The impact of rurality on consumers' access to food services, using a food poverty risk index

Authors: McClelland, N., Furey, S., McKenzie, P. and Hollywood, L.

Email: mcclelland-n1@ulster.ac.uk

© Copyright

Introduction

Northern Ireland (NI) has a large rural spatial periphery (Neighbourhood Statistics, 2016), meaning that 1/3 of the population are considered as geographically dispersed. Dispersed populations induce lower consumer demands, which in turn exerts influence on the supply and demand of market driven environments. Consequently, depopulated areas are used to justify the urban centralization of amenities, including food services; leaving rural locations with rudimentary access.

Household food poverty is increasingly considered as a concerning public health crisis (Loopstra et al., 2015) and in NI relative poverty is higher in rural regions (Department for Communities, 2017). Furthermore, in comparison with their GB counterparts, NI faces greater multiple disadvantage and deprivation in terms of lower disposable incomes and economic activity; higher food and fuel costs; greater occurrence of poorer mental wellbeing, and a higher proportion of disability claimants.

Given that rural households account for the highest proportion of households with children, pensioners and the self-employed and therefore approximately 1/5 of children (the future generation) are living in poverty; it is appropriate that rural families' access to food, from the perspective of a place-based study, should be investigated.

Aim & Objectives

The aim of this study was to map and identify rural communities at Census Small Areas who may be polarised or at greater risk of food poverty due to their spatial distribution and the structural disparities within the macro environment in respect of food access.

The objectives of this research are:
• To use indicators/variables associated with food poverty to create an 'At Risk of Food Poverty Index' (ARFPI);
• To determine the cost (affordability) and availability of a consensually agreed, healthy food basket;
• To map the ARFPI across NI to identify under-served areas in respect of food accessibility, availability and affordability; and
• To develop evidence-informed recommendations to support policymaking, through area-based targeted interventions, with a particular focus on rural areas.

Methods

Multiphase research design strategy:

Phase 1: The conceptual development of the 'ARFPI'.
Phase 2: Stakeholder engagement/expert weighting.
Phase 3: Healthy Food Basket data collection.
Phase 4: GIS Mapping/Spatial analysis

