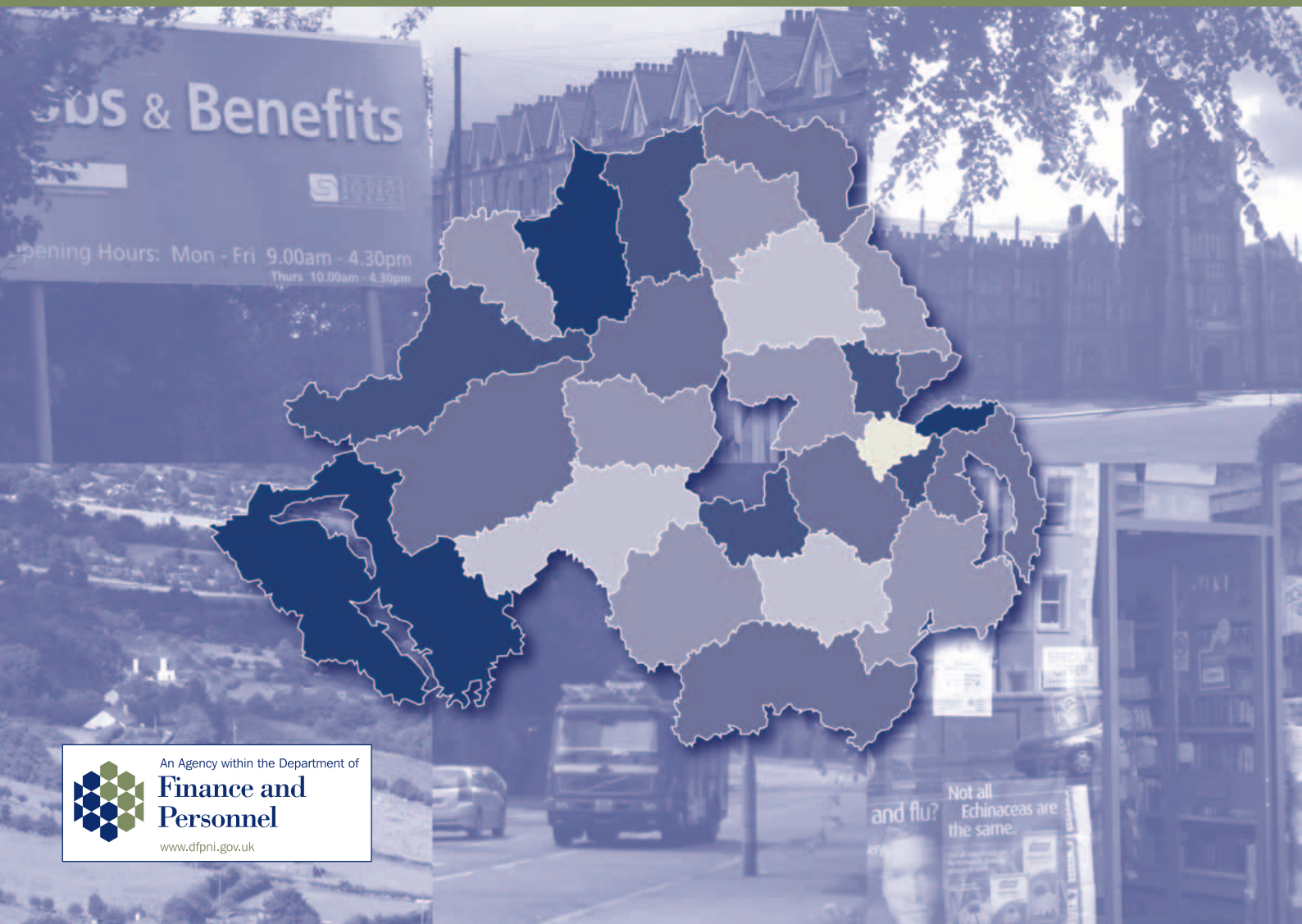
Northern Ireland Statistics & Research agency

NATIONAL STATISTICS

Northern Ireland Multiple Deprivation Measure 2010

May 2010



An Agency within the Department of Finance and Personnel
www.dfpni.gov.uk

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Chapter 1: Introduction

Overview

This report contains the results of research carried out by the Northern Ireland Statistics and Research Agency (NISRA) to identify small area concentrations of multiple deprivation in Northern Ireland. The resulting measure, the Northern Ireland Multiple Deprivation Measure (NIMDM) 2010, replaces the NIMDM 2005 as the official measure of spatial deprivation in Northern Ireland.

The NIMDM 2010 provides information on seven types or 'domains' of deprivation and an overall multiple deprivation measure comprising a weighted combination of the seven domains. The majority of results are presented at the Super Output Area geography.

The following sections outline the background to deprivation measures in Northern Ireland, including the consultation exercise in 2009 and resulting statistical content of the 2010 measures, before displaying the small area results. Maps and summary measures are also included in the results section. A CD is attached to hard copies of the publication and available on request, containing full results in spreadsheet form and presented in interactive maps. All CD content is also directly available from the NISRA website at www.nisra.gov.uk/deprivation.htm.

The final sections of the report contain further details on the geographical units used, indicator construction and the combination of indicators into sub-domains, domains and the overall multiple deprivation measure. Finally the creation of the small area and summary measures at higher geographies is explained.

Separate publications will follow providing guidance on the use of the measures, particularly with respect to change over time; and on recommendations for the creation of future spatial measures of deprivation. A series of dissemination events is planned for Autumn 2010 and will be advertised via the NISRA website and deprivation e-zine.

Background

Spatial measures of deprivation have been used to inform policy and target areas of need in Northern Ireland since the 1970s. Current uses of deprivation measures include the Neighbourhood Renewal Strategy and the Acute Hospitals Resource Allocation Formula.

Early deprivation measures were based on the 1971, 1981 and 1991 Censuses while more recent measures of deprivation in Northern Ireland have been based on administrative data.

In the early 1990s a team from the Centre for Urban Policy Studies in the University of Manchester, led by Professor Brian Robson, was commissioned to create deprivation measures for Northern Ireland. The resulting report, the 'Robson Report', was published in 1994 with measures based primarily on the results of the 1991 Census.

The Northern Ireland Statistics and Research Agency (NISRA) commissioned the Social Disadvantage Research Centre at the University of Oxford to produce updated deprivation measures in 2000. The Northern Ireland Measures of Deprivation 2001 were published in 2001 and based on data relating to 1999. Unlike previous measures the Oxford methodology primarily used information from administrative sources. The 2005 measures of spatial deprivation were also commissioned by NISRA and constructed by a team led by Professor Mike Noble at the University of Oxford. As such these measures of spatial deprivation are often referred to as the 'Noble' measures.

In 2009 Government Departments recommended via Statistics Coordinating Group that the NIMDM 2005 was updated, with a fuller methodological review of the measures to follow after publication of the small area results of the Census 2011.

The scope of the update was broadly limited to a temporal updating of the indicators used in the 2005 research. As such, the intention was to revise statistical indicators only where explicitly recommended in the NIMDM 2005 report, where indicators were no longer available or where data had been significantly enhanced. Any fundamental revisions were not considered as part of the update.

The construction of the 2010 multiple deprivation measures was carried out 'in-house' by NISRA statisticians and overseen by a Steering Group comprising representatives from each of the NI Government Departments, NI Housing Executive, Rural Development Council, NI Council for Voluntary Action, Society of Local Authority Chief Executives, and the Equality Commission. A full list of Steering Group members is available in Annex B.

[4] For more information on National Statistics please see www.statisticsauthority.gov.uk

Consultation

The '*Northern Ireland Multiple Deprivation Measure 2009: Consultation Document*'[1] was published in July 2009 seeking views on the proposals to update the NIMDM 2005. The consultation document was circulated widely and available for download on the NISRA[2] and Northern Ireland Neighbourhood Information Service (NINIS)[3] websites. In total 600 documents were distributed and 550 downloaded.

The associated consultation period ran from 27th July 2009 to 16th November 2009 during which public consultation events were held in Omagh, Lisburn and Belfast. These events were attended by over 100 people and 90 verbal responses were noted. In addition 40 written responses to the consultation were received.

The consultation responses were considered alongside the statistical properties of the available data, the remit of the update to the deprivation measures and the results of an independent peer review. The proposed content was presented to the Deprivation Steering Group and subsequently agreed. '*The Northern Ireland Multiple Deprivation Measure 2010: Blueprint Document*'[4] was published in February 2010 presenting the main issues arising during the consultation period and the rationale for the resulting content of the updated measures.

[1] Northern Ireland Multiple Deprivation Measure 2009: Consultation Document, July 2009
www.nisra.gov.uk/deprivation/archive/Updateof2005Measures/NIMDM_2009_Consultation_Document.pdf

[2] Northern Ireland Statistics and Research Agency website
www.nisra.gov.uk

[3] Northern Ireland Neighbourhood Information Service website
www.ninis.nisra.gov.uk

[4] Northern Ireland Multiple Deprivation Measure 2010: Blueprint Document, February 2010
http://www.nisra.gov.uk/deprivation/archive/Updateof2005Measures/NIMDM_2010_Blueprint_Document.pdf

Chapter 2: Northern Ireland Multiple Deprivation Measure 2010

Introduction to Domains

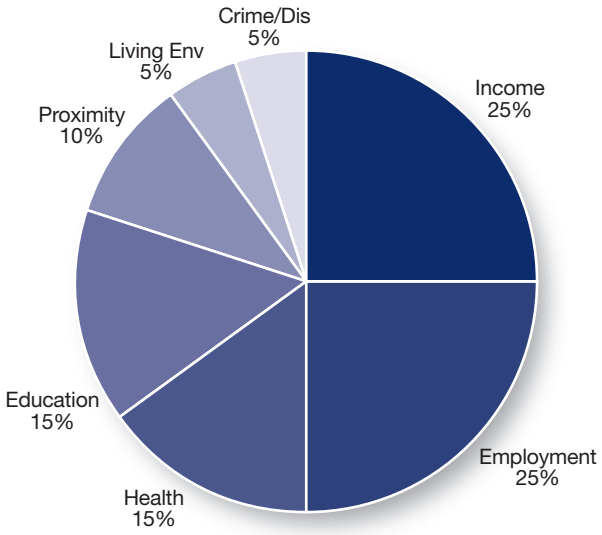
The Northern Ireland Multiple Deprivation Measure (NIMDM) 2010 comprises seven domains of deprivation, each developed to measure a distinct form or type of deprivation; income, employment, health, education, proximity to services, living environment and crime. Although the term deprivation is often synonymous with monetary poverty it is important to note that only the Income Deprivation Domain is intended to measure poverty in this sense. The remaining six domains focus on other types of deprivation, such as the lack of adequate education or poor health. The domains can be interpreted individually or combined to assess deprivation in more than one domain.

The NIMDM 2010 is a combination of all seven deprivation domains, weighted 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%

The weights attributed to each of the domains are as per the NIMDM 2005 and were determined by the robustness of indicator data, user consultation and considerations of theory on models of multiple deprivation. For a full discussion please see page 29, *Northern Ireland Multiple Deprivation Measure 2005: May 2005*.[5]

Composition of Multiple Deprivation Measure 2010



[5] http://www.nisra.gov.uk/deprivation/archive/NIMDM2005FullReport.pdf

Introduction to Indicators

The deprivation domains are constructed from indicators, grouped according to the type of deprivation they measure. In total 52 indicators were included in the overall multiple deprivation measure, chosen after considering the remit of the update, the consultation responses and the results of an independent peer review. The statistical properties of available data were also examined to ensure their accuracy in measuring deprivation.

Each indicator chosen was **specific** to one of the seven domains of deprivation; Income Deprivation, Employment Deprivation, Health Deprivation and Disability, Education Skills and Training Deprivation, Proximity to Services, Living Environment and Crime and Disorder. For example, fuel poverty, although suggested in the consultation, was not used as an indicator of deprivation within the current domain methodology as it results from an interaction between housing quality and low income. However, both of these concepts are captured separately in the Living Environment and Income Deprivation domains.

Within domains indicators were chosen that represented **major features** of that form of deprivation rather than deprivation affecting a small number of people or areas in Northern Ireland. This allowed the degree of deprivation to be identified as opposed to a simple 'present/not present' approach.

In order to provide a *relative* deprivation measure and to allow meaningful area based comparisons indicator data included were available **for all of Northern Ireland** and collected in a consistent form. Where any bias was identified the indicator was omitted or corrected for this effect (for example see discussion in Health Deprivation and Disability Domain on the correction of the potential rural bias in the use of an emergency admissions indicator).

Indicators within each domain were **direct measures** or **good proxies** of that form of deprivation. The majority of indicator data were sourced from administrative systems rather than surveys specifically designed to collect information on deprivation. The main advantage of using administrative data was that it allowed the calculation of detailed small area measures whilst sample surveys generally would not. The main disadvantage to note is that the administrative systems are not designed to collect information on deprivation per se. Although the data from administrative systems are not always direct measures of deprivation, they are excellent proxies, and have the benefit that they allow the calculation of detailed small area statistics.

As the aim of the deprivation measures is to identify small area concentrations of deprivation it is important that indicators were **statistically robust at the small area** level. Where cases or incidences were low, longer time trends were included to ensure indicators were not dominated by one-off or uncharacteristic events.

Finally statistical indicators were as **up to date** as possible to provide information on current deprivation; the majority of data relate to the time period 2007-2009.

Output Geography

The main output geography for the NIMDM 2010 is the Super Output Area (SOA). SOAs were designed for reporting the results of the NIMDM 2005 and are equivalent to Electoral Wards and sub-divisions of Electoral Wards in the majority of cases. In total Northern Ireland is made up of 890 SOAs with an average population of 2,000 people.

SOAs are the optimal small area geography for reporting the results of the NIMDM 2010 as they have been designed to be as similar as possible in population size, unlike Electoral Wards which range from approximately 700 people in Moyle Local Government District to approximately 9,500 people in Belfast Local Government District.

Following consultation responses, Output Area (OA) measures have also been created. In total Northern Ireland is made up of 5,022 OAs with an average population of 350 people.

Summary deprivation measures are available for Electoral Wards, Local Government Districts and Assembly Areas.

Chapter 3: Domains

Income Deprivation Domain

Purpose of the domain

The purpose of the Income Deprivation Domain is to identify the proportion of the population experiencing income deprivation at the small area level. This proportion is calculated by obtaining a non-overlapping count of individuals living in households in receipt of income related benefits and tax credits.

Income Deprivation Domain 2010 indicators

Adults and children in Income Support households (2008/09. Source: DSD)

Adults and children in State Pension Credit households (2008/09. Source: DSD)

Adults and children in income based Jobseeker's Allowance households (2008/09. Source: DSD)

Adults and children in income based Employment and Support Allowance households (2008/09. Source: DSD)

Adults and children in Housing Benefit households (2008/09. Source: DSD/LPS)

Adults and children in Working Tax Credit households whose equivalised income (excluding housing benefits) is below 60% of the NI median before housing costs (August 2008. Source: HMRC)

Adults and children in Child Tax Credit households whose equivalised income (excluding housing benefits) is below 60% of the NI median before housing costs (August 2008. Source: HMRC)

Income Deprivation affecting Children measure

A stand-alone measure combining the percentage of an SOA's children aged under 16 living in families in receipt of Income Support, State Pension Credit, income based Jobseeker's Allowance, income based Employment and Support Allowance, Housing Benefit, Working Tax Credit or Child Tax Credit. Tax credit claimants are included only where the equivalised income is below 60% of the NI median before housing costs.

Income Deprivation affecting Older People measure

A stand-alone measure combining the percentage of an SOA's population aged 60 or over and their partners (if 60 and over), living in households in receipt of Income Support, State Pension Credit, income based Jobseeker's Allowance, income based Employment and Support Allowance, Housing Benefit, Working Tax Credit or Child Tax Credit. Tax credit claimants are included only where the equivalised income is below 60% of the NI median before housing costs.

Changes from NIMDM 2005

There have been a number of changes to the construction of the Income Deprivation Domain as a result of changes in the benefit system and access to data.

Since the creation of the NIMDM 2005 the criteria for claiming Income Support have changed and two additional income related benefits have been created: State Pension Credit and Employment and Support Allowance. State Pension Credits were introduced in 2003, replacing the Minimum Income Guarantee element of Income Support for those over 60 whose income was below a minimum standard, while in 2008 Employment and Support Allowance was launched for new Income Support customers claiming due to an illness or disability. To capture those previously covered by a single Income Support indicator it was necessary to include in the updated domain indicators relating to Income Support, State Pension Credit and the income component of Employment and Support Allowance.

The NIMDM 2005 Income Deprivation Domain included those living in households in receipt of Working Families Tax Credit and Disabled Person's Tax Credit whose income was below 60% of the UK median income. These Tax Credits have since been replaced by Working Tax Credit and Child Tax Credit.

In addition to the amendments necessary due to changes in the administration of benefits and tax credits, a housing benefit indicator has been included in the Income Deprivation Domain. The housing benefit indicator includes those in social rented houses, privately rented houses and owner occupiers in receipt of rate relief or rate rebate. The inclusion of the housing benefit indicator in this form gained broad support in the consultation.

Issues

Two issues concerning the measurement of income deprivation arose during the consultation; the variation in benefit uptake and the potential for the use of a modelled income estimate; and the time period of the domain given the effects of the recession.

Variation in Benefit Uptake

Concerns were raised during the consultation process that differences in benefit uptake may exist across Northern Ireland, such that some groups were more likely to be entitled to, but not receiving, benefits (entitled non-recipients) than others. This was raised in relation to perceived differences in benefit uptake by community background, by pensioners and by 'migrants'.

Although the case of variation in benefit uptake by community background was noted in consultation responses, there is no research that provides backing for this theory. As detailed in the consultation document the Northern Ireland Family Resource Survey is currently the only comprehensive data source which can be used to accurately model entitlement to benefits in Northern Ireland. The number of entitled non-recipients assessed from the survey however is low. As such benefit uptake cannot be modelled robustly using this source.

Similarly it was noted that income deprived economic migrants may not be included in the measures due to restrictions on claiming benefits.

It is likely that the consultation responses referring to 'migrants' related to those coming to live and work in Northern Ireland from one of the eight Central and Eastern European accession countries (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia) following European Union expansion in 2004; the majority of whom are likely to be registered on the Worker Registration Scheme (WRS)[6,7]. Those on the WRS are eligible for Housing Benefit and after 12 months of continuous employment are eligible for the same benefits as UK citizens.[8] The inclusion of a Housing Benefit indicator in the domain will therefore capture those income deprived economic migrants who have resided in Northern Ireland for less than a year. Income deprived economic migrants residing in Northern Ireland for 12 months or more will be counted through the remaining Income Deprivation domain benefits.

Consultation responses also highlighted the perception that using benefit data to measure income deprived older people would result in an undercount due to low levels of benefit uptake. Again, it is difficult to know the extent of the problem as measuring those that are entitled to but not claiming benefits is difficult as described above and as recognised in the Department for Social Development (DSD)'s recent consultation.[9] DSD however have many programmes to promote the uptake of benefits by those that are entitled. Such programmes include local promotional activity, publication of leaflets and the provision of assistance and advice in Social Security Agencies; all of which should help to minimise the number of entitled non-recipients and consequently the potential for undercount in the Income Deprivation Domain.

In a small number of responses the use of modelled income estimates was supported as an alternative to a benefit-based Income Deprivation Domain due to the perception of differing benefit uptake rates.

[6] Long-term International Migration Estimates for Northern Ireland (2004-05) - Sources and Methodology, page 7 http://www.nisra.gov.uk/archive/demography/population/migration/NI_Migration_Report(2005).pdf

[7] For more information on the Worker Registration Scheme see UK Border Agency website http://www.ukba.homeoffice.gov.uk/workingintheuk/eea/wrs/

[8] For more information regarding benefits for non-UK nationals please see http://www.nidirect.gov.uk/index/money-tax-and-benefits/benefits-and-financial-support/beginners-guide-to-benefits/benefits-for-non-uk-nationals.htm

[9] The Department for Social Development commenced a public consultation on the 3rd of September 2009 on plans to withdraw the annual National Statistic on estimates of benefit uptake for Northern Ireland. The results of the consultation are currently under consideration.

The creation of small area income estimates was commissioned by NISRA and produced by the University of Essex following recommendations in the 2005 NIMDM report. To calculate the small area income estimates the Family Resource Survey in 2003/04 and 2004/05 was modelled to the small area level using population characteristics as reported in the 2001 Census.

The peer review team were asked to consider the merits of using a modelled Income Deprivation Domain as opposed to the proposed benefit-based domain. Noting that the report by the University of Essex recognised that any modelling approach which used Census as an important constituent data source will become less reliable as time increases from the Census date, the peer review team recommended that the Income Deprivation Domain should continue to be based on benefit data.

Recession

Clarification was also sought on the time period to which the Income Deprivation Domain data will relate, given that the economic downturn impacted on different parts of Northern Ireland at different stages. It was advised by the Department of Enterprise, Trade and Investment to use the most up to date data, to more accurately reflect the impacts of the recession. Balancing the need for the most up to date statistics given the impact of the recession, and the date to which small area population estimates relate, the Income Deprivation Domain indicator data will cover the period April 2008 to March 2009.

Method of Combination

The seven income data sources were combined and duplicates removed to create a non-overlapping count of people receiving income related benefits/credits.

The Income Deprivation Domain counts all adults and children in income deprived households. The Income Deprivation Affecting Children (IDAC) measure includes only children under 16 years of age living in income deprived households, while the Income Deprivation Affecting Older People (IDAOP) counts those aged 60 and over living in income deprived households.

Interpretation

Each of the three measures (Income Deprivation, Income Deprivation Affecting Children and Income Deprivation Affecting Older People) are expressed as a rate of the relevant population. The Income Deprivation Domain score can therefore be interpreted as the percentage of people in the area that are income deprived. The IDAC reflects the percentage of children in the area that are income deprived and the IDAOP the percentage of older people in the area that are income deprived.

Ranks are provided for all three measures of income deprivation at SOA level. In each case the SOA ranked 1 is the most deprived while the SOA ranked 890 is the least deprived.

Employment Deprivation Domain

Purpose of the Domain

This domain measures employment deprivation defined as involuntary exclusion of the working age population from work.

Employment Deprivation Domain 2010

Unemployment claimant count of women aged 18-59 and men aged 18-64
(2008/09. Source: DSD)

Incapacity Benefit claimants women aged 18-59 and men aged 18-64
(2008/09. Source: DSD)

Severe Disablement Allowance claimants women aged 18-59 and men aged 18-64
(2008/09. Source: DSD)

Carer's Allowance claimants women aged 18-59 and men aged 18-64
(2008/09. Source: DSD)

Employment and Support Allowance claimants women aged 18-59 and men aged 18-64
(2008/09. Source: DSD)

Steps to Work or New Deal Participants women aged 18-59 and men aged 18-64
(October 2008 – March 2009. Source: DEL)

Changes from the NIMDM 2005

There are a number of differences between the construction of the Employment Domain in 2005 and 2010 as a result of changes to the administration of benefits and government employment programmes.

