

The Effect of Principal Reduction on Household Distress: Evidence from Mortgage Cramdown

Jacelly Cespedes¹ Carlos Parra² Clemens Sialm³

May 23, 2023

¹University of Minnesota

²PUC-Chile

³University of Texas at Austin and NBER

Motivation

- ▶ The United States experienced an unprecedented number of home foreclosures during the housing crisis
- ▶ To limit defaults and deadweight losses, the government implemented various policies
 - ▶ Reduced monthly payments (Home Affordable Modification Program)
 - ▶ Facilitated mortgage refinancing (Home Affordable Refinancing Program)
- ▶ These initiatives had modest success due to frictions in intermediation (Agarwal et al., 2017)
 - ▶ Securitization made the renegotiation difficult
 - ▶ Servicers' organizational capacity was limited

Motivation (cont'd)

- ▶ An alternative proposal would have allowed mortgage cramdown by judges as part of the Chapter 13 bankruptcy process
 - ▶ The underwater portion of the mortgage is treated as unsecured debt and dischargeable in bankruptcy
 - ▶ The proposal passed the House of Representatives but failed in the Senate in 2009
- ▶ Some advantages of cramdown through bankruptcy courts are
 - ▶ It allows involuntary modifications
 - ▶ Personal bankruptcy system can handle a higher number of "modification" cases (e.g., 1.5 million cases in 2010)
- ▶ However, there is no evidence of the ex-post effects of cramdown on household distress
 - ▶ Quantifying the effect of mortgage cramdown through the bankruptcy system is important to the design of debt relief programs

This Paper

Using a new data set of district courts that allowed cramdown from 1989 to 1993 and exploiting the random assignment of Chapter 13 cases to judges

- ▶ Quantify the ex-post effects of cramdown in Chapter 13 bankruptcy on foreclosure and other economic outcomes
 - ▶ Identify the effect of principal reduction, which sheds light on the liquidity vs. debt overhang debate
- ▶ What is the differential effect of providing principal reduction through Chapter 13 relative to the standard Chapter 13?
- ▶ How many foreclosures could have been prevented by the cramdown proposal during the 2008–2013 period?

Preview of Results

- ▶ Successful Chapter 13 filings in cramdown courts reduce the three-year marginal recipient's foreclosure rate by 26.3 pp
- ▶ Exploiting the Supreme Court (SC) decision of 1993 that disallowed cramdown, we find that the benefits of Chapter 13 in cramdown courts dropped by at least 2/3
- ▶ Most of the effects in cramdown courts are concentrated in districts with prior below-median house price appreciation
 - ▶ These benefits were completely reversed following the SC ruling

Preview of Results (cont'd)

- ▶ Foreclosure rates are substantially lower for debtors in cramdown courts relative to debtors in non-cramdown courts
 - ▶ The differences are reduced by at least 70% after the SC decision
 - ▶ No evidence of 1) bunching in the number of Chapter 13 filings in cramdown districts and 2) of changes in observable covariates around the 1993 SC decision
- ▶ Estimates indicate that more than 500,000 foreclosures could have been avoided with cramdown during the 2008–2013 period

Literature Review

- ▶ Cramdown effect on lending and cost of credit
 - ▶ White and Zhu (2010), Goodman and Levitin (2014), Li, Tewari, and White (2014)
- ▶ Unsecured debt-relief in Chapter 13 bankruptcy on labor supply and financial health
 - ▶ Dobbie and Song (2015), Dobbie, Goldsmith, and Yang (2017)
- ▶ Drivers of household default and the debt-relief interventions
 - ▶ Foster and Van Order (1984), Riddiough (1991), Foote, Gerardi, and Willen (2008), Mayer, Morrison, Piskorski, and Gupta (2014), Agarwal, Amromin, Ben-David, Chomsisengphet, Piskorski and Seru (2017), Bhutta, Dokko, and Shan (2017), Gerardi, Herkenhoff, Ohanian, and Willen (2018), Abel and Fuster (2018), Gupta and Hansman (2019), Ganong and Noel (2019, 2020), Agarwal, Amromin, Chomsisengphet, Landvoigt, Piskorski, Seru and Yao (2020), Dobbie and Song (2020)

Institutional Background

Background on the U.S. Personal Bankruptcy System

Two provisions in the U.S. personal bankruptcy code:

- ▶ **Chapter 7:** debtors receive unsecured debt relief at the expense of their non-exempt assets
- ▶ **Chapter 13:** protects assets in exchange for a partial repayment of unsecured debt
 - ▶ Principal reduction of mortgage is not allowed

How Does Cramdown Work?

