

# Labor Market Upheaval, Default Regulations, and Consumer Debt

Kartik Athreya    Juan M. Sánchez    Xuan S. Tam    Eric R. Young  
FRB Richmond    FRB St Louis    City Univ. of HK    UVA

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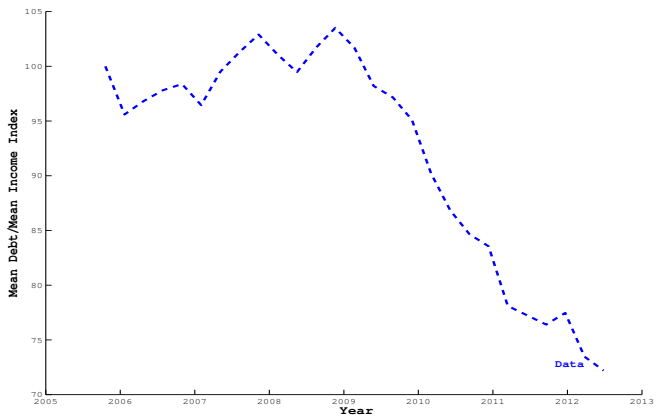
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# Motivation

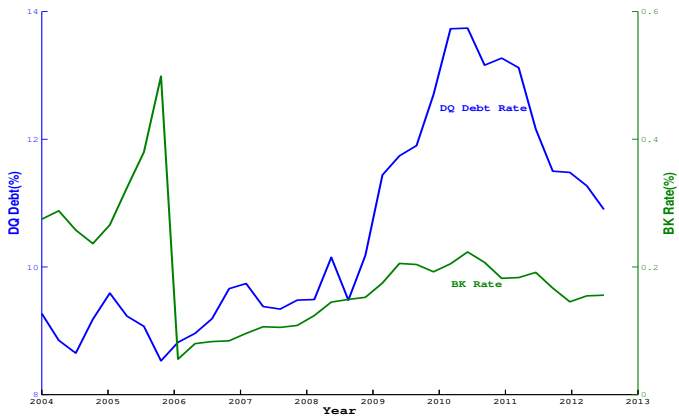
Great recession:

- ▶ 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

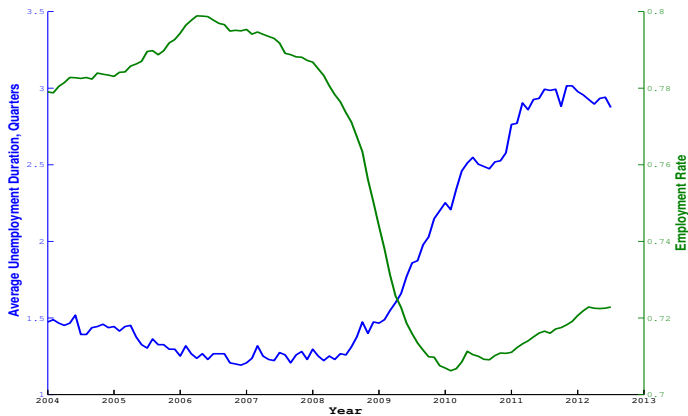


# Why?

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

$$\blacktriangleright v_{j,e}(b, y) = \max \left\{ \underbrace{v_{j,e}^{d=0}(b, y)}_{\text{solvent}}, \underbrace{v_{j,e}^{d=1}(y)}_{\text{delinquent}}, \underbrace{v_{j,e}^{d=2}(y)}_{\text{bankrupt}} \right\}$$

## Value Function, Solvent

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

▶ subject to

$$c + q_{j,e}(b', y)b' = b + y$$

## Value Function, DQ

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

- ▶ 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

## Delinquency and Debt

- ▶ If faced with a delinquent borrower, optimizing lenders solve:

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

- ▶ Price of face value  $b$  of new debt:

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

where

$$Q(b, y') = \underbrace{1 (d_{j+1,e}(b, y') = 0)}_{\text{solvent}} + \underbrace{1 (d_{j+1,e}(b, y') = 1) \left[ \frac{q_{j+1,e}(h_{j+1,e}(y'), y') h_{j+1,e}(y')}{b} \right]}_{\text{delinquent}}$$

