



The Impact of Supply Constraints on House Prices in England

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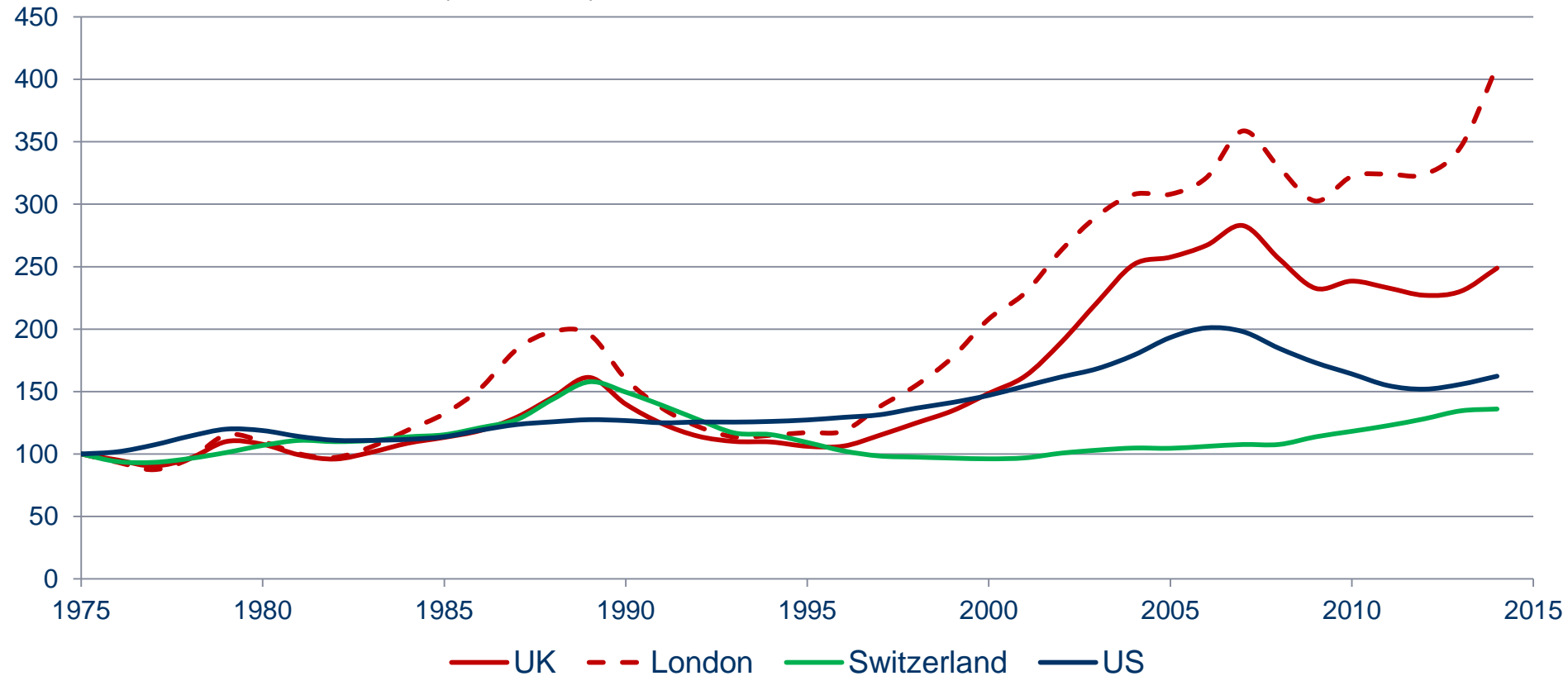
Key messages

- Regulatory constraints are an important causal factor behind England's housing 'affordability crisis'
- Regulation has made housing considerably more volatile
- Its impact is felt most strongly during boom periods
- Constraining supply in places where demand is highest impairs spatial allocation of labour and productivity

England's house price growth and volatility is extraordinary...

