Mortgage Design, Household Debt And The Macro-economy

"Mortgage Contract Design Conference"
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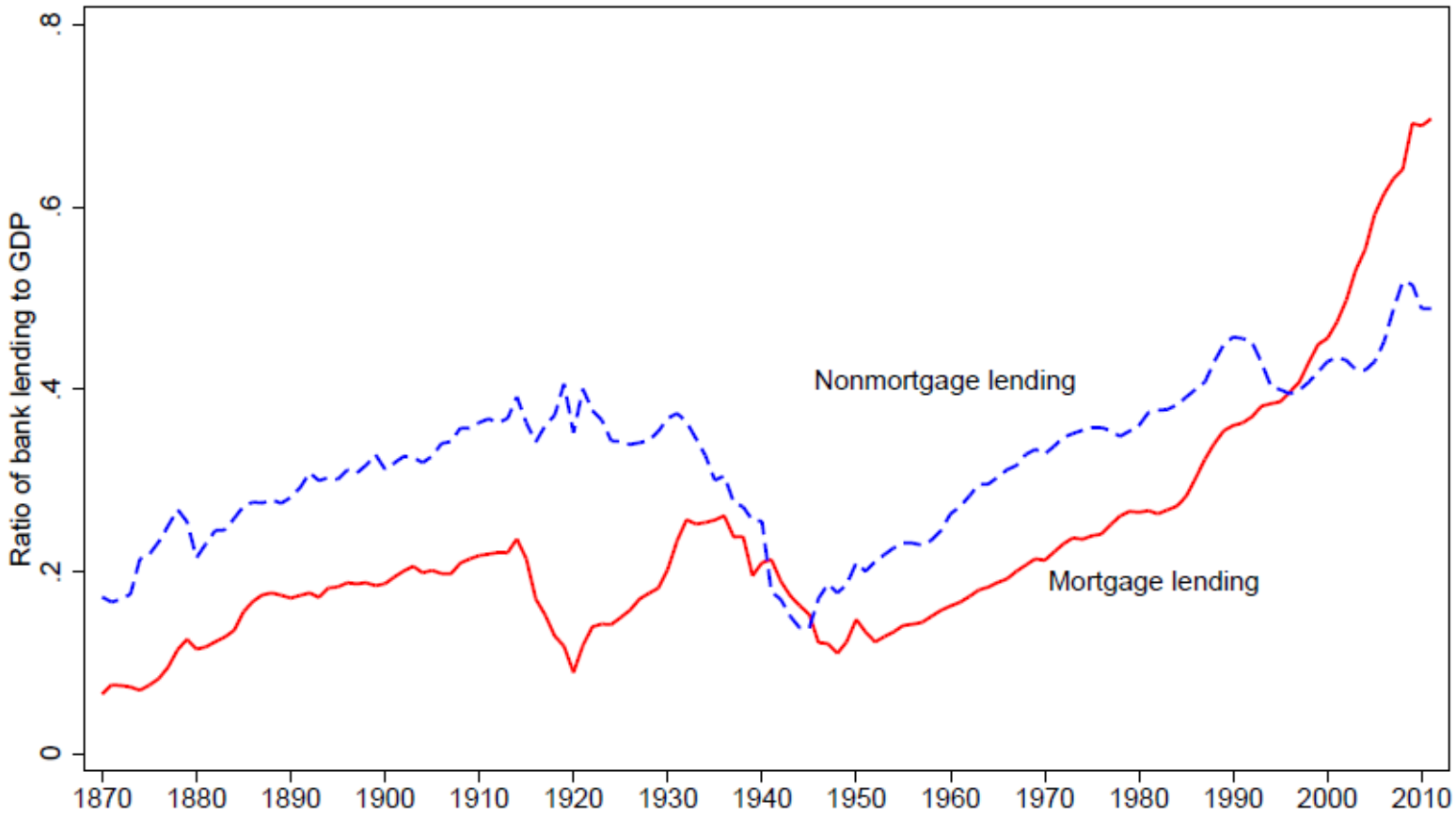
The Great Mortgaging (JST)

Figure 2: *Bank mortgage and non-mortgage lending to GDP, 1870–2011: Average ratio to GDP by year for 17 countries*



Notes: Mortgage (residential and commercial) and non-mortgage lending to the business and household sectors. Average across 17 countries. See text.

Is growth in household debt a concern?

- Standard representative agent models
  - NO
  - Stronger growth in debt forecasts *higher* income growth

- More recent models that emphasize heterogeneity, financial pecuniary externality, and / or behavioral factors
  - YES
  - Stronger growth in debt forecasts *lower* income growth (at least beyond a threshold)
  - Private borrowing decisions are suboptimal from a macro perspective as individuals take prices and aggregate leverage as given -> excessive leverage
  - Individuals will *not* buy optimal insurance even with complete markets

- Examples:
  [Bianchi (2011), Caballero and Krishnamurthy (2003), Korinek and Simsek (2014), Farhi and Werning (2014)]
- Bubbles, asymmetric beliefs, neglected risk all feed into credit growth that increases fragility
  [Laibson (1997), Barro (1999), Geanakoplos (2009), Shleifer and Vishny (2012)]
- Focus has shifted from investment / supply-side channel of Bernanke-Gertler to consumption / demand-side channel

How should one deal with problems of excessive debt?

- Ex-ante *regulation* of leverage and capital

versus

- Ex-ante *design* of financial contracts that provide *automatic* state-contingent stabilizer

U.S. Credit Boom Facts (Mian and Sufi 2015b)

- Random sample of about 300,000 *same* individuals followed from 2000-10
- Growth in debt, and subsequent defaults concentrated in low credit score individuals (also see Mian and Sufi (2009))
- Same individuals a lot more sensitive to house price growth (also see Mian and Sufi (2011))
- Income overstatement and fraudulent reporting also extensive in same areas (Mian and Sufi 2015a)

Figure 1: Aggregate Household Debt and Defaults

The left panel of this figure plots nominal household debt according to the Federal Reserve Flow of Funds. The right panel plots the default rate on household debt according to our sample of credit reports.