# 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

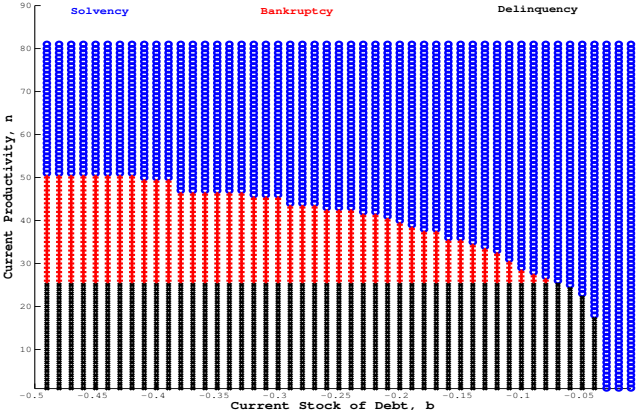
- ▶ Earnings Risk and Social Insurance taken from Low, Meghir, Pistaferri (2010, AER):
- ▶ Other parameters directly taken from data
  - ▶ Risk-free interest rate  $r = 0.375\%$
  - ▶ Lending cost  $\phi = 0.75\%$
  - ▶ BK filing fee for employed \$1,200
  - ▶ BK filing fee for unemployed \$600
- ▶ Risk aversion  $\gamma = 2.0$
- ▶ Remaining parameters calibrated to match specific targets.

## Calibrated Parameters and Targets

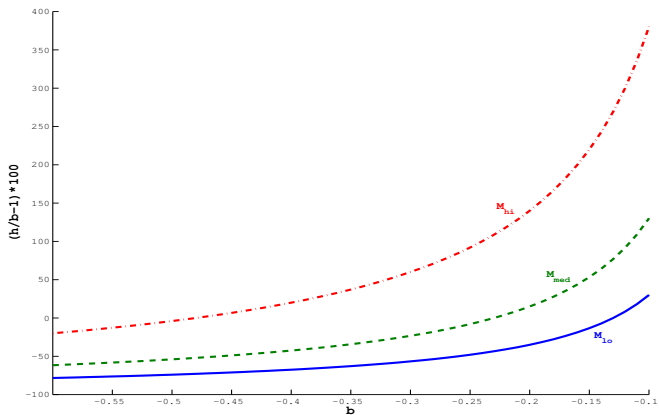
Discount factor	$\beta$	0.947
Non-pecuniary cost BK	$\psi_B$	1.785
Non-pecuniary cost DQ	$\psi_D$	0.103

	Data	Model
Share of debt in 90+ DQ, %	8.9	8.9
Bankruptcy rate, %	0.26	0.25
Mean (assets/income)	4.07	3.09

