

Liquidity Constraints and Consumer Bankruptcy: Evidence from Tax Rebates

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Previous research suggests that liquidity constraints matter

- ▶ Consumers often increase consumption after small increases in income (Souleles, 1999; Shapiro and Slemrod, 2003; Hsieh, 2003; Stephens, 2003; Johnson, Parker, and Souleles, 2006)
- ▶ Consumers are sensitive to down-payments relative to interest rates (Adams, Einav, and Levin, 2009)
- ▶ Consumers change schooling decisions based on aid (Dynarski, 2003)

Liquidity Constraints Can Prevent Utilization of Social Insurance

Bankruptcy is a form of social insurance

- ▶ Bankruptcy is a form of consumption insurance
- ▶ Barriers to bankruptcy:
 - ▶ Court fees \$300
 - ▶ Chapter 7 legal fees cost \$500–\$1,500

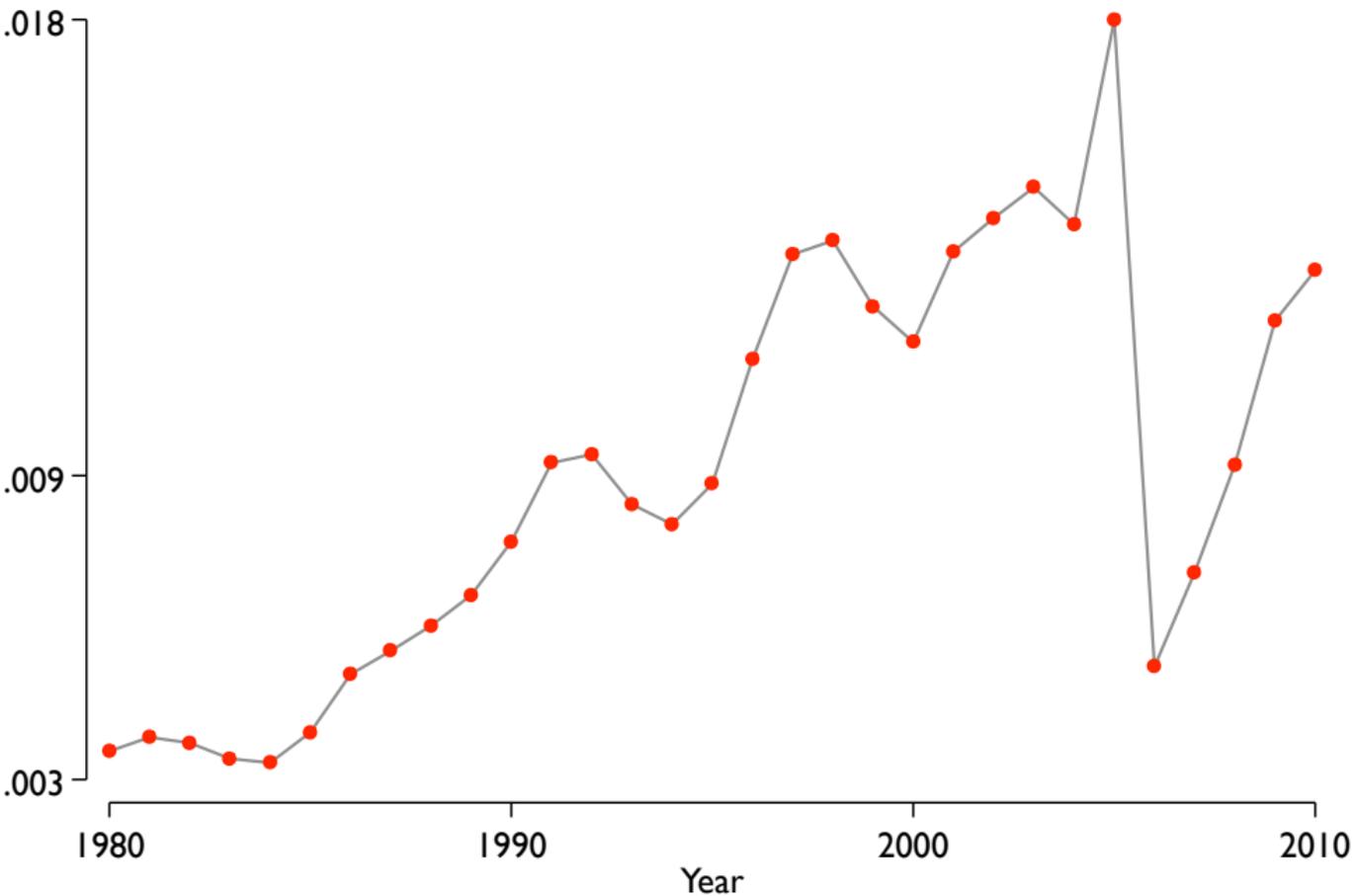
Our goal is to test whether the upfront-costs of bankruptcy prevent liquidity-constrained households from declaring bankruptcy

- ▶ We measure the impact of 2001 and 2008 tax rebates on bankruptcy filings
- ▶ Surprising result: Bankruptcies increase after households receive rebate

Outline of Talk

1. Background on Bankruptcy
2. Theoretical Framework
3. Empirical Framework
4. Event-Study Results

Bankruptcies per Household



The Bankruptcy Abuse and Consumer Protection Act (BAPCPA) of 2005

- ▶ Higher legal fees
- ▶ Mandatory credit counseling
- ▶ Means test for Chapter 7