At Risk of Food Poverty Index

• Index consists of 5 indicators that are relevant to the **structural causes** of food poverty: These are affordability, accessibility, availability, awareness and health (highlighted in orange).
• Variables are attached to each indicator (highlighted in yellow and grey).
• Index was weighted by key stakeholder.
• Geographic Information System (GIS) was used to map the 'At Risk of Food Poverty Index' at the scale of Census Small Areas to identify at greatest potential risk of food poverty, across Northern Ireland.
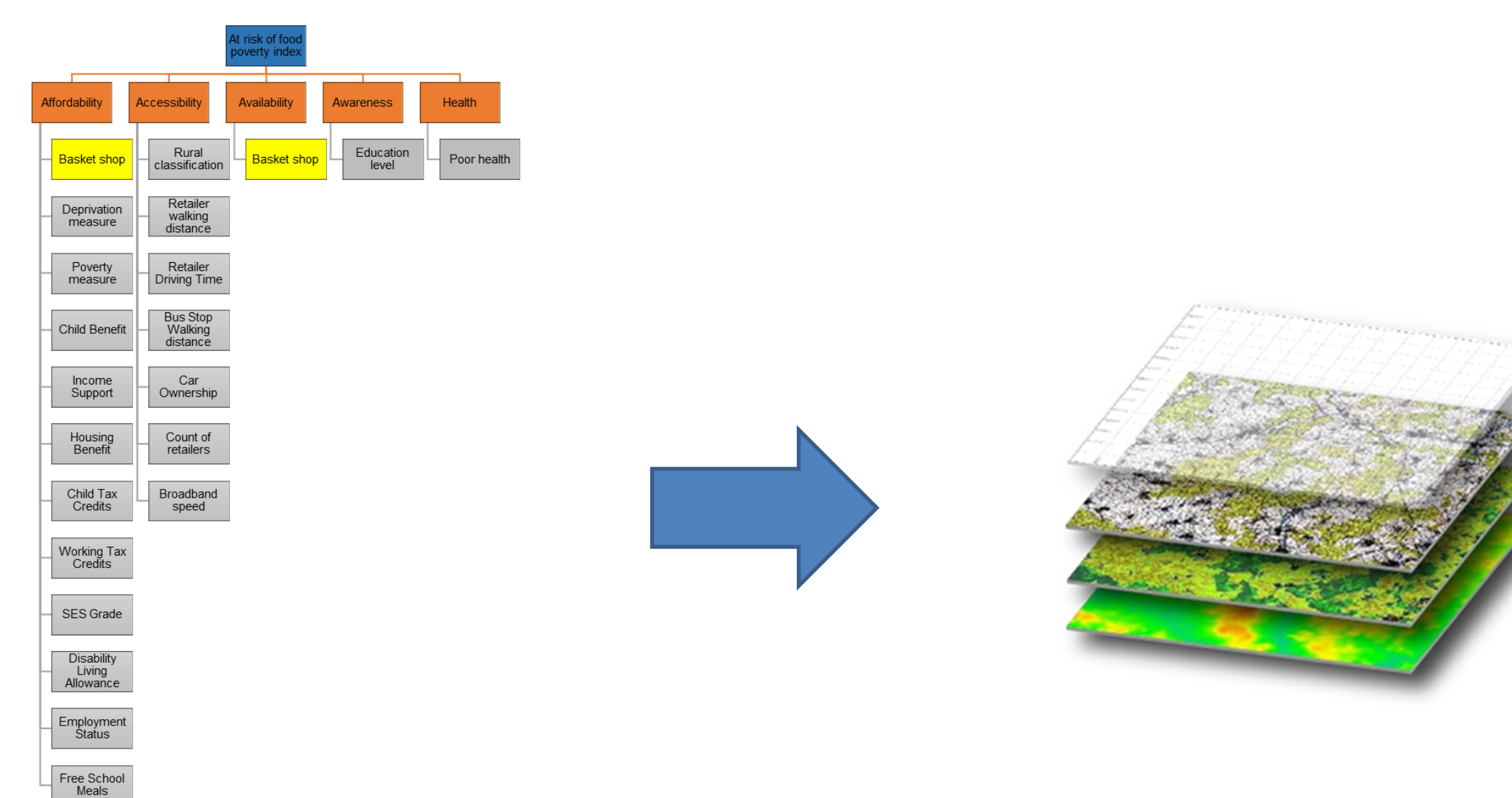
Healthy Food Basket (HFB) Analysis

The HFB used the MacMahon and Weld (2015) study as a template for basket items. They developed a standard shopping basket that is rooted in social consensus of what everyone should be able to afford. It is a minimum essential but nutritionally adequate basket for one of the most common household types **(Household 1: two adults and two children; one aged 2-4 and the other 6-11 years old)** in NI over the period of a week.

Affordability

• Average weekly cost of the HFB was £169.83 in rural retailers and £148.61 for urban retailers.
• Independent t-tests shows a statistically significant p=0.000 difference in the cost of food between rural (M = 2.12, SD = 10.18) and urban retailers (M = 4.40, SD = 18.67; t (24.7) = 4.34, p = .00, two-tailed).
• Rural dwellers can pay a yearly premium of £1092 for the same basket of goods.

