Extended Abstract
Bankruptcy and Homeownership: Does the decision to file preserve homeownership against foreclosure?

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Abstract
How do existing legal structures contribute to or mitigate wealth building and economic disparities within our society? Blacks and Hispanics comprise a disproportionate share of households who file for consumer bankruptcy. They are also more likely to experience foreclosure. This study examines the behavior of households with mortgage loans during the peak of the housing boom and subsequent bust. Specifically, we examine the influence of bankruptcy on the probability of mortgage default and foreclosure using a monthly panel dataset of about 230,000 private label largely subprime mortgages originated between 2004 and 2006 and tracked through January 2013. We show the demographic, socioeconomic, and local geographic factors predicting the probability that a household files for bankruptcy with particular attention to racial differences in delinquency and default. We then estimate whether filing for bankruptcy is causally associated with the likelihood of mortgage default or foreclosure, including testing state variations in bankruptcy provisions.

Introduction
It was once widely believed one had to be pretty wealthy to be able to go bankrupt, however, recent studies based on debtor files collected over the past twenty years indicated that the average profile of bankruptcy filers resembled people from the middle class; bankruptcy was a largely a middle class phenomenon, and middle class status was not an indication of financial security (Warren 2004). At a result of the housing bust during the Great Recession, papers analyzing the foreclosure crisis and home loss are numerous, pointing to the use of subprime loans, and a rise in the number of households taking on risky loans during the pre-recession period of the 2000s.

Home loss or the threat of home loss is become a reality for over 40% of the American population in recent years. For households seeking relief whether they are underwater or behind on mortgage payments, legal recourse is most likely their last resort, exercised after other avenues are exhausted. Consumer bankruptcy is also one of the only legal recourses for trying to prevent foreclosure or losing one's home. Bankruptcy is costly both in the short run with upfront fees to file, court fees, and attorney bills, and in the long run as it marks one's credit record making borrowing expensive from high interest rates.

Prior research indicates that for homeowners seeking relief through consumer bankruptcy attempts to hold onto their homes often fail; 23% do not complete their repayment plans and lose their homes anyway (Porter 2012). This study examines the behavior of households with subprime loans during the peak of the housing boom and subsequent bust. Specifically, we examine the influence of bankruptcy on the probability of mortgage default and foreclosure. Does bankruptcy offer households time to reconfigure non-housing debt and offer the opportunity to keep up with mortgage payments and retain their home? Or, does bankruptcy simply signal economic distress and just extend the inevitable foreclosure and loss of the home? Are households that file for bankruptcy systematically different from those who do not, and is

this difference associated with the likelihood of default and foreclosure? Using a monthly panel dataset of about 200,000 private label subprime mortgages originated between 2004 and 2006 and tracked through January 2013, we show the demographic, socioeconomic, and local geographic factors predicting the probability that a household files for bankruptcy. We then estimate whether filing for bankruptcy is causally associated with the likelihood of mortgage default or foreclosure. Apart from a few cross-sectionals studies based on small or convenience samples or qualitative interviews, very little is known about whether bankruptcy actually stalls or prevents foreclosure.

Race and Bankruptcy
Lawyers, legal scholar, consumer policy advocates who study consumer policy and specifically bankruptcy are well aware of the disproportionate shares of Black's who file for bankruptcy in any given year. And once in the bankruptcy system, three times more likely to choose Chapter 13, and less likely use legal representation when filing (Cohen and Lawless 2012). Blacks are also less likely to be ideal bankruptcy candidates, given they are largely income rich, wealth poor. The first analysis will examine the predictors of declaring bankruptcy available using the observable loan, personal, and neighborhood characteristics. We test whether the coefficient on race remains significant after controlling for a host of observable traits, and examine differences in predictors across racial and ethnic groups, comparing non-Hispanic Blacks to non-Hispanic Whites, Hispanics, and Other ethnic groups, including Asians. The second analysis will test the impact of bankruptcy subsequently paying off the loan versus going into REO. We will also look at difference across and within racial and ethnic groups, comparing loans held by non-Hispanic Blacks and Hispanics and the impact of bankruptcy on the existing loan.

Data
The dataset is a combination of several data sources including home loan data from a private credit company matched to the Federal Reserve's HMDA data. We also merge in neighborhood, city, and county characteristics from the American Community Survey (2005-2009), and median house prices from Zillow. All the loans were originated between 2004 and 2007, and are followed from December 2006 through January 2013. Of particular interest in this study is information on the federal district courts in which the respondent would have to file. We include this as an additional control to examine whether there are contagion effects of bankruptcy, a common theory used to explain high rates of bankruptcy declaration among lower-income and minority populations (Cohen & Lawless 2012).

Results
Attached below are descriptive statistics of our analytic sample, including the full sample and by race. Most of the variables listed in the descriptive tables are included in the multivariate regression models. The second chart list the regression results from the second analysis estimating the outcome of the loans as of the most current period on declaring bankruptcy and other controls. Preliminary results indicate that for loans originated by blacks, there is no significant relationship between declaring bankruptcy and going into REO, which is not the case for the other racial and ethnic categories. Loans originated by Black men are more likely to go into REO compared to those originated by Black women. These models control for all available demographic, loan, and geographic characteristics including the federal district court variable.

