

## **Deprivation Measures for New Electoral Wards in Northern Ireland**

**26<sup>th</sup> July 2018**

### **Introduction**

Additional statistics on deprivation were released by the Northern Ireland Statistics and Research Agency (NISRA). These new statistics allow the ranking of the 462 new Electoral Wards (Ward2014), which nest perfectly in the current 80 District Electoral Areas and 11 Local Government Districts in Northern Ireland. The release of deprivation statistics for Wards addresses user needs as expressed during the consultation<sup>1</sup> on the output geography for the updated deprivation measures.

There were significant gaps in the data availability for the exact geographical boundaries, which led to the use of approximating techniques for just under half of the 38 indicators. For example, there are no population estimates for Wards, and many indicators rely upon them to express occurrences as rates. Therefore, unlike the earlier published deprivation statistics, measures for Electoral Wards have **not** been classified as National Statistics, instead they have been classified as Official Statistics.

Wards are ranked from the most deprived (rank 1) to the least deprived (rank 462). Rankings are available for each of 7 distinct types (or domains) of deprivation, which have been combined to produce an overall multiple deprivation measure (MDM) rank. The MDM ranks of the areas should be considered in conjunction with those for each of the 7 domains in order to gain a comprehensive picture of deprivation.

Deprivation measures for the former Electoral Wards (Ward1992) will not be released; 340 out of the 582 Ward names (58%) have been retained, but for the vast majority the boundaries have been changed. Publishing deprivation measures for two sets of Wards with a high degree of overlapping names could lead to confusion.

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<sup>1</sup> See <https://www.nisra.gov.uk/publications/northern-ireland-multiple-deprivation-measure-2017-output-geography-consultation>

## Methodology

The Deprivation Measures for Wards are based on the same methodology and data sources as the Northern Ireland Multiple Deprivation Measures by Super Output Areas (SOA)<sup>2</sup>, which are identical to, or subdivisions of the former Electoral Wards (Ward1992). However, the boundaries of new Wards (Ward2014) are not aligned to SOAs, nor is it possible to accurately approximate Wards with Small Areas<sup>3</sup>, the smallest statistical geography.

The deprivation team has worked closely with data suppliers to obtain data for Wards. This commonly involved going back to the unit record data, carrying out further checks on the aggregated counts, and assessing disclosure risks. All data suppliers were able to provide data for the new Wards to feed into the indicators, with the exception of the Department of Health, who also acted as a gateway to access data from the 5 Health and Social Care Trusts. This has affected the supply of data for emergency admissions, low birth rate, mental health inpatient stays (part of the combined mental health indicator), and a share<sup>4</sup> of the number of child dental extractions.

A more widespread issue is the unavailability of population estimates by Wards. These estimates are commonly used as a denominator to express an indicator of deprivation as a rate, to allow for a comparison across differently sized areas. It is also used to derive standardized rates in the Health Deprivation and Disability Domain, to compare across areas with different age distributions. In all, population estimates are used to create 19 of the 38 indicators.

As mentioned earlier, there is no accurate lookup to Wards by aggregating Small Areas. In the absence of data for the exact boundaries, the next best solution for Small Areas that cover multiple Wards is to apportion data to those Wards. To do this, an apportionment key is required to provide the share of a Small Area to be allocated to a Ward. As most data relate to the (household) population in 2015/16, the number of domestic properties from the Land & Property Service (LPS) has been selected. An example of this method is demonstrated in Annex A. Using this source, it is found that 76% of Small Areas lie in their entirety within a Ward, whilst for 9 out of 10 Small Areas, more than 80% of domestic dwellings are

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<sup>2</sup> Technical report and description of indicators is available at <https://www.nisra.gov.uk/publications/nimdm17-results>.

<sup>3</sup> The quality of such approximation is quantified in [https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/DEA14-Guidance\\_0.pdf#page=4](https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/DEA14-Guidance_0.pdf#page=4).

<sup>4</sup> The Department of Health provided extractions in hospital; the Business Services Organisation (BSO-HSC) supplied extractions by dentists. BSO were able to supply this data by Ward. Each source accounts for roughly 50% of extractions.

