Using Census data for comparing trends in 74 British City Regions

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The paper uses Office for National Statistics data; Census outputs are Crown copyright
Context for and content of this paper

Context: policy interest in phenomenon of urban shrinkage / unequal growth

Decline in cities like Detroit is absolute: here it is relative to national growth

The study had a broad view of poverty-related decline in cities... broad in its...

* definition of cities = labour market areas (small versions of city regions)
* timespan analysed = long-term trends including some data from pre-WW2
* definition of decline = not simply total population (and a focus on poverty)

Inevitably there are compromises in addressing this challenge:

- data for several decades → variable definitions change
- analyse non-standard areas → less data for ‘building blocks’

! one particular problem was that Census migration data covers 12 months, but the study is into trends over medium/long-term: migration varies year-on-year and so ‘grossing up’ is not feasible, so migration data used here is non-Census

?? how important is the availability of Census datasets in their familiar form?
74 Cities across the UK: “PUA+s”

CURDS’ original definitions of PUAs:
1 built-up area population >125,000
2 the largest settlement in its TTWA
   \(\text{[TTWAs defined by flow data]}\)
3 also identify the (group of) TTWA(s) that cover (most of) that built-up area
4 ‘best-fit’ these to the (group of) LA(s) for data access and consistency

For this research a set of “PUA+s” were defined by lowering the urban population threshold to 100,000
$$\leq$$ 74 PUA+s (c.70% UK population)

!definitions can ONLY use data from Census

This map shows PUA+s classified by:
- urban population size (symbol)
- broad region (colour)
Longer-term population trends

Absolute population decline has been seen in numerous cities in Europe/USA but UK PUA+ absolute population loss (like the mid C20 decline in Glasgow & Liverpool) was rare by late C20, and all but ended with recent net international in-migration to most of the UK however

Relative Population Decline = city’s share of total UK urban population falls

Cities in red on the map had seen relative population decline 1981-2011 and similarly declined through much of the C20

longer-term relative population change analysis can use Census and also annual population estimate datasets

Longer-term population decline is one element of a poverty-related definition of city decline
Any single indicator misses some aspects of city decline: city decline stems from many mutually reinforcing trends

Index of Relative Decline

- devised to collate a range of indicators of decline trends related to poverty risk
- followed review of academic and policy literature plus analyses of Censuses etc
- 7 measures of change in the index drew on diverse types of data:

<table>
<thead>
<tr>
<th>topic</th>
<th>period</th>
<th>data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>employment rate</td>
<td>2001-2011</td>
<td>Population Censuses</td>
</tr>
<tr>
<td>full-time-equivalent jobs</td>
<td>1998-2008</td>
<td>Annual Business Enquiry</td>
</tr>
<tr>
<td>full-time-equivalent jobs</td>
<td>2009-2012</td>
<td>Business Register &amp; Employment Survey</td>
</tr>
<tr>
<td>total population</td>
<td>2001-2011</td>
<td>Population Censuses</td>
</tr>
<tr>
<td>population size rank position</td>
<td>1901-2001</td>
<td>Population Censuses</td>
</tr>
<tr>
<td>estimated net in-migration of those aged 15-19 at the start</td>
<td>2001-2011</td>
<td>Mid Year Estimates</td>
</tr>
<tr>
<td>of the decade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>share of those aged 16-64 who have a degree and/or higher</td>
<td>2001-2011</td>
<td>Population Censuses</td>
</tr>
<tr>
<td>qualification</td>
<td></td>
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</tbody>
</table>
Results of the Index

SQUARES: highest scores on the Index of relative decline

CIRCLES: next highest scores

DIAMONDS: Medium/low scores on the Index…

ALL southern cities are in this group
Modelling the results of the Index

Drawing on past work (eg. by OECD & EU)
c.20 potential independent variables were assessed for inter-correlation, from which 11 variables were input to the modelling:

<table>
<thead>
<tr>
<th>data sources for independent variables</th>
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</thead>
<tbody>
<tr>
<td>Population Census 1931</td>
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<tr>
<td>Population Censuses 1991 &amp; 2001 (stocks &amp; flows)</td>
</tr>
<tr>
<td>Mid Year Estimates</td>
</tr>
<tr>
<td>Business Register &amp; Employment Survey</td>
</tr>
<tr>
<td>VAT Registrations / Population Census</td>
</tr>
<tr>
<td>Census of Distribution (long discontinued) / Population Census 1951</td>
</tr>
<tr>
<td>Gross Value Added (Income Approach)</td>
</tr>
<tr>
<td>BR Timetable (Sheffield University data in the State of the Cities database: now discontinued)</td>
</tr>
</tbody>
</table>
Modelling the results of the Index

A simple regression model tested the influence of a range of factors familiar from spatial economics on the pattern of city score on the Index.

The risk of recent relative decline was lower for cities with:

• a more highly qualified people among its working age group
• no larger city nearby attracting away much service trade
• faster rail access to London (to represent accessibility generally)
• little history of dependence for work on mining/manufacturing

Variables rejected by the models:

- higher urban size (‘agglomeration’)
- higher levels of productivity
- higher levels of entrepreneurship
- lower dependence on public sector
- higher 1990s net in-migration
- higher 1980s employment rates
- higher level of out-commuting (‘connectivity’)

…and also in some models…
Census datasets **vital** for this type of analysis

The analyses had requirements which are frequently essential in such a study:

* **definition of cities** = labour market areas: *ONLY* definable with data from Census
* **timespan analysed** = long-term trends critical: *ONLY* Census data allows these
* **definition of decline** = not simply population BUT some key factors linked to poverty
  * ONLY accessible for smaller areas with data from Census

ALSO Census data permits micro-scale analyses of place-based effects of city decline through the availability of linked individual records in the Longitudinal Study.

Census datasets are vital for future policy analyses like the study described here; NONE of the proposed Census alternatives provides the commuting data which is not only essential in defining the areas to analyse, it also is indicative* in itself

* 1921 Census commuting data shows strong net flows Leeds → Bradford and also Preston → Blackburn but nearly a century of unequal growth reversed the relationship, with flows to regional service centres Leeds and Preston from their over-shadowed neighbouring cities in 2011 roughly twice as high as flows in the opposite direction