Household 1: minimum and maximum costs of the HFB

Rural: 152.98, 189.14
Urban: 106.22, 174.31
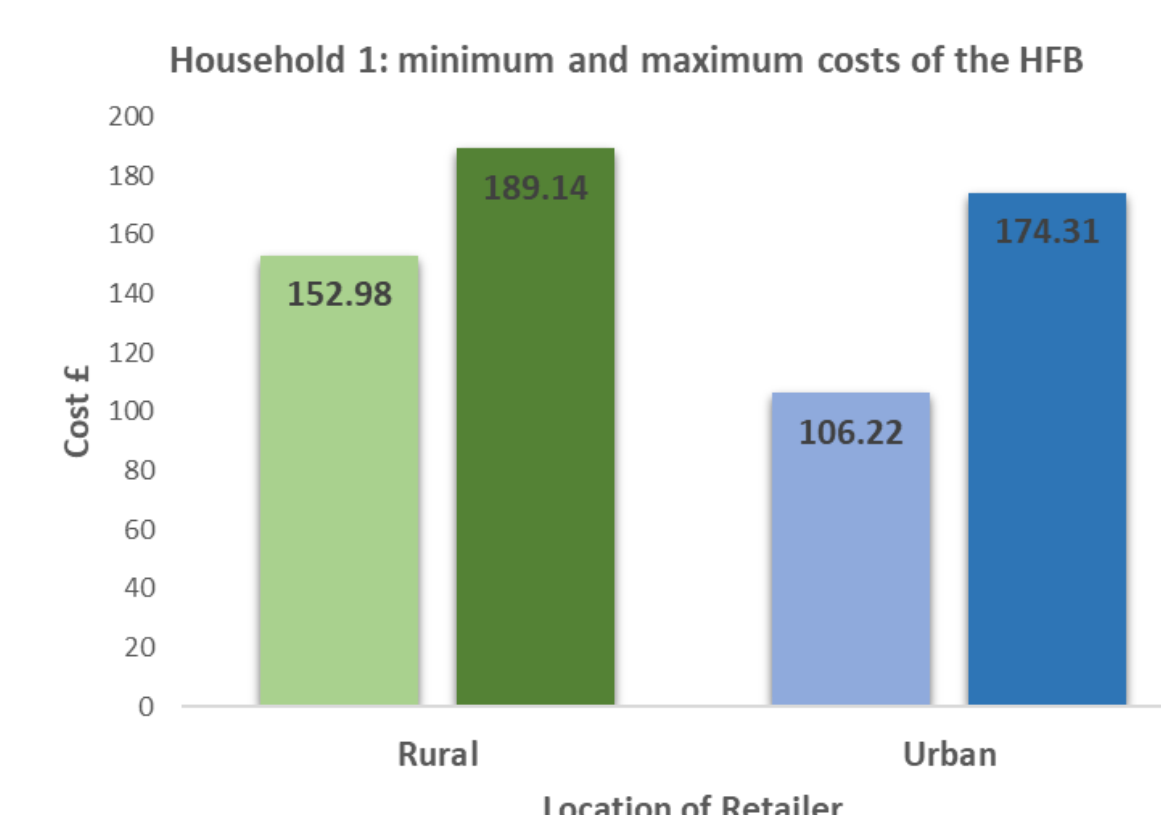
Availability

• Average availability of the HFB was 79.94% in rural areas and 90.01% for urban areas.
• Five stores had 100% availability, three of these were urban multi-national supermarkets and the other two were in rural areas.
• There was no significant difference in total basket availability between rural and urban areas.

GIS Mapping & Analysis

• NI has 4537 Census Small Areas.

• Small areas consist of:
  • 400 people and
  • 155 households

• Small Areas range in size from:
  • 98 – 3072 people or
  • 59 - 988 households

