

EVALUATION OF NEW TSN

GINI COEFFICIENT ANALYSES

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CONTENTS

	Page
1. Background to the evaluation of New TSN	4
2. Limitations and way forward	6
3. Results - Gini FES income analysis	11
4. Results - Gini social security benefits spatial analyses	15
5. Conclusions	20
Annex 1. Uses of the Gini Coefficient	21

1.0 BACKGROUND TO THE EVALUATION OF NEW TSN

1.1 NEW TARGETING SOCIAL NEED (New TSN)

1.1.1 The Northern Ireland Executive's Programme for Government highlights New TSN as its major policy for combating social exclusion and poverty. The Executive set out its New TSN policy in Making it Work: the New TSN Action Plans Report published in March 2001. Through both the Programme for Government and Making it Work, the Executive made clear its commitment to evaluate New TSN by the end of 2002.

1.1.2 New TSN aims to tackle social need and social exclusion by targeting efforts and available resources within Departmental programmes towards people, groups and areas in greatest objective social need.

1.1.3 New TSN comprises three complementary elements:

- it has a particular focus on tackling unemployment and increasing employability;
- it aims to tackle inequalities in areas such as health, education and housing; and the problems of disadvantaged areas; and
- it includes Promoting Social Inclusion (PSI) through which Departments work together and with partners outside Government to identify and tackle factors which contribute to social exclusion; and to undertake positive initiatives to improve and enhance the life and circumstances of the most deprived and marginalized people in our community.

1.1.4 Poverty tends to be associated with other types of need, such as poor health, low educational achievement and fewer choices in the housing market. Getting a job is not an option for everyone and increased employment does not address all the problems that disadvantaged people face. Departments must therefore make special efforts across the range of their programmes to address the needs of disadvantaged people.

1.1.5 Even when services are delivered on a universal basis, such as health and education, resources and efforts need to be directed towards those who are most disadvantaged so that inequalities can be reduced.

1.1.6 The factors that cause social exclusion do not always fit comfortably within the areas of responsibility of individual Departments. Furthermore, there are some groups within our community whose members are more at risk of exclusion than others and whose needs must be addressed by Departments and other agencies in a coherent way.

1.1.7 The Promoting Social Inclusion element of New TSN involves Departments working together and with partners outside Government to identify and tackle factors that can contribute to social exclusion. Promoting Social Inclusion

addresses a series of issues in a partnership approach, concentrating on a small number at any one time. It emphasises prevention, co-ordination and evidence-based decision making.

1.2 NEW TSN ACTION PLANS

- 1.2.1 Making it Work set out 3 year New TSN Action Plans showing how the Northern Ireland Departments are implementing New TSN within their respective programmes; relevant Non Departmental Public Bodies and North South implementation Bodies have their own New TSN Action Plans. The Northern Ireland Office is also implementing a published New TSN Action Plan.
- 1.2.2 These Plans identify the social needs that Departments are tackling and the desired outcomes; they identify New TSN objectives and actions and/or targets by which these will be achieved and by when. The Action Plans are built around three themes: they show how Departments are building New TSN into their organisational plans and culture; how they are targeting their efforts and resources more closely on those in greatest social need; and how they are gathering the necessary data to inform the implementation of the policy.
- 1.2.3 As would be the case with any new policy of this magnitude, it was essential for Departments to build New TSN into their Departmental planning process and to ensure that it was fully embedded in their organisational culture and thinking. Actions listed under this theme of the Action Plan underpinned implementation of the policy across programme areas.

1.3 THE EVALUATION OF NEW TSN

- 1.3.1 The Northern Ireland Executive committed to an evaluation of New TSN by the end of 2002. The majority of the evaluation has been conducted externally and this component was put out to tender in August 2002. While the evaluation will focus on: Departmental Action Plans; the cross-Departmental implementation of the policy (process issues); and area-based case studies, the evaluators were asked to take into account ongoing cross-Departmental statistical work.

1.4 GINI COEFFICIENT ANALYSIS

- 1.4.1 The evaluation strategy detailed a number of statistical approaches in association with the overall evaluation of implementation and impact of New TSN. These included: the compilation of socio-economic indicators; Gini coefficient analysis utilising data underpinning the Noble Multiple Measures of Deprivation; and analysis of change over time within the 2% most deprived wards again focusing on Noble data.
- 1.4.2 This report focuses on the use of Gini coefficient analyses.