In September 2008 Steps to Work, the Department for Employment and Learning (DEL)'s new flexible approach to helping people to find work, was introduced in Northern Ireland. The Steps to Work programme subsumes the main New Deal programme which was included in the NIMDM 2005 to capture those not claiming Jobseeker's Allowance but who were actively seeking employment. The Steps to Work indicator therefore replaces the New Deal indicator.

Employment and Support Allowance was introduced in 2008 for new Incapacity Benefit claimants: a benefit specific to those that cannot work due to illness or disability. Those who were already claiming Incapacity Benefit continue to claim this benefit while new eligible claimants receive Employment and Support Allowance. Therefore Incapacity Benefit and Employment and Support Allowance were both included in the Employment Deprivation Domain.

Issues

Concerns raised during the consultation centred on two main issues; the lack of a specific measure of hidden unemployment and the potential for variation in benefit uptake, particularly regarding economic migrants. The latter issue has been dealt with in the Income Deprivation Domain section.

Hidden Unemployment

In general hidden unemployment refers to people who are not actively seeking employment but who would like to work. This type of unemployment is often 'hidden' in unemployment statistics as the unemployed are defined as not working but available to work.

The Employment Deprivation Domain comprises a range of benefit data to capture the number of working age adults at the small area who would like to work but are unable to. Those who are available to work are recorded via the Jobseeker's Allowance indicator while those who cannot work due to an illness or disability are counted through the Incapacity Benefit, Severe Disablement Allowance or Employment and Support Allowance measures. After consultation in 2004 an indicator relating to carers was also included in the NIMDM 2005 as it was argued that carers were not voluntarily out of the labour market.

The inclusion of Incapacity Benefit, Severe Disablement Allowance, Employment and Support Allowance, and Carer's Allowance recipients in the Employment Deprivation Domain goes some way to include people who are classed as the 'hidden unemployed' rather than focussing purely on active job seekers. There are however others who are not eligible for the above benefits who would like to work but are *unavailable* for work. Mothers who are not working due to high child care costs are an often cited example.

The NIMDM 2005 report recommended further research to ascertain whether the Labour Force Survey and the Family Resource Survey could be used to create a measure of the hidden unemployed. Due to the nature of sample surveys and the small number of people who are likely to be identified in this category, results could not be modelled robustly to the small area level.

Concerns were expressed in the consultation responses that such a measure could not be included. It should be noted however that the current Employment Deprivation Domain contains indicators beyond those normally included in unemployment related measures with the aim of including those that may be described as the hidden unemployed.

Method of Combination

The data sources were combined and duplicates removed to create a non-overlapping count of people receiving employment related benefits. The non-overlapping count is expressed as a rate of the working age population (females aged 18-59 years and males aged 18-64 years).

Interpretation

The resulting score for the Employment Deprivation Domain can be interpreted as the percentage of working age people in the area that are employment deprived.

Each of the SOAs is also ranked based on the Employment Deprivation Score, giving a *relative* measure of employment deprivation. The SOA ranked 1 is the most deprived while the SOA ranked 890 is the least deprived.

Health Deprivation and Disability Domain

Purpose of the Domain

The Health Deprivation and Disability Domain identifies areas with relatively high rates of premature deaths and areas where relatively high proportions of the population's quality of life is impaired by poor health or who are disabled.

Health Deprivation and Disability Domain 2010

Potential Years of Life Lost
(2004 to 2008. Source: GRO)

Comparative Illness and Disability Ratio
(Age and gender standardised ratio derived from a non-overlapping count of Income Support claimants in receipt of disability premium, State Pension Credit claimants in receipt of severe disability premium, and claimants of Attendance Allowance, Severe Disablement Allowance, Disability Living Allowance, Incapacity Benefit and Employment and Support Allowance.
2008/09. Source: DSD)

A combined mental health measure of three indicators:

i) Individuals suffering from mood and anxiety disorders, based on prescribing data (2008/09. Source: BSO)
ii) Suicides (1999 to 2008. Source: GRO)
iii) Mental health inpatient stays (2003/04 to 2007/08. Source: DHSSPS)

People registered as having cancer (excluding non-melanoma skin cancers)
(2003 to 2007. Source: Northern Ireland Cancer Registry)

Hospital Emergency Admission Rate
(2007/08. Source: DHSSPS)

Low Birth Weight
(2004 to 2008. Source: Child Health System)

Children's Dental Extractions
(2006/07 to 2007/08. Source: BSO and DHSSPS)

Changes from NIMDM 2005

The Health Deprivation and Disability Domain 2010 includes a number of changes to the 2005 domain. As recommended in the 2005 deprivation report indicators relating to children's health have been included; Low Birth Weight and Children's Dental Health; as well as including information on emergency admissions to hospital and mental health inpatient stays.

Issues

A number of consultation responses expressed concern at the inclusion of an Emergency Admissions indicator. Specifically the concern was that an indicator based on hospital admissions would contain a rural bias, such that for a given level of health need there would be fewer emergency admissions from rural areas than from urban areas due to the relative ease of access to Accident and Emergency Units in urban areas.

Statisticians in the Department of Health, Social Services and Public Safety (DHSSPS) have carried out significant research into this hypothesis. Their findings show that there is a small negative correlation between spatial rural-related variables (e.g. population density) and emergency admission rates. Modelling standardised emergency admission rates whilst controlling for health need showed that although there was no discriminatory rural effect, there was a small but significant distance to Accident and Emergency hospital effect. As the effect disappeared completely when admissions with a length of stay of three or fewer nights were removed, it was advised that only emergency admissions of four nights or more were included in the indicator. The indicator included in the NIMDM 2010 Health Deprivation and Disability Domain therefore considers only admissions resulting in a stay of four or more nights.

Similar access issues were raised when the inclusion of a mental health inpatient stays indicator was proposed. Information on mental health inpatient stays was suggested as a component of the mental health indicator which previously comprised a measure of people receiving prescriptions for mood and anxiety disorders, and the suicide rate.

Mental health indicators were first included in the NIMDM 2001 after consultation showed that it was viewed as an important aspect of health deprivation, particularly as it may capture some of the long-term psychological costs of the Troubles.[10] The consultation in 2009 also showed support for measures of mental health.

It is recognised however that the measurement of mental health deprivation is not without its difficulties. Concerns were raised that prescription habits may vary between GPs, that admissions to a mental health unit would be driven in part by access, and that using three measures could lead to a double or triple count of those with mental health problems.

The proposed indicator comprises three sources of information on mental health deprivation. The intention is not to create a count of the number of people who suffer from mood and anxiety disorders by simply summing these, but to use several sources of information that are all thought to occur as a result of one underlying factor – mental health deprivation.

Each of the three sources is likely to measure mental health deprivation with some error. Although it is difficult to know the degree to which, for example, accessibility issues play a part in determining who is admitted to a mental health unit and so how large or small the error is, it is assumed that the errors associated with each of the three data sources are not correlated and therefore a combined measure would create a stronger indicator than one source.

Similarly, there may be errors associated with using prescription data as a proxy for a measurement of those suffering from mood and anxiety disorders. The error in this measure associated with the differences in prescribing habits are likely to be small as two monitoring systems are currently in place to examine prescribing behaviours. Firstly Health and Social Care Board prescribing advisors regularly monitor prescribing activity of practitioners and visit GP Practices to discuss good practice in this area; and secondly the COMPASS service which a) provides quarterly reports to each practice benchmarking it within its peer group and b) provides professional advice to practitioners about effective prescribing.

Both of the above should help to minimise the variation in prescription habits between GPs, and so the error associated with this measure. The combination of this measure with prescription data and suicide rates should further improve the measurement of mental health.

Method of combination

The domain will comprise seven indicators, each relating to a different type of health deprivation or disability, for example premature death or children's health. The aim of the domain is not to create a count of health deprived or disabled people, as in the income and employment domain, as clearly it is possible that one person may be admitted to hospital in an emergency as well having a separate non-related disability. Instead the analysis supposes that there is an underlying factor to which each of the imperfect measures is related. Factor analysis is therefore used to determine the weights for each of the indicators in the Health Deprivation and Disability Domain. Further detail on factor analysis is provided in the Technical Annex.

The three mental health measures were also combined using factor analysis to form a single indicator. All indicators were then ranked and their ranks transformed to a standard normal distribution. The transformed ranks were combined with weights determined by factor analysis. The resulting scores are ranked to form the Health Deprivation and Disability Rank.

Interpretation

The Health Deprivation and Disability score results from the combination of the transformed indicator ranks described above and in more detail in the Technical Annex. Unlike the Income and Employment Deprivation Domains the score has no obvious meaningful interpretation. It is not possible to interpret the score as an absolute measure of Health Deprivation and Disability or to determine the percentage of people experiencing this form of deprivation.

The Health Deprivation and Disability Rank provides a relative measure of this form of deprivation. The SOA ranked 1 is the most deprived while the SOA ranked 890 is the least deprived.

[10] Northern Ireland Multiple Deprivation Measure 2005, May 2005, Section 4, page 13
http://www.ninis.nisra.gov.uk/mapxtreme_deprivation2005/viewData/Deprivation2005Report.pdf

Education, Skills and Training Deprivation Domain

Purpose of the domain

The purpose of the domain is to measure the extent of deprivation in education, skills and training at the small area level for both children and working age adults.

Education Skills and Training Deprivation Domain 2010

Sub–Domain: Primary School

Key Stage 2 Teacher Assessments for English and Maths (and Irish in Irish medium schools/units)
(2006/07 to 2007/08. Source: DE)

Proportions of pupils attending Special Educational Needs Schools or attending primary school with Special Educational Needs Stages 3-5
(2006/07 to 2007/08. Source: School Census, DE)

Absenteeism at primary schools (all absences)
(2006/07 to 2007/08. Source: DE)

Sub–Domain: Post-Primary School

Key Stage 3 Teacher Assessments for English and Maths (and Irish in Irish medium schools/units)
(2006/07 to 2007/08. Source: DE)

GCSE or equivalent qualifications points score
(2005/06 to 2007/08. Source: School Leavers Survey, DE)

Proportions of those leaving school aged 16, 17 and 18 and not entering Further Education, Employment or Training
(2003/04 to 2007/08. Source: School Leavers Survey, DE)

Proportions of 18-21 year olds who have not enrolled in Higher Education Courses at Higher Education or Further Education establishments
(2004/05 to 2007/08. Source: HESA and FESR, DEL)

Proportions of pupils attending Special Educational Needs Schools or attending post-primary school with Special Educational Needs Stages 3-5
(2006/07 to 2007/08. Source: School Census, DE)

Absenteeism at post-primary schools (all absences)
(2006/07 to 2007/08. Source: DE)

Sub-Domain: Working Age Adults

Proportions of working age adults (25-59) with no or low levels of qualification
(2001 Census. Source: NISRA)

Changes from the NIMDM 2005

Following the recommendations in the NIMDM 2005 report and support during the consultation process the Education, Skills and Training Domain 2010 has developed to include measures relating to children of primary school age. As such, three additional indicators have been included: primary school absenteeism rates, primary level special educational needs (SEN) and KS2 performance, which are grouped together to form the Primary School Sub-Domain. The school leavers indicator which considers the destinations of those leaving school has also been expanded to include those not entering employment, education or training, rather than not entering education which was the focus of the 2005 indicator.

Three main issues arose concerning the Education, Skills and Training Domain proposals.

Comparability of Special Educational Needs Assessments

A number of consultation responses expressed concern that special educational needs scores were not applied/awarded consistently across Northern Ireland. If this is the case the measures would include a bias and so would not be an appropriate indicator of real educational need or education deprivation.

Special Educational Needs (SEN) stages range from 1 to 5 (in increasing order of severity) and on advice from statisticians in the Department of Education it has been decided to include only pupils at stages 3 - 5 on the SEN Code of Practice in the primary and post-primary SEN indicators. Pupils at those stages have been subject to formal assessment of their needs by specialists from the Education and Library Boards or other statutory providers. Including those at stages 3-5 measures those pupils with the highest level of special educational needs and minimises the potential for inconsistencies across schools and areas.

Comparability of Absenteeism Rates
Similarly some concern was raised about the recording of absenteeism sessions across schools with a view that schools differed in their criteria for assigning an absence as 'authorised' or 'unauthorised'. In keeping with the NIMDM 2005 and the Department of Education's reporting of absence statistics[11] both authorised and unauthorised sessions were used in the primary and post-primary absenteeism indicators.

Comparability of Key Stage 2 Assessments
The proposal to replace 'the proportions of children aged 11 and 12 not attending grammar school' indicator included in NIMDM 2005 with Key Stage 2 Teacher Assessments gained broad support. One response however questioned the degree to which assessments were monitored across primary schools.

The specific indicator measured is the proportion of pupils attaining the expected level in English, Maths and Irish (in Irish medium schools) at Key Stage 2. This indicator is also included as one of the Department of Education's Public Service Agreement targets and is endorsed with the Department as the most reliable measure of primary level performance across Northern Ireland.

Other concerns

Responses also pointed to the lack of a measure relating specifically to 'migrant' children, such as the number of children with English as an additional language.

The Education, Skills and Training Deprivation Domain aims to measure deprivation through educational outcomes, such as attainment at Key Stage 2, Key Stage 3 and GCSE level. Having English as an additional language does not lead to poor educational attainment per se and so a measure of the number of children with English as an additional language is not included. This is not to say that children with English as an additional language will be excluded from the domain. Children who have English as an additional language who are also deprived in terms of education will be captured in the domain through low attainment in the assessments listed above.

Similarly the lack of a 'Free School Meals' indicator was questioned. A child's entitlement to free school meals is determined by their household income through their parents' or guardians' eligibility for income related benefits. Children living in income deprived households will be included in the income deprivation domain which is intended solely to measure this form of deprivation. Children who receive free school meals and perform poorly at school will be included in the domain via the outcome indicators.

Method of Combination

Indicators in the Primary and Post-Primary Sub-Domains were ranked, transformed to a normal distribution and combined using weights determined by factor analysis. The Working Age Adults Sub-Domain is expressed as a rate of the 25-59 year old population.

The three Sub-Domain scores are ranked, transformed to an exponential distribution and combined with equal weights to form the overall Education, Skills and Training Domain.

Interpretation

The working age adults sub-domain score can be interpreted as the percentage of working age adults in an area who have low or no levels of qualifications. The primary and post-primary sub-domain scores cannot be interpreted in this way.

Each of the sub-domain scores were ranked to provide relative measures of education, skills and training deprivation for the three broad age groups. In each sub-domain the SOA ranked 1 is the most deprived, while the SOA ranked 890 is the least deprived. The Education, Skills and Training Domain Rank takes all three sub-domains into account. SOAs are ranked from most deprived (rank 1) to least deprived (rank 890).

[11] Attendance at grant-aided primary, post-primary and special schools 2007/08: Detailed Statistics http://www.deni.gov.uk/school_attendance_-_statistical_press_release_200708.pdf

Proximity to Services Domain

Purpose of the Domain

The purpose of this domain is to measure the extent to which people have poor geographical access to key services, including statutory and general services.

Proximity to Services 2010

Fastest road travel time from to:

- GP premises (2009, Source: BSO)
- Accident and Emergency hospital (2009, Source: DHSSPS)
- Dentists (2009, Source: BSO)
- Pharmacists (2009, Source: BSO)
- Opticians (2009, Source: BSO)
- Job Centre or Jobs and Benefits Office (2008, Source: DEL)
- Post Office (2009, Source: Post Office Ltd)
- Supermarket / Food Store (2007, Source: Experian)
- Large Service Centre (Source: DSD)
- Council Leisure Centre (2009, Source: DCAL)
- Financial Services (2007, Source: Experian, Credit Union Register)
- Other general services (2007, Source: Experian)

Changes from NIMDM 2005

A number of additional indicators have been included in the 2010 Proximity to Services Domain following recommendations in the NIMDM 2005, improved data availability and support in the consultation responses. As well as their inclusion there has been a change in the calculation of 'proximity' from road distance to road travel time.

Specifically the NIMDM 2010 has been developed to include council leisure centres, financial services and a general services indicator. In addition the supermarket indicator has been broadened to measure all food stores regardless of number of employees, large service centres have been determined by service provision rather than population size and cross border Accident and Emergency Services and large Service Centres have been included.

Proximity not Access

During consultation, a number of general concerns were expressed, highlighting the fact that proximity does not equate to access. These centred on availability of public transport for those lacking access to a car; the difficulty of cross-community movement (both physical and psychological); physical problems of the elderly and disabled; and high costs associated with using convenience stores or cross-border services.
It is recognised that these (and other) factors are indeed likely to impact on the ability and wish of people to access services that are in relatively close proximity on the basis of estimated car travel time. Obtaining the data to take account of the difference between proximity and access has, however, already proved difficult for some aspects (in respect of public transport) and it would be massively more difficult for other matters, for example taking account of preferred shopping venue for the residents of every small area in Northern Ireland. Nonetheless, it seems preferable to produce a basic measure of proximity, basically similar to previous work, which can serve as a foundation for improvements as and when the data becomes available.

Food Shops

The proposal for including smaller food shops in the supermarket / food store indicator met with some objections on the basis that supermarkets were usually cheaper and offered a better range of healthy foods. It should, however, be noted that the previous version of the measure actually referred to supermarkets with 50 or more employees, the great majority of which stores are found in service centres. This means that to a large extent, the indicator was duplicating another indicator. Furthermore, large supermarkets are apt to devote a greater proportion of their floor space to non-food items, compared with the smaller supermarkets within their own chain. In general, whilst accepting that cheap food is preferable to expensive food, expensive food remains preferable to no food. There is some evidence from England that sales of food in convenience stores increased during the snowy period of 2009-2010, when access to supermarkets was restricted by the weather. Accordingly, the proposed extension of the indicator seems justified.

Cross Border Services

In addition to concerns about the possibility that, regardless of proximity, services in the Republic of Ireland may be more difficult to access or of a different quality, it was also suggested in the consultation responses that the deprivation measures should be restricted to services provided by Northern Ireland for Northern Ireland. Given that cross-border movement is possible and does in fact occur, it seems inappropriate to ignore services in the Republic of Ireland where data is available on them i.e. service centres and Accident and Emergency services.

Travel Time

There was general agreement with the proposed change from travel distance to travel time as a measure of proximity, but some concerns were expressed about the applicability of assumptions concerning achievable speeds on various kinds of road. These concerns related to impact of weather, state of road repair and traffic congestion. Factors such as these, however, impact with equal force on travel distance itself, since the use of distance is equivalent to an implicit assumption that all roads allow equal speed. Monitoring of such matters is likely to prove difficult and again, it seems preferable to make use of the data that is available now, until such time as improved data becomes available.

Method of combination

Travel time is determined by the quickest road route between the location of a service and the location of the population. The location of a Northern Ireland-based service is deemed to be at the population-weighted centroid of the OA where it occurs.

For each OA, a travel time to each of the services is available. This is adjusted to take account of the average travel time that would be anticipated, given the number of locations at which the service is available, thus preventing less commonly available services from dominating the final result simply by virtue of the fact that they are less common and so travel times are greater to reach them (the effect of clustering of particular services in certain parts of Northern Ireland is not removed by this technique). An average overall travel time for all services is calculated, giving double weight to Accident and Emergency Services to reflect their perceived importance, in line with previous analysis.

The SOA results were calculated by taking the weighted average of travel times to all services for constituent OAs. Weightings were determined by OA populations.

Interpretation

Indicator data are provided for the Proximity to Services Domain at Output Area level. Scores can be interpreted as the average time in minutes to travel to a service from a given Output Area.

The Proximity to Services Domain rank provides a relative measure with rank 1 indicating the most deprived SOA and rank 890 indicating the least deprived SOA.

Living Environment Domain

Purpose of the Domain

The aim of the Living Environment Domain is to identify small areas experiencing deprivation in terms of the quality of housing, access to suitable housing, and the outdoor physical environment. As such the Living Environment Domain comprises three sub-domains.

Living Environment Domain 2010

Sub-Domain: Housing Quality

SOA level Decent Homes Standard
(2006. Source: NIHE, modelled NI House Conditions Survey)

SOA level Housing Health and Safety Rating System
(2006. Source: NIHE, modelled NI House Conditions Survey)

Sub-Domain: Housing Access

Homelessness Acceptances under the homelessness provisions of the Housing (Northern Ireland) Order 1988 and the Housing (Northern Ireland) Order 2003
(2005/06 to 2007/08. Source: NIHE)

Sub-Domain: Outdoor Physical Environment

SOA Local Area Problem Score
(2006. Source: NIHE, modelled NIHCS)

Changes from the NIMDM 2005

The Housing Quality Sub-Domain includes two indicators that were not included in the 2005 Domain; Decent Homes Standard and Housing Health and Safety Rating System. The Decent Homes Standard is a measure of the quality of a house in terms of its state of repair, thermal comfort and how modern the facilities are. The Housing Health and Safety System focuses on defects in dwellings that pose a health and safety risk to occupants. Both indicators are modelled from the House Conditions Survey and applied to the Land and Property database which provides information on type and age of houses in an area.

Two indicators from the 2001 Census are no longer included in the Living Environment Domain: Households with central heating and household overcrowding.

The majority of consultation responses were in support of the improvements proposed for the Living Environment Domain.

Measurement of Overcrowding

In general consultation responses recognised that although overcrowding is an important issue and form of deprivation, to use data relating to Census 2001 would be an inaccurate measure of the current spatial distribution of overcrowding in Northern Ireland. In particular it was noted that the significant migration taking place in Northern Ireland following the accession of eight Central and Eastern European countries to the EU was likely to have an effect on which areas experienced overcrowding. Many respondents however asked that such an indicator was included in future measures when the small area results of the 2011 Census become available.

As detailed in the consultation document an alternative source, the House Conditions Survey which also records information on overcrowding, was considered. Following advice from the Northern Ireland Housing Executive (NIHE) it was decided not to use this information source as only a small number of migrant houses were likely to be covered by the survey and so would not be a solution to the problem described above.

The use of information on 'Houses in Multiple Occupation' (HMO) was suggested as an alternative indicator of overcrowding in the consultation responses. The peer review team was asked to consider whether the HMOs recorded by the NIHE could be used as an indicator of overcrowding, or if there were alternative sources of information on overcrowding that could be employed.

The peer review team recommended that HMOs were not included in the Living Environment Domain as it measures a different phenomenon to overcrowding. Specifically the definition of an HMO is 'a house occupied by more than 2 qualifying persons, being persons who are not all members of the same family'.[12] As such the HMO data could include a student household but exclude a large family living in overcrowded conditions.

[12] Northern Ireland Housing Executive definition of 'Houses in Multiple Occupation' www.nihe.gov.uk/index/yh-home/renting_privately/hmo/definition.htm

The peer review team recommended further investigation into the application of overcrowding time trends as shown in the Continuous Household Survey to the small area Census data recorded in 2001.

