

Discussion of
“House Prices, Foreclosures, and Bail-Outs”

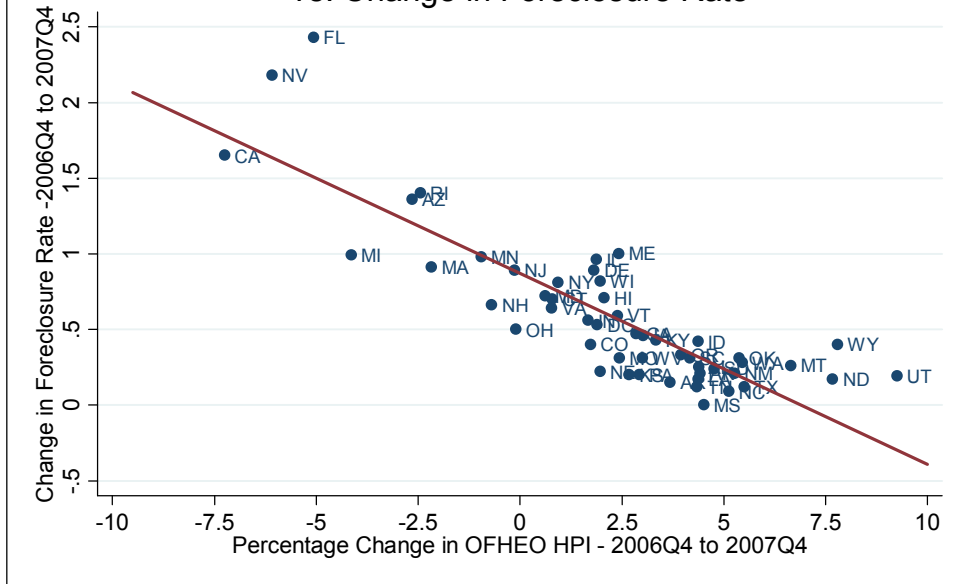
by Garriga and Schlagenhauf

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



Note: Slope coefficient = -0.126 with an R-square of 0.72.

Source: Calomiris, Longhofer and Miles (2008)

Figure 2: Evolution of Seriously Delinquent Mortgages

Delinquent Mortgages: US

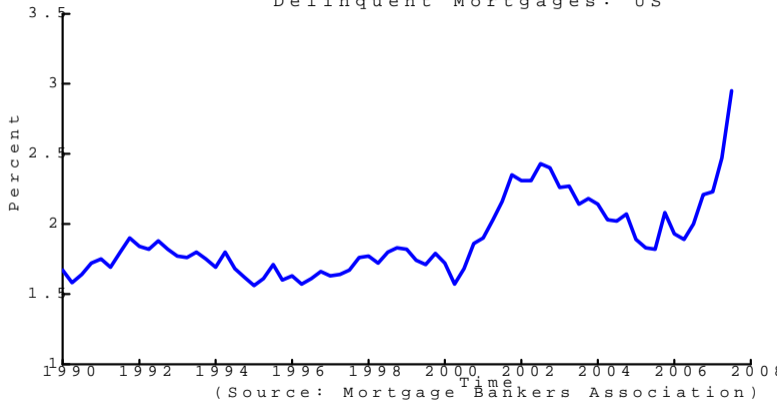
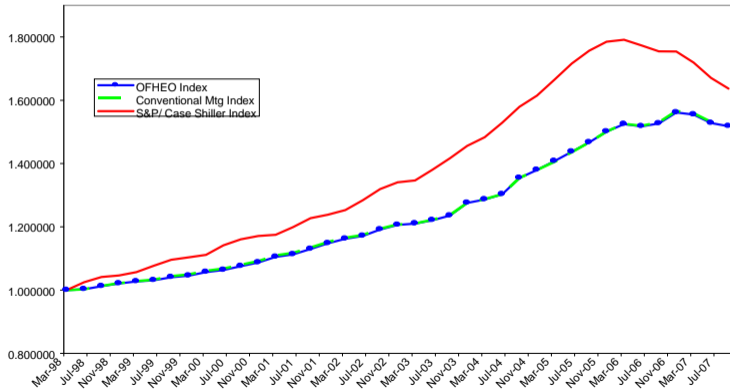


Figure 1: Evolution of House Prices



Motivation

- Strong negative *correlation* between changes in house prices and changes in foreclosure rates in the U.S.
- Conventional wisdom I: price declines lower owners' equity in the home and thus *cause* changes in default rates on mortgages (foreclosures).
- Conventional wisdom II: rising foreclosures increase supply of homes on the market, *cause* price declines.

