

Labor Market Upheaval, Default Regulations, and Consumer Debt

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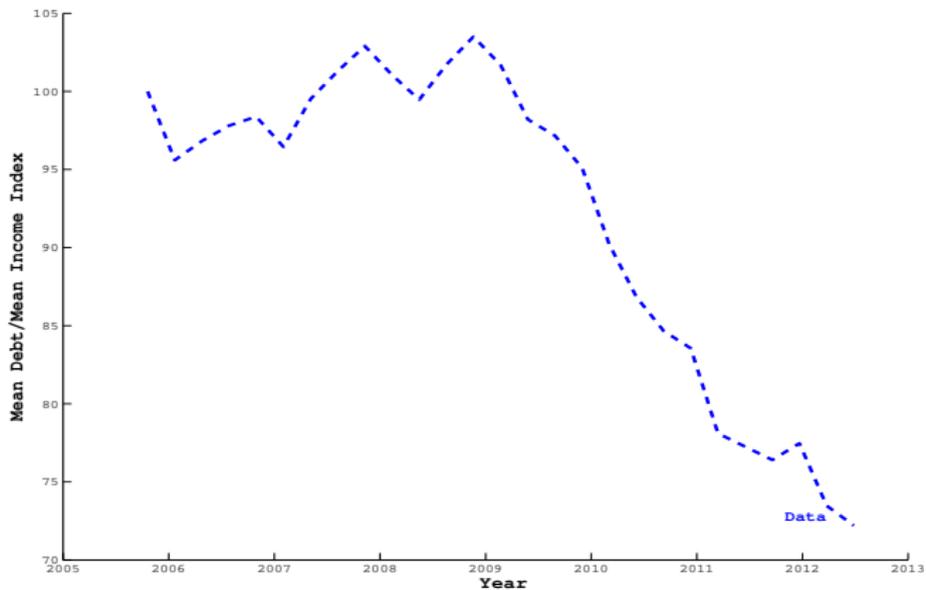
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Motivation

Since 2009

- Big changes in household leverage

Drop in leverage



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- Big changes in household leverage
- Big changes in the level and type of consumer default

How You Can Default

- US offers consumers formal route to repudiate debt:

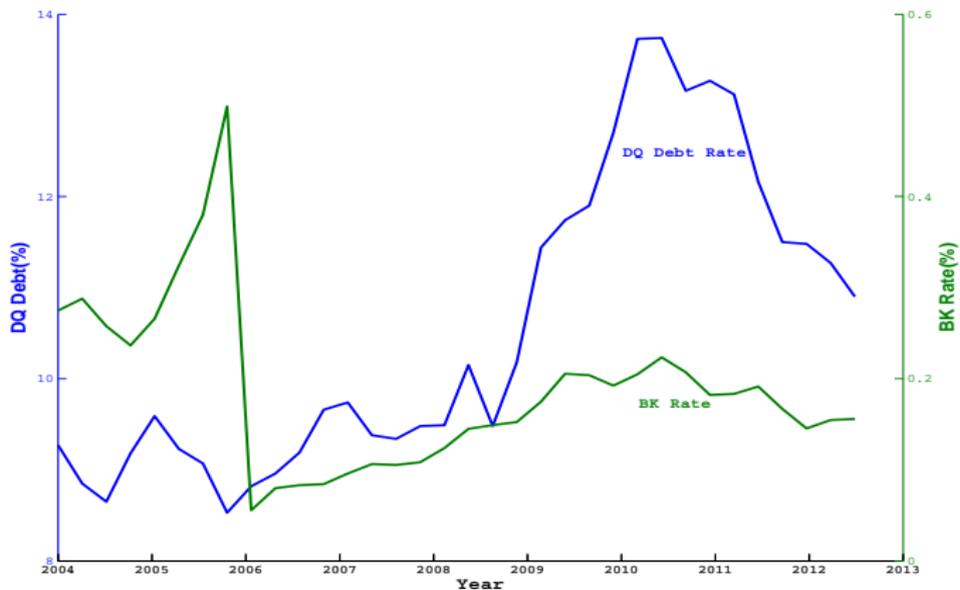
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- Also an informal method
 - ...just stop paying

