

Household Balance Sheet Rebuilding after the Housing Bust and Great Recession: Evidence from Panel Data

Daniel Cooper

Federal Reserve Bank of Boston

February 6, 2013

Important Disclaimer:

The views expressed herein are those of the authors and do not necessarily reflect those of the Board of Governors or the staff of the Federal Reserve System

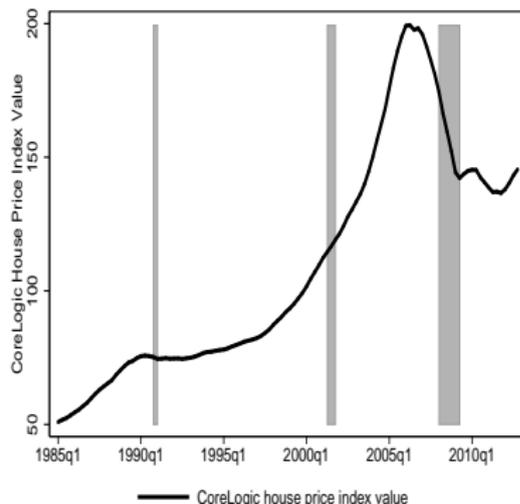
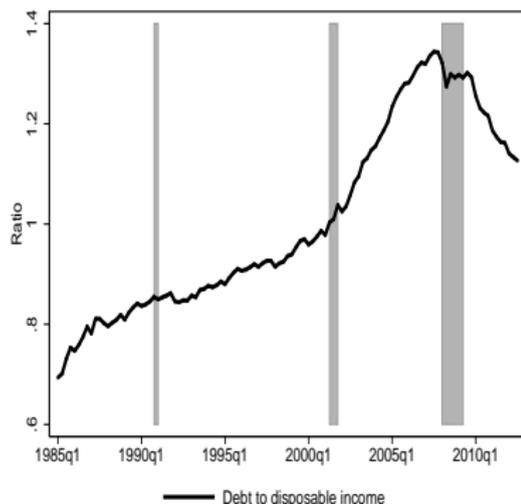
Motivation

- Between 2007 and 2009 the United States experienced the worst financial crisis and recession since the Great Depression
- The crisis left many households with substantially depleted net worth and high debt relative to assets



Motivation

- Debt has come down relative to income, and house prices have stabilized but remain well below their peak



Motivation

- Households with a high share of their wealth in housing prior to the crisis likely have seen limited recovery in their balance sheets from asset price movements;
- Balance sheet recovery (if desired) must come in other (active) ways

Table: 2007 Housing Wealth Shares (PSID and SCF)

	p25	p50	p75
Housing Equity/NW			
SCF	0.30	0.55	0.80
PSID	0.37	0.64	0.89
House Value/ NW			
SCF	0.50	0.88	1.42
PSID	0.49	0.76	0.92

Motivation

- The saving rate has rebounded somewhat from its pre-recession lows
- When thinking about consumer spending going forward a key question is whether household saving will head higher, stay the same, or go lower



This Paper

- Uses household-level panel data to examine households' balance sheet changes before, during, and after Great Recession
- Employs data on households' *active* saving decisions as well as their stock of wealth (and debt)
- Panel data enables one to follow the behavior of individual households over time
 - Important for considering heterogeneity in household behavior
 - Know 2011 saving patterns of household with high debt in 2007

Preview of Results

- Limited evidence of balance sheet rebuilding following Great Recession beyond (non-housing) debt repayment
 - True even for households likely particularly impacted by financial collapse
- The composition of household saving decisions and balance sheets are relatively little changed
 - Inconsistent with a substantial change in households' appetite for risk or savings

Data: Panel Study of Income Dynamics (PSID)

