Labor Market Upheaval, Default Regulations, and Consumer Debt

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Disclaimer: The views in this paper do not necessarily reflect the views of the FRBs of Richmond and St.Louis, or those of the Federal Reserve System.
Motivation

Great recession:

- Big drop in consumer debt
- Big rise in informal default (delinquency)
- Muted rise in formal default (bankruptcy)
The Facts: Consumer Debt Deleveraging
The Facts: Default
Two things happened around the same time:

→ Since 2008, big changes in labor market risk
→ In 2005, change in bankruptcy costs: “BAPCPA”
Thing 1: Labor Market Upheaval
Thing 2: Bankruptcy Reform

- In late 2005, BAPCPA roughly doubled bankruptcy filing cost
- Seems to have come as a surprise, at least as of more than one quarter prior to change
This paper: First model of formal and informal default in a business cycle setting

Extend our steady-state model of “Bankruptcy and Delinquency ..” (2012) to answer:

- How did labor market deterioration in the GR affect the path of consumer debt and default?
- How did the bankruptcy reform of 2005 matter for this?

Hint: Morgan (2012) empirical analysis suggests we observed far fewer bankruptcies than we should have, given labor markets.
Competing Forces

- **Bk reform, by itself**: DQ more attractive, but credit more available to roll over debts (avoid both DQ and delev.)
- **Labor Market deterioration, by itself**: Deleveraging more attractive for those with jobs, opposite for job losers
- But both came in close succession: deleveraging in GR might have been more severe, were it not for the reform
Model Framework

- High-frequency life-cycle model with uninsurable idiosyncratic earnings risk:
  - Deterministic education and lifecycle component
  - Persistent component
  - Transitory component
  - Job offers and option to reject
  - Rich safety net
  - (We’ll simplify the notation for income process in what follows)

- Individuals can default on debt in two ways:
  - Bankruptcy: incur filing costs and high utility cost, debts are eliminated
  - Delinquency: incur lower utility cost, debt is reset
Optimal Behavior of an indebted household

\[ v_{j,e}(b, y) = \max \begin{cases} v_{j,e}^{d=0}(b, y), & \text{solvent} \\ v_{j,e}^{d=1}(y), & \text{delinquent} \\ v_{j,e}^{d=2}(y), & \text{bankrupt} \end{cases} \]
\[ v_{j,e}^{d=0}(b, y) = \max_{b'} \left\{ u(c) + \beta \sum_{y'} \pi(y'|y) v_{j+1,e}(b', y') \right\} \]

\[ \text{subject to} \]
\[ c + q_{j,e}(b', y)b' = b + y \]
Value Function, DQ

\[ v_{j,e}^d(y) = u(c) - \psi_D + \beta \sum_{y'} \pi(y' | y) v_{j+1,e}(h_{j+1,e}(y), y') \]

- subject to
  \[ c = y \]

- key object is \( h_{j,e}(\cdot) \), as explained below
\[ v_{j,e}^{d=2}(y) = u(c) - \psi_B + \beta \sum_{y'} \pi(y'|y) v_{j+1,e}(0,y') \]

subject to

\[ c = y - \Delta(y) \]

\[ \Delta(y) \] will differ by employment status b/c filing costs can be waived
Delinquency and Debt

- If faced with a delinquent borrower, optimizing lenders solve:
  \[ h_{j,e}(y) = \arg \max_b \{-b q_{j,e}(b, y)\} \]

- Price of face value \( b \) of new debt:
  \[ q_{j,e}(b, y) = \frac{\sum_{y'} \pi(y'|y) Q(b, y')}{1 + r + \phi} \]

where

\[ Q(b, y') = 1 \left( d_{j+1,e}(b, y') = 0 \right) + \text{solvent} \]

\[ 1 \left( d_{j+1,e}(b, y') = 1 \right) \left[ \frac{q_{j+1,e}(h_{j+1,e}(y'), y') h_{j+1,e}(y')}{b} \right] \text{delinquent} \]
Calibration: Earnings Risk and Social Insurance

- Quarterly model—key for capturing delinquency

- Follow Low, Meghir, Pistaferri (2010, AER):
  - Wage risk and employment risk
  - UI, DI, Food stamps
  - Wages and employment both risky, depend on education and age
  - Workers matched with firms, quality specific to current match.
Calibration strategy

- Earnings Risk and Social Insurance taken from Low, Meghir, Pistaferri (2010, AER):

- Other parameters directly taken from data
  - Risk-free interest rate $r = 0.375\%$
  - Lending cost $\phi = 0.75\%$
  - BK filing fee for employed $\$1,200$
  - BK filing fee for unemployed $\$600$

- Risk aversion $\gamma = 2.0$

- Remaining parameters calibrated to match specific targets.
Calibrated Parameters and Targets

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount factor</td>
<td>$\beta$ 0.947</td>
</tr>
<tr>
<td>Non-pecuniary cost BK</td>
<td>$\psi_B$ 1.785</td>
</tr>
<tr>
<td>Non-pecuniary cost DQ</td>
<td>$\psi_D$ 0.103</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of debt in 90+ DQ, %</td>
<td>8.9</td>
<td>8.9</td>
</tr>
<tr>
<td>Bankruptcy rate, %</td>
<td>0.26</td>
<td>0.25</td>
</tr>
<tr>
<td>Mean (assets/income)</td>
<td>4.07</td>
<td>3.09</td>
</tr>
</tbody>
</table>
Renegotiation terms in delinquency
The Experiment

Our approach:

- **Step 1:** Feed in labor market upheaval, by setting
  - job separation rates
  - job finding rates

- Aggregate shocks are not unexpected.
  - Transition matrix calibrated to expected duration of agg. states.

