

Discussion of
"Moral Hazard versus Liquidity
in Household Bankruptcy"
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Bankruptcy: Like Timeshare Presentations

- Suppose you take a Caribbean vacation bringing $\$W$ spending money with you
- You are offered a $\$B$ drinks voucher for attending a 3-hour timeshare presentation
- Let C represent the time (utility) cost of the presentation
- You attend if $u(W) < u(W+B) - C$
 - i.e. if $W < W^*(B,C)$



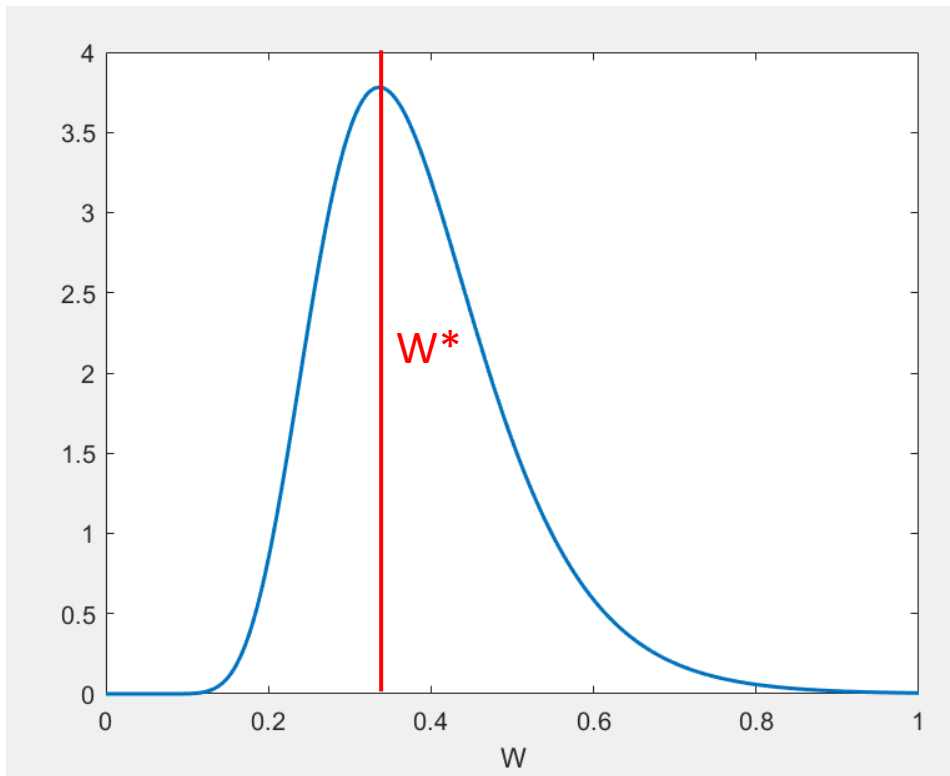
Developer: should I increase \$B?

- Everyone gets the same \$B
- Every presentation has the same (constant) probability of ending in a sale
- Are the additional attendees and hence sales resulting from higher \$B worth giving the higher \$B even to those who were going to come anyway?
- Depends on the distribution of W

