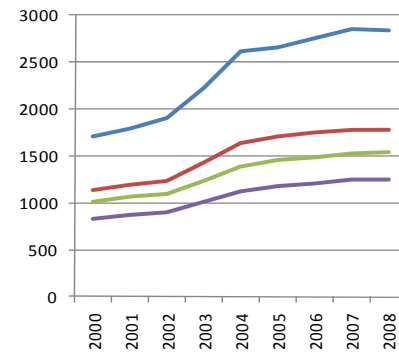


Capitalization of Central Government Grants into House Prices: Panel data evidence from England



Christian Hilber

London School of Economics & SERC

Teemu Lytikäinen

London School of Economics & SERC

Wouter Vermeulen

CPB, VU Amsterdam & SERC

Urban Institute -Tax Policy Centre & Lincoln Institute of Land Policy Conference
The Effects of the Housing Crisis and Economic Downturn on State and Local Governments
Washington, DC, May 20-21, 2010

Motivation

- **Intergovernmental transfers redistribute huge amounts of resources...**
- **In US**
 - ▶ Example: States' school finance equalization formulas
 - ▶ In 2004: allocate \$370 Billion (*Hoxby 2004*)
- **In Europe**
 - ▶ Redistribution from higher to lower levels of government even more important
 - ▶ Most countries highly centralized...

Consider UK...

- **Highly centralised but ‘local authorities’ have important role**
 - ▶ LAs account for 25% of public sector expenditure
 - ▶ 60% of LA funding **from central government grants**
 - ▶ Two aims: funding public services & equalization
- **Hard hit by financial crisis**
 - ▶ Record deficits (~13% of GDP) & exploding debt
- **New (coalition) government will likely reprioritise funding & enact major reforms**
 - ▶ More power to local authorities/individuals

Research questions

- ⇒ **Do central government grants affect house prices?**
 - ▶ Full, partial or no capitalization?
- ⇒ **Are grants wasted?**
- ⇒ **Do grants really help the 'disadvantaged'?**

What do we know?

- **Are local public expenditures and taxes capitalized?**

- ▶ Theoretical consensus view if supply not perfectly elastic: **Yes!**

e.g. Ross & Yinger (1999)

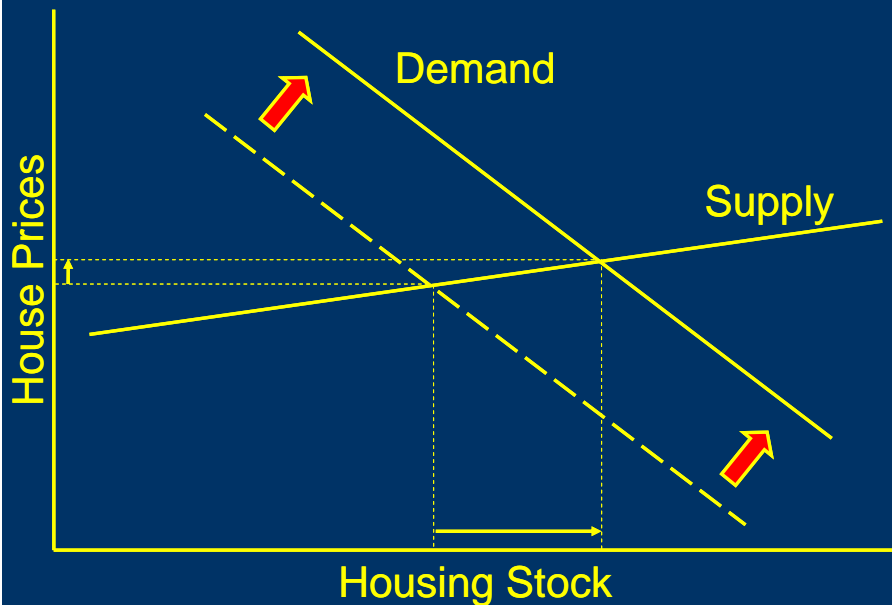
- **What about central government grants?**

- ▶ Can be used to increase spending or cut taxes, so unless wasted: **Yes!**
- ▶ Always full capitalization?

