Stock Market Dispersion and Long-Term Unemployment

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Cumulative increase in unemployment during the Great Recession was particularly high in the U.S.

Peak-to-trough Changes in Unemployment Rates During the Great Recession
Do you want jobs with that recovery?

Graph of U.S. GDP and Unemployment Rate (Right Scale) from 2007 - Q4 to 2010 - Q1.
More worryingly, the average duration of U.S. unemployment has inched up ...

Figure 1. Average Duration of Unemployment (in weeks)
... reflecting increases in long-duration unemployment spells

Figure 2. Unemployment Rate by Spells

- Up to 5 weeks
- 5 to 14 weeks
- 14 to 26 weeks
- 26+ weeks
Can the rise in U.S. unemployment duration be explained by the changing intensity of sectoral shocks?

- Difficult identification question.

- One possible measure of sectoral shocks: **dispersion in industry stock returns** (Loungani, Rush and Tave, *JME* 90, and Brainard and Cutler, *QJE* 93)

- Motivated by Fischer Black (1987)
  
  “The sector-by-sector behavior of stocks is useful in predicting sector by-sector changes in output, profits, or investment. When stocks in a given sector go up, more often than not that sector will show a rise in sales, earnings, and outlays for plant and equipment ... We could use the behavior of individual sectors of the stock market to predict unemployment. **If my theory is correct, large moves in opposite directions in different sectors should be followed, normally, by an increase in unemployment.**”

\[
\text{Dispersion}_t = \left[ \sum_{i=1}^{n} W_i (R_{i,t} - R_t)^2 \right]^{1/2}
\]
U.S. Stock Market Dispersion Index

Dispersion Index (6-months Moving Average)

The “take-away” slide
Stock market dispersion can explain variation in U.S. long-duration unemployment
Details

• 6-variable VAR
  – GDP growth
  – Market return (S&P 500)
  – Long-Term unemployment rate
  – Inflation
  – Federal funds rate
  – Stock market dispersion index
Response to Cholesky One S.D. Innovations ± 2 S.E.

Response of UN27_ON to GROWTH

Response of UN27_ON to SNP

Response of UN27_ON to UN27_ON

Response of UN27_ON to INF

Response of UN27_ON to FFR

Response of UN27_ON to DISP
Dispersion matters for long-duration unemployment

Forecast-error variance decomposition for long-term unemployment

<table>
<thead>
<tr>
<th>Horizon (Quarters)</th>
<th>Growth</th>
<th>Market Return</th>
<th>Long-Term Unemp.</th>
<th>Inflation</th>
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<td>3.4</td>
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Shocks to dispersion account for significant part of the rise in long-duration unemployment during the recent recession.
Peeking under the hood

• Is the stock market dispersion index really picking up sectoral shocks?

• Two alternative stories:
  1. Index is a proxy for uncertainty (Bloom, 2009)
  2. Index is nonetheless picking up aggregate shocks
Positive correlation between stock market dispersion index & Bloom measure

Correlation: 0.552
Perhaps both indices can bloom?

Response of LT Unemp. Rate to 1 s.d. Innovation to Uncertainty

Response of LT Unemp. Rate to 1 s.d. Innovation to Dispersion
Dispersion index is better at explaining variation in Long-Term Unemployment

Forecast-error variance decomposition for long-term unemployment

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Aggregate shocks by another name?

- Evidence seems to suggest that index is picking up something different from aggregate shocks:
  1. Regression tests show that dispersion index is not correlated with neither Romer and Romer monetary policy nor fiscal policy shocks (both contemporary and lags).
  2. Behavior of sectoral indices during recessions seem to match conventional wisdom.
Conclusions

• Recessions leave scars on the labor market; the Great Recession has left gaping wounds

• Duration of unemployment has gone up dramatically in the U.S.

• Separating aggregate from sectoral shocks is a difficult task, but our proxy for sectoral shocks—the dispersion of stock returns—seems to indicate that sectoral shocks may be part of the explanation for the increased duration in the U.S.

• In ongoing work, we look at international evidence for the link between the stock market dispersion index and unemployment. Preliminary findings are encouraging.