

# Personal Bankruptcy and the Accumulation of Shadow Debt

Bronson Argyle  
BYU

Ben Iverson  
BYU

Taylor Nadauld  
BYU

Christopher Palmer  
MIT and NBER

NBER Household Finance Summer Institute  
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## Bankruptcy Window into Household Balance Sheets

- Average of \$800/adult/year is discharged through personal bankruptcy
- Filings provide unique window into distressed household balance sheets
- New fact: 7% of total liabilities are not on credit reports  $\equiv$  **“shadow debt”**

→ What are the drivers and dynamics of shadow debt?

→ What role does shadow debt play in debt accumulation prior to bankruptcy?

- Opportunity to delay filing  $\Rightarrow$  +\$6k in shadow debt, especially in last 6 months

## Digitized bankruptcy filings + credit records

- Scrape bankruptcy filing schedules for 4 BK districts from 2004-2018 (UT, MN, FL)
  - Detailed information about assets, individual liabilities, employment status, historic and current income, projected expenses, family situation...
- Final sample ~545,000 bankruptcy filings with 15+ million individual debt claims
- Merged to credit-bureau data on mortgagors ~55,000
  - (IV results robust to running the reduced-form on the full sample)

## Example Schedule

**SCHEDULE D - CREDITORS HOLDING SECURED CLAIMS**  
 (Continuation Sheet)

CREDITOR'S NAME AND MAILING ADDRESS INCLUDING ZIP CODE, AND ACCOUNT NUMBER (See instructions.)	CODEBTOR H W J C	Husband, Wife, Joint, or Community	DATE CLAIM WAS INCURRED, NATURE OF LIEN, AND DESCRIPTION AND VALUE OF PROPERTY SUBJECT TO LIEN	CONTINGENT T	UNLIQUIDATED I Q U I D A T E D	DISPUTED D	AMOUNT OF CLAIM WITHOUT DEDUCTING VALUE OF COLLATERAL	UNSECURED PORTION, IF ANY
							AMOUNT OF CLAIM WITHOUT DEDUCTING VALUE OF COLLATERAL	
Account No. <b>xxxxx33 #80</b>			<b>09/2007</b>					
<b>Mountain America Credit Union PO Box 9001 West Jordan, UT 84084-9001</b>	J		<b>2003 Chevy Silverado 2500HD (93,000.00 miles)</b>				<b>12,400.00</b>	<b>306.00</b>
			Value \$					

## Measuring Shadow Debt

- ≡ Total unsecured debt on bankruptcy filing - Total unsecured debt on credit report.
- Many creditors and collection agencies do not report to credit bureau (e.g., dentists).
- Key component: **non-payment of goods and services** → “accidental creditors”
- Shadow debt is large: **\$41,680** (\$27,750) for mean (median) filer  $\approx 7\%$  of total debt
- Not a measurement issue: equally large for high confidence matches + single filers