Filers can choose between two chapters

- ▶ Consumers have a choice between Chapter 7 and Chapter 13
 - ▶ Chapter 7 filers exchange their assets for a “fresh start”
 - ▶ Chapter 13 filers commit to a payment plan
- ▶ Key distinction: Chapter 13 legal fees can be postponed, whereas Chapter 7 legal fees must be paid in advance

There exists a divisive debate over the future of the bankruptcy system

- ▶ Many policy proposals have been made
 - ▶ Reversing 2005 reform
 - ▶ “Cramdown” of subprime mortgages
 - ▶ Mann and Porter (2010) suggest simplifying the paperwork
- ▶ Future bankruptcy system still in question

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A simple model of consumer bankruptcy

- ▶ Purpose of the model: specify how bankruptcy rates ought to respond to tax rebates
- ▶ Main result: only liquidity-constrained filers should become more likely to declare bankruptcy

Timing of the Model

- ▶ Period 0: Exogenous amount of debt, B , acquired.
- ▶ Period 1:
 - ▶ Wealth, $W \sim f(w)$, realized
 - ▶ Households can declare bankruptcy
- ▶ Period 2:
 - ▶ Households receive positive income shock, τ , from tax rebates
 - ▶ Households can declare bankruptcy
 - ▶ All wealth net of bankruptcy costs is consumed

- ▶ A share $1 - e$ of wealth is dissolved in bankruptcy
- ▶ To declare bankruptcy, filers must pay a fixed filing fee, c
 - ▶ If $W < c$ then they cannot file in period 1
 - ▶ If $W + \tau < c$ then they cannot file in period 2
- ▶ Income from the tax rebates, τ , is dissolved in bankruptcy whether filing in period 1 or 2
- ▶ Consumption is equal to...
 - ... $W + \tau - B$ if the household did not file
 - ... $(1 - e) \cdot (W - c + \tau)$ if the household files for bankruptcy

Other filers:

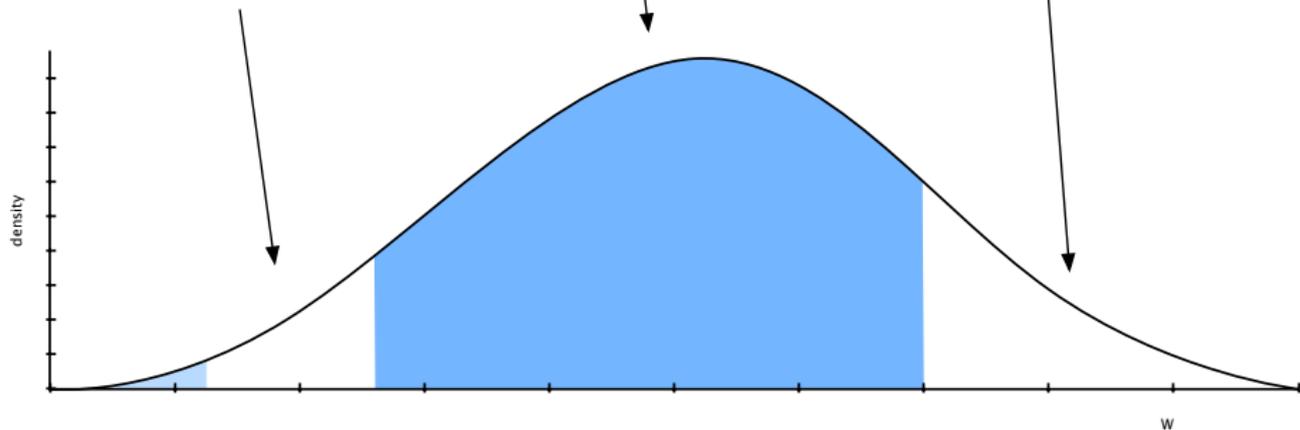
$$\begin{aligned} W &> c, \\ u(W + \tau - B) &\leq u(e \cdot (W - c + \tau)) \\ \Rightarrow c \leq W &\leq \frac{B - e \cdot c + (e - 1) \cdot \tau}{1 - e} \end{aligned}$$

Wealthy households:

$$\begin{aligned} W &> c, \\ u(W + \tau - B) &\geq u(e \cdot (W - c + \tau)) \\ \Rightarrow W &\geq \frac{B - e \cdot c + (e - 1) \cdot \tau}{1 - e} \end{aligned}$$

Constrained filers:

$$\begin{aligned} W &< c \\ W + \tau &> c \\ \Rightarrow c - \tau &\leq W < c \end{aligned}$$



Implications of the Model

- ▶ The tax rebates increase bankruptcies of liquidity-constrained filers in period 2 only
- ▶ The timing of other bankruptcy filers is unaffected by the rebates
- ▶ Liquidity-constrained filers are those who gain the most from bankruptcy