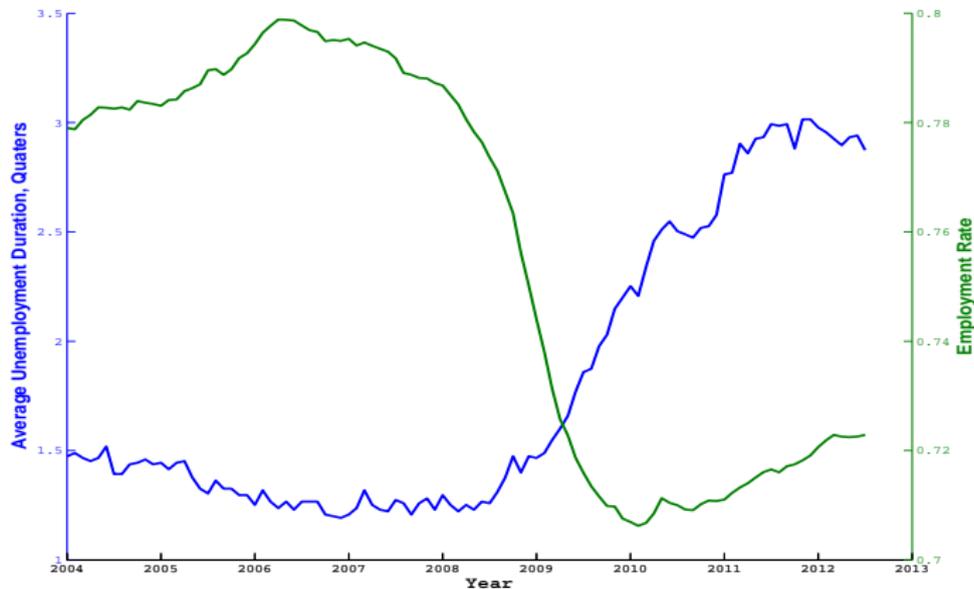
Change in default



Why?

Two relevant things happened just before, and during, this period...

Labor Market Upheaval



Bankruptcy Reform

- In late 2005, BAPCPA roughly doubled bankruptcy filing cost
 - Seems to have come as a surprise

Our Question

"What role did bankruptcy reform and labor market changes play in the paths of debt, delinquency, and bankruptcy over the Great Recession?"

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- **Step 1:** Feed in labor market upheaval, by setting
 - job separation rates
 - job finding rates
- **Step 2:** Compare model predictions for paths of debt, delinquency, bankruptcy to data
- **Step 3:** Use counterfactuals to understand the roles of labor markets and bankruptcy law in outcomes
 - Evaluate Step 2 with and without 2005 BK reform
 - Evaluate Step 2 with and without changes in labor markets

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 - Persistent component
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- Two ways to default on debt:

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- Two ways to default on debt:
 - Bankruptcy: incur filing costs and high utility cost, debts are eliminated
 - Delinquency: incur lower utility cost, debt is reset

Value Function, Solvent

- $v_{j,e}^{d=0}(b_{-1}, y) = \max_b \left\{ u(c) + \beta \sum_{y'} \pi(y'|y) v_{j+1,e}(b, y') \right\}$

- subject to

$$c + q_{j,e}(b, y)b = b_{-1} + y$$

Value Function, DQ

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

- subject to

$$c = y$$

- key object is $h_{j,e}(\cdot)$, as explained below

Value Function, BK

- $v_{j,e}^{d=2}(y) = u(c) - \psi_B + \beta \sum_{y'} \pi(y'|y) v_{j+1,e}(0, y')$

- subject to

$$c = y - \Delta(y)$$

- $\Delta(y)$ will differ by employment status b/c filing costs can be waived

Optimal Behavior of an indebted household

- $$v_{j,e}(b_{-1}, y) = \max \left\{ v_{j,e}^{d=0}(b_{-1}, y), v_{j,e}^{d=1}(y), v_{j,e}^{d=2}(y) \right\}$$

Delinquency and Debt

- If faced with a delinquent, optimizing lenders (who lack commitment) solve:

$$h_{j,e}(y) = \arg \max_b \{bq_{j,e}(b, y)\}$$

- Price of face value b of new debt:

$$q_{j,e}(b, y) = \frac{Q}{1 + r + \phi}$$

Pricing and Delinquency

- A law of motion

$$\begin{aligned}
 \mathbb{Q} = & \sum_{y'} \pi(y'|y) \mathbb{1}(d_{j+1,e}(b, y') = 0) + \\
 & \sum_{y'} \pi(y'|y) \mathbb{1}(d_{j+1,e}(b, y') = 1) \left[\frac{q_{j+1,e}(h_{j+1,e}(y'), y') h_{j+1,e}(y')}{b} \right]
 \end{aligned}$$

Earnings Risk

- Quarterly model—key for capturing delinquency
- Wage risk and employment risk
- UI, DI, Food stamps
- Follow Low, Meghir, Pistaferri (2010)
 - Wages and employment both risky, depend on education
 - Workers matched with firms, quality specific to current match m