The Continuous Household Survey (CHS) collects information on overcrowding as defined by the bedroom standard[13] and shows a decrease in the level of overcrowding in Northern Ireland from 4.1% in 2000-01 to 2.0% in 2008-09. The published results from the Census 2001 include a different measure of overcrowding based on occupancy ratings[14] and show that 7.3% of households were classed as overcrowded in 2001. Analysis at Health Board Level showed that the two measures were not consistent in the relative degree of overcrowding between Health Boards i.e. Census data recorded the Western Health Board as having the highest percentage of overcrowded households and Northern Health Board the lowest, while the CHS recorded Western Health Board and Southern Health Board as highest and lowest respectively. If the two measures differed in definitions of overcrowding but agreed on the relative differences between areas i.e. overcrowding was consistently higher in one area than another, it would be possible to apply the change in overcrowding from the CHS to the small area results of the Census. As the results from the two sources differ it would not be appropriate to apply such a technique.

The peer review team also considered the options if the CHS and Census proved incompatible. They note that retaining the Census 2001 indicator has the disadvantage that it is out of date, and the advantage that is maintains consistency with the NIMDM 2005. However as the Housing Health and Safety indicator includes a measure of overcrowding, and the majority of consultation responses were in favour of dropping the indicator they conclude that it may be unnecessary to have a separate overcrowding indicator.

Therefore, following recommendations from the peer review and in light of the support from the consultation responses, a measure of overcrowding based on the 2001 Census was not included in the updated Living Environment Domain.

Other Concerns

Other responses expressed disappointment at the lack of a road quality indicator as recommended in the 2005 NIMDM report. As detailed in the consultation document the Department for Regional Development holds information on road type, not quality, and thought this would not be an accurate reflection of deprivation. A road quality indicator of this type will therefore not be included in the domain. A number of responses also gave suggestions for the fuller review of the measures post 2011, including indicators relating to litter, quality of open space, interface areas and perception of safety.

Method of Combination

Indicators were ranked and transformed to a normal distribution. In the Housing Quality Sub-Domain indicators were combined with equal weights to produce the sub-domain score.

The resulting sub-domain scores were ranked and transformed to an exponential distribution and combined with equal weights.

Interpretation

Sub-domain ranks can be assessed separately to determine deprivation in terms of Housing Quality, Housing Access and Outdoor Physical Environment. The Living Environment Domain Rank provides a fuller picture of living environment deprivation.

It is not possible to interpret the sub-domain or domain scores as absolute measures of Living Environment deprivation or to determine the percentage of people experiencing this form of deprivation.

[13] A dwelling will be overcrowded where the number of bedrooms available to the occupiers is less than the number of bedrooms allocated to them in accordance with a simple formula based on the age and sex of occupants.

[14] The overcrowded indicator provides a measure of under-occupancy and overcrowding. For example, a value of -1 implies there is one room too few and that there is overcrowding in the household. The occupancy rating assumes that every household, including one person households, requires a minimum of two common rooms (excluding bathrooms).

Crime and Disorder Domain

Purpose of the domain

The Crime and Disorder Domain measures the rate of crime and disorder at the small area level. This includes recorded crime, deliberate fires and incidents of anti-social behaviour.

The Crime and Disorder Domain consists of two sub-domains; the Crime Sub-Domain and the Disorder Sub-Domain.

Crime and Disorder Domain 2010

Sub-Domain: Crime

Violence, robbery and public order
(2004/05 to 2008/09. Source PSNI)

Burglary
(2004/05 to 2008/09. Source PSNI)

Vehicle Theft
(2004/05 to 2008/09. Source PSNI)

Criminal Damage
(2004/05 to 2008/09. Source PSNI)

Sub-Domain: Disorder

Deliberate Primary and Secondary Fires
(2004/05 to 2008/09. Source: NIFRS)

Anti-Social Behaviour Incidents
(2006/07 to 2008/09. Source: PSNI)

Changes from the NIMDM 2005

The Crime sub-domain comprises the same indicators as the 2005 Crime Sub-Domain. As in 2005, the 2010 Disorder sub-domain contains indicators relating to fires and community safety/disturbances. The fire indicator has been broadened to include both primary and secondary fires, while the disturbances indicator is based on records of anti-social behaviour incidents.

Three main issues were noted during the consultation.

Reporting Rates

The main concern expressed in the consultation responses was the reliance on reported crime data from the PSNI in the Crime Sub-Domain. As there is a perception that reporting of crime varies by area with deprivation itself decreasing the likelihood of reporting a crime, a number of consultation responses expressed disappointment that the results of the Northern Ireland Crime Survey (NICS) could not be used in the Crime Sub-Domain.

It is recognised that there is a perception that reporting rates vary. The most up-to-date research carried out by the NIO using the NICS 2007/08 however gave inconclusive results on the relationship between deprivation and reporting rates. As such, the recorded crime rates for Violence, Robbery and Public Order, Burglary, Vehicle Theft and Criminal Damage will be included in the Crime Sub-Domain without adjustment.

Secondary Fires

The lack of an indicator relating to 'Secondary Fires' was also queried during the consultation period. The original proposal was to include only 'Primary Fires'; broadly defined as involving buildings and structures, and other property such as vehicles, storage, plant and machinery; fires involving casualties, rescues or escapes; and fires where significant fire and rescue service resources are employed. Secondary fires do not involve casualties, rescues or escapes and include fires in derelict buildings and refuse containers, but also result in action from the Fire and Rescue Service.

Subsequent discussions with the Northern Ireland Fire and Rescue Service (NIFRS) gave support for the inclusion of secondary fire data, as the majority of fires occurring in Northern Ireland are classed as 'secondary'. Although the definition of fires differs for NIFRS reporting purposes, a fire in a neighbourhood regardless of its classification is likely to represent some degree of disorder. As such, both primary and secondary fires are included in the Deliberate Fires indicator.

Hate Crimes

Other consultation responses suggested the inclusion of a hate crime indicator. Although a separate indicator is not included, it is worth noting that any crimes motivated by 'hate' resulting in violence or criminal damage, for example, will be captured in the Crime Sub-Domain through the listed recorded crime indicators.

Method of Combination

Within the Crime Sub-Domain each of the indicators will be converted to rates of the at risk population before ranking and standardising to a normal distribution. The standardised values will be added with equal weights, resulting in the Crime Sub-Domain score.

Similarly the two indicators in the Disorder Sub-Domain will be converted to rates, ranked and transformed to a normal distribution. The two indicators will be combined with a 60% weight for Anti-Social Behaviour Incidents and a 40% weight for Deliberate Primary and Secondary Fires as in the NIMDM 2005. The resulting value is the Disorder Sub-Domain score.

The Crime and Disorder sub-domain scores will be ranked and transformed to an exponential distribution. The values for each sub-domain will be combined in a 60:40 ratio for crime and disorder respectively resulting in the Crime and Disorder Domain Score.

Interpretation

Sub-domain ranks can be assessed separately to determine deprivation in terms of Crime and Disorder individually. The Crime and Disorder Domain Rank provides a fuller picture of Crime and Disorder deprivation.
It is not possible to interpret the sub-domain or domain scores as absolute measures of Crime and Disorder deprivation or to determine the percentage of people experiencing this form of deprivation.

Northern Ireland Multiple Deprivation Measure 2010

The seven domains of deprivation can be interpreted as separate dimensions or types of deprivation as described above. The domains can also be combined to form a multiple deprivation measure which takes account of all domains of deprivation.

The Multiple Deprivation Measure is a weighted combination of the seven domains of deprivation. To combine the domains, the domain ranks are firstly transformed to an exponential distribution (ranging from 0 to 100) and combined with the following weights:

- 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%

The resulting combined score is ranked to give the Multiple Deprivation Measure Rank. As with the individual domains, rank 1 indicates the most deprived Super Output Area while rank 890 denotes the least deprived Super Output Area.

Chapter 4: Results

Ten measures are presented at the **Super Output Area (SOA) level** in the following section: The Multiple Deprivation Measure, seven domains of deprivation and two supplementary income measures for older people and children. An overview of the distribution of the multiple deprivation measure is discussed with reference to the Local Government Districts (LGDs) and NUTS 3 areas; Belfast, Outer Belfast, East of Northern Ireland, North of Northern Ireland and, West & South of Northern Ireland. The most deprived rural areas are highlighted in a brief section.

The Multiple Deprivation Measure is also presented at the **Output Area (OA) level**. This measure was created using OA indicators where possible. Where OA level indicators were not robust or available, SOA results were applied to constituent OAs. For more details on the construction of the OA measures please see Technical Annex section: Creating Output Area Measures.

A number of summary measures are presented at the LGD and Assembly Area geographies.

NIMDM 2010 Super Output Area Results

Map 4.1 shows the distribution of deprivation in Northern Ireland as per the NIMDM 2010. The results are presented at SOA level and by deprivation decile. The scale runs from dark blue to light blue with the most deprived decile (most deprived 10% of SOAs) dark blue and the least deprived decile (least deprived 10% of SOAs) light blue.

The map shows that the majority of the most deprived areas in Northern Ireland are in Belfast and Derry, with some notable pockets in Lisburn, Craigavon and Strabane LGDs. A small cluster is also evident in Coleraine. The majority of areas in the least deprived decile are in the east of Northern Ireland.

Table 4.1 presents the 100 most deprived SOAs. A full list of SOAs and their deprivation ranks are available on the NISRA deprivation website[15] and on the CD attached to hard copies of the publication. From the table it can be seen that 15 of the 26 LGDs have at least one SOA in the most deprived 100 SOAs in Northern Ireland. Over three quarters of the most deprived 100 SOAs are in Belfast (54), Derry (16) and Lisburn (8) LGDs. Craigavon (5), Newry & Mourne (3), Strabane (3), Limavady (2), and Newtownabbey (2) LGDs have more than one SOA in the most deprived 100 SOAs, while one SOA from Ballymena, Carrickfergus, Coleraine, Down, Dungannon, Fermanagh and Omagh LGDs feature in the 100 most deprived SOAs in Northern Ireland.

Antrim, Ards, Armagh, Ballymoney, Banbridge, Castlereagh, Cookstown, Larne, Magherafelt, Moyle and North Down LGDs did not contain SOAs that were ranked in the top 100 most deprived SOAs in Northern Ireland.

[15] NISRA deprivation website
www.nisra.gov.uk/deprivation.htm

Map 4.1 Northern Ireland Multiple Deprivation Measure 2010 (SOAs)

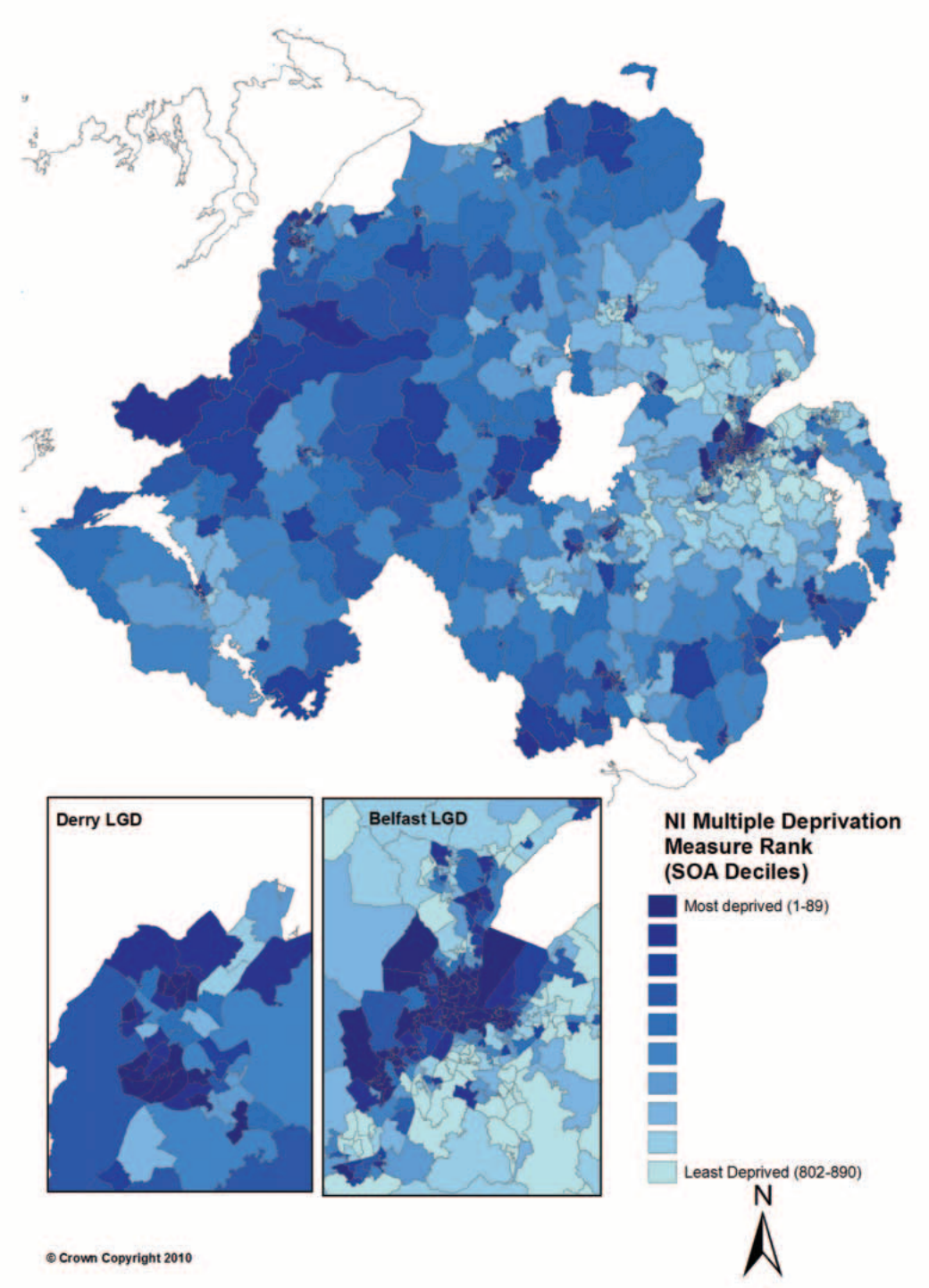


Table 4.1 Northern Ireland Multiple Deprivation Measure 2010 Super Output Area results, ranks 1-100

Rank	Super Output Area	LGD
1	Whiterock_2	Belfast
2	Whiterock_3	Belfast
3	Falls_2	Belfast
4	Falls_3	Belfast
5	New Lodge_1	Belfast
6	Shankill_2	Belfast
7	Crumlin_2	Belfast
8	Falls_1	Belfast
9	Ardoyne_3	Belfast
10	Creggan Central_1	Derry
11	Upper Springfield_3	Belfast
12	East	Strabane
13	Clonard_1	Belfast
14	New Lodge_2	Belfast
15	New Lodge_3	Belfast
16	Collin Glen_3	Lisburn
17	Twinbrook_2	Lisburn
18	Shankill_1	Belfast
19	Duncairn_1	Belfast
20	Upper Springfield_1	Belfast
21	Water Works_1	Belfast
22	Crumlin_1_Belfast	Belfast
23	Ballymacarrett_3	Belfast
24	Whiterock_1	Belfast
25	Shantallow West_2	Derry
26	The Diamond	Derry
27	Woodvale_3	Belfast
28	Strand_1_Derry	Derry
29	Shantallow West_1	Derry
30	Clonard_2	Belfast
31	Drumnamoe_1	Craigavon
32	Twinbrook_1	Lisburn
33	Collin Glen_1	Lisburn
34	Drumgask_2	Craigavon
35	Crevagh_2	Derry
36	Highfield_3	Belfast
37	Creggan South	Derry
38	Collin Glen_2	Lisburn
39	Culmore_2	Derry
40	Greystone	Limavady
41	Water Works_2	Belfast
42	Ardoyne_2	Belfast
43	Ardoyne_1	Belfast
44	Brandywell	Derry
45	Shantallow East	Derry
46	Westland	Derry
47	Glencolin_4	Belfast
48	Kilwee_2	Lisburn
49	Creggan Central_2	Derry
50	Ballymacarrett_2	Belfast
51	The Mount_1	Belfast
52	Shaftesbury_3	Belfast
53	Duncairn_2	Belfast
54	Shaftesbury_2	Belfast
55	Drumgor_2	Craigavon
56	Beechmount_2	Belfast
57	Woodvale_1	Belfast
58	Clondermot_1	Derry
59	Ballymote	Down
60	Upper Springfield_2	Belfast
61	Ballycolman	Strabane
62	Glencolin_2	Belfast
63	Woodstock_2	Belfast
64	Ballysally_1	Coleraine
65	Coolessan	Limavady
66	Woodvale_2	Belfast
67	The Mount_2	Belfast
68	Glencairn_1	Belfast
69	Blackstaff_2	Belfast
70	Legoniel_1	Belfast
71	Drumgullion_1	Newry & Mourne
72	Poleglass_1	Lisburn
73	Water Works_3	Belfast
74	Glencolin_3	Belfast
75	Ballymacarrett_1	Belfast
76	Ladybrook_3	Belfast
77	Dunanney	Newtownabbey
78	Shaftesbury_1	Belfast
79	Botanic_5	Belfast
80	Lisanelly_2	Omagh
81	Cliftonville_1	Belfast
82	Coalisland South	Dungannon
83	Devenish	Fermanagh
84	Carn Hill_2	Derry
85	Old Warren	Lisburn
86	Ebrington_2	Derry
87	Glen Road_2	Belfast
88	Altnagelvin_1	Derry
89	Cliftonville_3	Belfast
90	Island_1	Belfast
91	Ballybot	Newry & Mourne
92	Woodville_1	Craigavon
93	Northland	Carrickfergus
94	Ballee	Ballymena
95	Daisy hill_1	Newry & Mourne
96	Chichester Park_1	Belfast
97	Castlederg	Strabane
98	Upper Malone_2	Belfast
99	Court_1	Craigavon
100	Monkstown_1	Newtownabbey

Belfast NUTS 3 area

Map 4.2 shows the distribution of multiple deprivation in Belfast NUTS 3 area, which is equivalent to Belfast LGD. The darkest areas represent the most deprived SOAs when considering all SOAs in Northern Ireland i.e. those areas in the most deprived decile (10%) in Northern Ireland, rather than Belfast alone.

The map shows that deprivation levels in Belfast LGD vary considerably. In total approximately one third (51) of Belfast's 150 SOAs are in the most deprived decile in Northern Ireland. The majority of these areas are situated in the west and north of Belfast. The most deprived area in Belfast (Whiterock_2 SOA) at rank 1 in the multiple deprivation measure is also the most deprived in Northern Ireland.

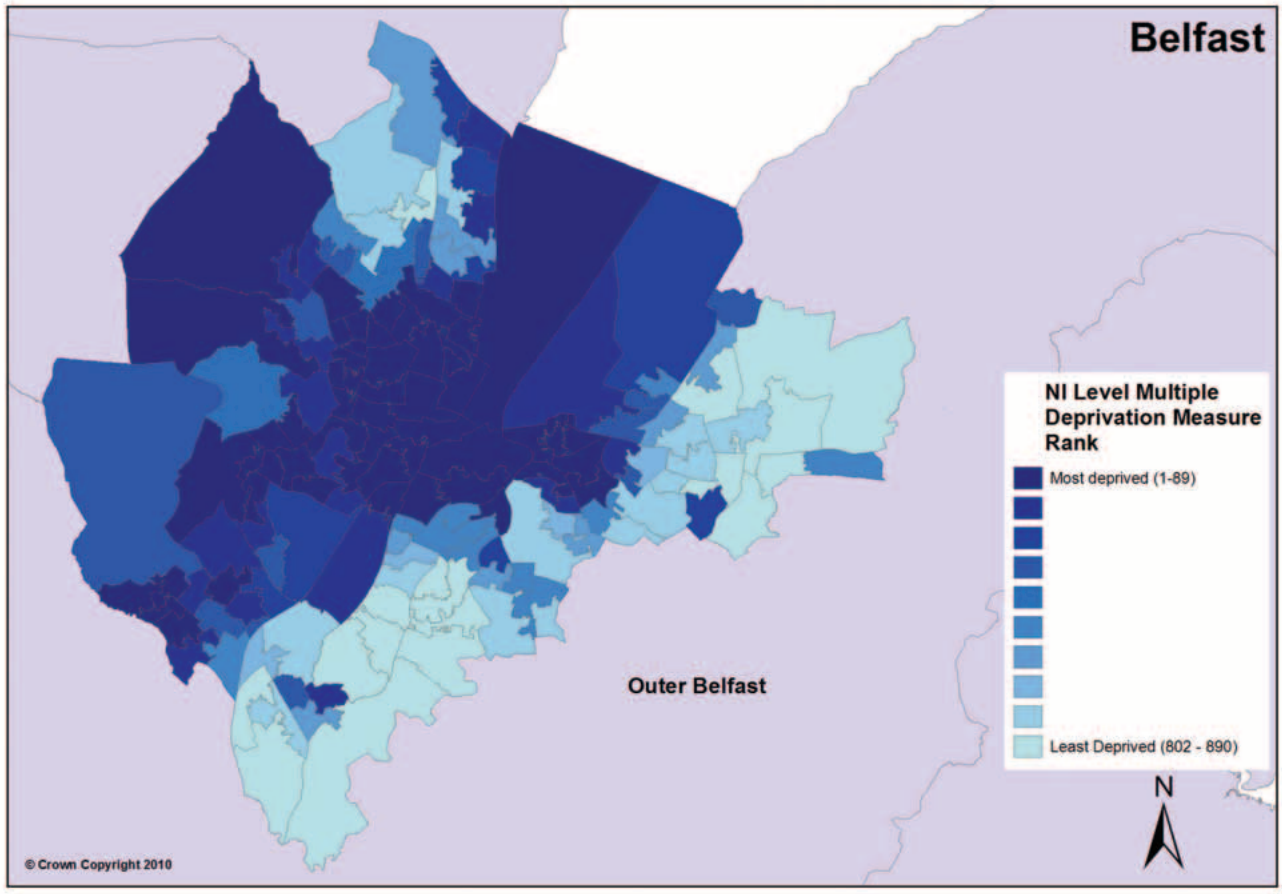
Belfast LGD also contains some of the least deprived areas, mostly located in the east and south of Belfast. In total 17 SOAs in Belfast LGD are in the least deprived decile in Northern Ireland. The least deprived area in Belfast (Stormont_2 SOA) is ranked 889 in the multiple deprivation measure.

The 'bar code' in figure 4.1 below shows the distribution of deprivation in Belfast LGD. Each of the 150 SOAs in Belfast LGD is represented by one vertical bar, with the most deprived areas appearing on the left of the bar code and the least deprived areas to the right.

The large concentration of lines to the left reflects the large number of areas in Belfast LGD ranked as the most deprived areas, while the smaller grouping towards the right reflects the number of areas ranked as less deprived in the multiple deprivation measure.