- Representative longitudinal study of 4,800 U.S. families starting in 1968; annual until 1997, biennial afterwards; currently about 8,000 families
- Contains wealth supplements in 1984, 1989, 1994, and 1999 onward; data on household active saving cover periods between wealth surveys
- Wealth (and saving) categories include: stocks, bonds, cash, IRA/401k, business/farms, other real estate, and vehicles
- PSID maintains confidential Geocode Match Files which include necessary geographic identifiers to link main PSID data to other datasets (like house prices)

Active Saving (Dissaving)

- Changes in households' net worth *excluding* capital gains
- Active additions to and subtractions from household asset holdings

Examples:

- Additions to and subtractions from retirement accounts
- Mortgage principal repayment
- Adding cash to saving accounts
- **NOT:** Wealth changes due to stock market fluctuations

Background and Approach

Households can improve their balance sheets by paying down existing debt, adding to their assets, and/or adjusting their portfolio risk

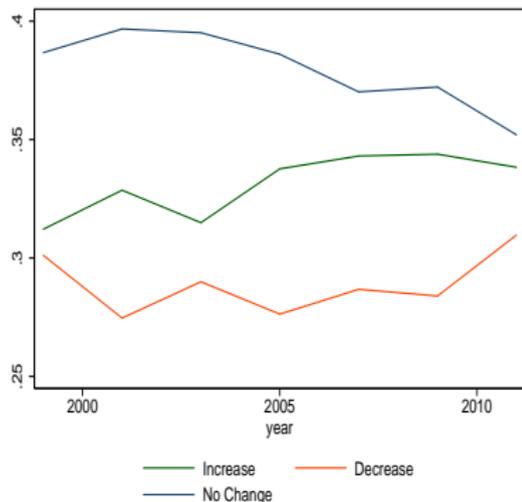
This paper examines:

- 1 Non-housing debt repayment
- 2 Shifts in saving choices
- 3 Shifts in asset holdings

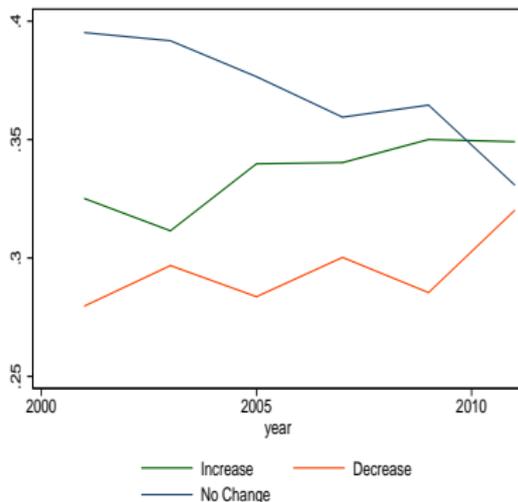
Non-housing Debt Changes

- Percent of households reporting a decrease in non-housing debt rose notably between 2009 and 2011