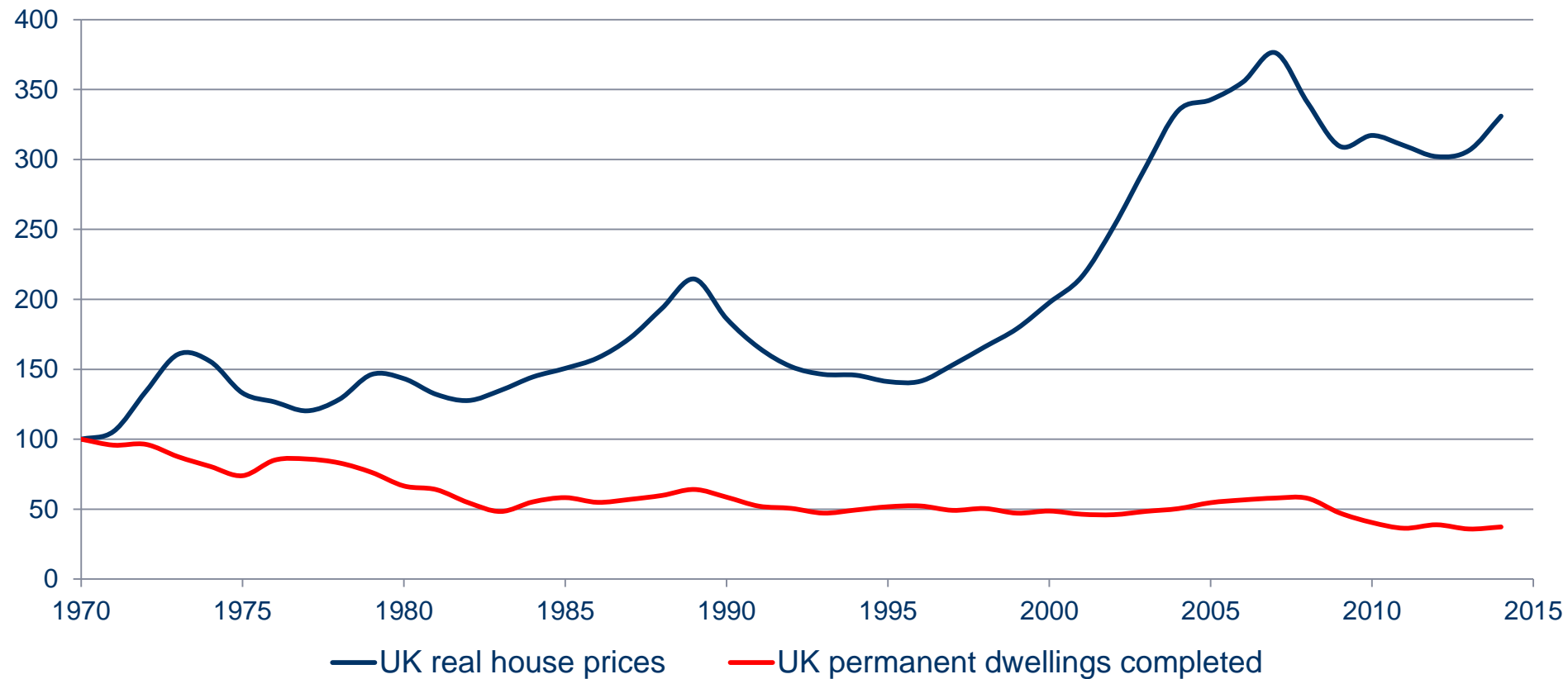
Real house price growth in UK vs. US & Switzerland

Rebased (1975=100) – Sources: ONS, Nationwide, SNB, St Louis Fed



... yet construction is in continuous decline

UK real house prices vs. UK permanent dwellings completed
Rebased (1970=100) – Source: ONS, DCLG



The British system of land use planning

- Any change of land use requires permission, granted by Local Planning Authorities (LPAs)
- LPAs have no fiscal incentive to permit development
 - ▶ local taxes play limited role and fiscal equalization eliminates any revenue gain in medium term
 - ▶ yet they do face infrastructure and congestion costs
- Hence, NIMBYism prevails
 - ▶ owners of housing resist development to protect local open space and the value of their asset

