

Correlation Between Education Under Achievement and Socio-Economic Deprivation in the Greater Belfast Area



August 2010

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Executive Summary

The correlation between education, skills and training deprivation and employment, income, health and the multiple deprivation measure is very strong. Crime also has a positive correlation with education, skills and training deprivation, although the correlation is weaker than the other deprivation measures. These findings indicate that in areas of educational underachievement, there is a higher possibility the same areas experience other types of socio-economic deprivation such as crime, health, employment and income.

Aim

The aim is to analyse and present the correlation between educational under achievement and socio-economic deprivation.

Objectives

In order to find the correlation between education under achievement and socio-economic deprivation, six measures from NISRA's deprivation dataset were used. These datasets are as follows:

- 1. Education, training and skills deprivation measure**
2. Employment deprivation measure
3. Income deprivation measure
4. Crime deprivation measure
5. Health deprivation and disability
6. Multiple deprivation measure

The deprivation datasets were published by NISRA in March 2010. The correlation between education, training and skills deprivation and the other measures of deprivation was analysed across the whole of NI, though the study area focused on the Greater Belfast area.

Method

Three methods were used to find the correlation between educational deprivation and socio-economic deprivation. These were:

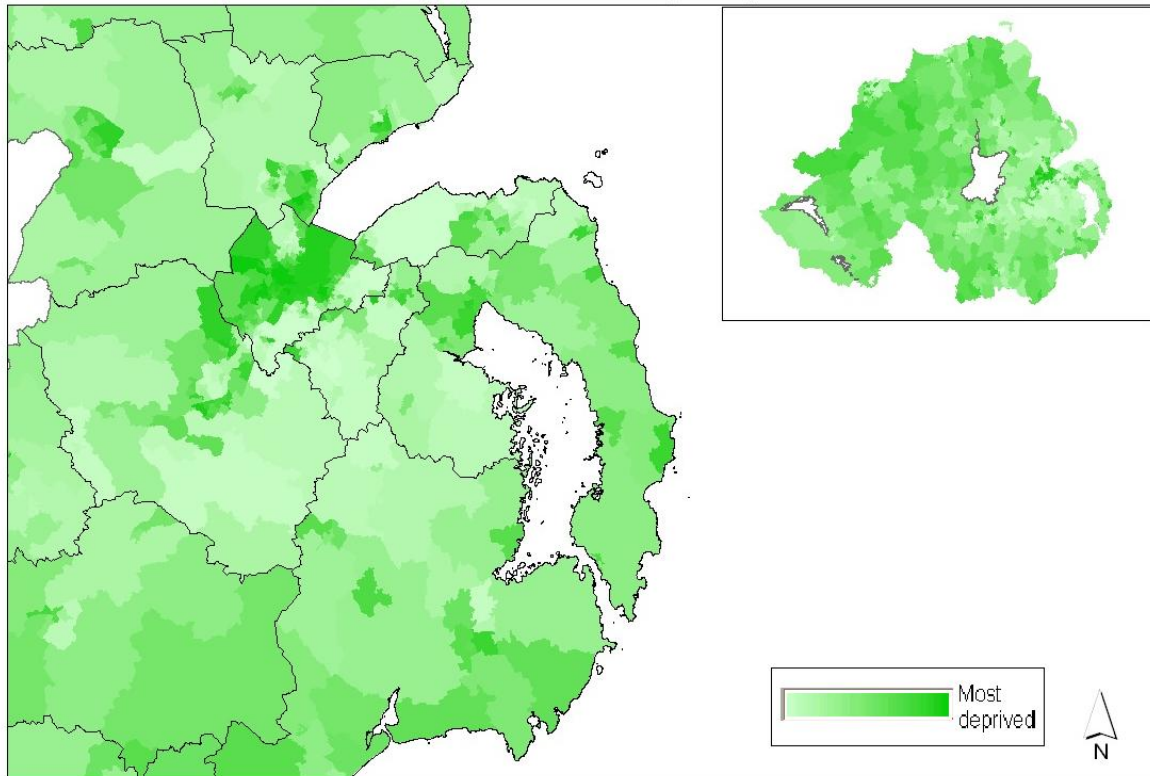
1. **Comparison of thematic maps for spatial analysis** - There are six maps representing each type of deprivation measure used for the analysis. Darker colours represent more deprived areas than lighter colours. The different patterns in the maps are compared to find similarities and differences. The geographical distribution of deprivation is represented by 890 super output areas * (SOA), which cover the area of NI. Each SOA is attributed a deprivation value by NISRA.