Earnings Risk, con't

- Wage Risk

$$\ln(w_j(e, n, m)) = x_j(e) + n_j + m_j$$

$$n_j = n_{j-1} + \zeta_j$$

Earnings Risk, con't

- Employment Risk
 - if employed, offers arrive with Pr. λ_e^E
 - if unemployed, offers arrive with Pr. λ_e^N
 - All matches break with exog. separation rate: δ_e
- Disposable Earnings
 - $y_j(n, m, p) = p(w_j(e, n, m)h(1 - \tau) - F_e)$
 - $p \in \{0, 1\}$
- Food Stamps
 - $T_j(y)$
- A Disability system in place too (like UI, but absorbing)

Preferences

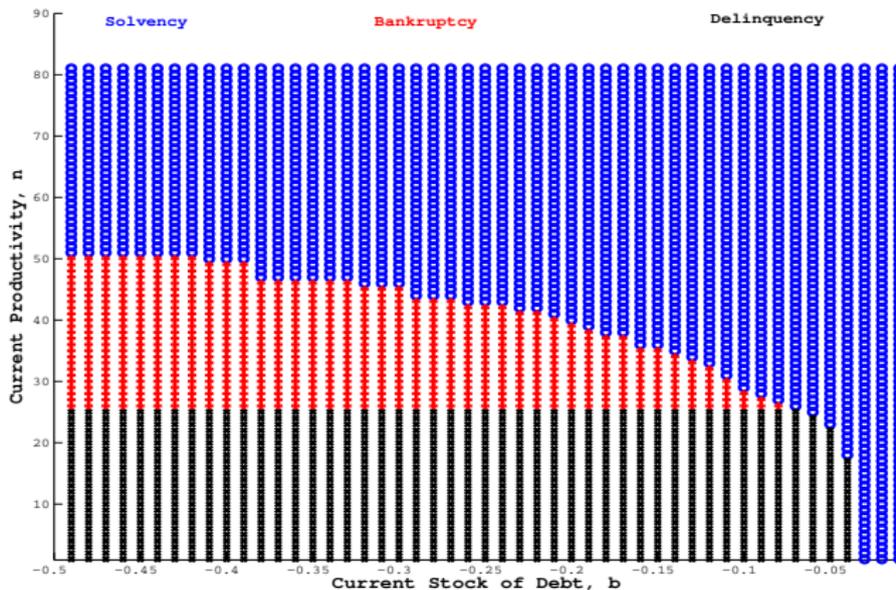
$$u(c, p) = \frac{(c \exp(\varphi_e p))^{1-\gamma}}{1-\gamma}$$

Parameters

Discount factor		β	0.957
Non-pecuniary cost	BK	ψ_B	1.786
Non-pecuniary cost	DQ	ψ_D	0.104

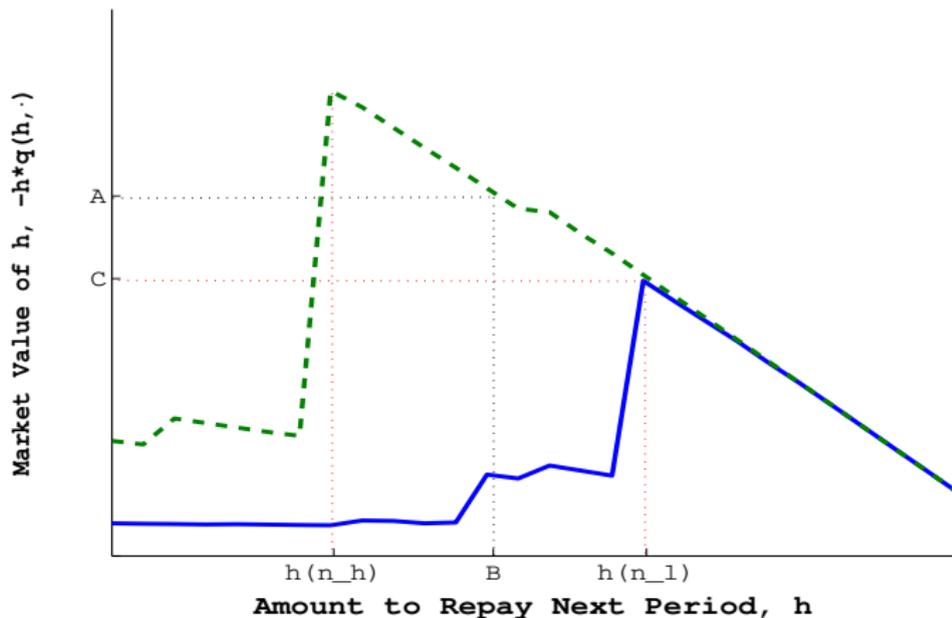
	Data	Model
Share of debt in 90+ DQ, %	8.9	7.8
Bankruptcy rate, %	0.26	0.26
Mean (assets/income)	4.07	3.09

