



The Foreclosure Crisis: How Far Will House Prices Fall?

Charles W. Calomiris, Columbia University

Stanley D. Longhofer, Wichita State University

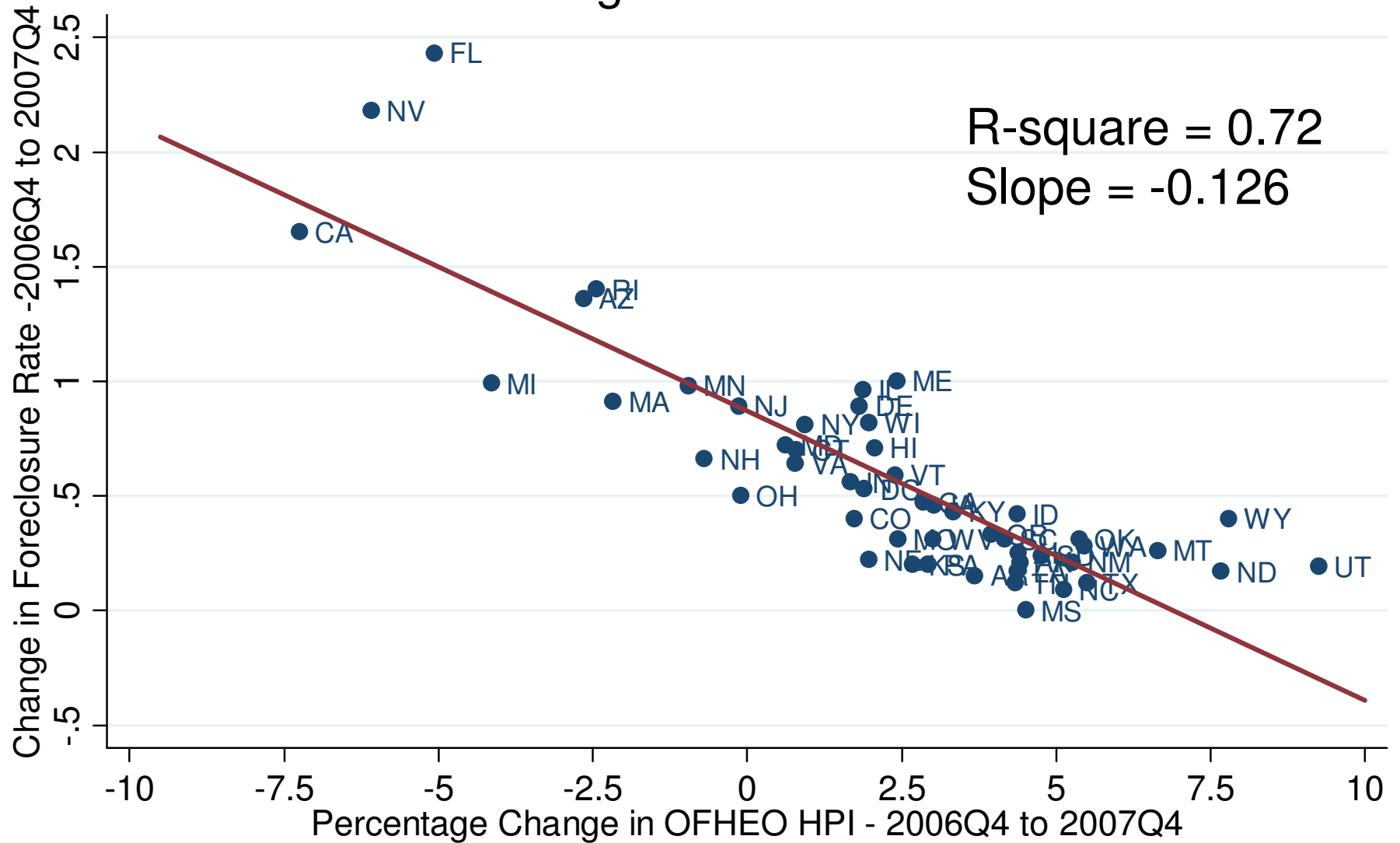
William Miles, Wichita State University



Foreclosures and House Prices

- Major policy initiatives are under consideration to mitigate foreclosures, largely due to concern that foreclosures boom will cause price collapse, consumption decline, and recession
- 2.47% of all mortgages were in foreclosure in 2008Q1 (MBA data)
 - Highest level on record
 - The foreclosure rate is only expected to rise in the coming year
- What impact will this have on house prices?

Figure 1: Annual Change in OFHEO HPI vs. Change in Foreclosure Rate





Foreclosures and House Prices

- The relationship in Figure 1 reflects a combination of three influences
 - Responses of prices to foreclosure shocks
 - Responses of foreclosures to price shocks
 - Responses of both to shocks originating in other variables
- To what extent will ongoing mortgage market distress affect housing prices?



Housing Market Cycles

- Since 1980 there have been three nationwide housing cycles
- Although the current national downturn is unprecedented in its magnitude, there have been numerous state/regional cycles
 - For most states, the current downturn is well within historic norms