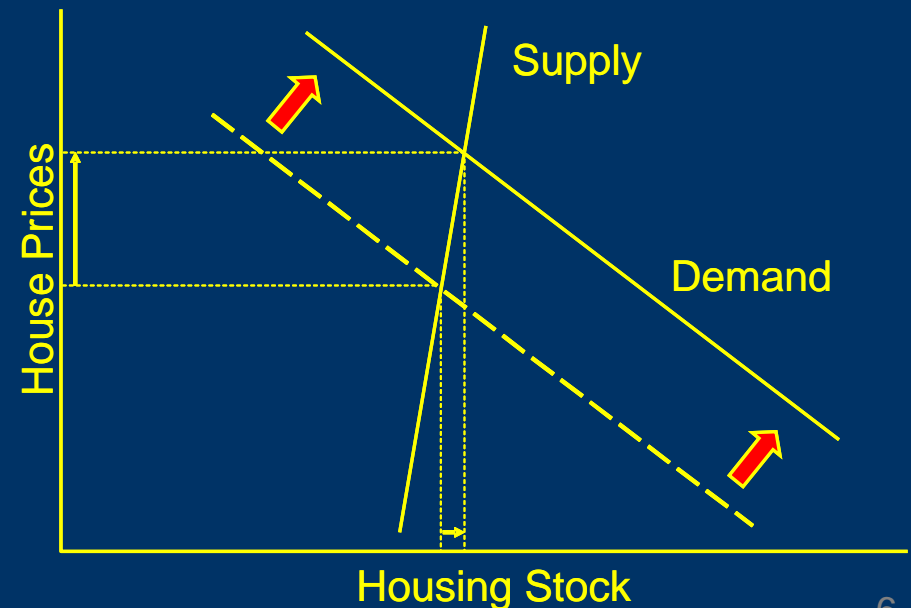
The role of supply constraints

- If local demand for land is perfectly elastic: supply does not matter (full capitalization)
- If locations are not perfect substitutes & HH differ in tastes for amenities and local public services...

Unconstrained location



Constrained location



Predictions

- Prediction 1

- ▶ An increase in central government grants in one local authority, all else equal, should increase house values in that location

- Prediction 2

- ▶ The increase in local house values should be larger in local authorities in which housing supply is more constrained

Empirical strategy & obstacles

- Base specification:

$$\log(\text{house price}_{jt}) = \beta_0 + \beta_1 \text{grant p.c.}_{jt} + \beta_2 \text{controls}_{jt} + \beta_3 LA_j + \beta_3 \text{Region} \times \text{Year}_{rt} + \beta_4 \text{LA-type} \times \text{Year}_{kt} + \varepsilon_{j,t}$$

- Specification with interaction effect:

$$\log(\text{house price}_{jt}) = \beta_0 + \beta_1 \text{grant p.c.}_{jt} + \beta_1 \text{grant p.c.}_{jt} \times \text{supply constraint}_j + \beta_2 \text{controls}_{jt} + \beta_3 LA_j + \beta_3 \text{Reg} \times Y_{rt} + \beta_4 \text{LA-type} \times Y_{kt} + \varepsilon_{j,t}$$

Obstacle #2:
Grant p.c.
endogenous &
presence of
attenuation
bias!

→ Use IV-
strategy...

Obstacle #1:
How to capture
'supply
constraints'?