All Households

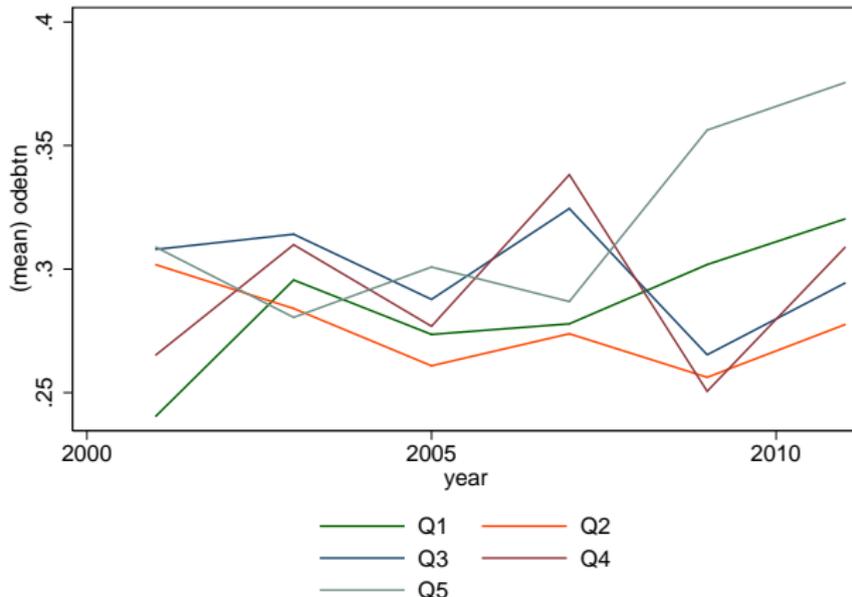


Homeowners



Non-housing Debt Decreases

- Incidence of repayment rises regardless of homeowners' share of wealth in housing (as of 2007)
- Greatest change for households with the highest housing wealth concentration



Debt-to-Income Transition Matrices

2007 OWNERS

2007 Total Debt-to-Income Quartile	2011 Total Debt-to-Income Quartile			
	1 %	2 %	3 %	4 %
1	59.5	16.2	12.0	12.4
2	21.2	59.9	13.9	5.0
3	8.1	25.0	55.6	11.3
4	8.0	6.0	24.0	62.0

2007 RENTERS

2007 Total Debt-to-Income Quartile	2011 Total Debt-to-Income Quartile			
	1 %	2 %	3 %	4 %
1	51.7	20.8	12.2	15.3
2	24.9	39.4	17.9	17.9
3	8.9	29.7	25.7	35.6
4	2.7	10.8	13.5	73.0

Saving in 2007 and 2011

2007 OWNERS

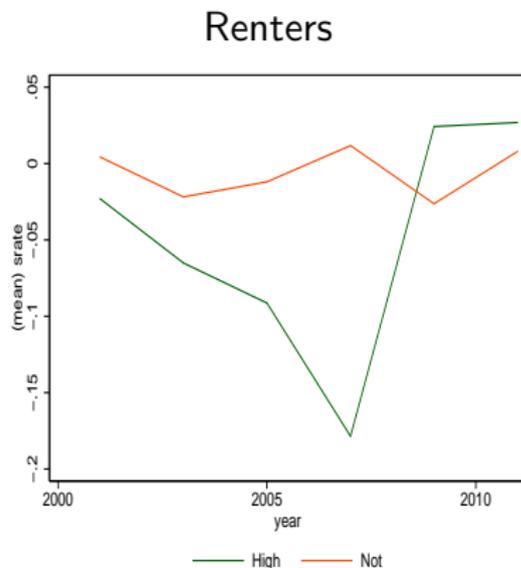
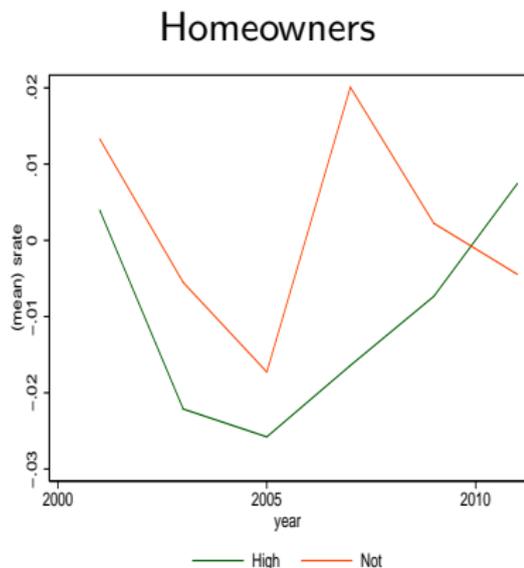
2007 Saving Rate Quartile	2011 Saving Rate Quartile			
	1 %	2 %	3 %	4 %
1	31.5	30.6	19.4	18.5
2	35.2	21.3	27.8	15.7
3	19.8	22.7	27.3	30.2
4	14.0	19.3	25.6	41.1