Figure 3 - Panel A: HPI Growth Rate in Selected States

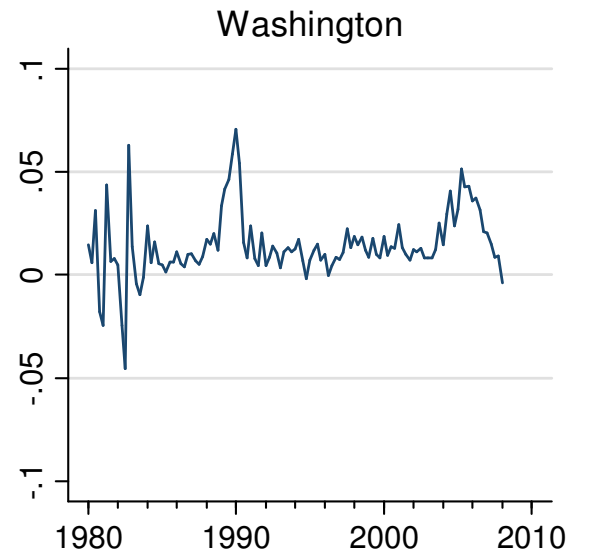
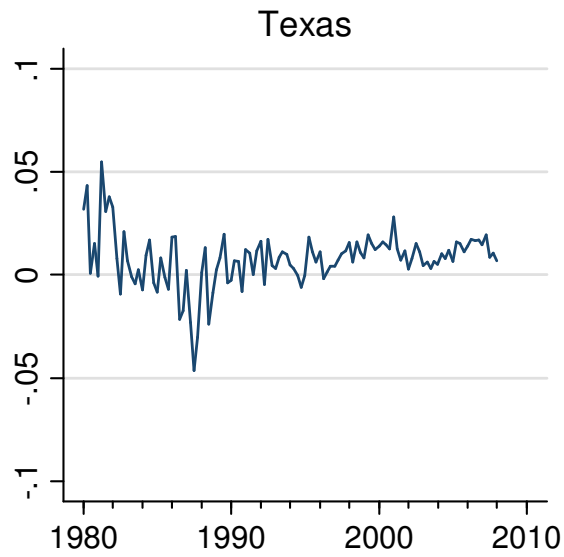
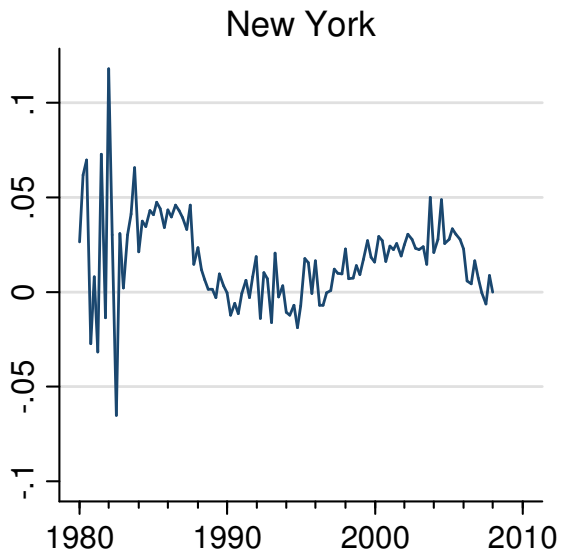
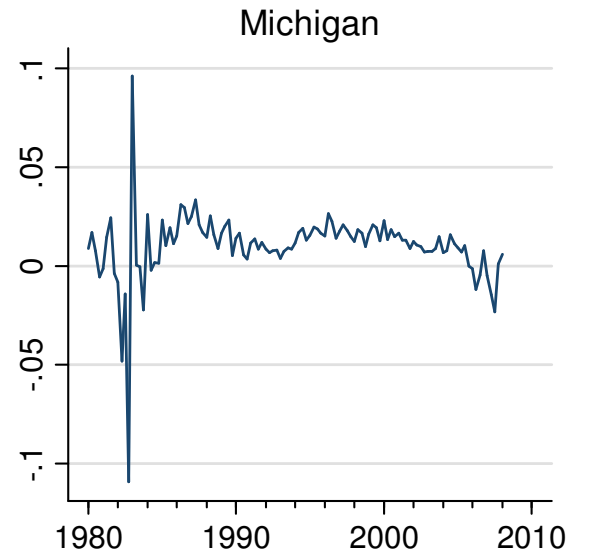
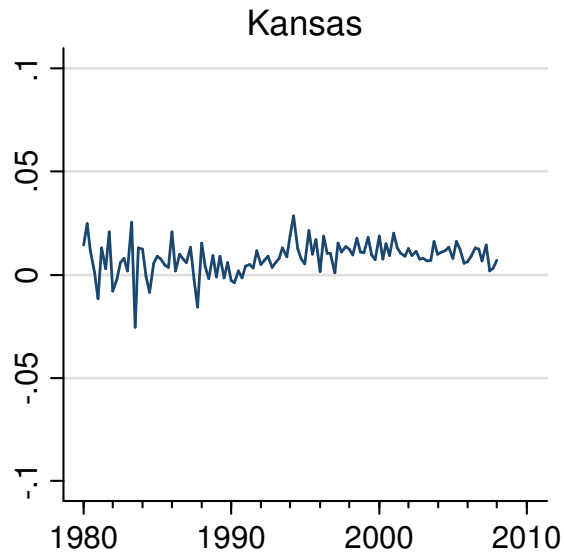
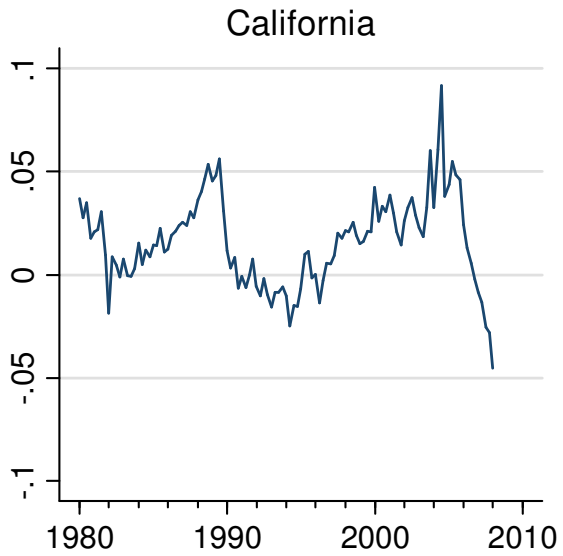
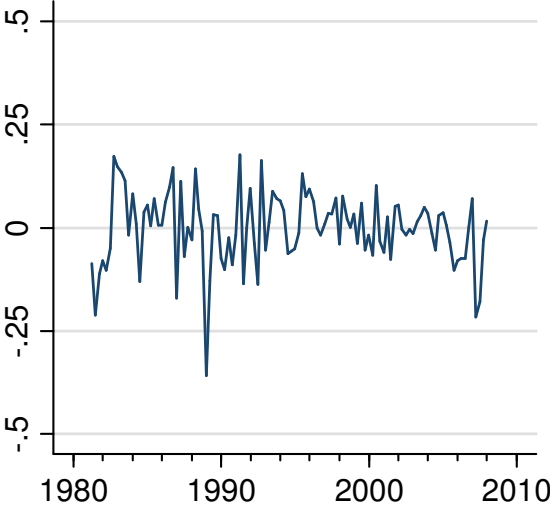
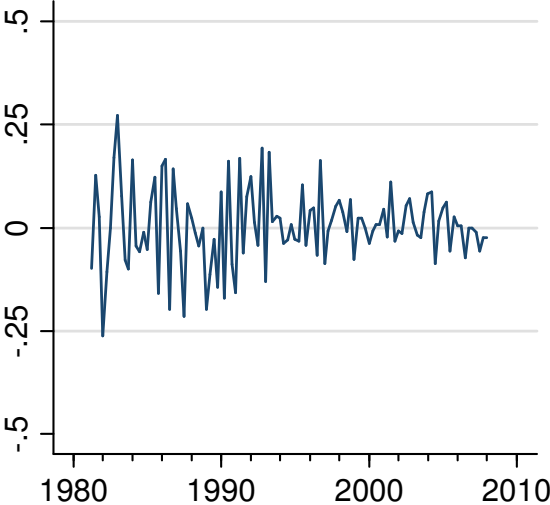