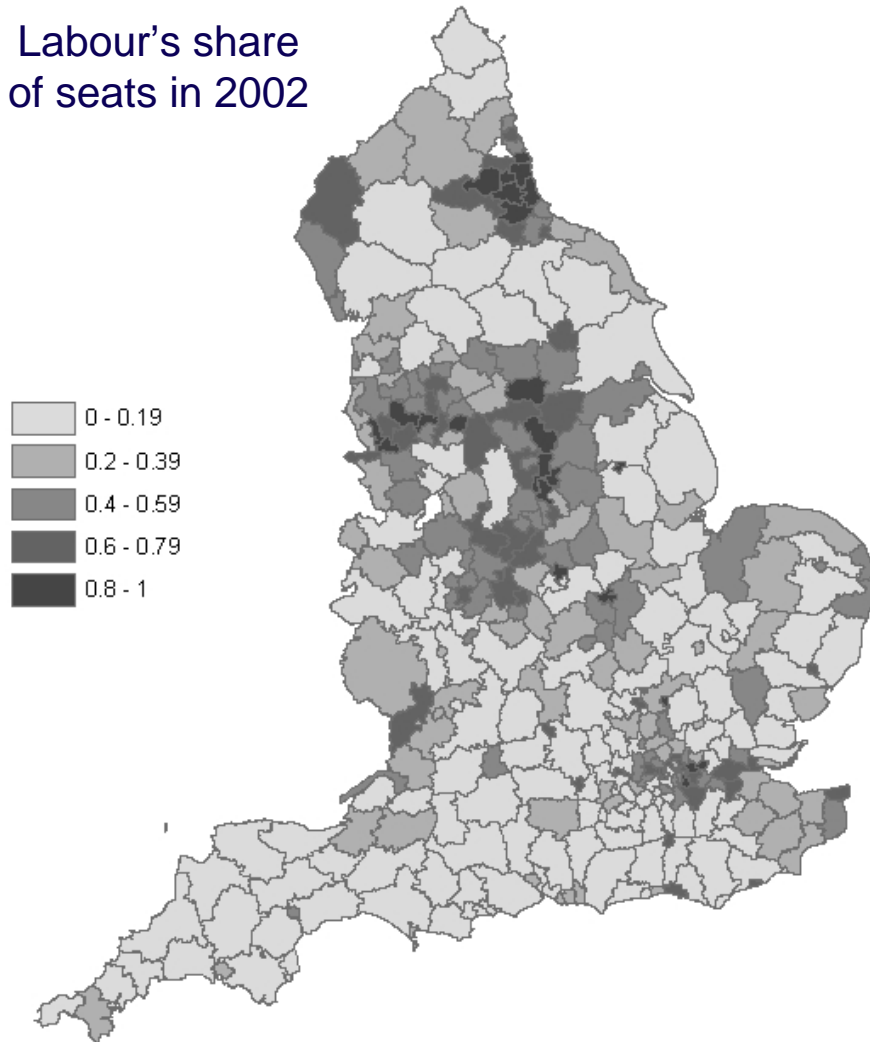
→ Use proxy
for physical
constraints:
elevation range
in LA_j

Identification strategy for grant p.c.