- ▶ From the enactment of the Bankruptcy Code in 1978, up until mid-1993, some federal courts interpreted it as prohibiting mortgage modification in general but permitting cramdown in particular
- ▶ They understood cramdown to simply be determining the classification of the loan in bankruptcy
 - ▶ The amount of the claim classified as **secured** was limited to the value of the collateral
 - ▶ The negative equity portion was classified as **unsecured** debt, and thus, dischargeable
- ▶ Debtors must make monthly payments following the terms of the original loan until principal payments total the present value of the collateral

Research Design

- ▶ We use 2SLS to estimate the ex-post effect of receiving Chapter 13 bankruptcy in the district courts in which cramdown was allowed

- ▶ The **first-stage** is the following:

$$D_i = \alpha_{ot} + \delta \text{Leniency}_i + \gamma' X_i + \varepsilon_i,$$

where D_i is an indicator for Chapter 13 case discharge, Leniency_i is the systematic component of judge behavior, α_{ot} are office by month of filing FEs, and X is a vector of pre-treatment covariates

- ▶ The **second-stage** estimating equation is:

$$y_i = \alpha_{ot} + \beta \widehat{D}_i + \gamma' X_i + \varepsilon_i,$$

where y_i is debtor i 's outcome (e.g., foreclosure three years after filing). SEs are clustered at the judge level. β measures the LATE for filers whose outcomes are altered by judge assignment

- ▶ **Identifying assumptions:**

- ▶ Judge assignment is associated with bankruptcy protection
- ▶ Judge assignment only impacts debtor outcomes through the probability of receiving bankruptcy protection

Research Design (cont'd)

- ▶ To investigate the direct effect of cramdown, we take advantage of the SC decision that disallowed cramdown in June 1993 within cramdown courts:

$$y_i = \alpha_{ot} + \beta D_i + \delta D_i \times Post_t + \gamma' X_i + \varepsilon_i,$$

where $Post_t$ is an indicator variable for whether the bankruptcy case was filed after the Supreme Court decision. $D_i \times Post_t$ is instrumented using the interaction between judge leniency and the $Post_t$ indicator

- ▶ Alternatively, we study whether the SC decision had a differential impact on debtors from cramdown relative to non-cramdown courts:

$$y_i = \alpha_{ot} + \beta D_i + \eta D_i \times Cramdown_i + \delta D_i \times Post_t + \lambda D_i \times Cramdown_i \times Post_t + \gamma' X_i + \varepsilon_i,$$

where $Cramdown_i$ captures whether a bankruptcy case occurred in a court that allowed cramdown before the Supreme Court decision

Bankruptcy data:

- ▶ PACER: bankruptcy filings between 1989 and 1995

Debtors' outcomes and characteristics:

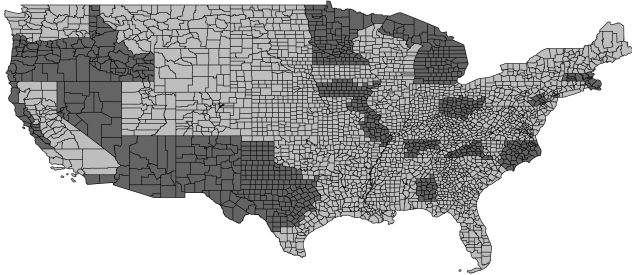
- ▶ ATTOM: foreclosure data
 - ▶ Matched using addresses and name from the bankruptcy forms
- ▶ Lexis Nexis: panel dataset of records (e.g., age, gender, other outcomes)
 - ▶ Matched using SSN, name and addresses from the bankruptcy forms