Figure 4.1 Distribution of Northern Ireland Multiple Deprivation Measure 2010 ranks in Belfast NUTS 3 area

Map 4.2 Northern Ireland Multiple Deprivation Measure 2010 ranks for SOAs in Belfast NUTS 3 area



Outer Belfast NUTS 3 area

Map 4.3 shows the distribution of deprivation in Outer Belfast NUTS 3 area, which is equivalent to Carrickfergus, Castlereagh, Lisburn, Newtownabbey and North Down LGDs and contains 198 SOAs. The darkest areas represent the most deprived SOAs when considering all SOAs in Northern Ireland i.e. those areas in the most deprived decile (10%) in Northern Ireland, rather than Outer Belfast alone.

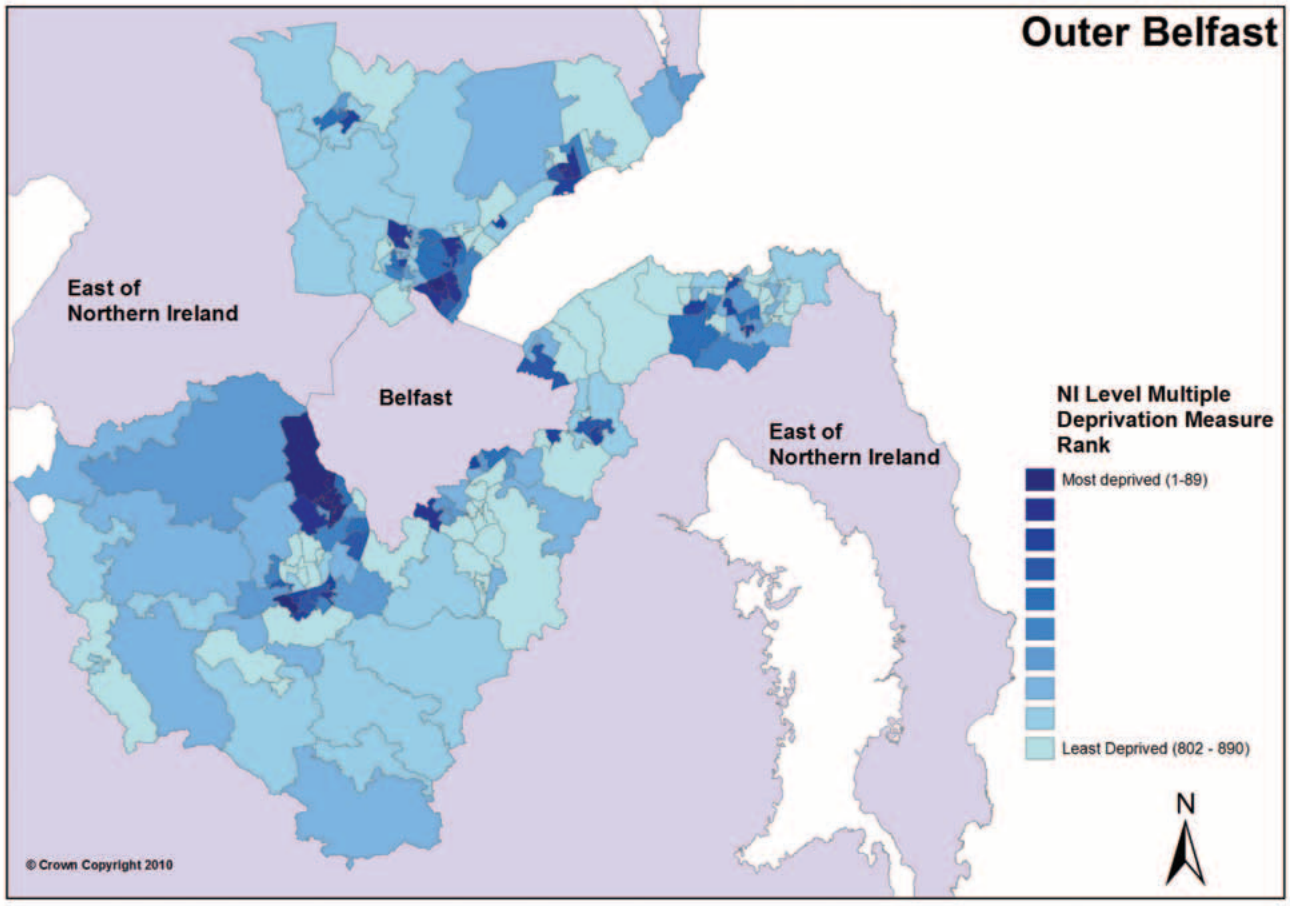
Less than 5% (9) of the Outer Belfast SOAs feature in the most deprived decile in Northern Ireland. Eight of the nine SOAs are located in Lisburn LGD and one in Newtownabbey LGD. The most deprived SOA in Outer Belfast (Collin Glen_3 SOA in Lisburn LGD) is ranked at 16 in Northern Ireland.

The majority of areas (71%) in Outer Belfast are in the least deprived five deciles with more than a quarter of the SOAs in Outer Belfast (53) ranked in the least deprived decile in Northern Ireland. The least deprived SOA in Outer Belfast (Wallace Park_1 SOA in Lisburn LGD) is also the least deprived area in Northern Ireland.

Figure 4.2 illustrates the distribution of deprivation in Outer Belfast, with each SOA depicted by a vertical line, and the most deprived areas on the left of the bar code and the least deprived on the right. The large concentration to the right hand side of the bar code indicates that there are a large number of areas in Outer Belfast featuring in the least deprived deciles.

Figure 4.2 Distribution of Northern Ireland Multiple Deprivation Measure 2010 ranks in Outer Belfast NUTS 3 area

Map 4.3 Northern Ireland Multiple Deprivation Measure 2010 ranks for SOAs in Outer Belfast NUTS 3 area



East of Northern Ireland NUTS 3 area

Map 4.4 shows the distribution of deprivation in the East of Northern Ireland NUTS 3 area. The East of Northern is equivalent to Antrim, Ards, Ballymena, Banbridge, Craigavon, Down and Larne LGDs and contains 215 SOAs.

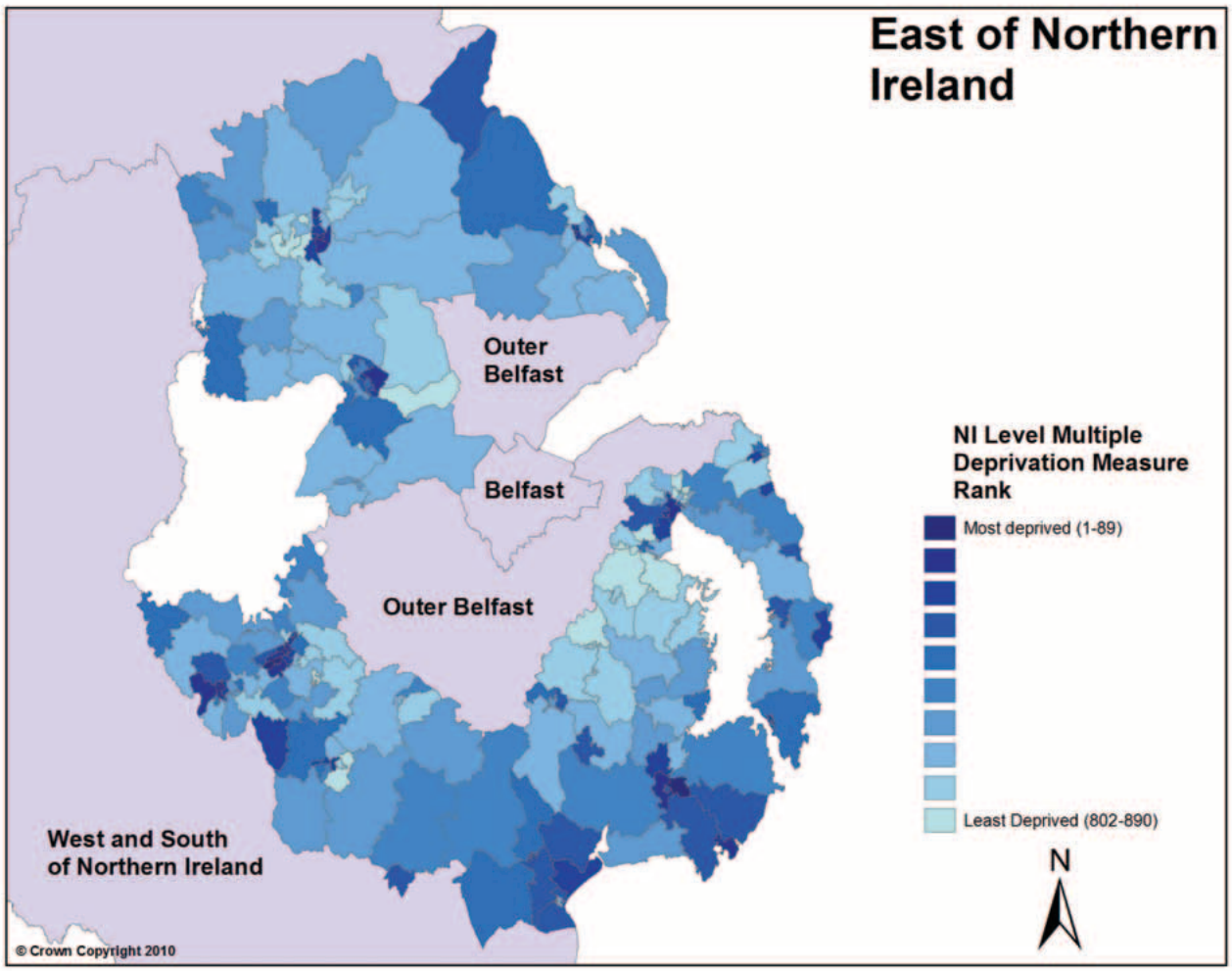
The map shows that there are relatively few areas in the East of Northern Ireland that are in the most deprived decile in Northern Ireland. Of the four areas in the most deprived decile, three are in Craigavon LGD and one is in Downpatrick in Down LGD. Drumnamoe_1 SOA in Craigavon LGD is the most deprived SOA in the East of Northern Ireland is ranked 31 in terms of multiple deprivation measure.

In total 16 SOAs (7%) in the East of Northern Ireland were ranked in the least deprived decile in Northern Ireland. The least deprived SOA in the East of Northern Ireland (Galgorm_2 SOA in Ballymena LGD) is ranked 871 out 890 SOAs.

The bar code in Figure 4.3 below represents the distribution of deprivation in East of Northern Ireland, with each SOA depicted by a vertical line and the most deprived areas on the left of the bar code and the least deprived on the right. The bar code shows a relatively even dispersion of deprivation ranks across the deciles in the East of Northern Ireland, with the exception of relatively few areas in the most deprived decile.

Figure 4.3 Distribution of Northern Ireland Multiple Deprivation Measure 2010 ranks in East of Northern Ireland NUTS 3 area

Map 4.4 Northern Ireland Multiple Deprivation Measure 2010 ranks for SOAs in East of Northern Ireland NUTS 3 area



West & South of Northern Ireland NUTS 3 area

Map 4.5 shows the distribution of deprivation in West and South of Northern Ireland NUTS 3 area which is equivalent to Armagh, Cookstown, Dungannon, Fermanagh Magherafelt, Newry & Mourne and Omagh LGDs and is made up of 180 SOAs.

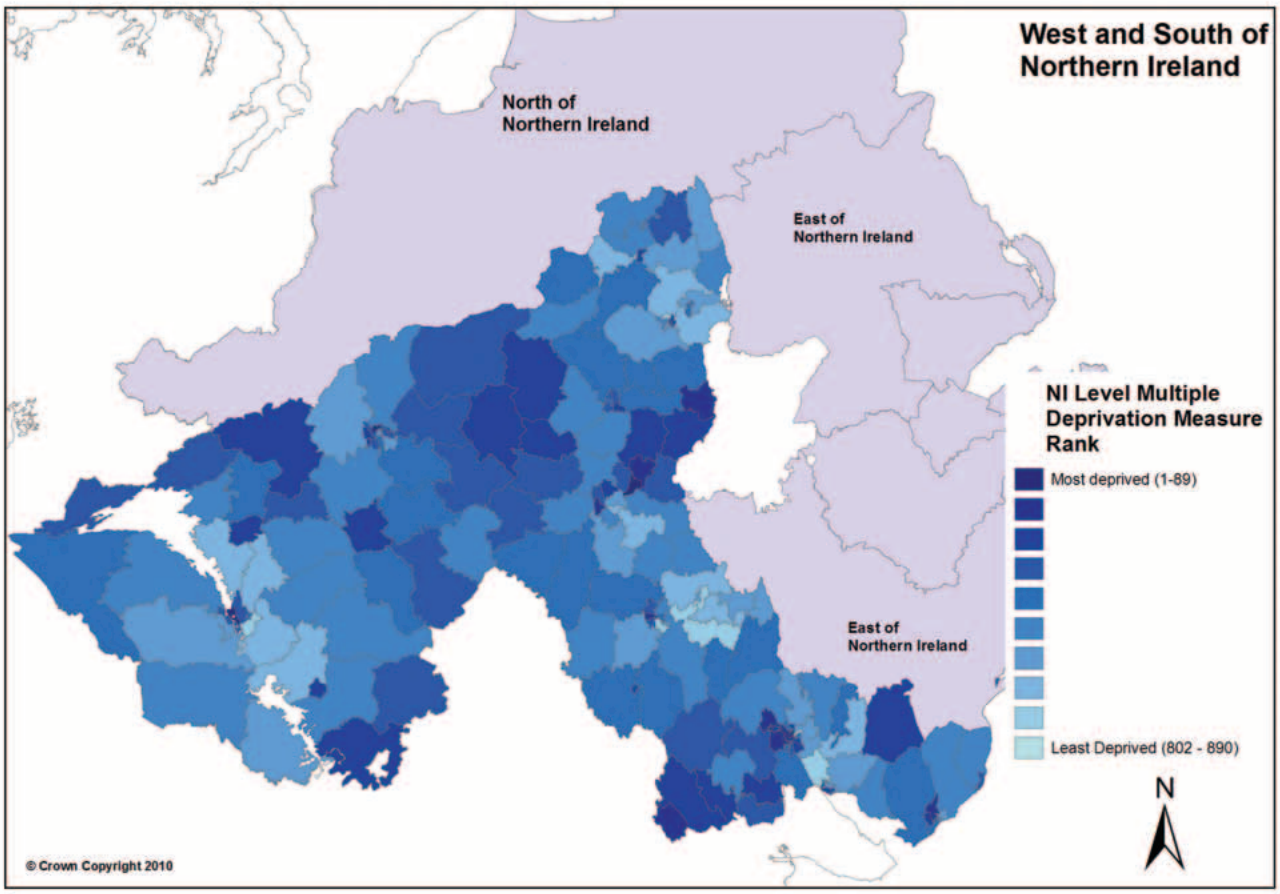
The map shows that there are very few areas in the West and South of Northern Ireland in the most deprived decile. Only four areas (2%) were ranked in the most deprived decile, located in Newry & Mourne, Omagh, Dungannon and Fermanagh LGDs. The most deprived area was Drumgullion_1 SOA in Newry and Mourne LGD at rank 71.

Although there are few areas in West and South of Northern Ireland in the most deprived decile, there were no areas in the least deprived decile. In fact the majority (52%) of SOAs in West and South of Northern Ireland occupied the middle three deciles. The least deprived area is ranked 796 out of 890 SOAs and is Glebe_1 SOA in Magherafelt LGD.

Figure 4.4 below illustrates the distribution of deprivation in the West and South of Northern Ireland, with each SOA depicted by a vertical line and the most deprived areas on the left of the bar code and the least deprived on the right. The bar code highlights that the majority of areas were ranked in the middle deciles while few areas in the West and South of Northern Ireland experienced the highest or lowest deprivation.

Figure 4.4 Distribution of Northern Ireland Multiple Deprivation Measure 2010 ranks in West & South of Northern Ireland NUTS 3 area

Map 4.5 Northern Ireland Multiple Deprivation Measure 2010 ranks for SOAs in West & South of Northern Ireland NUTS 3 area



North of Northern Ireland NUTS 3 area

Map 4.6 shows the distribution of deprivation in the North of Northern Ireland NUTS 3 area, which is equivalent to Ballymoney, Coleraine, Derry, Limavady, Moyle and Strabane LGDs and contains 147 SOAs.

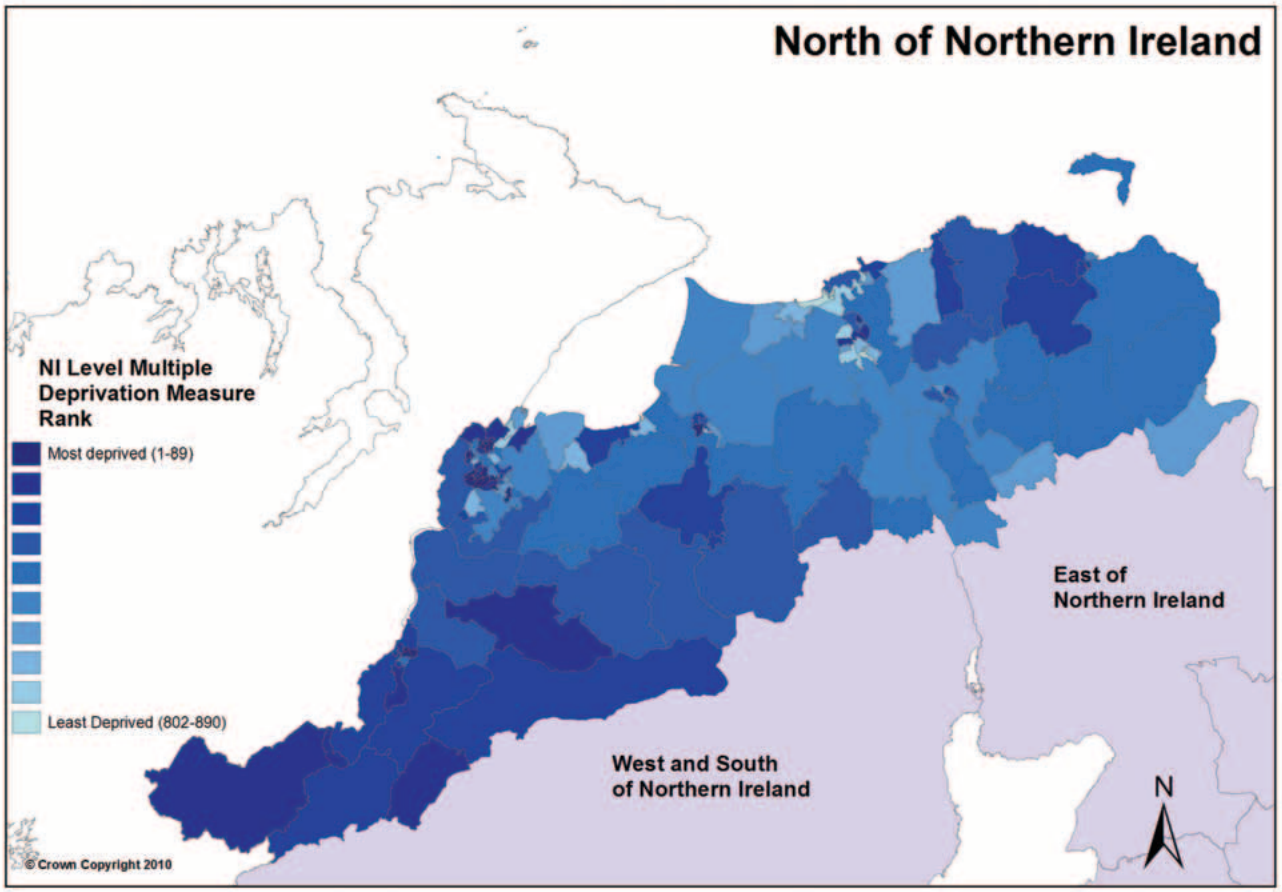
The map shows clusters of deprivation in Derry, Strabane, Limavady and Coleraine, all of which contain SOAs ranked in the most deprived decile. In total, 21 (14%) SOAs in the North of Northern Ireland are ranked in the most deprived decile in Northern Ireland, with the most deprived SOA in the area (Creggan Central_1 SOA in Derry LGD) ranked 10 in the multiple deprivation measure.

Only three (2%) SOAs in the North of Northern Ireland were placed in the least deprived decile in Northern Ireland, all of which were in Coleraine LGD. Strand_2 SOA in Coleraine LGD is the least deprived area and was ranked 862 in the multiple deprivation measure.

The bar code below in Figure 4.5 represents the distribution of deprivation in the North of Northern Ireland, with each SOA depicted by a line and the most deprived areas on the left of the bar code and the least deprived on the right. The bar code highlights that few of the areas in the North of Northern Ireland were ranked in the least deprived deciles.

Figure 4.5 Distribution of Northern Ireland Multiple Deprivation Measure 2010 ranks in North of Northern Ireland NUTS 3 area

Map 4.6 Northern Ireland Multiple Deprivation Measure 2010 ranks for SOAs in North of Northern Ireland NUTS 3 area



Rural Areas

Areas in Northern Ireland can be classed as either urban or rural according to the '*Statistical Classification and Delineation of Settlements*' report produced by the Inter-Departmental Urban-Rural Definition Group in February 2005.[16] This report proposed an eight-band categorization of settlements, which runs from Band A (Belfast Metropolitan Urban Area) to Band H (small village, hamlet and open countryside). Areas classed in bands A to E, Belfast Metropolitan Urban Area to small town, are defined as urban while those classed in bands F to H, intermediate settlement to small village, hamlet and open countryside, are classed as rural.

Using this classification the 890 SOAs in Northern Ireland were defined as either urban or rural. Approximately one third of SOAs (286) were classed as rural and two-thirds (604) were classed as urban.

Although SOAs were designed to have similar population sizes to aid comparisons across Northern Ireland, due to the smaller geographical size and the relatively homogenous populations of urban areas compared to rural areas, small area concentrations of deprivation are more readily identified in urban areas than rural areas. 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. See page 56.

Table 4.2 below shows the twenty most deprived rural areas, as per the Multiple Deprivation Measure. Castlederg SOA in Strabane LGD is the most deprived rural SOA, ranked as the 97th most deprived SOA in Northern Ireland. It is notable that at rank 97 the most deprived rural SOA is outside the most deprived decile when all SOAs in Northern Ireland are considered.

The second and third most deprived rural SOAs are Crossmaglen (in Newry and Mourne LGD) and Glenderg (in Strabane LGD), ranked 112 and 126 respectively. Seven of the twenty most deprived rural SOAs are in Strabane LGD, and three are in Newry and Mourne LGD.

The least deprived rural SOA is Lisbane_2 in Ards LGD, ranked 850 in the multiple deprivation measure. Eleven rural SOAs (4% of all rural SOAs) are in the least deprived decile.