2.0 LIMITATIONS AND WAY FORWARD

2.1 DATA LIMITATIONS

- 2.1.1 As originally described within the New TSN evaluation consultation document, statistical work was proposed in relation to:
- The compilation of socio-economic indicators;
 - Gini coefficient analysis utilising data underpinning the Noble Multiple Measures of Deprivation; and
 - Analysis of change over time within the 2% most deprived wards again focusing on Noble data.
- 2.1.2 Early exploration of Noble data in terms of its suitability for Gini coefficient analyses and analyses of change over time indicated that most of the data underpinning the Noble measure were unsuitable. The reasons included: data that were not count-based; modelled (not actual count) data derived from household survey sources; dated time periods covered; and lack of time trend data availability.
- 2.1.3 From this initial overview, it became apparent that the only Noble data that appeared suitable for use at the present time, was social security benefit data.
- 2.1.4 Benefit eligibility and/or receipt is often used as a proxy measure for income deprivation. The data is geographically referenced and therefore suitable for spatial distribution analysis. Further investigation highlighted the Family Expenditure Survey (FES) as a source of income and expenditure data for Gini analyses in terms of the distribution of both income and expenditure over a representative population sample.

2.2 WAY FORWARD

- 2.2.1 Gini analyses were progressed on two fronts using social security benefit data and FES income and expenditure data. Social security benefits were examined in relation to the spatial distribution of inequality, using ward as the geographic unit. The FES income and expenditure data were examined in terms of the uneven spread between households.

2.3 FAMILY EXPENDITURE SURVEY (FES) INCOME AND EXPENDITURE DATA

- 2.3.1 The Family Resources Survey (FRS) was introduced to Northern Ireland in April 2002 and first results will be available in Autumn 2003. The FRS will provide Northern Ireland with robust income analyses on a par to that currently produced for GB. The FES will continue to be the main source of expenditure data.
- 2.3.2 The focus of FES is mainly on household expenditure, however household income is also collected. While the household income measures derived from

the FES are not as robust or complete as those derived from the FRS, they nevertheless provide an opportunity to examine the distribution of income and expenditure between households.

- 2.3.3 The advantages of using FES household income and expenditure data for Gini analyses are that: it allows for a measure of the ‘inequality’ of the spread or share of income and expenditure between households; the survey is a probability-based sample survey and is representative of the population; data are relatively easily accessed; and there is a time series available.
- 2.3.4 There are a number of disadvantages in using the FES data for Gini analyses including: the relatively small sample size which will not allow disaggregation to examine population sub-groups; the cross-sectional nature of the survey; that survey data is subject to sampling and non-sampling error; and the household income and expenditure data is likely to be less robust at the very bottom of the respective distributions.

2.4 EQUIVALISATION

- 2.4.1 As the income and expenditure data is calculated at the household level, it is necessary to apply an equivalisation scale to compensate for differences in household size and composition. The equivalence scale that was used is derived from the GB Poverty and Social Exclusion survey (Townsend 2000). The decision to use this scale (Table 1) was taken on the basis of comparability to existing commissioned research within OFMDFM Research Branch.

Table 1: Equivalisation scale¹

Type of Household	Equivalence Value
Head of household	0.70
Partner	0.30
Each additional adult (anyone 16 and over)	0.45
Add for first child	0.35
Add for each additional child	0.30
If head of household is a lone parent, add	0.10