Sample:

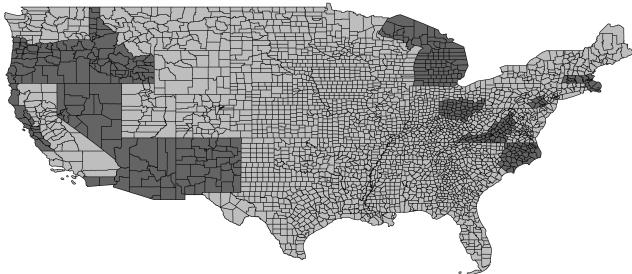
- ▶ First time filers and homeowners in offices in which cases are randomly assigned

Bankruptcy Courts in Sample

District Courts in Sample



District Courts in Sample that Allowed Cramdown



Summary Statistics

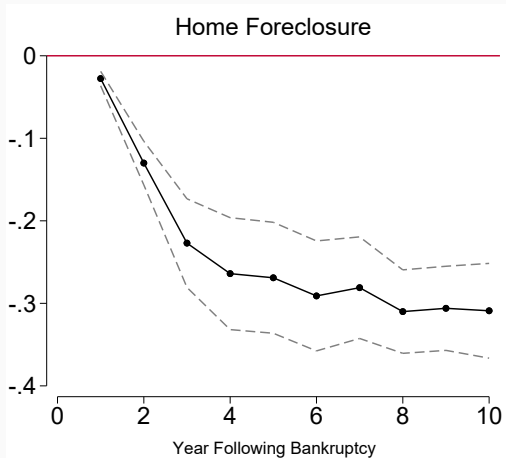
	Mean (1)	SD (2)	25th (3)	50th (4)	75th (5)
Female	24.13%	42.76%	0	0	0
Age	42.16	11.01	34	41	49
Single-family	85.62%	35.08%	1	1	1
Criminal filings	1.10%	10.41%	0	0	0
Case discharge	60.80%	48.82%	0	1	1
Number of cases			36,655		
<i>Pre-treatment local covariates</i>					
Percentage white (ZIP code)	38.14%	35.33%	0%	31%	71%
Percentage single (ZIP code)	9.39%	9.36%	0%	7%	17%
Percentage college degree (ZIP code)	6.97%	8.37%	0%	4%	10%
Median income (ZIP code)	28,726	19,127	12,870	29,413	42,872
<i>Other local covariates</i>					
Chapter 7 share (district)	57.40%	25.70%	38.64%	61.54%	75.49%
Unemployment rate (district)	5.77%	1.16%	4.90%	5.54%	6.86%
SNAP share (district)	4.43%	2.12%	2.17%	4.06%	6.11%
GDP growth (state)	2.10%	2.08%	0.85%	1.85%	2.91%

Main Results

First Stage: Judge Leniency and Chapter 13 in Cramdown Courts

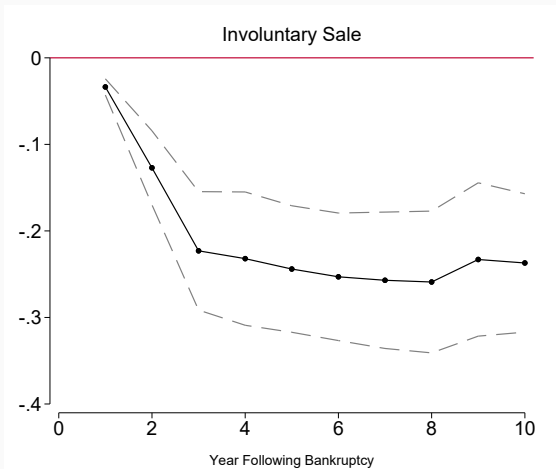
	Discharge		
	(1)	(2)	(3)
Leniency	0.862*** (0.0292)	0.861*** (0.0294)	0.859*** (0.0294)
Age		0.00105*** (0.000354)	0.00106*** (0.000352)
Female		-0.0393*** (0.00781)	-0.0381*** (0.00763)
Single-family		-0.0122 (0.0125)	-0.0129 (0.0126)
Criminal filings		-0.0648 (0.0431)	-0.0646 (0.0431)
Percentage white (ZIP code)			0.0609** (0.0292)
Percentage single (ZIP code)			-0.348*** (0.122)
Percentage college degree (ZIP code)			-0.0191 (0.117)
ln (Median income) (ZIP code)			0.00267 (0.00263)
Office x Month FE	Y	Y	Y
Observations	23,240	23,240	23,240
R-squared	0.211	0.212	0.213

