Collateral Value Uncertainty and Mortgage Credit Provision

Erica Xuewei Jiang **Anthony Lee Zhang**

Discussion by

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Northwestern University and NBER

Philadelphia Federal Reserve
Mortgage Market Research Conference
May 2022

Overview

Research Question

- How does house price uncertainty affect credit supply?

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- A question with a rich Philly Fed history!

JOURNAL OF URBAN ECONOMICS 33, 223–234 (1993)

A Model of Redlining*

WILLIAM W. LANG

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AND

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Research Department, Federal Reserve Bank of Philadelphia, 10 Independence Mall, Philadelphia, Pennsylvania 19106

We develop a model of mortgage redlining which captures the dynamic information gathering which is implied by the use of appraisals in mortgage granting. In our model, the precision of appraisals depends on the quantity of previous home sales. In turn, the precision of appraisals influences current home sales, since when appraisals are inaccurate, lenders require larger down payments. There is thus a dynamic information externality in which past purchases influence current purchases. As a consequence, differential mortgage lending behavior will be sub-optimal and the appearance of redlining may be justifiably subject to corrective action.

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Journal of Urban Economics 61 (2007) 71–85
JOURNAL OF Urban Economics

The role of information externalities and scale economies in home mortgage lending decisions ☆

McKinley Blackburn [a,*], Todd Vermilyea [b]

[a] *Department of Economics, University of South Carolina, Columbia, SC 29208, USA*
[b] *Federal Reserve Bank of Philadelphia, Ten Independence Mall, Philadelphia, PA 19106, USA*

Abstract

Theories of rational redlining suggest a low volume of sales should lead to greater uncertainty in house price appraisals, making the mortgage loan less attractive to lenders. This paper represents the first test of this "information externality" theory using a well-specified model of lending. In our preferred model, information externalities are relevant but the marginal effect diminishes quickly, with only about 10 percent of applications materially disadvantaged by a low volume of sales. Our results also support the presence of bank-level economies of scale to reviewing applications in a given area, with increased bank-level applications associated with higher acceptance rates.

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- Estimate house-level pricing uncertainty
- Correlate uncertainty measure with credit outcomes
- Calibrate life-cylce model to derive implications for homeownership

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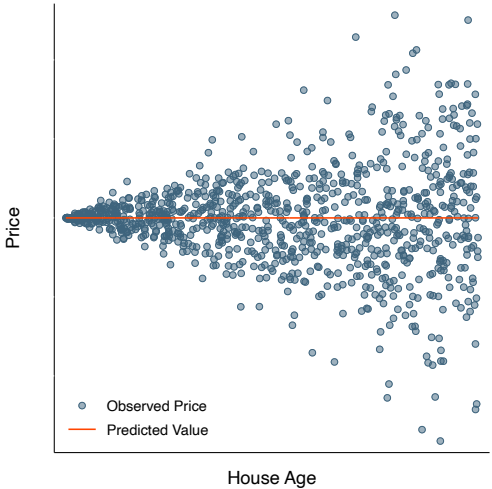
Key Findings

- Higher pricing uncertainty $\rightarrow$ smaller loans, higher rates, more rejections
- Loan size result $\rightarrow$ less homeownership in the model