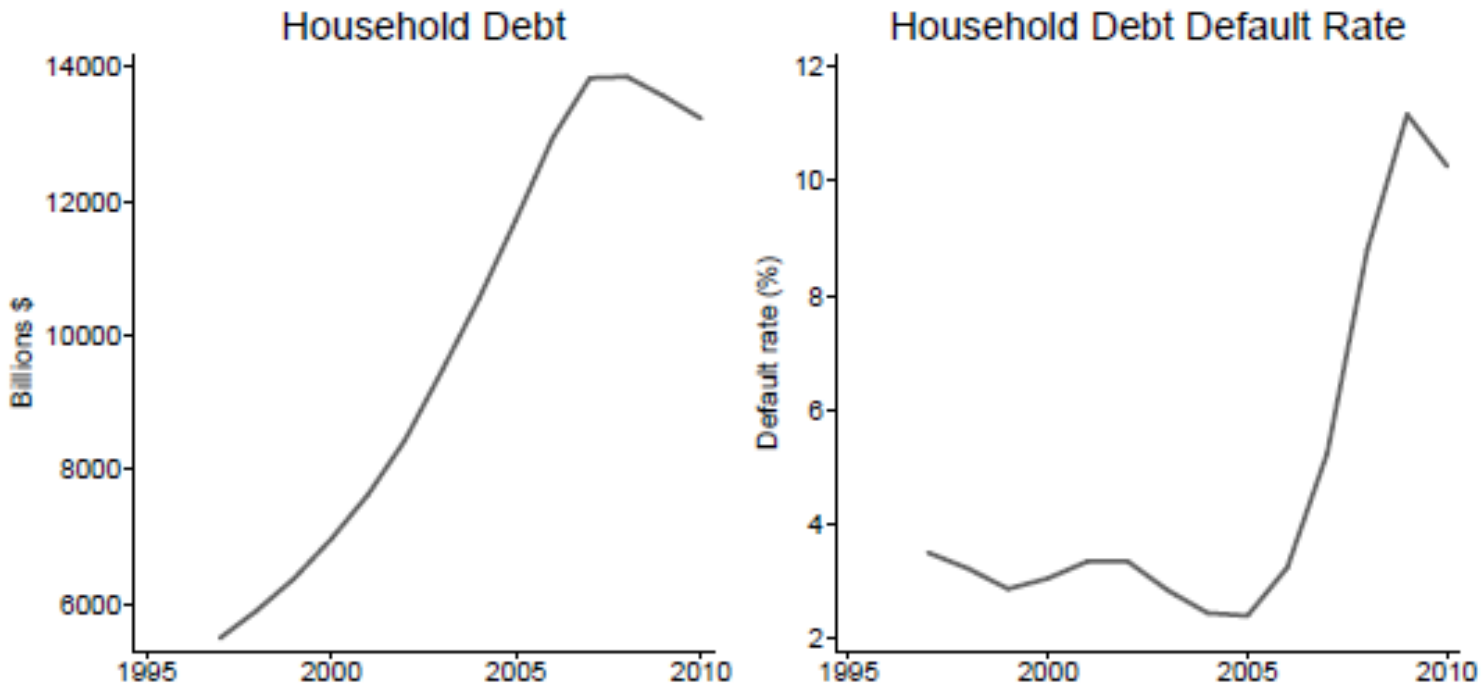


Figure 3: Growth in Debt, by 1997 Credit Score

This figure plots the growth in debt for individuals sorted into quintiles by their 1997 credit score. Each quintile contains 20% of the sample. The left panel shows cumulative growth since 2000, and the right panel shows growth from 2000 to 2007.