Dynamics of the Effect of Chapter 13 in Cramdown Courts on Foreclosure



- Foreclosure: indicator for a filer's home receiving a notice of default, transfer or sale, or having been transferred to a real estate owned

Dynamics of the Effect of Chapter 13 in Cramdown Courts on Involuntary Sale



- ▶ Involuntary sale: indicator when a homeowner sells her property for less than the amount due on the mortgage

Differential Effect of Mortgage Cramdown

Differential Effect of Mortgage Cramdown

- ▶ Previous results show substantial benefits for homeowners of successful Chapter 13 filings in cramdown courts
- ▶ However, whether these effects are driven by the cramdown provisions or by other features of Chapter 13 is unclear
- ▶ To address this question, we do the following tests:
 1. Exploit the Supreme Court ruling to study the changes in benefits within cramdown
 2. Compare, within cramdown districts, courts with prior below- and above-median house price appreciation and study changes following SC ruling
 3. Compare cramdown and non-cramdown courts and study whether the effects differ across the two samples

The effect of Chapter 13 in cramdown courts on homeowners' distress event

		Foreclosure year 3		
	(1)	(2)	(3)	(4)
Discharge	-0.263***			
	0.0324)			
Discharge x post				
Sample period	1989–May 1993			
Control group mean	0.238			
Controls	Y			
Office x Month FE	Y	Y	Y	Y
Observations	6,100	23,240	22,232	12,389
R-squared	0.090	0.065	0.060	0.047

The effect of Chapter 13 in cramdown courts on homeowners' distress event

		Foreclosure year 3		
	(1)	(2)	(3)	(4)
Discharge	-0.263*** (0.0324)	-0.268*** (0.0314)		
Discharge x post		0.166*** (0.0378)		
Sample period	1989–May 1993	1989–1995		
Control group mean	0.238	0.169		
Controls	Y	Y		
Office x Month FE	Y	Y	Y	Y
Observations	6,100	23,240	22,232	12,389
R-squared	0.090	0.065	0.060	0.047

The effect of Chapter 13 in cramdown courts on homeowners' distress event

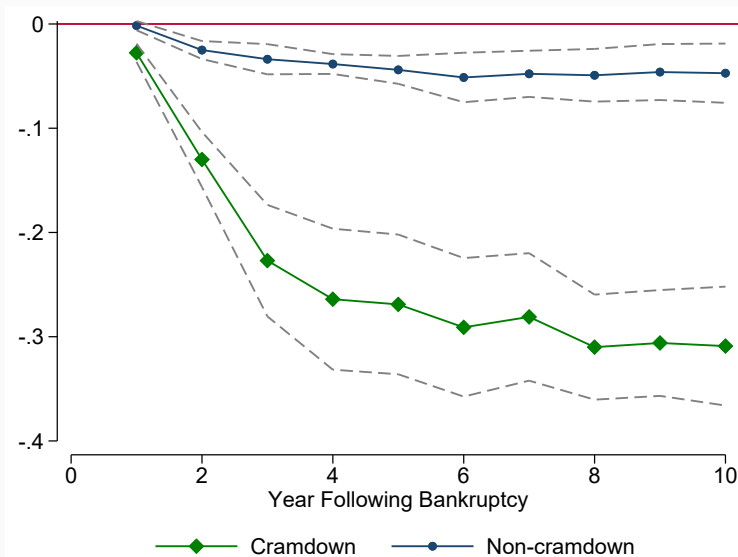
		Foreclosure year 3		
	(1)	(2)	(3)	(4)
Discharge	-0.263*** (0.0324)	-0.268*** (0.0314)	-0.328*** (0.0422)	-0.288*** (0.0777)
Discharge x post		0.166*** (0.0378)	0.226*** (0.0479)	0.255*** (0.0869)
Sample period	1989–May 1993	1989–1995	1991–1995	1992–1994
Control group mean	0.238	0.169	0.169	0.167
Controls	Y	Y	Y	Y
Office x Month FE	Y	Y	Y	Y
Observations	6,100	23,240	22,232	12,389
R-squared	0.090	0.065	0.060	0.047