Figure 3 - Panel C: Existing Home Sales Growth Rate in Selected States

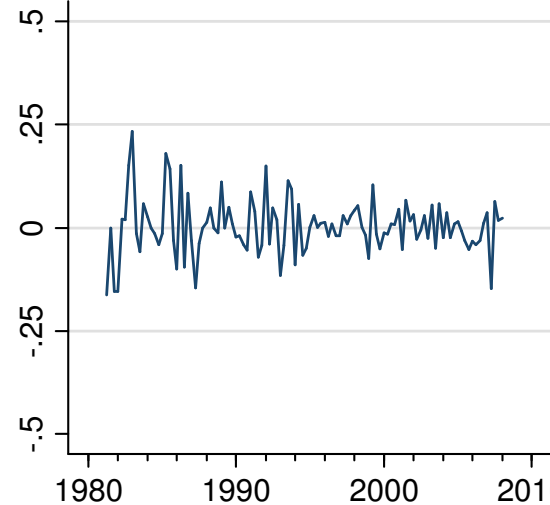
California



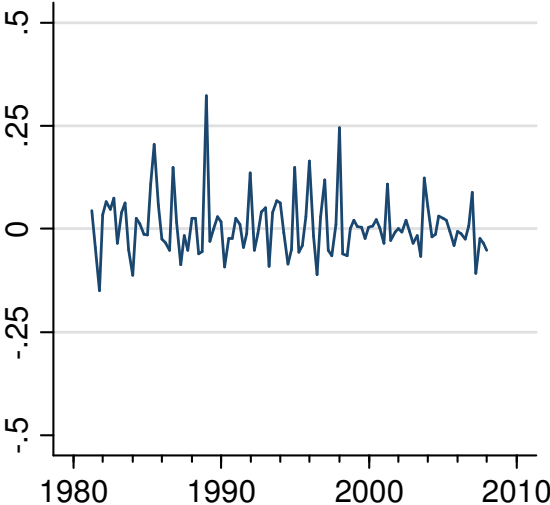
Kansas



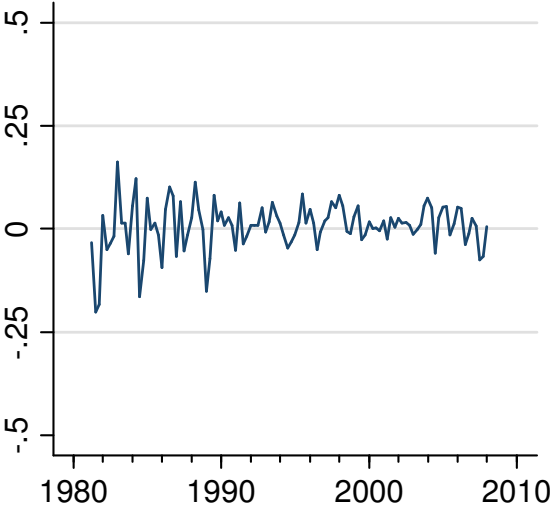
Michigan



New York



Texas



Washington

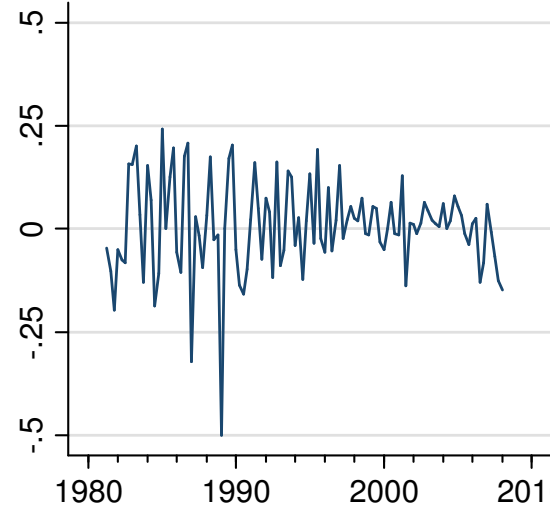
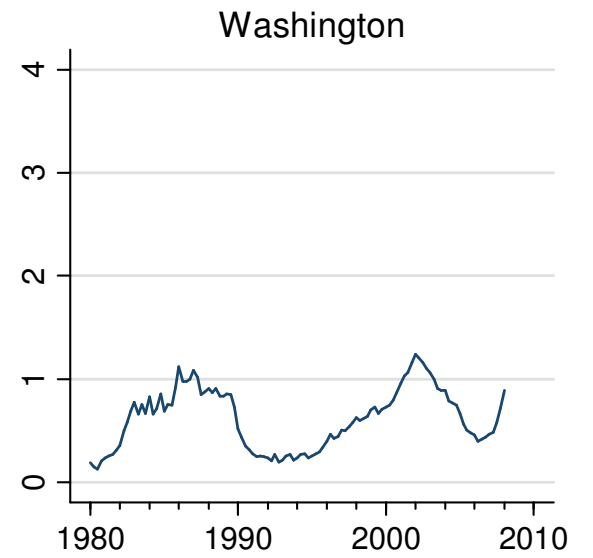
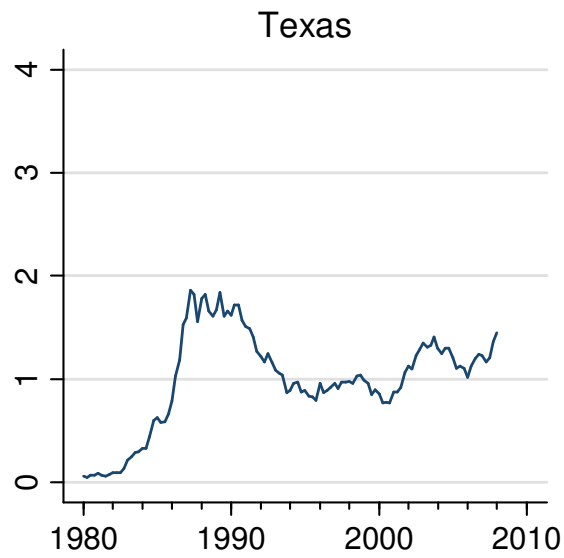
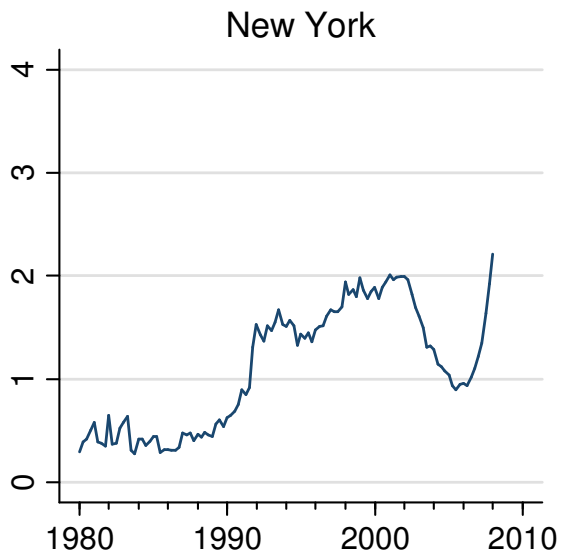
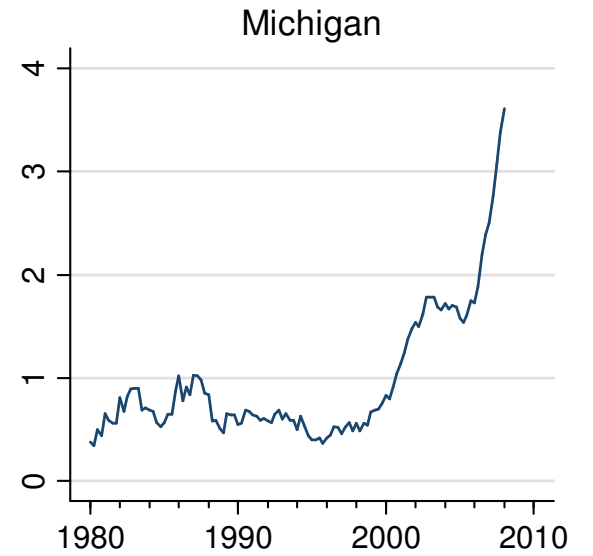
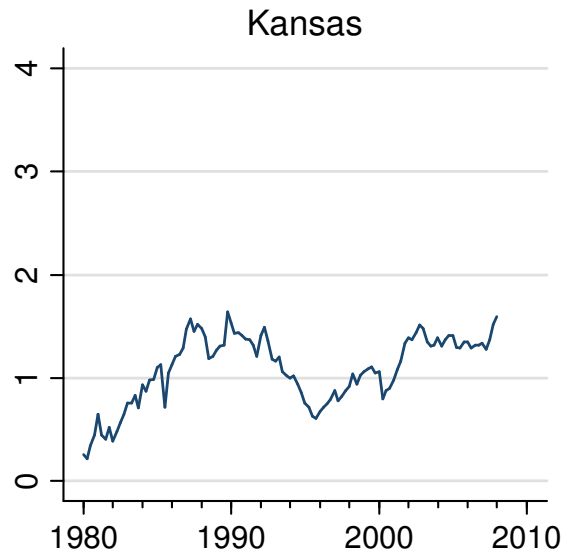
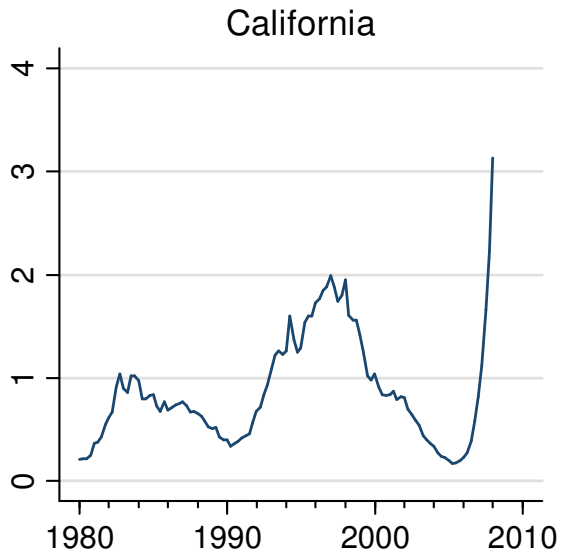