2007 RENTERS

2007 Saving Rate Quartile	2011 Saving Rate Quartile			
	1 %	2 %	3 %	4 %
1	37.6	29.1	16.3	17.0
2	33.1	24.0	28.1	14.9
3	23.4	29.8	22.3	24.5
4	14.6	26.8	23.2	35.4

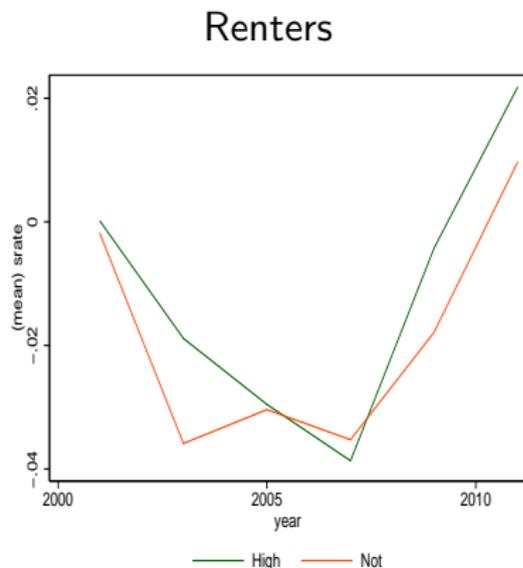
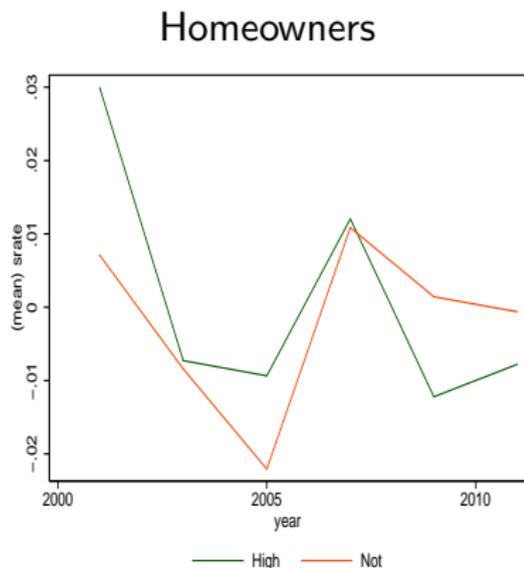
Saving Rates by Homeownership and 2007 Leverage

- The saving of high debt homeowners has increased since 2007, but is it a result of the housing market collapse?



Saving Rates by Homeownership and House Price Growth

- Saving does not seem to vary based on households house price growth exposure...



Shares of Total Saving

■ By Housing Wealth Concentration

Saving Component	Low HW Concentration				High HW Concentration			
	2005	2007	2009	2011	2005	2007	2009	2011
Oth. Real Estate	0.007	0.007	0.000	0.000	0.005	0.005	0.000	0.000
Cash	0.200	0.231	0.271	0.264	0.156	0.157	0.175	0.158
Stocks	0.141	0.132	0.109	0.125	0.103	0.077	0.062	0.083
Bonds	0.078	0.066	0.063	0.069	0.060	0.050	0.047	0.048
Vehicles	0.346	0.362	0.386	0.320	0.342	0.274	0.315	0.310
IRA & 401k	0.025	0.023	0.032	0.017	0.016	0.024	0.031	0.015
Pers. Business	0.002	0.003	0.002	0.000	0.003	0.002	0.001	0.000
Non-housing Debt Repayment	0.175	0.163	0.161	0.180	0.310	0.368	0.351	0.318

