

# Using flow and stock data from Censuses to compare trends in British city regions

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Census  
Applications  
Conference  
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# Investigating possible city ‘decline’ in the UK

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

- \* city definitions = labour market areas (small versions of city regions)
- \* timespan analysed = long-term trends leads to some data from pre-WW2
- \* decline definition = not solely total population (in fact focus on poverty)

This broad view of decline required Census data to be linked to other datasets

Inevitably there are compromises in addressing this challenge:

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

...these are issues for all potentially relevant datasets (but with the Census there is little adjustment of past data to be comparable with current data)

***BUT PERHAPS ESPECIALLY*** for the flow datasets – commuting and migration – which were available from the Census...

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

# 74 Cities across the UK

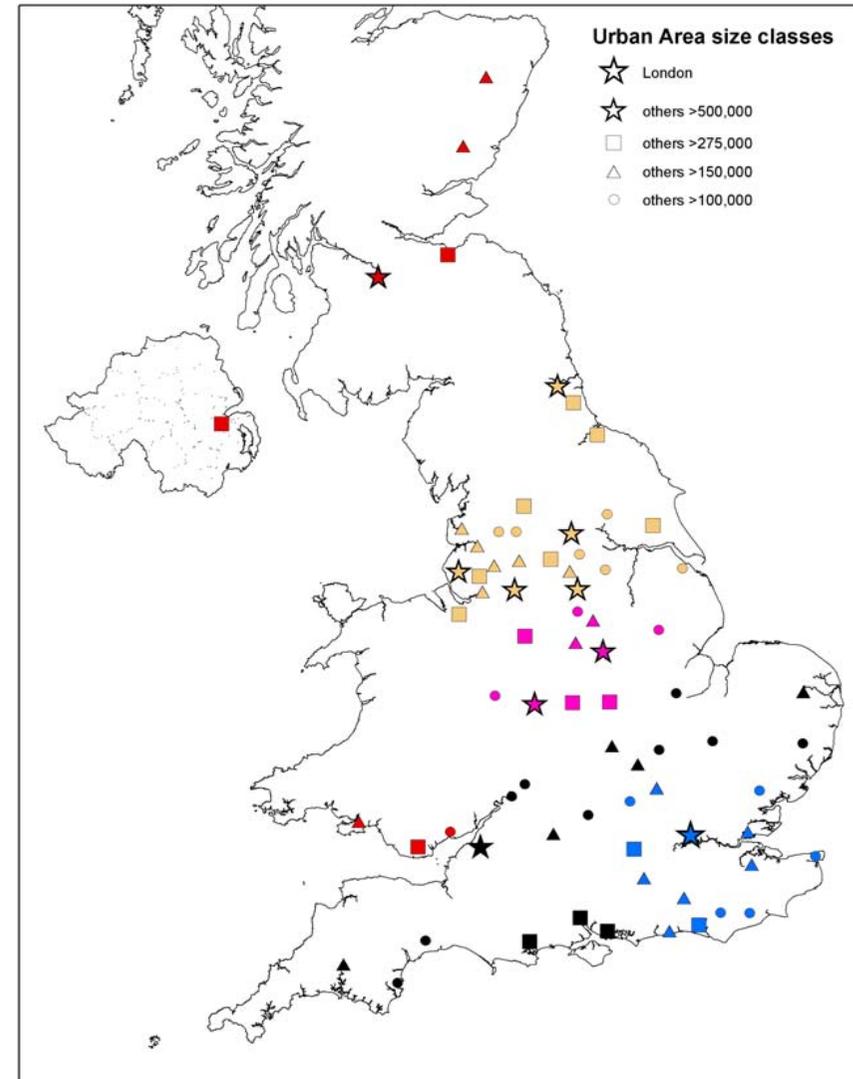
“PUA+s”

CURDS' original definitions of PUAs:

- 1 built-up area population >125,000  
*[stock data]*
- 2 the largest settlement in its TTWA  
*[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  
↳ 74 PUA+s (c.70% UK population)