Figure 3 - Panel B: Foreclosure Rate in Selected States





Panel VAR Model

- To exploit this state-level variation, we model prices and foreclosures as a part of a five-variable panel vector autoregressive system
 - Quarterly data from 1981-2007
 - Variables are modeled in log differences (growth rates) with the exception of foreclosures, which are modeled as the log foreclosure rate (to allow for nonlinearities in effect of foreclosure levels on price)
 - We obtained similar results using different sample periods, using log differences of foreclosures, and using the OFHEO purchase-only index for prices



Variables in the System

- House Prices

- OFHEO HPI, inclusive of sales and refinancings

- Foreclosures

- MBA percent of loans in foreclosure

- Sales

- NAR existing home sales, seasonally adjusted



Variables in the System

- Permits

- Census single-family building permits, seasonally adjusted

- Employment

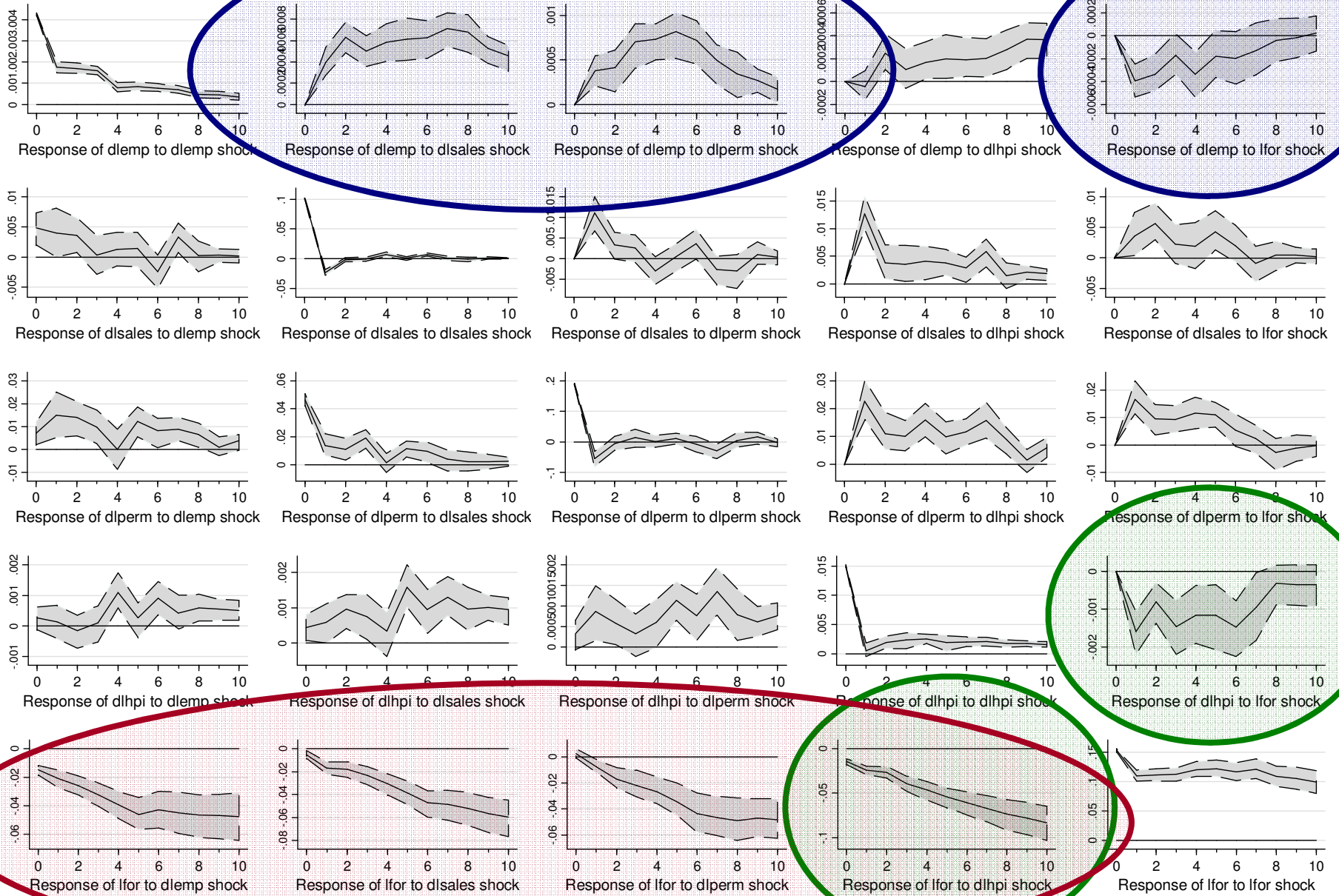
- BLS total non-farm employment, seasonally adjusted



Panel VAR Estimation

- Forward (Helmert) demeaning controls for fixed effects and ensures consistent parameter estimation
 - Arellano and Bover (1995)
 - Love and Ziccino (2006)
- 8 quarterly lags
- Impulse responses and variance decompositions are derived with the following ordering: employment, sales, permits, house prices, foreclosures (permits endogeneity of foreclosures, which should be a strategic variable)

Figure 2: Impulse Response Functions





Forecasting House Prices

- Scenario 1: Baseline with No Shock
 - All variables evolve based on observed values from 2006-2007
- Scenario 2: Foreclosure Shock
 - Exogenous shock in foreclosures in 2008 and 2009 (Economy.com forecast, adjusted for non-linearities)
- Scenario 3: Extreme Foreclosure Shock
 - Magnify Economy.com forecast by 75% (more than adequate to handle reasonable downside risk as well as the nonlinearity of foreclosure-price relationship)