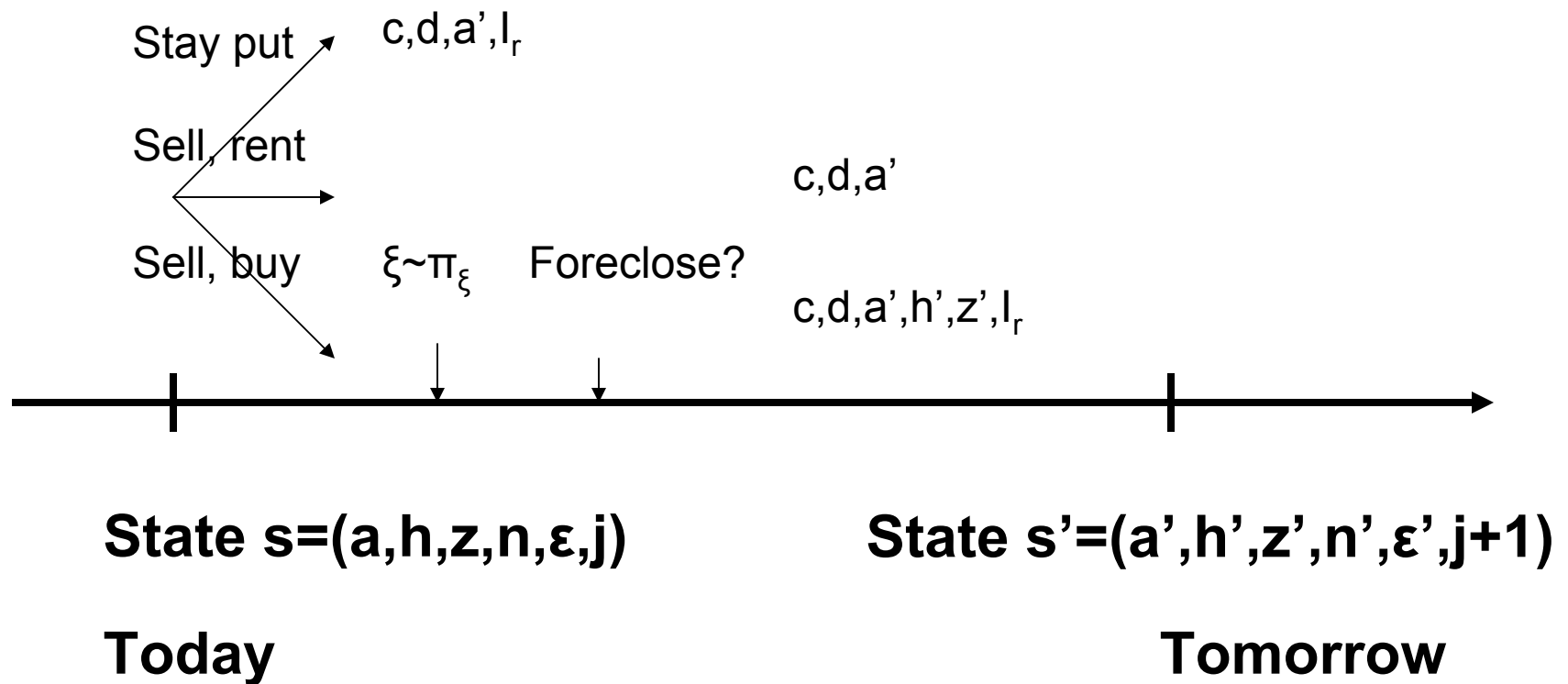
Motivation

- (Quantitative) Theory: home prices and foreclosure rates are *jointly* determined in general equilibrium. Garriga & Schlagenhauf's research agenda: provide us with this quantitative theory
- This paper: causality runs from price changes to foreclosure rates.
 - Construct model that matches homeownership rates, foreclosure rates
 - Engineer a change in the house price and document what happens to foreclosure rates in the model.

