Northern Ireland
Assembly

Research and Information Service
Briefing Paper

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Mechanisms utilised for the measurement of deprivation and rural deprivation across the UK and Ireland

1   Background

The issue of how to best maximise the positive impact of finite financial resources is one that challenges governments across the world. Aspirations of ensuring that all of society either benefits or is at least not disadvantaged by government policy, has led many governments to recognise that they needed baseline information on the conditions people lived in, in order to design responses and determine impacts.

In light of this requirement, and with particular cognisance of the most vulnerable in society, many governments have developed and utilised measures which could be broadly termed as measuring/indicating deprivation or disadvantage.

This paper provides an overview of the mechanisms utilised to this purpose within the UK and Ireland and also highlights any specific rural deprivation dimensions within these mechanisms.

2 Contextual information

In looking at mechanisms utilised for the measurement of deprivation it is useful to look at the definitions/understanding of deprivation and its measurement within the UK and Republic of Ireland.

Table 1: Definition/understanding of deprivation – UK and Ireland

Jurisdiction	Definition/Understanding of deprivation as set out in deprivation index documentation
Northern Ireland	**In contrast to poverty which is often viewed in terms of 'lack of money or material possessions' (Atkinson, 1998), deprivation is usually taken to refer to unmet need across a number of domains**....'. **People are in poverty if they lack the resources to escape deprivation** (Townsend, 1987, p131 and 140)[1]
Republic of Ireland	Pobal HP Deprivation Index is a method of **measuring the relative affluence or disadvantage of a particular geographical area using data compiled from various censuses**. A scoring is given to the area based on a national average of zero and ranging from approximately -35 (being the most disadvantaged) to +35 (being the most affluent)[2]
England	**Deprivation covers a broad range of issues and refers to unmet needs caused by a lack of resources of all kinds, not just financial**. The English Indices of Deprivation attempt to measure a broader concept of multiple deprivation, made up of several distinct dimensions, or domains, of deprivation.[3]
Scotland	**The terms 'deprivation' and 'poverty' are sometimes used interchangeably. However, in this context, deprivation is defined more widely as the range of problems that arise due to lack of resources or opportunities, covering health, safety, education, employment, housing and access to services, as well as financial aspects**. The SIMD uses data relating to multiple aspects of life in order to gain the fullest possible picture of deprivation across Scotland[4]
Wales	**Deprivation is a wider concept than poverty. Poverty is usually considered to be a lack of money, whereas deprivation includes a lack of the opportunities and resources to which we might expect have access in our society**, for example, good health, protection from crime, a clean and safe environment. 'Multiple' deprivation therefore refers to the different types of deprivation that might occur.[5]

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[1] Northern Ireland Multiple Deprivation Measure 2005, Northern Ireland Statistics and Research Agency, May 2005
[2] The Pobal HP Deprivation Index (Haase and Pratschke, 2012) , Pobal Website, 8th August 2014
[3] The English Indices of Deprivation 2010, Department for Communities and Local Government, March 2011
[4] Overview of the Scottish Index for Multiple Deprivation, National Statistics Scotland website, 18th December 2012
[5] Summary Report, Welsh Index of Multiple Deprivation 2011, Statistics for Wales 2011

3   Deprivation measures

Table 2: Key feature of deprivation measures employed across the UK and Republic of Ireland

Administration	Mechanism used and date introduced	Geographical unit data is available for	Component measures	Application	Guidance/caveats for usage and Rural specific application
Northern Ireland	Northern Ireland Multiple Deprivation Measure - commonly referred to as the Noble measures Current version was introduced in 2010 but builds upon previous measures introduced in 2005 and 2001.	Super Output Area (SOA) – average population of 2000 people. There are 890 SOAs covering Northern Ireland. Data for the Income, Employment, Proximity to Services and Crime &Disorder Domains and Multiple Deprivation Measure were also created at the Output Area (OA) geography. 5,022 OAs cover Northern Ireland each with an approximate population of 350 people.	7 component domain areas: • Income • Employment • Health Deprivation and Disability • Education skills and training • Proximity to Services • Living Environment • Crime and Disorder 53 individual indicators split across the 7 domains Mainly derived from administrative data	2 ways to utilise the data as follows: Individual domain area scores/ranks can be accessed or utilised or Multiple deprivation score/rank is achieved by allocating a weighting to the 7 component domain areas as follows: • Income Deprivation 25% • Employment Deprivation 25% • Health Deprivation and Disability 15% • Education Skills and Training Deprivation 15% • Proximity to Services 10% • Living Environment 5% • Crime and Disorder 5%	Specific mention of rural deprivation and overview of 'headlines' relating to multiple deprivation within rural areas Recognition that small area concentrations of deprivation are more readily identified in urban areas than rural areas due to due to the smaller geographical size and the relatively homogenous populations of urban areas compared to rural SOAs. This should be noted when comparing deprivation measures in urban and rural areas. It may also be more appropriate when assessing deprivation in rural areas to focus on the Output Area results. Published guidance document sets out how to and how not to use the NIMDM – includes *NISRA recommends that guidance is sought from NISRA officials when choosing the cut-off for 'most deprived'.* NISRA also has provision, through NINIS, that enables NIMDM data to be looked at on an urban/rural basis – based upon the urban/rural classification applied to SOAs and OAs – does however require user to know which SOAs/OAs are rural and then