Figure 5: HPI Growth Rate Simulations in Selected States

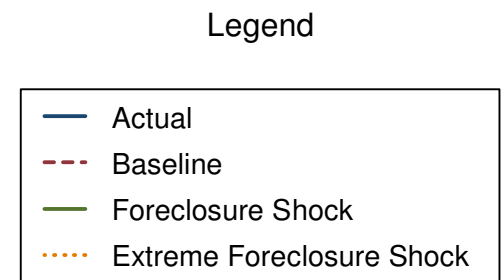
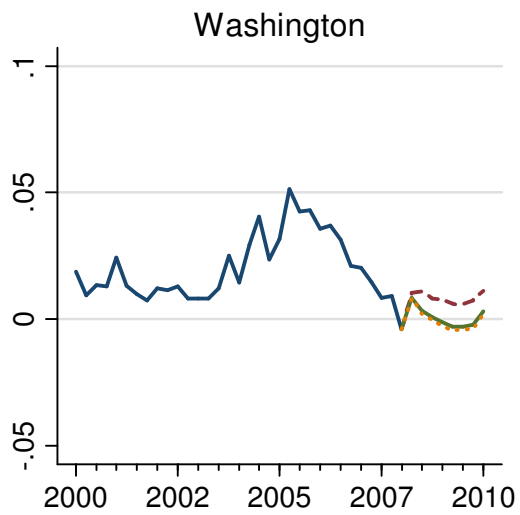
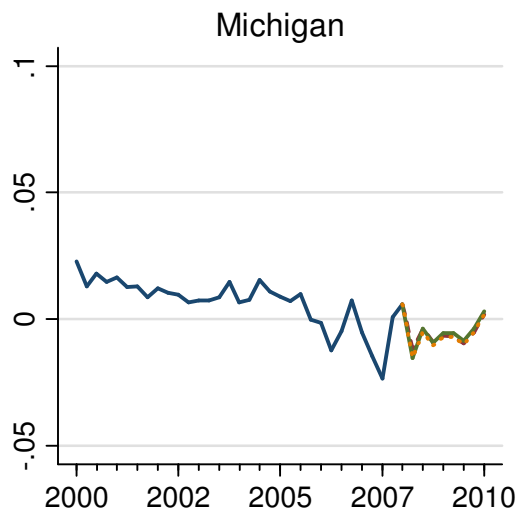
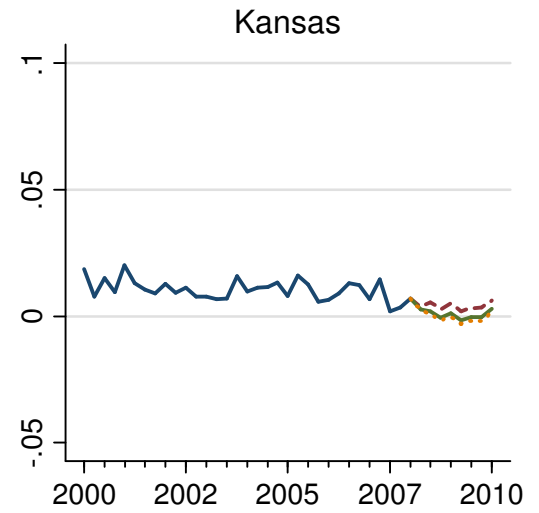
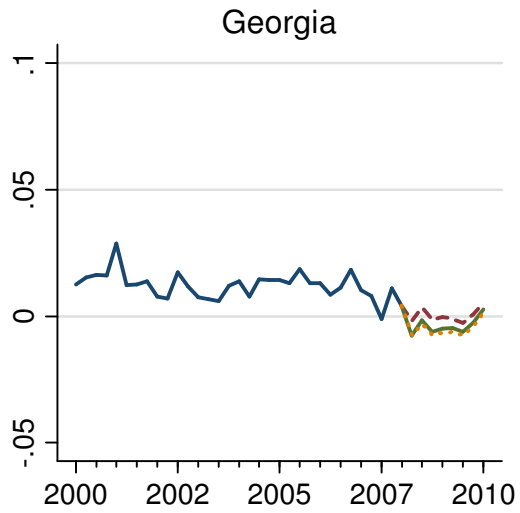
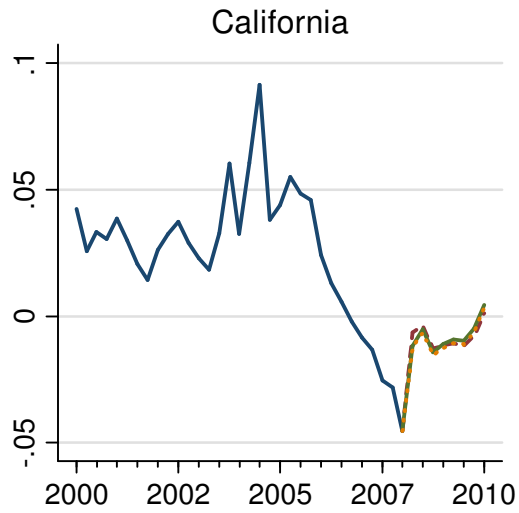