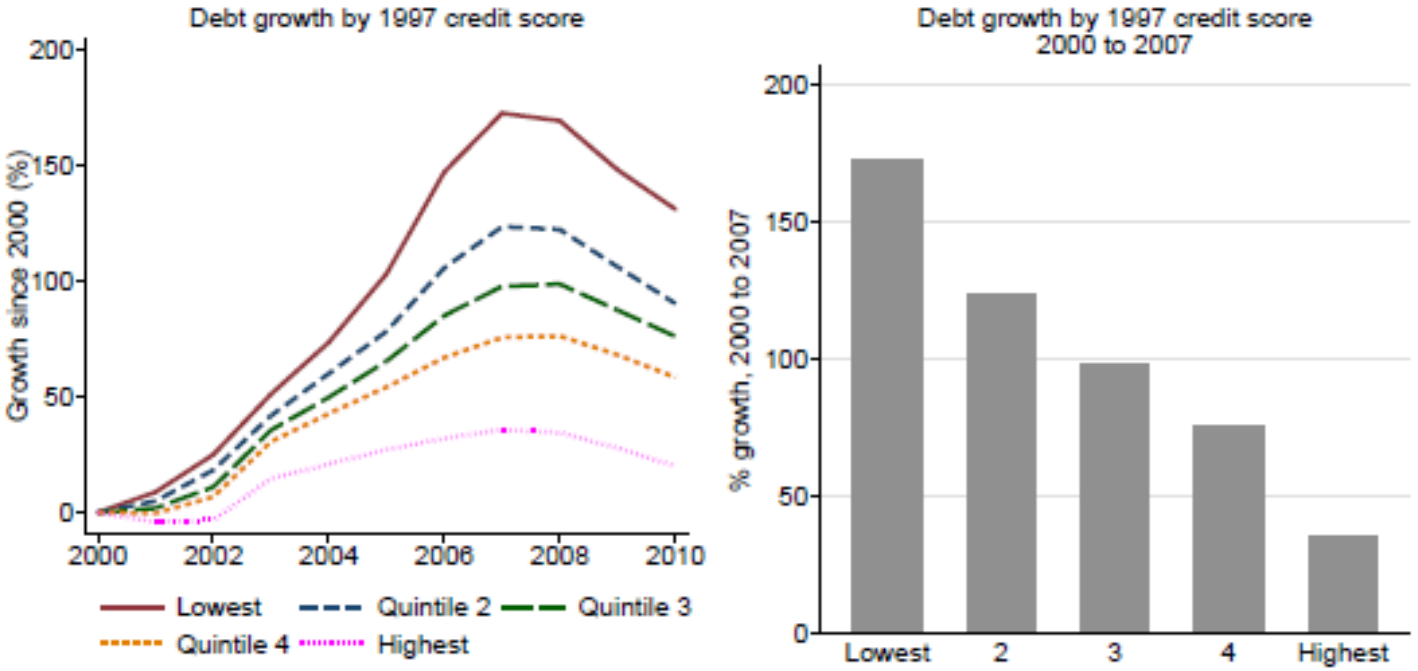


Table 5: Growth in Debt, by Credit Score and House Price Growth

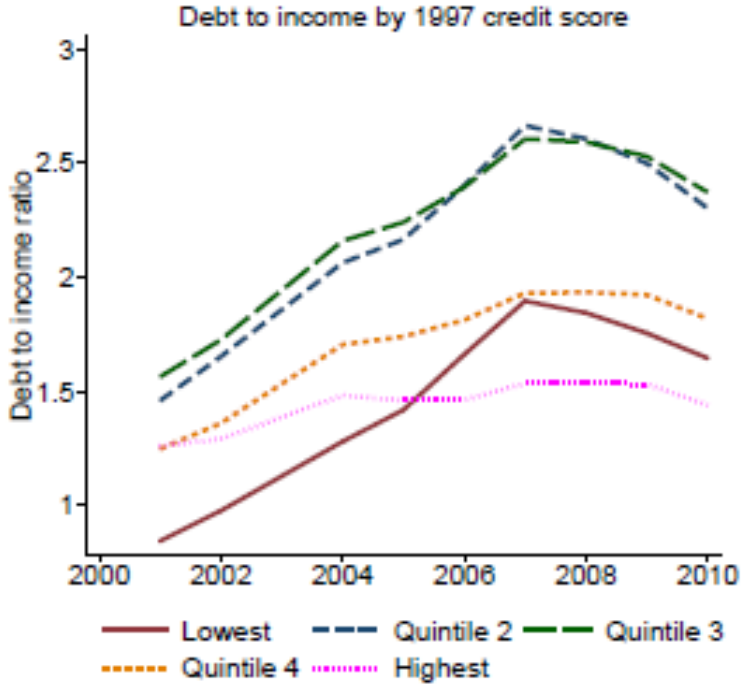
This table shows the growth in debt from 2000 to 2007 by 1997 credit score quintile and by house price growth from 2000 to 2007. Each individual is assigned the house price growth from 2000 to 2007 of the zip code in which they reside in 2000.

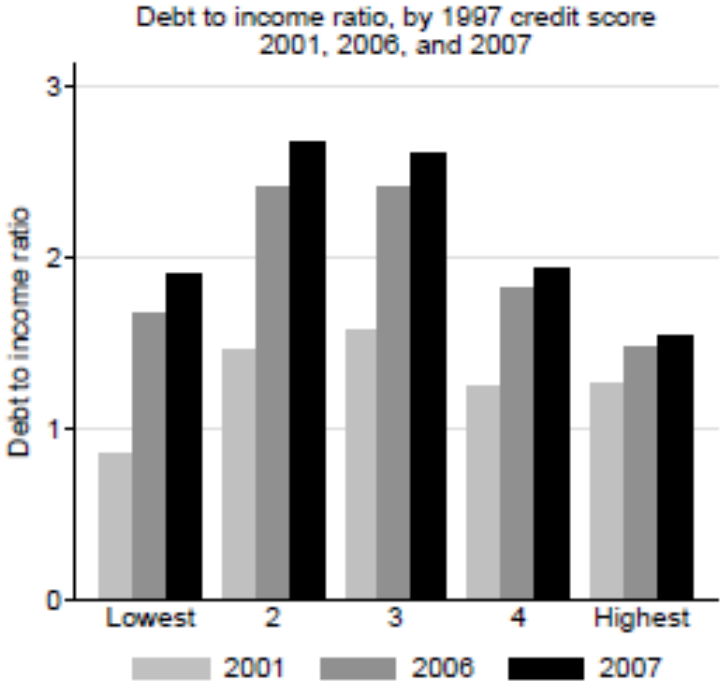
	Debt growth, 2000 to 2007 (%)				
Credit Score	House Price Growth Category				
Quintile	lt 40%	40-75%	75-105%	105-130%	gt 130%
1	106.7	175.7	181.5	194.5	207.1
2	83.5	126.8	133.2	138.2	142.4
3	76.2	102.7	107.1	100.4	109.6
4	61.3	74.0	78.8	80.1	93.2
5	33.0	38.7	35.1	36.4	38.9

**,* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

Figure 7: Debt to Income, by 1997 Credit Score

This figure plots the debt to income ratio for individuals based on their 1997 credit score. Income is measured as average adjusted gross income per tax return in the zip code in which the individual resides. Each quintile contain 20% of the sample.





