

House Prices and Fundamentals Under the Microscope

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*This presentation describes work done jointly with Ed Pinto at AEI and Morris Davis at the University of Wisconsin.

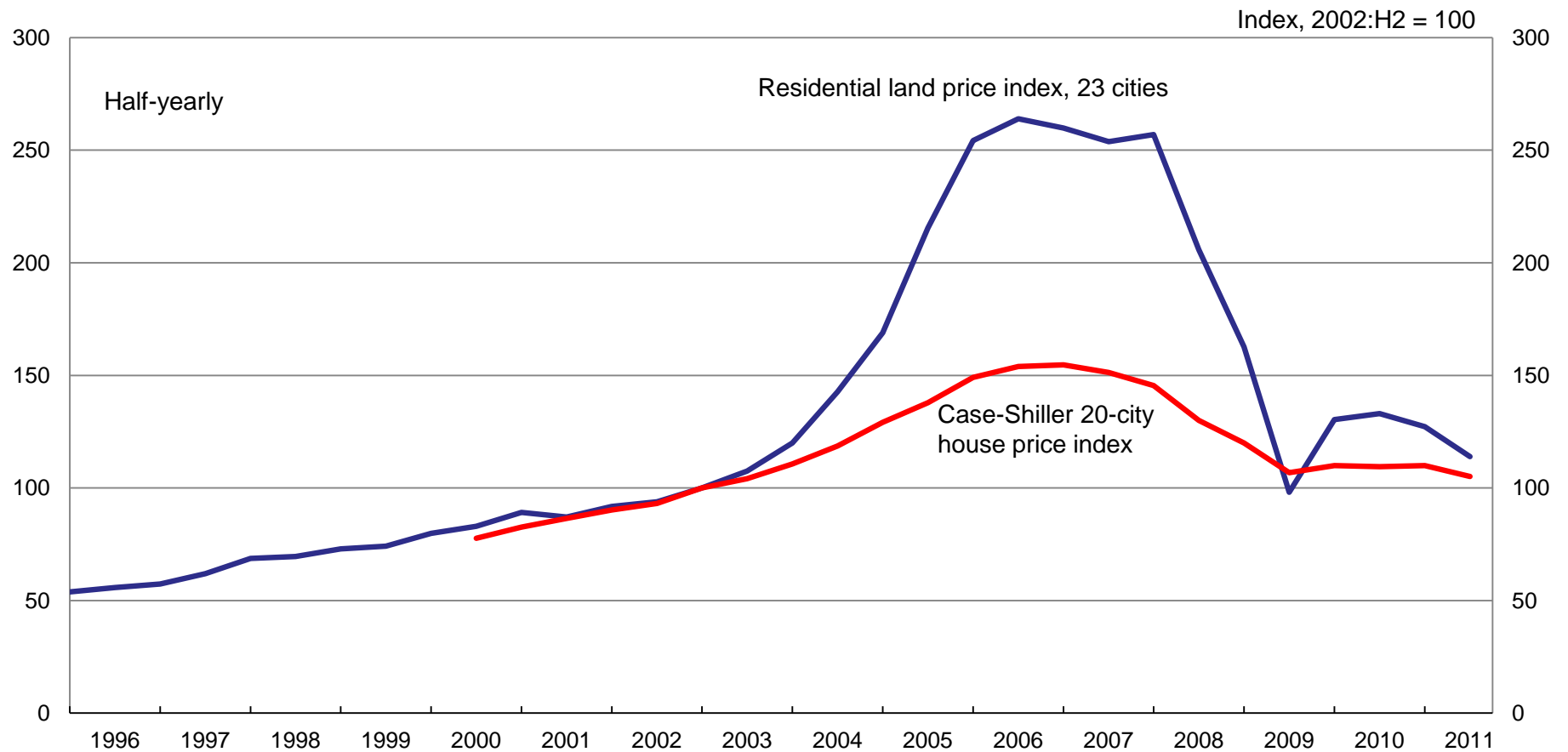
Part 1:
Setting the Stage

House Prices: What Do We Know?

- Housing busts can be very damaging to the economy and financial system. Best to prevent them if possible.
- House prices can stray from fundamentals (construction cost, rent, income). Eventually correct back.
- Risk varies over the cycle. Increases during the boom.
- Land is the risky part of the housing bundle.

Residential Land and House Prices

In recent cycle, land prices moved up and down much more than house prices.



Source: Nichols, Oliner, and Mulhall (2013).