*Super Output Areas (SOAs) are a geography designed for the collection and publication of small area statistics. SOAs give an improved basis for comparison across the country because the units are more similar in size of population than, for example, electoral wards. (Office of National Statistics, 2010)

2. **Correlation graphs** - The graphs show education, skills and training deprivation in rank order, rank one being the most deprived. Rank of education, skills and training deprivation is shown in rank order, therefore appearing as a smooth line. The deprivation measure which is being compared to education, skills and training deprivation is shown in the foreground of the graph. If the two deprivation measures show similar trends in the graph, they have a positive correlation.
3. **Table of correlation coefficients** – This table presents the statistical relationship between education, skills and training deprivation and the other five measures of deprivation. Correlation coefficient ranges from -1 which is perfect negative correlation, to +1 which is perfect positive correlation. A value of 0 is no correlation.

Education, Skills and Training Deprivation

Education, Skills and Training Deprivation 2010

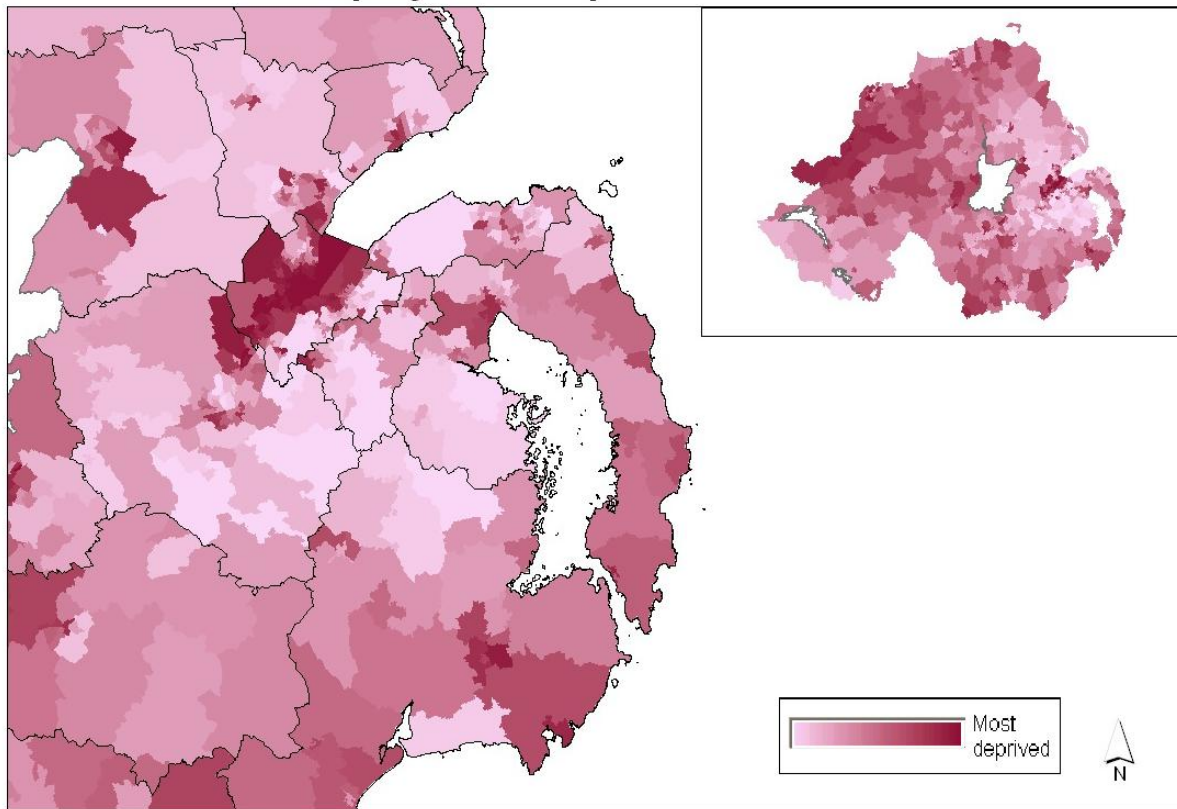


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The regional trend is that education, skills and training is less deprived in the east than the west, with the exception of Belfast. Belfast has pockets of extreme deprivation values. Greater Belfast has a high concentration of less deprived SOAs, in particular, Castlereagh, Newtownabbey and North Down compared to the rest of NI. (NISRA, 2010)