Model: Key Ingredients

- Chambers, Garriga & Schlagenhaut's (2007) model of housing market
 - OLG model with uninsurable idiosyncratic income risk
 - Relative price of real estate, p , and risk free rate r^* exogenous.
 - Endogenous housing tenure and mortgage decisions
 - Housing investment lumpy and subject to transaction costs and idiosyncratic price shocks ξ .
- Introduction of mortgage default as in Krueger and Jeske (2007).

Time line for households that owned in previous period



Mortgage Contracts and Default

- Pre-commitment to “sell”. House price shock ξ realized. Default iff

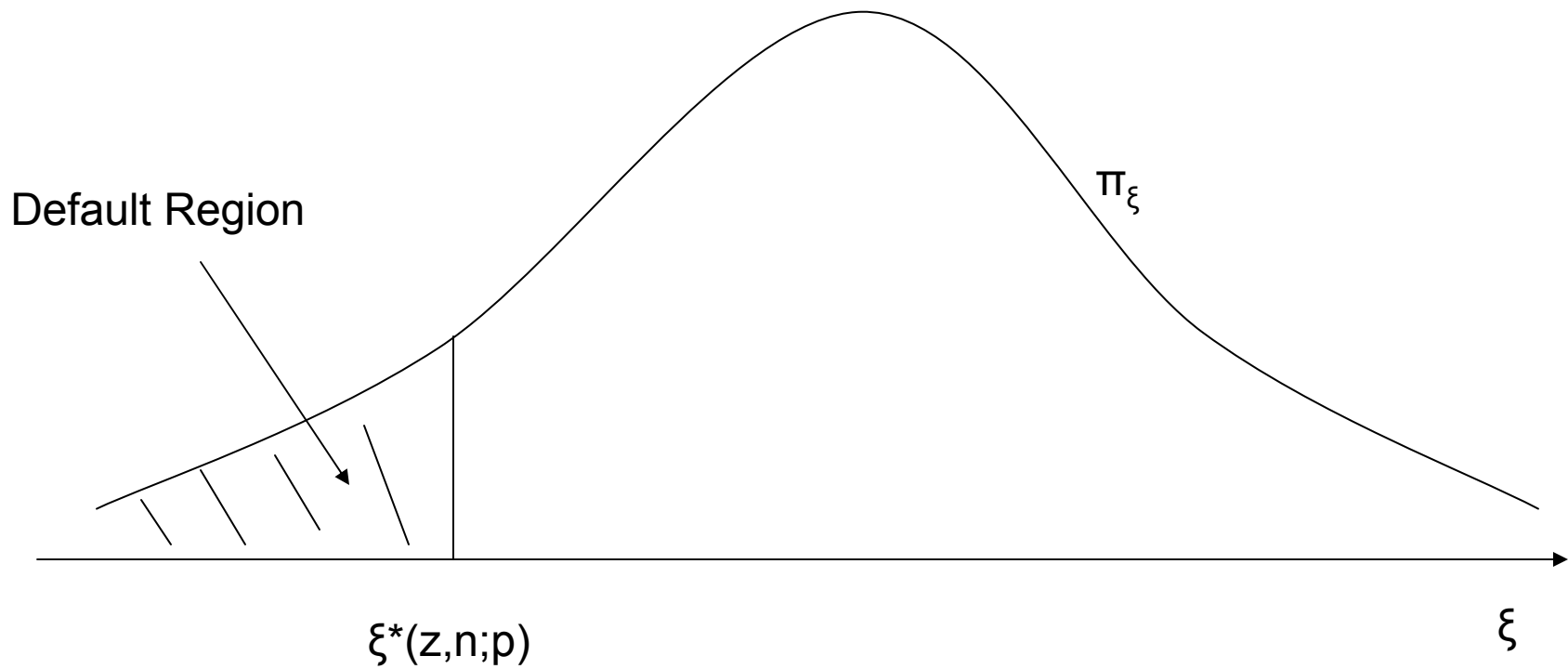
$$(1 - \phi_s)\xi p h - D(z, n)h < 0$$

- Threshold $\xi^*(z, n)$ such that default iff $\xi < \xi^*(z, n)$. Corresponding default probability $\psi(z, n)$ and mortgage interest rate $\rho(z)$.

