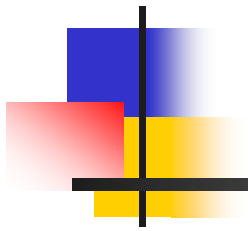


The Subprime Crisis



by

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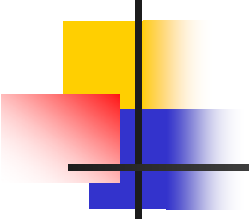
Empirical Design & Challenge

- Great Question: Is Securitization Good?
- Empirically Showing A Casual Effect
 - Exogenous increase in securitization
 - Securitization → Higher defaults

Evolution of Endogeneity in Finance Empirical Work

- Ignore It
- Mention, Then Ignore
- IV by Labeling
- Real Instrumental Variables [Today]
 - Exogenous instruments
 - Economic justification for instruments





Logic of Endogeneity: The Problem

- The Identification Problem

- Cause or correlation? “We identify the causal effect of expansion in the supply of mortgage credit on subsequent changes in loan originations, house prices, and defaults.”
- Hospitals kill people

$$Default = \alpha ObsCreditQuality + \beta Securitization + [UnobsCreditQuality + \varepsilon]$$

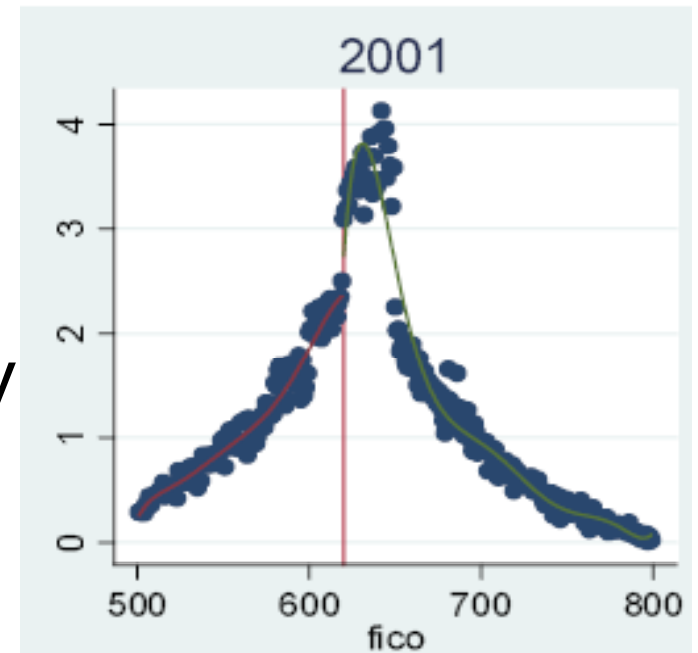
$$Securitization = \gamma ExogenousChange + [UnobsCreditQuality + \eta]$$

- Requirement: Exogenous Instruments

- Uncorrelated with residual
- Correlated w/ securitization

Identifying Assumption: Instrument: $FICO > 620$

- Text and Logic:
 - $\Pr[\text{Sec}]$ discretely jumps @ $FICO > 620$
- Numbers: Less Clear
 - # jumps @ 620
 - # plummets @ 690
 - Data is not a probability



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Instrument: FICO > 620

- Numerical Example

FICO	610	630	650	700
Total Mortgages (#)	100	200	500	200
Securitized (#)	80	160	400	160
Securitized (p)	80%	80%	80%	80%

- Data: Only Have Securitized Loans

“Since our results are conditional on securitization...”