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Cases Report for 6/30/2011

U.S. Bankruptcy Court

Eastern District of New York

Case No. Related Case Info	Tp	Ch	Party Info	Judge Trustee	Dates	Other Info
1-09-43706-sec	bk	7	<p>Christian R Hernandez 87 Glen Street Brooklyn, NY 11208 SSN / ITIN: xxx-xx-0491 Role: Debtor</p> <p>United States Trustee 271 Cadman Plaza East Suite 4529 Brooklyn, NY 11201 (718) 422-4960 Role: U.S. Trustee</p>	Craig O'Connell	<p>Filed: 05/06/2009 Office: Brooklyn Entered: 05/06/2009 Disp: Standard Discharge Discharged: 08/13/2009 Assets: No Closed: 08/13/2009 Fee: Paid County: Kings</p>	
1-09-43707-jf	bk	7	<p>Cesar G Padilla 63-29 Dry Harbor Rd #1 Floor Middle Village, NY 11379 SSN / ITIN: xxx-xx-1673 Role: Debtor</p> <p>United States Trustee 271 Cadman Plaza East Suite 4529 Brooklyn, NY 11201 (718) 422-4960 Role: U.S. Trustee</p> <p>Verizon Wireless Cap Capital Recovery III LLC c/o Recovery Management Systems Corporation 25 SE 2nd Avenue, Suite 1120 Miami, FL 33131-1605 (305) 379-7674 Role: Creditor</p>	Feller O'Connell	<p>Filed: 05/06/2009 Office: Brooklyn Entered: 05/06/2009 Disp: Standard Discharge Discharged: 08/11/2009 Assets: No Closed: 08/11/2009 Fee: Paid County: Queens</p>	
1-09-43708-sss	bk	7	<p>Eddy Charles Pierre 154-05 71st Avenue Apt. 1C Flushing, NY 11367 SSN / ITIN: xxx-xx-9197 Role: Debtor</p> <p>United States Trustee 271 Cadman Plaza East Suite 4529 Brooklyn, NY 11201 (718) 422-4960 Role: U.S. Trustee</p> <p>Morris J Newman newman Anzalone & Associates 97-45 Queens Boulevard 6th Floor Forest Hills, NY 11374 Role: Spec. Counsel</p>	Stong Doyaga	<p>Filed: 05/06/2009 Office: Brooklyn Entered: 05/06/2009 Disp: Standard Discharge Discharged: 10/14/2009 Assets: Yes Fee: Paid County: Queens</p>	
1-09-43709-jf	bk	7	<p>Leonard S Smith 114-73 225th Street Cambria Heights, NY 11411 SSN / ITIN: xxx-xx-6505 Role: Debtor</p> <p>United States Trustee 271 Cadman Plaza East Suite 4529 Brooklyn, NY 11201</p>	Feller Doyaga	<p>Filed: 05/06/2009 Office: Brooklyn Entered: 05/06/2009 Disp: Standard Discharge Discharged: 08/12/2009 Assets: No Closed: 08/12/2009 Fee: Paid County: Queens</p>	

Cases Report for 6/30/2011

U.S. Bankruptcy Court

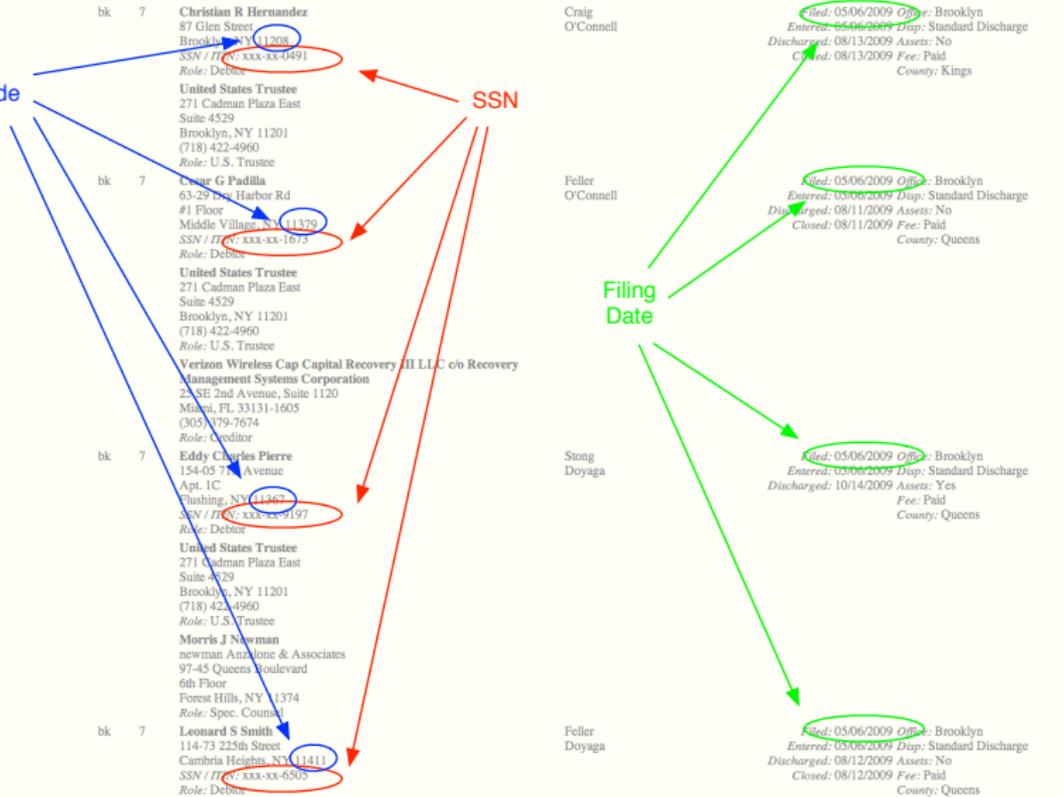
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1-09-43707-ff	bk	7	<p>Osag G Padilla 63-29 124th Harbor Rd #1 Floor Middle Village, NY 11370 SSN / ITIN: XXX-XX-1673 Role: Debtor</p> <p>United States Trustee 271 Cadman Plaza East Suite 4529 Brooklyn, NY 11201 (718) 422-4960 Role: U.S. Trustee</p> <p>Verizon Wireless Cap Capital Recovery III LLC c/o Recovery Management Systems Corporation 23 SE 2nd Avenue, Suite 1120 Miami, FL 33131-1605 (305) 379-7674 Role: Creditor</p>	Feller O'Connell	<p>Filed: 05/06/2009 Office: Brooklyn Entered: 05/06/2009 Discharged: 08/11/2009 Assets: No Closed: 08/11/2009 Fee: Paid County: Queens</p>	
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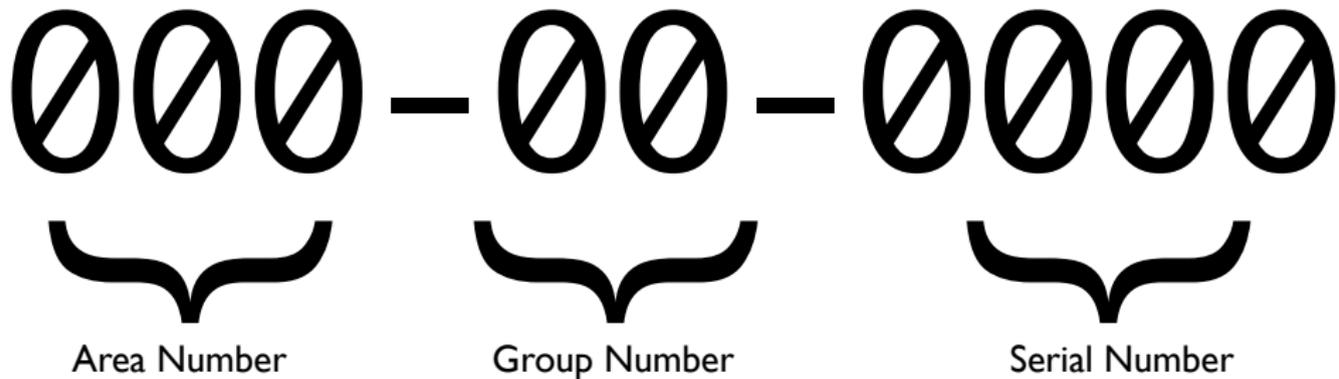
Zip Code

