Economics & Land Use Planning in the Greater Golden Horseshoe

Planning Policies for Building Better Cities

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Planning Policies for Building Better Cities: Basic Points

1. Cities are vital: for economic activity; also directly for welfare.
2. They work because of specialisation and agglomeration benefits: economists have not paid enough attention!
3. But cities also have rising costs with size; space costs; pollution; congestion.
4. Because cities are important, so is urban policy.
5. Cities are economic & social constructs: but policy dominated by 'design' & 'engineering' modes of thought.
6. Urban economics has made big steps towards quantifying how cities generate increasing productivity as they grow; now how costs rise with city size; but not fed through to policy.
7. Indeed too much policy **increases** costs of city size; e.g. 'Compact Cities' 'Growth Boundaries';
8. Policy's primary role – reduce costs of city size; plan for growth.

But first: What is a 'city'? Useful for policy

- All tend to think we know….

1. **Political and administrative cities**
   Jurisdictions: Municipalities;
2. **Physical cities**
   Built-up areas

- Need a definition for the modern age:

3. **Functional Cities – Metro Areas**
   Defined on how people **behave** - especially on where jobs are and where people **commute** from:

➢ Cities as **labour markets**: so also **housing market areas:**
   ➢ for transport planning; development decisions

Historically: physical cities and functional cities the same but…

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Major City Regions: Basic Data [*sources:* OECD; Demographia; GlobalPropertyGuide]

Source	OECD Metro Area Data				Demographia/ Globalpropertyguide		
	Population		GDP pc US$2010		Housing Affordability		
	2014 Mn.	10 year Change	2013	9 year Change	2014 Median	9-yr Change%	Top end m2 London=100 2016
Toronto	6.947	18.7%	39681	-6.06%	6.53	49.64	16.06
Vancouver	2.480	17.5%	38363	-1.95%	10.61	60.78	…
Ottawa-Gat.	1.478	16.2%	38459	-4.72%	3.66	18.43	…
Atlanta	4.762	20.3%	56526	-13.60%	2.95	4.90	…
San Fran'sco	6.989	4.7%	83077	10.48%	9.17	-0.95	***[NY 53.57]***
Auckland	1.416	0.4%	…	…	8.16	23.09	20.51
Berlin	4.400	1.1%	37589	15.95%	…	…	15.95
London	12.401	11.6%	53692	2.85%	8.46	22.78	100
Brussel	2.588	10.5%	52272	-2.66%	…	…	11.82

Why do cities work?

Above all cities are about specialisation…

Cities founded on ***specialisation*** –

- peasants/farmers ↔ urban occupations

  Commerce, artisans, administration, cultural/religion, defence/military

➢ These are really still the fundamental urban occupations

- Cities 'discovered' in the Middle East (14,000 years ago);
- And independently in other cultures at various times
  - Pre-Colombian Americas
  - In northern China more than twenty 50,000+ cities by 221 BC
- Can reasonably argue invention of cities was catalyst for invention of the wheel…

The Basis of Cities - Agglomeration economies

- Important for **production**
- Firms use each other and learn from each other:
  - proximity improves contacts

Conventional story told by Alfred Marshall in 19th Century: textile firms used common knowledge of technology & markets: specialised finance, labour pooling; supply of skills

And - ***'knowledge in the air'***

Agglomeration economies a form of 'externality' - producers benefit from being 'close' to other complementary firms: labour pools; subcontractors; specialised inputs e.g. finance; networks; infrastructure; knowledge sharing....

Recently rediscovered as 'clusters'.

Agglomeration economies for *Services...*

- Traditionally thought of for manufacturing: but

- **More important for intellectual activities** – e.g. Cultural industries, media, business & financial services, R&D;

- London's **media industry**: theatre, actors' agencies, film, TV, graphics, music, digital effects, intellectual property law, etc;
- Cheap memory devices to £100 000 rough 'film' in 2 hours – minimise time to revenue generation; => inputs to hand

- **Financial services** – instantly act on information;
- Interact with legal services, media: shared infrastructure (e.g. super high capacity internet; access to transport nodes – for skilled workers)
- Generates localised agglomeration economies (within radius of 600m; vertical within buildings)

Not just agglomeration economies in production

- "...great achievements of the bourgeoisie ... rescued the mass of the people from the idiocy of rural life" (Marx & Engels, 1848)

Cities as generators of welfare: variety, choice, competition, interactions, **FUN**…(Glaeser – *City as consumption machine*)

- In cities not just more face-to-face communication: more communication of ALL types – learning & using each other.

➢ Agglomeration economies powerful in concentrating activity

Also important in generating welfare:

- Range, variety and quality of all forms of culture (Premier League Football, theatre, music, etc) require market/audience;
- Variety and choice of neighbourhoods/neighbours

➢ Consumption and production aspects of agglomeration **interact** => to attract people & firms

But there are also **costs** of city size

- If you are close enough to learn from someone
- ➢ Then can give them a contagious disease; pick their pocket:
  =>crime benefits from agglomeration economies too
- Most obviously - **costs of space** systematically increase with city size – price paid for accessibility/agglomeration benefits;
- **Pollution** increases with city size
- **Congestion** increases with city size: congestion costs are a problem of failed incentives: in making choices react only to own costs: do not consider costs journeys impose on others
- But there are technical solutions to many problems:
- For example - public health revolution of late 19th C.
  - Clean air - smokeless zones, low emission cars;
  - Congestion - mass transit, congestion charging
  - Even supply of urban space....

'Net' agglomeration economies?