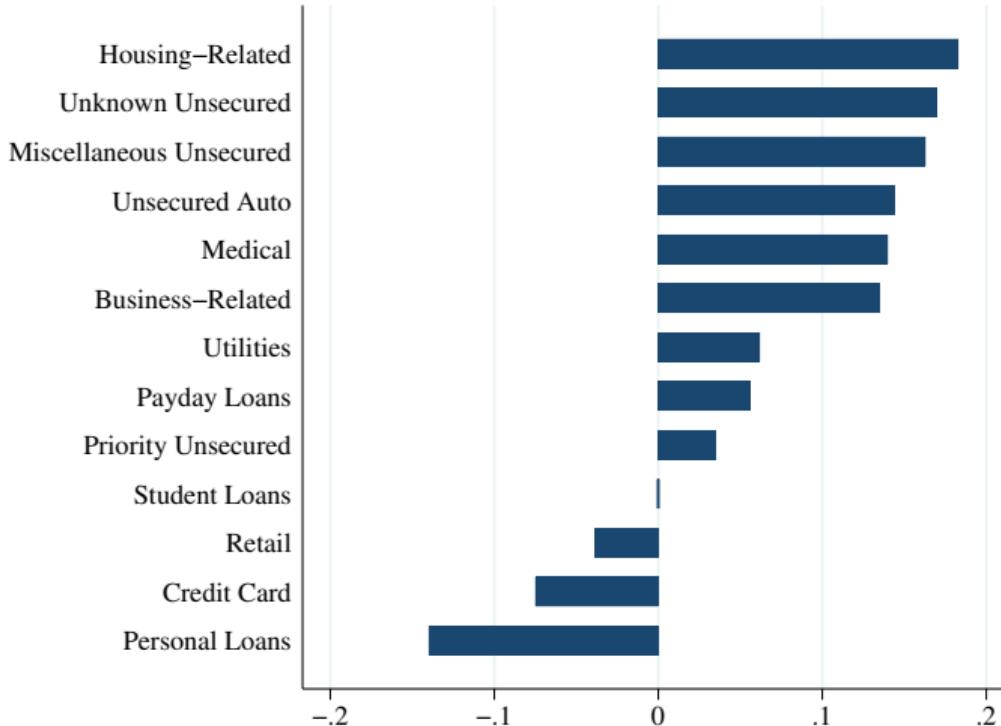
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- Use LDA to categorize debt descriptions into categories.
- Can't classify shadow debt at the *liability* level.
- *Can* ask which categories are most correlated with shadow debt @ borrower level

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→ Weighting by average debt levels, borrowers with high shadow debt share have esp. high medical debt and unknown debt. “Collections” frequent.



## Drivers and dynamics of shadow debt?

- Goal: understand who relies on shadow debt, when, and why
- Focus on what happens leading up to bankruptcy filing
- Supply of formal debt low: observable credit risk high
- Demand for debt high: fight off bankruptcy, subsist, or strategically “run up the tab”

## Identification strategy to isolate filing delays

- Want variation in filing timing to isolate whether shadow debt more valuable right before filing
- **wage garnishing** affect how fast people file for bankruptcy

Garnishment  $\downarrow \Rightarrow$  Take-home pay  $\uparrow$   
 $\Rightarrow$  File for bankruptcy later

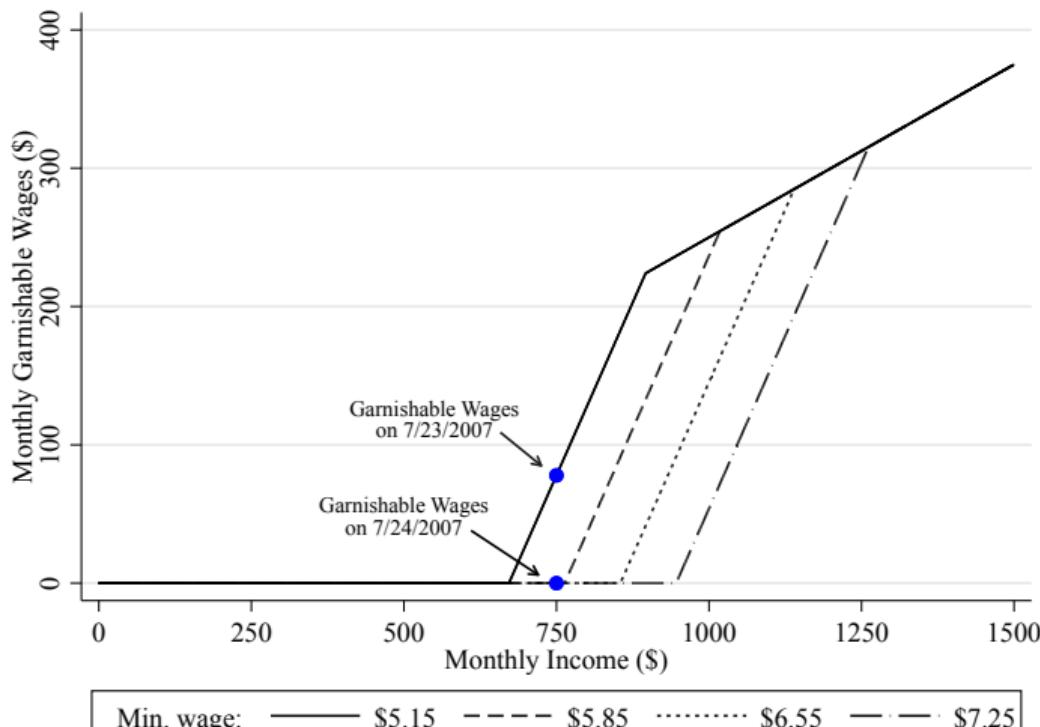
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changes to **federal** min. wage  
(not prevailing in FL)