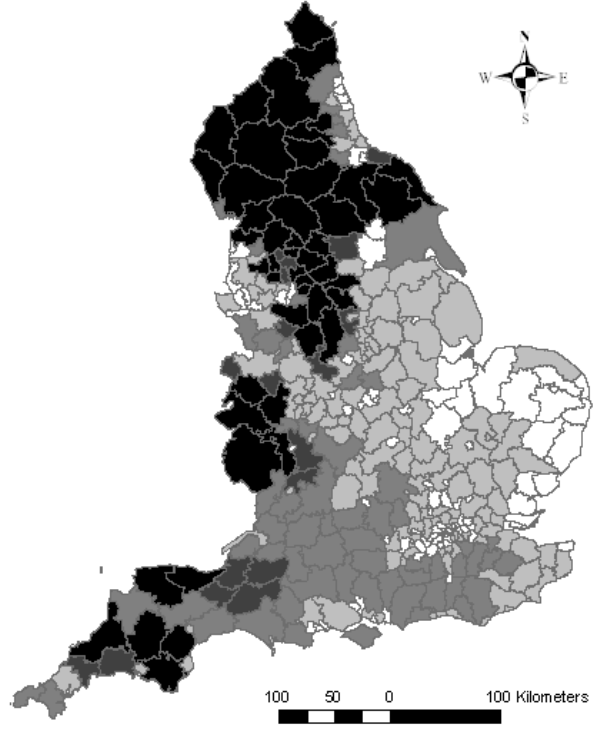
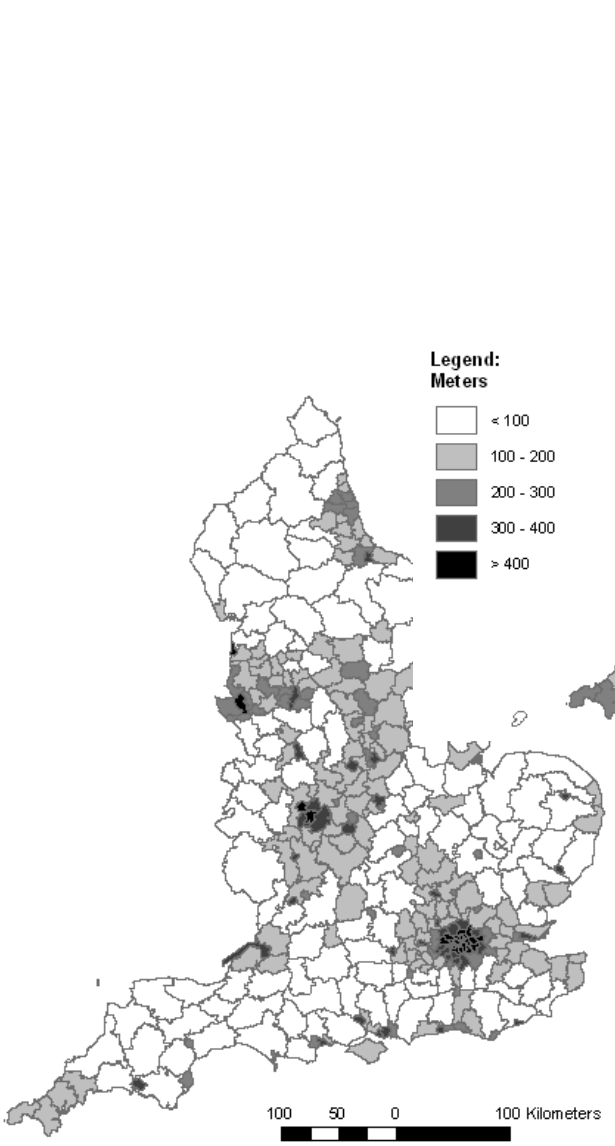
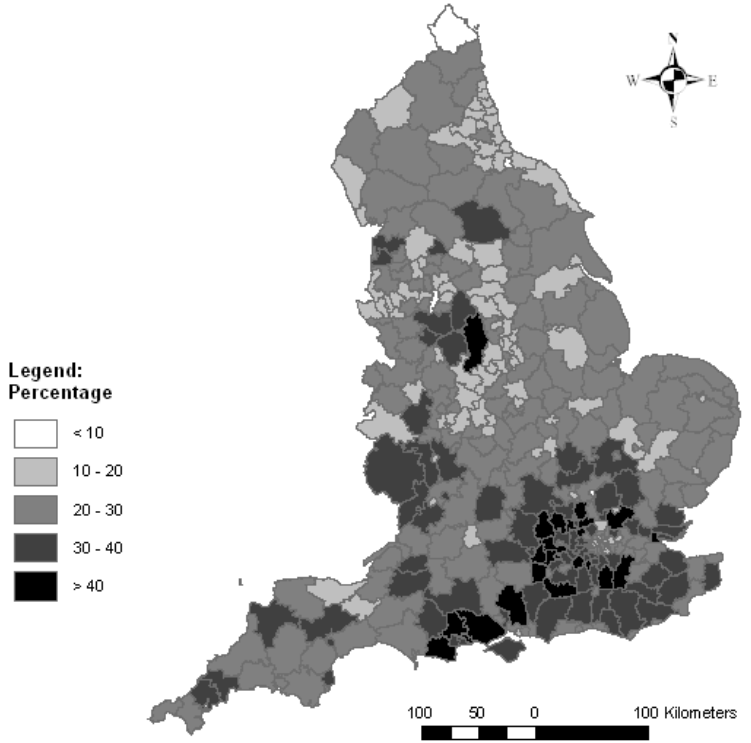
Estimating the impact of regulation