Chart 7.2. *Gross benefits of aggregation*

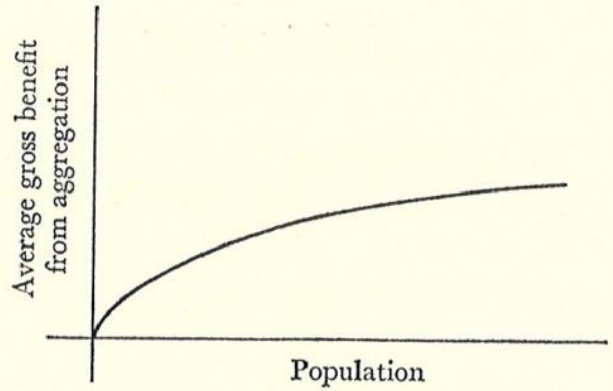
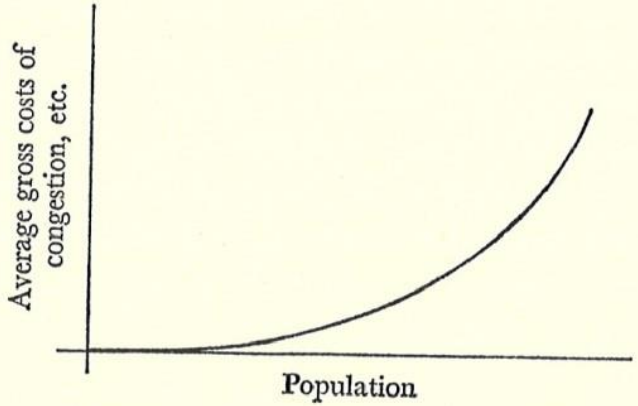


Chart 7.3. *Gross costs of aggregation*

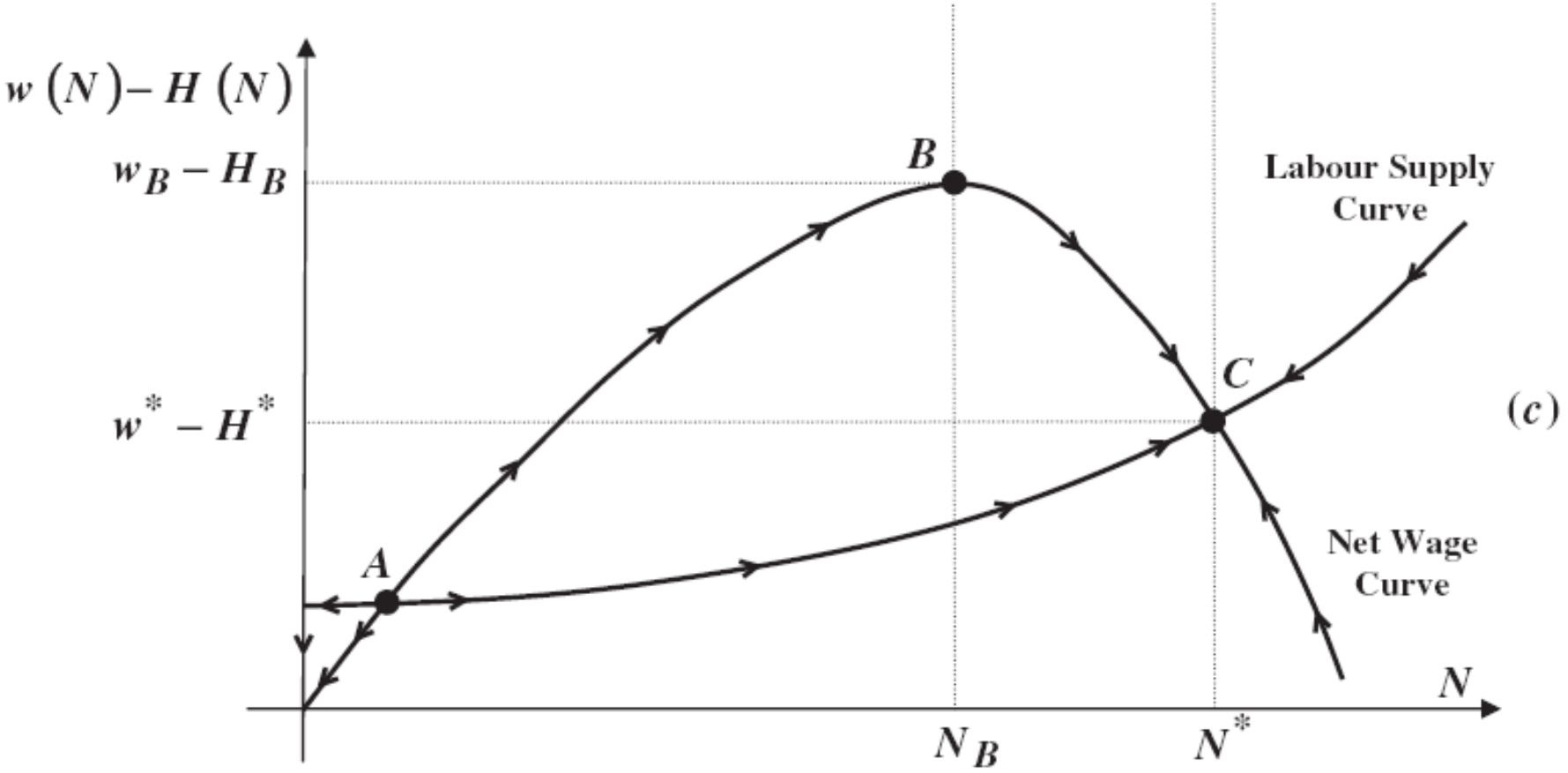


Historically drawn ***intuitively plausible*** graphs:

e.g.