Map of Census Small Areas in NI
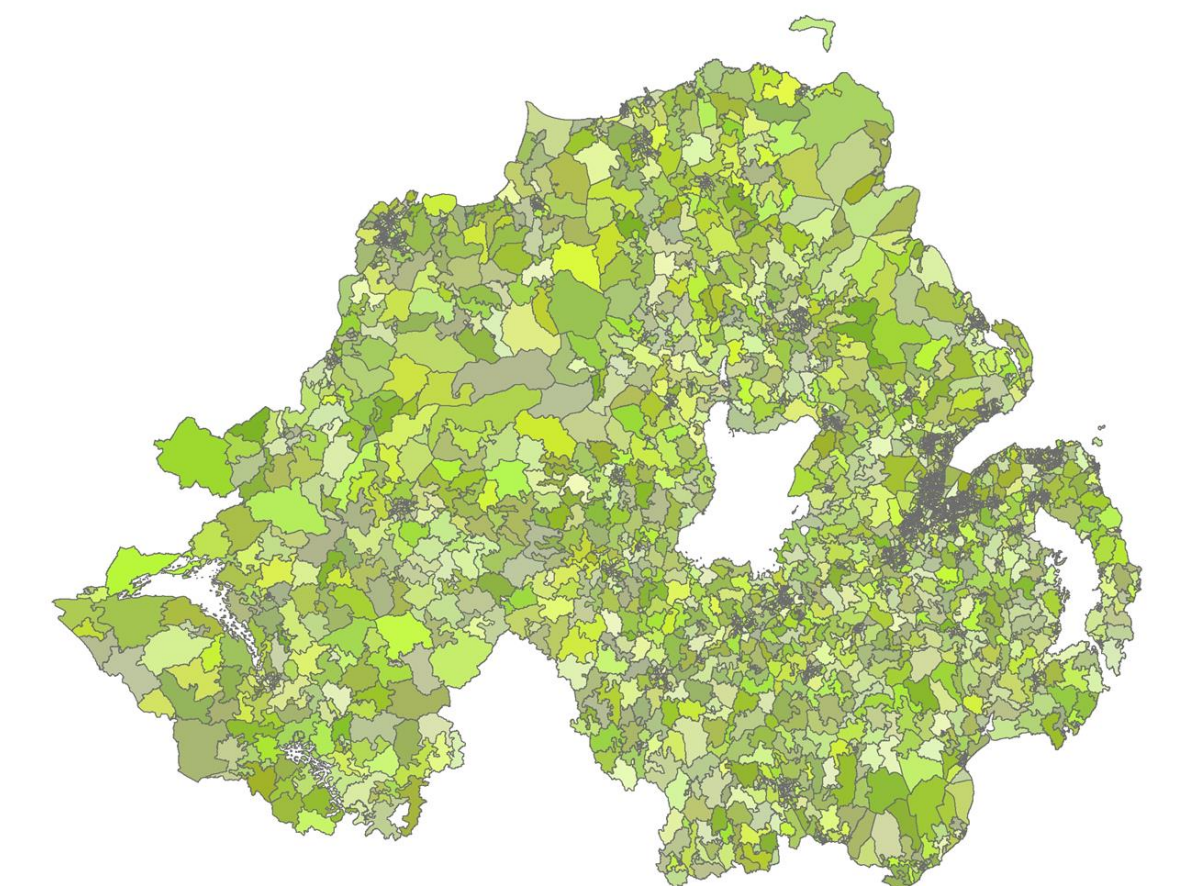
• The 'ARFPI' produces a final risk index score for each Small Area, allowing for the index to be mapped.
• Council boundaries are mapped as an additional layer to inform local policy.
• From this it is easy to identify those Small Areas which are at greatest potential risk of food poverty.