1. Exploit spatial variation in different supply constraints
2. Basic idea: shifts in demand affect prices more strongly in places that are supply constrained
 - ▶ use local earnings as demand shifter in a regression model for house prices
 - ▶ interact with regulatory restrictiveness, scarcity of developable land and topography
3. Use instrumental variables to identify causal effect of local supply constraints measures on local house prices
4. Quantify impact of different supply constraints in a counterfactual analysis

Average refusal rate (major residential projects) 1979-2008

Share developable land developed, 1990

Elevation range



Estimating equation

$$\begin{aligned} \log(\text{house price}_{jt}) = & \beta_0 + \beta_1 \log(\text{earnings}_{jt}) + \\ & \beta_2 \log(\text{earnings}_{jt}) \times \overline{\text{refusal rate}}_j + \\ & \beta_3 \log(\text{earnings}_{jt}) \times \% \text{developed}_j + \\ & \beta_4 \log(\text{earnings}_{jt}) \times \text{elevation}_j + \text{year-FE} + \text{LPA-FE} + \varepsilon_{j,t} \end{aligned}$$

- **Refusal rate**: may be influenced demand conditions and developers may not apply if likely rejected
 - ▶ we instrument with a policy reform and vote shares
- **Share developed**: may be influenced by contemporaneous demand and supply factors, including regulation
 - ▶ we instrument with population density in 1911