A.J.Brown (1973) *Framework of Regional Economics*, CUP

Even Maybe Tendency for Cities to Get Too Big…



Combes *et al* (2005) *Papers in Regional Science*

Recent Research giving us Quantitative Estimates

- **Productivity – agglomeration economies**
  - Double size of city and productivity increases by 3 to 6%:
  - Seems even more important in less developed countries e.g. India 10 to 20%:
  - Columbia (Duranton, 2016): workers are more skilled/ educated in larger cities;
  - Including the effects of more skilled labour, on average double city size => 11% wages

  - **Excluding effects of more skilled labour**,
    - double city size => productivity (wages) increase 5.4%;
- Going from small town of 10 000 to Bogota with 8m - increases wages – everything else equal – by more than 40%

And Recent Research Shows Gains are 'Portable'

➢ Productivity – agglomeration economies

- Latest research suggests agglomeration economies 'portable' (de la Roca & Puga, 2016);
- Tracking people migrating from smaller to larger towns shows they gain productivity over time; and if return to smaller town 'take' some increased productivity with them
- Double city size => Total Factor Productivity + 5%:
- **So just going from say size of Winnipeg to Toronto =>**
  - ***TFP all else equal* + 15%**
- **And vary by sector:**
- Agglomeration economies vary by sector: 3 times as big in Services as Manufacturing => urban resurgence; biggest in business & financial services; public admin. (Graham, 2009: UK estimate)
- Not yet serious quantification of agglomeration benefits in **consumption**

Now Quantitative Estimates of *Costs* of Size

Costs of size?

- Research very recent and not yet replicated:
- Combes, Duranton & Gobillon (2012)
  - All 302 French cities of more than 200,000
  - Rigorous theoretically based methodology
- Conclude **IF**:
  1. Land supply **fixed** - costs rise with size at same rate as productivity **but:-**
  2. Land supply **elastic** - costs rise with size at only 2/5 the rate at which productivity rises;
- Consistent with Cheshire & Magrini (2009) – all else equal - economic growth faster the bigger the city but – for given size – the denser the city, the slower it grew:

➢ So – still ignoring consumption benefits – bigger cities generate more output and welfare **IF** we give them space.

So – what are we told to do? Contain them!

Urban containment/densification orthodoxy

- UNHabitat; OECD; New Urbanism…
- Will illustrate effects with Britain:
- …I come from there… but a very useful case:
  - **First** to set strong urban growth boundaries –
    - '**Green Belts**' – areas around major cities – 1955
    - Function - **not** environmental: just to prevent building or development ('*stop settlements merging*')
    - 'Exported' its system to Commonwealth

➢ Effects of containment **cumulative over time** – new construction is a small part of supply; so can see future by looking at Britain

➢ UK reaping the results in form of house prices –

➢ And spread around world e.g. Toronto, Vancouver, Canada; Mumbai, India; Auckland, New Zealand…

What Green Belt containment looks like…Cambridge

MYTH 1: ***Concreting over England***

REALITY: Greenbelts cover about 1.4 as much land as all urban areas; all urban less than 10%;

MYTH 2*: Greenbelt land environmentally valuable*

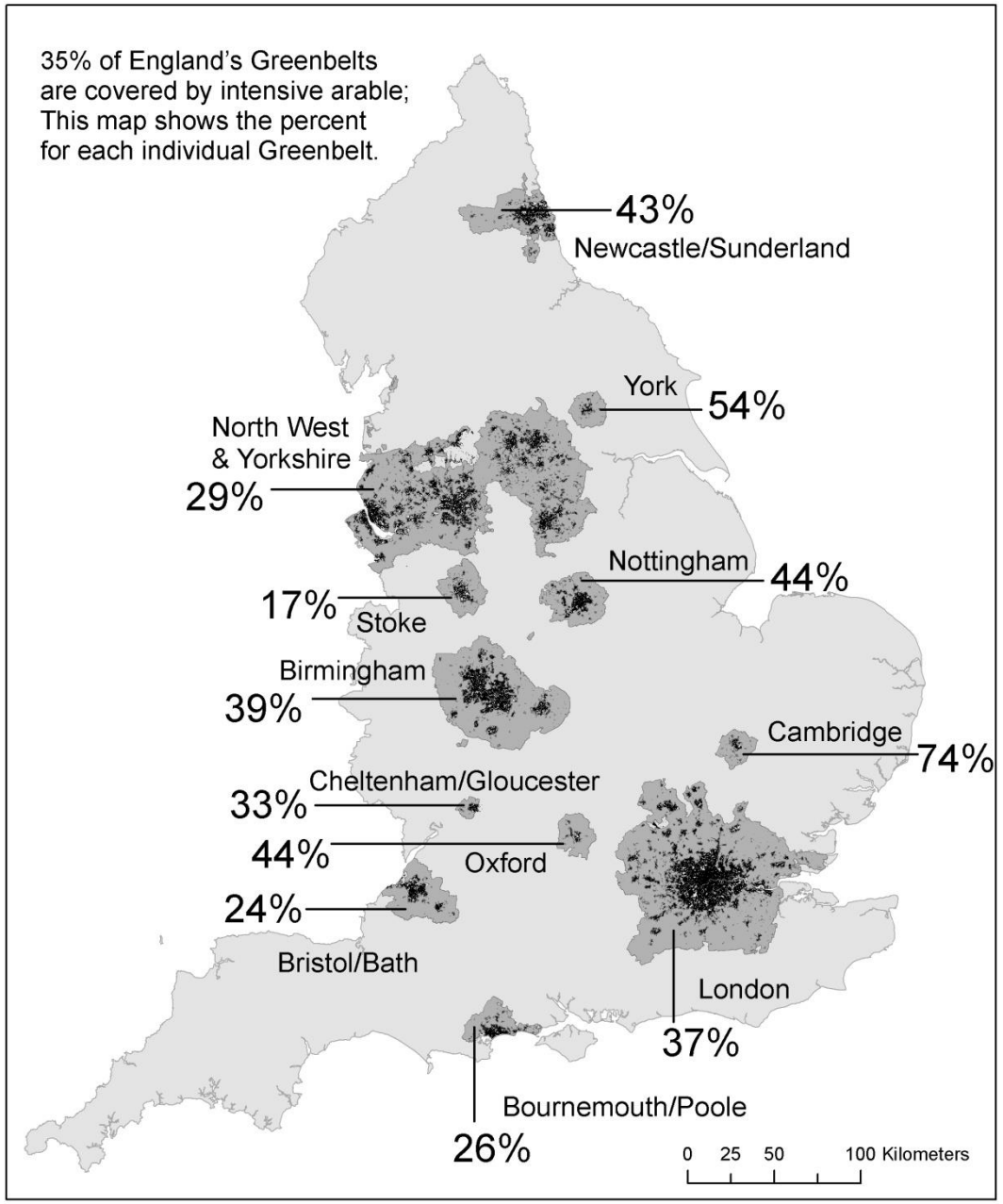
REALITY: biggest use - intensive arable e.g. Cambridge 74%;