Open Questions

- How do land and house prices move within a metro area? Is there a common spatial pattern across cities?
- How does risk correlate with the size of the gap between house prices and fundamentals? Are there threshold effects?
- What are the most effective ways for regulators to lean against house price booms? Can simple rules work?

Micro data are important for addressing all of these questions.

This Study

- Uses property-level data to “pop the hood” on housing valuation within metro areas.
 - Focus on detached single-family homes.
- Initial analysis for Montgomery County, MD.
 - Borders Washington DC.
 - Large, diverse county. About 1 million residents.
- In the process of extending the analysis to 25 other counties in 10 metro areas.

Part 2:
Data and Methodology

Key Data Sources for Montgomery County

- Property-level data
 - House characteristics, location, and AVM value: FNC, Inc.
 - Reconstruction cost as new: Marshall & Swift/Boeckh (MSB)
- Zip-level data
 - House price indexes: FNC and Zillow
 - Construction cost indexes: MSB

Property-Level Snapshot in 2013:Q3

- Dataset contains 167,000 detached single-family homes, which is about 90% of all such homes in Montgomery County.
- Have AVM and reconstruction cost as new for each home.
- Adjust reconstruction cost for depreciation
 - Estimate depreciation from Montgomery County dataset
 - Find depreciation of about 1.2% per year to age 20, slower depreciation after that.
- Land value = house AVM value – adj. reconstruction cost.
“Land” is a shorthand for amenities of a given location.