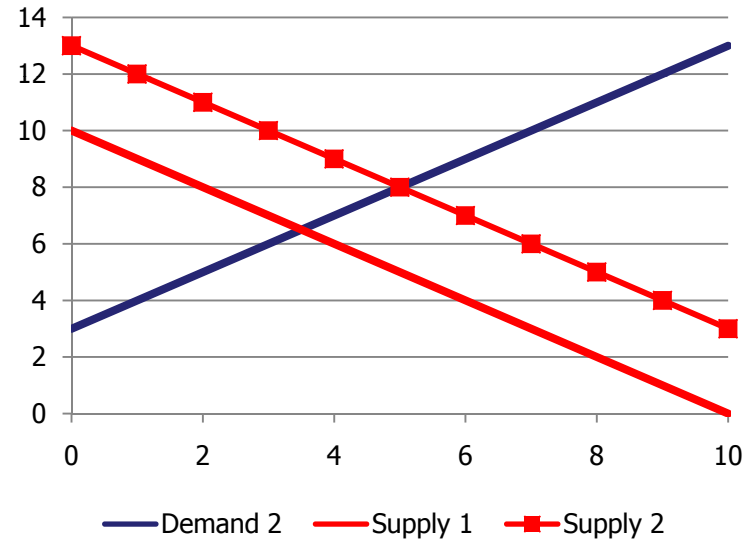
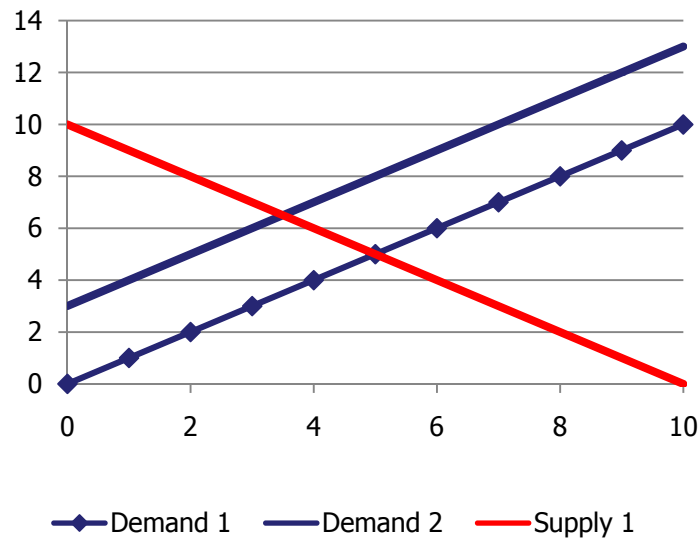
- Georgia/NJ Natural Experiment



Securitization Effect on the Mortgage Market

- Defaults Jump @ 620
- Loan Rates Don't Jump @ 620
 - Good news – Econometrics
 - Bad news – Market failure
- Where Do Bad Loans Go?
 - Keep the good, sell the bad
 - If sell all loans, why the same story

Question: Securitization ↑ Supply → Problems?





Identifying Assumption: Its Supply not Demand

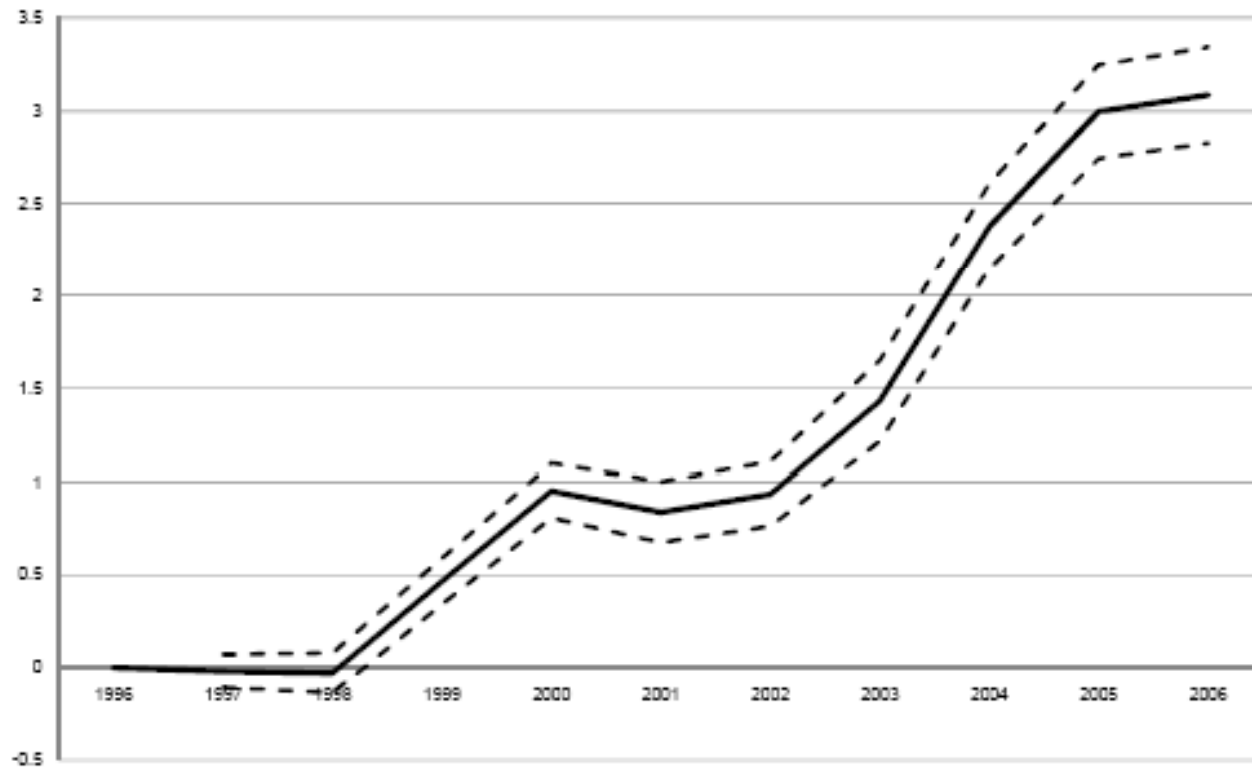
- High Latent Demand (HLD)
- It's Not Demand
 - Assume no change in demand