MYTH 3*: intensive farmland is 'Green'*

REALITY: No access & NET environmental cost per ha - compare parks & gardens!

[*Nat. Ecosystem Evaluation, 2011*]

Intensive Arable Land in English Greenbelts: percent



This map was prepared by Sevrin Waights. Calculations are based on Land Cover Map 2000. Intensive arable land was defined as use categories 4.1, 4.2 and 4.3 and so is a conservative estimate of 'intesively farmed agricultural land'.

Causes of the Crisis of Housing Affordability - Population?

- We all know that?
  - Take London - GLA Area

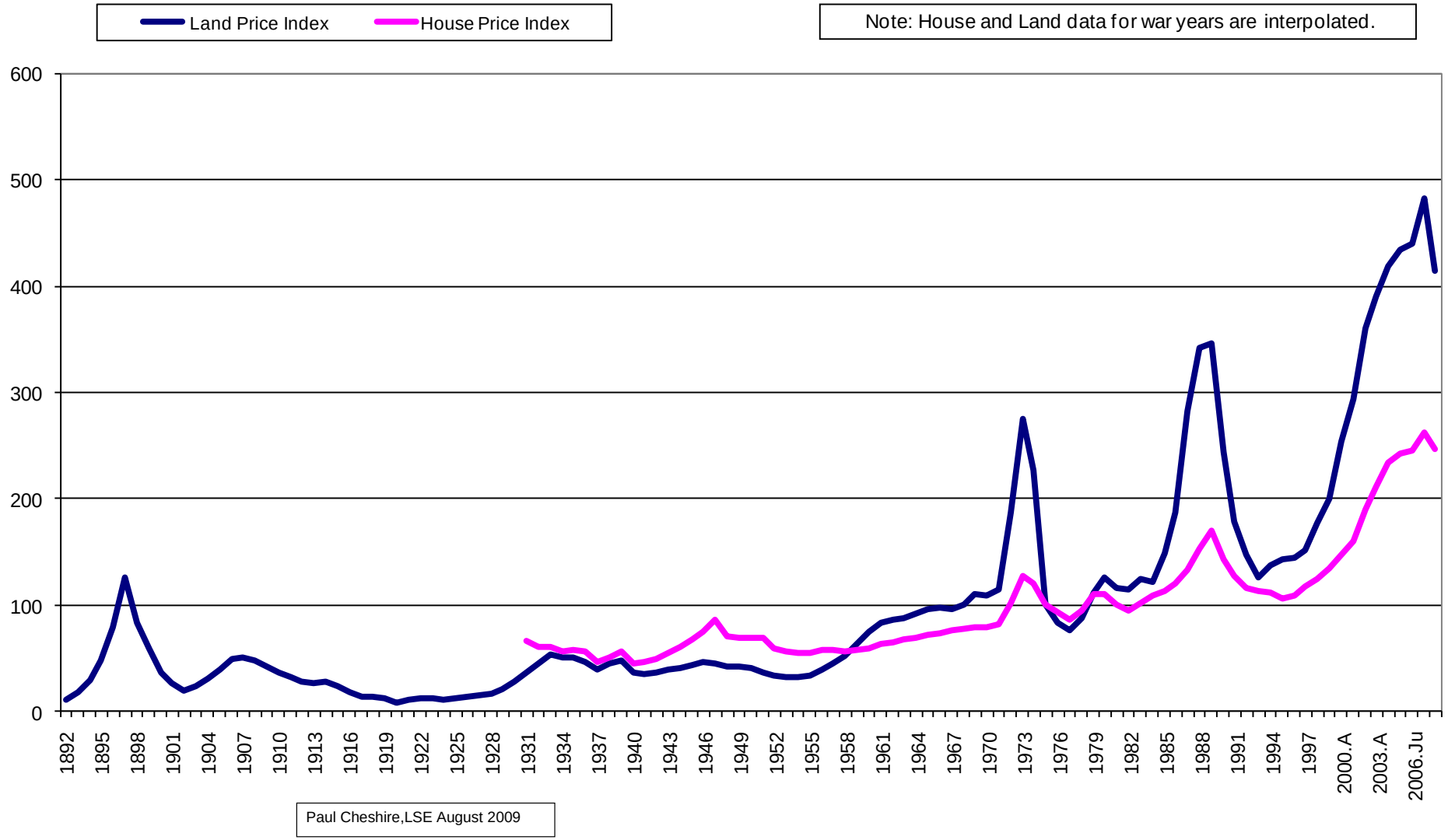
Period	% Change Pop	%Change Real House Prices
1981-2011	+20.5	227.6
1951-1981	-16.9	71.9
1951-2011	+0.1	+463.2

- No we do not! Price results from interaction of **supply** with **demand**;
- Population has some impact on demand: but far more important influence is real incomes; also preferences – role of cars

So what is the effect of restricting the supply of space?