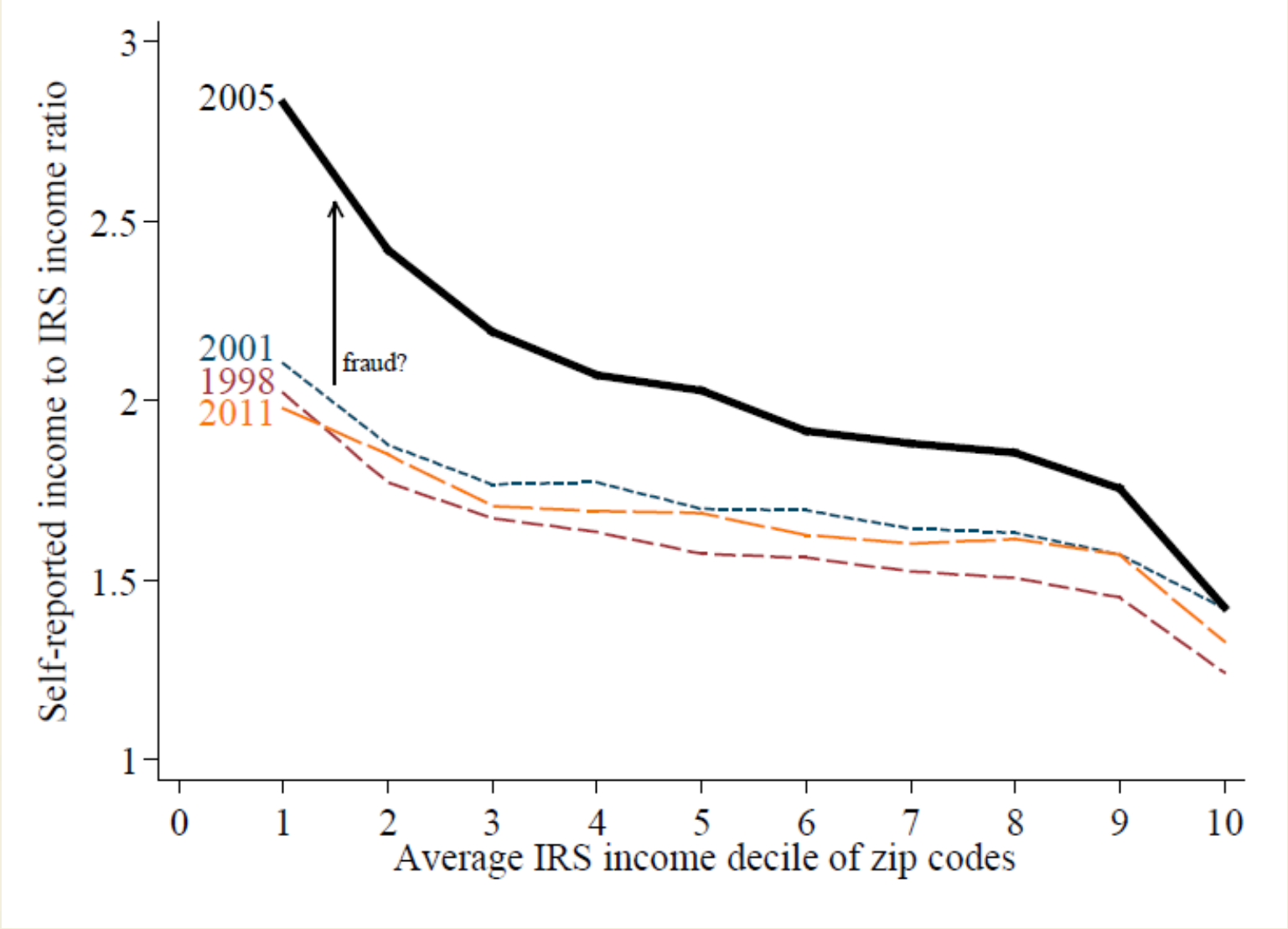

Self-reported income to IRS income ratio
3
2.5
2
1.5
1
2005
2001
1998
2011
fraud?
0
1
2
3
4
5
6
7
8
9
10
Average IRS income decile of zip codes

Figure 9: Delinquencies, by 1997 Credit Score

The left panel plots the default rate by 1997 credit score quintile, and the right panel plots the share of total dollars in delinquency by 1997 credit score quintile. Each quintile contain 20% of the sample.