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## Empirical Strategy

- Treated group: filers in middle income range when wage garnishment  $\downarrow$  from min wage  $\uparrow$
- Control groups:
  - Filers with the same income before  $\Delta$ min wage or in other years
  - Filers with income below lowest threshold when  $\Delta$ min wage
  - Filers with income above highest threshold when  $\Delta$ min wage

→ Identifying variation is at the income  $\times$  time level

- Second stage: effect of bankruptcy delay on shadow debt accumulation
- First stage: effect of minimum wage changes on delay in entering bankruptcy

## First-Stage Specification

$$\begin{aligned} \text{Months to File}_{ist} = & \pi_1 \cdot \text{Treatment}_i \times \text{Garnishable Wages}_{ist} + \pi_2 \cdot \text{Treatment}_i \\ & + \pi_3 \cdot \text{Garnishable Wages}_i + \pi_4 \cdot \text{Treat}_i \times \text{Income}_i + X'_i \pi_5 + \varphi_{st} + \nu_{ist} \end{aligned}$$

- Months to file  $\equiv$  bankruptcy filing month - first 90-day delinquency date
  - Average time to file: 22 months, median 15 months. Robust to alt. definitions
- Filer controls  $X_i$  and fixed effects to improve precision in subsamples. Not necessary.
- Double cluster by month and 3-digit zipcode

# First-Stage Effect of Wage Changes on Filing

	Months to File			
	(1)	(2)	(3)	(4)
Treatment × Garnishable Wages (100s)	-1.12*** (0.37)	-0.78** (0.38)	-1.03** (0.45)	-1.19*** (0.38)
Filer Controls	✓	✓	✓	✓
Year FEs	✓		✓	✓
District FEs	✓		✓	✓
District × Year FEs		✓		
Income × Year Controls			✓	
Income Quartile Controls				✓
Partial F-Stat	9.00	4.31	5.20	9.68
R <sup>2</sup>	0.60	0.61	0.60	0.60
Observations	47,960	47,960	47,960	47,960

- Economic magnitude: \$100 increase in garnishable wages  $\Rightarrow$  1 month reduction in time to bankruptcy
- Results robust to weak-instruments-robust estimators

## IV Results: Delaying Filers Incur Shadow Debt

Estimator	Shadow Debt Share of Total Debt				
	OLS	2SLS	2SLS	2SLS	
Months to File	0.0009*** (0.0001)	0.018** (0.008)	0.024* (0.013)	0.017* (0.009)	
Filer Controls	✓	✓	✓	✓	
Year FEs	✓	✓		✓	
District FEs	✓	✓		✓	
District $\times$ Year FEs			✓		
Income $\times$ Year Controls				✓	
R <sup>2</sup>	0.51	0.40	0.35	0.41	
Observations	47,960	47,960	47,960	47,960	

→ delaying filing one month  
 $\Rightarrow +1.7\text{pp}$  in S.D. share  
 $\approx$  increase of \$6,000

- Shadow debt accounts for all of unsecured debt increase
- No effects on secured debt
- Concentrated in informal debt categories

## Addressing Exclusion Restriction Concerns

- Exclusion restriction:  $\Delta \text{min wage} \not\Rightarrow \text{filer shadow debt directly}$ , only through filing timing
- Direct effects of minimum wage increase?
- Selection into bankruptcy? Sample selection conditions on an outcome (filing)
  - e.g., when wage garnishment falls, only high-debt people continue to file for bankruptcy?