Table 4.2 Northern Ireland Multiple Deprivation Measure 2010: The twenty most deprived rural areas

NIMDM 2010 Rank (1 is most deprived)	Super Output Area	Local Government District
97	Castlederg	Strabane
112	Crossmaglen	Newry and Mourne
126	Glenderg	Strabane
134	Newtownstewart	Strabane
136	Ardboe	Cookstown
141	Sion Mills	Strabane
159	Portaferry_2	Ards
170	Dunnamanagh	Strabane
178	Ardglass_1	Down
179	Finn	Strabane
180	Pomeroy	Cookstown
182	Silver Bridge_1	Newry and Mourne
184	Creggan	Newry and Mourne
189	Dungiven	Limavady
191	Keady	Armagh
197	Clare	Strabane
198	Armoy_&_Moss-side and Moyarget	Moyle
200	Fintona	Omagh
202	Irvinestown	Fermanagh
215	Ballylough_&_Bushmills	Moyle

[16] The Report of the Inter-Departmental Urban-Rural Definition Group, Statistical Classification and Delineation of Settlements, February 2005 http://www.ninis.nisra.gov.uk/mapxtreme_towns/Reports/ur_report.pdf & http://www.ninis.nisra.gov.uk/mapxtreme/viewdata/Compendia_and_Reference/Area_classifications/UrbanRuralClassification2005.xls

The bar code below in Figure 4.6 represents the distribution of deprivation in rural areas, with each SOA depicted by a line and the most deprived areas on the left of the bar code and the least deprived on the right. The bar code highlights that few of the SOAs within rural areas were ranked in the most deprived deciles in Northern Ireland while a large proportion of rural deciles featured in the middle deciles.

Figure 4.6 Distribution of Northern Ireland Multiple Deprivation Measure 2010 ranks in rural areas

Domain Super Output Area Results

Six of the seven deprivation domain ranks at SOA level are positively correlated with each other indicating that an area experiencing one form of deprivation is likely to also experience other forms of deprivation. Of particular note were the strong positive correlations between the Income, Employment, Health Deprivation & Disability and Education, Skills & Training Domain ranks, with each pair-wise correlation at least +0.84. (Correlation coefficient ranges from perfect negative correlation -1, to perfect positive correlation +1).

The Living Environment and Crime & Disorder Domain ranks are also positively correlated with each other and the four domains described above, but to a lesser extent, with all pair-wise correlations at least +0.48.

The Proximity to Services Domain ranks show weak negative correlations with the other six domains, suggesting that as Proximity to Services deprivation increases, deprivation in the other domains is likely to decrease. The table below shows the deprivation domain correlations for the SOA results.

Table 4.3 SOA level correlations between deprivation domain ranks

	Income	Employment	Health Deprivation & Disability	Education, Skills & Training	Proximity to Services	Living Environment	Crime & Disorder
Income	1.00						
Employment	0.94	1.00					
Health	0.94	0.93	1.00				
Education, Skills & Training	0.88	0.84	0.85	1.00			
Proximity to Services	-0.32	-0.29	-0.37	-0.36	1.00		
Living Environment	0.61	0.54	0.59	0.64	-0.52	1.00	
Crime & Disorder	0.55	0.48	0.55	0.54	-0.66	0.63	1.00
NIMDM 2010[17]	**0.97**	**0.95**	**0.94**	**0.91**	**-0.27**	**0.65**	**0.53**

[17] When considering the correlations between the domains and the overall measure it is worth noting the domain weights used to combine domains into the Multiple Deprivation Measure.

Although the domains are highly correlated there are noticeable differences across domains in the distribution of deprivation in Northern Ireland. The following maps display the results for each of the domains.

Income Deprivation Domain

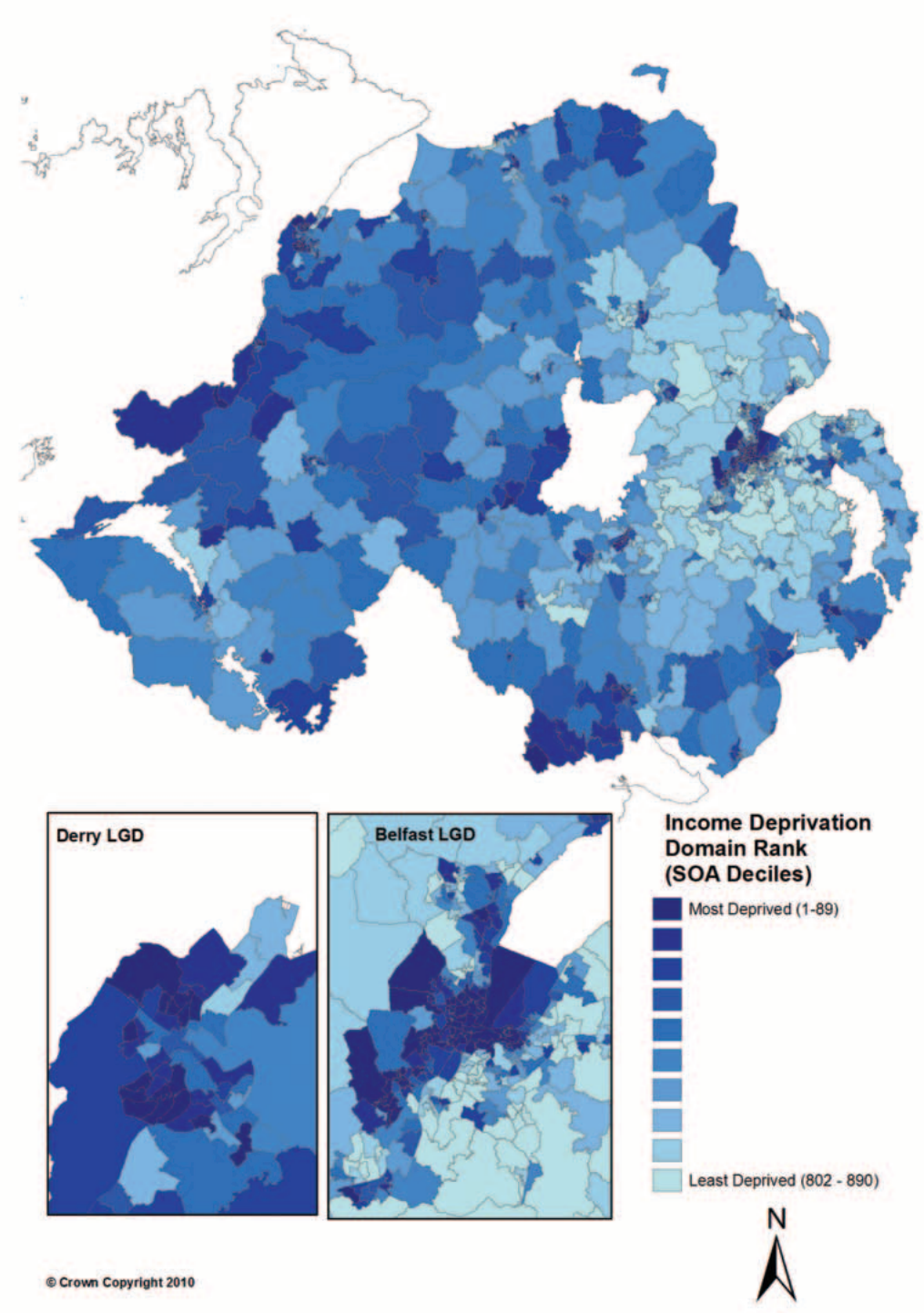
Three Income Deprivation measures were created: The Income Deprivation Domain considers the total income deprived population while the Income Deprivation Affecting Children and Income Deprivation Affecting Older People measures consider those aged under 16 years and those aged 60 years and over who are income deprived.

Map 4.7 shows the Income Deprivation Domain ranks for Northern Ireland. The distribution of income deprivation is similar to the distribution of multiple deprivation in Northern Ireland with Belfast and Derry LGDs containing the majority of areas in the most deprived decile. Craigavon, Lisburn, Newry & Mourne, Newtownabbey and Strabane LGDs contain clusters of deprived areas. The least deprived areas are generally located in the east of Northern Ireland with the majority located in Ards, Belfast, Castlereagh, Lisburn, Newtownabbey and North Down LGDs.

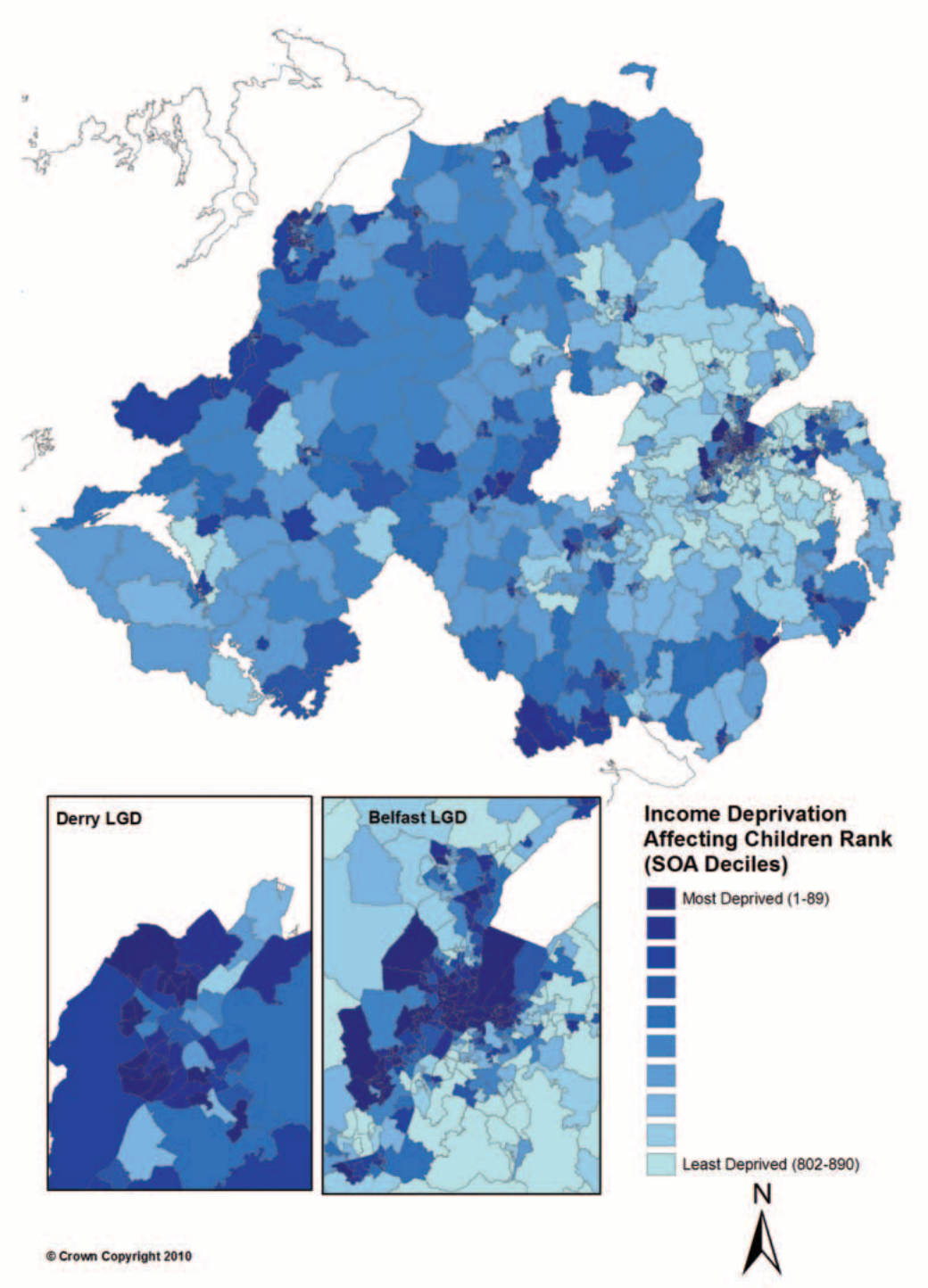
The Income Deprivation Affecting Children ranks for Northern Ireland are shown in Map 4.8. The distribution of income deprivation affecting children is broadly similar to the income domain distribution. Belfast and Derry LGDs contain much of the most deprived decile of areas. The least deprived areas are located mostly in the east of Northern Ireland as was the case with the income deprivation domain.

Map 4.9 shows the Income Deprivation Affecting Older People ranks for Northern Ireland. As with income deprivation and income deprivation affecting children, Belfast and Derry LGDs contain the majority of the areas in the most deprived decile. However the south and west have greater numbers of SOAs with income deprivation affecting older people than income deprivation affecting children.

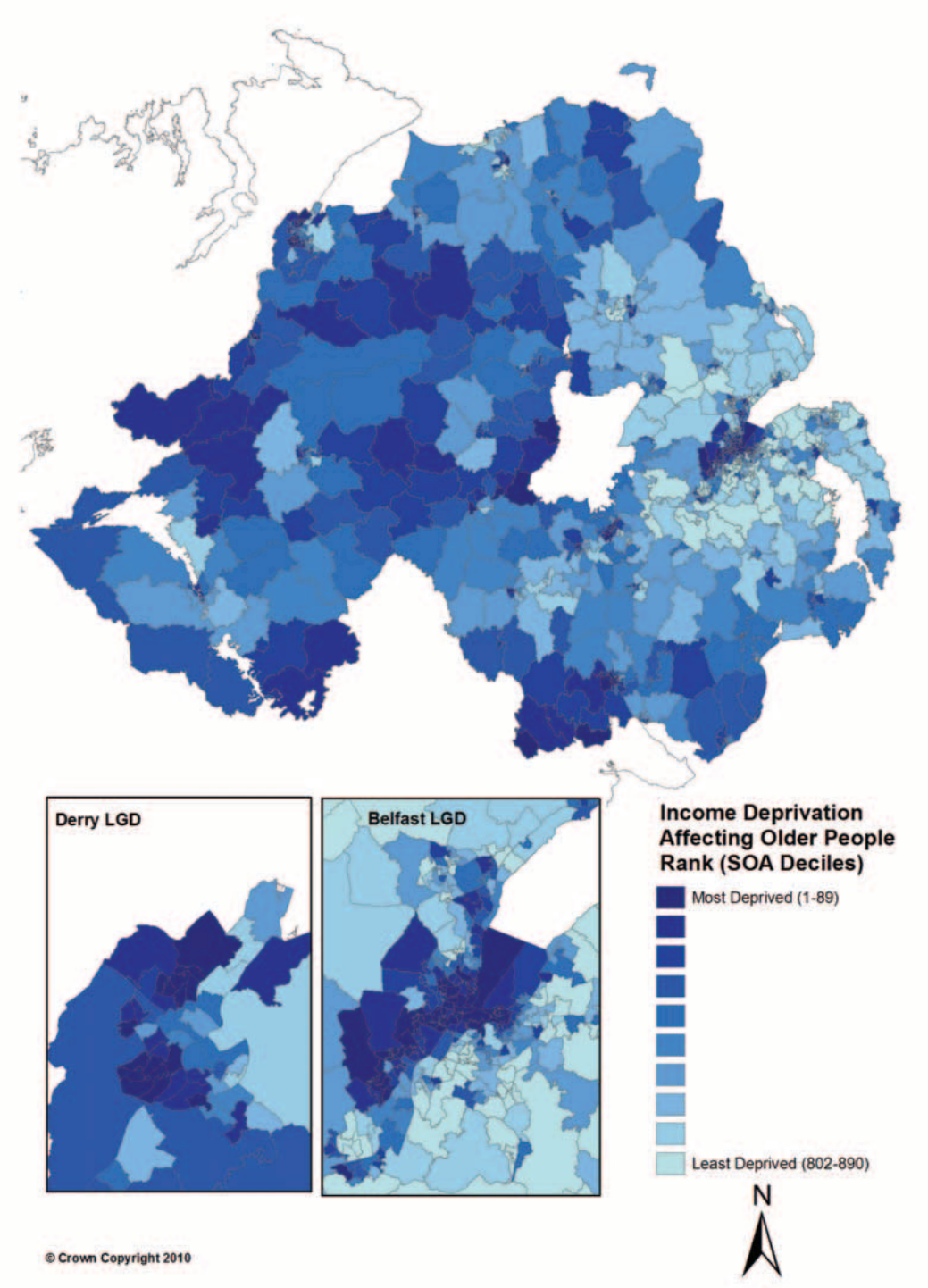
Map 4.7 Income Deprivation Domain for Northern Ireland (SOAs)



Map 4.8 Income Deprivation Affecting Children Measure for Northern Ireland (SOAs)



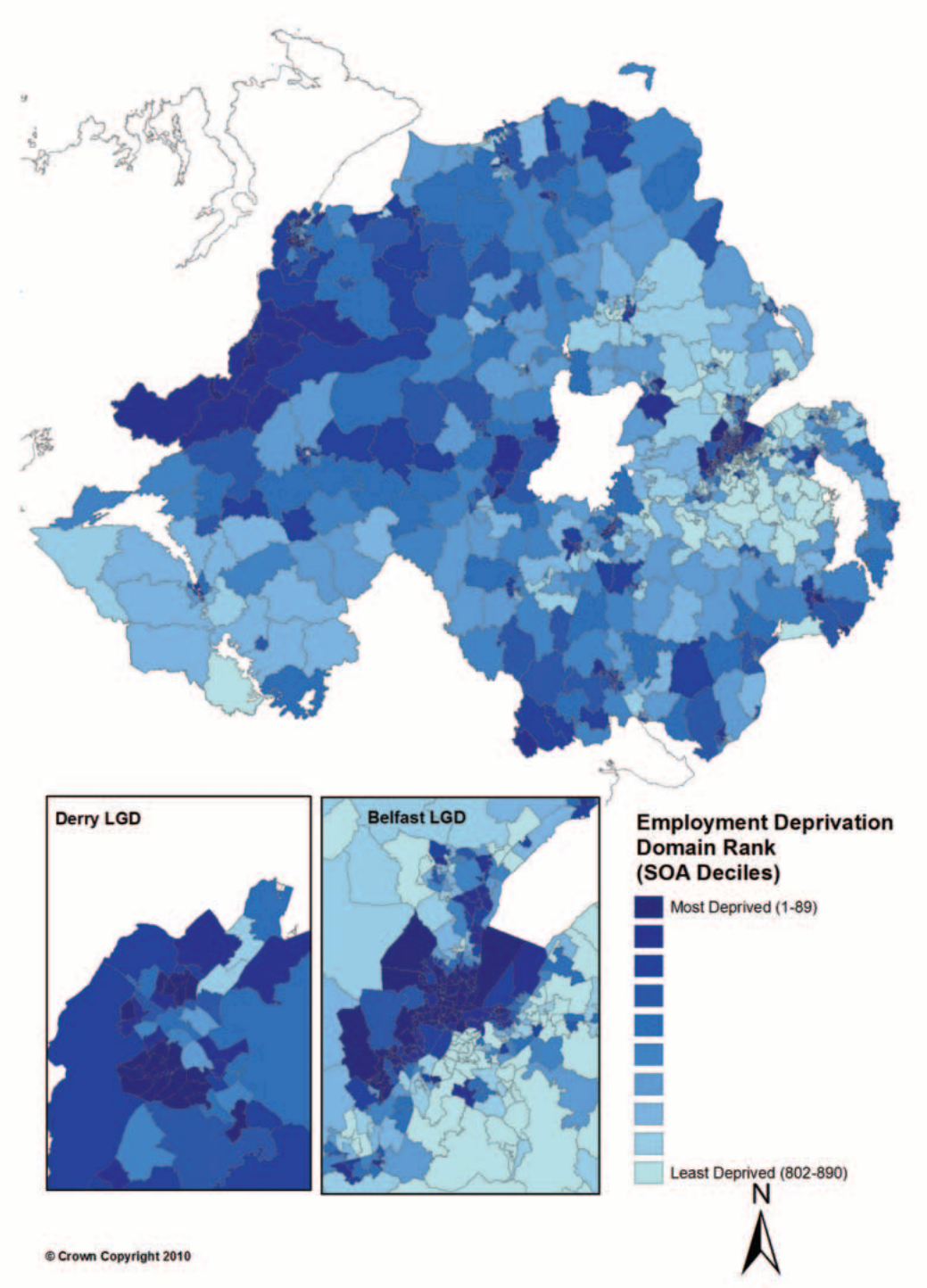
Map 4.9 Income Deprivation Affecting Older People Measure for Northern Ireland (SOAs)



Employment Deprivation Domain

The Employment Deprivation Domain ranks for Northern Ireland are shown in Map 4.10. The distribution of employment deprivation is similar to the distribution of multiple deprivation in Northern Ireland with Belfast, Derry and Lisburn LGDs containing the majority of areas in the most deprived decile. Craigavon, Newry & Mourne, Newtownabbey and Strabane LGDs also contain clusters of the most deprived areas in Northern Ireland. The least deprived areas tend to be located in the east of Northern Ireland with a cluster of areas with low levels of deprivation evident in Coleraine LGD.

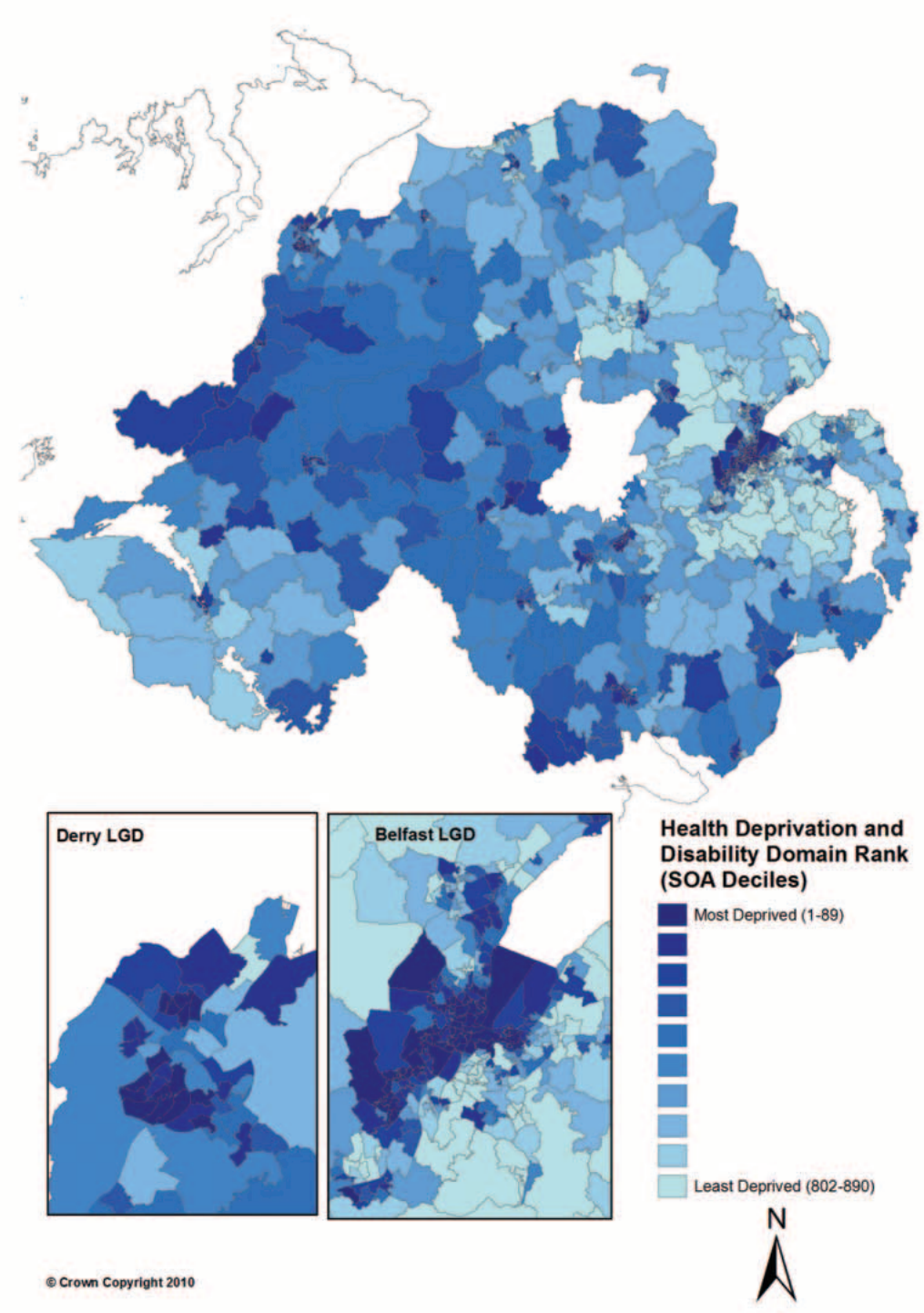
Map 4.10 Employment Deprivation Domain for Northern Ireland (SOAs)



Health Deprivation and Disability Domain

Map 4.11 shows the Health Deprivation and Disability Domain ranks for Northern Ireland. The distribution of health and disability deprivation is similar to the distribution of multiple deprivation. Belfast and Derry LGDs contain a large number of the areas in the most deprived decile and there are clusters of deprivation in Lisburn and Craigavon LGDs. The least deprived areas tend to be in the east of Northern Ireland with clusters of low deprivation also visible in Ballymena and Coleraine LGDs.