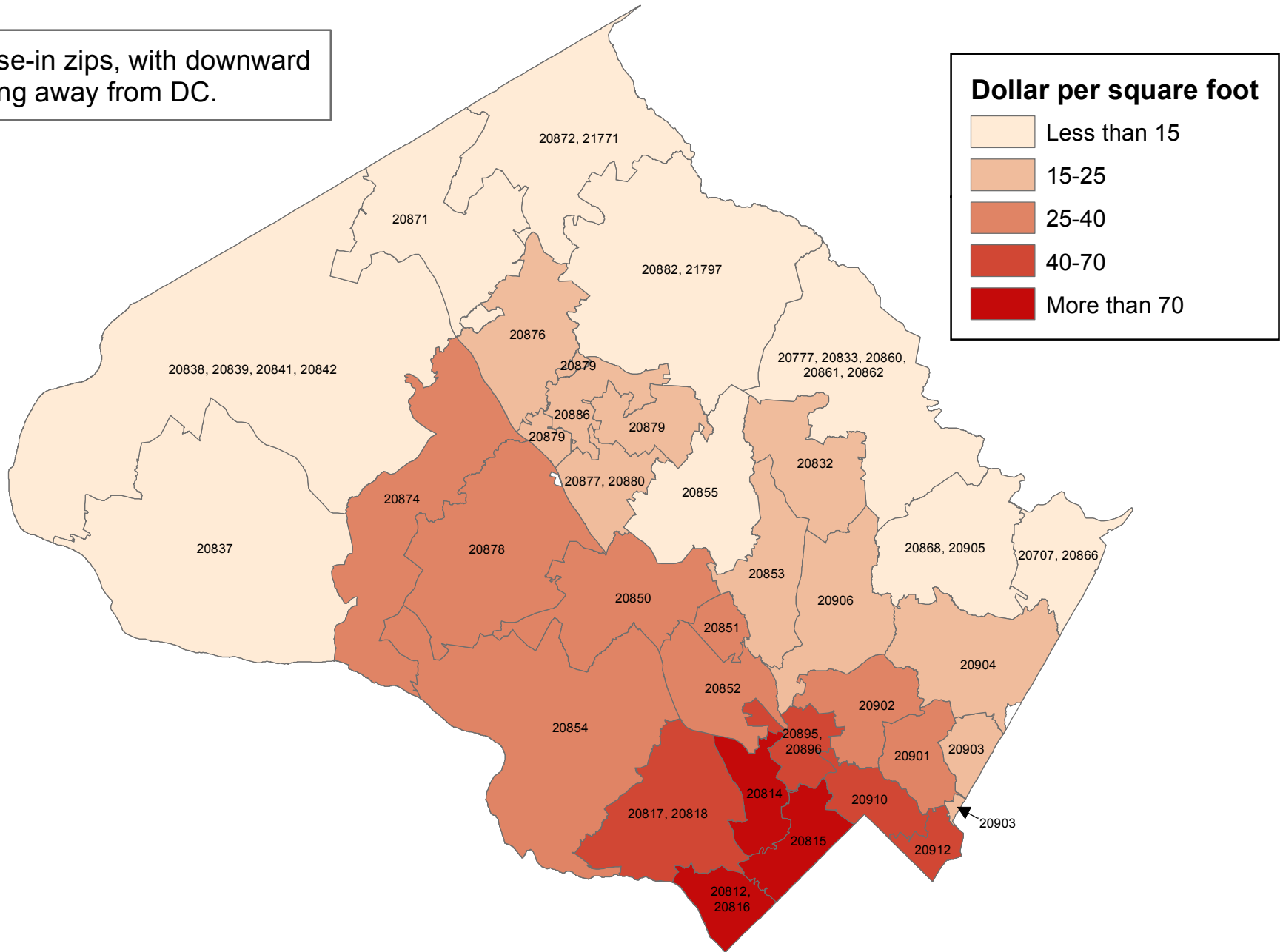
Creating Time Series

- Roll the property-level AVMs back from 2013:Q3 to 2000:Q1 using FNC zip-level house price indexes.
- Roll the property-level adjusted reconstruction cost back from 2013:Q3 to 2000:Q1 using MSB zip-level cost indexes.
 - For Montgomery County, almost all zips have same cost index
- Back out implied land value for each property in each quarter.

Part 3: *Results*

Average Land Price in Montgomery County, 2013:Q3

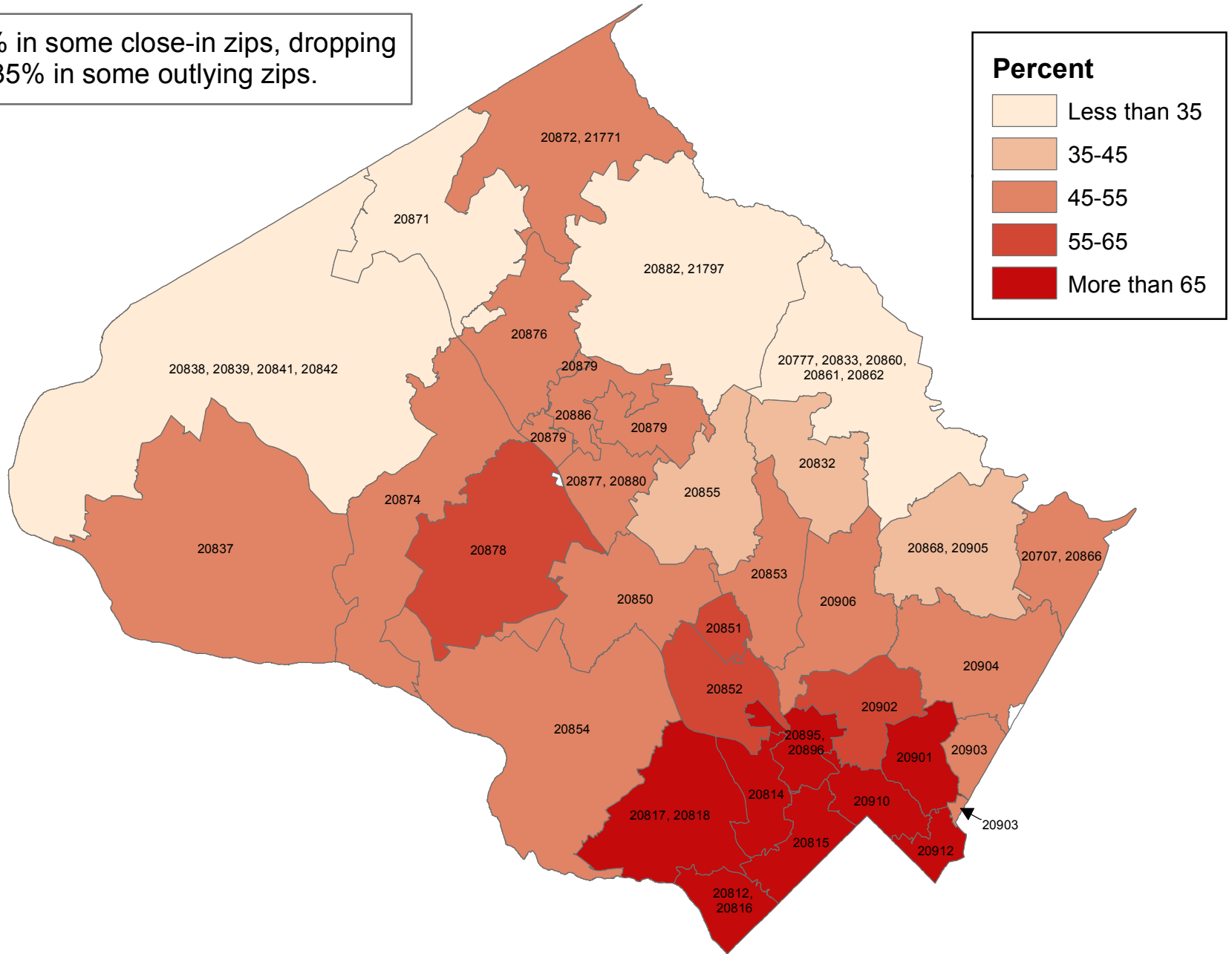
Highest in close-in zips, with downward gradient moving away from DC.