# Repayment Decisions—Persistent shocks



# Renegotiation terms in delinquency

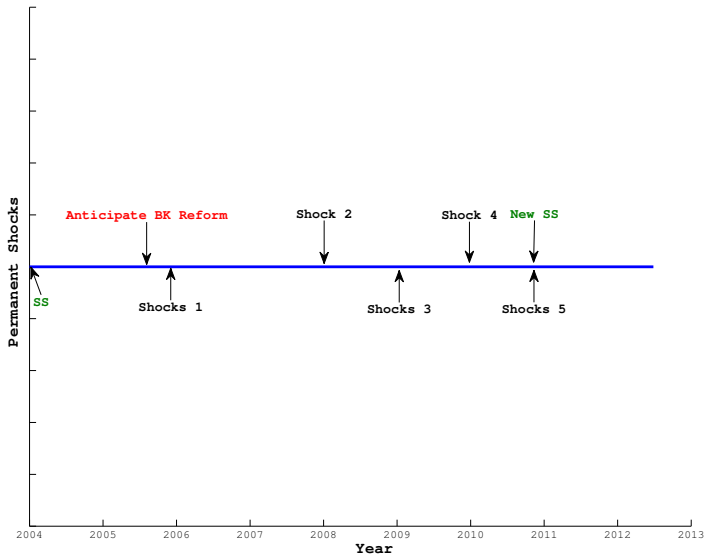


# The Experiment

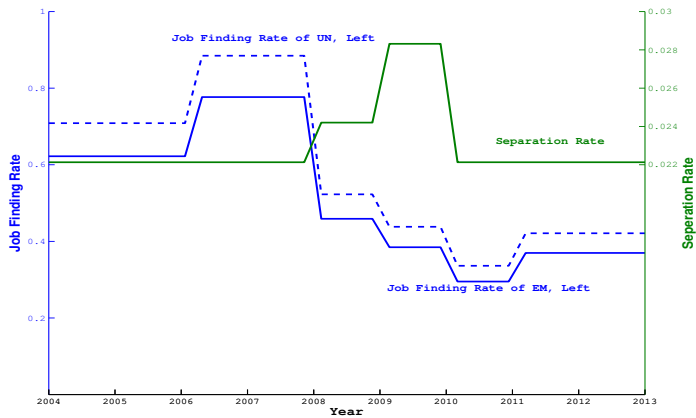
Our approach:

- ▶ **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.