Employment Deprivation

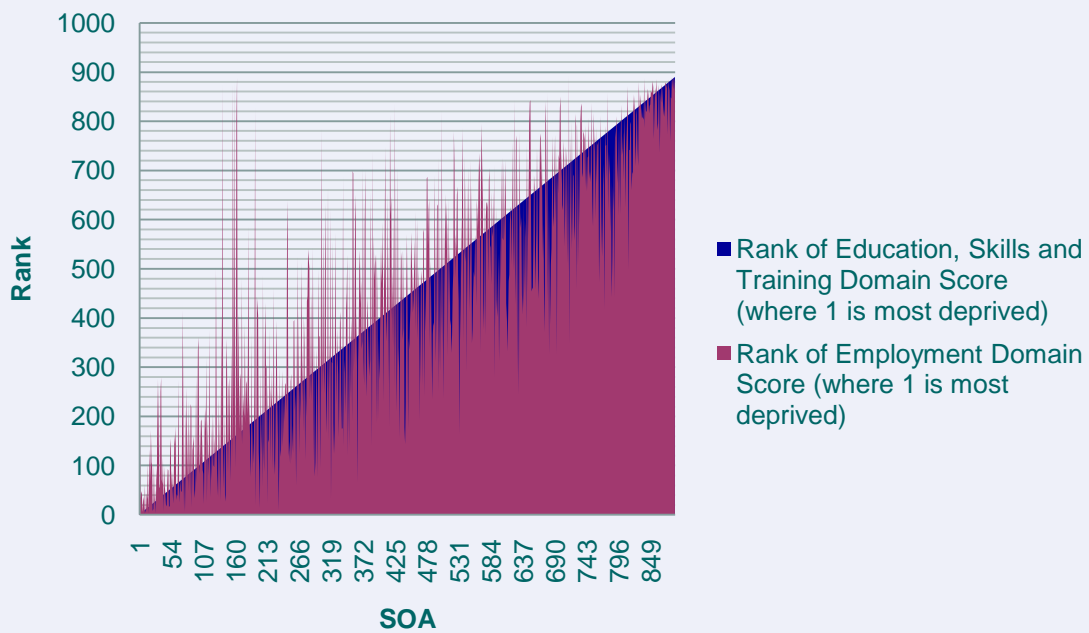
Employment Deprivation 2010



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The spatial distribution of employment deprivation is very similar to that of education, skills and training deprivation. The similarities are that: Belfast contains extreme employment deprivation values, and large portions of Castlereagh, Lisburn, North Down and Newtownabbey LGDs have low employment deprivation. The regional difference in employment deprivation between east and west of NI is also evident, with the exception of Fermanagh containing less deprived SOAs.

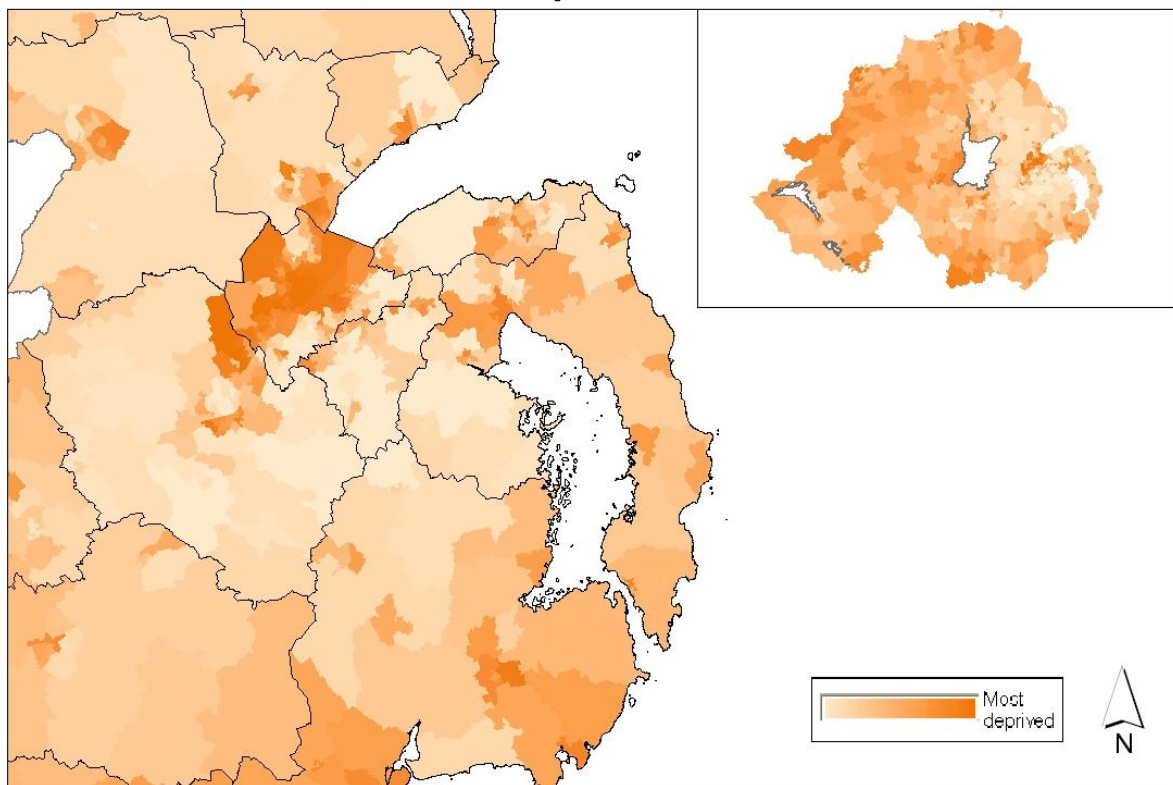
Employment Compared to Education, Skills and Training