"...the key identifying assumption of our empirical methodology is that high 1996 latent demand zip codes do not experience future increases in economic opportunities or income shocks."
 - Control for demand factors

"...our zip code data on income, employment, and crime allow us to perform tests that mitigate concerns that omitted credit quality variables are polluting the estimates of the supply effect."
- Changes in Quantity Are Supply Driven

Its Supply

- Quantity Grows Faster In HLD Markets





Its Supply: Are You Sure?

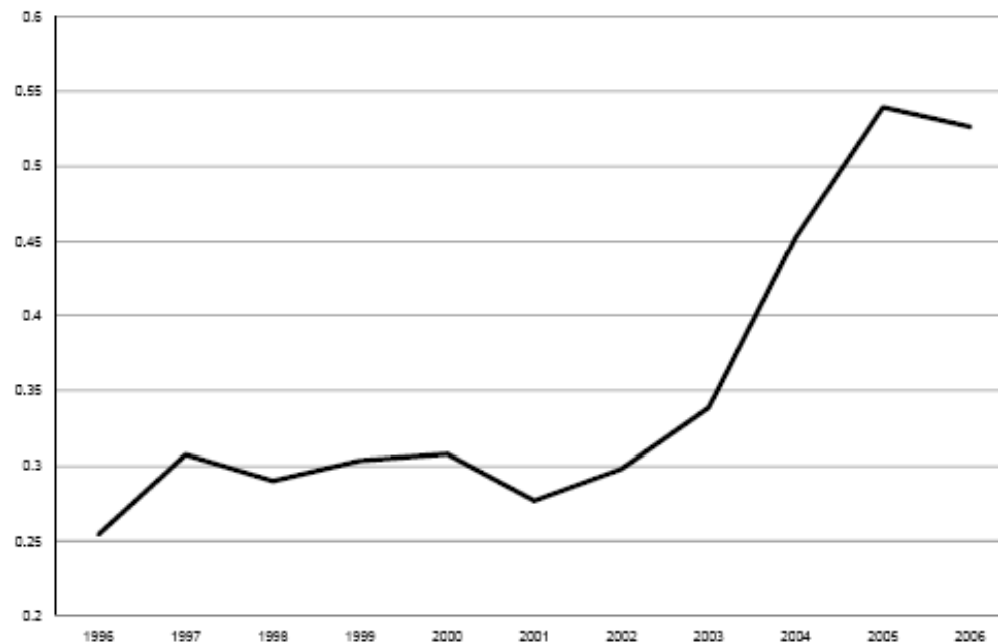
- Economic Conditions in HLD
 - Low income and lower income growth
 - House prices continue to rise
- Does HLD Measure Δ s in Demand Also?

$$Loans = \alpha ObsDemand + \beta Supply + [UnobsDemand + \varepsilon]$$

$$Supply = \gamma ExogenousChange + [UnobsDemand + \eta]$$

If Its Supply, Is It Securitization?

- Link to Securitization is Far from Obvious





Policy Implications: The Importance of Caution

- Securitization is the Root of the Crisis?
 - More risky loans or different distribution?
 - Hospital example revisited
- If More Risky Loans, Is this Bad?
 - Default rate is higher (surprise)
 - Was risk priced correctly?
 - Who is responsible?

No single raindrop believes it is to blame for the flood