Chapter 5   How should the Provincial Indices of Multiple Deprivation be used?

Spatial targeting

The Provincial Indices of Multiple Deprivation provide a tool for people to identify the most deprived areas within each province. As the data point is 2001, changes will inevitably have occurred since that time. These measures do, however, provided a *starting point* from which to consider small area level deprivation, and can be used alongside local up-to-date information. There are a number of potential uses of a PIMD, but it is hoped that the major purpose will be to assist with spatial targeting. Spatial targeting is the directing of programmes and resources within programmes towards those in greatest social need, where the poorest should be identified objectively using measures of deprivation that are fairly and consistently applied. The intention is that each PIMD will be used by Government, aid agencies and non-governmental organisations to target the most deprived areas. It should be stressed that each PIMD only provides information about relative levels of deprivation *within* the province in question. The PIMDs are *not* comparable across provinces. This means that neither the PIMD scores nor ranks can be compared *between* provinces.

Not every person living in a disadvantaged area is deprived and conversely there are many disadvantaged people living outside the most deprived areas. Any spatial targeting should complement, and not be a substitute for, targeting of groups and people. It should also be remembered that each PIMD is a ward level summary and therefore does not provide information about variations in deprivation that may exist *within* any given ward.

If spatial targeting is used, it is necessary to decide where to draw a threshold. It is inevitable that there will be only marginal differences between some selected wards and some wards that are not selected. The choice of cut-off will be informed by the extent to which the programme or policy aims to concentrate resources on the most deprived areas, or spread resources more widely.

The domain measures

There are five domains within each PIMD, and their interpretation is described below using the Income Deprivation Domain as an example. The Health Deprivation Domain is described separately as it was constructed in a different way to the others.

The Income Deprivation Domain measures the number of people living in households with low incomes and lack of material goods. The count of people living in such households is expressed as a percentage of the total population of the area in question. The score for any ward is thus the percentage of the ward's population living in a household with a household equivalent income below 40% of mean income and/or no refrigerator and/or no TV and radio.

Because the number of people living in low income households or households lacking material goods are simply added, there is no explicit weighting given to the individual indicators. However, geographic patterns in the distribution of low income have the greatest influence on the domain measure as the low income indicator captures a greater proportion of the population than the other indicators.

For the other domains the denominator may be different, for example, for the Education Deprivation Domain, instead of a percentage of the whole population, the domain score is a percentage of 18-65 year olds (inclusive).

The Income Deprivation Domain scores can be placed in rank order, from the most deprived to the least deprived to inform spatial targeting. Because the Income Deprivation Domain scores are straightforward percentages, based on counts, they can be used to inform the distribution of resources across a number of wards.

Actual resources allocated will, however, need to take into account the number of deprived people in an area. While the domain *score* reflects the concentration of deprivation and may help identify the area to be targeted, the *number* of, say, income deprived may be better suited for determining the actual amount of resources provided.

The Health Deprivation Domain

The Health Deprivation Domain measures premature death. This is expressed as a rate: the number of years of life lost per 1000 population. The shrinkage technique was applied to this domain. Shrinkage involves moving 'unreliable' ward scores (i.e. those with a high standard error) towards another more robust score. This may be towards more deprivation or towards less deprivation. The resultant shrunk scores are on the same metric as the original raw scores.

Provincial Indices of Multiple Deprivation

The five domain scores are key outputs of the research, and it is recommended that the domain scores should be used when they are appropriate targeting tools for a specific project or programme. However many programmes will target deprivation in a wider or more general sense, and for this reason a multiple deprivation score has been calculated.

Each PIMD brings together the five domain scores into a single score. The use of the exponential transformation means that deprivation in each domain is aggregated, and relative non-deprivation in any domain essentially does not fully cancel out the deprivation observed in another domain. The exponential distribution emphasises differences between more deprived wards, and by extension makes less distinction between the remaining wards. A practical outcome of this is that small differences in ward rankings are more likely to represent real differences among deprived wards, while small differences in ward rankings among less deprived wards are less likely to represent real differences.

As with the domain indices, the actual resources allocated using each PIMD will also need to take into account the population of deprived areas. The PIMD rank for each ward indicates the concentration of multiple deprivation relative to other wards in the province and may help identify the area to be targeted, but the ward's population size will indicate the actual amount of resources provided to deprived areas that are selected.

Within any given province, wards with similar PIMD scores may have very different domain scores, and require different policy responses.

It is perhaps unsurprising that areas experiencing one form of deprivation frequently also experience other forms of deprivation. Correlations between the five domain scores and each of the PIMD scores were undertaken (results not shown here).

In each province, all domains correlate fairly highly with the overall PIMD for that province. In all cases, the Income Deprivation Domain has the highest correlation with the PIMD (0.914 to 0.974) and also correlates highly with the Living Environment Deprivation Domain. In nearly all provinces the Employment Deprivation, Education Deprivation and Living Environment Deprivation Domains all have a correlation of over 0.7 with their respective provincial index of multiple deprivation, but the intra-domain correlations are not always as high. In most provinces the Health Deprivation Domain has the lowest correlation with its PIMD and all other domains[15].

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[15] Please see **Technical Report** for full details