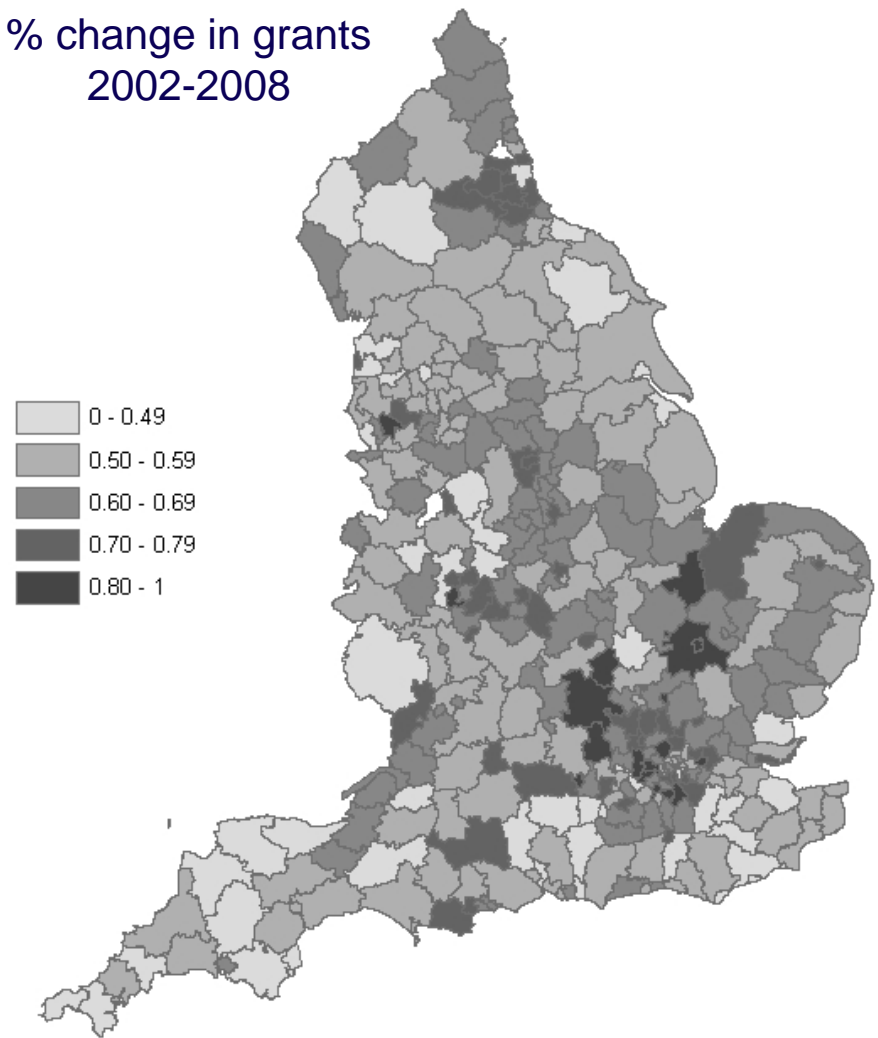
- **Idea: Argue that national government party (Labour) alters grant system such that it maximizes reelection chances...**
 - ▶ Favor “own” constituencies (LAs with Labour majority) → **Dummy for ‘majority’** should be positive
 - ▶ Cares more about marginal seats than unchallenged ones → **Interaction of dummy with share Labour** should be negative
- **Identifying assumption:** The IVs (conditional on controls) affect house prices only through grants