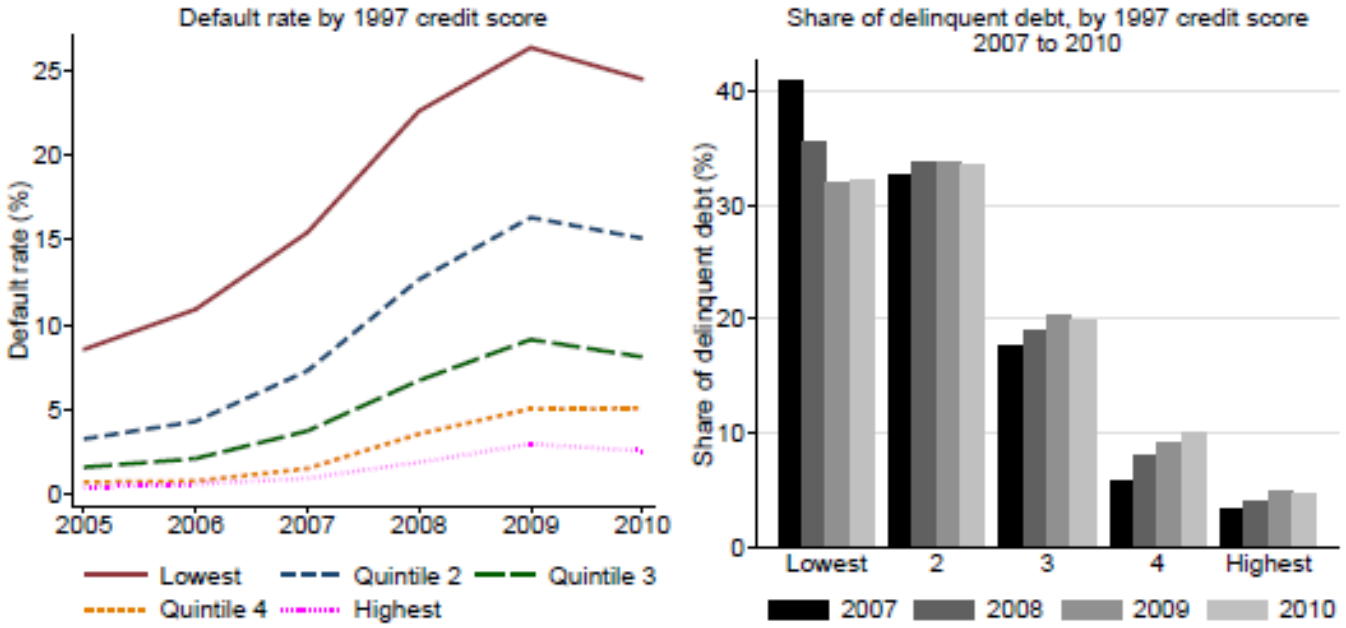
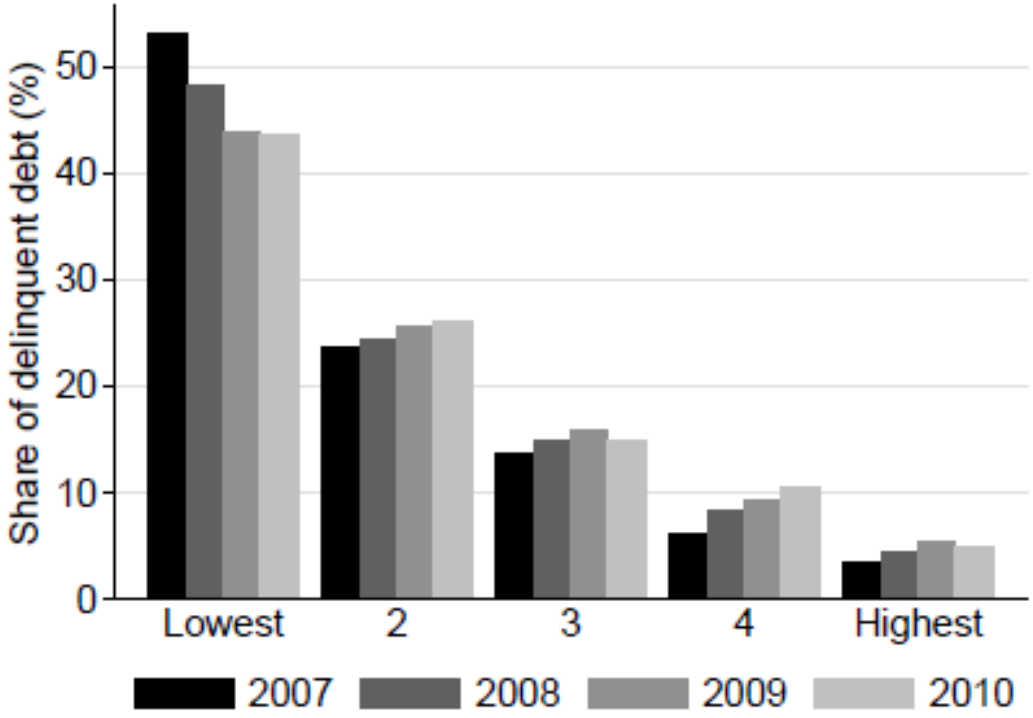


Figure 11: Share of Total Delinquencies, by 1997 Credit Score, Bins Contain 20% of Total Debt in 2006

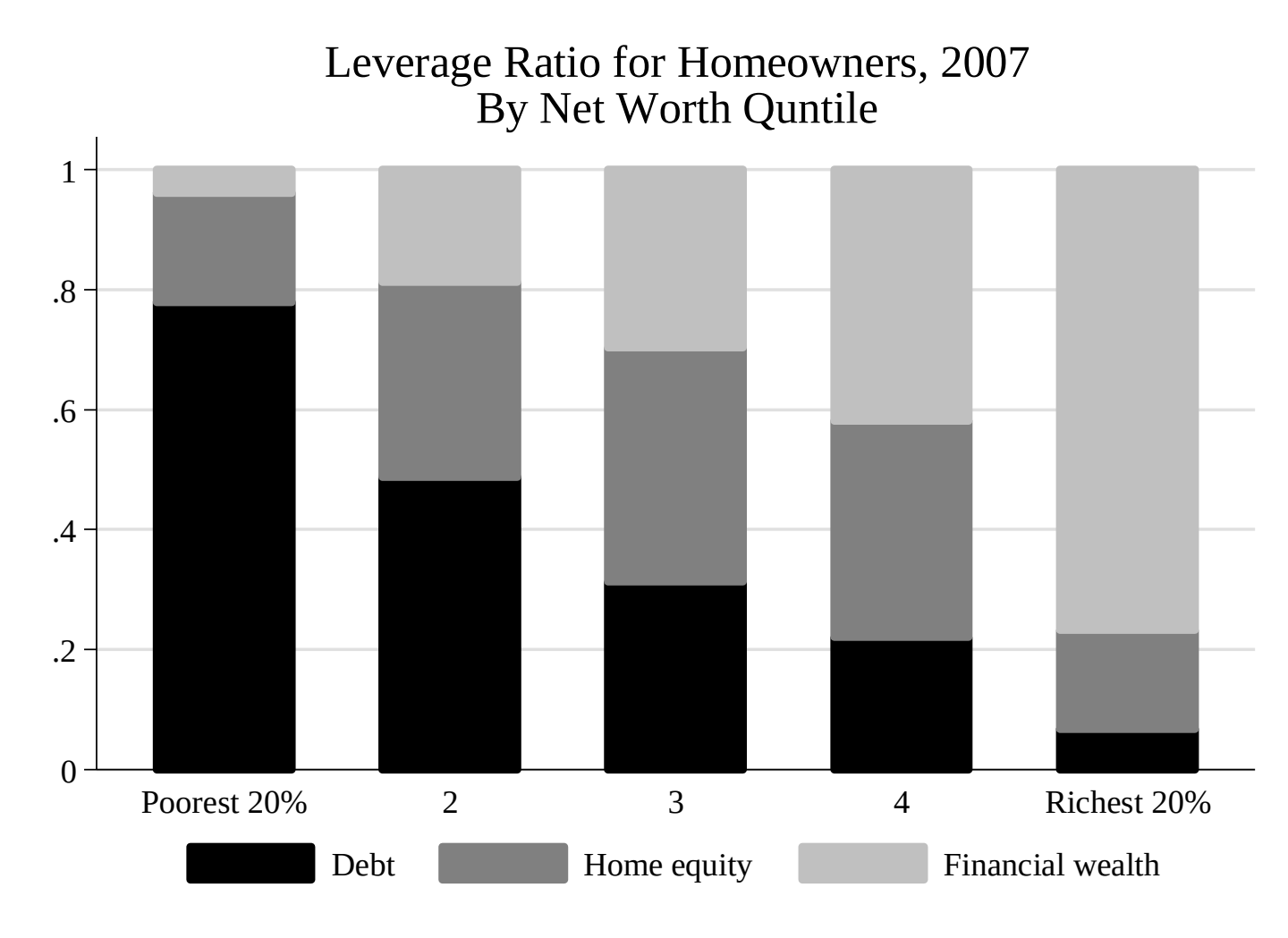
This figure plots the share of total dollars in delinquency by 1997 credit score. In contrast to the previous figures and tables, each quintile in this figure contains 20% of *total debt in 2006* as opposed to 20% of *individuals*. The mean Vantage score in 1997 for each bin moving from left to right is 603, 696, 760, 827, and 894.