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



# Overview of longer-term population trends

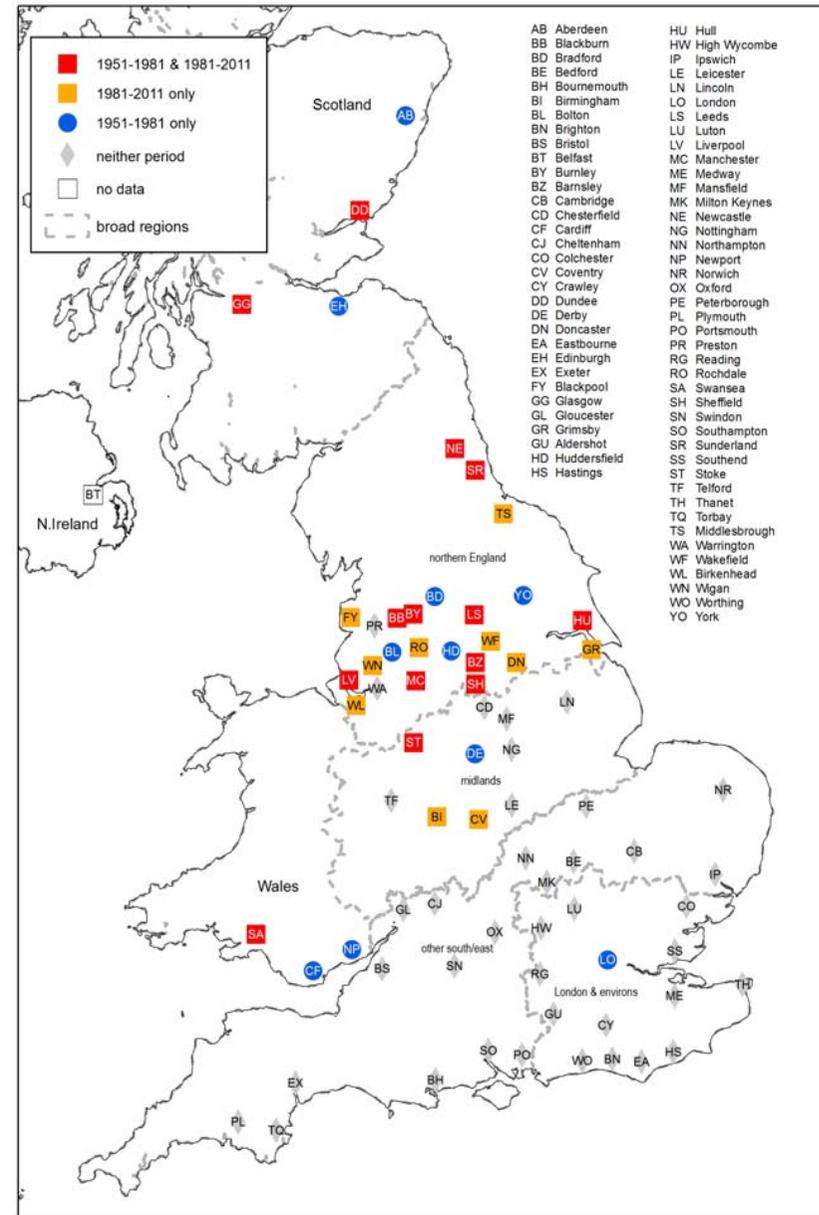
Significant population loss has been seen in numerous cities in Europe/USA  
*but*

UK PUA+ population loss (eg. Glasgow & Liverpool mid C20) rare by late C20, and all but ended by **recent net international migration inflow** to areas across the UK  
*however*

Relative Population Decline seen if the city's share of UK urban population falls

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

relative decline is long-term and hard to reverse; it is sustained by net migration flows, whose selectivity in terms of age and/or skill will fuel the gap in cities' growth rates