Graph one shows that as education, skills and training improves, employment generally also improves.

Income Deprivation

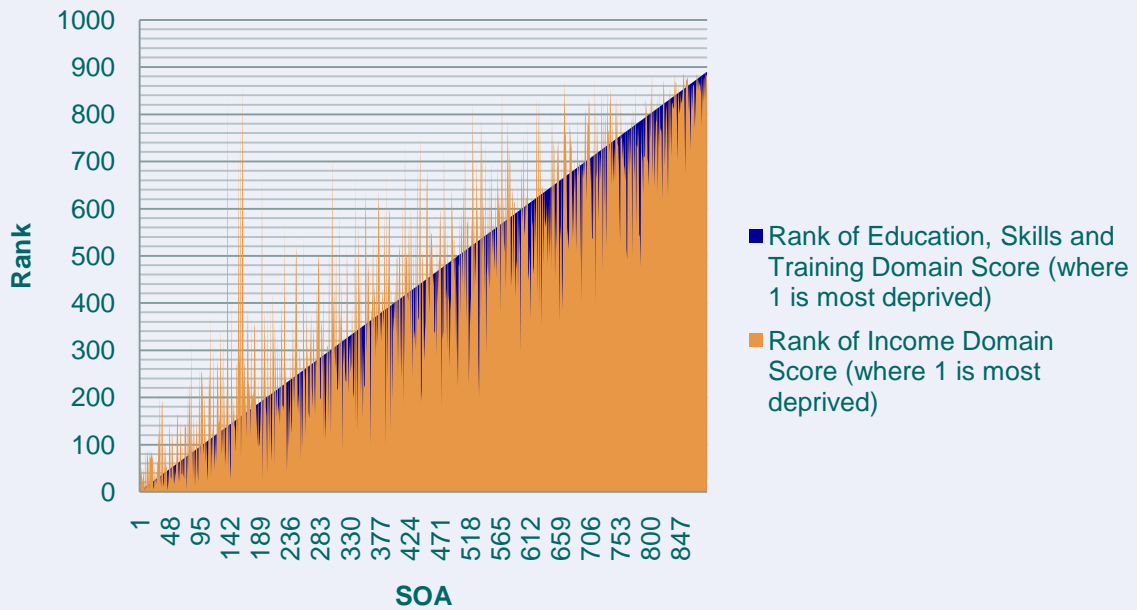
Income Deprivation 2010



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The spatial distribution of income deprivation is very similar to that of employment deprivation. Belfast contains both some of the least and the most income deprived SOAs in NI. Pockets of most income deprived areas are found in Lisburn, but the Greater Belfast Area generally has a high representation of the least income deprived areas in NI.