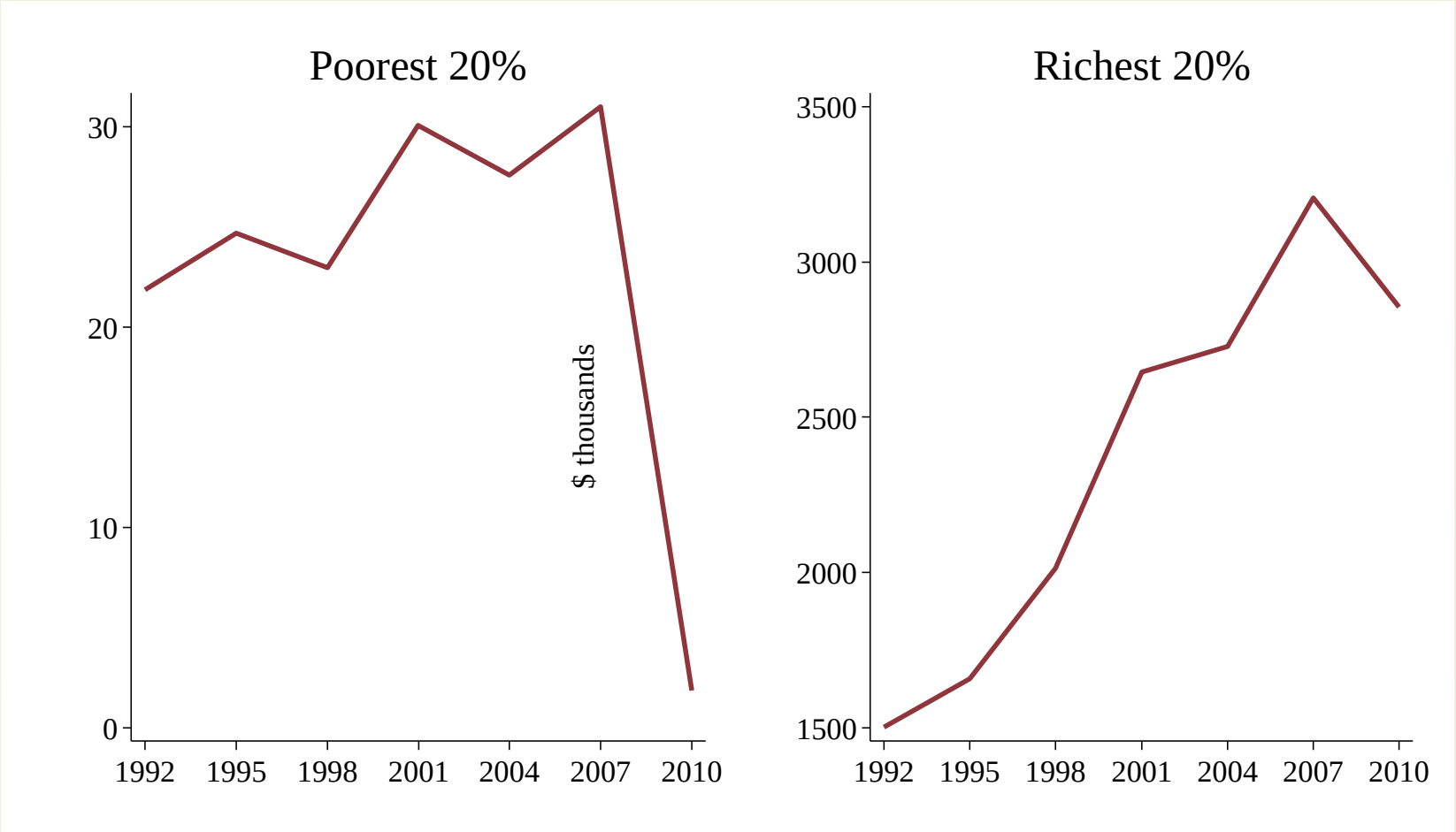
Macro Consequences of Credit Boom

- Heterogeneity in MPC creates aggregate demand effects
- Fire sale externalities
- Employment dislocation and the trade channel
- International Evidence (Mian, Sufi and Verner (2015))