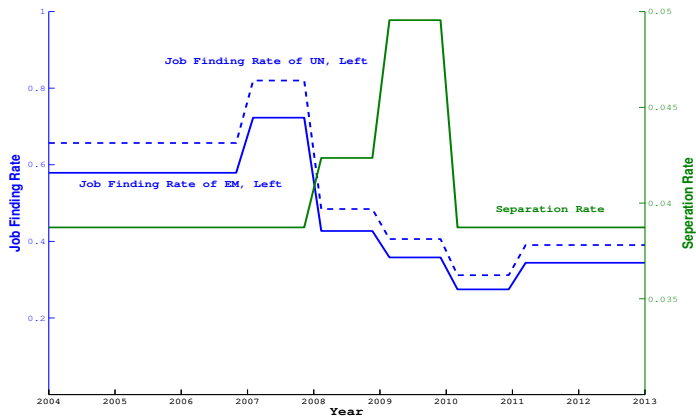
# Model Approximation, shocks



# The Shocks

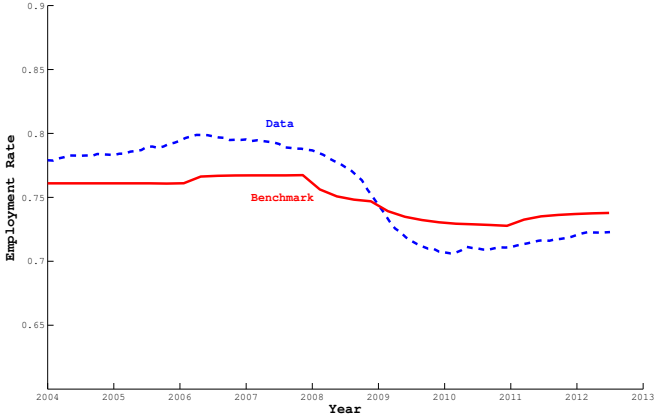


# The Shocks: Low Education

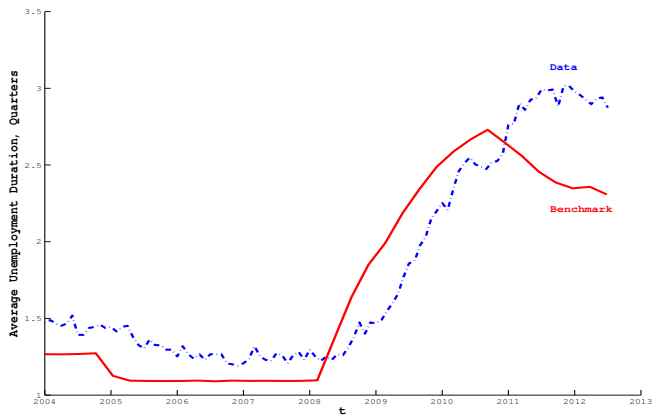




# Tracking Employment Rates



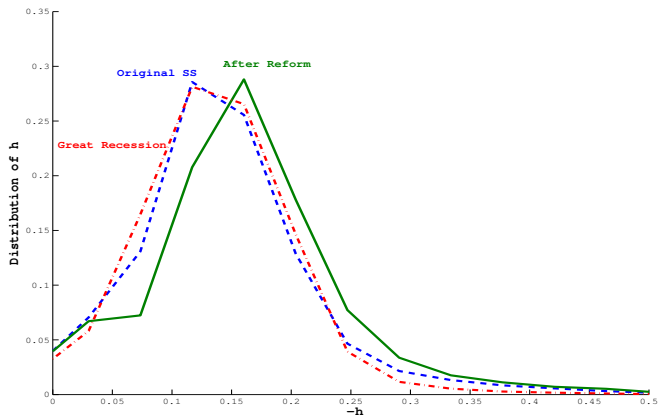
# Tracking Unemployment Duration



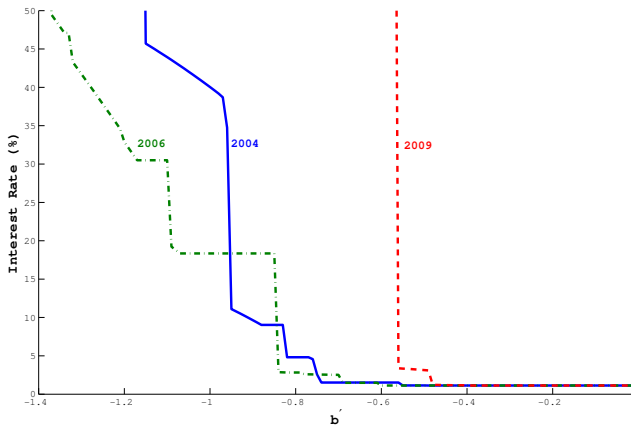
## Findings: 2004Q1 vs. 2012Q2

	Reform		No Reform	
	2004Q1	2012Q2	2004Q1	2012Q2
DQ Debt Rate	8.95%	11.67%	8.95%	11.70%
BK Rate	0.25%	0.23%	0.25%	0.345%
Frac Borr	15.27%	12.86%	15.27%	11.81%
Relative Debt Size to 04Q1	1.000	0.886	1.000	0.762

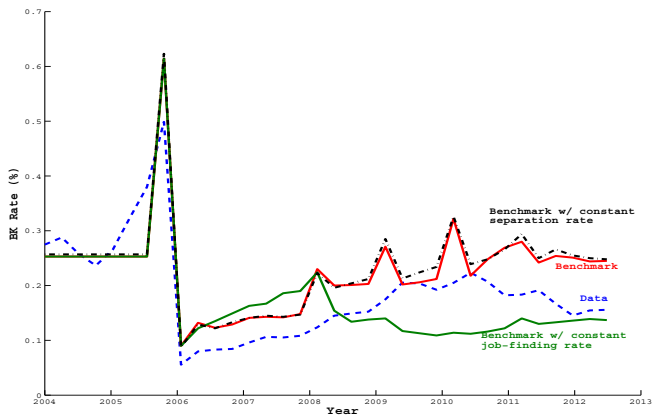
# Delinquency Terms over the Great Recession