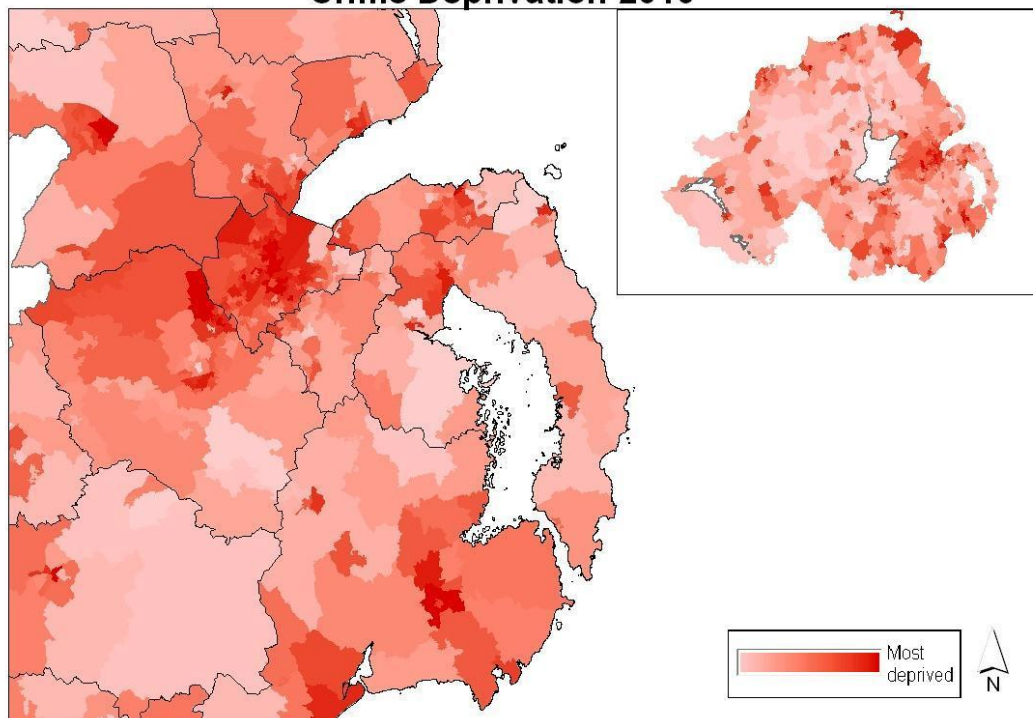
Income Compared to Education, Skills and Training



Like employment deprivation, there is a positive correlation between education, skills and training deprivation and income deprivation. Income is likely to increase as education, skills and training improves.

Crime Deprivation

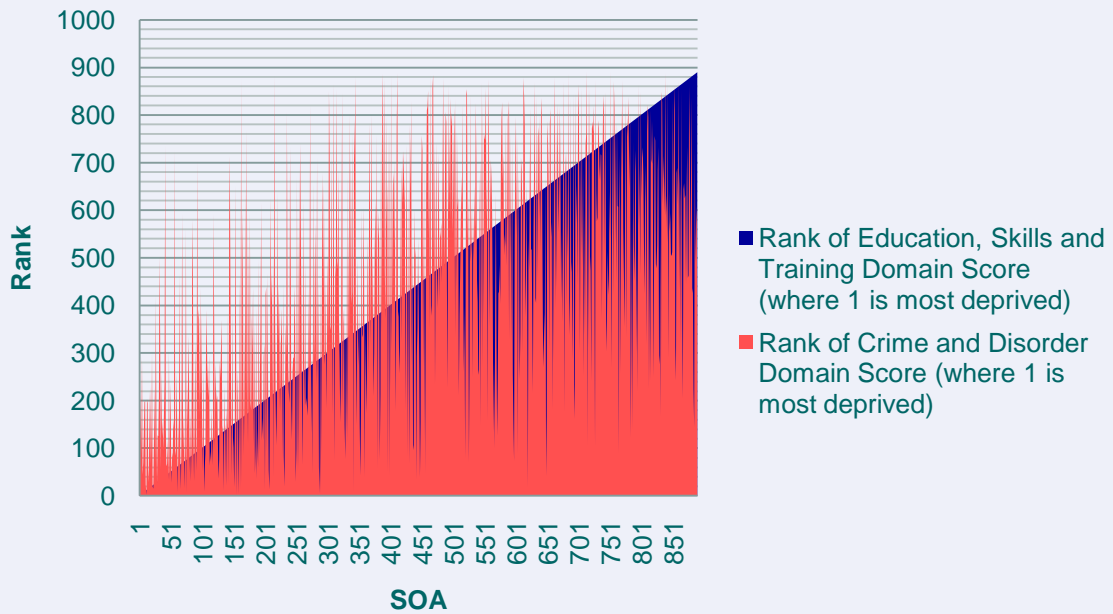
Crime Deprivation 2010



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The regional trend of crime deprivation is almost reversed when compared to education, skills and training deprivation. The east of NI is generally more deprived than the west. Urban areas tend to have higher concentrations of crime deprivation than rural areas, which accounts for the east, west divide. Another reversed pattern is the level of deprivation in the Greater Belfast Area where crime deprivation is generally quite high, although there are still less deprived SOAs in the area, particularly Castlereagh and Lisburn.