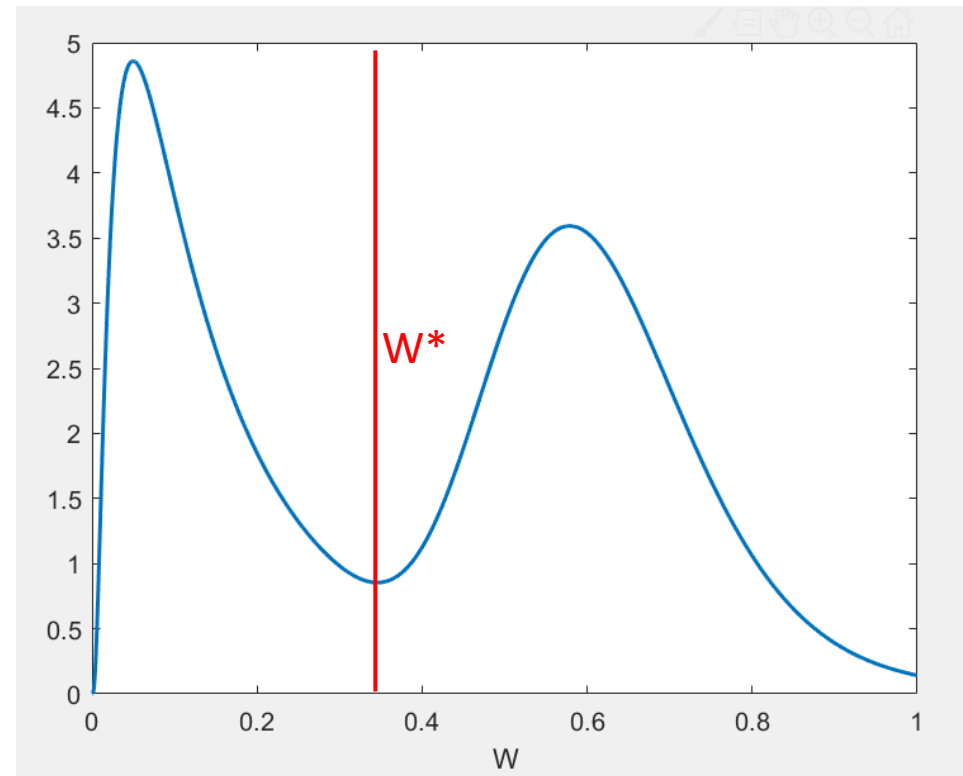


Developer: should I increase \$B?

Yes, increase



No, don't



Timeshare Takeaway

- If the density of households around $W^*(B_0)$ is low, slightly increasing B does not lead to many more people attending the timeshare presentation
 - Few additional sales
 - Lots of additional drinks paid for...
- Econometrician studying this would say
 - Variation in decision to attend timeshare presentations is mainly driven by variation in disposable cash
 - It is significantly less affected by the generosity of drink vouchers

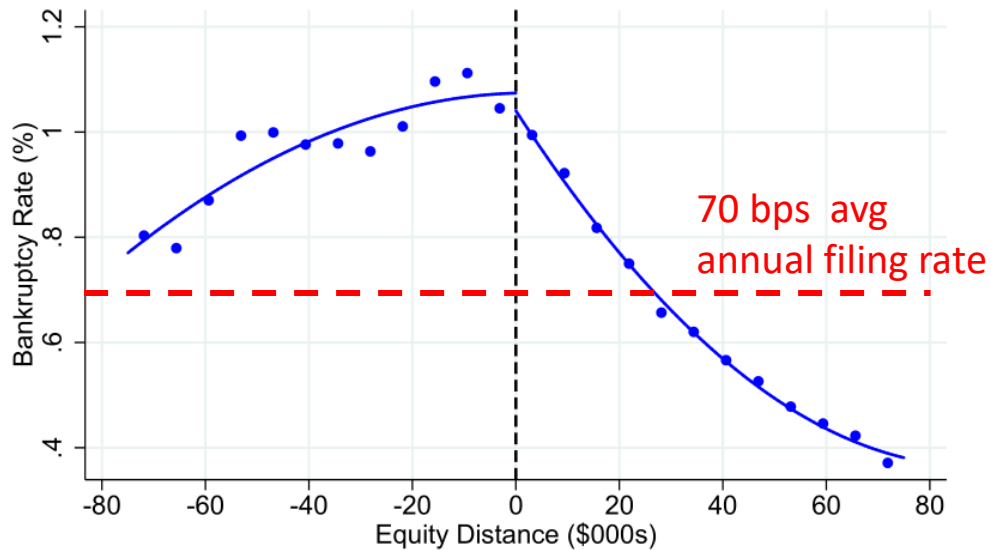
This paper makes the same argument about bankruptcy