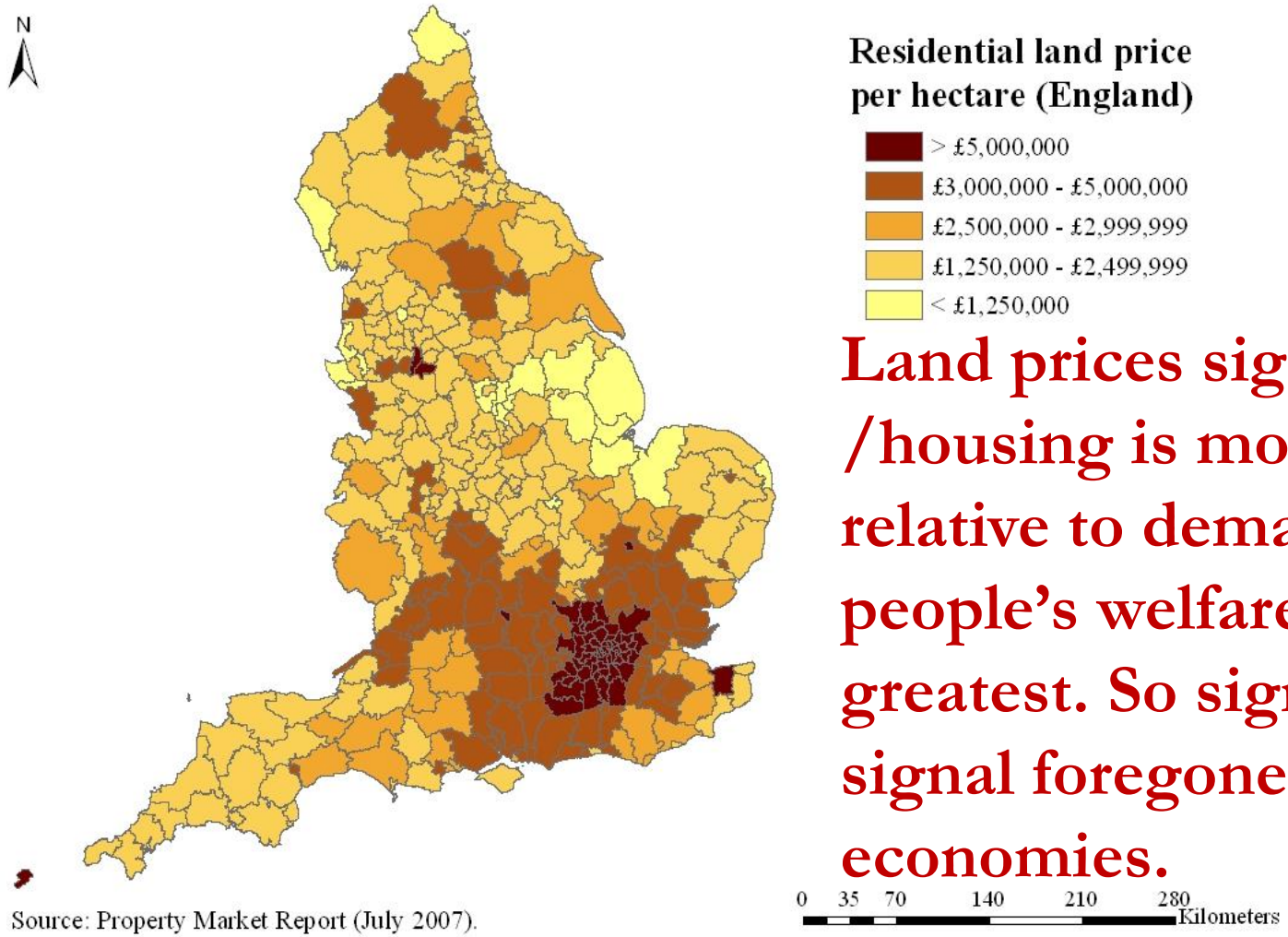
- **Space is valued:** a strong 'income elasticity of demand':
  - Cheshire & Sheppard (1998) – about 2
  - Meen (2013) about 2.7 > than price elasticity of demand
  - [OBR 2014 – about 3];
- Green Belts have restricted the supply of space for housing since 1955. Their **only** function is to prevent development: **NOT** recreational space: private land.
  - Since then world transformed: e.g. in Britain
  - Real incomes up x 3
  - Car ownership up x 13
- So restricting supply of developable space increases the price of land; and housing; [and increases price volatility.]

Real Land & House Price Indices (1975 = 100)



Price people out of where they want to live & be more productive

- Can identify Green Belts by price of land….



Source: Property Market Report (July 2007).

Land prices signal where land /housing is most restricted relative to demand; and where people's welfare/productivity greatest. So significantly signal foregone agglomeration economies.

And House Price Differentials Impede Mobility

- **Agglomeration economies lost….**
- **Tighter regulatory restriction in more productive cities raises house prices in them.**
  - People move to where wages are higher – where they are more productive;
  - But not just wages – they take account of buying power of wages – so house prices.
- If policy constrains housing supply in more productive cities – reduces flow of people moving to more productive locations.

- Hsieh & Moretti (2015) estimate for USA 1964-2009:
- If US cities with most regulated housing supply had been as the median regulated city =>
- US GDP would have been 13.5% higher in real terms.

