Longer-Term Consequences on Income Distribution of the Great Recession

Agar Brugiavini and Guglielmo Weber

with

Orazio Attanasio, Margherita Borella, Olympia Bover, Torben Heien Nielsen

Discussion by Gianluca Violante (NYU)

“Incomes Across the Great Recession”, Palermo, September 10th, 2011
What the macro time series tell us (for the US)
What the macro time series tell us (for the US)

Aggregates hide a lot of heterogeneity
Questions and answers

Questions

1. Is individual income risk mostly permanent or transitory?

2. Does individual income risk translate into consumption (welfare)?
Questions and answers

Questions

1. Is individual income risk mostly permanent or transitory?

2. Does individual income risk translate into consumption (welfare)?

Answers

1. Diverse findings across different countries

2. Very high pass-through from shocks to disposable income into consumption (larger than for the US, where $\phi = 0.64$)

   ▶ In some cases, pass-through coefficient $\phi > 1$
1. Focus on disposable income is somewhat restrictive
From individual wages to household consumption

\[ c = \sum_{i=1}^{N} w_i h_i + b^P + b^G - \tau + a - a' + d \]
From individual wages to household consumption

\[ c = \sum_{i=1}^{N} w_i h_i + b^P + b^G - \tau + a - a' + d \]

- \( w_i \)  individual wage
- \( w_i h_i \)  individual labor supply
- \( \sum_{i=1}^{N} w_i h_i \)  household labor supply
- \( \sum_{i=1}^{N} w_i h_i + b^P \)  family/social networks
- \( \sum_{i=1}^{N} w_i h_i + b^P + b^G - \tau \)  public transfers and tax system
- \( c = \ldots + a - a' + d \)  borrowing/saving and financial markets
2. Permanent-transitory model might be misspecified
Moments used in the estimation matter

Minimum distance estimation can be equally performed on income covariances in levels or in first-differences
Moments used in the estimation matter

Minimum distance estimation can be equally performed on income covariances in levels or in first-differences
Moments used in the estimation matter

Minimum distance estimation can be equally performed on income covariances in levels or in first-differences

Variance of Permanent Shock

Variance of Transitory Shock

Year


Misspecification of the error-component model?

Gianluca Violante, Discussion of "Longer-Term Consequences on Income Distribution of the Great Recession"
Implications of estimates for life-cycle inequality (UK)

Permanent shocks cumulate over the life-cycle

Var. of log disp. income grows linearly with age at rate $\text{var}(\zeta)$ per year
Implications of estimates for life-cycle inequality (UK)

 Permanent shocks cumulate over the life-cycle

 Var. of log disp. income grows linearly with age at rate $\var(\zeta)$ per year

![Graph showing the relationship between variance of log income and age]

Gianluca Violante, Discussion of "Longer-Term Consequences on Income Distribution of the Great Recession"
Implications of estimates for life-cycle inequality (UK)

Permanent shocks cumulate over the life-cycle

Var. of log disp. income grows linearly with age at rate $\text{var}(\zeta)$ per year

Estimates in first diffs. grossly overestimate life-cycle inequality growth
What if the true DGP is an AR(1) instead?

\[ y_{it} = p_{it} + \nu_{it} \]
\[ p_{it} = \rho p_{i,t-1} + \zeta_{it} \]
What if the true DGP is an AR(1) instead?

\[
y_{it} = p_{it} + \nu_{it}
\]

\[
p_{it} = \rho p_{i,t-1} + \zeta_{it}
\]

Results from simulated buffer-stock model (Kaplan-Violante, 2010)

<table>
<thead>
<tr>
<th>Autocorr. Coeff.</th>
<th>(\phi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\rho = 1.00)</td>
<td>0.77</td>
</tr>
<tr>
<td>(\rho = 0.97)</td>
<td>0.67</td>
</tr>
<tr>
<td>(\rho = 0.95)</td>
<td>0.62</td>
</tr>
<tr>
<td>(\rho = 0.93)</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Size of pass-through to consumption is decreasing in \(\rho\) because precautionary wealth is larger for smaller \(\rho\)
3. BPP pass-through coefficients biased upward when liquidity constraints bind
Identifying assumptions underlying BPP methodology

\[ \phi = \frac{\text{cov}(\Delta c_{it}, \zeta_{it})}{\text{var}(\zeta_{it})} \]
Identifying assumptions underlying BPP methodology

\[ \phi = \frac{\text{cov}(\Delta c_{it}, \zeta_{it})}{\text{var}(\zeta_{it})} \]

Problem: \( \zeta_{it} \) is unobservable – we only observe the sequence \( \{\Delta y_{it}\} \)

BPP methodology requires the identifying assumption:

\[ \text{cov}(\Delta c_{it}, \nu_{i,t-2}) = 0 \]

Kaplan-Violante (2010): “short-memory” of consumption allocation
Identifying assumptions underlying BPP methodology

\[ \phi = \frac{\text{cov}(\Delta c_{it}, \zeta_{it})}{\text{var}(\zeta_{it})} \]

Problem: \( \zeta_{it} \) is unobservable – we only observe the sequence \( \{\Delta y_{it}\} \)

BPP methodology requires the identifying assumption:

\[ \text{cov}(\Delta c_{it}, \nu_{i,t-2}) = 0 \]

Kaplan-Violante (2010): “short-memory” of consumption allocation

Assumption violated if borrowing constraints bind often
Simulations from life-cycle buffer-stock model

![Graph showing the relationship between age and pass-through coefficient. The graph compares the "TRUE" scenario with the BPP Estimator.](image-url)
Simulations from life-cycle buffer-stock model

Upward bias in $\hat{\phi}$ can explain pass-through from $y$ to $c$ above one
4. Shocks to financial and housing wealth crucial in the Great Recession
US households’ wealth in the Great Recession

<table>
<thead>
<tr>
<th>Age</th>
<th>Drop in Wealth (% of Income)</th>
<th>Drop in Income (% of Income)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 – 29</td>
<td>78</td>
<td>11</td>
</tr>
<tr>
<td>30 – 39</td>
<td>128</td>
<td>12</td>
</tr>
<tr>
<td>40 – 49</td>
<td>173</td>
<td>9</td>
</tr>
<tr>
<td>50 – 59</td>
<td>221</td>
<td>9</td>
</tr>
<tr>
<td>60 – 69</td>
<td>284</td>
<td>6</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>211</strong></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>

Source: Glover-Heathcote-Krueger-Rios Rull (2011)
US households’ wealth in the Great Recession

<table>
<thead>
<tr>
<th>Age</th>
<th>Drop in Wealth (% of Income)</th>
<th>Drop in Income (% of Income)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 – 29</td>
<td>78</td>
<td>11</td>
</tr>
<tr>
<td>30 – 39</td>
<td>128</td>
<td>12</td>
</tr>
<tr>
<td>40 – 49</td>
<td>173</td>
<td>9</td>
</tr>
<tr>
<td>50 – 59</td>
<td>221</td>
<td>9</td>
</tr>
<tr>
<td>60 – 69</td>
<td>284</td>
<td>6</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>211</strong></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>

Source: Glover-Heathcote-Krueger-Rios Rull (2011)

Wealth shocks **correlated** with income shocks (e.g., local economy)

Positive correlation can explain pass-through coefficients above one
Concluding thoughts

Estimates of income risk and pass-through are a lower bound for those during the Great Recession
Concluding thoughts

Estimates of income risk and pass-through are a lower bound for those during the Great Recession

During economic downturns:

- Individual income risk larger (unemployment)
- Individual income risk more costly (cumulates with aggr. shocks)
- Channels of consumption insurance function less well