Differential Effect of Chapter 13 in Cramdown Courts based on house price appreciation

		Foreclosure year 3		
	(1)	(2)	(3)	(4)
Discharge	-0.0710** (0.0329)	-0.0724** (0.0325)	-0.0923* (0.0461)	-0.0821* (0.0445)
Discharge x below	-0.236*** (0.0388)	-0.234*** (0.0385)	-0.292*** (0.0577)	-0.326*** (0.104)
Discharge x post		-0.0277 (0.0335)	-0.00785 (0.0448)	-0.0205 (0.0490)
Discharge x below x post		0.231*** (0.0460)	0.289*** (0.0630)	0.425*** (0.115)
Sample period	1989–May 1993	1989–1995	1991–1995	1992–1994
Controls	Y	Y	Y	Y
Office x Month FE	Y	Y	Y	Y
Observations	6,100	23,240	22,232	12,389
R-squared	0.103	0.070	0.066	0.044

Cramdown and Non-Cramdown Districts

Cramdown and Non-Cramdown: Foreclosure Dynamics prior to SC ruling



Cramdown and Non-cramdown in Chapter 13 bankruptcy

	Foreclosure year 3			
	(1)	(2)	(3)	(4)
Discharge	-0.0343*** (0.00476)			
Discharge x cramdown	-0.233*** (0.0330)			
Discharge x post				
Discharge x cramdown x post				
Sample period	1989–May 1993			
Controls	Y			
Office x Month FE	Y			
Observations	11,333	36,655	34,643	20,358
R-squared	0.084	0.061	0.057	0.041

Cramdown and Non-cramdown in Chapter 13 bankruptcy

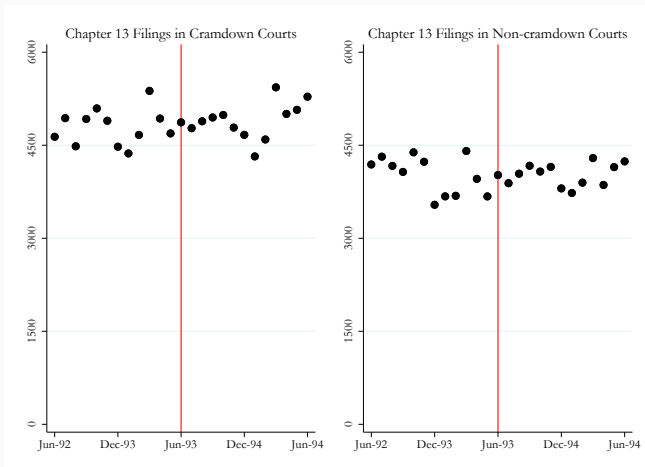
	Foreclosure year 3			
	(1)	(2)	(3)	(4)
Discharge	-0.0343*** (0.00476)	-0.0344*** (0.00465)		
Discharge x cramdown	-0.233*** (0.0330)	-0.232*** (0.0324)		
Discharge x post		0.0186** (0.00788)		
Discharge x cramdown x post		0.146*** (0.0390)		
Sample period	1989–May 1993	1989–1995		
Controls	Y	Y		
Office x Month FE	Y	Y	Y	Y
Observations	11,333	36,655	34,643	20,358
R-squared	0.084	0.061	0.057	0.041