Figure 5: HPI Simulations in Selected States

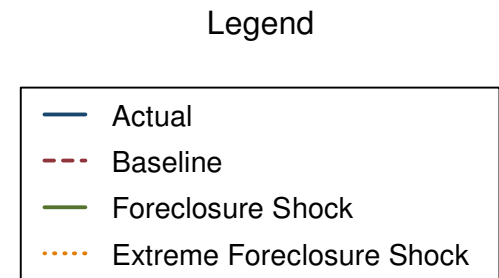
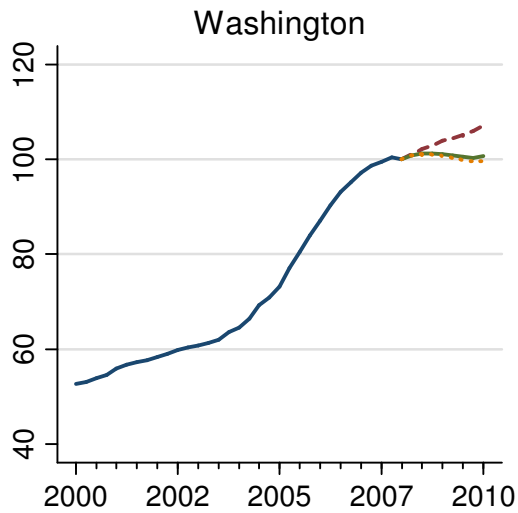
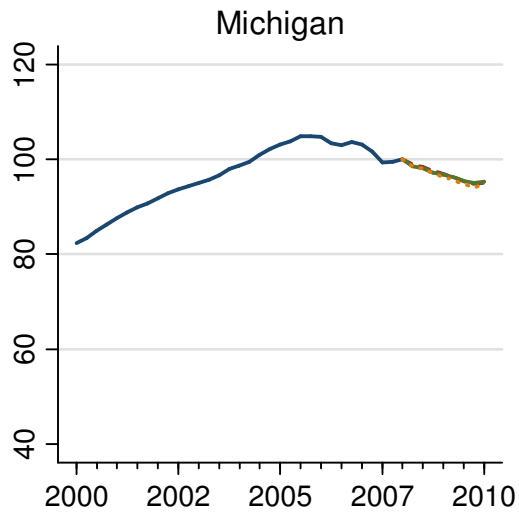
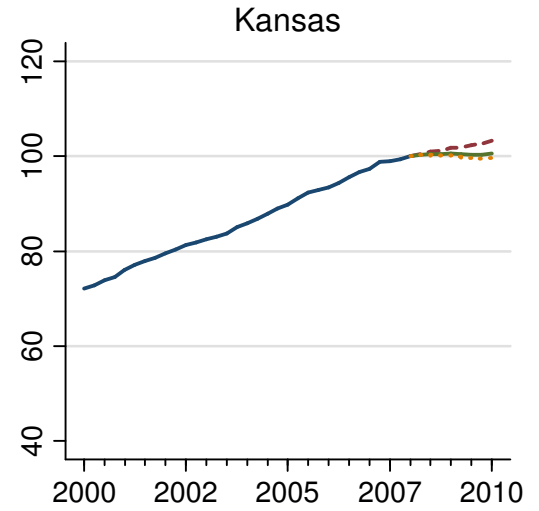
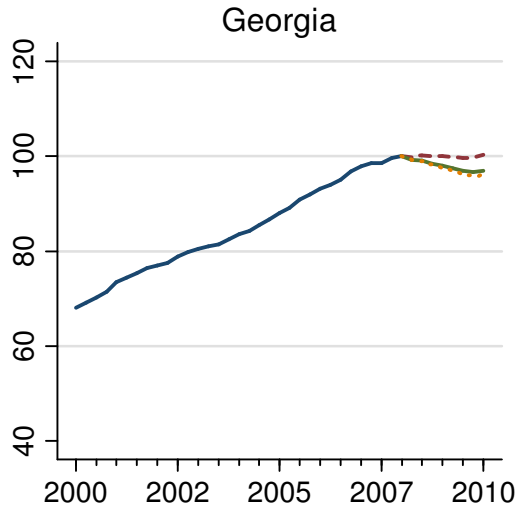
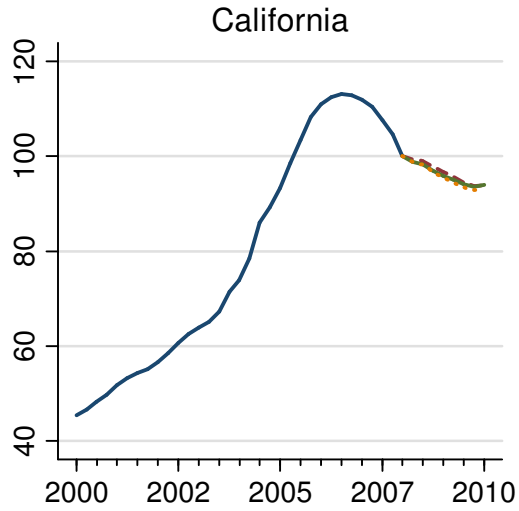
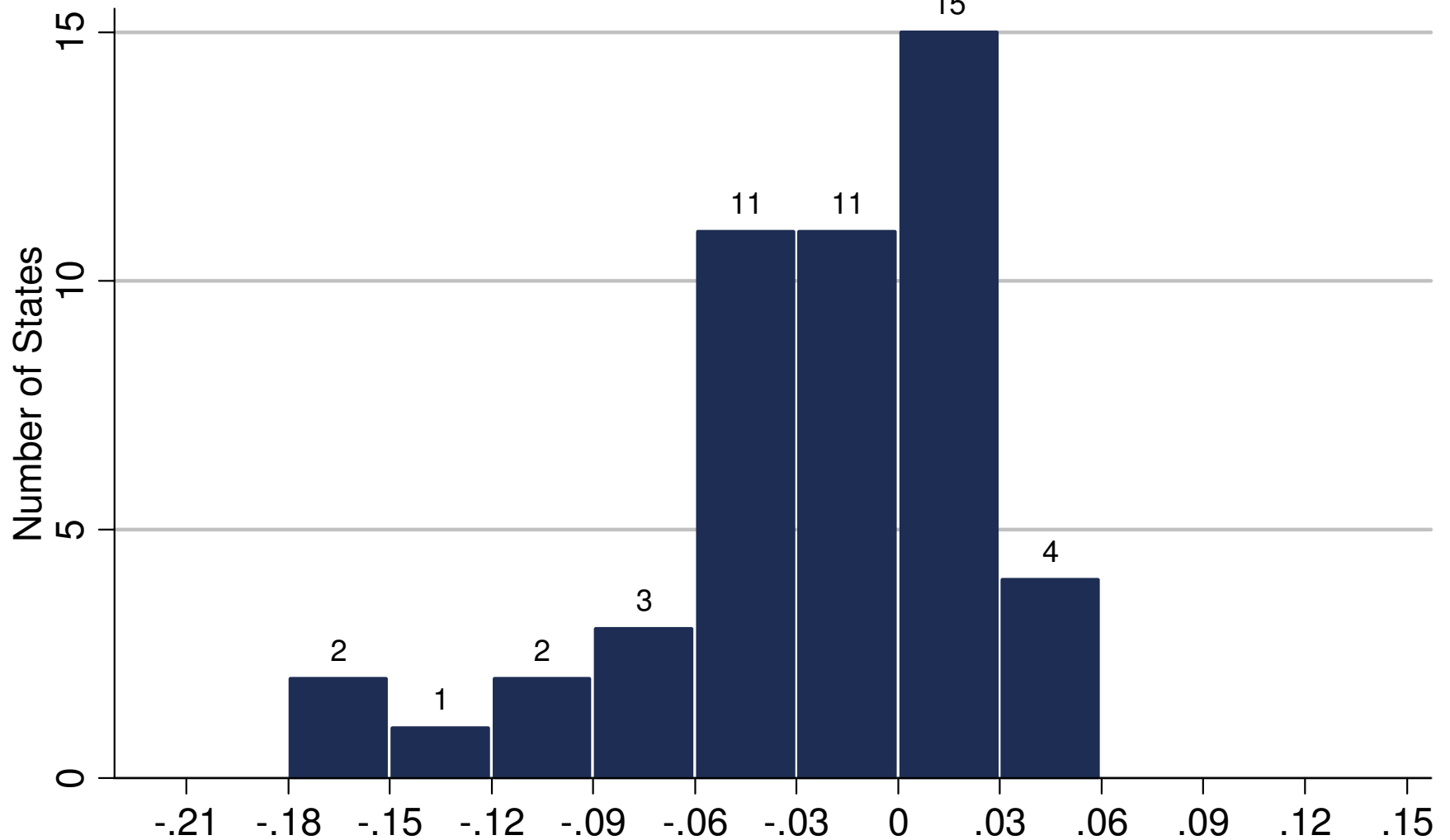
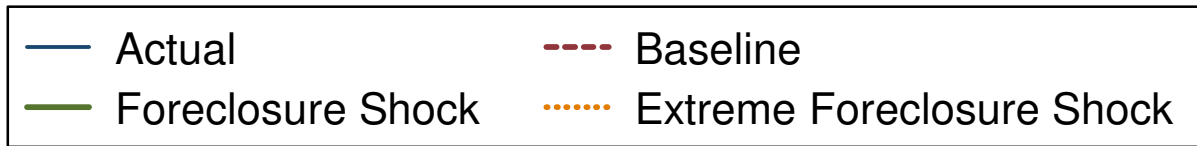
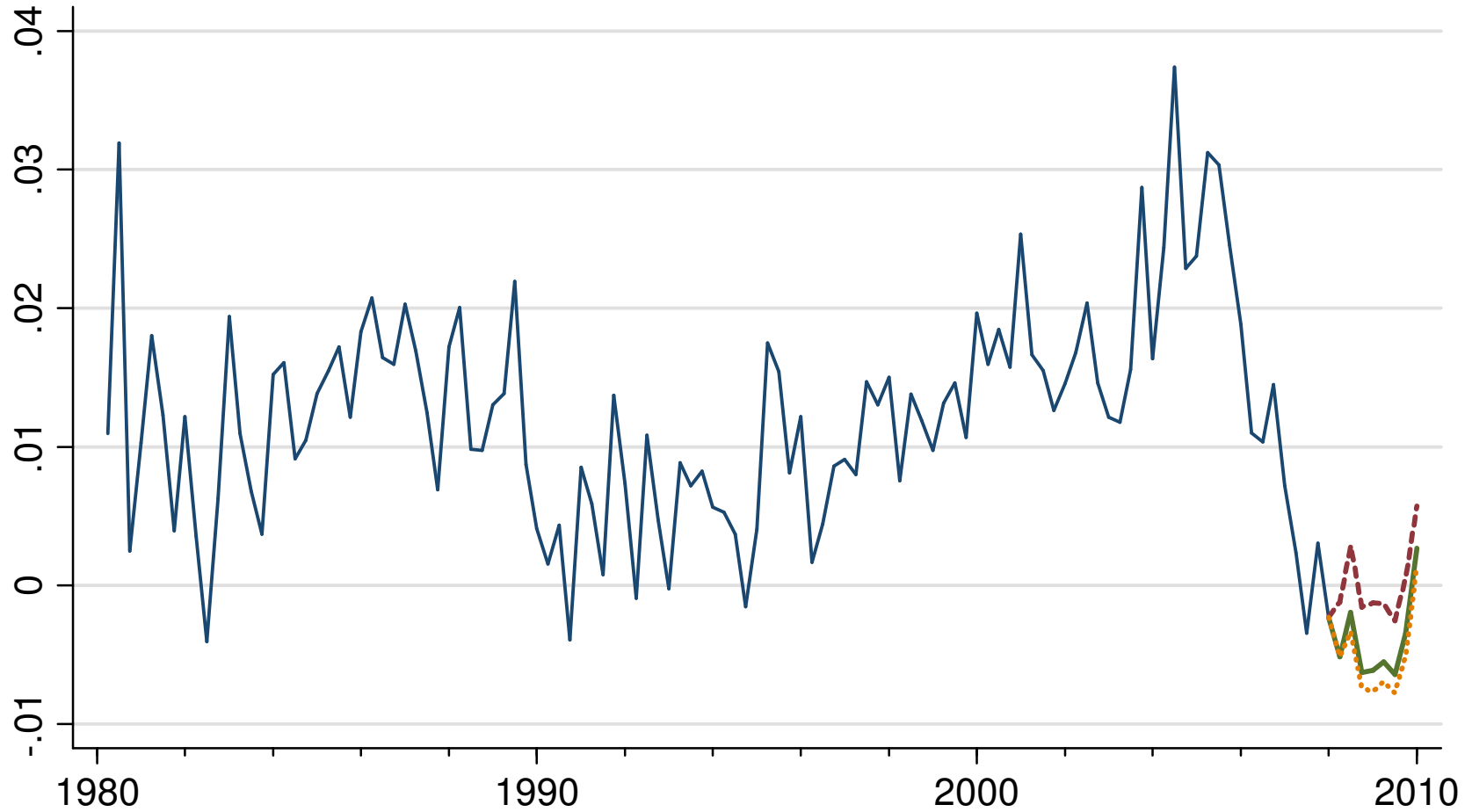