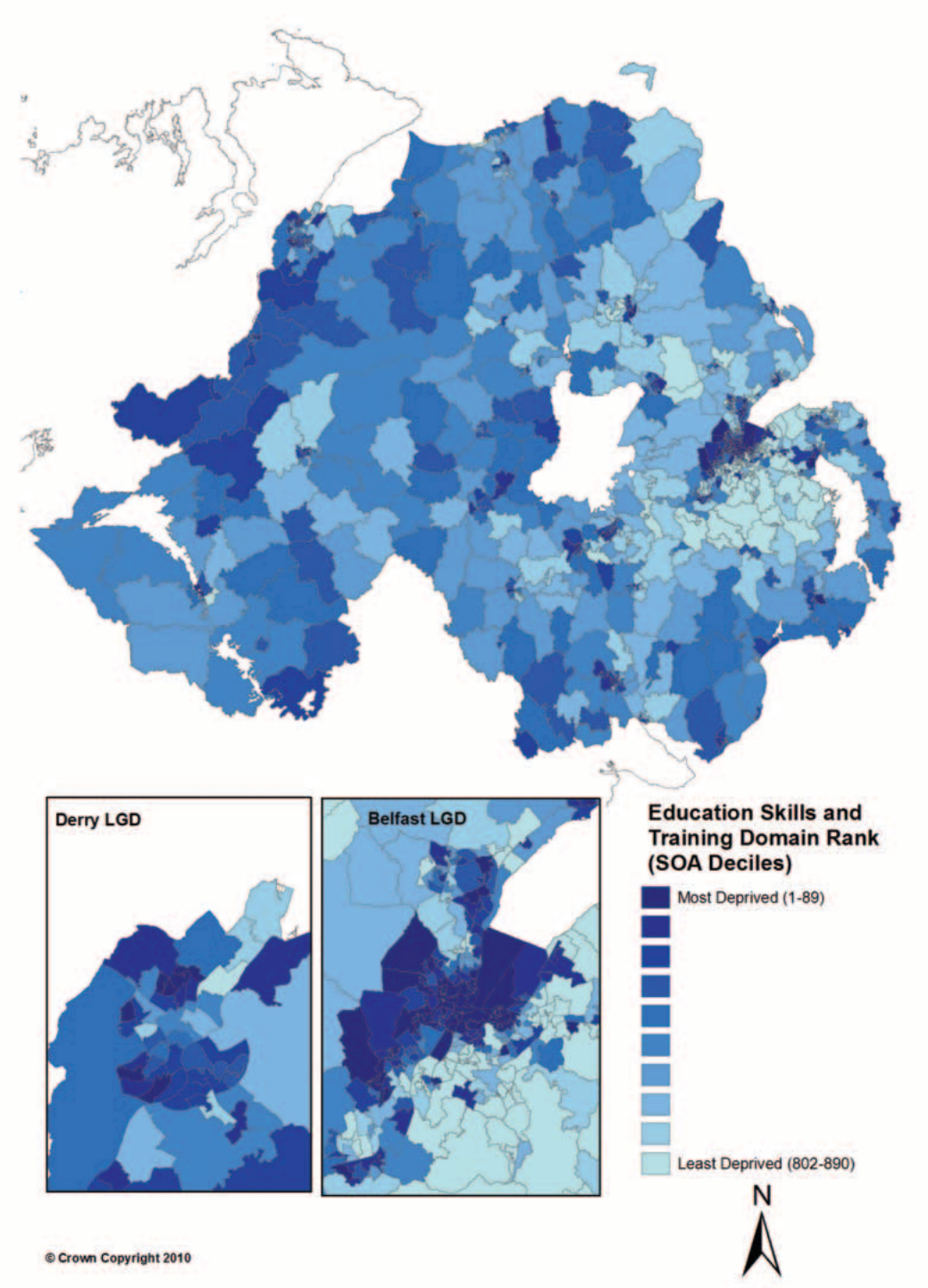
Map 4.11 Health Deprivation and Disability Domain for Northern Ireland (SOAs)



Education, Skills and Training Deprivation Domain

The Education, Skills and Training ranks for Northern Ireland are shown in Map 4.12. The most deprived areas are located in Belfast and Derry LGDs. Belfast and Lisburn LGDs contain clusters of areas in both the most and least deprived deciles in Northern Ireland. A large proportion of the remaining least deprived areas are located in the east of Northern Ireland, in Ards, Castlereagh, Newtownabbey and North Down LGDs.

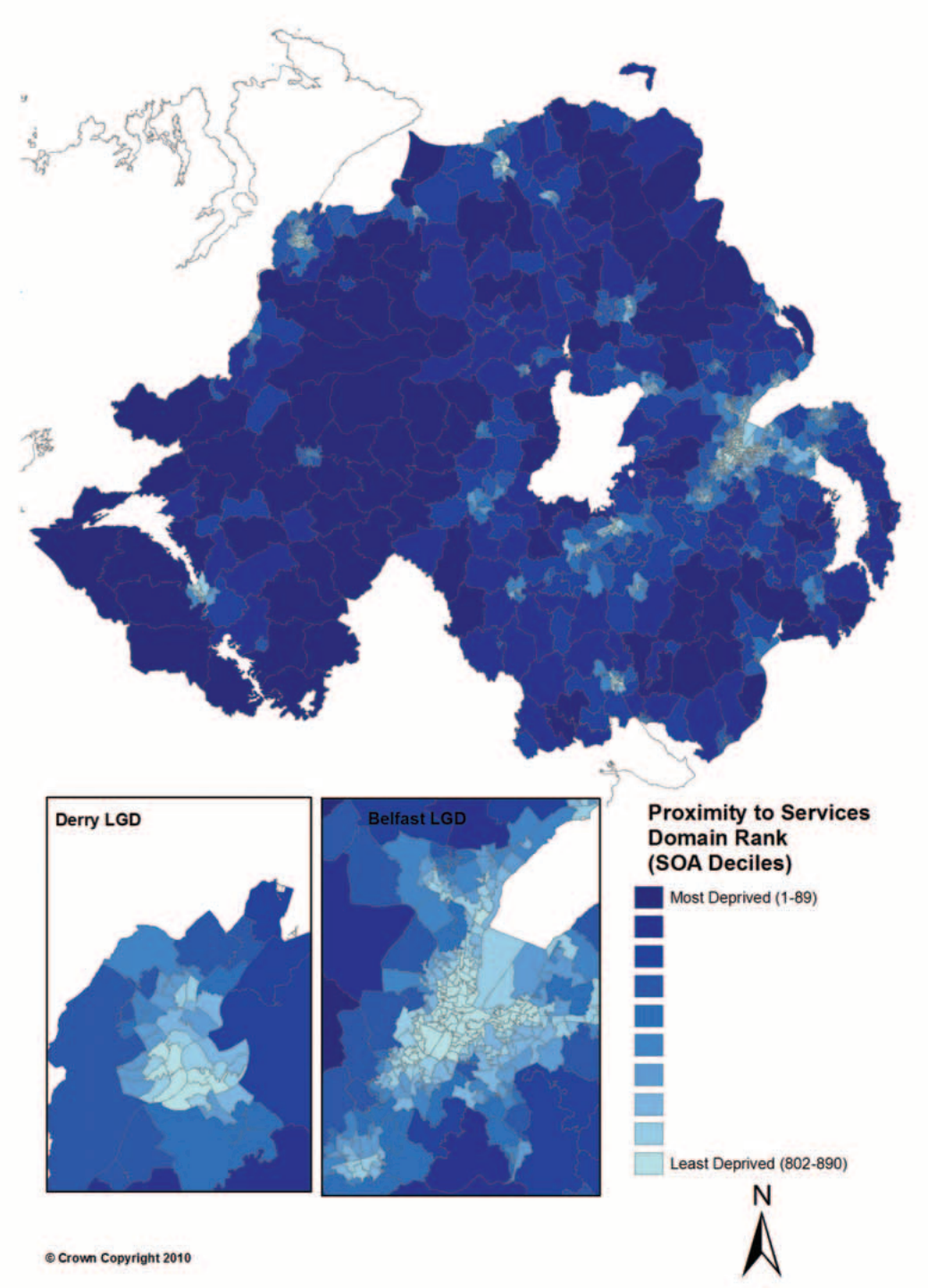
Map 4.12 Education, Skills and Training Deprivation Domain for Northern Ireland (SOAs)



Proximity to Services Domain

Map 4.13 shows the Proximity to Services Domain ranks for Northern Ireland. The distribution of proximity to services deprivation is unlike all of the other domains and captures an important aspect of deprivation. The highest concentrations of deprivation with respect to proximity to services occur outside of towns and cities. Fermanagh and Omagh LGDs have the greatest number of areas in the most deprived decile. There are also deprived areas on the outskirts of towns in Ballymena, Cookstown, Down, Dungannon, Limavady, Newry and Mourne, and Strabane LGDs. The least deprived areas are located in Belfast, Derry and Craigavon LGDs.

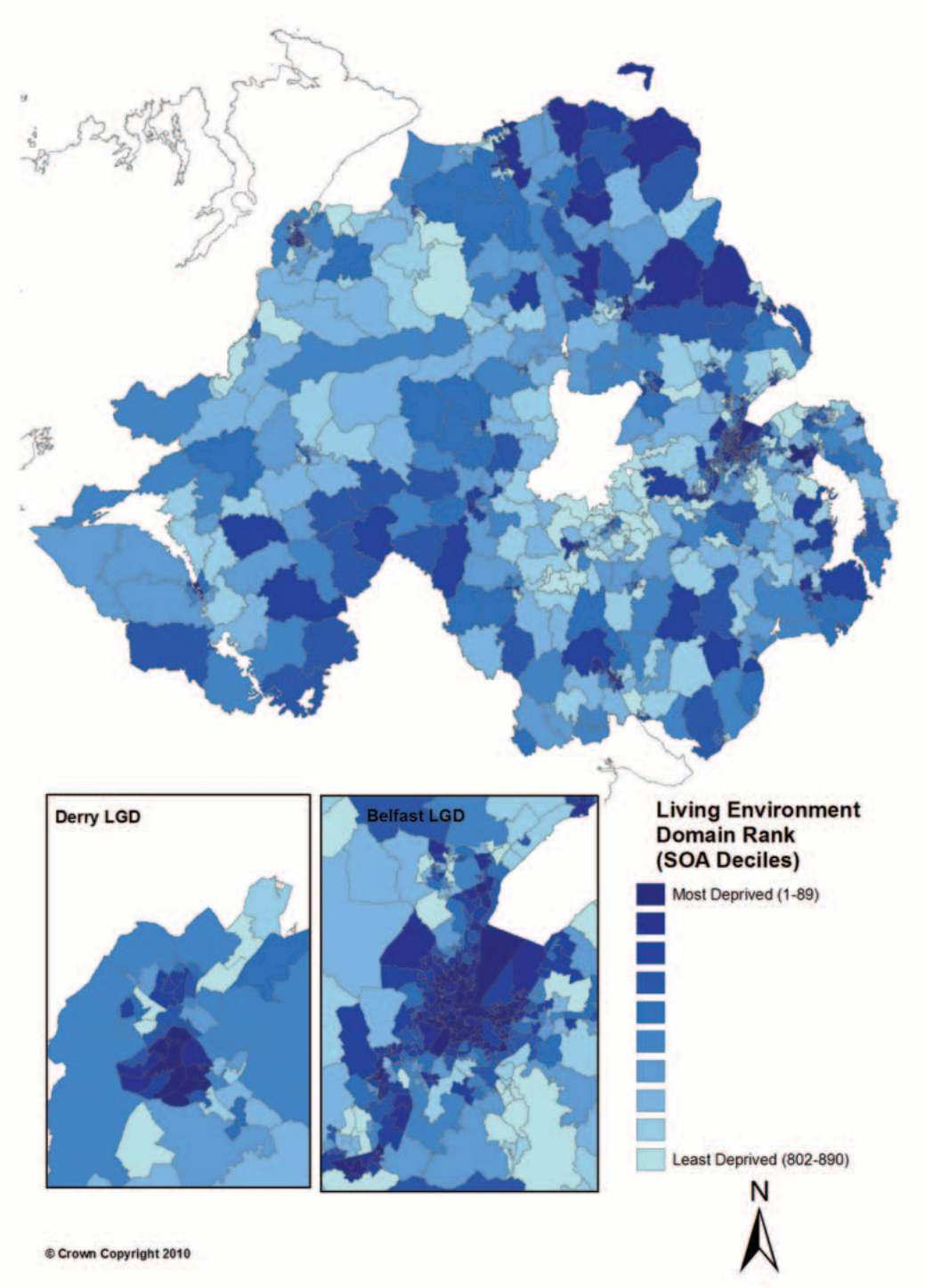
Map 4.13 Proximity to Services Domain for Northern Ireland (SOAs)



Living Environment Domain

The Living Environment Domain ranks for Northern Ireland are shown in Map 4.14. The highest concentrations of deprived areas are located in Belfast and Derry LGDs and in the north. Clusters of deprived areas exist in Ballymena and Larne LGDs. The least deprived areas are spread across most of Northern Ireland with particular clusters of areas with low levels of deprivation visible in Castlereagh, Craigavon, Lisburn and North Down LGDs.

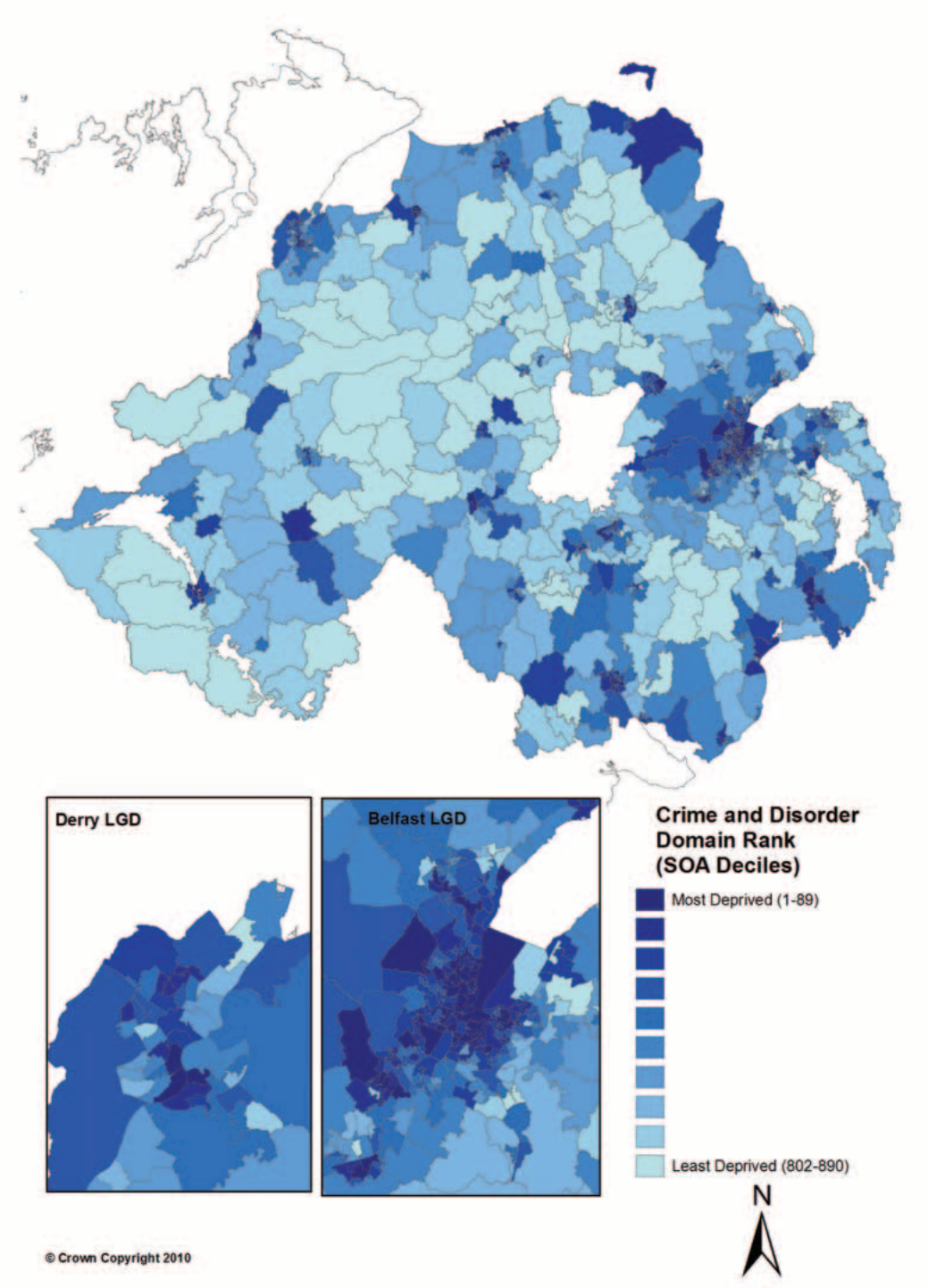
Map 4.14 Living Environment Domain for Northern Ireland (SOAs)



Crime and Disorder Domain

Map 4.15 shows the distribution of the Crime and Disorder Domain ranks across Northern Ireland. The most deprived areas are clustered in towns and cities while the least deprived areas are rural. The majority of areas in the most deprived decile are in Belfast LGD with clusters visible in large towns and cities. The least deprived areas are generally located away from towns and cities and involve many LGDs across all of Northern Ireland with the exception of the Greater Belfast area.

Map 4.15 Crime and Disorder Domain for Northern Ireland (SOAs)



NIMDM 2010 Output Area Results

A multiple deprivation measure and domain ranks for the Income, Employment, Proximity to Services and Crime & Disorder Domains were created at the Output Area (OA) geography. 5,022 OAs cover Northern Ireland each with an approximate population of 350 people.

The OA Multiple Deprivation Measure (MDM) was constructed from OA and SOA results. The creation of the MDM at OA level allows the identification of smaller pockets of deprivation than the SOA results.

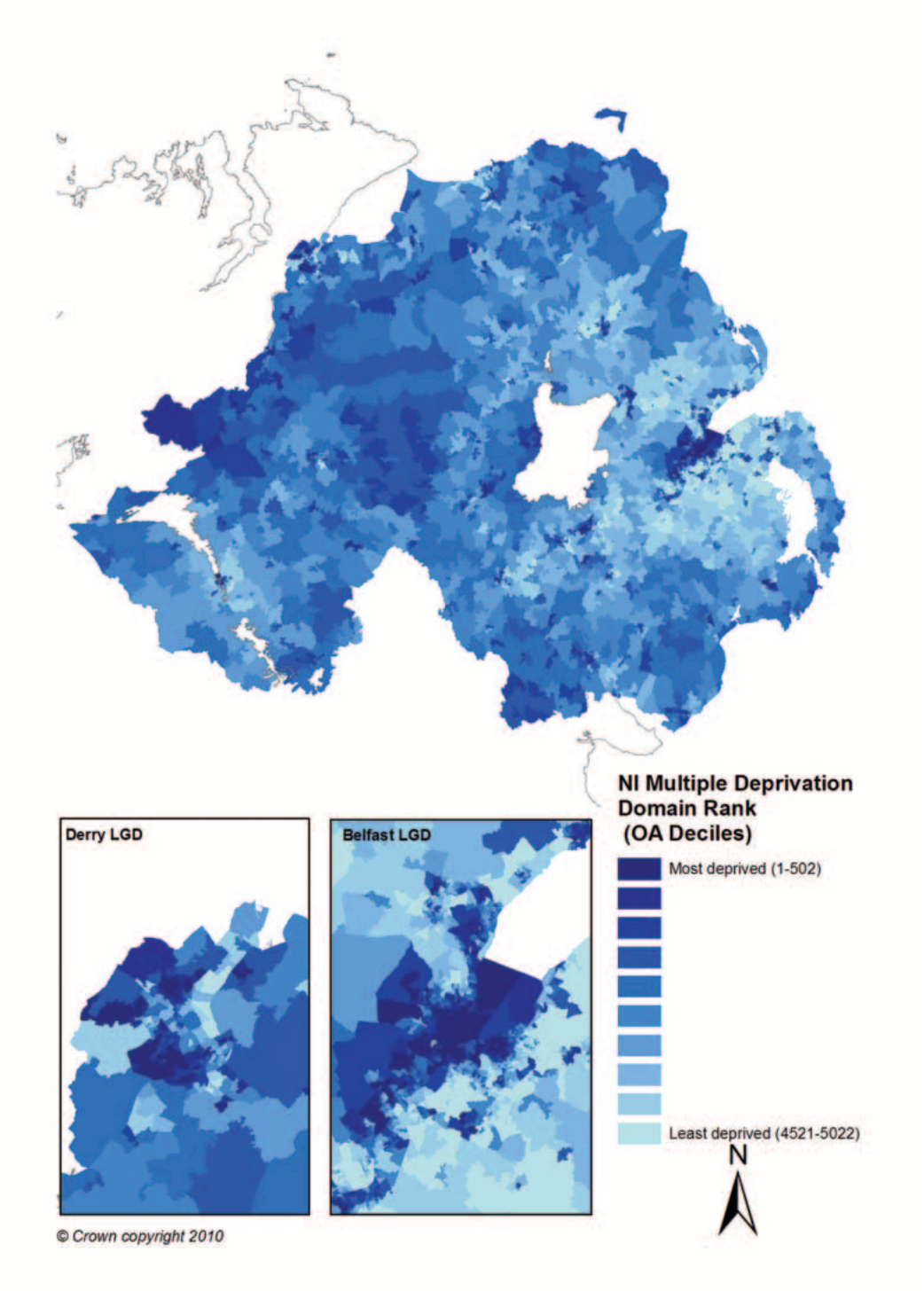
The majority of indicators in the Education, Skills & Training Domain, the Health Deprivation and Disability Domain and the Living Environment Domain were created at OA level by assigning SOA results to constituent OAs. For a number of indicators in the Education, Skills and Training and Health Deprivation and Disability Domain, actual OA level results were created. In terms of indicator weight, 86% of the overall OA Multiple Deprivation Measure was calculated at the OA level.