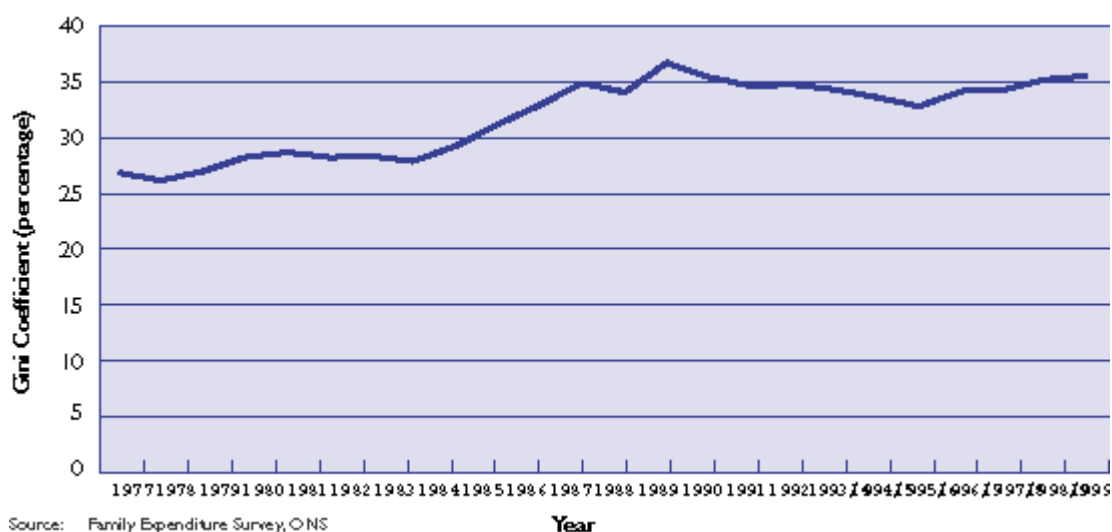
¹ Source: Gordon et al. 2000, *Poverty and Social Exclusion in Britain*. Yorks: Joseph Rowntree Foundation.

- 2.4.2 NISRA Central Survey Unit (CSU) supplied an anonymised file containing the average weekly gross household income; average weekly household disposable income; and average weekly household expenditure. CSU also calculated the equivalence value for each household, by adding together the appropriate value for each household member. Gini analyses were then conducted on the equivalised value obtained by dividing the monetary amount by the equivalisation value for that household. Data for the three years (1989/99; 1999/00; and 2000/01) was provided.

2.5 NATIONAL AND INTERNATIONAL COMPARISONS

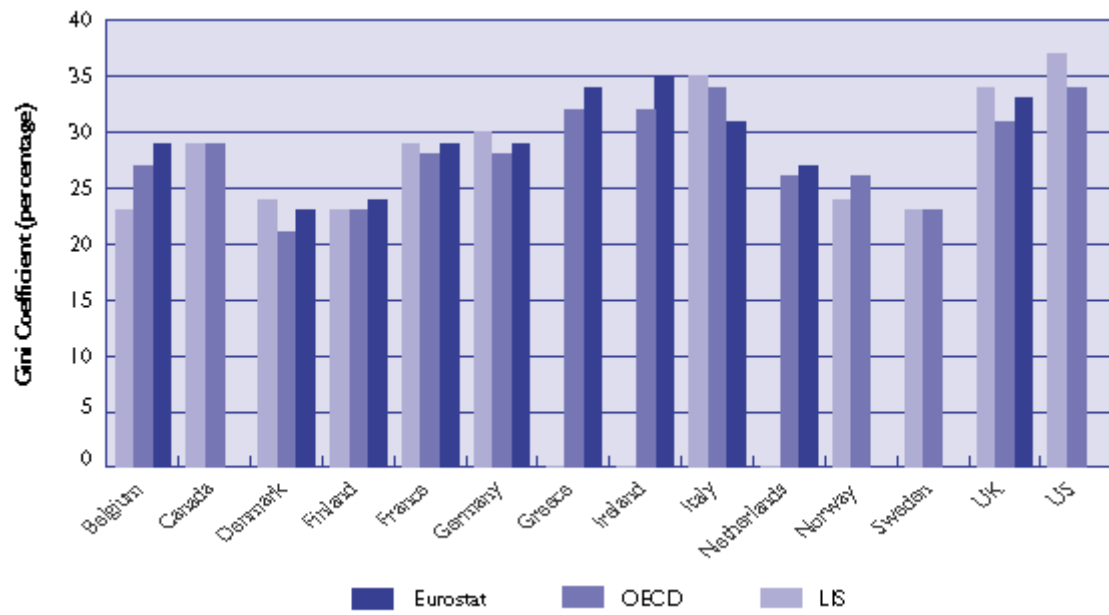
- 2.5.1 Comparisons of Gini coefficient income analyses both internationally and nationally can be dangerous given the different sources of data used, differing equivalisation scales, different time periods and so on.
- 2.5.2 Nevertheless, it may be useful to place the current Gini income analyses into some sort of context.
- 2.5.3 Chart 1 illustrates Gini coefficient analyses in relation to disposable income in the UK with data sourced from the FES.