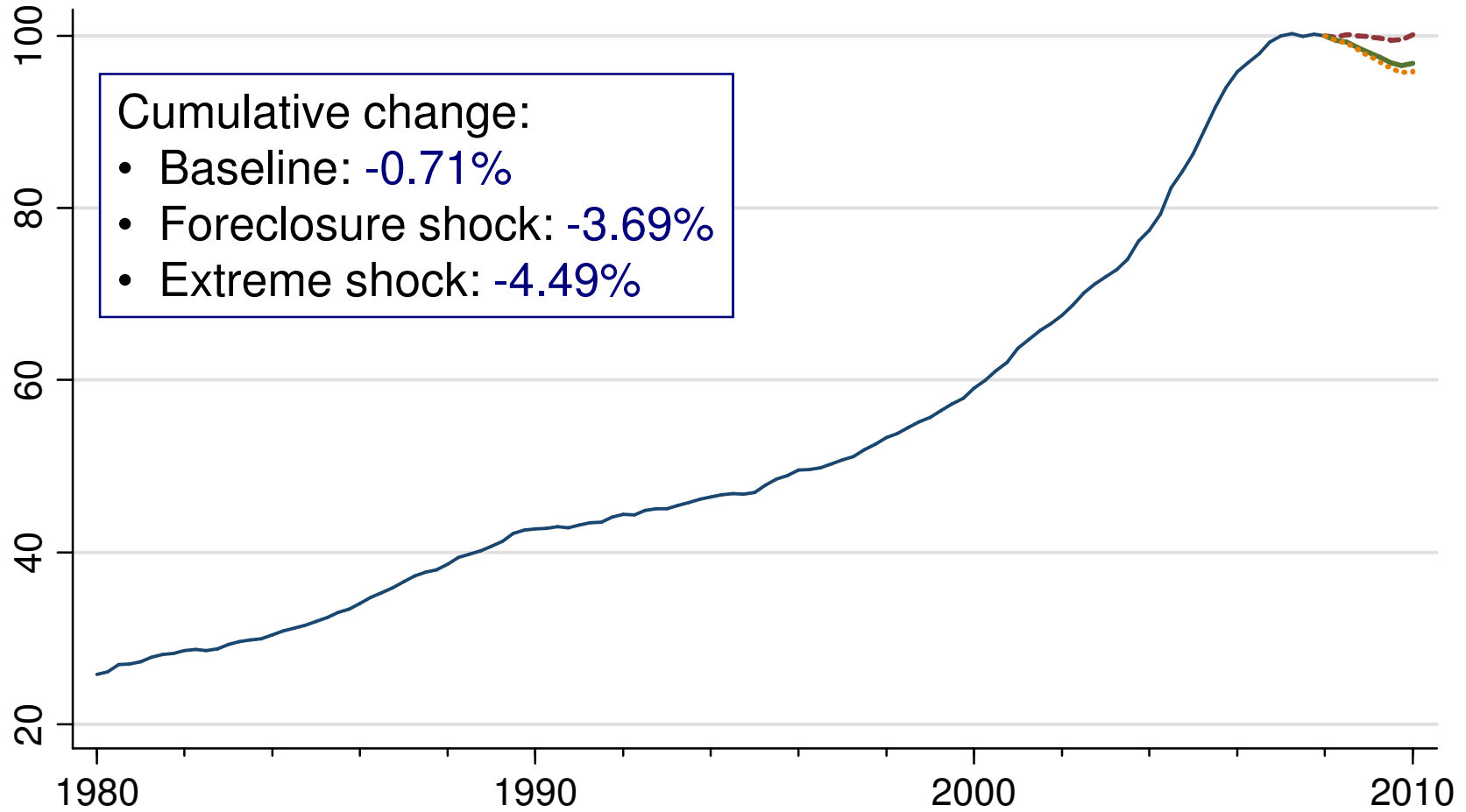
Figure 6 - Panel A: Distribution of Total House Price Changes between 2007Q2 and 2009Q4
Extreme Foreclosure Shock Scenario



HPI Growth Rate Simulations for Entire U.S.



HPI Simulations for Entire U.S.