SSN

Filing Date



Anatomy of a Social Security Number



IRS Schedule for Mailing Checks

<u>Last 2 Digits of SSN's</u>	<u>2001 Rebate Check Sent</u>	<u>Last 2 Digits of SSN's</u>	<u>2008 Stimulus Check Sent</u>	<u>Last 2 Digits of SSN's</u>	<u>2008 Stimulus Deposit Made</u>
00 – 09	20-Jul-01	00 – 09	16-May-08	00 – 20	2-May-08
10 – 19	27-Jul-01	10 – 18	23-May-08	21 – 75	9-May-08
20 – 29	3-Aug-01	19 – 25	30-May-08	76 – 99	16-May-08
30 – 39	10-Aug-01	26 – 38	6-Jun-08		
40 – 49	17-Aug-01	39 – 51	13-Jun-08		
50 – 59	24-Aug-01	52 – 63	20-Jun-08		
60 – 69	31-Aug-01	64 – 75	27-Jun-08		
70 – 79	7-Sep-01	76 – 87	4-Jul-08		
80 – 89	14-Sep-01	88 – 99	11-Jul-08		
90 – 99	21-Sep-01				

Difference-in-Difference Framework

Main estimating equation:

$$\log(Y_{tg}) = \alpha_0 + \beta \cdot [\text{Received Check}]_{tg} + \alpha_t + \alpha_g + \varepsilon_{tg}$$

Event-Study Specification:

$$\begin{aligned} \log(Y_{tg}) = & \alpha_0 + \beta_{-3} \cdot I\{t = -3\}_{tg} + \dots \\ & + \beta_0 \cdot I\{t = 0\}_{tg} + \beta_1 \cdot I\{t = 1\}_{tg} + \dots \\ & + \alpha_t + \alpha_g + \varepsilon_{tg} \end{aligned}$$

Last 2 Digits of SSN's	Chapter 7 bankruptcies	Chapter 13 bankruptcies	Total bankruptcies
<u>A. 2001</u>			
00-09	1,310	437	1,744
10-19	1,310	434	1,741
20-29	1,297	435	1,728
30-39	1,299	435	1,732
40-49	1,293	438	1,728
50-59	1,309	433	1,740
60-69	1,292	438	1,726
70-79	1,303	437	1,736
80-89	1,304	436	1,738
90-99	1,310	441	1,748
Average	1,303	436	1,736
<u>B. 2008</u>			
00-09	993	406	1,395
10-18	897	361	1,254
19-25	698	281	976
26-38	1,303	520	1,819
39-51	1,198	484	1,678
52-63	1,205	477	1,677
64-75	1,293	521	1,808
76-87	1,203	484	1,683
88-99	1,187	486	1,667
Average	1,141	460	1,596