- Part 2: Variation in decisions to declare bankruptcy is strongly driven by variation in existing resources
 - Identification: exogenous size of ARM resets depending on the benchmark rate (LIBOR vs. Treasury)
 - Bigger ARM resets → lower mortgage payments → more resources regardless of bankruptcy decision (lien not dischargeable in bankruptcy) → fewer bankruptcies
- Part 1: It is significantly less affected by the size of the wealth gain from bankruptcy
 - Identification: within a narrow band, exogenous distance of home equity to the state's homestead exemption
 - \$1 of extra home equity just below the exemption is \$1 additional benefit from bankruptcy b/c borrower keeps it
 - \$1 of extra home equity just above the exemption goes to the lender, no benefit to borrower
 - Change in slope of $E[brupt(distance)]$ significant but small

4.8x Stronger "Liquidity" Motive

Weak "Moral Hazard" motive

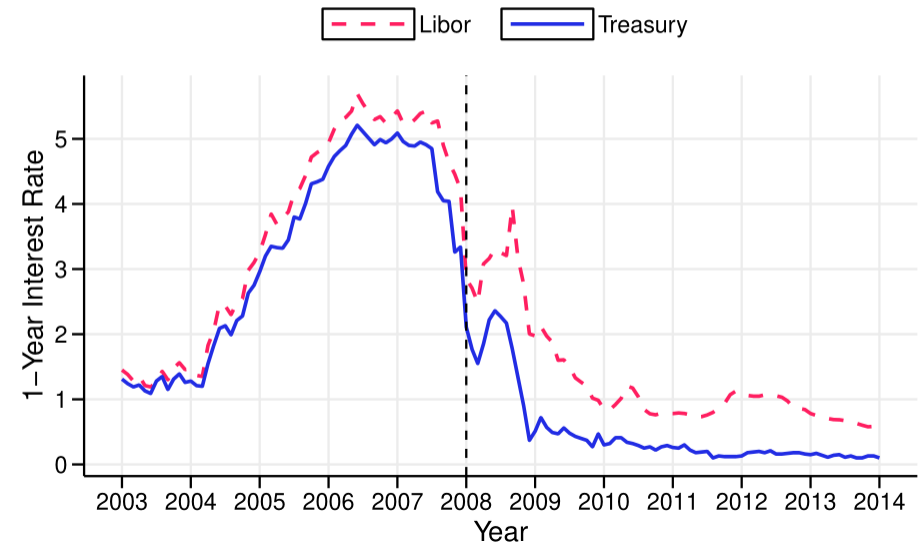
Figure 2: The Effect of Seizable Equity on Bankruptcy Filings



\$1K increase in seizable equity
→ **1.9 bps** decrease in fraction filing

Strong "Liquidity" motive

Figure 3: One-Year Libor and Treasury Rates



\$1K *one-time equivalent* decrease in mortgage payments
→ **9 bps** decrease in fraction filing

Tour De Force of Empirical Household Finance!

- Part 1: RKD
 - Design requires weak identification assumptions
 - New estimator to correct for measurement error in running variable (here, the home equity component of distance to exemption)
 - Placebo permutation tests
 - Pooling of many states with varying levels of exemptions creates some external validity from what is otherwise a very local estimator
- Part 2: 2SLS
 - ID assumption: mortgage borrowers did not anticipate the emergence of a large TED spread (who did?!), seem similar ex-ante, sample limited to non-delinquents so ex-post lender differences in modification propensity not an issue
 - 2SLS framework yields a quantitatively meaningful elasticity estimate
 - (1) Conservative "third stage" to compute PV of payment declines, (2) sample matching on observables allows one to compare the two effects
- Part 3: toy model to guide interpretation
 - maybe should be at the beginning?

Comment 1: Policy implications

- When it comes to bankruptcy "causes," we don't per se care which straw broke the camel's back
- But knowing elasticities could allow for statements like this:
- *"In terms of social welfare, the estimates point towards lower costs and higher benefits of generous bankruptcy. Together, these suggest significant scope for generous bankruptcy to improve welfare."*
- Let me put this paper in an optimal policy framework

(Very general) Constrained Planner Problem

$$\max_{Policy} \int_{i \in I} \lambda_i (V_{0,i}(Policy) + E_{W,X}[V(W, X, brupt; Policy)]) di$$

Such that

- Households optimally choose *brupt*
 - Higher benefits/lower costs of bankruptcy lead to more bankruptcies on the margin
- Lenders optimally choose pricing terms that affect ex-ante welfare $V_{0,i}(Policy)$
 - Higher losses for lenders ex-post increase borrowing costs or reduce access ex-ante
 - Credit tightening lowers $V_{0,i}(Policy)$
 - This assumption abstracts away from any potential paternalistic role of policy

When to make bankruptcy more generous?