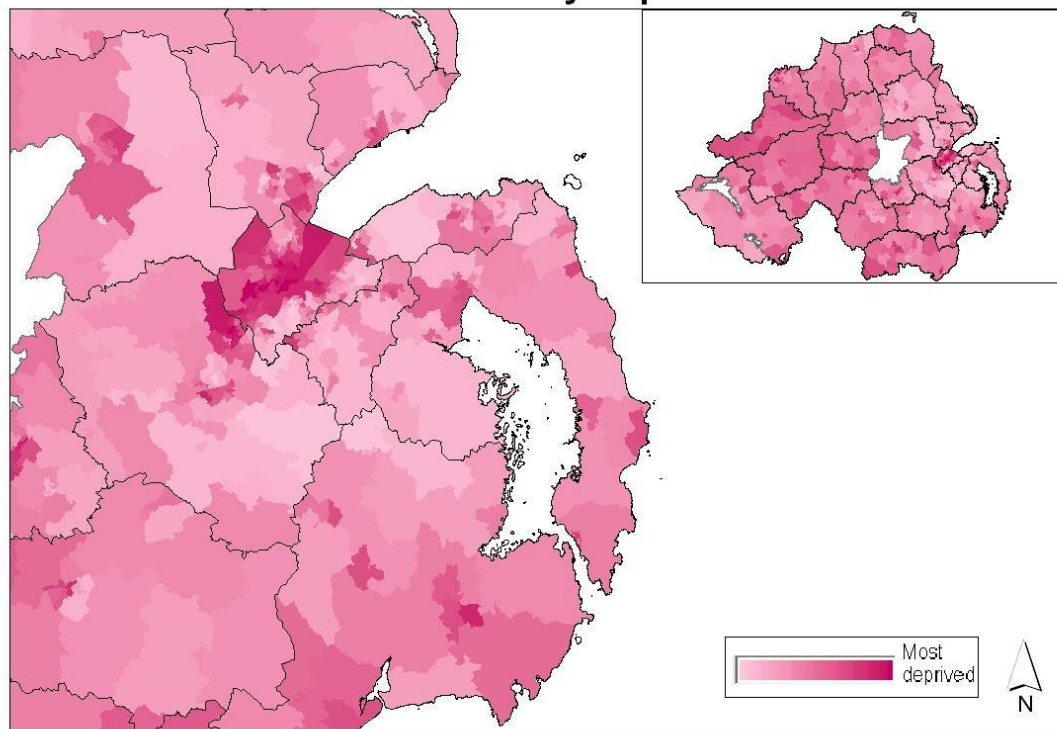
Crime Compared to Education, Skills and Training



The graph shows evidence of positive correlation between education, skills and training and crime and disorder. The relationship with education, skills and training is weaker however, than it was with employment or income. Evidence of a weaker relationship is the increased appearance of spikiness, i.e. these indicate SOAs which differ greatly in their education, skills and training score than their crime and disorder score.