Map 4.16 presents the OA results for the Multiple Deprivation Measure. The general distribution of multiple deprivation at OA is similar to the distribution at SOA level, with notable concentrations of deprivation in Belfast and Derry LGDs. In addition, small pockets of deprivation are identified in each LGD at OA level, with all LGDs having at least one OA within the 20% most deprived OAs in Northern Ireland. The most deprived OAs in Northern Ireland are in the Whiterock, New Lodge and Shankill areas of Belfast LGD.

With the exception of Strabane, all LGDs had at least one OA in the 20% least deprived OAs in Northern Ireland. The least deprived OA in Northern Ireland is in the Cherryvalley area of Belfast LGD.

The OA measures also identified pockets of deprivation within rural areas, showing fifteen rural OAs in the 10% most deprived OAs in Northern Ireland. The most deprived rural OA is in the Crossmaglen area in Newry and Mourne LGD and is ranked 109th most deprived out of 5,022 OAs. The least deprived rural OA is ranked 4,998 out of 5,022 OAs and is in the Templepatrick area of Antrim LGD.

Map 4.16 Northern Ireland Multiple Deprivation Measure 2010 (OAs)



NIMDM 2010 Summary Measures

Local Government Districts and Assembly Areas

The Extent Score, Income Deprived Scale and Employment Deprived Scale for the Local Government Districts (LGDs) and Assembly Areas (AAs) are presented below in Table 4.4 and Table 4.5 respectively.

The Extent Score shows the percentage of an area's population living in the most deprived SOAs in the country. It includes 100% of the people living in the 10% most deprived SOAs plus a proportion of the population of those SOAs in the next two deciles. See Technical Annex for further details.

The LGD with the highest Extent Score is Belfast LGD, where 46% of the population live in the most deprived SOAs in Northern Ireland. Strabane and Derry LGDs were ranked second and third with 44% and 43% of their populations living in the most deprived SOAs respectively. The LGDs with the lowest proportion of their population living in the most deprived SOAs as measured by the Extent Score, are Magherafelt, Ballymoney and North Down LGDs with 2-3% of each of their populations living in the most deprived SOAs.

The AA with the highest Extent Score is Belfast West where more than three quarters of the population live in the most deprived SOAs. Belfast North and Foyle AAs were ranked second and third on the Extent Score with 59% and 43% of their populations living in the most deprived SOAs in Northern Ireland. The AAs with the lowest proportion of their population living in the most deprived SOAs as measured by the Extent Score are North Down (3%), Fermanagh & South Tyrone (5%), Strangford (5%) and South Antrim (5%) AAs.

The Income and Employment Deprived Scales present the number of people who are identified as income or employment deprived in the Income and Employment Deprivation Domains at the LGD and AA geographies. These values are also expressed as a rate of the total population and working age population respectively for the Income and Employment Scale. For further details on the calculation and worked examples see the Technical Annex: Creating Summary Measures.

The LGD with the greatest number of income deprived people is Belfast LGD, which also had the highest number of people identified as employment deprived. The LGDs with the second and third highest number of people identified as income deprived were Derry and Newry & Mourne LGDs. Derry and Newry & Mourne LGDs also have the second and third highest number of people identified as employment deprived.

At the other end of the scale the LGDs with the lowest number of income deprived people are Moyle, Larne and Carrickfergus LGDs. Moyle, Larne and Ballymoney LGDs were identified as the LGDs with the lowest number of employment deprived residents.

Although it is important to assess the sheer number of people who are income and employment deprived in an area, it is also useful to compare the proportion of an area's population experiencing forms of deprivation.

The Income Deprived Scale can be expressed as a percentage of the total population in an area to give the percentage of people income deprived. The LGD with the highest percentage of people income deprived is Derry LGD where 38% of the population were identified as income deprived. Strabane LGD (36%) and Belfast LGD (35%) have the second and third highest percentage of income deprived people in their area.

The LGDs with the highest percentage of working age population who are employment deprived are Strabane, Derry and Belfast where 20%, 18% and 16% of their working age populations were identified as employment deprived. At 9 - 10% North Down, Castlereagh and Newtownabbey have the lowest rates of employment deprived people.

The AA with the highest percentage of income deprived people is Belfast West, where over half of the population (51%) were identified as income deprived. Belfast North (42%) and Foyle (38%) AAs were ranked second and third in terms of the percentage of people income deprived with approximately two-fifths of the population experiencing income deprivation. North Down (15%), Lagan Valley (16%) and South Antrim (17%) AAs have the lowest percentages of their population identified as income deprived.

Belfast West, Belfast North and Foyle AAs also have the highest percentage of working age populations who are employment deprived, with 24%, 20% and 18% of their working age populations experiencing this form of deprivation. The AAs with the lowest percentage of working age populations employment deprived are North Down, Belfast South and Lagan Valley AAs, where less than 1 in ten people in each AA were identified as employment deprived.

Table 4.4: Local Government District (LGD) Summary Measures (Rank 1 is most deprived)

Local Government District	Extent Score, % (rank)	Income Deprived Scale (rank)	Percentage of total population income deprived (rank)	Employment Deprived Scale (rank)	Percentage of working age population employment deprived (rank)
Antrim	5 (**20**)	9,328 (**20**)	18 (**24**)	3,368 (**18**)	11 (**21**)
Ards	7 (**18**)	14,005 (**10**)	18 (**22**)	4,944 (**8**)	11 (**19**)
Armagh	5 (**19**)	12,695 (**14**)	22 (**15**)	4,117 (**11**)	12 (**11**)
Ballymena	12 (**11**)	11,844 (**15**)	19 (**20**)	3,744 (**16**)	10 (**23**)
Ballymoney	2 (**25**)	7,162 (**23**)	24 (**11**)	2,303 (**24**)	13 (**10**)
Banbridge	4 (**23**)	8,758 (**22**)	19 (**21**)	3,272 (**19**)	12 (**15**)
Belfast	46 (**1**)	93,511 (**1**)	35 (**3**)	26,095 (**1**)	16 (**3**)
Carrickfergus	10 (**14**)	7,153 (**24**)	18 (**23**)	2,543 (**23**)	11 (**20**)
Castlereagh	5 (**21**)	10,040 (**17**)	15 (**25**)	3,524 (**17**)	9 (**25**)
Coleraine	12 (**10**)	13,550 (**12**)	24 (**12**)	3,974 (**13**)	12 (**14**)
Cookstown	10 (**15**)	9,536 (**18**)	27 (**7**)	3,023 (**22**)	14 (**5**)
Craigavon	21 (**4**)	22,808 (**5**)	25 (**10**)	7,385 (**5**)	14 (**9**)
Derry	43 (**3**)	41,487 (**2**)	38 (**1**)	11,884 (**2**)	18 (**2**)
Down	8 (**16**)	15,276 (**7**)	22 (**14**)	5,002 (**6**)	12 (**13**)
Dungannon	11 (**12**)	14,002 (**11**)	25 (**9**)	4,074 (**12**)	12 (**12**)
Fermanagh	4 (**22**)	14,214 (**9**)	23 (**13**)	3,845 (**15**)	11 (**22**)
Larne	11 (**13**)	6,348 (**25**)	20 (**18**)	2,112 (**25**)	12 (**17**)
Limavady	16 (**7**)	9,522 (**19**)	28 (**5**)	3,158 (**20**)	15 (**4**)
Lisburn	18 (**6**)	24,729 (**4**)	22 (**16**)	7,531 (**4**)	11 (**18**)
Magherafelt	2 (**26**)	9,314 (**21**)	21 (**17**)	3,052 (**21**)	12 (**16**)
Moyle	12 (**9**)	4,682 (**26**)	28 (**6**)	1,353 (**26**)	14 (**6**)
Newry and Mourne	19 (**5**)	28,156 (**3**)	29 (**4**)	7,864 (**3**)	14 (**7**)
Newtownabbey	13 (**8**)	15,818 (**6**)	19 (**19**)	4,990 (**7**)	10 (**24**)
North Down	3 (**24**)	11,433 (**16**)	14 (**26**)	3,903 (**14**)	9 (**26**)
Omagh	7 (**17**)	13,291 (**13**)	26 (**8**)	4,285 (**10**)	14 (**8**)
Strabane	44 (**2**)	14,394 (**8**)	36 (**2**)	4,603 (**9**)	20 (**1**)

Table 4.5: Assembly Area (AA) Summary Measures (Rank 1 is most deprived)

Assembly Area	Extent Score, % (rank)	Income Deprived Scale (rank)	Percentage of total population income deprived (rank)	Employment Deprived Scale (rank)	Percentage of working age population employment deprived (rank)
Belfast East	19 (**6**)	18,355 (**12**)	23 (**9**)	5,223 (**17**)	11 (**11**)
Belfast North	59 (**2**)	34,825 (**3**)	42 (**2**)	9,283 (**4**)	20 (**2**)
Belfast South	20 (**5**)	17,502 (**15**)	19 (**13**)	5,473 (**16**)	9 (**17**)
Belfast West	76 (**1**)	42,664 (**1**)	51 (**1**)	11,625 (**2**)	24 (**1**)
East Antrim	10 (**10**)	16,151 (**17**)	18 (**14**)	5,511 (**15**)	11 (**13**)
East Londonderry	14 (**9**)	23,072 (**10**)	25 (**7**)	7,132 (**10**)	13 (**7**)
Fermanagh and South Tyrone	5 (**17**)	22,741 (**11**)	22 (**10**)	6,517 (**11**)	11 (**12**)
Foyle	43 (**3**)	41,487 (**2**)	38 (**3**)	11,884 (**1**)	18 (**3**)
Lagan Valley	7 (**14**)	17,572 (**14**)	16 (**17**)	6,069 (**14**)	9 (**16**)
Mid Ulster	9 (**12**)	24,326 (**8**)	25 (**6**)	7,476 (**8**)	13 (**8**)
Newry and Armagh	17 (**8**)	30,654 (**4**)	28 (**5**)	8,783 (**6**)	14 (**5**)
North Antrim	9 (**11**)	23,689 (**9**)	22 (**12**)	7,401 (**9**)	12 (**10**)
North Down	3 (**18**)	13,446 (**18**)	15 (**18**)	4,515 (**18**)	9 (**18**)
South Antrim	5 (**15**)	17,851 (**13**)	17 (**16**)	6,307 (**12**)	10 (**15**)
South Down	7 (**13**)	25,911 (**7**)	22 (**11**)	8,428 (**7**)	12 (**9**)
Strangford	5 (**16**)	17,278 (**16**)	17 (**15**)	6,143 (**13**)	10 (**14**)
Upper Bann	18 (**7**)	27,851 (**5**)	24 (**8**)	9,290 (**3**)	14 (**6**)
West Tyrone	23 (**4**)	27,685 (**6**)	30 (**4**)	8,888 (**5**)	16 (**4**)

Technical Annex
Geography of Northern Ireland

The NIMDM 2010 results and summary measures are presented at the following geographical levels; Output Area; Super Output Area; Electoral Ward; Local Government District; and Assembly Area.

Output Areas (OAs) were created as an output geography for the Census 2001. Output Areas (OAs) are the smallest geographical unit, representing areas of approximately 350 people. 5,022 OAs cover Northern Ireland.

Super Output Areas (SOAs) were created as the primary output geography for the 2005 deprivation results and are the main geographical unit for the 2010 results. The 890 SOAs have an average population of approximately 2,000 people, with a minimum population of approximately 1,000 and a maximum population of approximately 3,700 (2008 Small Area Population Estimates). SOAs were constructed from OAs, taking population, housing characteristics and ward boundaries into account. As such OAs nest within SOAs and in the majority of cases SOAs are equivalent to wards or sub-divisions of wards.

Electoral Wards: Ward level results are based on the 1992 Boundary Commission. Electoral Wards are administrative geographies and nest within Local Government Districts. There are 582 Electoral Wards in Northern Ireland. The 582 Electoral Wards have an average population of approximately 3,000 people with a minimum population of approximately 700 and a maximum population of approximately 9,500 (2008 Small Area Population Estimates). SOAs are more evenly sized than Electoral Wards allowing more meaningful area based comparisons. As such SOAs are the primary output geography for the NIMDM 2010, while summary measures were created for Electoral Wards.

Local Government Districts (LGDs): LGD results are based on the 1992 LGD boundaries. There are 26 LGDs in Northern Ireland.

Assembly Areas (AAs): AA results are based on the 1992 AA boundaries. There are 18 AAs in Northern Ireland. Wards nest within AAs. It should be noted that the 18 AAs are not equivalent to the current 18 Westminster Parliamentary Constituencies formed in 2010.

NUTS 3 Areas: Nomenclature of Units for Territorial Statistics (NUTS) is a classification of administrative areas, used across the European Union for statistical purposes. The Northern Ireland NUTS 3 areas are an amalgamation of LGDs, grouped as follows:

NUTS 3 Area	Belfast	Outer Belfast	East of NI	North of NI	West & South of NI
LGD	Belfast	Carrickfergus	Antrim	Ballymoney	Armagh
		Castlereagh	Ards	Coleraine	Cookstown
		Lisburn	Ballymena	Derry	Dungannon
		Newtownabbey	Banbridge	Limavady	Fermanagh
		North Down	Craigavon	Moyle	Magherafelt
			Down	Strabane	Newry & Mourne
			Larne		Omagh

Deprivation results were not produced at NUTS 3 areas but were included in the report when describing SOA results.

Figure TA.1 Northern Ireland Administrative and Statistical Geography (1992 Boundary Commission / 2001 Census)

Geocoding

As the NIMDM 2010 is a spatial measure of deprivation it is important that address and locational information were coded to small geographical areas in a consistent manner to allow accurate aggregation of records to the geographies described above. In the majority of cases data were supplied with a postcode as the geographic identifier. The Central Postcode Directory 2009 (available from NISRA[18]) was used to assign postcoded records to OAs and SOAs to maintain consistency.

Apportioning

Where less than 98% of records in a dataset supplied to the deprivation team contained a detailed small area geographic identifier, unassigned records were apportioned to areas.

To apportion data, unidentified records are distributed to geographies based on the number of cases known to occur in those areas. For apportioning to add value to a dataset used to create an ordinal result, an additional piece of information is required on which the apportionment is based. Within the Education, Skills and Training Domain, for example, the additional information was often the school that pupils attended. This allowed any unallocated pupil data to be apportioned to areas when data were not completely geocoded.

For example it is known for a high proportion of records the area in which a pupil resides and the school they attend. In a small proportion of cases only the school attended is known. Where both pieces of information are known it is possible to say for a given school that x% of pupils reside in Area X, y% in Area Y, and z% in Area Z. The small proportion of unknown cases can be assigned to areas using the ratios above, on a school by school basis.

Indicator Rates

The majority of indicators take the form of rates of the relevant **population** or **standardised ratios** of observed to expected counts/occurrences. The creation of rates and ratios allows meaningful comparison of results across areas by taking population characteristics and/or population size into account. For both types of indicator small area population estimates were used.

Small Area Population Estimates

The small area population estimates used in the deprivation analysis range from 2001 to 2008 and were created from an average of two statistical methods; the ratio change and cohort-component methods. The ratio change method applies the change in secondary, typically administrative, data sources over the period 2001-08 to the 2001 Census population estimates. The cohort-component method updates the Census estimates by 'ageing on' populations and applying information on births, deaths and migration. An average of both methods is taken and constrained to the published population figures for Northern Ireland and Local Government Districts. A separate publication with a more detailed description of the methodology and analysis of small area population estimates is available from NISRA.[19]

Standardising Data

The majority of indicators within the Health Deprivation and Disability Domain take the form of age and gender standardised ratios. Such ratios control for differences in age and gender characteristics of populations across areas. This is of particular importance when measuring health deprivation, as all other things being equal, higher levels of health deprivation are expected in areas with a higher proportion of older people. Without controlling for the effect of age, an area with a higher number of older people would therefore appear more deprived while areas with a younger population experiencing an unusually high level of health deprivation may not be identified.

The indirect method of standardisation was used to control for these effects. This method compares the number of occurrences in an area (of cancer for example) to that which would be expected given the age and gender characteristics of the area. The expected number of occurrences for each area is calculated by applying the age and gender specific reference rate (in this case Northern Ireland rate) to each age and gender group in the small area.

[18] NISRA Geography website http://www.nisra.gov.uk/geography/default.asp.htm

[19] NISRA Small Area Population Estimates website http://www.nisra.gov.uk/demography/default.asp125.htm

For example, if the occurrence rate in Northern Ireland for females in age group A was a% and females in age group B was b%, while the occurrence rate in Northern Ireland for males in age group C was c% and males in age group D was d%, the expected number of occurrences in a small area with A1 females of age group A, B1 females of age group B, C1 males of age group C and D1 males of age group D is:

(A1 x a%) + (B1 x b%) + (C1 x c%) + (D1 x d%)

The standardised ratio is therefore: [observed count / expected] * 100
= [observed count / ((A1 x a%) + (B1 x b%) + (C1 x c%) + (D1 x d%))] * 100

A resulting observed to expected ratio greater than 100 indicates an area with higher occurrences than expected, while values less than 100 indicate an area with less occurrences than expected.

Shrinkage

Unlike the NIMDM 2005, indicators in the NIMDM 2010 have not been subjected to shrinkage estimation. Shrinkage is a technique that moves 'unreliable' SOA scores towards another more robust score. In the NIMDM 2005 the 'more robust score' was the LGD average for a given indicator and the unreliability of an indicator was determined by its standard error. The unreliability of an indicator in essence is determined by the size of the 'at risk' population in an area, as with, for example, the same indicator rate a smaller 'at risk' population leads to a larger standard error, and so a more unreliable indicator.

As the size of the 'at risk' population is the determining factor in an indicator's reliability, the NIMDM 2010 indicators comprise additional years of data where possible. This has the effect of increasing the size of the 'at risk' population and correspondingly, the reliability of the indicator.

Where additional years of data were not available, ward averages have been substituted for SOA results at an indicator level. Specifically a small number of SOAs were assigned their ward average for indicators within the Primary and Post-Primary Sub-Domains in the Education, Skills and Training Domain. This substitution was carried out where the 'at risk' population was small, for example the number of pupils taking Key Stage 2 examinations in student areas.

Combination into Sub-Domains, Domains and the Multiple Deprivation Measure

In total the NIMDM 2010 contains 52 indicators across seven separate domains. A number of methods were employed to combine indicators within sub-domains and domains; combine sub-domains within domains; and to combine the separate domains into the overall multiple deprivation measure.

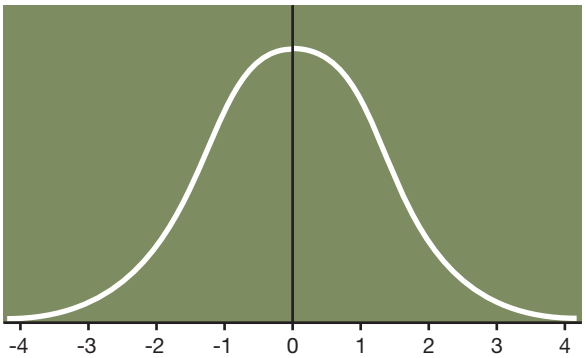
Normal Transformation

The majority of indicators are initially calculated as rates or ratios to control for variations in population size or characteristics before combining within a sub-domain or domain.

To combine the indicators it is necessary they are measured on comparable scales, so that small values are not dominated unintentionally by large values. The indicator values are therefore ranked from most deprived to least deprived and transformed to a standard normal distribution. This has the effect that the most deprived area in each indicator will have the same value.

The transformed scores range from approximately -3 to +3 as follows:

Figure TA.2 Histogram showing transformation of Super Output Area ranks to a standard normal distribution



The normalised indicator scores can be combined with relevant weights to form a sub-domain or domain.

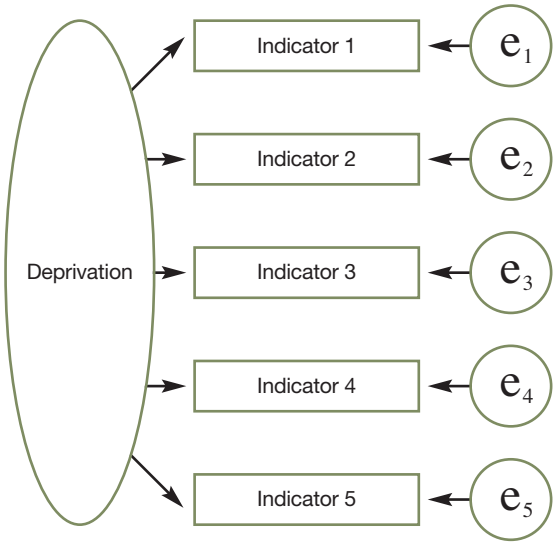
Factor Analysis

The weights given to the indicators can be decided before combining to form sub-domains and domains by drawing on deprivation theory, views on the relative importance of indicators in measuring the form of deprivation, and knowledge on the quality of the underlying data. The weights applied to the indicators within the Crime and Disorder and Living Environment Domains were chosen using this method.

Within the NIMDM 2010, factor analysis has also been used to determine weights within sub-domains and domains. This method has been employed where an underlying form of deprivation is thought to exist, but cannot be measured perfectly via observed variables. An underlying unobserved factor such as this is often referred to as a latent variable.

To carry out a factor analysis a group of indicators are chosen that are related to the underlying factor, in this case deprivation, but are thought to be imperfect measures of that factor i.e. indicators which measure the latent variable with some error. Factor analysis assumes that the measurement error (e1 to e5 in the diagram below) in each of the related indicators is not correlated, and that those indicators most correlated with the latent variable will be highly correlated with the other indicators in the model.

Figure TA.3 Latent Variable Model



By analysing the correlations between the indicators, inferences can be made about the common factor and a factor score can be estimated. In calculating the factor score, indicator weights are generated, with those indicators most highly correlated with each other, and so the underlying factor, receiving the highest weight in the domain. The resulting factor scores (a weighted combination of normalised indicators) for each area are ordered and ranked from the most deprived to least deprived area to form the sub-domain or domain rank.