Source: Authors' calculations using data from FNC, Inc. and Marshall & Swift/Boeckh.

Average Land Share of Property Value in Montgomery County, 2013:Q3

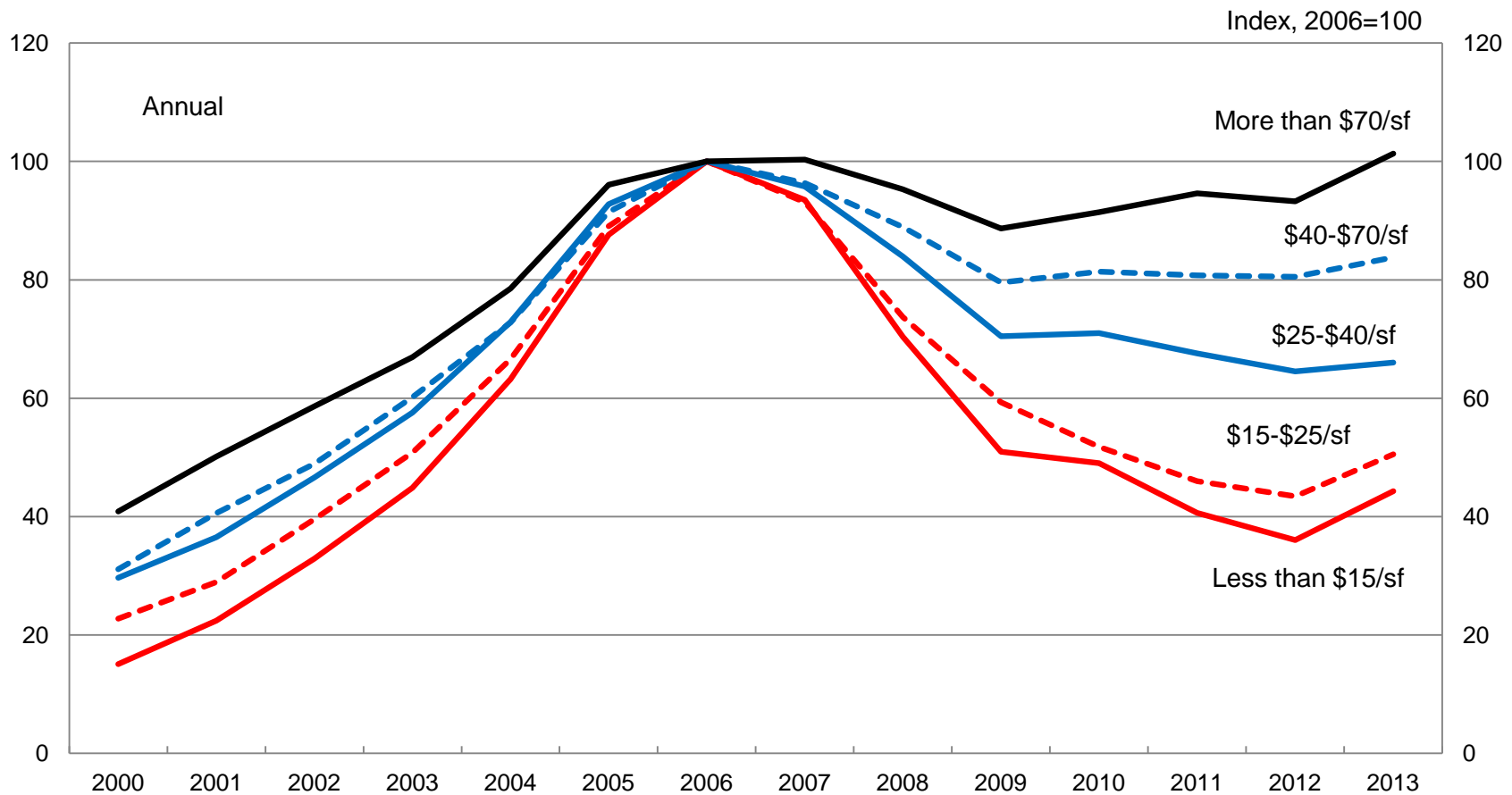
Exceeds 65% in some close-in zips, dropping to less than 35% in some outlying zips.