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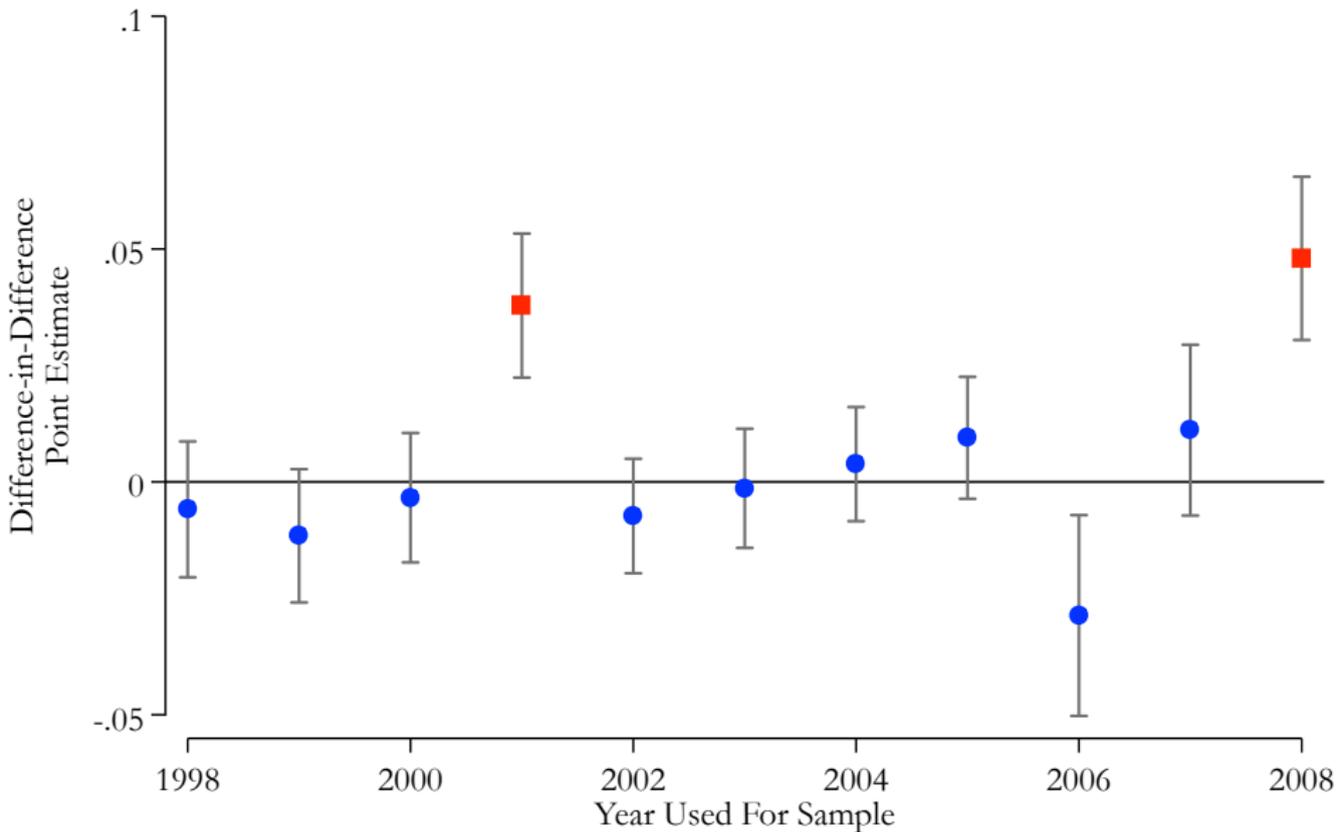
Main Regression Results

Dependent Variable: Level or logarithm of total bankruptcy filings per SSN group per week

	(1)	(2)	(3)	(4)	(5)	(6)
	Chapter 7		Chapter 13		All	
	Levels	Logs	Levels	Logs	Levels	Logs
			<u>A. 2001 Tax Rebates</u>			
After	56.399	0.038	- 11.600	- 0.023	44.803	0.022
Check	(10.798)	(0.008)	(5.068)	(0.010)	(13.811)	(0.007)
Receipt	[0.001]	[0.001]	[0.048]	[0.047]	[0.010]	[0.012]
R ²	0.972	0.974	0.909	0.909	0.973	0.976
N	710	710	710	710	710	710
			<u>B. 2008 Tax Rebates</u>			
After	59.394	0.048	- 3.388	- 0.014	56.006	0.029
Check	(7.627)	(0.009)	(6.122)	(0.011)	(9.006)	(0.007)
Receipt	[0.000]	[0.001]	[0.595]	[0.250]	[0.000]	[0.004]
R ²	0.977	0.991	0.961	0.974	0.980	0.994
N	639	639	639	639	639	639

The sample consists of counts of bankruptcies by SSN group and week, covering 30 weeks before and 40 weeks after groups were sent their tax rebate checks. The standard errors in parantheses are robust to autocorrelation between observations from the same SSN group. The associated p -values are in brackets. SSN-group fixed effects and week fixed effects not shown.