Maximum Likelihood factor analysis was used to determine the indicator weights within the Education, Skills and Training Domain (Primary and Post-Primary Sub-Domains), and the Health Deprivation and Disability Domain.

The factor weights are as follows:

Indicator weights for Education, Skills and Training Deprivation Domain

Education, Skills and Training Domain	Indicator Weight (%)[20]
Primary Sub-Domain	
Key Stage 2 Assessments	19
Proportion of Children with Special Educational Needs	10
Absenteeism at Primary Schools	72
Post-Primary Sub-Domain	
Key Stage 3 Assessments	22
GCSE or equivalent qualifications points score	30
School Leavers Destinations	7
Higher and Further Education Enrolments	7
Proportion of Pupils with Special Educational Needs	5
Absenteeism at Secondary School	29

Indicator weights for Health Deprivation and Disability Domain

Health Deprivation and Disability Domain	Indicator Weight (%)[20]
Potential Years of Life Lost	14
Comparative Illness and Disability Ratio	50
Mental Health Indicator	13
Cancer Registrations	5
Emergency Admissions Rate	11
Low Birth Weight	3
Children's Dental Extractions	5

[20] Indicator weights may not sum to 100 due to rounding.

Exponential Transformation

When combining sub-domains into domains and domains into the multiple deprivation measure, sub-domain and domain scores were exponentially transformed, giving more weight to the most deprived areas.

The exponential distribution ranges from 0 to 100, with the most deprived area having a value of 100 and the 10% most deprived areas having a value of 50 or greater. This particular form of exponential distribution, such that the 10% most deprived areas have a value of 50 or greater, is defined by the use of the constant '23'. Such a transformation reduces the extent to which lack of deprivation in one domain can cancel the effect of deprivation in another, in the overall multiple deprivation measure.

The transformation is calculated as follows:

For any SOA, denote its rank on the domain, scaled to the range [0,1], by R (with R=1/N for the least deprived, and R=N/N, i.e. R=1, for the most deprived, where N=the number of SOAs in Northern Ireland).

The transformed domain,
X say, is X = -23*log{1 - R*[1 - exp(-100/23)]}

where *log* denotes natural logarithm and exp the exponential or antilog transformation.

Calculation of Output Area, Super Output Area and Summary Measures

The main NIMDM 2010 results are presented at the Output Area and Super Output Area geographies. Summary measures were created for Electoral Wards, Local Government Districts and Assembly Areas.

Creating Output Area Measures

A multiple deprivation measure and four separate domains of deprivation are also presented at the Output Area (OA) geography.

It was possible to create the Income, Employment, Proximity to Services and Crime and Disorder Domains at OA level as well as a small number of indicators within the Health Deprivation and Disability Domain, and the Education Skills and Training Domain after considering the robustness of individual indicators at this geography. Robustness of indicators at the OA level was determined by assessing the number of observed cases per OA including the number of OAs without cases, the size of the population denominator, the geographical level at which the data were collected and the degree of apportioning.

Figure TA.4 Plot of exponential transformation

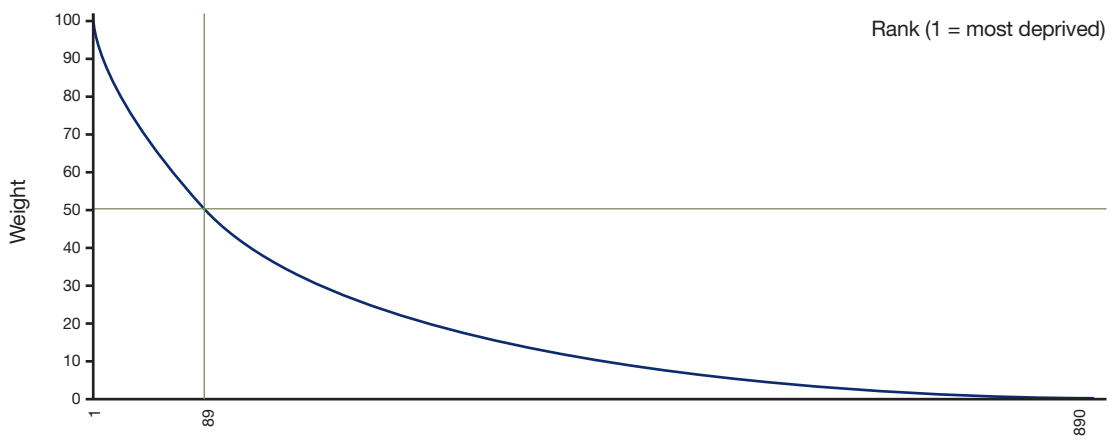
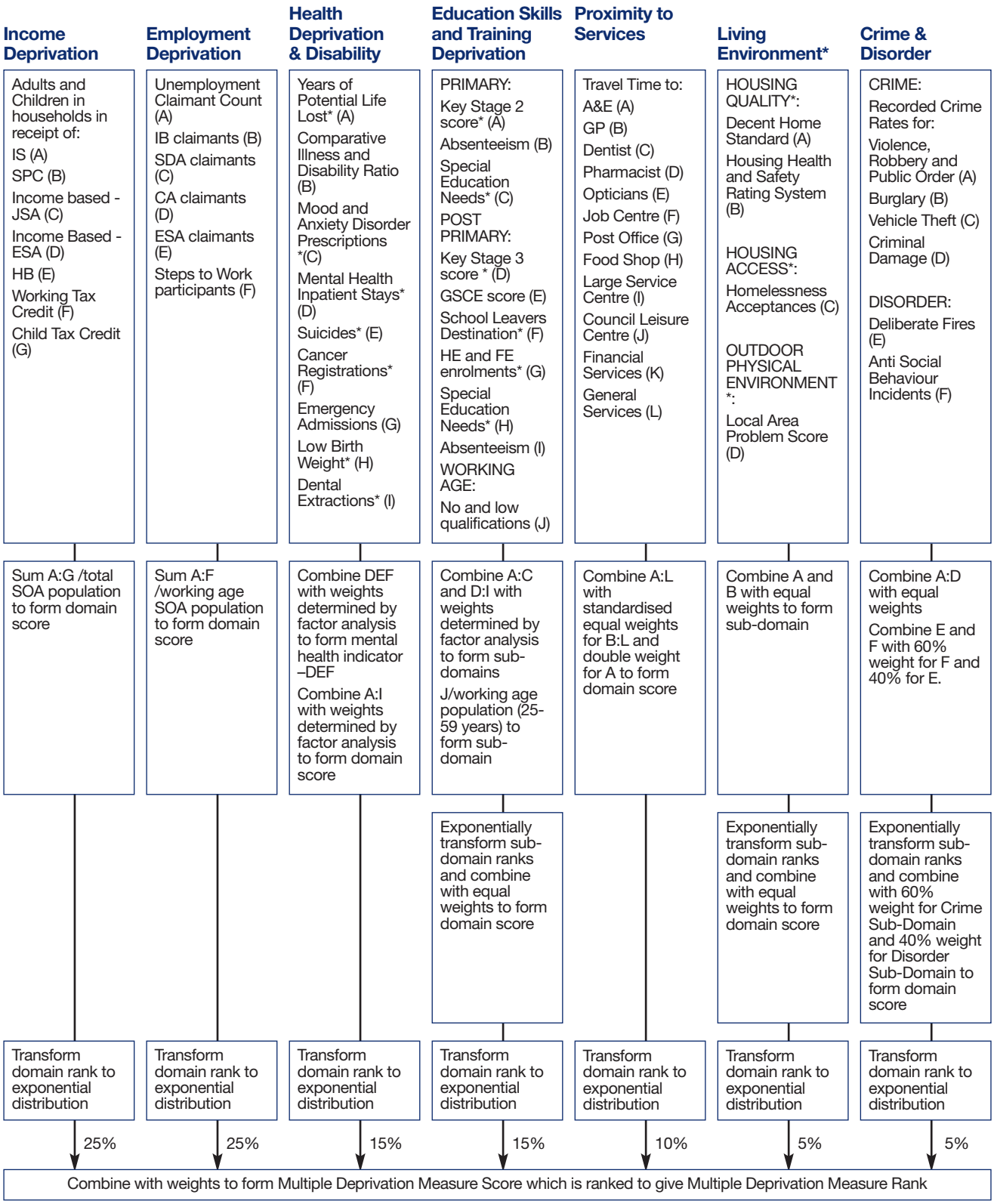


Figure TA.5 Components of the Northern Ireland Multiple Deprivation Measure 2010



** SOA results applied to constituent OAs when creating Multiple Deprivation Measure at the OA level*

The OA level multiple deprivation measure includes all seven domains of deprivation weighted using the same proportions as the SOA multiple deprivation measure. Where OA indicators were not robust (in the Health Deprivation & Disability, Education Skills and Training, and Living Environment Domain) the SOA result was assigned to constituent OAs before combining to form the domain. In total 86% of the OA Multiple Deprivation Measure was constructed from OA level data.

The flow chart in figure TA.5 shows the components of the Multiple Deprivation Measure. Indicators asterisked (*) were included in the OA measure using the relevant SOA result.

Creating Super Output Area Measures

The components of the SOA measures are as described in the domain sections of the report. The flow chart on page 67 summarises the process.

Creating Electoral Ward measures

The ward measures were created by taking a weighted average of the SOA results at indicator level for six of the seven domains and the weighted average of OA results in the Proximity to Services Domain. Weights were determined by total population size of SOAs within each ward. Indicator data were ranked, transformed to a normal distribution and combined using the same methods described for the SOA measures. This is a different methodology from that used to create the NIMDM 2005 ward measures where weighted averages of the constituent SOA ranks formed the ward score.

It should be noted that the creation of ward summary measures for Moyle LGD followed a different methodology due to the relative size of SOAs and wards within this LGD.

Moyle LGD contains fifteen wards and nine SOAs. Three wards are equivalent to three SOAs while twelve wards were combined pair-wise to form the remaining six SOAs. To form the ward summary measures for Moyle LGD it was not possible therefore to take weighted averages of SOA indicator data as some SOAs comprised more than one ward. In these cases the ward is given the SOA score.

This has the effect that pairs of wards within Moyle LGD will have the same score for six of the seven domains of deprivation. Rather than arbitrarily assigning different ranks to such wards, six pairs of wards within Moyle LGD are given the same rank.

Local Government District and Assembly Area Summaries

Three summary measures are available at the Local Government District (LGD) and Assembly Area (AA) geographies.

Extent: This measure aims to quantify the proportion of a LGD's (or AA's) population living in the most deprived SOAs in the country.

In this measure, 100% of the people living in the 10% most deprived SOAs in Northern Ireland are captured in the numerator, plus a proportion of the population of those SOAs in the next two deciles on a sliding scale – that is 95% of the population of the SOA at the 11th percentile, and 5% of the population of the SOA at the 29th percentile.

The aim of this measure is to portray how widespread high levels of deprivation are in a LGD (or AA). It only includes LGDs (or AAs) which contain SOAs which fall within the most deprived 30% of SOAs in Northern Ireland. For example if an LGD (or AA) had no SOAs within the 30% most deprived SOAs in Northern Ireland it would be given a score of 0 and a corresponding rank.

Example:
Consider an LGD with twenty SOAs. Five of the SOAs are within the most deprived 10% of SOAs in Northern Ireland on the Multiple Deprivation Measure and a further two are within the most deprived 30% - one at the 11th percentile and one at the 29th percentile. All of the populations of the five SOAs in the most deprived 10%, together with 95% of the population of the SOA at the11th percentile and 5% of the population of the SOA at the 29th percentile are aggregated and divided by the LGD's total population and presented as a percentage.

So, the populations of the five SOAs in the most deprived 10% are 2,500, 1,800, 2,000, 1,900 and 2,100. The population of the SOA at the 11th percentile is 2,200 and that of the SOA at the 29th percentile is 1,950. The total LGD population is 50,000. The Extent score is therefore: ((((2500 + 1800 + 2000 + 1900 + 2100) x 1) + (2200 x 0.95) + (1950 x 0.05))/50000) x 100 = 25%

The LGD scores are ranked in descending order, so the LGD with the highest percentage is given a rank of 1.

Scale (Income and Employment Deprived)

The two scale measures are designed to give an indication of the sheer numbers of people experiencing income deprivation and employment deprivation at LGD and AA level. The Income Deprived Scale score is a count of individuals experiencing income deprivation and the Employment Deprived Scale score is a count of individuals experiencing employment deprivation. It is useful to present both measures as they are real counts of the individuals experiencing these deprivations.

Example: Consider an LGD with ten SOAs. The number of people in low income families in each SOA (i.e. the numerator in the Income Deprivation Domain) are 344, 422, 847, 737, 329, 286, 512, 98, 123 and 146.

The Income Scale score is therefore:
344 + 422 + 847 + 737 + 329 + 286 + 512 + 98 + 123 + 146 = 3844

The Employment Deprived Scale score is generated in the same way, using the numerator of the Employment Deprivation Domain. In both cases, the LGD scores are ranked in descending order, so the LGDs with the largest number of income or employment deprived people are ranked 1.

The Income and Employment Deprived Scale can also be presented as rates of the population to allow comparison across LGDs and ranked accordingly from most deprived (rank 1) to least deprived (rank 26). The Income Scale is expressed as a percentage of the total population while the Employment Scale is expressed as a percentage of the working age population.

Annex A: Indicator summary

	Source	Year
Income Deprivation Domain		
Adults and children in Income Support households	DSD	2008/09
Adults and children in State Pension Credit households	DSD	2008/09
Adults and children in income based Employment and Support Allowance households	DSD	2008/09
Adults and children in income based Jobseeker's Allowance Households	DSD	2008/09
Adults and children in Working Tax Credit households[21]	HMRC	August 2008
Adults and children in Child Tax Credit households[21]	HMRC	August 2008
Adults and children in Housing Benefit households	LPS and DSD	2008/09
Employment Deprivation Domain		
Unemployment claimant count of women aged 18-59 and men aged 18-64	DSD	2008/09
Incapacity Benefit claimants women aged 18-59 and men aged 18-64	DSD	2008/09
Severe Disablement Allowance claimants women aged 18-59 and men aged 18-64	DSD	2008/09
Carer's Allowance claimants women aged 18-59 and men aged 18-64	DSD	2008/09
Employment and Support Allowance claimants women aged 18-59 and men 18-64	DSD	2008/09 (5 months)
Steps to Work or New Deal Participants women aged 18-59 and men aged 18-64	DEL	2008/09 (6 months)
Health Deprivation & Disability Domain		
Years of Potential Life Lost	NISRA/GRO	2004 – 2008
Comparative Illness and Disability Ratio	DSD	2008/09
A combined measure of three indicators: i) individuals suffering from mood and anxiety disorders, based on prescribing data ii) suicides iii) mental health inpatient stays	 BSO NISRA/GRO DHSSPS	 2008/09 1999 – 2008 2003/04 – 2007/08
People registered as having cancer (excluding non-melanoma skin cancers)	NICR	2003 – 2007
Emergency Admission Rate	DHSSPS	2007/08
Low Birth Weight	DHSSPS	2004 – 2008
Children's Dental Extractions	BSO/DHSSPS	2006/07 – 2008/09

[21] whose equivalised income (excluding housing benefits) is below 60% of the NI median before housing costs.

	Source	Year
Education, Skills and Training Deprivation		
Sub-Domain: Primary School		
Key Stage 2 Teacher Assessments for English and Maths (and Irish in Irish medium schools/units)	DE	2006/07 – 2007/08
Proportions of primary pupils attending special schools with Special Educational Needs stages 3-5 or who are attending primary schools with Special Educational Needs stages 3-5	DE	2006/07 – 2007/08
Absenteeism at Primary Schools (all absences)	DE	2006/07 – 2007/08
Sub-Domain: Post Primary		
Key Stage 3 Teacher Assessments for English and Maths (and Irish in Irish medium schools/units)	DE	2006/07 – 2007/08
GCSE or equivalent qualifications points score	DE	2005/06 – 2007/08
Proportions of those leaving school not entering Further Education, Employment or Training	DE	2003/04 – 2007/08
Proportions of 18-21 year olds who have not enrolled in Higher Education Courses at Higher Education or Further Education establishments	DE	2004/05 – 2007/08
Absenteeism at Post-Primary Schools (all absences)	DE	2006/07 – 2007/08
Proportions of post-primary pupils attending special schools with Special Educational Needs stages 3-5 or attending post-primary schools with Special Educational Needs stages 3-5	DE	2006/07 – 2007/08
Sub-Domain: Working Age Adults		
Proportion of working age adults (25-59) with no or low levels of qualification	Census	2001
Proximity to Services Domain		
GP premises	BSO	2009
Accident and Emergency hospital	DHSSPS	2009
Dentists	BSO	2009
Opticians	BSO	2009
Pharmacists	BSO	2009
Job Centre or Jobs and Benefits Office	DEL	2008
Post Office	Post Office Ltd	2009
Supermarket / Food Store	Experian	2007
Large Service Centre	DSD	2007
Council Leisure Centre	DCAL	2009
Financial Services	Experian	2007
Other general services	Experian	2007

	Source	Year
Living Environment Domain **Sub-Domain: Housing Quality**		
SOA level Decent Homes Standard	NIHE	2006
SOA level Housing Health and Safety Rating System	NIHE	2006
Sub-Domain: Housing Access		
SOA level homelessness acceptances	NIHE	2005/06 – 2007/08
Sub-Domain: Outdoor Physical Environment		
SOA level local area problem score	NIHE	2006
Crime and Disorder Domain **Sub-Domain: Crime**		
Violence, robbery and public order	PSNI	2004/05 – 2008/09
Burglary	PSNI	2004/05 – 2008/09
Vehicle Theft	PSNI	2004/05 – 2008/09
Criminal Damage	PSNI	2004/05 – 2008/09
Sub-Domain: Disorder		
Deliberate Primary and Secondary Fires	NIFRS	2004/05 – 2008/09
Anti Social Behaviour Incidents	PSNI	2006/07 – 2008/09

Annex B: Deprivation Steering Group Members

Name	Department / Organisation
Robert Beatty (Chair)	NISRA
Alex Boyle	DOE
Carmel Colohan	DHSSPS
Ian Davidson	DCAL
Gary Ewing (Secretary)	NISRA
Joe Frey	NIHE
Stephanie Harcourt	DETI
Margaret Langhammer	DRD
David Marshall	NISRA
Martin Mayock	DRD
Ruth McAreavey	RDC
Cathryn McBurney	NISRA
Frances McCandless	NICVA
Alan McClelland	OFMDFM
Karen McCullough	DE
Tony McKibben	DSD
Darren McKinstry	Equality Commission
Daniel McSorley	SOLACE
Malcolm Megaw	DARD
Martin Monaghan	DETI
Keith Morrison	DARD
Dave Rogers	DEL
Philip Spotswood	DCAL

Glossary

AA	Assembly Area
A&E	Accident and Emergency
BSO	Business Services Organisation
CD	Compact Disc
CHS	Continuous Household Survey
CIDR	Comparative Illness and Disability Ratio
DARD	Department of Agriculture and Rural Development
DCAL	Department of Culture, Arts and Leisure
DE	Department of Education
DEL	Department for Employment and Learning
DETI	Department of Enterprise, Trade and Investment
DFP	Department of Finance and Personnel
DHSSPS	Department of Health, Social Services and Public Safety
DLA	Disability Living Allowance
DOE	Department of the Environment
DRD	Department for Regional Development
DSD	Department for Social Development
EPES	Electronic Prescribing and Eligibility System
EU	European Union
FE	Further Education
FESR	Further Education Statistical Record
GCSE	General Certificate of Secondary Education
GP	General Practitioner
GRO	General Register Office
HE	Higher Education
HESA	Higher Education Statistics Agency
HMO	Houses in Multiple Occupation
HMRC	Her Majesty's Revenue and Customs
IB	Incapacity Benefit
IDAC	Income Deprivation Affecting Children
IDAOP	Income Deprivation Affecting Older People
IS	Income Support
JSA	Job Seeker's Allowance
JSA(IB)	Job Seeker's Allowance (Income based)
KS2	Key Stage 2
KS3	Key Stage 3
LGD	Local Government District
LPS	Land and Property Services
MDM	Multiple Deprivation Measure
NI	Northern Ireland
NICS	Northern Ireland Crime Survey
NICVA	Northern Ireland Council for Voluntary Action
NIFRS	Northern Ireland Fire and Rescue Service
NIHCS	Northern Ireland House Condition Survey
NIHE	Northern Ireland Housing Executive
NIMDM	Northern Ireland Multiple Deprivation Measure
NIMDM 2001	Northern Ireland Multiple Deprivation Measure 2001
NIMDM 2005	Northern Ireland Multiple Deprivation Measure 2005
NIMDM 2010	Northern Ireland Multiple Deprivation Measure 2010

NINIS	Northern Ireland Neighbourhood Information Service
NIO	Northern Ireland Office
NISRA	Northern Ireland Statistics and Research Agency
NUTS	Nomenclature of Units for Territorial Statistics
OA	Output Area
OFMDFM	Office of the First Minister and Deputy First Minister
PC	Parliamentary Constituency
PYLL	Potential Years of Life Lost
PSNI	Police Service of Northern Ireland
RDC	Rural Development Council
SAPE	Small Area Population Estimates
SDA	Severe Disablement Allowance
SDRC	Social Disadvantage Research Centre
SEN	Special Educational Needs
SOA	Super Output Area
SOLACE	Society of Local Authority Chief Executives
TA	Technical Annex
UK	United Kingdom of Great Britain and Northern Ireland
WRS	Worker Registration Scheme

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Websites

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www.nisra.gov.uk

Northern Ireland Neighbourhood Information Service website
www.ninis.nisra.gov.uk

NISRA Deprivation website
www.nisra.gov.uk/deprivation.htm

NISRA Geography website
http://www.nisra.gov.uk/geography/default.asp.htm

NISRA Small Area Population Estimates website http://www.nisra.gov.uk/demography/default.asp125.htm

For more information on the Worker Registration Scheme see UK Border Agency website
http://www.ukba.homeoffice.gov.uk/workingintheuk/eea/wrs/

For more information regarding benefits for non-UK nationals please see http://www.nidirect.gov.uk/index/money-tax-and-benefits/benefits-and-financial-support/beginners-guide-to-benefits/benefits-for-non-uk-nationals.htm

The Northern Ireland Statistics and Research Agency

The Northern Ireland Statistics and Research Agency (NISRA) was established as an Executive Agency within the Northern Ireland Department of Finance and Personnel on 1 April 1996. NISRA is the principal source of official information of socio-economic conditions in Northern Ireland. The Agency provides statistics and social research services, undertakes the Northern Ireland census of population and administers the civil registration of births, deaths, marriages and adoptions.

The overall corporate aims of NISRA are to:

- Provide a statistical and research service to support the decision making by Government in Northern Ireland and to inform Parliament and the wider community through the dissemination of reliable official statistics; and

- Administer the marriage laws and to provide a system for the civil registration of births, marriages, adoptions and deaths in Northern Ireland.

NISRA can be found on the internet at **www.nisra.gov.uk**

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