Labour's support and grants

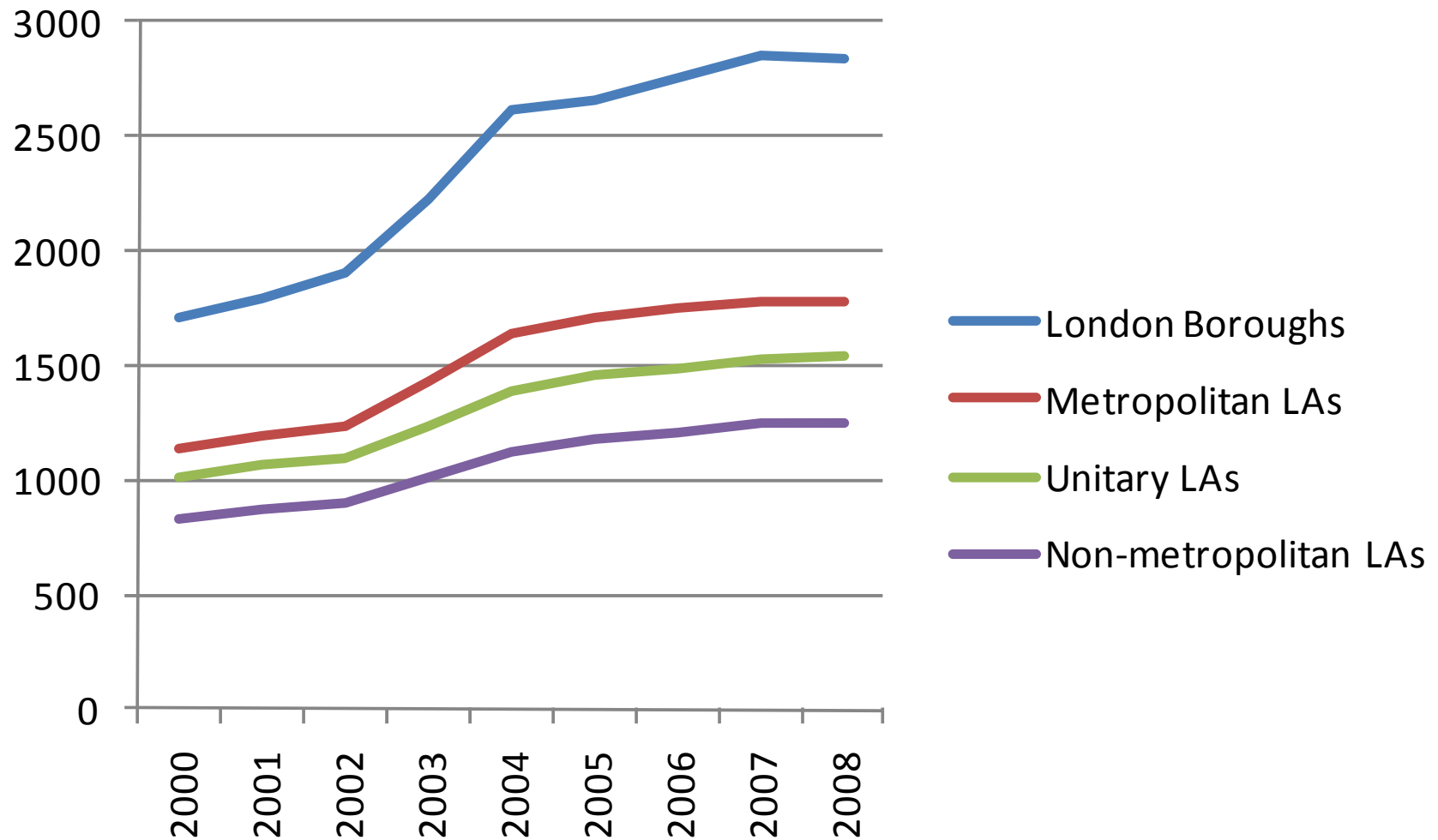
Labour's share
of seats in 2002



% change in grants
2002-2008



Grants per capita 2000-08 (real terms)



Data

- 348 local authorities, years 2001-2008
 - ▶ Mix adjusted house price index (Land Registry)
 - ▶ Grants: all grants per capita (CIPFA)
 - ▶ Demographic and socio-economic attributes
 - Age structure of population (ONS)
 - Benefit claimants (ONS)
 - Pupils, non-white pupils, free school meal eligibility (Pupil Census)
 - Earnings (ASHE)
 - ▶ Local election results (BBC)

Results of FE estimation

+1000£ in grants p.c.
→ HP +6.1%

Endogenous!	LHV: Ln(house price index)			
Grants/pop	0.019	0.041*	0.059**	0.061**
Year FE	YES	YES	YES	YES
Local authority FE	YES	YES	YES	YES
Region*year FE		YES	YES	YES
LA type*year FE			YES	YES
Controls				YES

First stage of IV estimation

	LHV: Grants/pop (in thousand £)		
Labour has absolute majority	0.185***	0.128***	0.102***
Labour majority*share of seats	-0.371***	-0.250***	-0.178***
Labour's share of seats	0.076*	0.048	0.039
Year FE	YES	YES	YES
Local authority FE	YES	YES	YES
Region*year FE	YES	YES	YES
LA type*year FE		YES	YES
Controls			YES
Kleinbergen-Paap F	31.1	17.7	13.2

Results of IV estimation

+1000£ in
grants p.c.
→ HP +29%

	LHV: Ln(house price idx)		
Grants/pop	0.188**	0.295**	0.291*
Year FE	YES	YES	YES
Local authority FE	YES	YES	YES
Region*year FE	YES	YES	YES
LA type*year FE		YES	YES
Controls			YES
Kleinbergen-Paap F	31.1	17.7	13.2

Do physical supply constraints matter? (IV results)

	LHV: Ln(house price index)		
Grants/pop	0.278***	0.339***	0.266*
Altitude range* Grants/pop	0.067***	0.066***	0.053***
Year FE	YES	YES	YES
Local authority FE	YES	YES	YES
Region*year FE	YES	YES	YES
LA type*year FE		YES	YES
Controls			YES
Kleinbergen-Paap F	13.3	8.2	6.5

