Spatial Inequality
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Is All Economics Local?

“All politics is local.”
Tip O’Neill
(Former Speaker of US House of Representatives)

“Many of the economic and political concerns today across the world can be traced to the diminution of the community.”
Raghu Rajan
(Former Governor of Reserve Bank of India)

“We are going to level-up and unite our country”
Boris Johnson
(UK Prime Minister)
Plan

• *Mapping* the economy – is all economics ‘local’?

• Structural fault lines – the “Big Six”

• *Modelling* the economy – micro-to-macro

• *Managing* the economy – a “complex needs” case
Mapping the UK Economy

• What do we mean by “doing well/badly”?

• Several different metrics – wealth, health and happiness

• At different resolutions – regional, local authority, postcode

• Scaling by “economic” size – cartograms

➢ Complex, local adaptive system
Population Cartograms
Regional Income Inequality

UK income per head

Sources: Eurostat and Bank calculations.
Notes: Purchasing power standard (PPS) per inhabitant for NUTS 1 regions.
Income Inequality Compared – within the UK

Distribution of income

Productivity across regions

Sources: ONS and Bank calculations
Income Inequality Compared – between countries

Distribution of income

Productivity across countries

Sources: ONS and Bank calculations
Health v Happiness

Cartogram of UK life expectancy

Cartogram of UK well-being

Sources: ONS and Bank calculations
## Economic and Social Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Productivity</th>
<th>Disposable income</th>
<th>Education</th>
<th>Broadband access</th>
<th>Life expectancy</th>
<th>Employment</th>
<th>Voter turnout</th>
<th>Homicide rate</th>
<th>Life satisfaction</th>
<th>Perceived network</th>
<th>Rooms per person</th>
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A Taxonomy of the UK Regions
Health in Cities

Bad/Very Bad Health (per cent)

- 0–4%
- 4–6%
- 6–8%
- >8%

Belfast

Cardiff

Edinburgh

Inner London

BANK OF ENGLAND
Health in Cities

This **constituency** is ranked 178 out of 533 on the 2015 Indices of Deprivation (where 1 is most deprived).

Source: Indices of Deprivation, 2015 (MHCLG)
Inequality Within Regions

‘Violin’ plot of wages
Inequality **Within** Regions

‘Violin’ plot of health (life expectancy)
The “Big Six”

➢ “Complex needs” case

➢ Data but also “lived experience”

➢ “The Big Six”
  o Transport and Connectivity
  o Schools and Education
  o Shopping and Social Places
  o Jobs and Skills
  o Money and Finance
  o Housing and Shelter
Commuting Times and Distances
Commuting Cartogram
Transport and Connectivity

City size and income
Jobs and Skills

Regional skills (share of population with undergraduate degree or equivalent)
Jobs and Skills

Jobs at risk from automation

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<th>Region</th>
<th>Proportion of jobs at high risk</th>
<th>Proportion of jobs at low/medium risk</th>
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<td>West Midlands</td>
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<td>Yorkshire and the Humber</td>
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Jobs and Skills

Productivity by region

- Productivity gap (% relative to UK mean)

- Industry composition
- Productivity within industries
Jobs and Skills

Economic Complexity Index
Shopping and Social Places

“Left behind” areas within the North East
Modelling the Economy

- Highly-aggregated (“representative agents”) models – RANK
- Less-aggregated (“heterogeneous agent”) models – HANK
- Highly-disaggregated (“agent-based”) models – ABM
- Why not have economic models at multiple levels of resolution?
- Particularly useful for addressing regional/spatial issues
Modelling Other Complex Adaptive Systems

- Modelling companies – “digital twins”
- Modelling cities – SimCity
- Modelling weather – micro-to-macro
- Modelling atoms, oceans, information, planets, galaxies etc
- New high-frequency data coming on stream
- 21st century, high resolution Phillips machine?
Micro-to-Macro

City Systems

Weather Systems
21st Century Philips Machine
Managing the Economy

• Better mapping/modelling at a local level?

• How to define “optimal policy areas”?

• How to create regional agencies which optimise role of local institutions?

• What are the natural limits to “levelling-up”?

• Role of local versus national strategies?

• What is the role of policy experiments?