

Loan Originations and Defaults in the Mortgage Crisis: The Role of the Middle Class

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Objectives and Findings of the Paper

- ▶ Credit supply explanation for the crisis may need revision:
 - In particular, the finding of Mian and Sufi (2009) – Growth in mortgage credit for home purchase measured at the zip code level became negatively correlated with per capital income growth.
- ▶ Key empirical contribution of this paper – Credit expanded throughout the income distribution.
 - Middle and high income families had a much larger share of the pre-crisis credit expansion.
- ▶ Additionally, the highest incidence of default is found in the middle class – NOT the poor.
- ▶ Expansion of credit to the poor was at the extensive margin not the intensive margin.

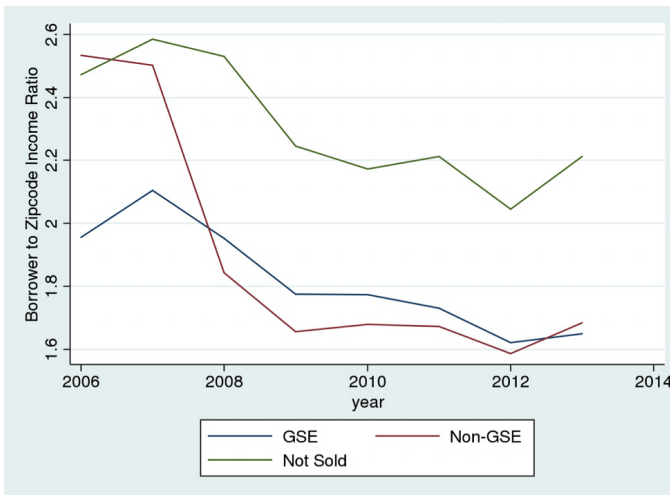
Policy implications are important!

- ▶ If empirical evidence is that banks relaxed their collateral requirements and underwriting standards (especially income requirements) – then better “banking regulation” could have prevented the crisis.
- ▶ If there was NO change in the type of contracts offered by the banks, then “macro-prudential” policy interventions should be the focus of post-crisis regulation.
 - When the economy appears to be overheating, regulators should reduce the loan-to-value ratios or increase the debt-to-income-ratios.

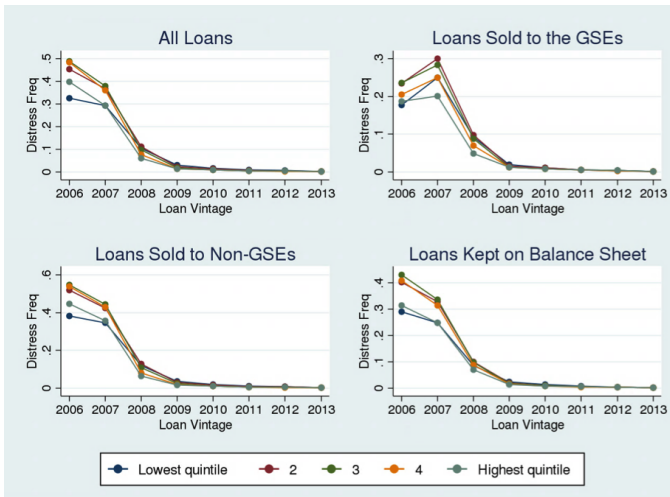
What drives differences with prior literature?

- ▶ Use loan micro-data: HMDA, 5% LPS, 50K, FHLMC, and 50K, BlackBox data **not** simply zip code averages of HMDA data (“representative zip code borrower”) of prior literature.
- ▶ Focus on relationship between credit and income for whole distribution of borrowers – **not** just expansion to riskier borrowers.
- ▶ Decomposition of intensive and extensive margins is key to findings (prior literature combines these effects):
 1. Positive correlation of total credit growth and individual borrower income growth, but a negative correlation with the growth in average household income at the zip code.
 2. Changes in **average mortgage size** within a zip code were positively correlated with changes in income (results independent of income measurement).
 3. **Number** of mortgage originations within a zip code was negatively correlated with the average household income growth in the zip code, but positively correlated with the income growth of the individual borrowers.
 4. Performance of mortgages originated to the middle class is **worse**.

Corroborating loan origination evidence (6.6 M CA Loans, 2006-2013)



Corroborating loan performance evidence (6.2 M CA Loans, 2006-2013)



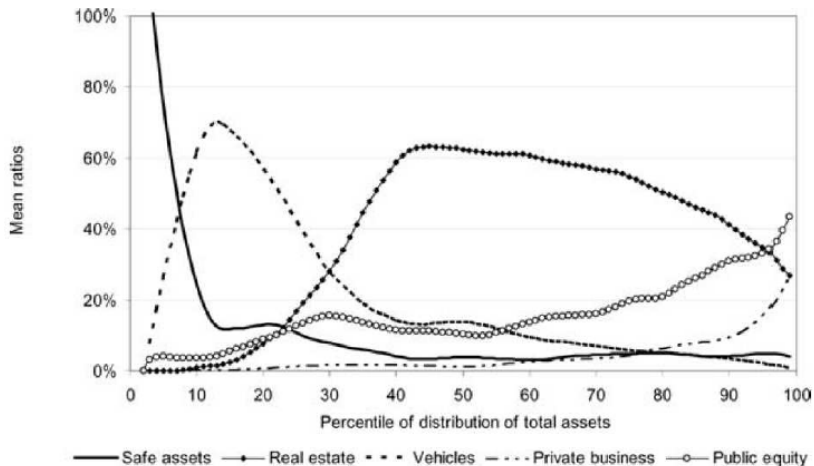
Joint Effects of Credit, House Price/Quality, and Income Distributions