Altitude range
+1 std. dev.
(+171m) →
impact of grants
on HP +5.3%

Implied capitalization rates

Model:	IV with		
	- region-year FE - LA type-year FE - Controls		
Altitude range	<i>(Base specification)</i>	Low <i>(-1 std. dev.)</i>	High <i>(+1 std. dev.)</i>
Discount rate = 0.05	109%	80%	1.20%
Discount rate = 0.04	87%	64%	0.96%
Discount rate = 0.03	66%	48%	0.72%

~ Full capitalization

Robustness checks

- **Re-estimate but exclude Greater London Area**
 - ▶ “Outlier” in terms of grant increases
 - ▶ Somewhat larger coefficient for grants
- **Re-estimate only with non-metro LAs because for**
 - ▶ For some metro LAs: data for joint boards missing
→ attenuation bias
 - ▶ Somewhat larger coefficient for grants

Conclusions and Policy Implication

1. Grants are roughly **fully capitalized** in constrained places
 2. Indicative that **grants may not be 'wasted'**
 3. BUT also indicative that increase in grants to 'disadvantaged' areas may not help more disadvantaged residents in those areas (renters!) ⇒ **Grants may not achieve equalization aim**
- ⇒ **Do not attempt to redistribute via grants**
- ⇒ **'Help people, not places!'** (...even more important in times of austerity)

Q & A

Thank you!

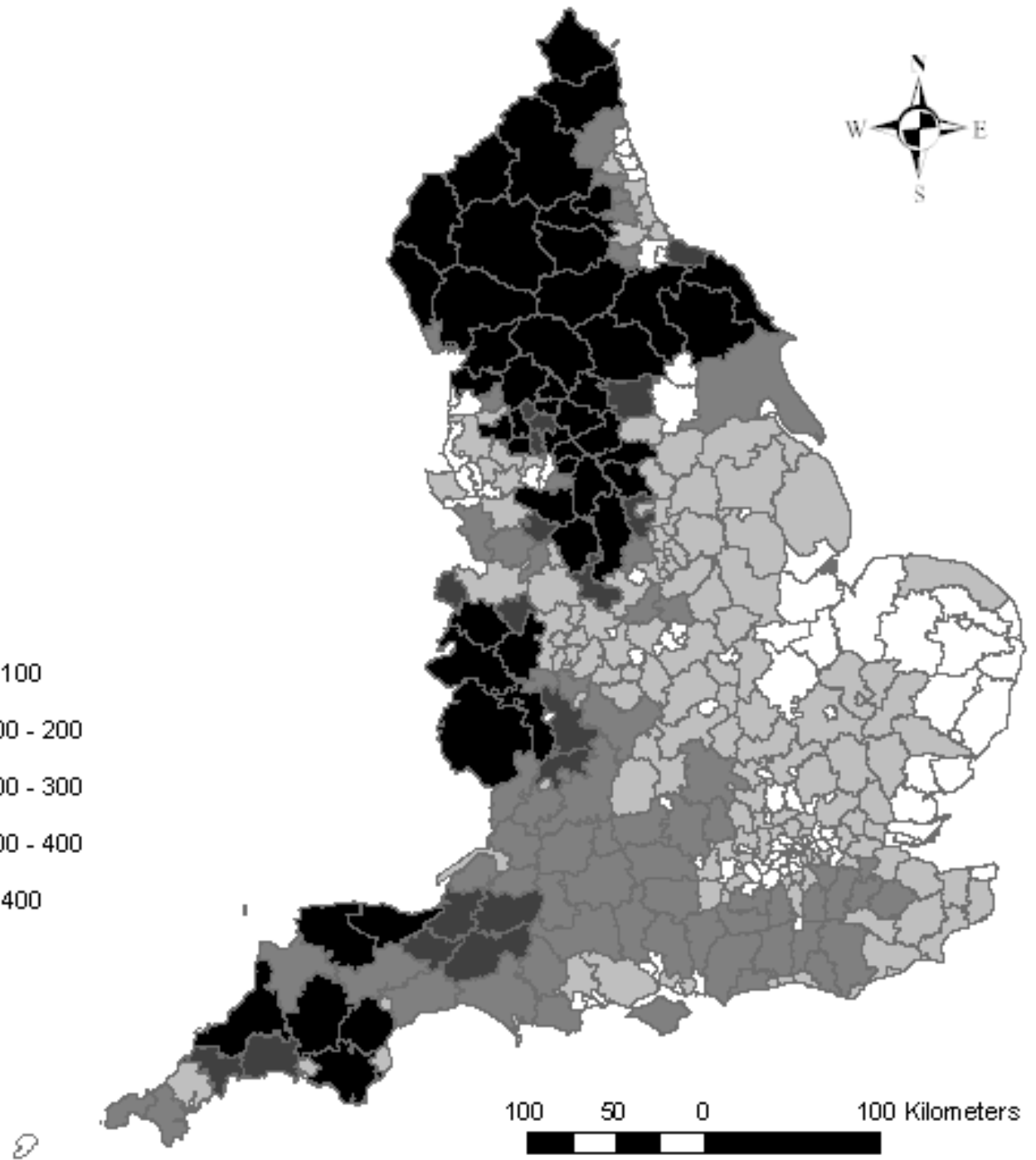
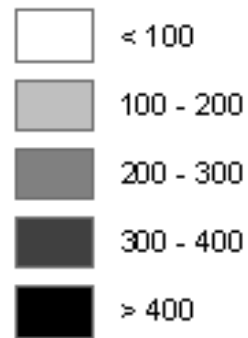
Backup Slides