Administration	Mechanism used and date introduced	Geographical unit data is available for	Component measures	Application	Guidance/caveats for usage and Rural specific application
					select them
England	English Indices of Deprivation 2010 Current version released in 2010 – commitment to introduce revised/updated measure during summer 2015	Lower-layer Super Output Area (LSOA) - average population of 1500 people. There are 32,482 LSOAs covering England	7 component domain areas: • Employment • Income • Health • Education, Skills, and Training • Barriers to Housing and Services • Crime • Housing 38 separate indicators across these domain areas Mainly derived from administrative data	2 ways to utilise the data as follows: Individual domain area scores/ranks can be accessed or utilised or Multiple deprivation score/rank is achieved by allocating a weighting to the 7 component domain areas as follows: • Income Deprivation 22.5% • Employment Deprivation 22.5% • Health Deprivation and Disability 13.5% • Education, Skills and Training Deprivation 13.5% • Barriers to Housing and Services 9.3% • Crime 9.3% • Living Environment Deprivation 9.3%	No specific reference of rural deprivation or dedicated analysis of data through a rural filter Reference is made to how the Indices can and cannot be used. A key qualification here with implications for rural people is the recognition that the Indices of Deprivation 2010 measures the relative level of deprivation in <u>an area</u>. Within every area there will be individuals who are deprived and individuals who are not. The Indices of Deprivation 2010 is not a suitable tool for targeting individuals – particular challenge given the accepted knowledge that deprivation is more geographically concentrated within urban areas.
Scotland	Scottish Index of Multiple Deprivation – current version was released in 2012	Datazones - groups of 2001 Census output areas and have, on average, populations of	7 component domain areas: • Employment • Income • Health • Education, Skills, and Training	Individual domain area scores/ranks can be accessed or utilised or Multiple deprivation score/rank is achieved by allocating a weighting	*The SIMD is good at doing what it is designed to do, i.e. to identify small area concentrations of multiple deprivation across Scotland in a fair way. The indicators which make up the SIMD are chosen because they are measures of deprivation regardless of*

Administration	Mechanism used and date introduced	Geographical unit data is available for	Component measures	Application	Guidance/caveats for usage and Rural specific application
		between 500 and 1,000 household residents - There are 6,505 datazones covering the whole of Scotland.	• Geographic Access to Services • Crime • Housing 38 separate indicators across these domain areas Mainly derived from administrative data	to the 7 component domain areas as follows: • current income (28%), • employment (28%), • health (14%), • education (14%), • geographic access (9%), • crime (5%) • housing (2%).	*where a person lives.* *However, the issue for rural areas is that poverty and deprivation are more spatially dispersed than in urban areas.* *Of the 15% most deprived datazones in SIMD 2012, around 91% of them are in urban areas and just over 2% are in rural areas. But this does not mean that there is no deprivation in rural areas.* *SIMD can be used to identify Scotland's most deprived small areas on the overall index and each individual domain, commonly by applying a cut-off such as 10%, 15% or 20%. The cut off should be informed by whether it aims to target areas with the very highest concentrations of deprivation or to be wider ranging.* There is a published quick reference guide setting out general dos and don'ts for using the SIMD – key comment in this '*The SIMD on its own cannot be used as the only source of identifying where support is needed in all localities*'[6] Publication of specific guidance for using the SIMD to help identify deprivation in rural

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[6] How to use SIMD effectively, Scottish Government Guidance