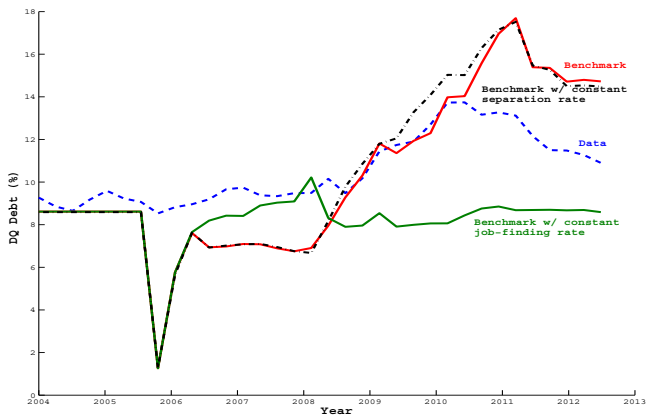
# Loan pricing over the Recession



# For bankruptcy, job finding rate is central, not separation



# Job finding rates are the key for DQ too

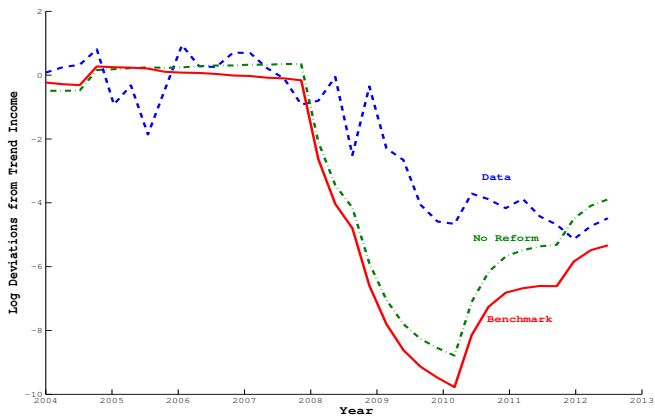


Return now to main question...

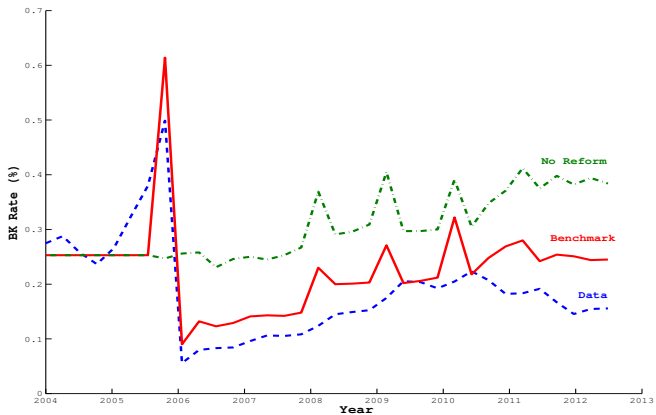
- ▶ How did the Bankruptcy Reform of 2005 matter for the paths of consumer debt and default over the GR?



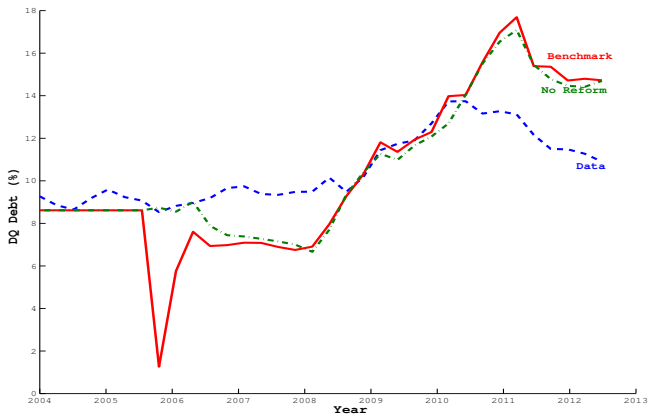
# BK Reform Mattered for Income—via job acceptance and quit decisions



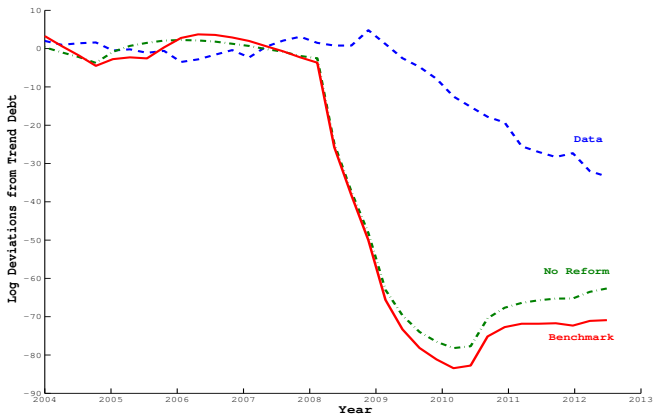
# BK Reform Mattered for Observed Bankruptcy...