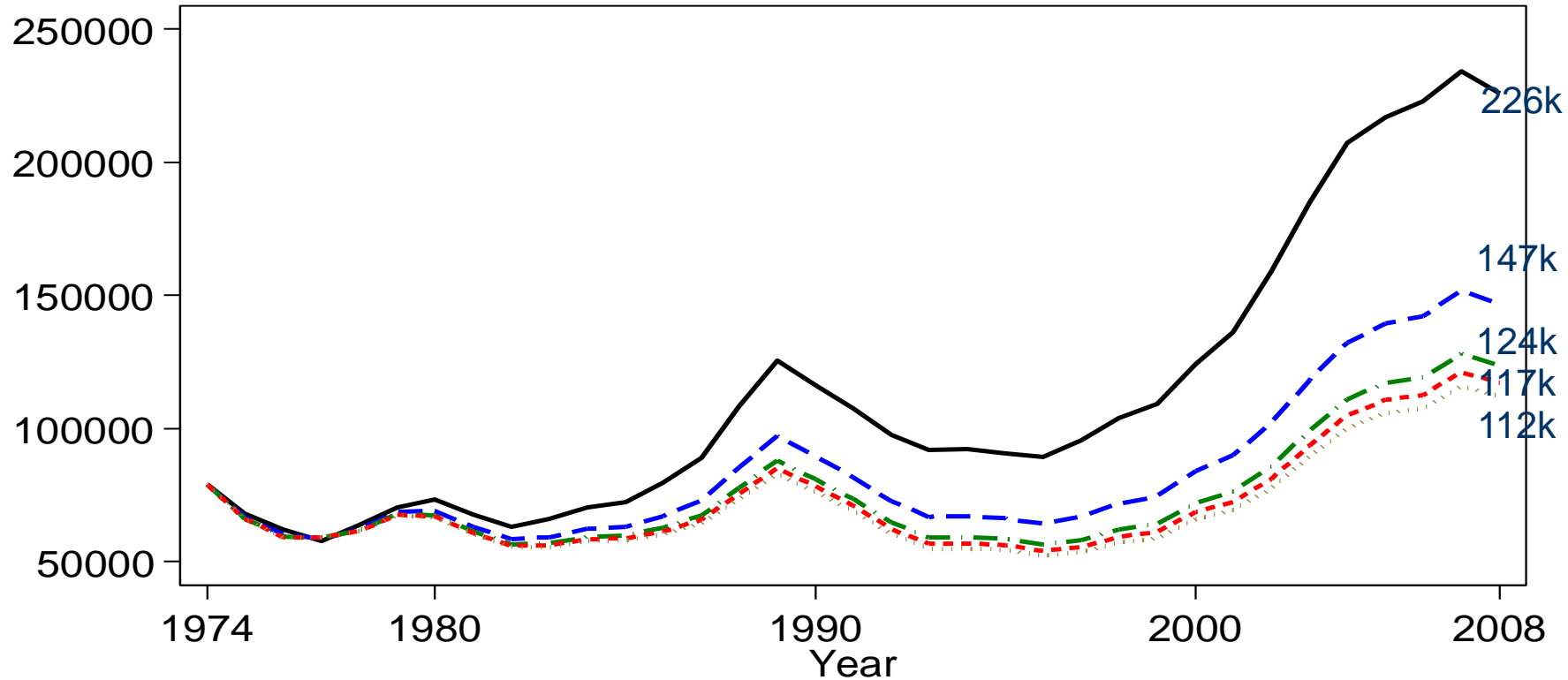
Baseline results

Dependent variable: Log(real house price index)	
Log(earnings)	0.089
Log(earnings) x <i>average refusal rate</i>	0.29***
Log(earnings) x <i>share developed</i>	0.30***
Log(earnings) x <i>elevation range</i>	0.095**
Year-FEs	Yes
LPA-FEs & constant	Yes
Kleibergen Paap F-stat	11.8

Boom versus bust periods

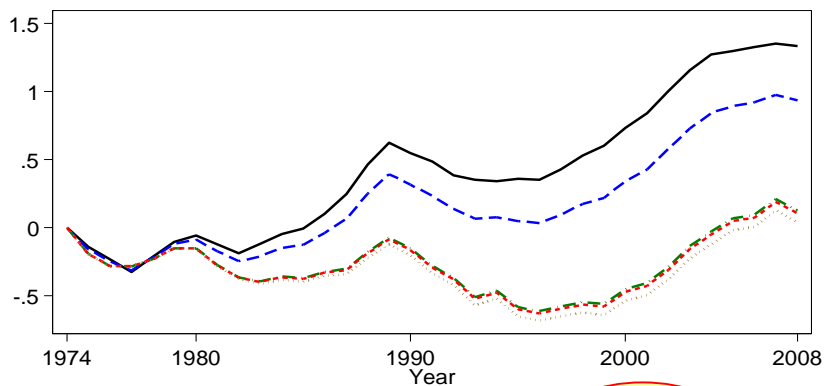
Dependent variable: Log(real house price index)		
	Boom	Bust
Log(earnings)	0.115	0.089
Log(earnings) x <i>average refusal rate</i>	0.27***	0.15**
Log(earnings) x <i>share developed</i>	0.29***	0.20***
Log(earnings) x <i>elevation range</i>	0.097**	0.094**
Year-FEs	Yes	Yes
LPA-FEs & constant	Yes	Yes
Kleibergen Paap F-stat	11.4	11.5

What would house prices in average English LPA be if...

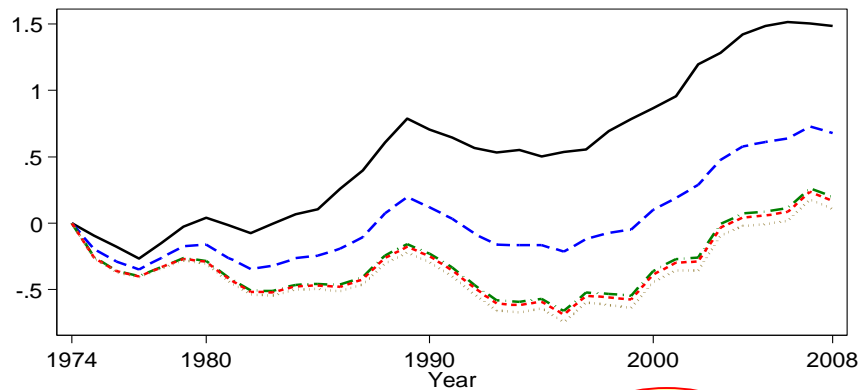


- Predicted real house prices in average English LPA
- - - Prediction with refusal rate set to zero
- . - - - - and share developed set to zero
- . - . - - and elevation range set to zero
- - and earnings assumed constant