Repayment Decisions—Persistent shocks



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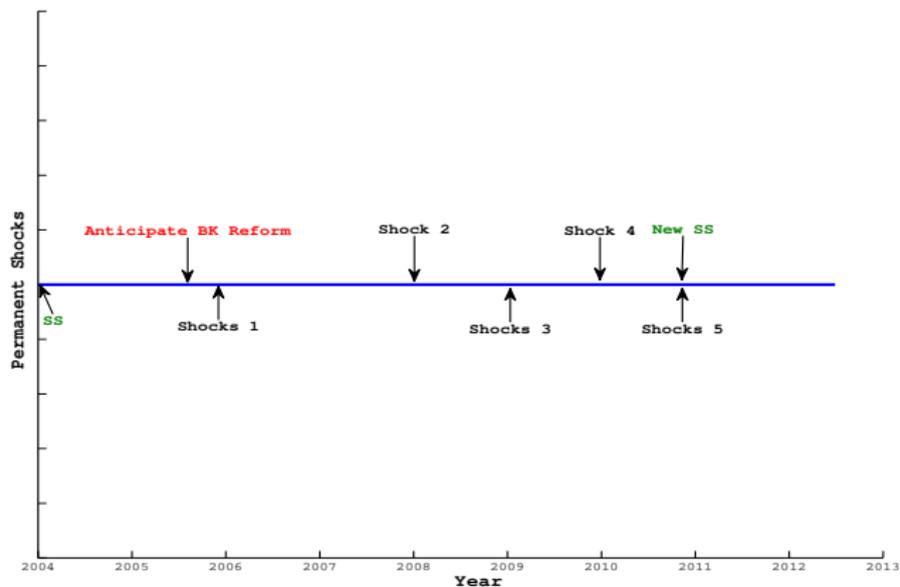
- good times for wages means repayment
- bad times for wages means delinquency–get debt forgiveness!
- medium times for wages and a lot of debt means bankruptcy–no forgiveness in DQ.
- Notice: conditional on shocks–no switches in choice of default path
 - Repayment branch value function is *only* one that depends on debt

On the determination of $h(\cdot)$ and the decision to enter DQ

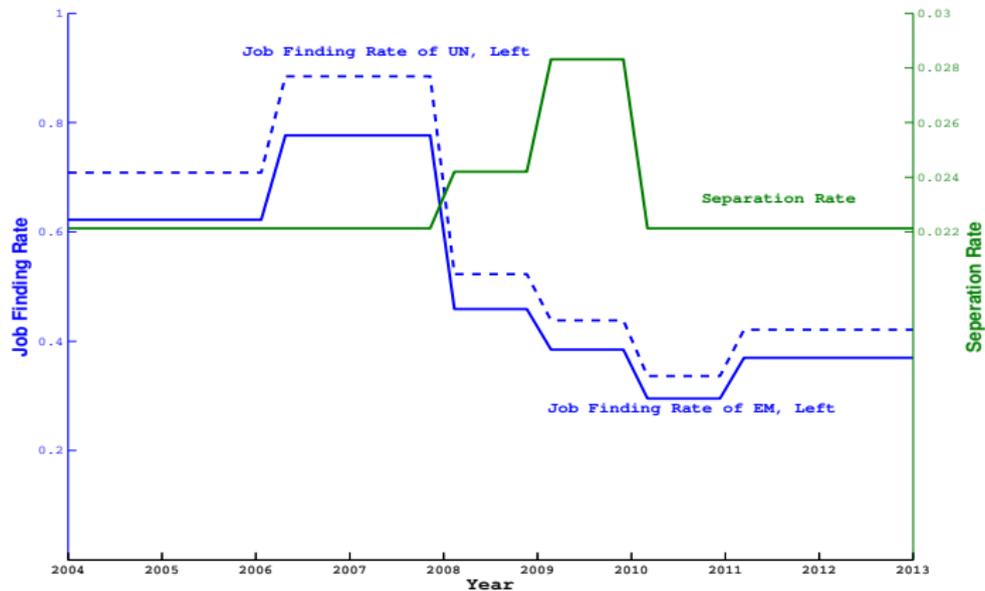
Debt and Default in The Great Recession

- Shocks to job finding and separation
- Each shock unanticipated, expected to be permanent (can be relaxed)