Source: Authors' calculations using data from FNC, Inc. and Marshall & Swift/Boeckh.

Land Prices over Time

For zips grouped by land price in 2013:Q3. Very large swing for low-price zips, much less for high-price zips.

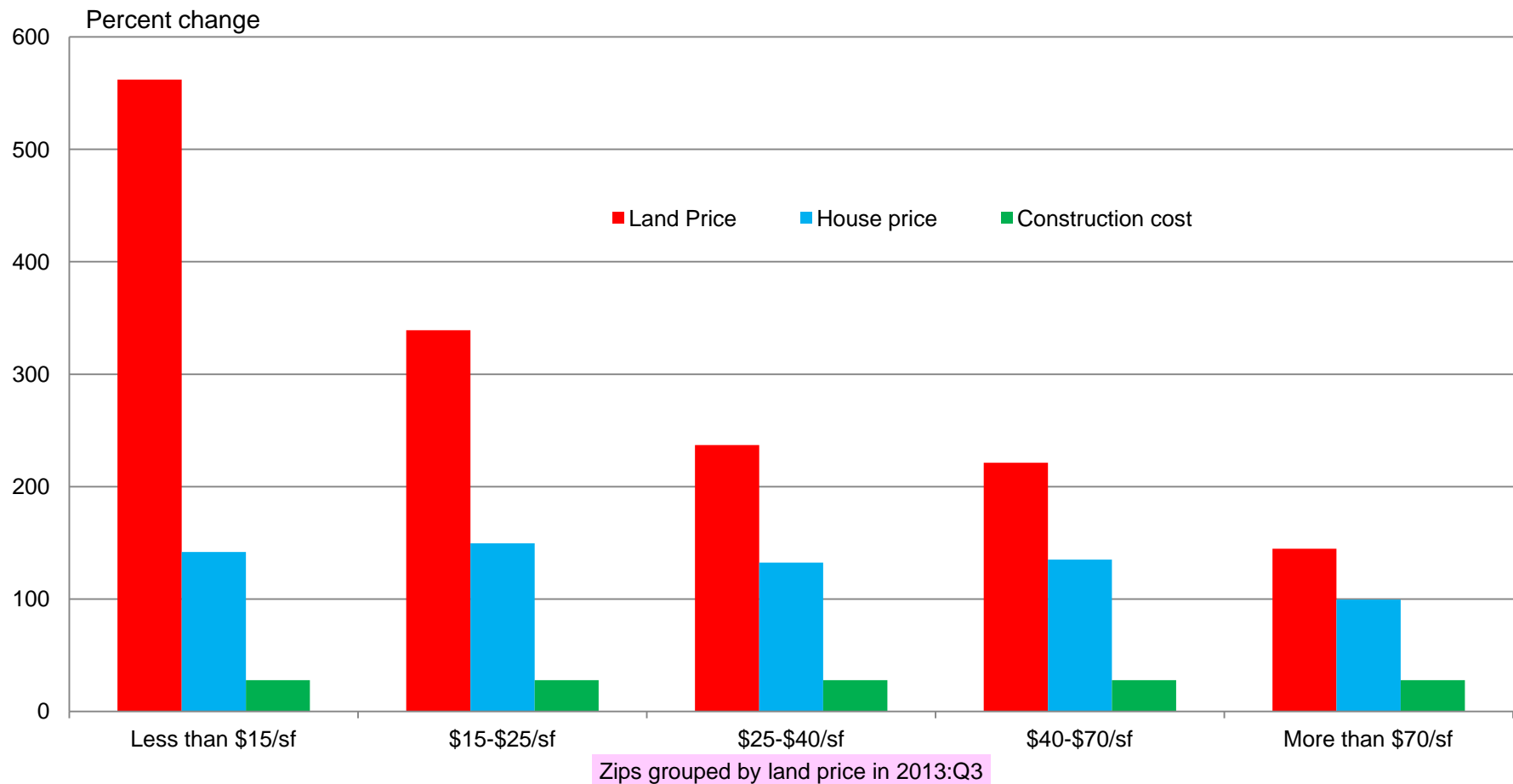


Note: Observations for 2013 represent average of Q1, Q2, and Q3.