## Any one indicator misses some city decline – city decline is due to many mutually reinforcing trends

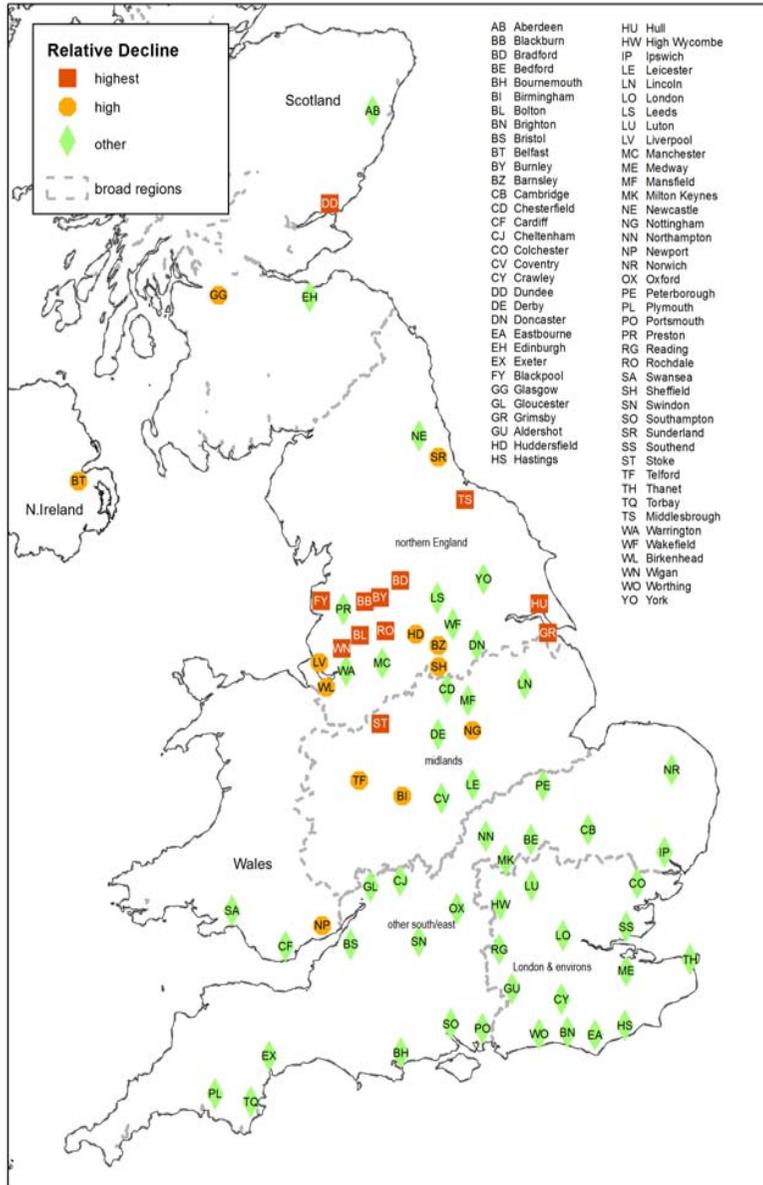
### Index of Relative Decline

- 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:

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

# Results of the Index

# ...and some modelling of these



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:

## data sources for independent variables

Population Censuses 1931-2011 (stocks/flows)

Mid Year Estimates

Business Register & Employment Survey

VAT Registrations

Census of Distribution (long discontinued)

Gross Value Added (Income Approach)

BR Timetable (Sheffield University data in the State of the Cities database: now discontinued)

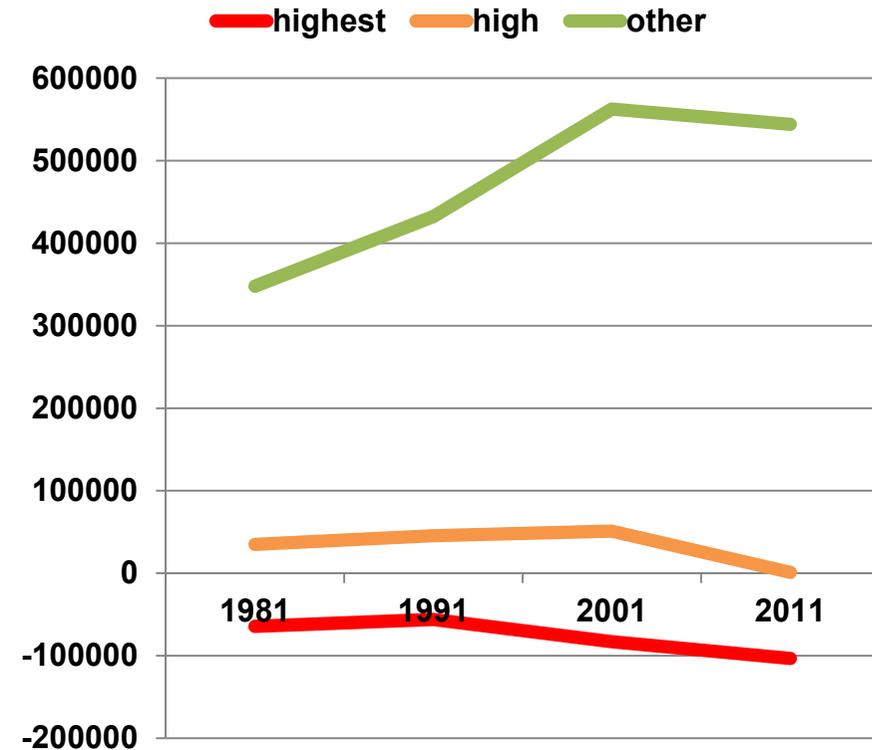
The significant variables (sources shown in red) related to key economic development factors including skills, sectoral history and location

# Flow data a potential source of new indicators of city decline (but with a disadvantage of delayed release)

## Relative Decline and poverty risk

Poverty risk is closely linked to the local availability of suitable jobs  
Cities (defined here as PUA+s viz. local labour markets) have seen long-term growth of in-commuting  
HOWEVER cities with the highest level of relative decline have relied upon other areas for job opportunities (ie. they had net **out**-commuting)  
MOREOVER their net out-commuting has been increasing since 1981 (growing need for jobs elsewhere)  
(An unexpected finding is that Britain's main cities saw net in-commuting fall during the period 2001-2011)

## Net inflow of commuters to PUA+s grouped by Index of Relative Decline



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

# UK city decline: summary and forward look

Whether absolute or relative, city decline is associated with poverty risk

Studying such city decline required Census data to be linked to other data,  
as well as being illuminated by analyses of flow as well as stock data

In the UK relative city decline is found to have a strongly persistent pattern,  
reflecting the fixity of key factors such as economic history and location

Unequal city growth is sustained by net migration flows and by their selectivity  
(eg. flows of graduates): Census 1 year migration data a less useful source

Spatial economic trends at a city region scale may be seen in the longer-term  
by tracking the change in net commuting patterns between places

## Potential avenues for subsequent research

Are there different types of relative decline, needing distinct policy responses?

Does the risk of poverty always rise when a city suffers relative decline?

Can the ten year migration data derivable from the Census Longitudinal Study  
shed light on the role of selective migration in determining whether a city's  
relative decline did increase the poverty risk locally ...and if so for whom?