- $\xi^*(z, n), \psi(z, n), \rho(z)$ depend on mortgage type z and length n , but not on characteristics of borrower, s , or size of the house h .

- Note: for default only difference in contracts is $D(z, n)$.

Prices and Default Decision



Quantitative Prediction of Benchmark Model _____

- Model matches homeownership rates over the life cycle and aggregate statistics remarkably well.
- Focus on foreclosure rates $d = d_{FR}s_{FR} + d_{GP}s_{GP}$
 - z_{FR} : Standard 30 year fixed rate contract with 20% down
 - z_{GP} : 30 year contract, low downpayment, growing payments

Stat.	d	s_{FR}	d_{FR}	s_{GP}	d_{GP}
Data (98)	1.0%	85%	0.8%	15%	2.0%
Model	1.8%	61%	1.7%	39%	2.0%

Thought Experiment: Unexpected Exogenous Fall in House Price p

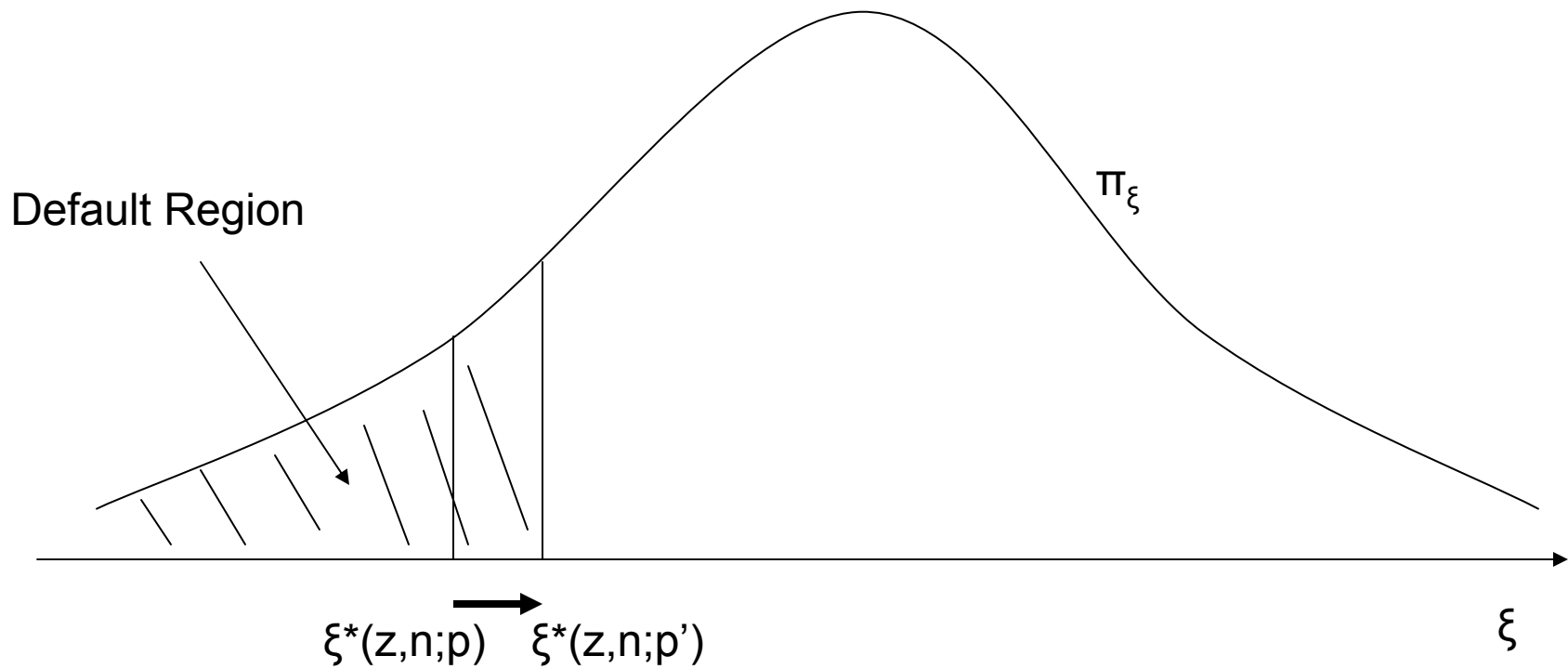
- Default if

$$(1 - \phi_s)\xi p h - D(z, n)h < 0.$$

- For contract z a decline from p to p' leads to an increase in $\xi^*(z, n)$.
- Is the model “continuous” in p if $\xi \in \Xi$, and Ξ is a very finite set?
- Note that for given contract z heterogeneity in s does not help since $\xi^*(z, n)$ not a function of s . Mortgage contract is a choice, $z = \mathcal{Z}(s)$.