Administration	Mechanism used and date introduced	Geographical unit data is available for	Component measures	Application	Guidance/caveats for usage and Rural specific application
					areas, focusing on the Income, Employment, and Access domains. Although this paper refers to SIMD 2009, the guidance is also applicable when using SIMD 2012.
Wales	Welsh Index of Multiple Deprivation – current version introduced in 2011 – plans for an update to be published in November 2014	Lower layer super output areas (LSOAs) - average population of 1500 people. Total of 896 LSOAs covering Wales	8 component domain areas with associated indicators: • income • employment • health • education • geographical access to services • community safety • physical environment • housing. 35 indicators across the 8 domain areas Mainly derived from administrative data	Individual domain area scores/ranks can be accessed or utilised or Multiple deprivation score/rank is achieved by allocating a weighting to the 8 component domain areas as follows: • income (23.5%) • employment (23.5%) • health (14%) • education (14%) • geographic access to services (10%) • community safety (5%) • physical environment (5%) • housing (5%)	Local government area commentary for both the WIMD and individual domain scores makes reference to the levels of deprivation found within what could be described as rural local authorities as opposed to urban and valley authorities. Guidance document produced which sets out how the WIMD should be used but no rural specific guidance or advice. Guidance does however emphasise the value of using the index in conjunction with contextual information such as the Defra urban/rural classification.
Republic of Ireland	2011 Pobal HP Deprivation Index – funded by Pobal and widely used by policy makers across government	Small Areas (SAs). SAs are standardised in size, with a minimum of 50 households and a mean of just under 100. There are	Based upon three dimensions of affluence/disadvantage: • Demographic Profile, • Social Class Composition • Labour Market	A scoring is given to all SAs based on a national average of zero and ranging from approximately -35 (being the most disadvantaged) to +35 (being the most affluent). In addition to this, percentage data for the area is given under the following categories:	Emphasis on capacity of index to achieve a balanced measure of deprivation across the urban-rural spectrum – based upon assertion that other published deprivation indices are subject to urban bias, to the extent that they fail to account for the nature of rural deprivation.

Administration	Mechanism used and date introduced	Geographical unit data is available for	Component measures	Application	Guidance/caveats for usage and Rural specific application
		18,488 SAs covering the Republic of Ireland	Situation. 14 indicators across the 3 dimensions Takes a different approach to that employed in UK as data is census derived and also utilises Confirmatory Factor Analysis (CFA) whilst UK measures employ Exploratory Factor Analysis (EFA) approach.	• Population Change • Age Dependency Ratio • Lone Parent Ratio • Primary Education Only • Third Level Education • Unemployment Rate (male and female) • Proportion living in Local Authority Rented Housing	

4   UK and Republic of Ireland system observations

In looking at the mechanisms developed to measure deprivation across the UK and Republic of Ireland it is evident that there are both similarities and differences in design and guidance for use.

4.1   UK approach

The approach taken within the four constituent UK jurisdictions in terms of methodology is very similar, but this should not come as too great a surprise given the fact that the Social Disadvantage Research Centre at the University of Oxford has made a contribution towards the methodologies employed within all four jurisdictions. In UK terms, all the mechanisms employ domain areas and associated indicator sets to build a picture of deprivation and it is also possible to look at individual domains or at an overall multiple deprivation score/rank. There are differences in relation to the number of domains and associated indicators.

The weighting allocated to individual domain areas in the calculation of multiple deprivation also varies across the UK, but it is worth noting that the domain areas dealing with access to services, which some stakeholders contend are particularly sensitive to identifying rural deprivation, have some of the lowest weightings in relation to the generation of a multiple deprivation score (Northern Ireland 10%, England 9.3%, Scotland 9% and Wales 10%).

A potentially significant difference across the UK jurisdictions is the geographical unit for which data is available, as it is generally accepted that the smaller the unit for which data is available the greater the likelihood of identifying more dispersed deprivation often identified with rural communities. Northern Ireland has Multiple Deprivation Measure (MDM) data available down to census Output Area (Level) – each of which has an approximate population of 350 people, and no other part of the UK has Multiple Deprivation Measure data available for such small areas within their primary MDM publications, although such work can be and has been undertaken by other bodies e.g. Action with Communities in Rural England (ACRE)[7].

With regard to rural specific data and guidance for use, Northern Ireland, Scotland and Wales include rural specific data in the following ways within their primary multiple deprivation publications:

- multiple deprivation headline data (Northern Ireland);
- individual domain area data by rural-urban split (Scotland); and
- rural local authority (Wales) information within their primary multiple deprivation publications.

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[7] http://www.acre.org.uk/cms/resources/mostdeprivedruralareas.pdf

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The primary English Indices of Deprivation publication, whilst recognising that there are pockets of deprivation across rural areas, includes no further rural specific data or analysis.

Turning to the issue of rural specific guidance in relation to the use of the deprivation measures, Scotland is unique in actually publishing rural specific guidance[8]. All of the UK jurisdictions have however developed general guides for how to and how not to use their deprivation indices, and there are elements within all of these which indirectly identify caveats for use that could have implications for rural communities including the following:

- appropriate use of cut off points for 'most deprived';
- the fact that deprivation measures identify the relative level of deprivation in an area rather than the number or location of deprived individuals; and
- the value of using index data in conjunction with additional information sources.