- **Step 2:** Solve for paths of debt, delinquency, bankruptcy

- **Step 3:** Counterfactuals:
  - Evaluate Step 2 with and without 2005 BK reform
  - Evaluate Step 2 with and without labor market shocks

- Agents learn about BK reform one period (quarter) ahead.
Model Approximation, shocks
The Shocks

![Graph showing job finding rates and separation rates over years from 2004 to 2013. The graph plots job finding rate of UN, Left, job finding rate of EM, Left, and separation rate against years from 2004 to 2013. The x-axis represents the years from 2004 to 2013, and the y-axis represents job finding rate and separation rate. The graph illustrates changes in these rates over the years.](image-url)
The Shocks: Low Education

Job Finding Rate of UN, Left
Job Finding Rate of EM, Left
Separation Rate

Tracking Employment Rates

Year

Employment Rate

Data

Benchmark
Tracking Unemployment Duration

Average Unemployment Duration, Quarters

Data

Benchmark
Findings: 2004Q1 vs. 2012Q2

<table>
<thead>
<tr>
<th></th>
<th>Reform 2004Q1</th>
<th>Reform 2012Q2</th>
<th>No Reform 2004Q1</th>
<th>No Reform 2012Q2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DQ Debt Rate</td>
<td>8.95%</td>
<td>11.67%</td>
<td>8.95%</td>
<td>11.70%</td>
</tr>
<tr>
<td>BK Rate</td>
<td>0.25%</td>
<td>0.23%</td>
<td>0.25%</td>
<td>0.345%</td>
</tr>
<tr>
<td>Frac Borr</td>
<td>15.27%</td>
<td>12.86%</td>
<td>15.27%</td>
<td>11.81%</td>
</tr>
<tr>
<td>Relative Debt Size to 04Q1</td>
<td>1.000</td>
<td>0.886</td>
<td>1.000</td>
<td>0.762</td>
</tr>
</tbody>
</table>
Delinquency Terms over the Great Recession

The graph illustrates the distribution of delinquency terms over the Great Recession. The x-axis represents the range of delinquency terms, while the y-axis shows the distribution of these terms. The line labeled "Original SS" represents the distribution before any reform, with a peak during the Great Recession. The line labeled "After Reform" indicates a shift and change in the distribution post-reform.
Loan pricing over the Recession
For bankruptcy, job finding rate is central, not separation.
Job finding rates are the key for DQ too.
Return now to main question...

- How did the Bankruptcy Reform of 2005 matter for the paths of consumer debt and default over the GR?
BK Reform Mattered for Income—via job acceptance and quit decisions

![Graph showing the impact of BK reform on income deviations from trend. The graph displays data and benchmark lines for the years 2004 to 2013, showing how the reform affected income deviations. The x-axis represents the years from 2004 to 2013, while the y-axis represents the log deviations from trend income. The graph compares data, no reform, and benchmark conditions, highlighting the significant impact of the BK reform on income trends.]
BK Reform Mattered for Observed Bankruptcy...
...But not for delinquency! (it’s labor markets for this)
Consumer Bankruptcy Reform and Deleveraging in the Great Recession
Consumer Bankruptcy Reform and Consumption in the Great Recession
Conclusions

- We asked: How did labor markets and BK law influence credit use and default patterns in the GR?

- Provided a model of consumer credit use and default during Great Recession
  - Bankruptcy reform did in fact lower filing rates, given the evolution of labor market risk
  - Bankruptcy reform did not matter much for delinquency
  - Changes in job finding rates key for default and debt paths
Next Step: Why have default rates been so low in the recovery?

- Starting in 2011, the model predicts much more default than occurred.
- Default rates continually falling, even now
- One change: social insurance policy
  - Most prominent: UI extended, ex-post covering more than 99 weeks
- Use the model to understand the role of social insurance in accounting for low default rate
One hint...recall recent UI duration
A Casey Mulligan experiment: Extend UI by one quarter in "Severe Recession" states

Voila! Dramatic effect on consumer delinquency...
Bankruptcy in the Mulligan experiment
Dramatic effect on consumer delinquency, little effect on bankruptcy

Why does this occur?

- DQ: UI extensions erode the renegotiation power of the household, recall the function $h_{j,e}(\cdot)$
- BK: UI extensions don’t greatly change the fact that BK carries a big fixed cost, many inframarginal
Thanks!