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  - e.g., when wage garnishment falls, only high-debt people continue to file for bankruptcy?
- Ruling out selection and direct effects of minimum wage:
  - \*\* Results hold for FL, where federal minimum wage wasn't binding
  - ✓ Effects only in informal shadow debt, not for other secured/unsecured categories  
Aaronson et al. (2012) and Sovich et al. (2021) secured debt effects not present
  - ✓ No effects for similar income debtors with adverse life events
  - ✓ No effect on income distribution of bankruptcy filers
  - ✓ Effects too large to be mechanical effect of garnishing  $\downarrow \Rightarrow$  less debt repayment
  - ✓ No effect on % of people who file for bankruptcy
  - ✓ No effect on debt levels of people who are 90 days delinquent but don't file for bankruptcy

## What type of borrowers accumulate shadow debt?

- Goal: separate borrowers with and without observable negative shocks
- Guess a proxy for strategic debt accumulators
- “non-shocked debtors”  $\equiv$  filers with relatively discretionary debt:
  - ① Medical debt  $< \$500$
  - ② Employed
  - ③ Not separated or divorced from spouse
- Test whether “shocked” or “non-shocked” debtors have the most elastic shadow debt  
→ Results strongest for non-shocked debtors, mostly insignificant for shocked
- Both samples affected by minimum wage change, delay filing the same, accumulate fines and fees, but only the more-likely strategic group increases shadow debt

# Only “Non-Shocked” Debtors Increase Shadow Debt

Dep. Variable:	Unsecured Debt Share		Shadow Debt		Informal Shadow Debt	
	Shocked	Non-shocked	Shocked	Non-shocked	Shocked	Non-shocked
Treatment × Garnishable Wages	-0.002 (0.005)	-0.019*** (0.006)	-0.005 (0.011)	-0.046*** (0.016)	-0.011 (0.009)	-0.033* (0.018)
Filer Controls	✓	✓	✓	✓	✓	✓
Year Fixed Effects	✓	✓	✓	✓	✓	✓
District FEs	✓	✓	✓	✓	✓	✓
R <sup>2</sup>	0.61	0.58	0.51	0.51	0.51	0.51
Observations	28,267	19,693	28,267	19,693	28,267	19,693

→ Robust to DDD, changing shocked definition

## Treated filers' debt more likely 11th hour

Share of Debt Originated Within 6 Months of Filing			
Sample	Pooled	Shocked	Non-Shocked
Treatment × Garnishable Wages	-0.0028** (0.0013)	-0.0006 (0.0018)	-0.0087** (0.0042)
Filer Controls	✓	✓	✓
Year FEs	✓	✓	✓
District FEs	✓	✓	✓
$R^2$	0.521	0.516	0.531
Observations	76,909	60,819	16,090

→ \$4,000 increase in debt in last 6 months.

- Consistent with all shadow debt increase coming 6 months before filing.

## Conclusion

- Shadow debt (from non-payment of goods/services) is a large balance sheet component for bankruptcy filers
  - Nonpayment and informal debt is important margin for distressed households finances
  - Credit bureau indebtedness not whole picture
- Shadow debt increases a lot right before filing among debtors nudged to delay filing
- May raise prices for non-defaulters ⇒ DWL
- Shadow debt increases for filers without obvious shocks
  - Inconsistent with selection, direct effects of minimum wage, mechanical effects, fees, etc.
  - Consistent with moral hazard in debt accumulation