Health Deprivation

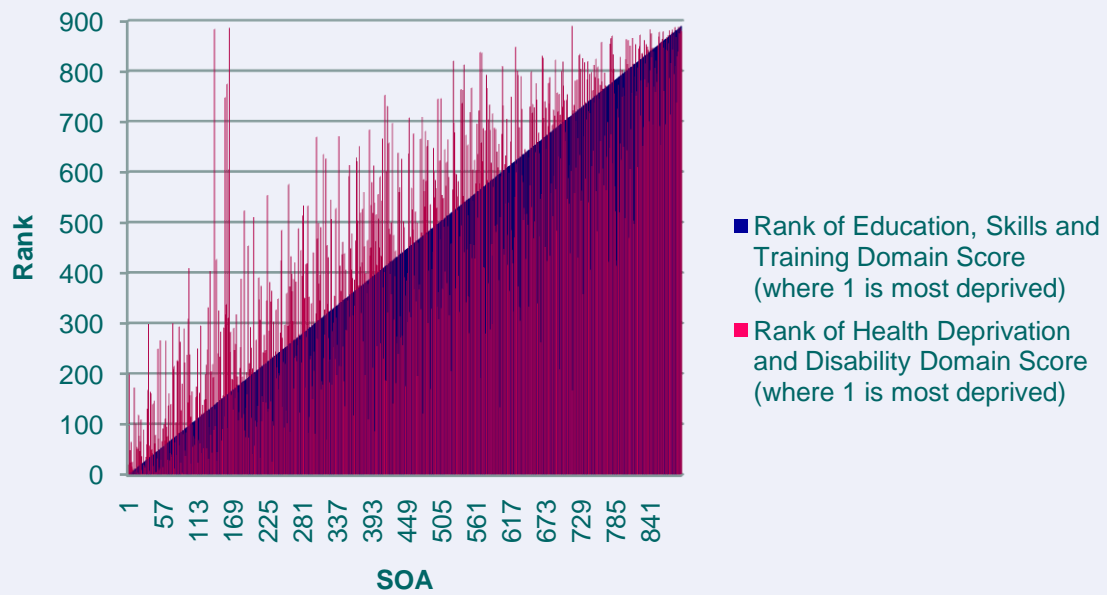
Health and Disability Deprivation 2010



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The spatial distribution of health deprivation and disability is very similar to that of education, skills and training. There is a regional east, west divide across NI – with the exception of less deprived areas in Fermanagh. Belfast LGD has areas of very high and low deprivation. The Greater Belfast area has a high concentration of less deprived SOAs. This spatial trend is also similar to that of employment and income deprivation.

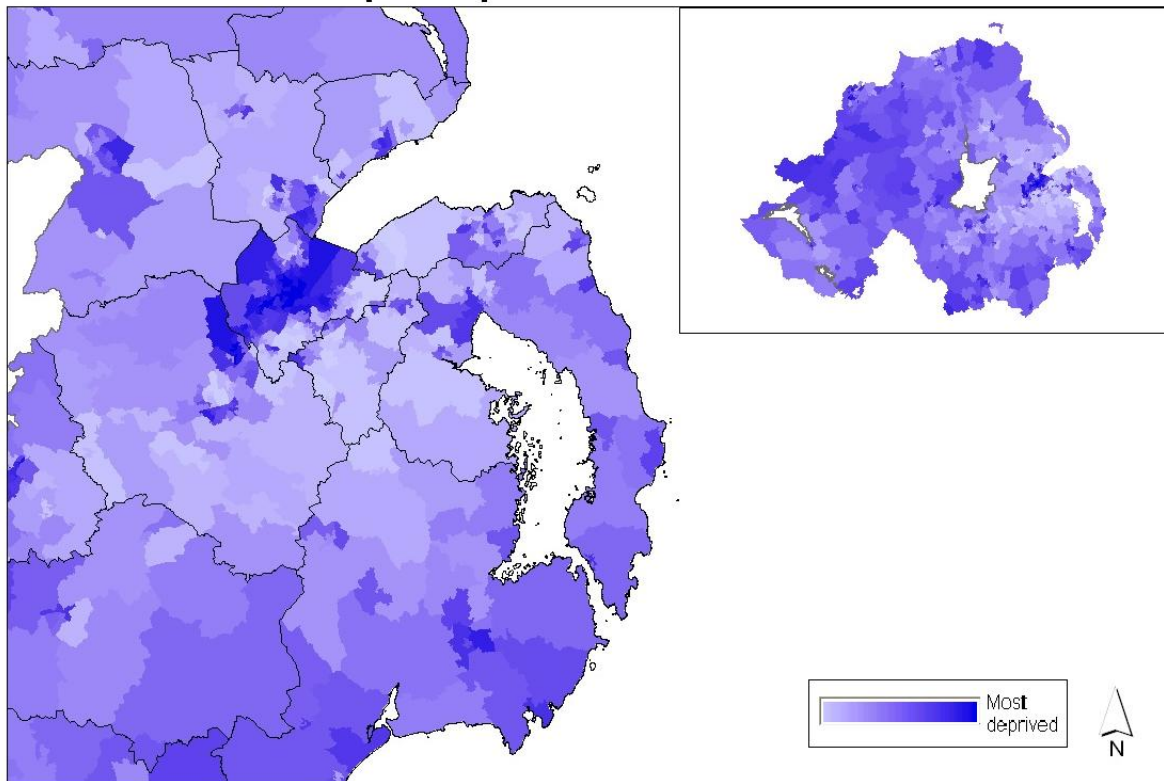
Health Compared to Education, Skills and Training



Health deprivation and disability has a strong positive correlation with education, skills and training. Health deprivation and disability therefore generally improves as education, skills and training increase.