Planning and Prices - I

- **Plan on the basis of price signals**:
- **But do not slavishly obey them:** land and property markets have endemic problems of 'market failure'
  - **Monopoly** – not most obvious but 'hold-out' sellers; or created by restrictive land supply policy;
  - **Externalities** – value of all parcels depend on uses of 'neighbouring' parcels – often external effects not reflected in prices; so separate or combine uses;
  - **Public goods** – esp. those provided by land such as open space, habitat, historic townscape; & public land for (future) strategic open space or transport.

➢ **But prices rich source of information**; reveal where development most productive; contributes most to welfare.

Planning and Prices - 2

- So if prices indicate - permit development unless the value to society of land in current use **justifies** price premium;
  - Not just a question of numbers of 'units': houses complex goods – many characteristics – each contributing to welfare.
  - Never forget: demand for space is driven more by **income** and preferences: less by population growth;
  - People as they get richer want larger, detached homes; closer to better amenities and better quality of life.
  - If system restricts - then:
  - a) Redistributes to those that have them – the rich; &
  - b) Reduces welfare.

Planning and Prices - 3

- For example: Birmingham's destructive folly of planning for an 'urban renaissance'
- Lord Rogers: *Towards an Urban Renaissance* (1999) -
- Strengthened 'Brownfield' policy – 60%; 'intensify use of existing stock'; relax density standards and separation:
- Minister - '*English must live in homes built as densely as their Georgian and Victorian predecessors….*' – Do as I say: not as I do!
- Birmingham took up densification & 'renaissance' in earnest.
- Focused on forcing new housing units to higher rise apartments in centre: difficult to sell;
- Restrict even more tightly larger greener plots in suburbs;
- When challenged – "*developers would only cherry pick such sites*". That is - build houses people want where they want them!
- Serious relative decline of Birmingham – now addressing

Implications of Recent Research for Urban Policies?

- **Reduce costs of city size:**
  1. Facilitate & plan for urban growth;
  2. Reduce costs of space;
  3. Tackle pollution;
  4. Reduce congestion;
  5. Reduce crime.

- All have an element of - or mainly result from – 'market failure' because reflect externalities/public goods;
- All essentially 'fixable' – and some cities gone a long way towards fixing; but others not;
- Prerequisite for fixing? transparent, efficient **government; understanding of how markets work & fail**
  - But policy too often either effectively fails to address or – worse – actively increases some costs: especially **space.**

Facilitate Larger Cities & Plan for growth

- **Reduce costs of city growth and size:**
- Land markets have endemic problems of 'market failure' – so regulate and plan;
  - But plan for growth; plan to reduce costs of space so supply as prices and preferences indicate unless issues of market failure.
- Need **clear plan** for growth – not 5 or 10 years ahead: but without time limit;
- Including protecting land for city growth (about 35%)–
  - For transport arteries and open space: forestall leapfrogging settlement – can damage public goods amenities and increase commuting cost/carbon footprint; leaping across Green Belts.
- But respond to market signals…

Conclusions for Policy

- Reduce **congestion**
  - transport infrastructure investment should follow congestion – not attempt to 'transform';
  - Co-ordinate development with infrastructure provision; use of *Impact Fees* or *Development Levies*
  - Research evidence shows cannot solve congestion just by building more roads;
- **Price congestion** – politically difficult but….
  - Economists been recommending since 1964!
  - Still no true application – pricing journeys on basis of traffic flows: only toll 'zones';
- Pricing means drivers take account of costs of congestion their journeys inflict on others;
  - Uses scarce infrastructure more efficiently.

Conclusions for Policy

- **Reduce urban pollution and improve urban air quality**
  - Particulates and NO2 – problems – regulate and price;
  - Encourage/facilitate greener transport
  - But recent evidence agricultural pollution responsible for much urban air quality problems (Nature 2015);
- **Reduce crime.** Agglomeration economies in crime but crime costs.
- **Government** [co-ordination] for **Metro Areas**:
- Many of these policies most efficiently implemented at the Metro Area level (not municipalities) because of 'spillovers'
  - strategic planning; transportation; economic development; pollution control.
- Evidence 'Balkanise' government structure a handicap: and Metro Area government increases growth and productivity

Conclusion

- Allow cities to get bigger but don't force them to - an 'urban system' - cities of all sizes;
- Supply space for all urban land uses responding to prices: not just numbers of houses but types and locations vital; and commercial space.

- But building better cities means successfully building bigger cities;
- And cities are **better** by being **bigger**.

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CrossRail: £18bn but no houses allowed!