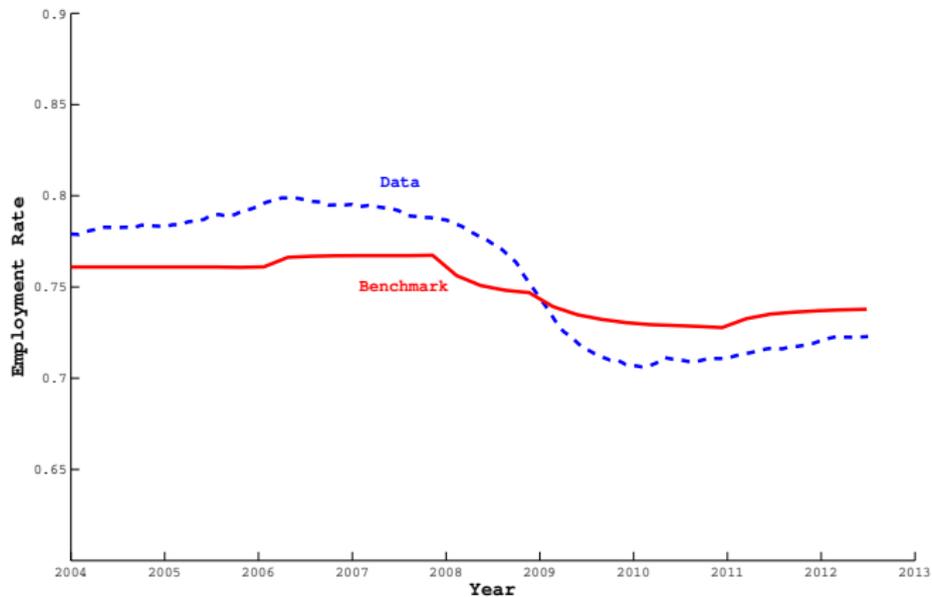
Model Approximation, shocks



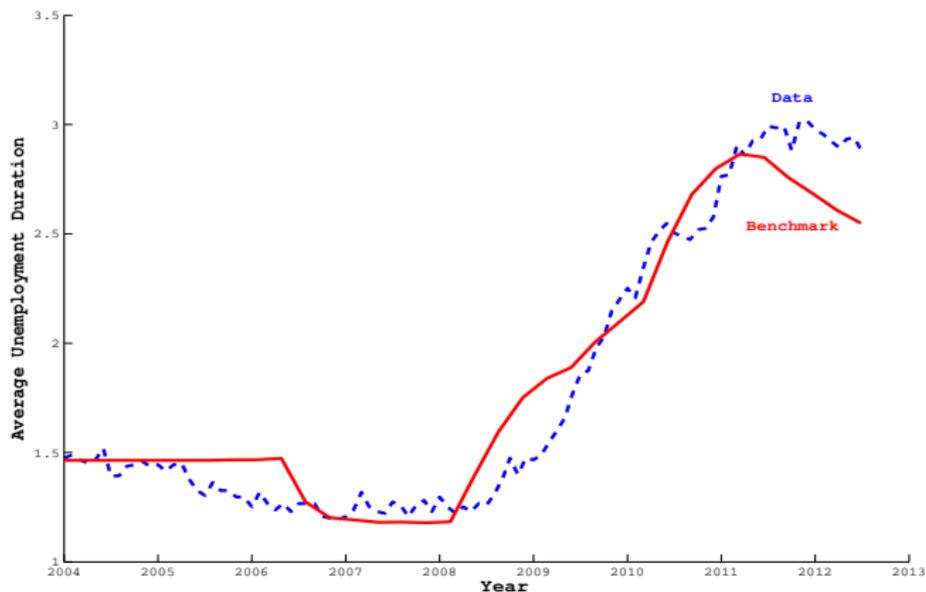
The Shocks



Tracking Employment Rates

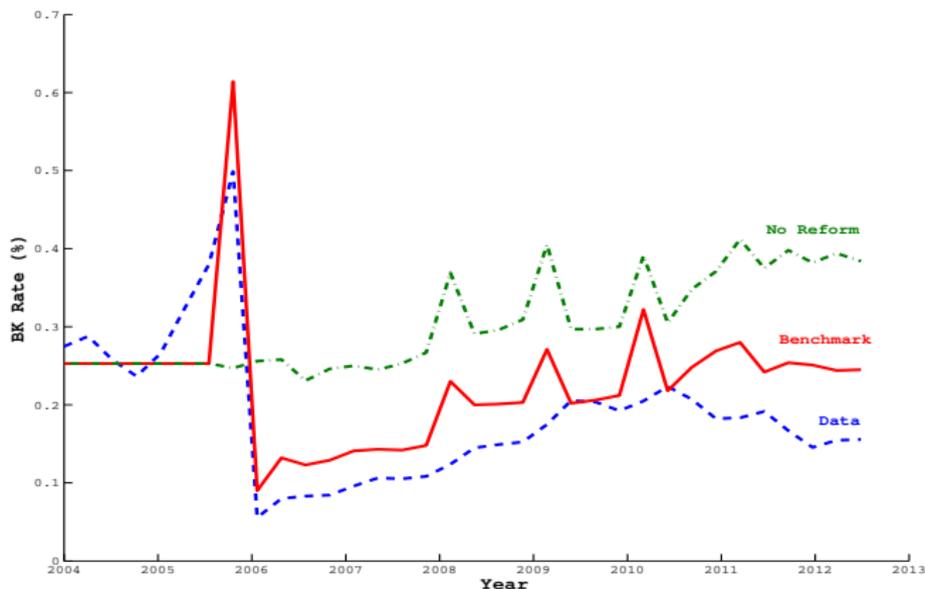


Tracking Unemployment Duration