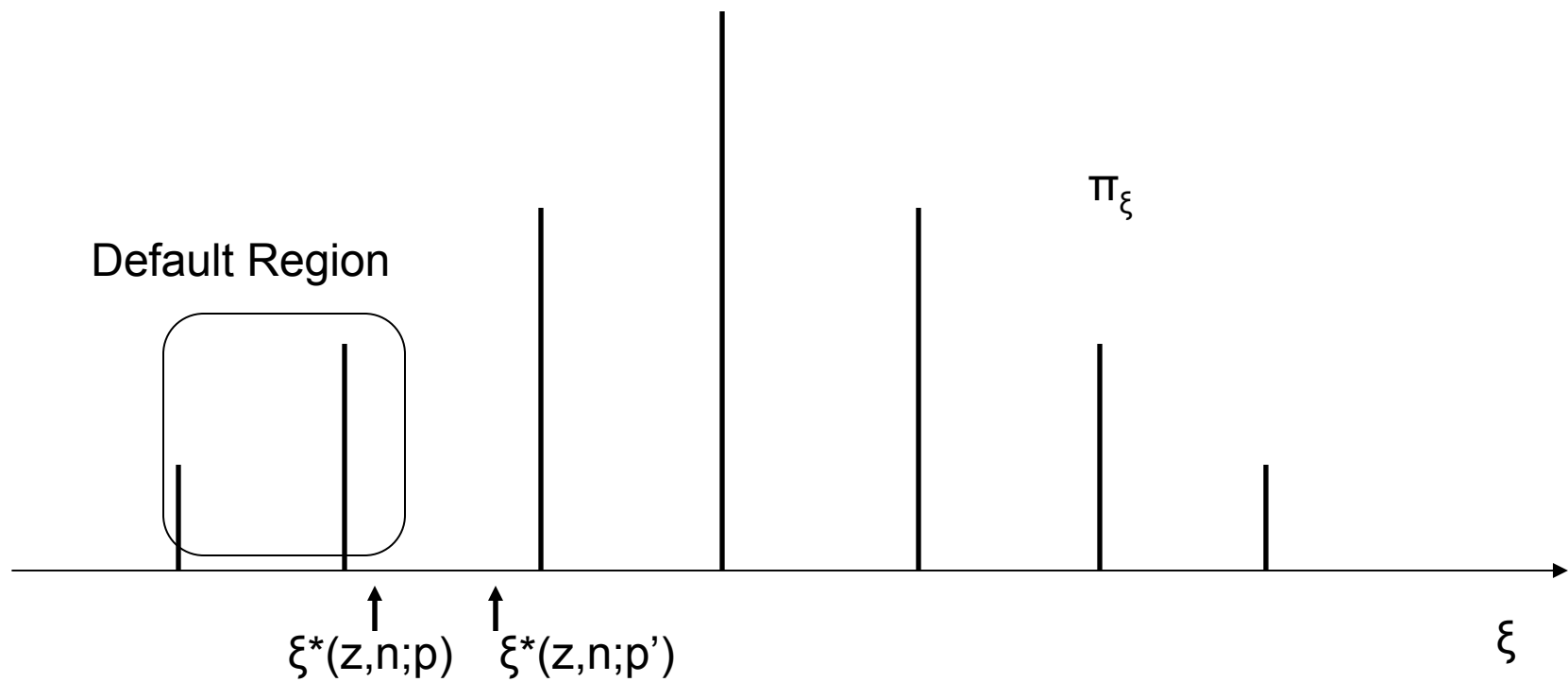
Prices and Default Decision

$$p' < p$$



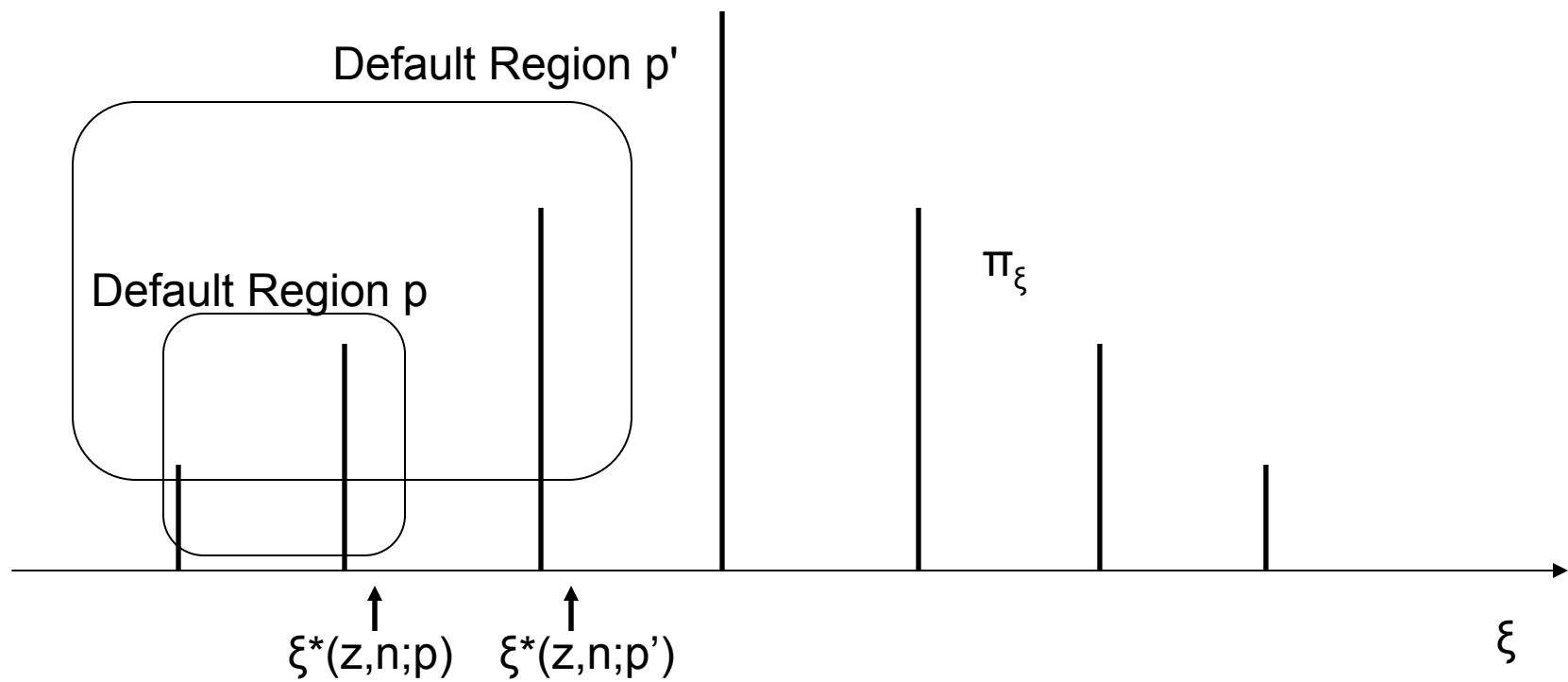
Prices and Default Decision

$$p' < p$$



Prices and Default Decision

$$p' < p$$



Fall in House Price p by 15 Percent: Results _____

- Ownership rate not affected much (despite the fact that R/p changes significantly).
- Effects on mortgage default:

Stat.	d	s_{FR}	d_{FR}	s_{GP}	d_{GP}
Data (98)	1.0%	85%	0.8%	15%	2.0%
Data (07)	2.8%	77%	1.2%	23%	7.4%
Model (98)	1.8%	61%	1.7%	39%	2.0%
Model (07)	2.7%	72%	2.2%	28%	4.0%

Conclusions

- Ambitious paper. Introduces endogenous default into elaborate model of housing.
- Model fits homeownership rates well.
- Differential default rates by mortgage type? Market shares? Reasonably well.
 - Very coarse set of mortgage contracts
 - Model has significant heterogeneity, but maybe not enough (unobserved differences in types?)

Future: Even More Ambitious Paper

What fundamental factors *jointly* determine (recent) trends in house prices and mortgage default rates?