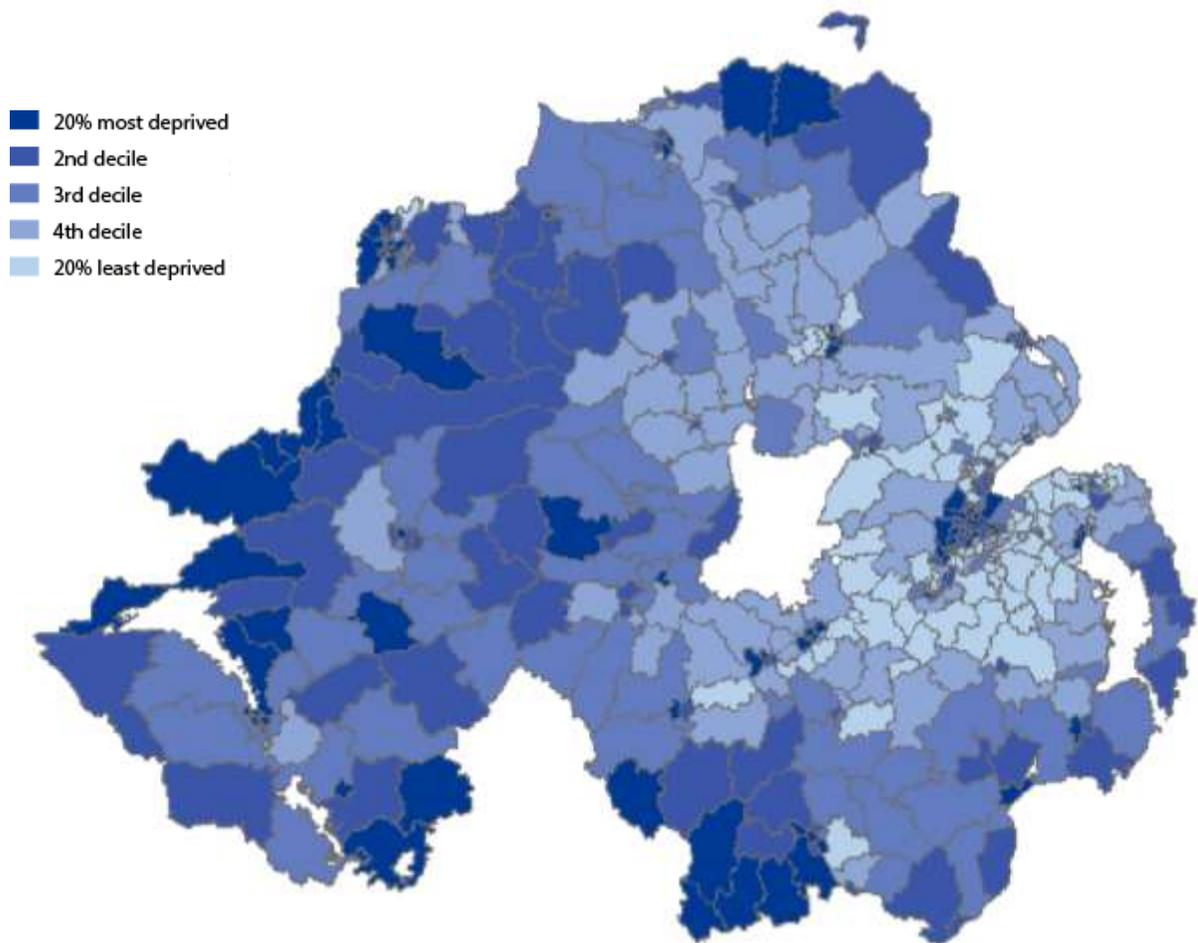
within one Ward. This methodology relies on the assumption that deprivation within a Small Area is distributed homogenously.

The remaining indicators did not rely on population estimates to calculate rates, hence exact data were available at Ward level. Note that they were supplied for the sole purpose of deriving rates of creating a ranking of Wards for each Domain and the Multiple Deprivation Measure. Indicator data will not be published. These indicators are those that are:

- Based on data supplied by the Department for Education;
- Based on data from the 2011 Census; and
- In the Access to Services and Living Environment Domain (except for road traffic collisions).

The NISRA website contains the published rankings of the 462 Wards (Ward2014) for the 7 domains and the Multiple Deprivation Measure (MDM, see Figure 1).

**Figure 1: Multiple Deprivation Measure for Electoral Wards (Ward2014) - Quintiles**



## User Guidance

The new ward level deprivation rankings can be used for the same purposes as the previously published SOA and SA level measures.

What the NIMDM 2017 **can** be used for

For each **individual domain** of deprivation and the **overall MDM**, the rankings can be used to:

- ✔ Explore the relative deprivation of small geographical areas by comparing them with each other
- ✔ Explore which small geographical areas are the most or least deprived
- ✔ Examine the spatial distribution of small geographical areas that are the most or least deprived, however defined
- ✔ Explore which small geographical areas have joined, left or remained in the most or least deprived areas over time

This can be done for Northern Ireland as a whole, or for each individual Local Government District or for other large geographies

What the NIMDM 2017 **cannot** be used for

- ✘ Identifying deprived individuals or groups of people – these are **area based** spatial measures
- ✘ Quantifying the extent to which a small geographical area is deprived – they provide **relative** rankings of areas
- ✘ Quantifying the extent to which one area is more or less deprived than another – they provide **relative** rankings of areas
- ✘ Assessing how absolute deprivation in a small geographical area has changed over time – they provide a **spatial ranking** at a **single point in time**
- ✘ Measuring affluence – lack of deprivation is not the same as being affluent
- ✘ Undertaking UK comparisons – each UK country has a different set of indicators, time periods, domains and domain weights.