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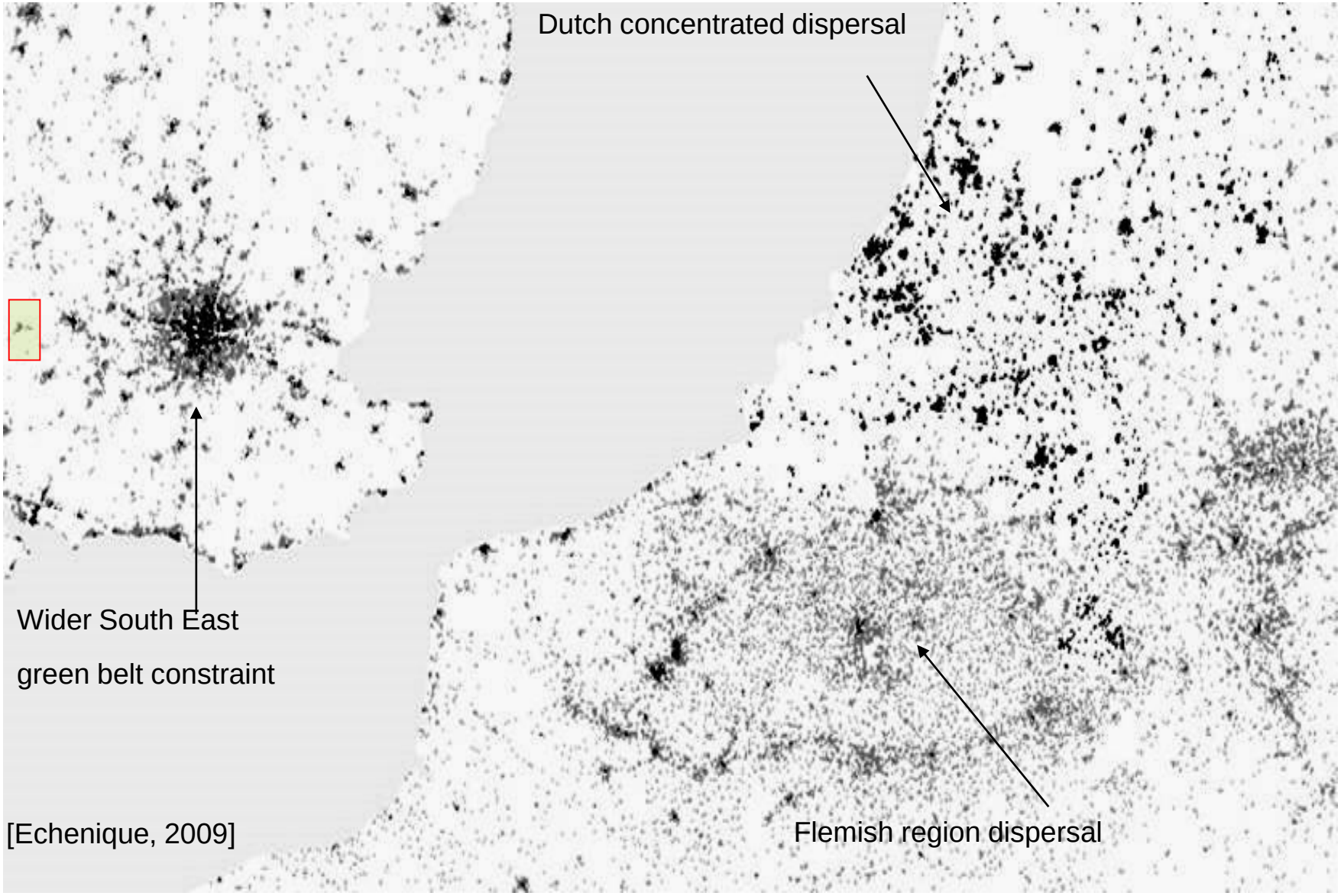
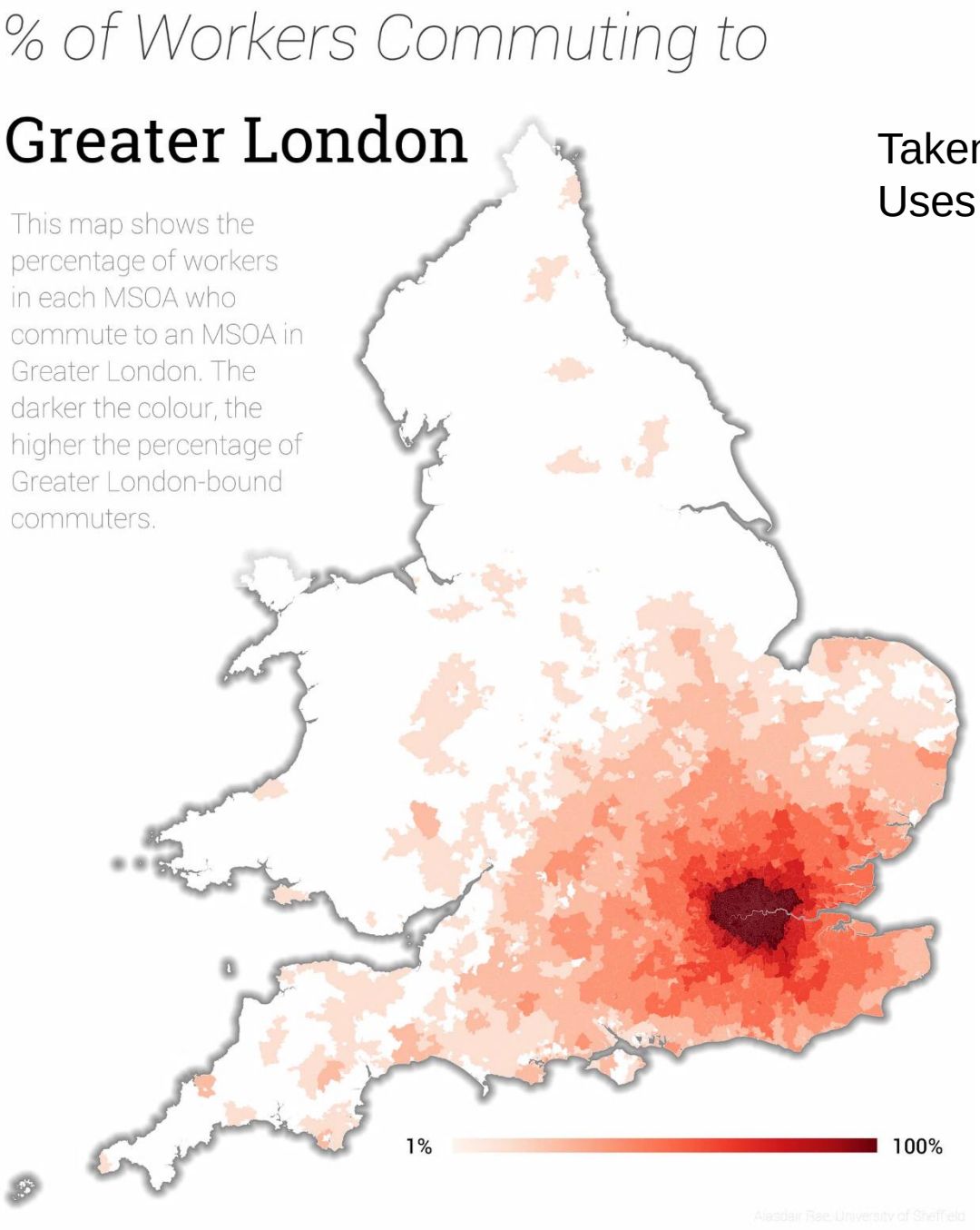
International policy differences & patterns of settlement