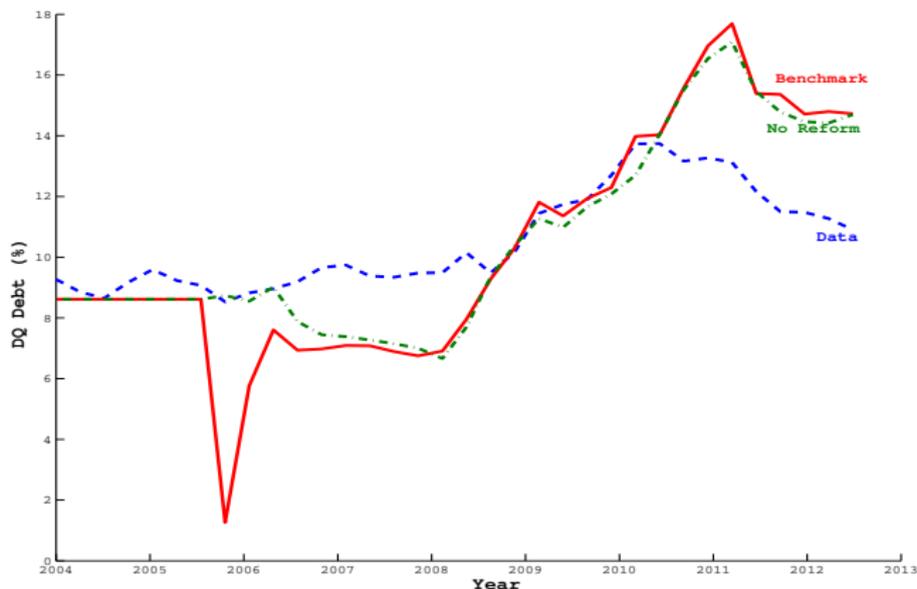
Bk Reform Mattered for Observed Bankruptcy

- Model accounts well for path of bankruptcy during GR



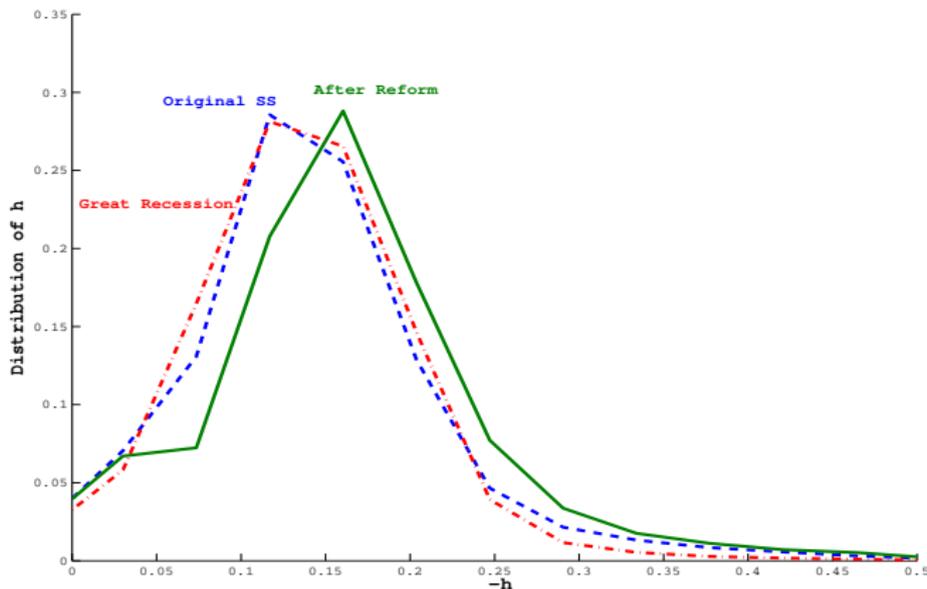
Model Generates Rise in Delinquencies in seen in GR