Chart 1: Income inequality in the UK, Disposable Income, 1977 to 1999/00



- 2.5.4 Chart 2 illustrates the findings of an OECD report for a variety of countries from a variety of sources (OECD, 2000: Occasional Paper No. 42): the Luxembourg Income Study (LIS), Eurostat, and an OECD questionnaire. While an accurate comparison is limited by the fact that some figures are missing from particular studies for certain years, it is clear that the UK is amongst a group of countries including Greece, Italy, Ireland and the US with the highest level of income inequality with a Gini coefficient at or around 0.35.

Chart 2: International Comparison of Income Inequality



Source: OECD

2.6 SOCIAL SECURITY BENEFIT SPATIAL DATA

- 2.6.1 It is well established that disadvantage is often unevenly distributed spatially, that is, some geographical areas experience higher degrees of disadvantage than others.
- 2.6.2 Given the absence of income data that could be geographically referenced to ward level, social security benefit data provides a useful proxy measure. A range of social security benefit data were supplied by DSD, geographically referenced to each of the 566 electoral wards (1984 Boundaries). The benefit data supplied were:
- Incapacity Benefit (IB) – All persons claiming IB aged under 60
 - Severe Disablement Allowance (SDA) – All persons claiming SDA aged under 60
 - Job Seekers Allowance (JSA) – All persons claiming JSA aged under 60
 - Working Family Tax Credit (WFTC) – All adults on WFTC
 - Jobseekers Allowance (Income Based) (JSA(IB)) – All adults on JSA(IB)
 - Income Support (IS) – All adults on IS
 - Children in IS Households – All children in IS households
- 2.6.3 DSD provided claimant counts on these benefits at ward level for specific months of each year from 1998 to 2001¹. The claimant count within each ward was calculated as a proportion of the relevant population of the ward and then as a proportion of the total claimant count for the particular benefit for Northern Ireland. This data allowed for the calculation of a GINI coefficient for each of the benefits for each of the years. For the 2001 counts, graphs were constructed which allowed for an assessment of the dispersal of claimants throughout wards.
- 2.6.4 The population denominators used for this analysis, are based on 1998 ward population estimates.

¹ In producing this analysis, individual records were attributed to wards on the basis of their postcode. Not all records can be correctly allocated to a ward using this method, and some cannot be allocated at all. Past investigation has demonstrated that misallocations and non-allocations do not necessarily occur randomly between areas, and at ward level, the proportion of records misallocated or unallocated can be substantial. At present, it seems likely that a higher than average proportion of the records that cannot be attributed to a ward are in the following areas: Fermanagh District Council, Derry District Council and parts of Belfast City Council.

3.0 RESULTS

3.1 FAMILY EXPENDITURE SURVEY – HOUSEHOLD INCOME AND EXPENDITURE ANALYSES

3.1.1 The results of the Gini coefficient analyses of FES income and expenditure data are illustrated in Table 2.

Table 2: FES Gini coefficient analyses

Year	Average Gross Weekly Household Income	Average Disposable Household Income	Average Weekly Household Expenditure	Number of Households
1998/99	0.39	0.36	0.34	600
1999/00	0.36	0.32	0.34	586
2000/01	0.38	0.34	0.32	522

3.1.2 The Gini coefficient values for each type of data are consistent over the three years of analyses. The greater degree of inequality exists among gross income with, as might be expected, Gini values for disposable income and expenditure being similar.

3.1.3 Examples of the respective Lorenz Curves are given in figures 1 to 3. In each graph, the curve reflects the degree of inequality of spread, while the straight diagonal line represents ‘equality’. In effect the graphs can be read as a scale measure by reading the cumulative proportion of households against the cumulative proportion of income (or expenditure).