- ▶ Given the heterogeneity of the housing stock would expect marginal investors to differ across house types.
 - Market changes that more strongly affect a subset of home purchasers will more strongly affect the prices of houses which they select.
 - Higher moments of the house price and income distributions should matter.
 - Landvoight et al. (2015) show that both credit and changes in distributions do matter in San Diego.
- ▶ Reliance on the Zillow median house prices – conflates price and quality changes.
 - Cannot evaluate the relative distributions of house prices by quality and the income distributions.
 - Houses could have remodeled within quality buckets.
 - Cannot evaluate possible re-evaluations of price for some house quality segment due to mismatches with the income or volume of buyers for that segment.

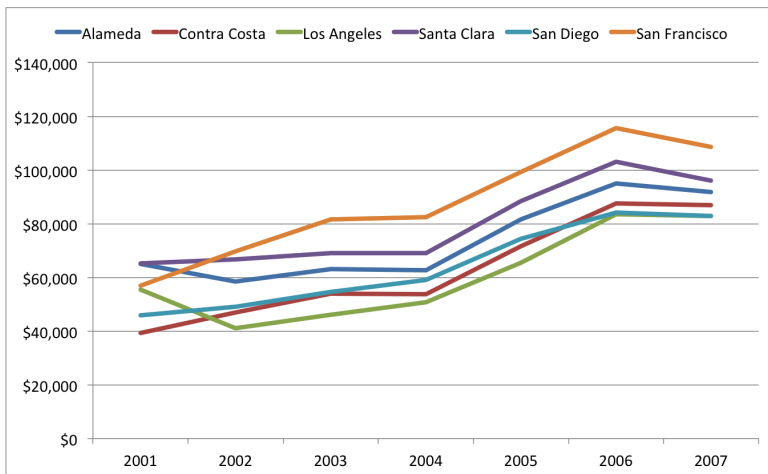
The marginal buyer should matter.

- ▶ Perhaps should identify the marginal home buyer income in each region before showing any results on income and loan amounts.
 - “Poor” homebuyer is on average in the 30th percentile of the income distribution in the U.S..
- ▶ Could estimate the expected marginal homebuyer's income using the loan-level data:
 - **Marginal Buyer Income = (Quartile 1 House Price X LTV X FRM Interest Rate/ Debt-to-Income Ratio)**
- ▶ Changing the constraint of the marginal agent would be expected to change the price of house for everyone especially if housing supply is sticky.
 - House prices are determined by the marginal homebuyer (less that 10% of the market).
- ▶ If a boom in credit availability matters, then we should see stronger price increases at the low end, as would be true if markets were fully segmented.
 - However, within a metro area, stronger demand by low quality buyers is likely to spill over to medium qualities then to high qualities.

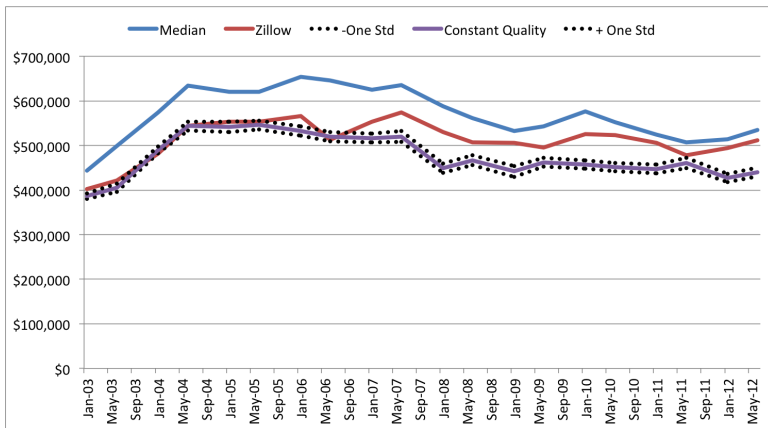
Marginal Buyer is NOT in Bottom 20% of Income Distribution



Heterogeneity of Marginal Homebuyer Income by CA County and Year



Important Differences in Median and Constant Quality House Prices by Zip Code: e.g. San Diego zip 92129



Conclusions

- ▶ This is a very nice paper that makes an important and credible contribution to the policy debate.
 - The pre-crisis growth in mortgage origination volume was not decoupled from borrower income growth!
- ▶ In my opinion, inference is strongest when using the loan micro-data – zip code averages (house prices, income and mortgage characteristics) introduce issues with compositional effects.
- ▶ Identification of the zip-code specific marginal buyer along with additional controls for the relative distributions of house price/quality and income might allow for more direct tests of the role of credit constraints on low and middle income borrowers.