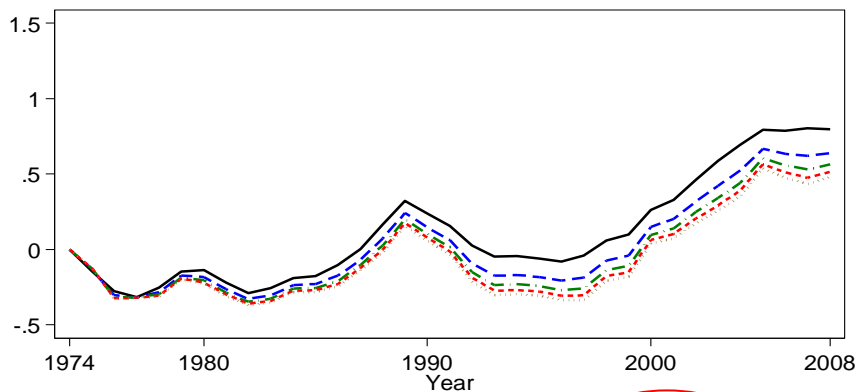
But large variation across locations



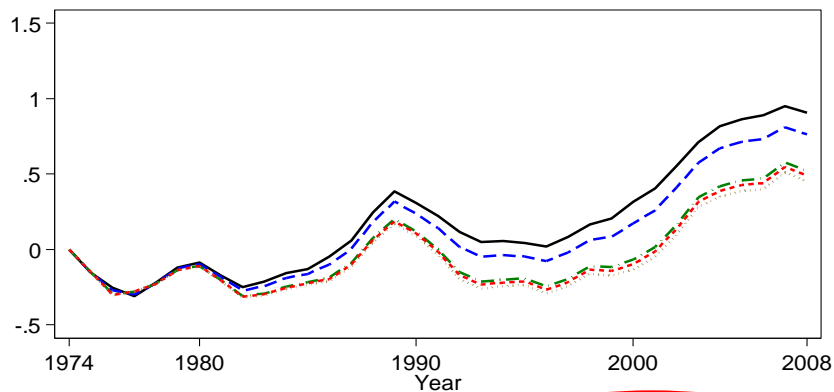
- Predicted log real house prices in Westminster
- - - Prediction with refusal rate set to zero
- . - . - and share developed set to zero
- . - . - and elevation range set to zero
- - and earnings assumed constant



- Predicted log real house prices in Reading
- - - Prediction with refusal rate set to zero
- . - . - and share developed set to zero
- . - . - and elevation range set to zero
- - and earnings assumed constant



- Predicted log real house prices in Darlington
- - - Prediction with refusal rate set to zero
- . - . - and share developed set to zero
- . - . - and elevation range set to zero
- - and earnings assumed constant



- Predicted log real house prices in Newcastle upon Tyne
- - - Prediction with refusal rate set to zero
- . - . - and share developed set to zero
- . - . - and elevation range set to zero
- - and earnings assumed constant

Robustness

Main results hold for:

1. an alternative demand shifter
 - ▶ based on local industry composition in 1971 and national employment growth by industry
2. different geographical definitions of 'local housing market'
 - ▶ travel to work area, functional urban region, county
3. various alternative definitions of the instruments
4. dropping London from the sample
5. ...

Key messages

- Regulatory constraints are an important causal factor behind England's housing 'affordability crisis'
 - ▶ removing all regulatory barriers would lower house prices by a third
- Regulation has made housing considerably more volatile
 - ▶ removing all regulatory barriers would halve their standard deviation
- Its impact is felt most strongly during boom periods
- Constraining supply in places where demand is highest impairs spatial allocation of labour and productivity

Further information

Hilber, C.A .L. and W. Vermeulen (2016), “The Impact of Supply Constraints on House Prices in England”, *Economic Journal* 126(591): 358–405

Data and code available at:

<http://onlinelibrary.wiley.com/doi/10.1111/eoj.12213/full>

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