Source: Authors' calculations using data from FNC, Inc. and Marshall & Swift/Boeckh.

Prices and Construction Costs: 2000-2006

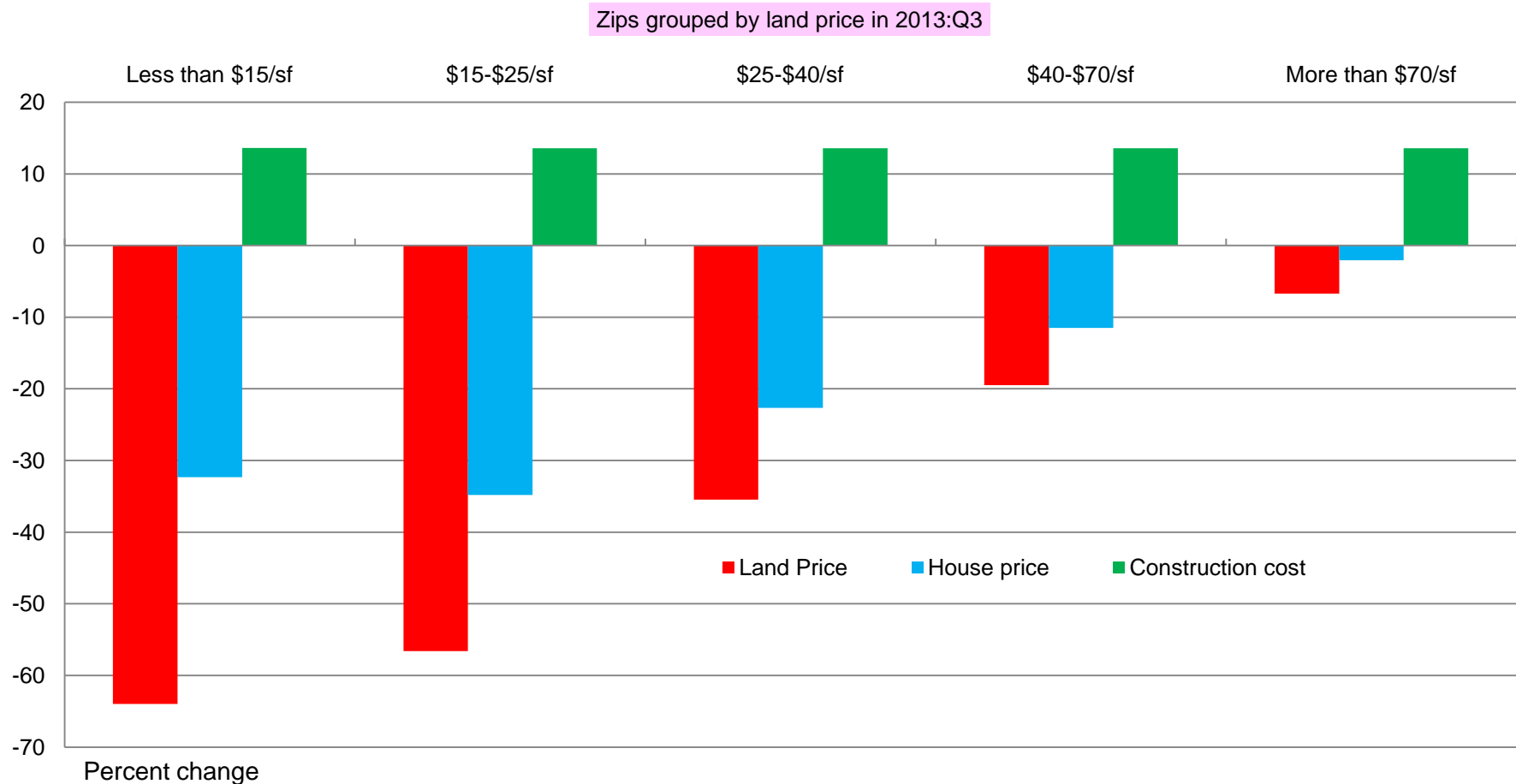
Land prices rose more than house prices everywhere, especially in zips with low land prices. Construction costs accounted for little of the rise in house prices.



Source: Authors' calculations based on data from FNC, Inc. and Marshall & Swift/Boeckh.