- Model suggests that labor markets deterioration key for DQ, reform does not matter.



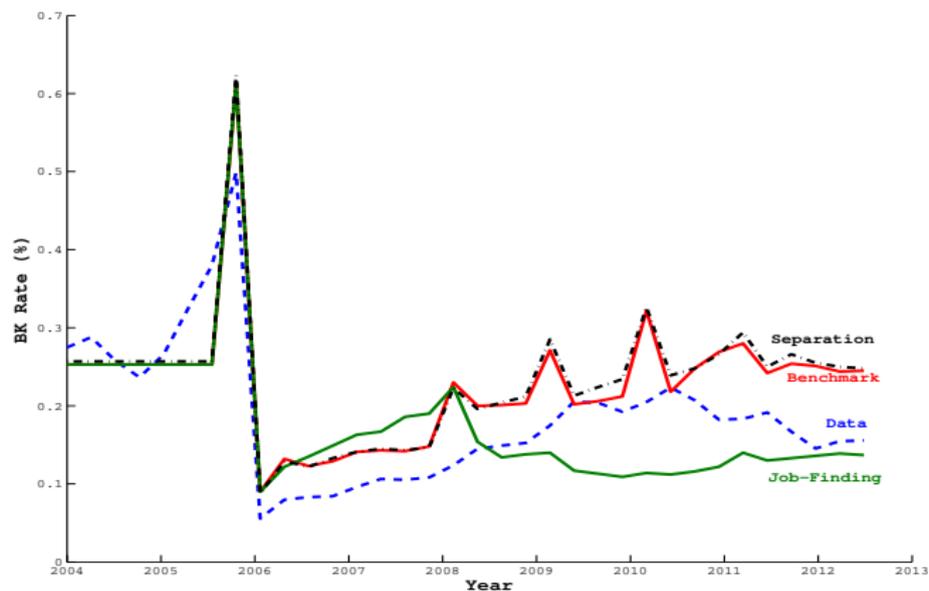
The distribution of renegotiated debt

- BK Reform would have made DQ a lot tougher—but labor markets “intervened”