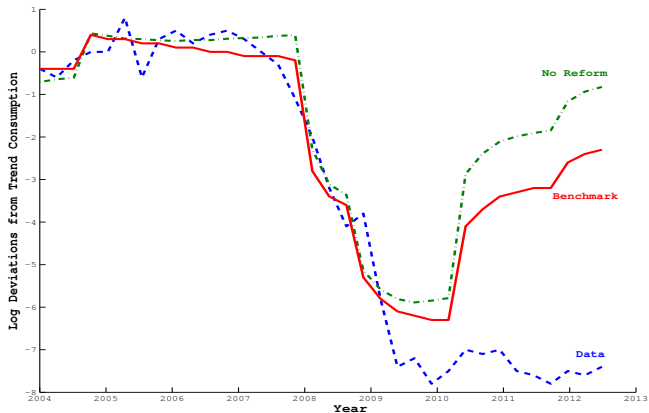
...But not for delinquency! (it's labor markets for this)



# Consumer Bankruptcy Reform and Deleveraging in the Great Recession



# Consumer Bankruptcy Reform and Consumption in the Great Recession



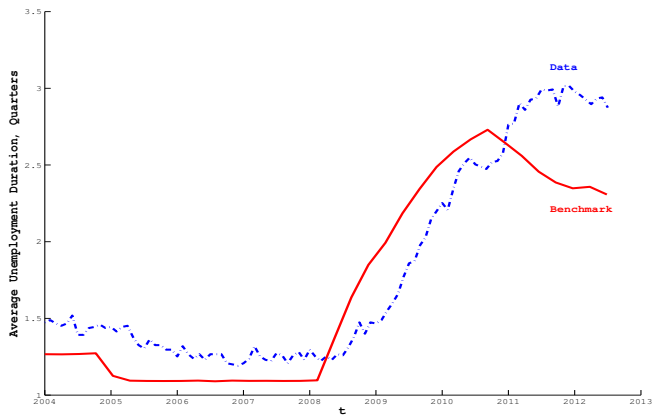
# Conclusions

- ▶ 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

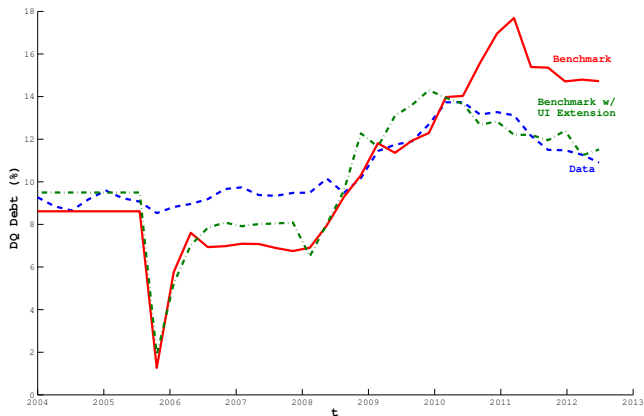
# One hint...recall recent UI duration



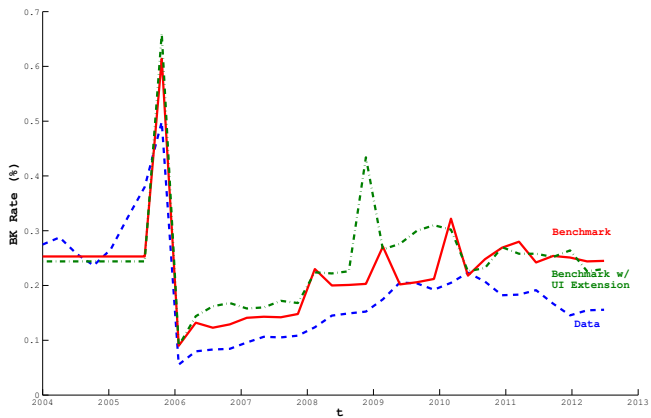


# A Casey Mulligan experiment: Extend UI by one quarter in "Severe Recession" states

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!