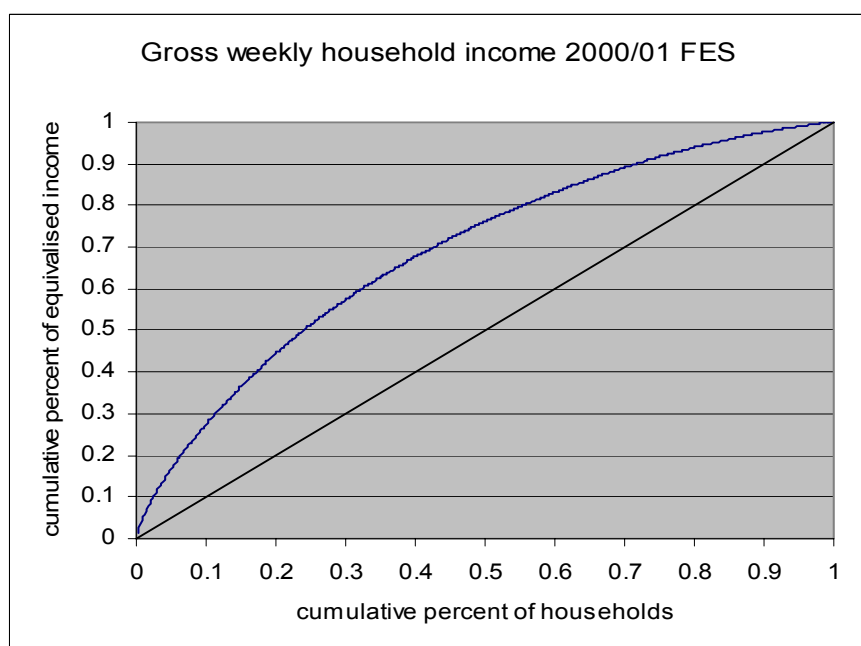
3.1.4 The following analyses focus on the results for the 2000/01 year and explore the inequality of the distribution of income and expenditure.

3.2 GROSS WEEKLY HOUSEHOLD INCOME 2000/01

3.2.1 The top 25% of households accounted for 51% of gross weekly household income, with the top 50% of households accounting for 76% of gross weekly household income. The bottom 25% of households accounted for only 8% of gross household income (Figure 1).

² These figures are correct as from 16th February 2004 as the previous table contained minor typographical errors.

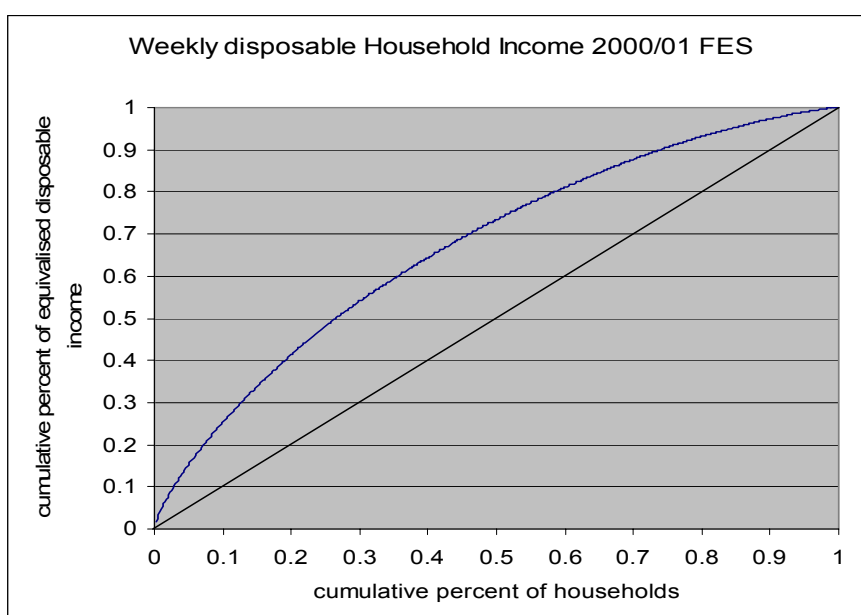
Figure 1: Lorenz curve – FES gross weekly household income



3.3 WEEKLY DISPOSABLE HOUSEHOLD INCOME 2000/01

3.3.1 The top 25% of households accounted for 48% of weekly disposable household income, with the top 50% accounting for 73% of weekly disposable income. The bottom 25% of households accounted for 10% of disposable income (Figure 2).