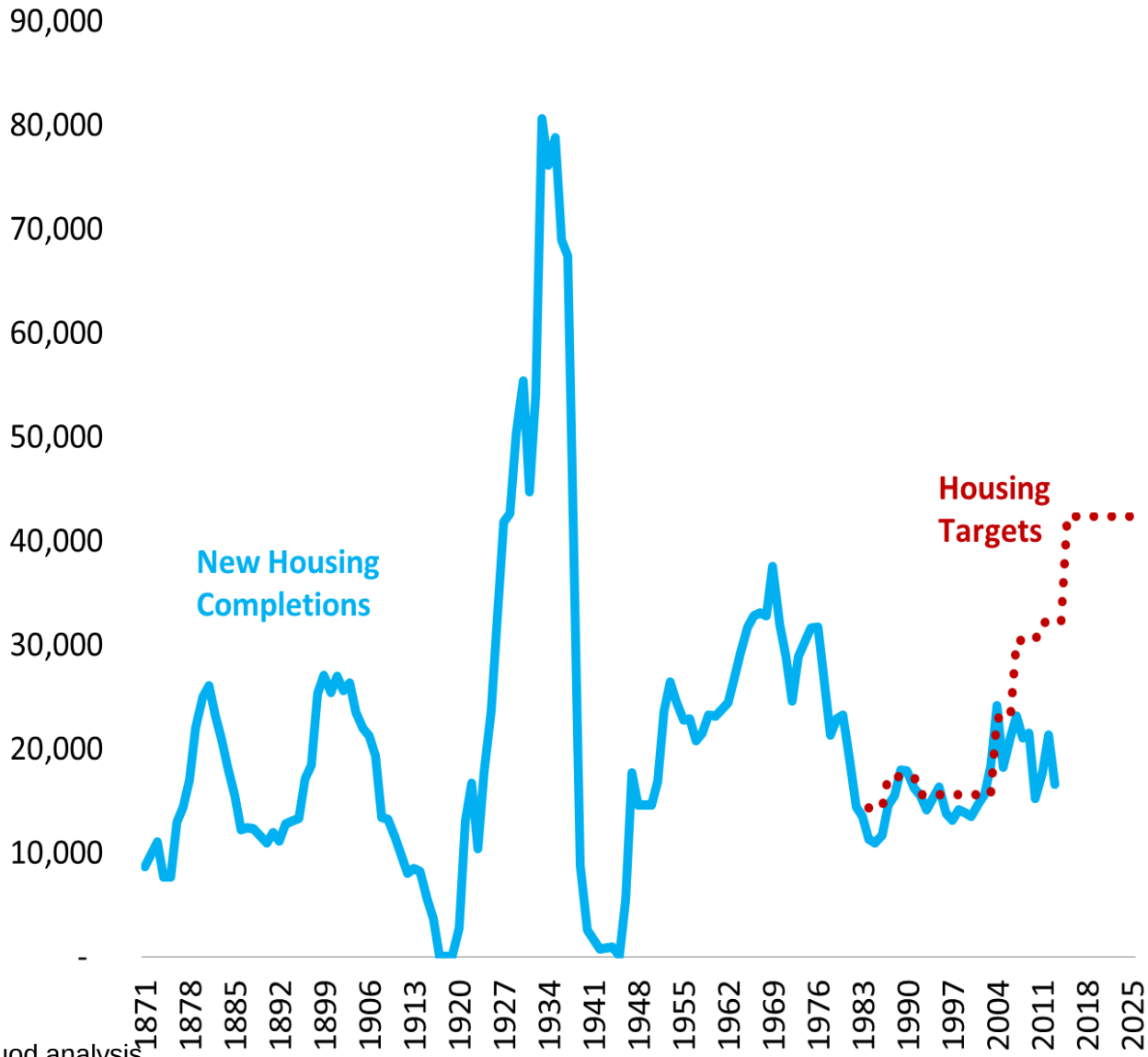
[Echenique, 2009]



Taken from Alasdair Rae, 2016
Uses 2011 Census data

And just stop building

London house building and housing targets 1871 to 2015 (constant GLA Boundaries)



Source: GLA, DCLG and Quod analysis

Micro-based forecasting Model

- Evidence from model constructed for DETR/ODPM in 1997-99
- 'Microsimulation' model built from observations of individual households + houses; calibrated on 3 housing markets; grossed up to largest 56 urban regions (≈housing markets)
- Interregional migration + induced household formation
- Demand driven by household numbers & incomes
- Static equilibrium - so long term only
- Aim was to estimate effect on house prices not of housing numbers but of land supply
  - Assuming announced planning policy – 60% Brownfield – *Urban Task Force*
  - Household numbers increase at then predicted rate
  - Real incomes grow at historic trend rate
- Increase in real price of quality constant houses 1996-2016 132%;
- **But IF only** household numbers increased, price rise = 4.4%