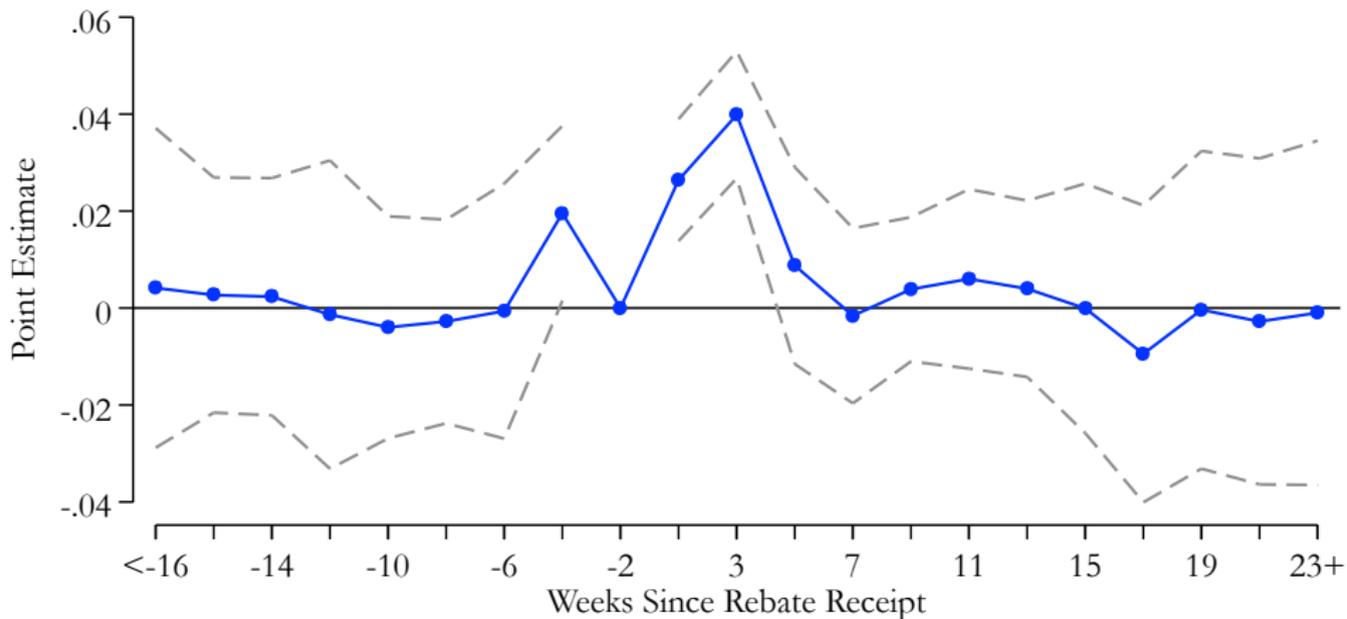
We do not observe a strong rebate effect in years in which rebates were not sent



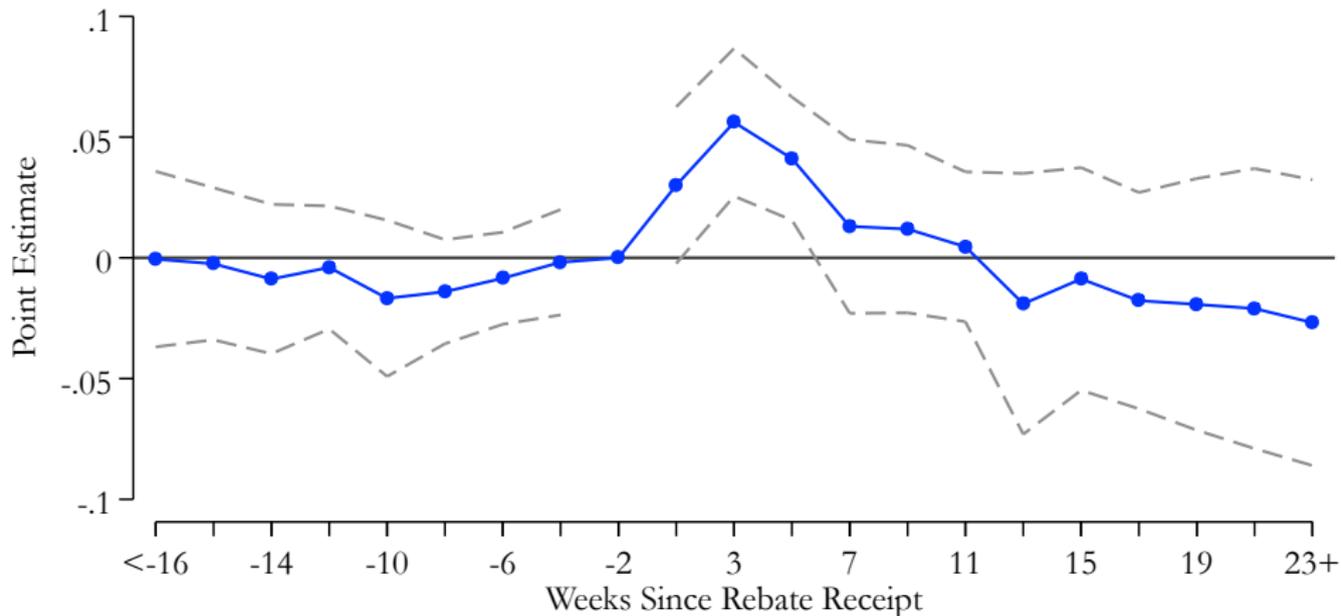
Effect of the Rebates on Filer Characteristics (Preliminary)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Percent of legal fee paid	log Expenditures	log Assets	log Liabilities	log Income	log Liabilities / income
<u>A. 2001 Tax Rebates</u>						
After Check Receipt	0.084 (0.039) [0.030]	0.205 (0.064) [0.001]	0.528 (0.197) [0.008]	0.377 (0.132) [0.005]	0.091 (0.073) [0.213]	0.305 (0.100) [0.003]
R ²	0.149	0.117	0.194	0.111	0.108	0.079
N	1,496	1,569	1,600	1,602	1,566	1,544
<u>B. 2008 Tax Rebates</u>						
After Check Receipt	0.112 (0.031) [0.000]	- 0.114 (0.078) [0.143]	- 0.030 (0.239) [0.901]	- 0.189 (0.142) [0.186]	- 0.107 (0.071) [0.133]	- 0.059 (0.117) [0.614]
R ²	0.139	0.126	0.219	0.173	0.119	0.122
N	1,590	1,679	1,690	1,692	1,648	1,644