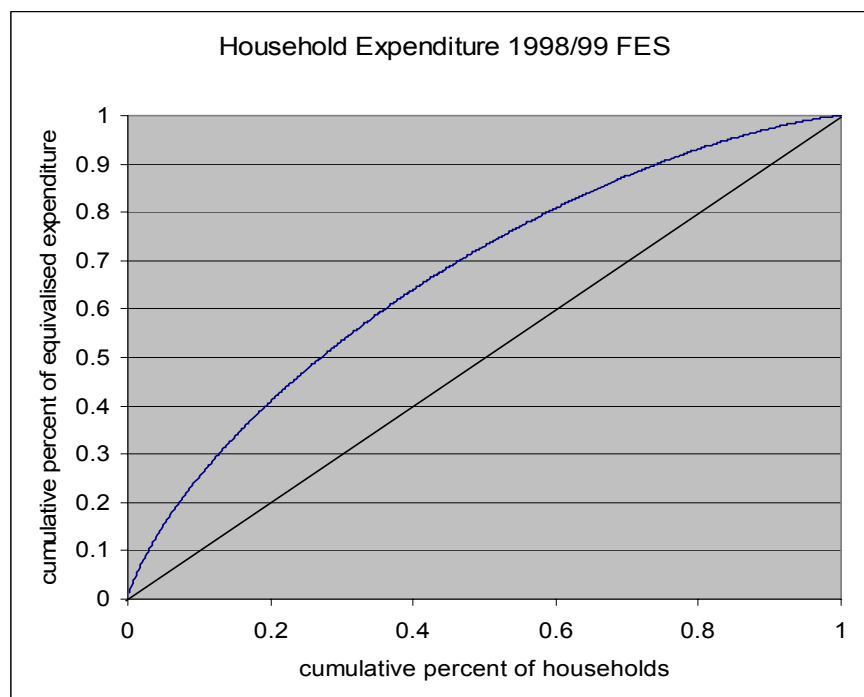
Figure 2: Lorenz curve – FES weekly household disposable income



3.4 WEEKLY HOUSEHOLD EXPENDITURE 2000/01

3.4.1 The top 25% of households accounted for 47% of weekly household expenditure, with the top 50% accounting for 72% of weekly household expenditure. The bottom 25% of households accounted for 10% of weekly household expenditure (Figure 3).

Figure 3: Lorenz curve – FES weekly household expenditure



3.5 HOUSEHOLD SHARE OF INCOME AND EXPENDITURE 2000/01

3.5.1 Table 3 indicates the share of both income and expenditure between the highest and lowest quartiles of households.

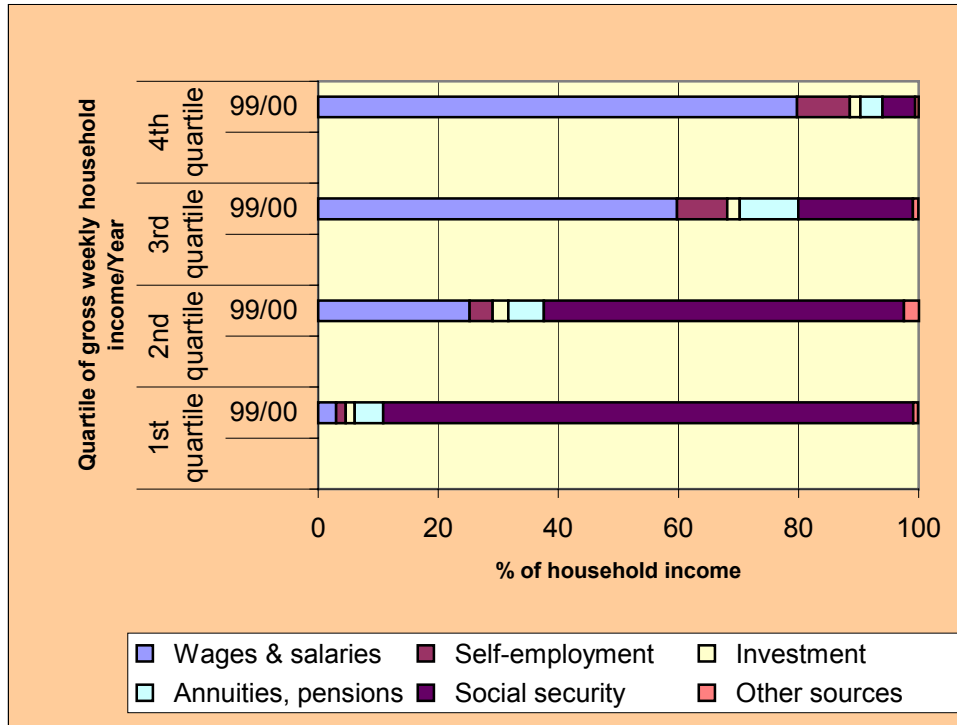
Table 3: Household share of income and expenditure 2000/01