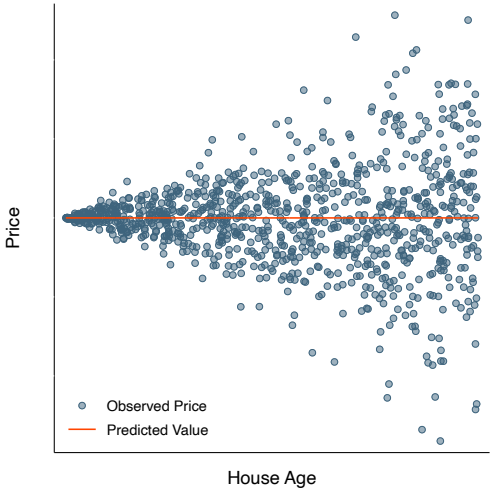
Comment 1: Measurement

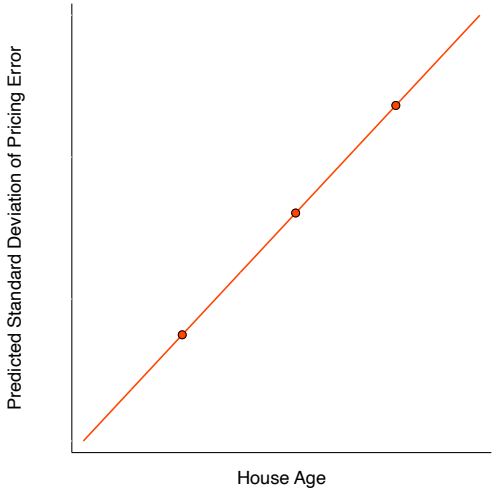
Measuring House Price Uncertainty



Step 1: Regress house prices on characteristics and obtain residuals

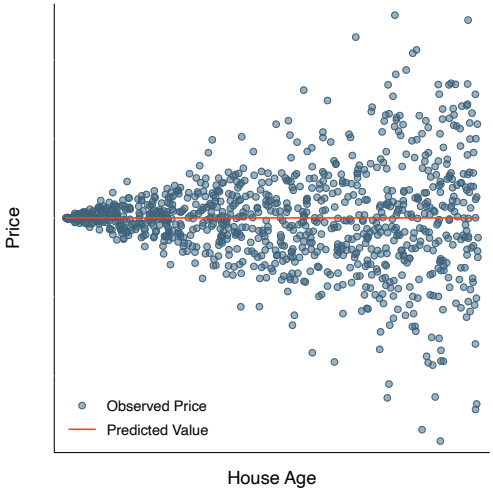
Measuring House Price Uncertainty

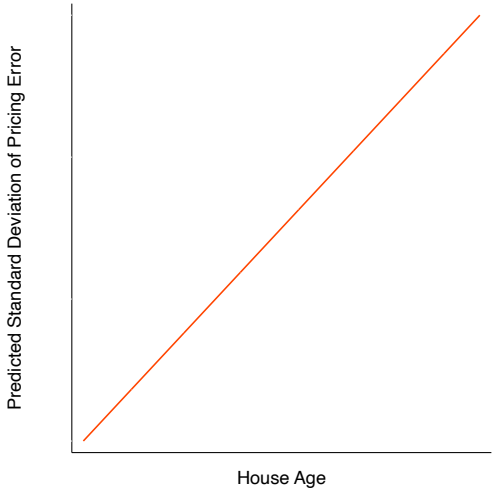




Step 2: Predict standard deviation of residuals as function of characteristics

Measuring House Price Uncertainty





Step 3: Call that house price uncertainty!

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The Hypothetical Being Measured

- Try to predict the price of a random house today, knowing only its characteristics
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- These are potentially very different exercises
  - If house-level errors are persistent, X-sectional variance is irrelevant
  - Conditional variance of market prices may differ from that of foreclosures

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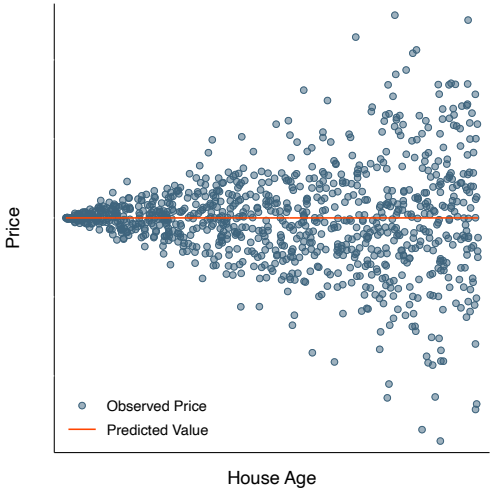
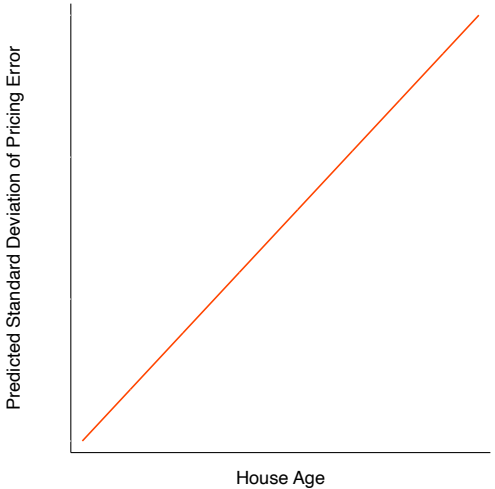
A Suggestion $\rightarrow$ Heteroskedastic Repeat Sales