Shares of Total Saving

■ By 2007 Debt-to-income Ratio

Saving Component	Low (2007) Debt-to-Income				High (2007) Debt-to-Income			
	2005	2007	2009	2011	2005	2007	2009	2011
Other Real Estate	0.009	0.009	0.000	0.000	0.002	0.002	0.000	0.000
Cash Saving	0.184	0.215	0.232	0.247	0.179	0.187	0.249	0.193
Stocks	0.170	0.157	0.131	0.154	0.070	0.050	0.038	0.050
Bonds	0.079	0.072	0.066	0.067	0.062	0.041	0.045	0.055
Vehicles	0.302	0.299	0.322	0.271	0.411	0.388	0.432	0.382
IRA & 401k	0.029	0.027	0.040	0.021	0.012	0.017	0.018	0.009
Pers. Business	0.003	0.004	0.002	0.000	0.001	0.001	0.001	0.000
Non-housing Debt Repayment	0.176	0.159	0.152	0.173	0.286	0.346	0.334	0.308

Overall Wealth Shares

Shares of Non-Financial Assets

	2001	2005	2009	2011
Other Real Estate	0.028	0.030	0.027	0.026
Busines/Farm	0.015	0.013	0.014	0.012
Vehicles	0.378	0.373	0.403	0.401
Memo:				
Total Debt	0.535	0.603	0.799	0.867

Shares of Financial Assets

	2001	2005	2009	2011
Stocks	0.103	0.083	0.064	0.059
Savings Accounts	0.654	0.675	0.716	0.690
Bonds	0.064	0.056	0.048	0.040
IRA & 401k Accts.	0.149	0.154	0.137	0.170
Memo:				
Non-housing Debt	3.890	4.927	7.370	6.126

Wealth Shares: 2007 Owners versus Renters

Shares Non-financial Assets

	Renters			Owners		
	2005	2009	2011	2005	2009	2011
Other Real Estate	0.008	0.009	0.008	0.042	0.040	0.039
Busines/Farm	0.007	0.005	0.007	0.016	0.019	0.016
Vehicles	0.712	0.761	0.701	0.172	0.146	0.182
Memo:						
Total Debt	0.851	1.230	1.263	0.469	0.518	0.594

Shares Financial Assets

	Renters			Owners		
	2005	2009	2011	2005	2009	2011
Stocks	0.039	0.035	0.036	0.104	0.088	0.079
Savings Accounts	0.818	0.825	0.796	0.609	0.626	0.605
Bonds	0.044	0.031	0.029	0.062	0.062	0.049
IRA & 401k Accts.	0.059	0.074	0.098	0.198	0.190	0.228
Memo:						
Non-housing Debt	8.950	10.417	9.130	3.165	4.918	3.795

Wealth Shares: High and Low Debt-to-Income Households

Shares Non-financial Assets

	Low Debt-to-Income			High Debt-to-Income		
	2005	2009	2011	2005	2009	2011
Other Real Estate	0.036	0.037	0.035	0.026	0.018	0.017
Busines/Farm	0.015	0.017	0.015	0.009	0.012	0.010
Vehicles	0.348	0.358	0.349	0.344	0.328	0.365
Memo:						
Non-housing Debt	0.413	0.452	0.500	0.971	1.334	1.434

Shares Financial Assets

	Low Debt-to-Income			High Debt-to-Income		
	2005	2009	2011	2005	2009	2011
Stocks	0.095	0.076	0.070	0.075	0.056	0.053
Savings Accounts	0.646	0.678	0.652	0.704	0.728	0.701
Bonds	0.061	0.053	0.045	0.048	0.045	0.037
IRA & 401k Accts.	0.175	0.160	0.190	0.137	0.133	0.172
Memo:						
Non-housing Debt	3.014	4.421	3.724	8.556	11.554	8.759

Conclusion

- This paper examined how household balance sheets and saving behavior changed following the financial crisis
- Paper contributes to literature by paying particular attention to potential heterogeneous behavior across household groups by the financial and housing market collapse
- Little evidence of substantial balance sheet reshuffling or saving adjustments beyond debt repayment
- Next steps:
 - 1 Separate active debt repayment from foreclosure
 - 2 Why do high debt households' saving rates rebound faster than others

Average Non-housing Debt Changes

- On average, households have increased non-housing debt repayment or are taking on less non-housing debt