Cramdown and Non-cramdown in Chapter 13 bankruptcy

	Foreclosure year 3			
	(1)	(2)	(3)	(4)
Discharge	-0.0343*** (0.00476)	-0.0344*** (0.00465)	-0.0409*** (0.00294)	-0.0758*** (0.00891)
Discharge x cramdown	-0.233*** (0.0330)	-0.232*** (0.0324)	-0.286*** (0.0431)	-0.207*** (0.0785)
Discharge x post		0.0186** (0.00788)	0.0251*** (0.00606)	0.0607*** (0.00617)
Discharge x cramdown x post		0.146*** (0.0390)	0.199*** (0.0489)	0.189** (0.0874)
Sample period	1989–May 1993	1989–1995	1991–1995	1992–1994
Controls	Y	Y	Y	Y
Office x Month FE	Y	Y	Y	Y
Observations	11,333	36,655	34,643	20,358
R-squared	0.084	0.061	0.057	0.041

Other Checks

Chapter 13 filings around the Supreme Court decision in 1993



- ▶ No evidence of bunching in the number of Chapter 13 filings in cramdown districts around the 1993 Supreme Court decision

Covariates around the Supreme Court decision

Panel A					
	Age	Female	Criminal filings	Single-family	
	(1)	(2)	(3)	(4)	
Cramdown x post	1.113 [0.2312]	0.0110 [0.5846]	-0.00287 [0.2643]	-0.0264 [0.7307]	
Average	42.159	0.241	0.011	0.856	
District FE	Y	Y	Y	Y	
Month FE	Y	Y	Y	Y	
Observations	36,658	36,658	36,658	36,658	
R-squared	0.041	0.018	0.119	0.081	
Panel B					
	Chapter 7 share	House price change	Unemployment rate	SNAP share	GDP growth
	(1)	(2)	(3)	(4)	(5)
Cramdown x post	0.0439 [0.5185]	-0.022 [0.124]	0.00304 [0.3403]	0.00126 [0.7618]	0.00304 [0.6246]
Average	0.564	0.036	0.063	0.049	0.026
District or State FE	Y	Y	Y	Y	Y
Month or Year FE	Y	Y	Y	Y	Y
Observations	1,794	132	110	118	108
R-squared	0.587	0.333	0.834	0.938	0.570

- ▶ No evidence of changes in observable covariates or bankruptcy composition around changes in districts' cramdown status

Discussion of Mechanisms

Discussion of Mechanisms

- ▶ **Liquidity:** reduction in short-term payments alleviates liquidity constraints
- ▶ **Debt overhang:** reduction in long-term obligations reduces the debt relative to the value of the house
- ▶ Cramdown provides relief in the form of the second mechanism
 - ▶ Challenge 1: debtors could also have received unsecured debt relief
 - ▶ Analysis using the SC ruling and Cramdown vs. standard Chapter 13 alleviates this concern
 - ▶ Challenge 2: debtors could have received unsecured or secured credit following cramdown
 - ▶ The trustee confiscates credit cards, and lenders can cancel accounts
 - ▶ No access to refinancing in the first four years
- ▶ Evidence is consistent with debt overhang playing a role in explaining homeowner default
 - ▶ Our results do not reject the importance of liquidity constraints

Back-of-the-Envelope Calculations

Back-of-the-Envelope Calculations

- ▶ How many foreclosures would have been prevented by the cramdown proposal in the Great Recession?
- ▶ Assumptions:
 - ▶ Similar effects across groups (i.e., compliers vs. non-compliers)
 - ▶ Similar effect of cramdown in the Great Recession
 - ▶ The number of total filers are the same with and without cramdown
 - ▶ We do not consider general equilibrium effects (e.g., credit supply, interest rate, home values)

Period	2008-13
Total Chapter 7 & 13 cases	7,597,560
% homeownership	0.64
Δ Pr (foreclosure filing & discharge)	-0.23
Pr (discharge filing 13)	0.49
Foreclosures avoided	(537,513)

Conclusion

Conclusion

- ▶ Mortgage cramdown has significant ex-post benefits for homeowners
- ▶ Cramdown provides benefits to debtors across different demographic characteristics
 - ▶ Cramdown is an effective policy to reduce foreclosures
- ▶ Our results suggest that debt overhang considerations play an important role in explaining homeowner default
- ▶ Our calculations suggest that the policy would have prevented a sizeable amount of foreclosures during the Great Recession

Thank you!