the left scale represents the separation rate, and the right scale represents the job-finding rate. The separation rate shows fluctuations over time, while the job-finding rate decreases gradually.]
Observed decline in job-finding rate can account for only a part of the increase in the UR (up to 45%).

Labor force participation matters, to some extent, as well.
Comment 4: Big Picture

- The focus is the Great Recession period.
  - Mismatch shocks do not play a big role outside the period.

- The model is of the Great Moderation period.
  - Locally linearized.
  - No ZLB.

- Can we trust the estimated natural rate of unemployment during the Great Recession?
  - Motivation: natural rate as providing a guidance for the MP.
Conclusion
Concluding Remarks

- Address a timely and important issue about the cause of the slow recovery of the unemployment rate.

- Building and estimating a rich DSGE model with labor market frictions, show that the mismatch shock helps replicating the business cycles, especially the shifts in the Beveridge curve.

- The paper plays a role in stimulating further research on mismatch shocks.
  - Similar to the TFP shock.
  - Quest for deeper structural elements.