Show me the money!
Income inequality and segregation in UK cities

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Interdisciplinary team: urban sociology, GIS & mathematical sciences
Background
Introduction: income inequality as a story of nations
Cavanaugh & Breau (2018) in a systematic review of ‘geographies of inequality research’ show that since 2007/8, no increase in publications focussed at urban & n’hood level, whereas substantial increase in national & regional accounts.
Gini and segregation in cities – what do we know?

- Cities often break away from their national contexts: large cities are more unequal than their “host nations”
- US - income inequality POSITIVELY CORRELATED with segregation (Reardon & Bischoff 2011)
- A global trend? Increased national income inequality leads to urban segregation “almost everywhere in the world” (Tammaru et al 2020, 2021)
- OECD 2018 data shows the richest, followed by the very poorest, are the most segregated - Segregation follows a U-curve
Research questions

NB Most segregation studies focus on segregation of poor households from non-poor households.

1. What is the relationship between income inequality and segregation (of high income households from low income households)?

2. Which group is more segregated in the UK (high or low incomes)?

3. What does the Gini tell us about “sustainable” cities and neighbourhoods’?
Methods & research design

- Gini; Index of Dissimilarity (Di); Interaction Index (Massey & Denton 1988)
- Sample: core cities + regional comparators
- Detailed case study of Nottingham conurbation
The cities mentioned in the text include: Birmingham, Bristol, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Nottingham, Sheffield, Derby, Leicester, Cambridge, Winchester, and Southampton. The diagram shows the city boundaries and suburban district boundaries that intersect the Nottingham PUA boundary.
Small area model-based income estimates, England and Wales: financial year ending 2016

Small area model-based income estimates covering middle layer super output areas (MSOAs) in England and Wales.

This is the latest release. View previous releases

Contact: Nigel Henretty
Release date: 25 April 2018
Next release: To be announced
To calculate the Gini coefficient

We fit the “income band” data on uniform distribution and set the upper bound at £120k (dataset highest band is £60k+)
Limitations

- Experimental, modelled dataset – can’t draw conclusions about poverty or standards of living
- No historic data (can’t examine trends/gentrification)
- Modifiable areal unit problem
- Lack of transparency of high incomes
Results
Income distribution by LSOA (England and Wales)

In 83% of LSOAs, medium income is dominant.

In 1% (ca 400 LSOAs) high income is dominant.

78% of LSOAs, the number of low income households is more than 20% higher than the number of high income households.
Figure 1: Gini coefficients, dissimilarity and interaction indices for case study areas of Nottingham and comparator UK cities (in descending order of $D_i$ value)
Figure 2: Comparison of Low, Medium, and High income band % (in order of ascending high income band %)

- Percentage of population
- Geographic boundary
- Low
- Medium
- High

Cities: Leicester, Nottingham, Ashfield, Liverpool, Manchester, Birmingham, Sheffield, Southampton, Erewash, Derby, Newcastle, Gedling, Leeds, Broxtowe, Cardiff, Bristol, ENGLAND, Rushcliffe, Cambridge, Winchester
Conclusions

- Data bias: high incomes are missing ("private") cf. numerous ways to measure low income, to a high level of geographical precision
- **Most research on income inequality is likely to underestimate it**
- High incomes have the biggest impact on segregation (Di) and inequality (Gini) in the cities studied
- Nb student populations
- Affluent cities are different: higher Gini but lower segregation and interaction indices ("pockets of affluence")
- **Previous research overlooks income distributions?**
- High Gini LSOA = “mixed”; Low Gini LSOA = homogenous (almost always poor)
- In urban research, higher Gini is (very) tentatively "good news" – more suited as a measure of income mix (heterogeneity) rather than "inequality" (loaded term) – chimes with Glaeser et al, 2009 “inclusive economy”
Next steps

- Revisions underway
- Advocate for the utility of “unevenness of household income” in urban studies (pockets of affluence as well as deprivation)
- Applications for urban sustainability – particularly interdisciplinary synergies (NB new evidence of excess deaths linked to declining incomes, not deprivation, during austerity Darlington-Pollock, Simpson & Green 2021)
Thank you!

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