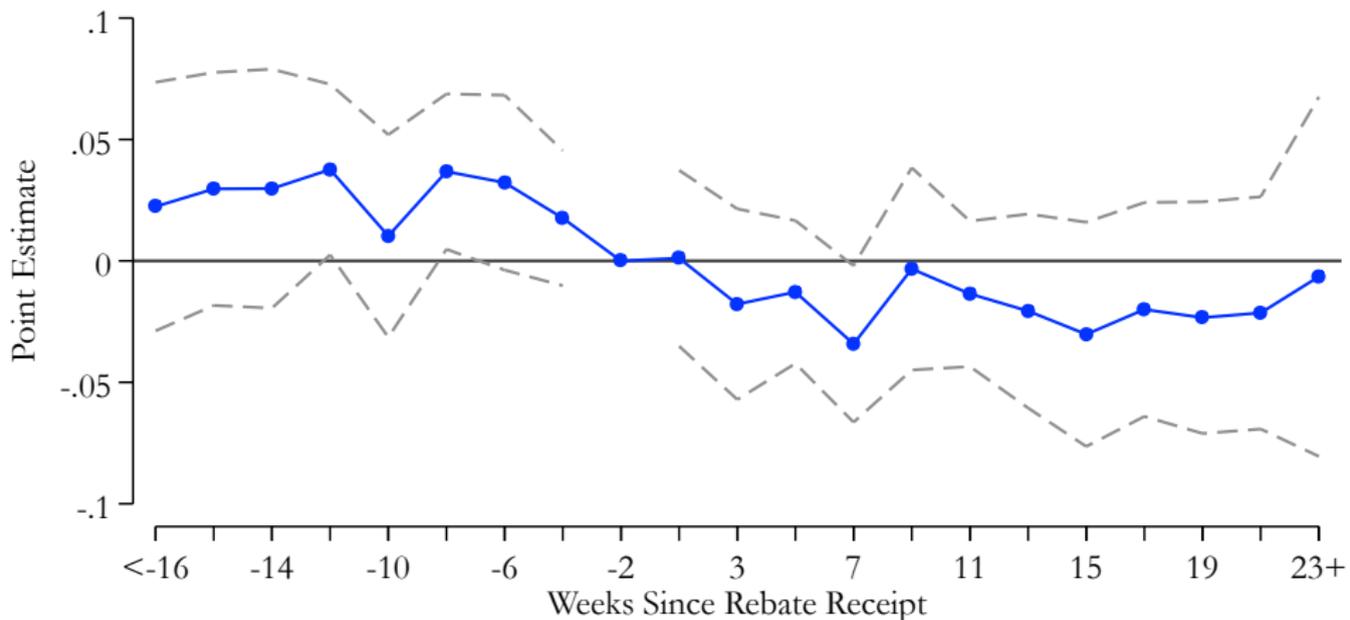
Chapter 7 Event-Study Figure, 2001



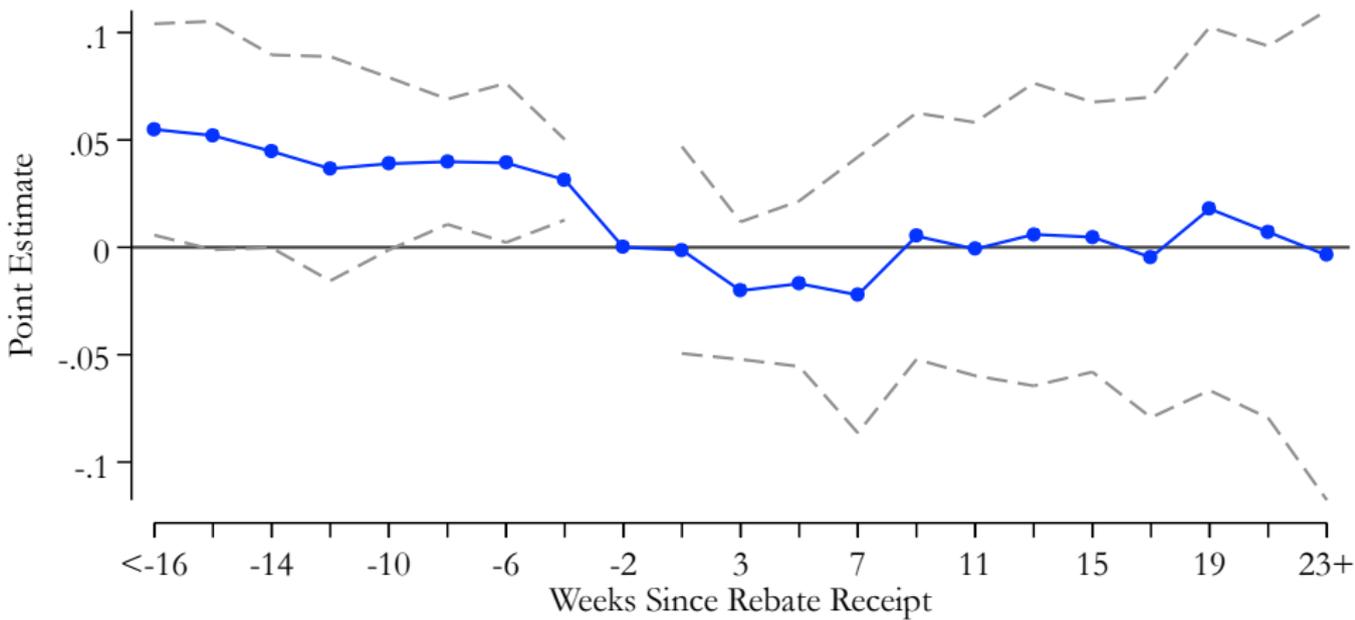
Chapter 7 Event-Study Figure, 2008



Chapter 13 Event-Study Figure, 2001



Chapter 13 Event-Study Figure, 2008



Policy Implications

- ▶ Normative implications depend on whether the liquidity-constrained have the most to gain from bankruptcy or the least
- ▶ Liquidity constraints transform entrance fees into ordeal mechanisms (Nichols and Zeckhauser, 1982)
- ▶ Results support Mann and Porter's "simplified administrative process" (Mann and Porter, 2010)

Conclusions

- ▶ Tax rebates increased bankruptcy rate by about 3%
- ▶ Evidence suggests that liquidity-constrained filers drove that pattern
 - ▶ Theoretical model implies that rebates should only affect timing of liquidity-constrained filers
 - ▶ Strongest effects for chapter 7, for which entrance fees are largest
 - ▶ Preliminary regressions suggests that 2001 pattern driven by filers with high liabilities-to-income
- ▶ Our estimates are likely a lower bound on the share of filers that are liquidity-constrained; only half of households received a rebate at all
- ▶ The 2005 reform of the bankruptcy system did not eliminate liquidity-constrained filers

Additional Slides

Appendix Table 1: The Change in Bankruptcies in 2008 After Direct Deposit Dates
 Dependent Variable: Level or logarithm of total bankruptcy filings per SSN group per week

	(1)	(2)	(3)	(4)	(5)	(6)
	Chapter 7		Chapter 13		All	
	Levels	Logs	Levels	Logs	Levels	Logs
After	167.000	0.058	- 50.900	- 0.032	116.000	0.033
Direct	(8.516)	(0.010)	(54.274)	(0.018)	(60.615)	(0.009)
Deposit	[0.003]	[0.030]	[0.447]	[0.225]	[0.195]	[0.067]
R ²	0.967	0.998	0.978	0.996	0.975	0.999
N	213	213	213	213	213	213

The sample consists of counts of bankruptcies by SSN group and week, covering 30 weeks before and 40 weeks after groups were sent their tax rebate checks. The standard errors in parantheses are robust to autocorrelation between observations from the same SSN group. The associated *p*-values are in brackets. SSN-group fixed effects and week fixed effects not shown.

Appendix Table 2: The Effect of Rebate Checks by Local Characteristics

Dependent Variable: Level or logarithm of total bankruptcy filings per SSN group per week