- When one can increase $E_{W,X}[V(W, X, brupt)]$ faster than decreasing $V_{0,i}(Policy)$
 - Create benefits for the bankrupts without imposing too many additional losses on lenders
- What kind of policies increase ex-post lender losses?
 - Policies that reduce recovery rates through greater redistribution in $Benefit(W, X, Policy)$
 - Policies that lead to more bankruptcies
- If we can establish that a more generous bankruptcy policy doesn't lead to many additional bankruptcies, it's possible (though not guaranteed!) that such a policy is welfare-improving
 - Lower recovery rates would still lead to more expensive and less available loans
 - Extensive margin i.e. increasing bankruptcies could be the main benefit of the policy

Household Problem

- Let $V(W, X, brupt)$
 - W is wealth including latest income; X is other state variables; $brupt \in \{0,1\}$ is the bankruptcy decision
- $V(W, X, 1; Policy) = V(W + B(W, X, Policy), X, 0) - C(W, X, Policy)$
 - $B(W, X, Policy)$ is net pecuniary benefit of bankruptcy
 - Positive: debts discharged;
 - Negative: court and attorney costs
 - $C(W, X, Policy)$ is the net non-pecuniary cost of bankruptcy
 - Positive: stigma, option value of future bankruptcy, difficulty in future borrowing
 - Negative: no more collection calls
- More generous bankruptcy policy either increases $B(W, X, Policy)$ or decreases $C(W, X, Policy)$
- Declare bankruptcy if $V(W + B(W, X, Policy), X, 0) - C(W, X, Policy) > V(W, X, 0)$
- Aggregating the number of bankruptcies:

$$N = \iint_{X, W} \mathbf{1}_{V(W+B(W,X,Policy),X,0) - C(W,X,Policy) > V(W,X,0)} dF(X, W)$$

Is N sensitive to Policy?

- Effect of policy changes on the number of bankruptcies depends on the density of $F(X, W)$ in the marginal region
$$\{(X, W) \text{ s. t. } |V(W + B(W, X, Policy), X, 0) - C(W, X, Policy) - V(W, X, 0)| < \epsilon\}$$
- This paper uses revealed preference to characterize marginal density $F_W(X, W)$ as not very dense in this region
 - To the extent generous policies uniformly increase B , small direct effect on the number of bankruptcies
 - But are B increases uniform?
 - More generous homestead exemptions benefit those with high enough home equity i.e. high enough W
 - More generous wage garnishments benefit those with higher future income (perhaps element in X ?)
 - What about decreasing C ?
 - Restoring easy access to credit markets by wiping bankruptcies off credit reports sooner benefits those with lower income volatility (an element in X ?)
 - If B and C are sensitive to X and F is dense in X in the marginal region, small changes in generosity can still have big effects on N
 - For policy: need to characterize not just the marginal density but the joint density, a much harder task

Comment 1: Policy implications

- *the estimates point towards lower costs and higher benefits of generous bankruptcy*
 - If ex-ante costs of generous bankruptcy are mainly due to the number of filings rather than loss severity on the average filer
 - If generous bankruptcy exclusively means households retaining more wealth after bankruptcy
 - If this additional wealth retention is allocated uniformly across filers