Multiple Deprivation Measure

Multiple Deprivation Measure 2010



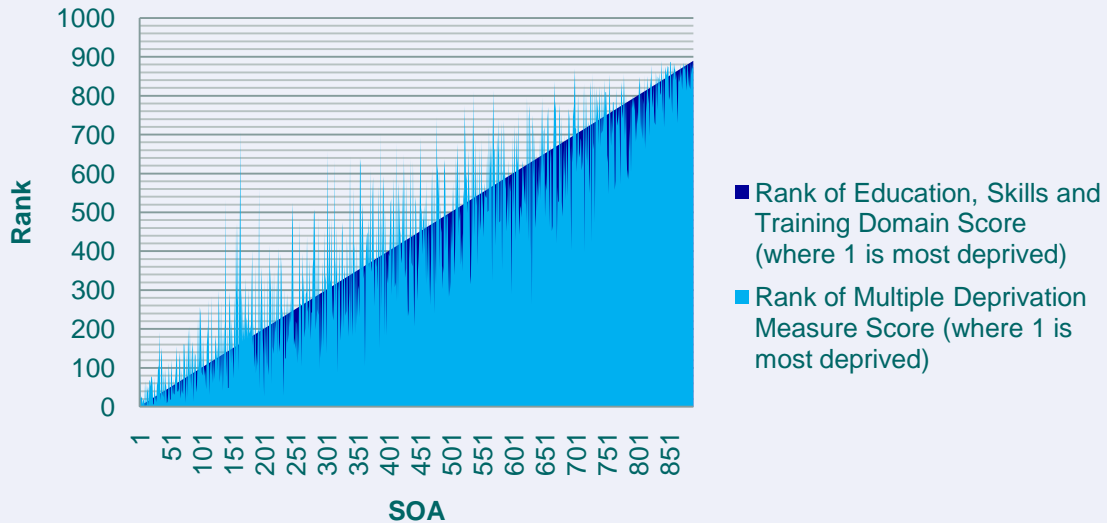
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The multiple deprivation measure is composed of the following percentages of seven deprivation types. Education, skills and training deprivation contribute 15% of the multiple deprivation measure; it is therefore expected that the spatial distribution of these two deprivation measures would be very similar. Less than 5% of Greater Belfast's SOAs (excluding Belfast LGD) feature in NI's most deprived decile. 71% of Greater Belfast's SOAs (excluding Belfast LGD) are in the 5 of NI's least deprived deciles. (NISRA, 2010)

Calculation of Multiple Deprivation Measure (NISRA, 2010)

- Crime and Disorder 5%
- Education Skills and Training Deprivation 15%
- Employment Deprivation 25%
- Health Deprivation and Disability 15%
- Living Environment 5%
- Proximity to Services 10%
- Income Deprivation 25%

Multiple Deprivation Measure Compared to Education, Skills and Training



There is positive correlation between the multiple deprivation measure and education, skills and training. This is the strongest relationship that education, skills and training had with any of the measures of deprivation – partly because education, skills and training comprises 15% of the multiple deprivation measure. Nevertheless, the strength of the relationship demonstrates that deprivation in general has a positive correlation with education, skills and training deprivation.

Correlation Coefficients

There is strong positive correlation between education, skills and training with employment, income, health and the multiple deprivation measure. The correlation is at least 0.84 for these four deprivation measures. The multiple deprivation measure has a particularly strong correlation as education, skills and training comprises 15% of this measure. Crime also has a positive correlation with education, skills and training. The relationship however, is not as strong as the other measures with a correlation of 0.54. (NISRA, 2010) These findings confirm the trends observed in the previous graphs.

Deprivation Measure 2010	Education, skills and Training
Employment	0.84
Income	0.88
Crime	0.54
Health	0.84
MDM	0.91

References

NISRA, 2010 http://www.nisra.gov.uk/deprivation/nimdm_2010.htm

Office of National Statistics, 2010

<http://www.neighbourhood.statistics.gov.uk/dissemination/Info.do?page=aboutneighbourhood/geography/superoutputareas/soa-intro.htm>

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