Deprivation measures for Electoral Wards have been created to address user needs, mainly from Local Councils as their boundaries are aligned with those of Local Government Districts and District Electoral Areas (DEAs), the basis for electing local councillors. There are however several shortcomings of the Ward level measures in comparison to the published statistics for SOAs and Small Areas.

Firstly, the reliance on apportionment methods and its underlying assumption of a homogenous distribution of deprivation within a Small Area is the main reason why the Ward level measures have been classified as approximations. Whilst this technique was used on roughly half the data sources, they typically related to indicators with a larger weight. Having said that, the impact of alternative apportionment keys<sup>5</sup> was relatively small, with 95% of Wards' ranks changing by 20 or less.

Secondly, and as a direct consequence of the apportionment methodology, indicator data is not available for Wards. The published indicator data for SOAs can be used to 'drill down' to identify particular issues

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<sup>5</sup> Other apportionment keys that have been explored are the 2011 Census population, 2011 Census number of households, and the total number of properties.

in an area, thus possibly aiding in the formulation of an intervention to tackle a type of deprivation. For example, the Crime and Disorder Domain includes incidence rates of violent crime, vehicle crime, burglary and anti-social behaviour disorders.

Thirdly, Wards are larger than SOAs and can conceal pockets of deprivation. A third of Wards hold twice the population of an average SOA; two Wards have a population in excess of 10,000 people<sup>6</sup>. There is no further geographical breakdown of Wards, as opposed to SOAs which are made up from 5 Small Areas on average. Again, this could hinder the appropriate targeting of resources to tackle relative deprivation.

**NISRA**

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<sup>6</sup> Central and Windsor Wards in Belfast, see <http://www.ninis2.nisra.gov.uk/Download/Census%202011/CT0367NI.ods>.

## **Technical Notes**

1. The degree of deprivation in each area was assessed by 38 separate indicators relating to seven types or 'domains' of deprivation, namely: Income; Employment; Health & Disability; Education Skills & Training; Access to Services; Living Environment; and Crime & Disorder. A weighted combination of the seven domains formed the results for the multiple deprivation measure (MDM).
2. The main release of the Northern Ireland Multiple Deprivation Measures (NIMDM) was published on 23<sup>rd</sup> November 2017. It ranked the 890 Super Output Areas (SOA) in Northern Ireland, which have an average population of approximately 2,100 people, from most to least deprived. Additional deprivation measures were released on 12<sup>th</sup> April 2018, providing a ranking of the 4,537 Small Areas, which nest perfectly within Super Output Areas.
3. The summary report and all the updated measures from the NIMDM 2017 can be accessed on the NISRA website at: <https://www.nisra.gov.uk/statistics/deprivation/northern-ireland-multiple-deprivation-measure-2017-nimdm2017>.
4. We welcome feedback on the content, format and relevance of this release. Users can send feedback directly to [deprivation@nisra.gov.uk](mailto:deprivation@nisra.gov.uk).
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6. Further statistical information can be obtained from NISRA Customer Services:  
Telephone: 028 9038 8400  
E-mail: [deprivation@nisra.gov.uk](mailto:deprivation@nisra.gov.uk)  
Responsible Statistician: Brian Green

## Annex A – Example of Apportionment

The apportionment method can be best described with a worked example: an approximation of the population of Abbey Ward in Antrim & Newtownabbey LGD. This Ward encompasses 6 Small Areas in their entirety, plus parts of a further 5 Small Areas. For the latter Small Areas, the LPS Domestic Properties were used to determine the share of a Small Area that can be attributed to an Electoral Ward. N00003889 is split between Abbey and Whitehouse Wards. Of its 175 domestic properties, 62 lie within Abbey, equivalent to 35%. This share can then be applied to the Small Area's population estimate (448). Aggregating the apportioned population estimates of Small Areas returns an approximation of the population of Abbey Ward.

<b>Small Area</b>	<b>Share of Domestic Properties (A)</b>	<b>Mid-2016 Population Estimate for Small Areas (B)</b>	<b>Small Area's population in Abbey Ward (A x B)</b>
N00003889	35%	448	159
N00003890	31%	250	79
N00003891	100%	276	276
N00003892	100%	283	283
N00003893	100%	258	258
N00003894	78%	269	210
N00003895	100%	225	225
N00004084	77%	311	239
N00004085	91%	1,025	930
N00004086	100%	235	235
N00004087	100%	720	720
<b>Approximation for Abbey</b>			<b>3,615</b>