- Can you re-do things using conditional variance of price *changes*?
- Bonus: restrict to repeat sales pairs ending in foreclosure

Comment 2: Magnitudes

Quantifying the Effect of House Price Uncertainty on Credit Terms





“LTPs are 20-46bps lower for houses with one standard dev higher price dispersion”

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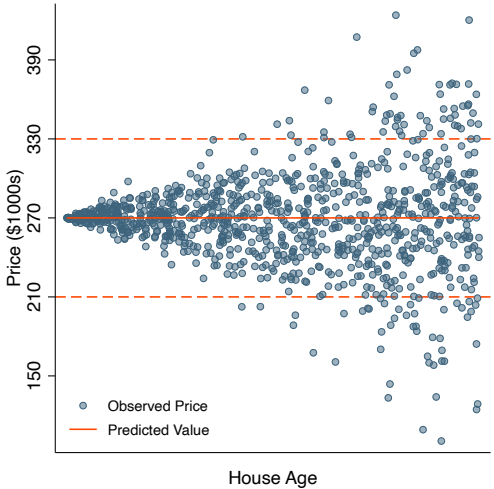

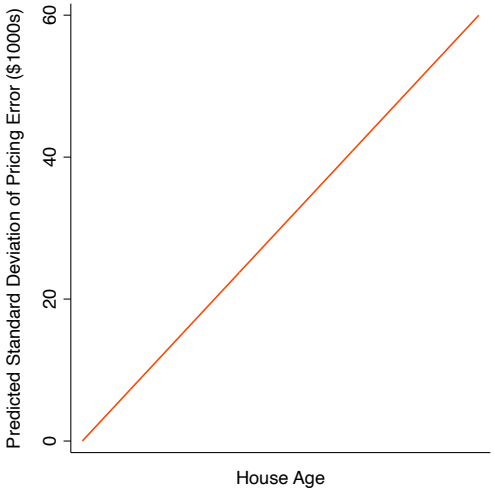

LTPs are 20-46bps lower for houses with $\approx$ $60K higher pricing error

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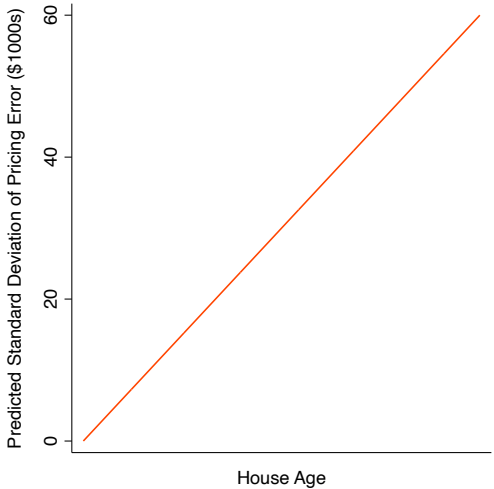

Moving from perfect prediction to +/- $60K error reduces loan amount by $1.1K

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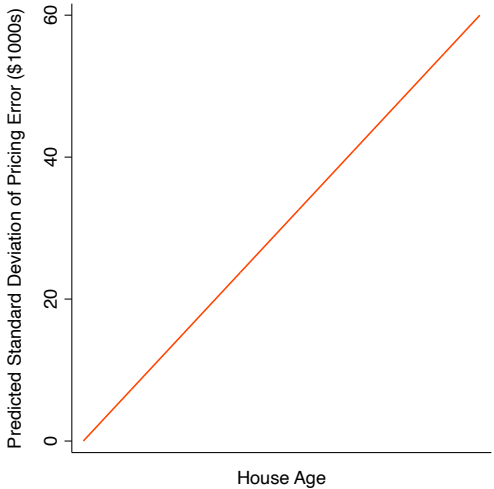

Is this big or small? More context would help

Comment 3: Model Calibration

Model-Implied Effects on Homeownership

- Economic significance of the results is interpreted through the lens of the model
- Moving from high- to low-dispersion county increases homeownership by 1.5pp

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  - What happens if you could both rent or own some qualities?

Conclusion

- Super interesting paper!
- New look at a potentially important component of credit access
- My Comments
  - Measurement $\rightarrow$ can you look at repeat sales?
  - Magnitudes $\rightarrow$ more here context would help
  - Model $\rightarrow$ how sensitive are the conclusions to the calibration?