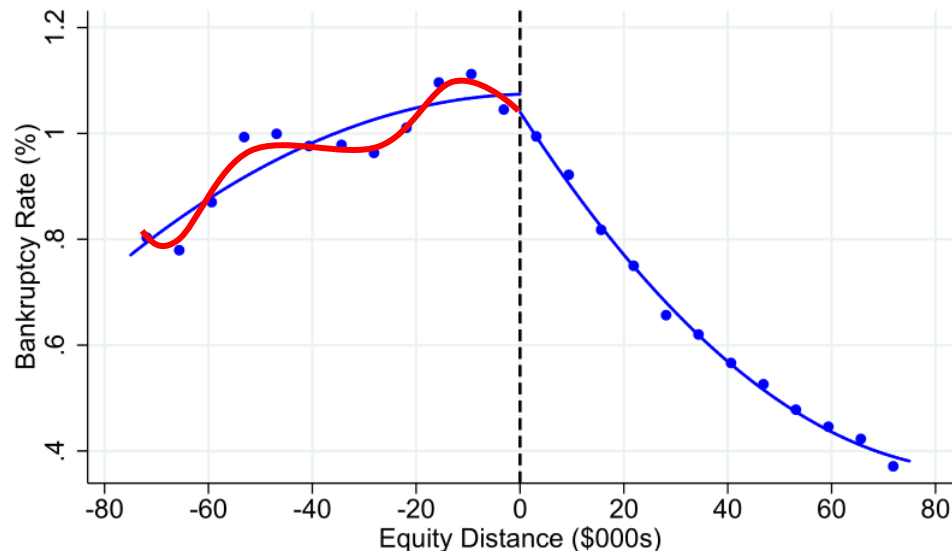
Comment 2: Sample Re-Weighting has Huge Effects

- \$1K reduction in annual mortgage payments → 30% more bankruptcy filings
- PV of \$1K reduction in current and future mortgage payments = \$6.23K
- $30\% / \$6.23K \times \$1K = 4.8\%$ more filings due to a \$1K reduction in PV of payments
- Once ARM sample is re-weighted using the distribution used for RKD (all mortgage borrowers), $4.8\% \rightarrow 12.6\%$!
- Puts high weights on unusual ARM borrowers (low balance, cheap houses, lower-income)
 - These are the borrowers likely driving the big increase in coefficient
 - How comparable are these filers to the RKD filers with similar observables?
 - Overlapping sample regressions produce statistically indistinguishable magnitudes of the two channels, albeit with much higher SEs

	RKD (all)	ARM (all)
<i>Panel A: Borrower</i>		
Home Value	276.80	346.29
Mortgage Bal.	172.28	248.40
Home Equity	104.52	97.89
Orig. Balance	204.47	274.65
Orig. LTV	77.72	72.88
Obs. (Mil.)	99.23	1.09
Orig. FICO	719.16	727.33
Obs. (Mil.)	85.54	1.09
<i>Panel B: Bankruptcy</i>		
Filing Rate	0.71	0.93
Equity Distance	-47.92	22.63
Homestead Ex.	152.44	80.64
Obs. (Mil.)	99.23	1.09
<i>Panel C: Local Economy</i>		
UR %	5.89	9.18
Obs. (Mil.)	98.95	1.09
Med. Inc	59.29	84.42
Obs. (Mil.)	99.23	1.07
HP Growth	1.83	-1.74
Obs. (Mil.)	70.32	0.74

Comment 3: How robust is the quadratic assumption in the RKD measurement correction?

Figure 2: The Effect of Seizable Equity on Bankruptcy Filings



- *"Integral to this approach is a parametric assumption. Specifically, for the RKD, I assume that the outcome is a quadratic function of the true values of the running and policy variables, and unobserved factors additively affect filing. This may be a reasonable approximation for my setting as the plot of the kinked relationship between filings and equity distance appears well-approximated by quadratic functions (see Figure 2)"*
- Polynomial degrees are in the eye of the beholder?
- Deviations of points from the quadratic approximation do not look random
- Higher-order polynomial approximation in red
- Fits better, is there still a kink? Maybe homestead exemptions don't matter and there's no "moral hazard" at all? Or maybe we just blew up standard errors?
- Enough observations to use out-of-sample RMSEs to choose hyper-parameters e.g. polynomial degree

Conclusion

- An incredibly well-executed, polished, mature paper combining 2-3 distinct analyses to make a convincing point:
 - Households go bankrupt because of what they (don't) have, not because of what they'll get.
- Do you have an alternative story? There is a table to prove you wrong.
- Paper is a joy to read: template for how to present rigorous empirical work on any topic
- But results don't directly imply normative policy conclusions
 - Mainly a caution for the reader, not the author
 - Future work?