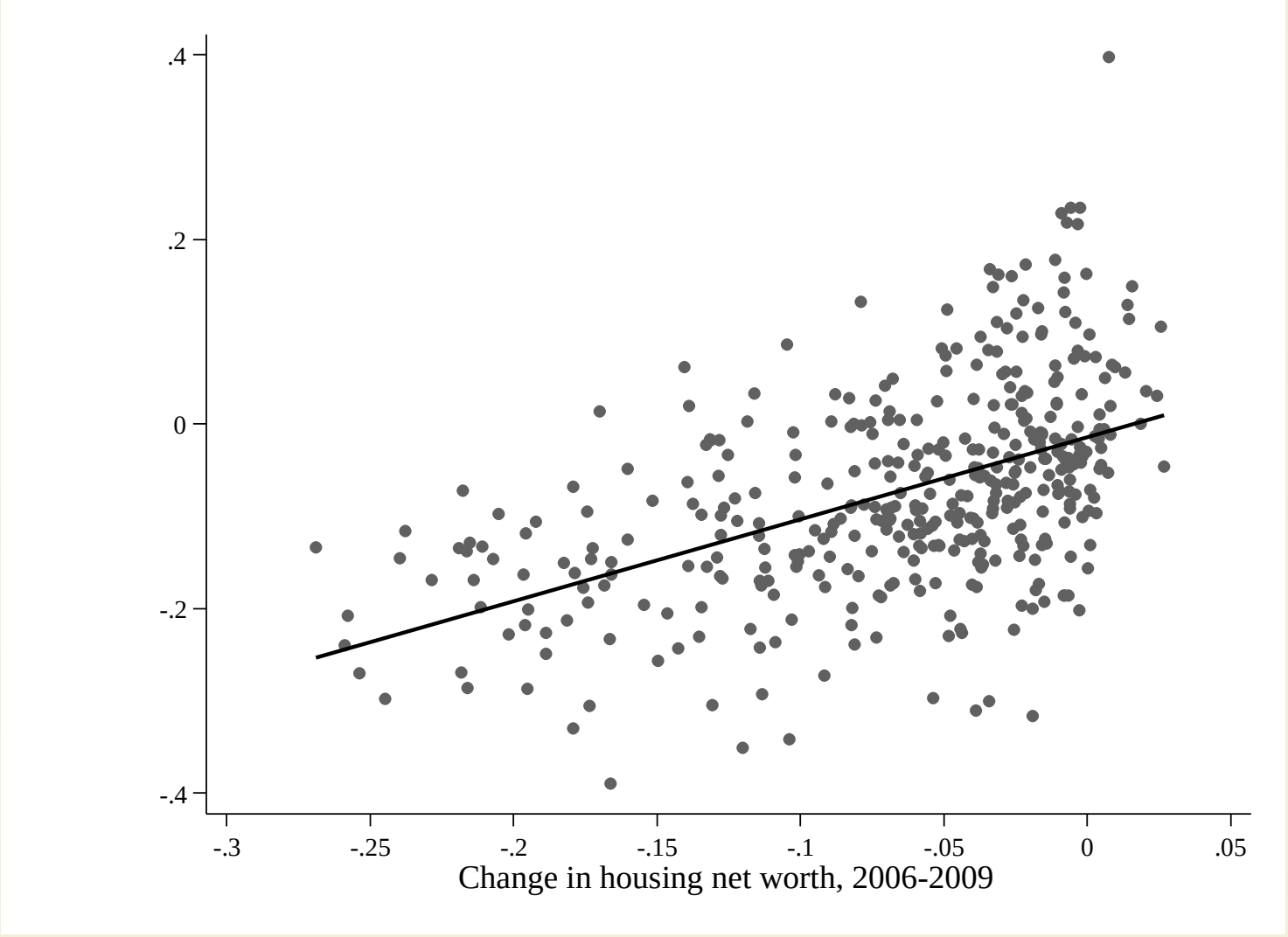
Creditor vs Debtor Balance Sheet



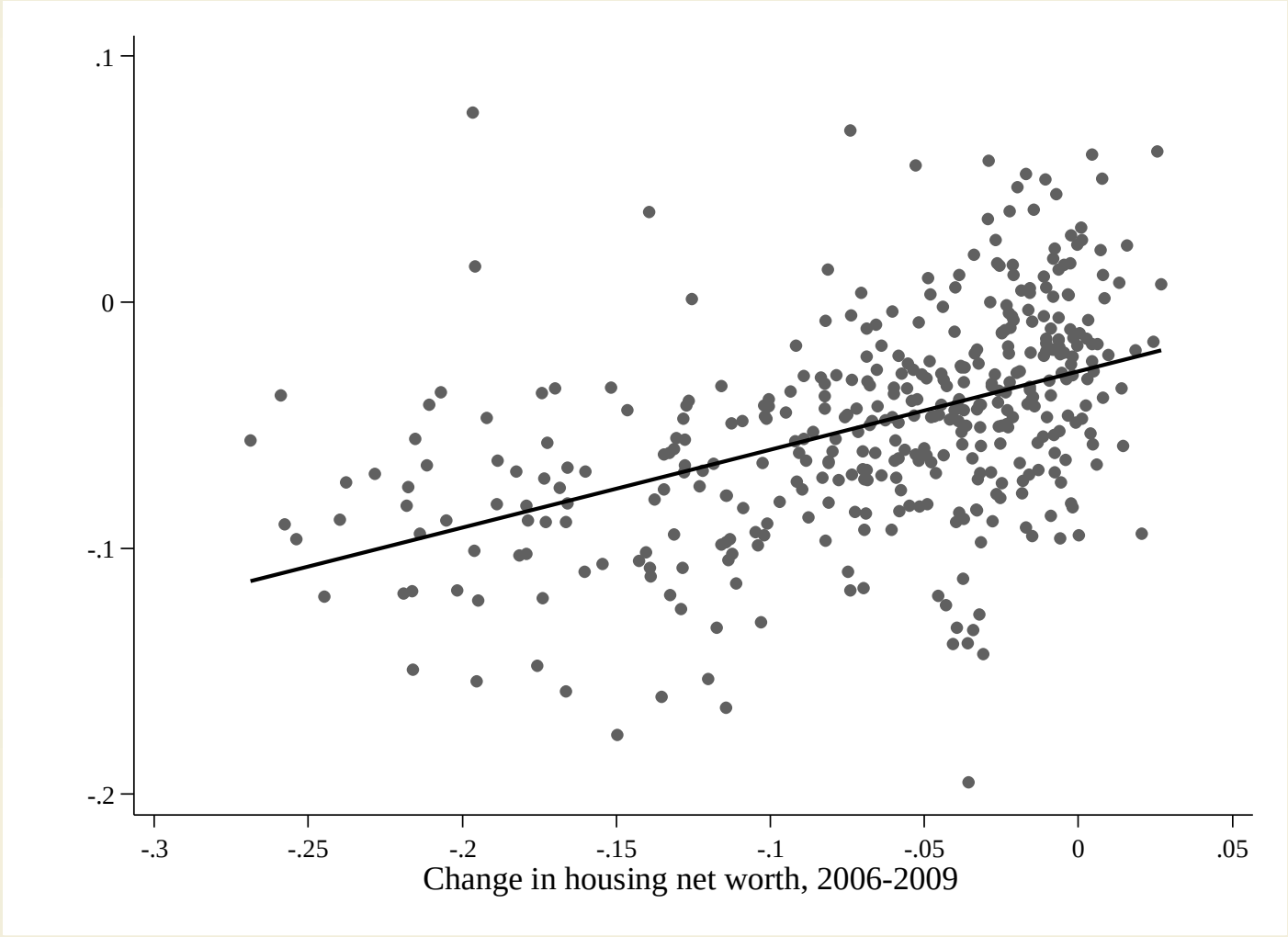
The Distribution of Losses Matters!