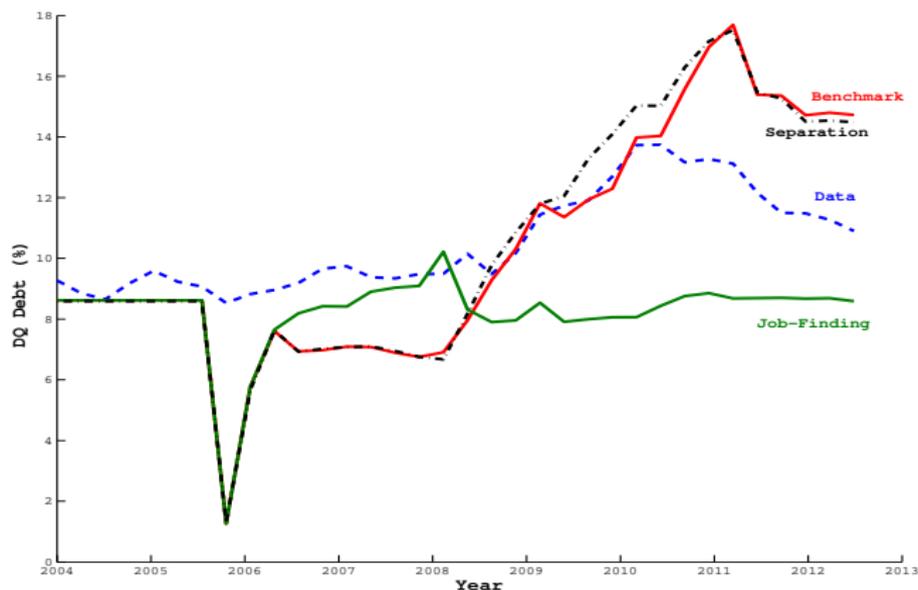
Bankruptcy in the GR-decompositions

- Job finding is central, not separation



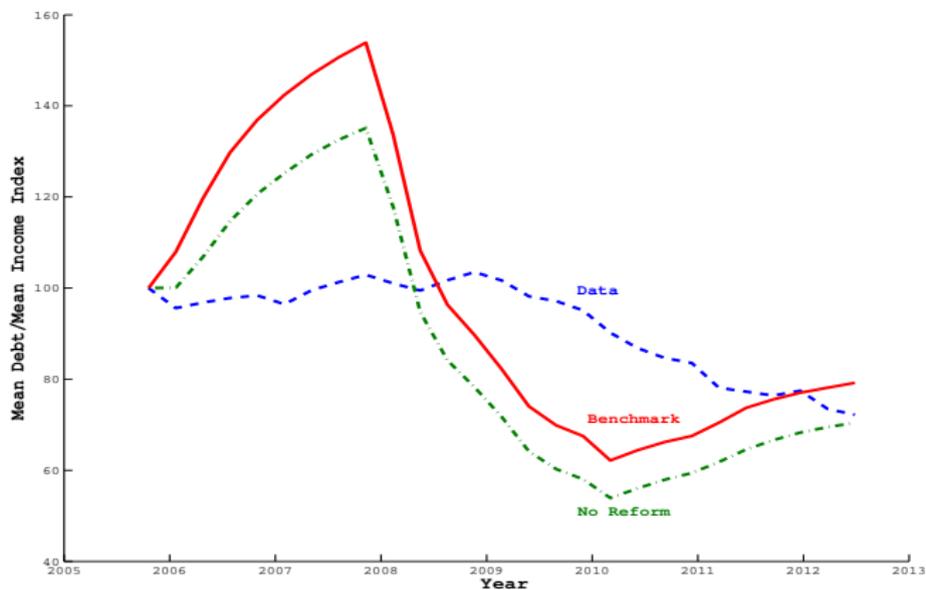
Delinquency in the GR-decompositions

- Again, movements in job finding rate are the key

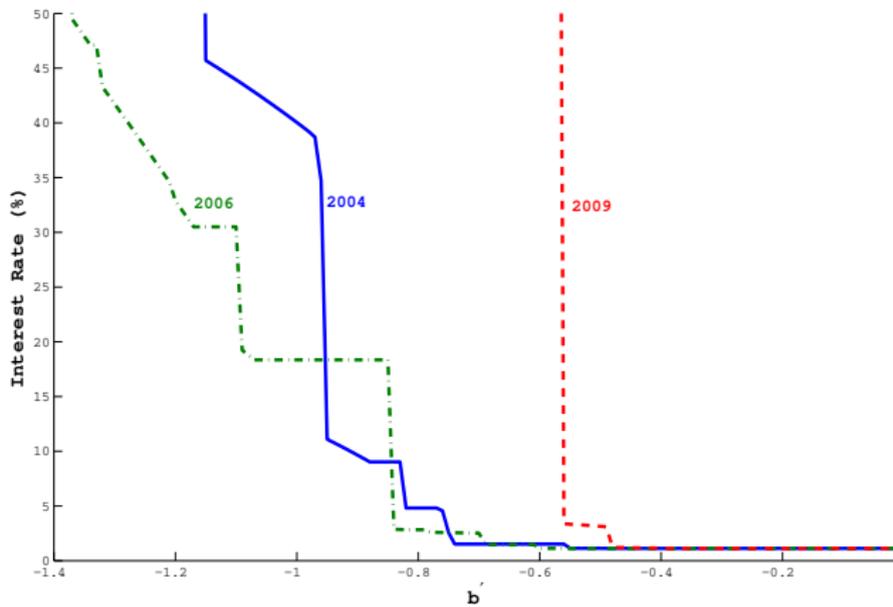


Bankruptcy Reform and Deleveraging

- Debt more sensitive to income in model than data—lenders here learn immediately



The Proximate Cause of Deleveraging



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- Have taken a step towards understanding consumer credit use and default during Great Recession

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- Model quantitatively consistent with both bk and dq paths in GR

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- Have taken a step towards understanding consumer credit use and default during Great Recession
- Model quantitatively consistent with both bk and dq paths in GR
- Model suggests that:
 - bankruptcy reform did in fact lower filing rates, given the evolution of labor market risk
 - delinquency not strongly affected by BK reform
 - changes in job finding rates key for default and debt