Prices and Construction Costs: 2006-2012

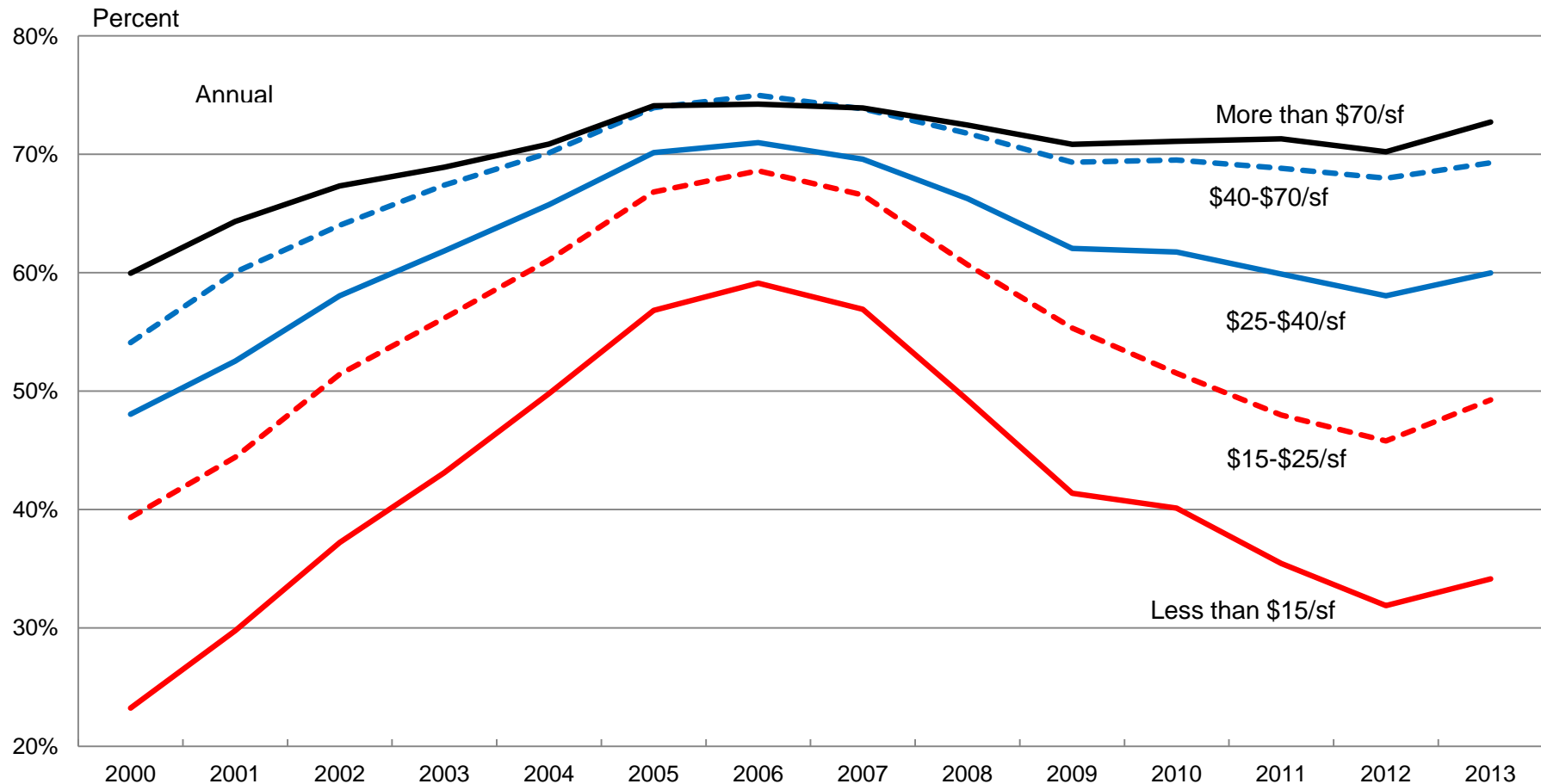
Land prices fell more than house prices everywhere, especially in zips with low land prices. Construction costs continued to rise.



Source: Authors' calculations based on data from FNC, Inc. and Marshall & Swift/Boeckh.