Descriptive Statistics for Full Sample and By Racial/Ethnic Category

Variable	Full Sample Mean	Full Sample Std. Dev.	Non-Hispanic White Mean	Non-Hispanic White Std. Dev.	Non-Hispanic Black Mean	Non-Hispanic Black Std. Dev.	Hispanic Mean	Hispanic Std. Dev.	Other, incl. Asian Mean	Other, incl. Asian Std. Dev.
Ever in Bankruptcy	0.109	0.312	0.100	0.300	0.147	0.354	0.116	0.320	0.097	0.296
Ever received Foreclosure notice	0.390	0.488	0.322	0.467	0.471	0.499	0.529	0.499	0.376	0.484
Mortgage Delinquency-30 Days	0.498	0.500	0.431	0.495	0.587	0.492	0.627	0.484	0.480	0.500
Mortgage Delinquency-60 Days	0.453	0.498	0.380	0.485	0.545	0.498	0.595	0.491	0.442	0.497
Mortgage Delinquency-90 Days	0.459	0.498	0.383	0.486	0.566	0.496	0.602	0.490	0.446	0.497
Income	120,539	152,050	131,229	169,814	86,846	137,255	103,186	85,910	150,298	163,439
FICO score	665	70	671	72	629	64	662	63	693	64
Home Purpose (v. Refinance)	0.464	0.499	0.438	0.496	0.461	0.498	0.517	0.500	0.517	0.500
High Cost Loan	0.434	0.496	0.357	0.479	0.667	0.471	0.536	0.499	0.301	0.459
Adjustable Rate Mortgage (ARM)	0.748	0.434	0.724	0.447	0.757	0.429	0.797	0.402	0.778	0.416
Loan Origination Year										
2004	0.183	0.387	0.210	0.408	0.152	0.359	0.133	0.339	0.174	0.379
2005	0.353	0.478	0.356	0.479	0.331	0.471	0.352	0.477	0.371	0.483
2006	0.359	0.480	0.330	0.470	0.413	0.492	0.409	0.492	0.343	0.475
2007	0.105	0.306	0.104	0.305	0.103	0.304	0.107	0.309	0.112	0.315
Loan to Value Ratio	81.178	14.574	80.133	15.114	83.816	13.121	82.549	13.890	80.417	13.857
Loan value at origination	334,629	233,592	336,960	255,106	237,981	153,334	344,229	176,104	470,982	248,583
Debt to Income	19.763	8.311	18.802	8.175	21.620	8.640	21.110	8.133	19.887	8.089
% Poverty in tract	10.709	8.970	8.862	7.437	14.608	11.338	13.833	9.716	8.818	7.679
% Minority in tract	30.668	24.361	20.526	17.273	56.923	29.390	37.066	20.438	41.553	23.167
Mean Value of Homes in Zip Code	345,022	237,398	347,566	260,248	247,143	155,125	354,405	174,820	482,655	254,616
Median Family Income in Census Tract	76,599	32,906	83,057	33,862	63,772	27,369	63,592	25,669	87,561	34,418
Median Family Income in CBSA	69,618	12,352	69,273	11,617	70,724	13,073	67,762	12,746	75,437	13,393
Number of observations		231,501		133,138		32,402		48,699		17,262

Multinomial Logistic Regression Estimates Predicting Loan Status (Still Paying, Paid Off, REO) at the end of the study period

VARIABLES	Full Sample Payoff v. Still Paying	Full Sample REO v. Still Paying	Non-Hispanic White Payoff v. Still Paying	Non-Hispanic White REO v. Still Paying	Non-Hispanic Black Payoff v. Still Paying	Non-Hispanic Black REO v. Still Paying	Hispanic Payoff v. Still Paying	Hispanic REO v. Still Paying	Other, inc. Asian Payoff v. Still Paying	Other, inc. Asian REO v. Still Paying
Ever Bankrupt	-1.764***	0.187***	-1.858***	0.436***	-1.617***	0.049	-1.678***	-0.262***	-1.613***	0.193**
	[0.090]	[0.050]	[0.088]	[0.045]	[0.153]	[0.057]	[0.107]	[0.049]	[0.093]	[0.065]
Male	0.024+	0.034*	0.019	0.009	0.004	0.125***	0.020	0.034	0.084*	-0.011
	[0.012]	[0.016]	[0.013]	[0.017]	[0.026]	[0.031]	[0.024]	[0.027]	[0.041]	[0.043]
Non-Hispanic Black	-0.385***	-0.232***								
	[0.036]	[0.047]								
Hispanic	-0.239***	0.407***								
	[0.064]	[0.072]								
Other, incl. Asian	-0.028	0.289***								
	[0.049]	[0.058]								
Constant	-1.415***	-3.439***	-1.510***	-3.050***	-1.358**	-4.030***	-1.945***	-3.615***	-1.028***	-3.604***
	[0.195]	[0.273]	[0.180]	[0.263]	[0.434]	[0.349]	[0.389]	[0.585]	[0.302]	[0.620]
Observations	230,645	230,645	132,651	132,651	32,273	32,273	48,533	48,533	17,188	17,188

Standard errors in brackets

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10