It is also worth noting work undertaken in Wales by Oxford Consultants for Social Inclusion (OCSI) on behalf of the Welsh Local Government Association's (WLGA) Rural Forum, which explored the challenge of measuring rural deprivation. This report published in 2012, explored the merits or otherwise of developing a specific Rural Welsh Index for Multiple Deprivation as well as considering which indicators might be most appropriate for such a measure. Whilst the OCSI made no recommendations on the development of a specific Rural Welsh Index for Multiple Deprivation, it did however highlight particular resource allocation issues for rural areas to consider as follows:

- Programme funds for vulnerable people should not be targeted to deprived areas;
- Direct measures of client group needs should generally be used rather than overall deprivation indices;
- Costs due to sparsity and diseconomies of scale should be adequately included;
- Use clear and transparent methodology, with sufficient time for robust consultation.

4.2   Republic of Ireland

As set out in table 1, the approach taken towards the measurement of deprivation within the Republic of Ireland is different to that employed across the UK jurisdictions. The key distinctions are that the Republic of Ireland index utilises census data (ROI census every 5 years as opposed to every 10 years in the UK) and also takes a Confirmatory Factor Analysis (CFA) approach as opposed to the UK measures which rely on administrative data and take an Exploratory Factor Analysis (EFA) approach.

In simple terms the Confirmatory Factor Analysis (EFA) approach tests a predefined model e.g. rural deprivation is made up of x features, whilst the Exploratory Factor Analysis (EFA) develops a model based on the data rather than seeking to apply a predefined model.

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[8] Income, Employment and Access deprived Rural Areas using SIMD 2009, The Scottish Government, 2009

In the context of the measurement of rural deprivation, the creators of the Pobal HP Deprivation Index, Trutz Haase and Dr.Jonathan Pratschke, assert that a key reason for the use of the Confirmatory Factor Analysis (EFA) approach within the Republic of Ireland index is that it achieves '*…a balanced measure of deprivation across the urban-rural spectrum. All other published deprivation indices are subject to urban bias, to the extent that they fail to account for the nature of rural deprivation.*'[9]

Given this assertion it is not that surprising that there are no rural specific data sets within the index or associated rural guidance for use associated with the Pobal HP index.

As a further point of interest the creators of the Pobal HP Index, Hasse and Pratschke, have developed an All-Island (of Ireland) Deprivation Index for Small Areas. This offers for the first time, a consistent measure of deprivation for the Republic of Ireland and Northern Ireland. This work utilised data from the 2001 census in Northern Ireland and the 2006 census in the Republic[10]. The authors have also stated their intention to update this work when the data from the 2011 census becomes available

5   Key issues/considerations

- The distinction between poverty and deprivation is clearly a critical issue. Whilst those who produce these indices of deprivation are clear in this distinction and at pains to stress it, it seems fair to ask if this understanding or appreciation of the distinction exists amongst users of the indices?

- Regardless of the methodology or approach employed in the creation of deprivation indices there are clearly caveats for their usage and application. This reality needs to be borne in mind by all users of the indices, and as a practical outworking any potential users of the indices should consult with the producers of the indices prior to usage. In effect any measure of deprivation is only as good as the people who use it and the purpose to which they put it.

- Whilst authors of indexes are clear in their analysis and associated guidance for how to best use the measures, there is no means of guaranteeing that government agencies, funders or others will take account of and act on this information. By way of example does setting of arbitrary cut off points e.g. top 20% MDM make the best use of data?

- In addition to the previous point, and as recognised by many of the bodies who produce them, deprivation indices cannot and should not be used as the only means

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[9] Hasse Trutz,Pratschke Jonathan, Introduction and Reference Tables, The 2011 Pobal HP Deprivation Index for Small Areas, August 2012, page iii

[10] Trutz Haase, Jonathan Pratschke and Justin Gleeson, All-Island Deprivation Index, Towards the Development of Consistent Deprivation for the Island of Ireland

of identifying particular needs or justifying particular support in particular areas, as the indices provide a relative picture of deprivation within a particular area.

- The rural sensitivity of deprivation indices is a recognised challenge across all the jurisdictions given the acceptance that dispersed rural populations make the identification of multiple deprivation harder than it would be in urban areas. There are different approaches to dealing with this issue. Whilst the Republic of Ireland's Pobal HP index is designed in a way to remove/minimise this issue, all of the UK jurisdictions have adopted approaches which either produce rural specific guidance, promote the use of individual domain areas or collate data at the smallest possible geographic unit. This issue also raises questions around the merits and challenges of developing specific rural multiple deprivation measures such as that explored by the OCSI in Wales.

- In Northern Ireland terms there does appear to be grounds for further development of specific rural guidance for the use of the NIMDM, that could follow the template for that produced within Scotland. In addition and building upon the work of organisations such as ACRE in England, there may be value in producing specific supplementary reports for particular rural areas which rather than comparing rural areas to their urban counterparts actually focus on the particular challenges within a rural area at a low level of geography.