Land Shares over Time

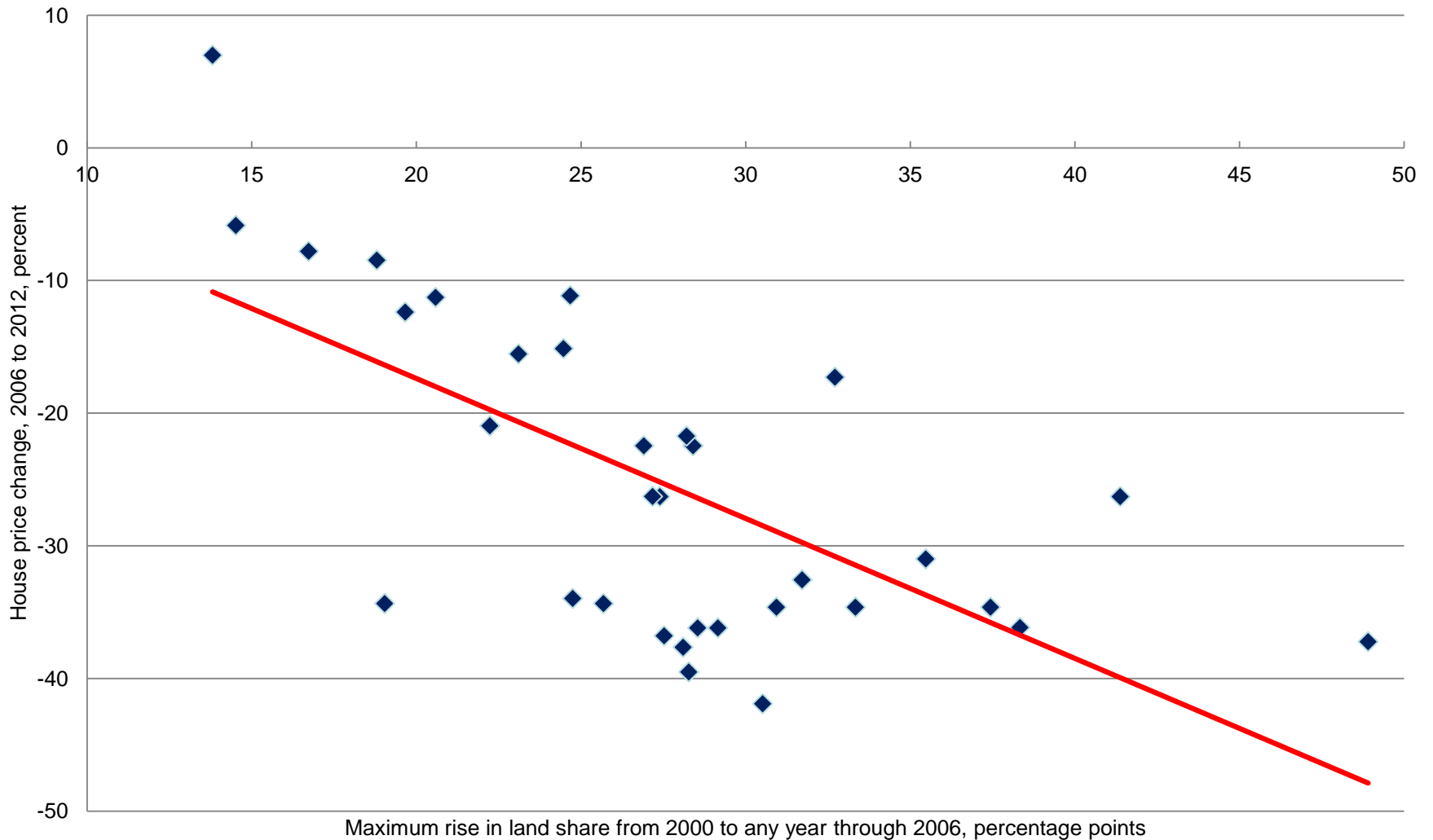
For zips grouped by land price in 2013:Q3. Huge swing in land share for low-price zips, while share is much more stable for high-price zips.



Note: Observations for 2013 represent average of Q1, Q2, and Q3.

Source: Authors' calculations using data from FNC, Inc. and Marshall & Swift/Boeckh.

2000-12 Cycle: House Prices Fell More in Zips with Previous Large Rise in Land Share



Source: Authors' calculations using data from FNC, Inc. and Marshall & Swift/Boeckh.

Metro Areas in Full Study

East Coast	Far West	Interior
Boston	Seattle	Chicago
Washington DC	Los Angeles	Detroit
Miami	Phoenix	Memphis
		Oklahoma City

- MSAs represent range of markets across the U.S.
- Counties selected to capture range of experience within the MSA. 26 counties in all.
- Total population of selected counties: about 40 million

Summary

- Housing submarkets are important in Montgomery County.
- House price swing was largest in outlying areas; it was much smaller in affluent, close-in areas.
- Land prices were more volatile than house prices, especially in the outlying areas.
- Rapidly rising land share was associated with sharp house price correction later on.
- Results suggest that clearest signal about over-valuation could come from developments in the outlying areas.