Rationale for Policy Implication

- **Redistribution via central government grants (or equalization aid from federal governments) is no free lunch**
 - ▶ Grants financed via income tax: deadweight loss!
 - ▶ Redistribution via grants = costly + ineffective
 - ▶ 'Direct redistribution' = also costly but effective
 - ▶ Can achieve Pareto-improvement: redistribute less (i.e., at lower cost) but since effective redistribution, still preferable

Elevation range

Legend: Meters



Basic idea of instrumental variable (IV) approach

- **Find ‘excluded instruments’**
 - ▶ Ideally strongly correlated with endogenous RHVs (here: **grant per capita**), conditional on other covariates
 - ▶ Not correlated to error term (does not directly impact the LHV, here **house prices**)
- **Use exogenous variation from instruments to predict values of the endogenous RHVs, which are subsequently used to identify the causal (and unbiased) effect of these RHVs (**grant p.c.**) on the LHV (**house prices**)**

How to measure supply constraints?

- **Use raster grid data to derive measure of slope related physical constraints: Range in elevation in LA_j**
- **Alternatively use standard deviation of slope**

Greatest beneficiary LAs (2000-2008)

#	<i>Local Authority</i>	<i>Region</i>	<i>Δ Grants</i>
1.	Ealing	London	+93%
2.	Hillingdon	London	+88%
3.	Barnet	London	+88%
4.	Barking and Dagenham	London	+87%
5.	Milton Keynes UA	South East	+86%
6.	Cambridge	East of England	+86%
7.	Sutton	London	+84%
8.	Stevenage	East of England	+84%
9.	Kingston upon Thames	London	+84%
10.	Fenland	East of England	+82%

Bottom end of list (2000-2008)

#	<i>Local Authority</i>	<i>Region</i>	<i>Δ Grants</i>
339.	Hastings	South East	+41.9%
340.	South Hams	South West	+41.7%
341.	Rother	South East	+41.4%
342.	Bedford	East of England	+41.4%
343.	Tunbridge Wells	South East	+41.0%
344.	East Hampshire	South East	+40.7%
345.	Sevenoaks	South East	+38.9%
346.	Swale	South East	+37.8%
347.	Eastleigh	South East	+37.1%
348.	West Somerset	South West	+21.4%

All 10 LAs have low Labour share!