Small Areas at greatest potential risk of food poverty in NI

Map symbology of census small areas at risk of food poverty
- Very Low Risk of Food Poverty
- Low Risk of Food Poverty
- Medium Risk of Food Poverty
- High Risk of Food Poverty
- Very High Risk of Food Poverty
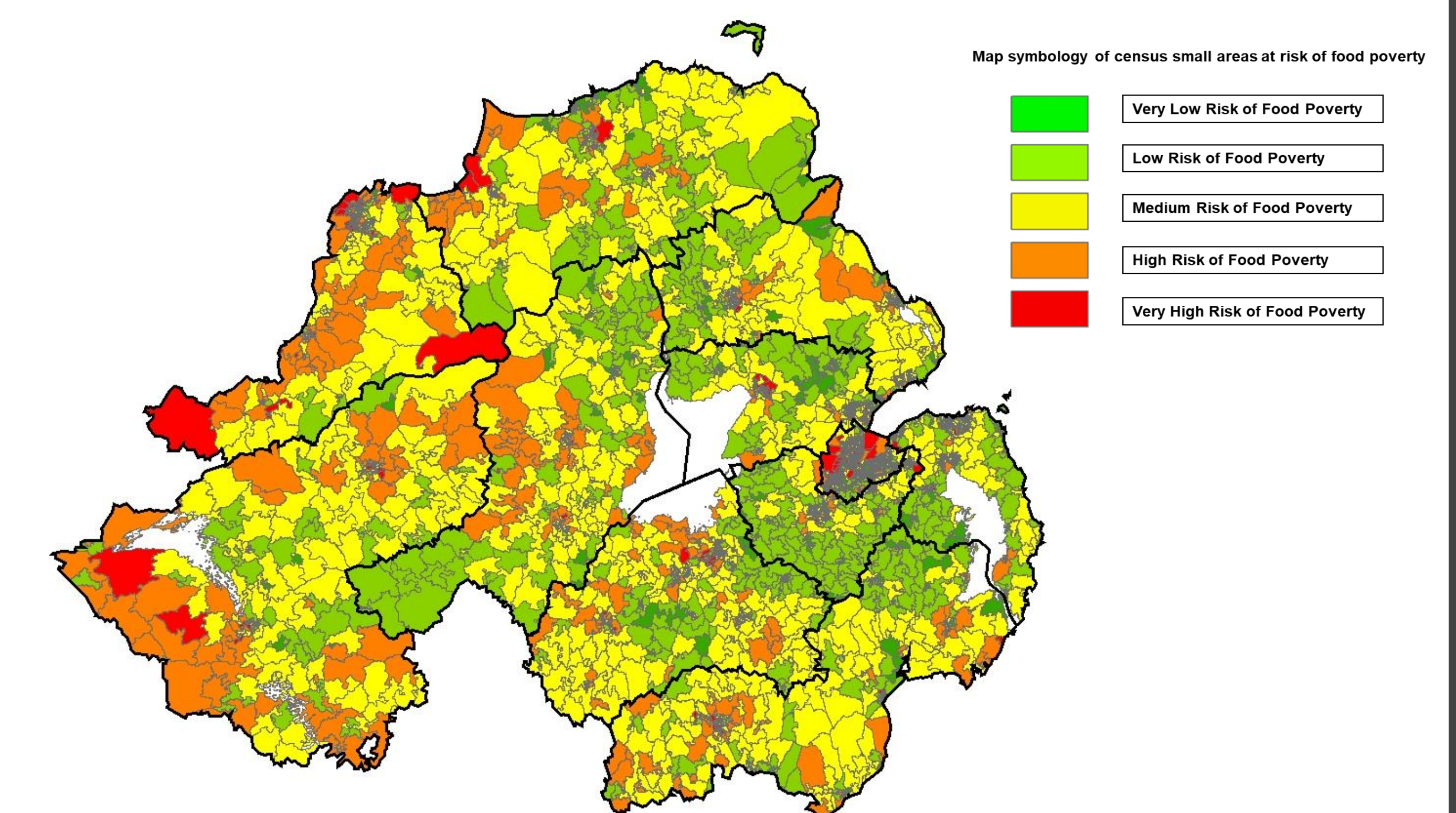
Conclusion

It is important that NI must not epitomise a bipartite urban/rural system, whereby households are deprived by the distributional consequences of their rurality. This research identifies rural dwellers and communities who are exposed to divergence in terms of food poverty, including food access, food affordability and food availability.

The 'ARFPI' is an innovate spatial analysis tool in the measurement of food poverty studies, advancing theoretical knowledge of area-based food poverty studies. The index provides an evidence informed stimulus for the development of outcome-based policy and practices that promote the long-term sustainability of the rural economy and services provided within under-served rural communities.