	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)
	Bankruptcies stratified by zip code homeownership rate			Bankruptcies stratified by median family income in zip code		
	First Tercile	Second Tercile	Third Tercile	First Tercile	Second Tercile	Third Tercile
	<u>A. 2001 Tax Rebates</u>					
After	0.028	0.029	0.057	0.048	0.025	0.043
Check	(0.011)	(0.015)	(0.010)	(0.015)	(0.014)	(0.015)
Receipt	[0.027]	[0.082]	[0.000]	[0.009]	[0.113]	[0.017]
R ²	0.934	0.930	0.928	0.933	0.944	0.908
N	710	710	710	710	710	710
	<u>B. 2008 Tax Rebates</u>					
After	0.041	0.042	0.059	0.051	0.050	0.043
Check	(0.022)	(0.019)	(0.012)	(0.023)	(0.012)	(0.013)
Receipt	[0.104]	[0.055]	[0.001]	[0.060]	[0.004]	[0.012]
R ²	0.970	0.976	0.977	0.969	0.977	0.975
N	639	639	639	639	639	639

The sample consists of counts of bankruptcies by SSN group and week, covering 30 weeks before and 40 weeks after groups were sent their tax rebate checks. The standard errors in parentheses are robust to autocorrelation between observations from the same SSN group. The associated p-values are in brackets. SSN group fixed effects and week fixed effects not shown.

Appendix Table 3: The Long-Run Effect of the 2001 Rebates
 Dependent Variable: Log of chapter 7 bankruptcies by month

	(1)	(2)	(3)	(4)	(5)
After 2001	0.000	- 0.004	- 0.017	0.006	- 0.033
Tax Rebates	(0.039)	(0.050)	(0.050)	(0.030)	(0.031)
	[1.000]	[0.937]	[0.743]	[0.844]	[0.283]
R^2	0.660	0.661	0.666	0.908	0.938
N	84	84	84	84	84
Cubic polynomial in time	X				
Quartic polynomial in time		X			
Quintic polynomial in time			X	X	
Month fixed effects				X	X
Year fixed effects					X

This table reports results from a regression of log bankruptcies on a dummy for the period between June, 2001 and March, 2002 (inclusive). This captures two months before the 2001 tax rebate and six months afterwards. The sample includes the months between January, 1998 and December, 2004 (inclusive), and the unit of observation is month-year. The time polynomials are functions of the number of months since the start of the sample period, and are intended to capture long-run trends in bankruptcy filings. Heteroskedasticity-robust standard errors are in parentheses, and p -values are in brackets.