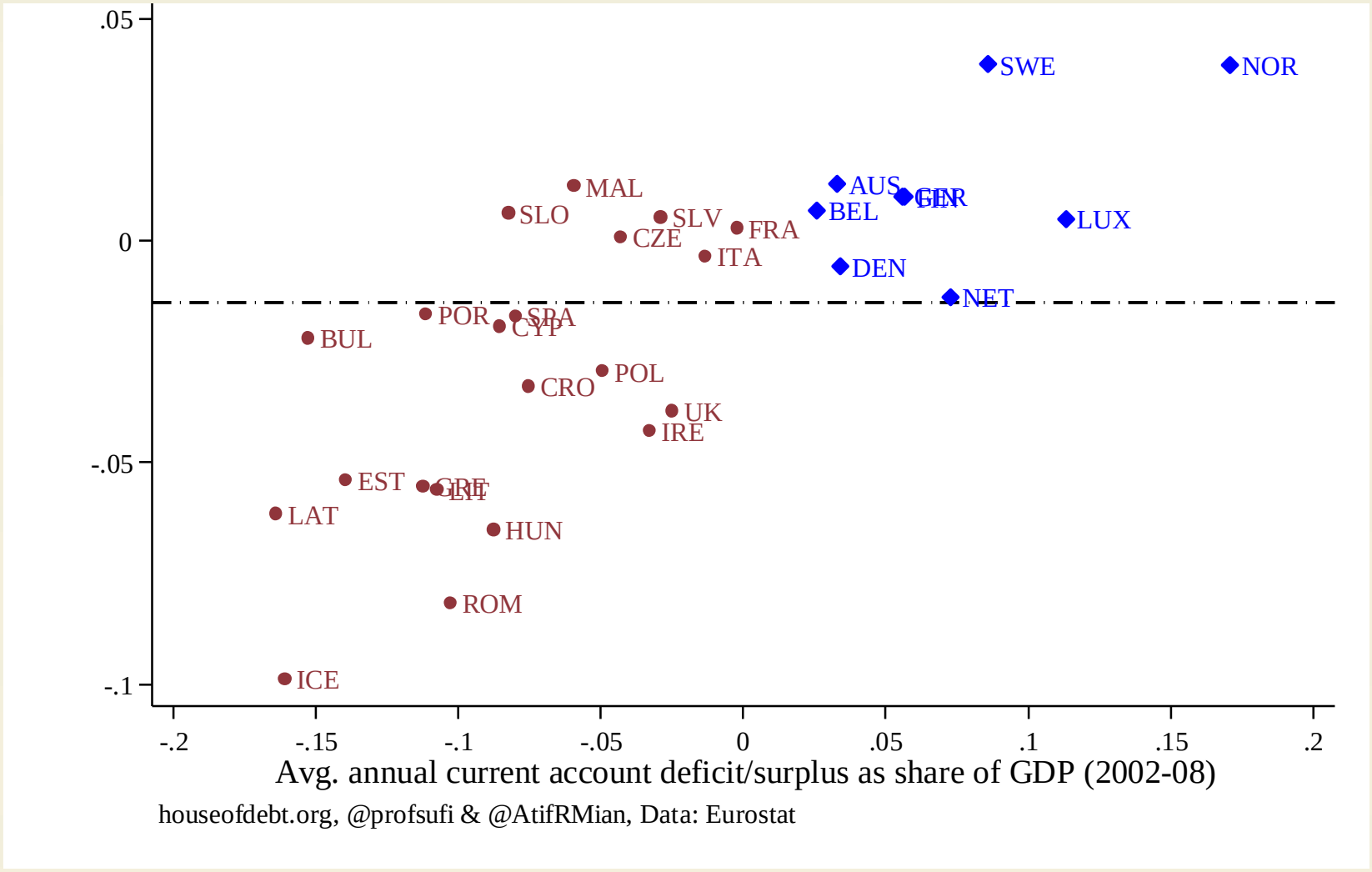
The Aggregate Demand Channel



Employment Consequences



The European Example



“the oddest proposal”

Ancient Wisdom

- “If any one owe a debt for a loan, and a storm prostrates the grain, or the harvest fail, or the grain does not growth for lack of water, in that year he need not give his creditor any grain, he washes his debt-tablet in water and pays no rent for this year.”

Why are we not there yet?

Thank you!