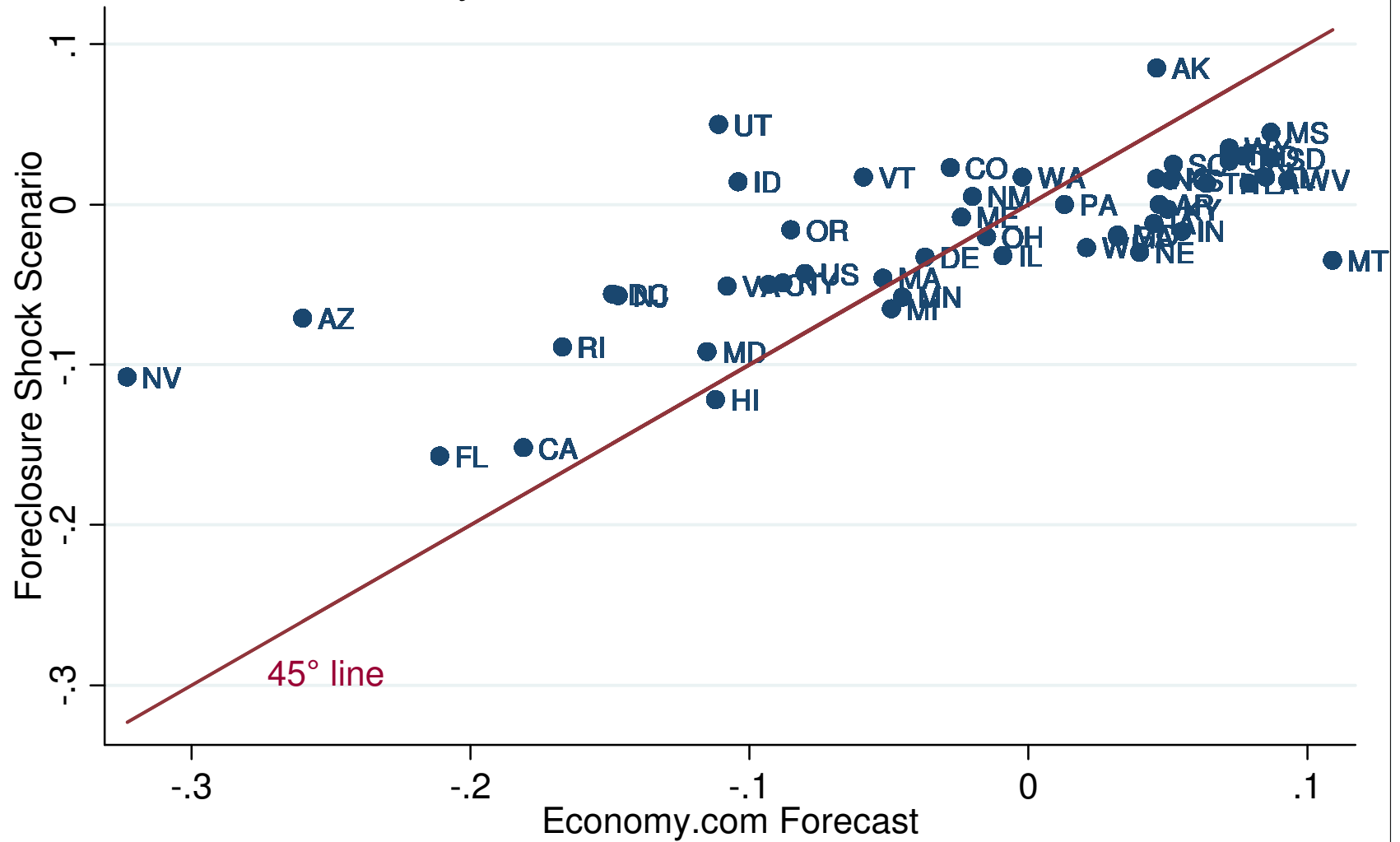
Robustness Checks

Table 4 – Cumulative Simulated U.S. House Price Changes between 2007Q2 and 2009Q4 by Model

	Log Level of Foreclosure Rate		Log Difference of Foreclosure Rate	
	1981-2007	1988-2007	1981-2007	1988-2007
OFHEO all-transactions index	-3.7%	-2.9%	+3.8%	+3.2%
OFHEO purchase-only index	-2.0%	-1.8%	-1.4%	-1.1%

Forecasted Price Changes between 2007Q2 and 2009Q4

Economy.com Forecast vs. Scenario 2 Forecast

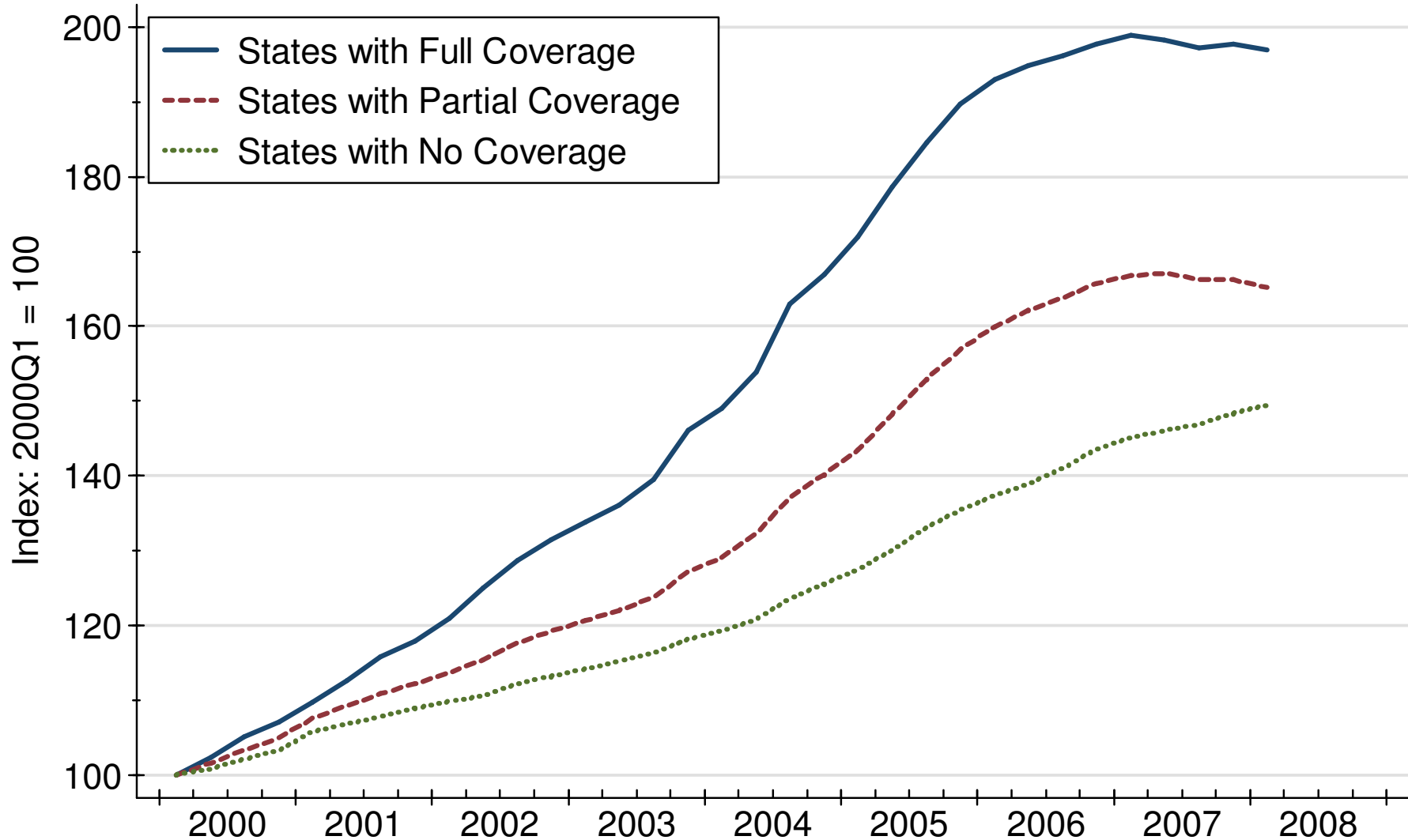





Is This the Right Measure of Price?

- Wealth effects of house price decline?
 - Should be less than other wealth forms
 - Depends on capital market constraints; effect should be less for the wealthy or for those with less of their wealth tied up in house
- OFHEO has better regional coverage than Case-Shiller (which is not available at state level historically)
- OFHEO more relevant for wealth effect discussion
 - Conforming (less zero-wealth, less high-wealth)
 - Non-value-weighted

Figure 8: OFHEO HPI
Disaggregated by Case-Shiller Coverage





Summary of Findings

- Variation across states aids in identifying linkages among variables
- Foreclosures and prices are closely associated at low frequency, but this reflects a combination of linkages, not just foreclosure effects on prices
- We employ a panel VAR model to identify relationships among key housing variables and get sensible and significant results, which are highly robust to choice of sample period, foreclosure measure, and price measure



Summary of Findings

- A conservative (over-)estimate of national average house price declines from the 2007Q2 peak through 2009Q4 will be roughly 4.5%
 - On average, U.S. house prices will be essentially flat over the next two years



Policy Implications

- Consumption not likely to decline as the result of housing wealth decline. Flat housing prices and tighter lending standards may produce slower growth in consumption, not a decline
- Foreclosure interventions by government carry many costs. They may make sense from a humanitarian standpoint, and from a financial efficiency standpoint (if designed carefully), but are not necessary as an anti-recessionary macroeconomic tool