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Multi-scale spatial inequality and consequences for individual socioeconomic outcomes

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Key messages

- Policymakers should be aware of levels of inequality at low spatial scales as this is crucial for gaining a better understanding of the origin and consequences of inequality for individuals. Spatial income inequality within regions and cities is much more pronounced than between regions and cities. At lower geographical scales (small neighbourhoods), differences in poverty concentrations are larger and pockets of high and low concentrations are more visible than at larger scales (regions).

- Socio-economic spatial segregation contributes to social inequality. Living in a poor area as a teenager is related to a lower income from work in later adult life. The poverty concentration within the immediate living environment (street, neighbourhood) is more detrimental than the poverty concentration at higher spatial scale (district, city, region). Policy measures that reduce local segregation can help to combat inequality.

- A key policy recommendation from the RELOCAL project is to improve the availability of and access to socio-economic geocoded data at very low scale and individual level data on socio-economic outcomes for more countries within the EU. Without these types of data, it is not possible to trace the development and consequences of poverty concentrations within regions and cities and, subsequently, provide guidance to policy makers on the most appropriate scales for public policy intervention.

One of the aims of the EU Horizon 2020 research project RELOCAL - 'Resituating the local in cohesion and territorial development' was to demonstrate how spatial inequalities can be measured over time at multiple geographical scales using methods that do not depend on administrative regions.

Multi-scale patterns of spatial income inequality

Spatial income inequality is a multiscale phenomenon, taking place at the level of regions to the level of street segments. In the EU, spatial inequality is often conceptualised as regional inequality and measured at the level of large EU regions. Such measures show a large variation in income between European countries and also within countries. However, measuring inequality at this large geographical scale hides large variation in income at a more local level, such as metropolitan areas, cities, neighbourhoods and even streets. These are the areas in which individuals are most likely to experience spatial inequality and its negative outcomes.

The results of the RELOCAL project have shown that within-region and within-city levels of inequality are much more pronounced than between-region and between-city levels of inequality in Sweden, the Netherlands, Finland, and the UK (England and Scotland). Policymakers should be aware of levels of inequality at low spatial scales as this is crucial for gaining a better understanding of the origin and consequences of inequality for individuals.

Figure 1 shows the share of individuals with a low income[1] in the South Bank of Rotterdam, which is the second largest city in the Netherlands. The urban area is characterised by persistent deprivation and has the lowest scores in the whole of the Netherlands on characteristics such as unemployment, education, high crime levels and low general liveability. Looking at the concentration of poverty at this lowest spatial scale, we see that within Rotterdam South there is substantial variation in the concentration of poverty. Although the greater part of Rotterdam South still falls within the top 20% of areas with the highest concentration of poverty of the Netherlands, there are also parts that are relatively affluent, belonging to the top 20% areas with the lowest concentrations of poverty.
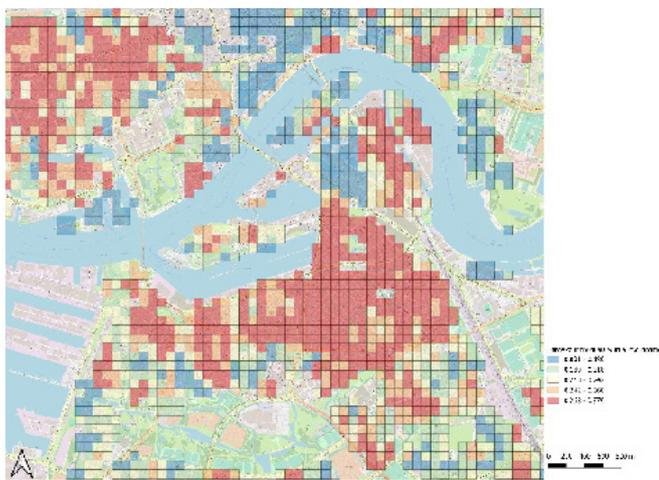

Figure 1 Share of individuals with a low income in Rotterdam South at low spatial scale

Socio-economic segregation contributes to social inequality

Differences between individuals in terms of socio-economic status (education, income, employment, and wealth) arise from differences in individual and family characteristics, and from differences in contextual characteristics. The characteristics of the environments in which individuals grow up, live and interact, can have an influence on their socioeconomic outcomes. Consequently, individuals can become disadvantaged by where they happen to live.

Analyses in the Netherlands and Sweden show that high concentrations of poverty in residential areas are related

to lower individual incomes from work in later life. Teenagers who live in (very) poor residential areas have a lower individual income in their late 20s. However, the strength of the relationship between contextual poverty and income in later life is strongly dependent on the spatial scale on which contextual poverty is measured. The poverty concentration within the immediate living environment (street, neighbourhood) is more detrimental than the poverty concentration at higher spatial scale (district, city, region). Measures that reduce local segregation can help to combat inequality.

Need for data

One of the main conclusions is that scale matters for a better understanding of the impact of residential context on individual outcomes in life. In particular, with regard to unravelling the effect of area income deprivation on individual socio-economic outcomes, it is important to measure and test the relationship at different spatial scales. However, such a multi-scale approach can only be applied when geocoded data are available for very small spatial units (for example 100m by 100m or 250m by 250m grid cells) and such data are still unavailable in most European countries. In addition, in order to investigate the consequences of spatial inequality for individuals, these contextual data need to be linked to individual level data.

A key policy recommendation from the RELOCAL project is to improve the availability of and access to socio-economic geocoded data at very low scale and individual level data on socio-economic outcomes for more countries within the EU. Various countries have censuses. In theory, these censuses are a very promising data source since they contain individual level data, have a high level of geographical detail and contain a very large amount of cases. By connecting censuses from different years, it is even possible to create a longitudinal census database. Unfortunately, in various countries the censuses are not used up to their full potential. The census micro data is sometimes not available for research and there only have been limited attempts to link censuses for different years. Without this type of information, it is not possible to provide guidance to policy makers on the most appropriate scales for public policy interventions regarding spatial inequality and spatial justice.

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1 Based on the Eurostat definition of the at-risk-of-poverty rate, which is defined as the share of people with an equivalised disposable household income below the at-risk-of-poverty threshold, which is set at 60% of the national median equivalised disposable income.

Further Reading

▪ Melo, P.C., Gaspar, J., Janssen, H.J., van Ham, M., Andersson, E., Malmberg, B. (2019) D5.3 Location and context – analysis of spatial inequalities at different geographical scales. H2020 project RELOCAL – Resituating the Local in Cohesion and Territorial Development. [Link]

▪ Janssen, H.J., & Van Ham, M. (with contributions from Melo P.C., Andersson E., Malmberg B., Fritsch M. & Németh S.) (2018). D5.2 Report on multi-scalar patterns of inequalities. H2020 project RELOCAL – Resituating the Local in Cohesion and Territorial Development. [Link]