	Share of gross household income	Share of disposable household income	Share of household expenditure
Fourth Quartile (highest)	52%	56%	56%
Third Quartile	24%	24%	25%
Second Quartile	16%	14%	13%
First Quartile (lowest)	8%	6%	6%

3.5.2 The difference between the top and bottom two quartiles in terms of both income and expenditure is consistent with analysis of the sources of income

between quartiles of households. This analysis indicates that the main sources of income in the bottom two quartiles are derived from social security benefits whilst income in the top two quartiles is, in the main, derived from employment or self-employment (Figure 4).

Figure 4: Sources of household income (FES)



Source: NISRA (Family Expenditure Survey)

4.0 RESULTS

4.1 SOCIAL SECURITY BENEFIT – SPATIAL ANALYSES

4.1.1 In general terms and as can be seen from Table 4, there is very little variation in the GINI coefficients for each benefit over the four years. However, there are variations in spatial inequality between the different benefits.

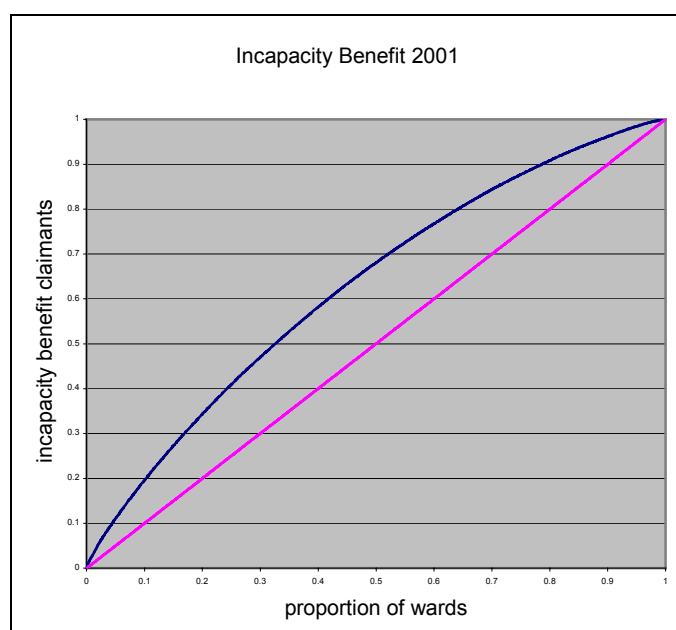
Table 4. GINI Coefficient for Spatial Inequality in Benefit Counts across NI Electoral Wards (1984 boundaries)

	Incapacity Benefit	Severe Disablement Allowance	Job Seekers' Allowance	WFTC	Job Seekers' Allowance (IB)	Income Support	Children in IS Households
1998	0.25	0.28	0.33	0.30	0.34	0.36	0.55
1999	0.25	0.28	0.33	0.30	0.34	0.37	0.55
2000	0.25	0.28	0.34	0.27	0.34	0.37	0.54
2001	0.26	0.28	0.34	0.26	0.34	0.36	0.52

4.2 INCAPACITY BENEFIT

4.2.1 As can be seen in Table 4, the benefit with the lowest Gini coefficient and therefore with the least inequality across the wards is Incapacity Benefit. The Gini coefficient is steady at around 0.25 for each of the four years analysed. Figure 5 below illustrates the distribution of Incapacity Benefit claimants across the 566 electoral wards. For instance, 50% of all claimants reside in approximately 32% of the electoral wards and 75% of claimants reside in less than 60% of the wards (57%).

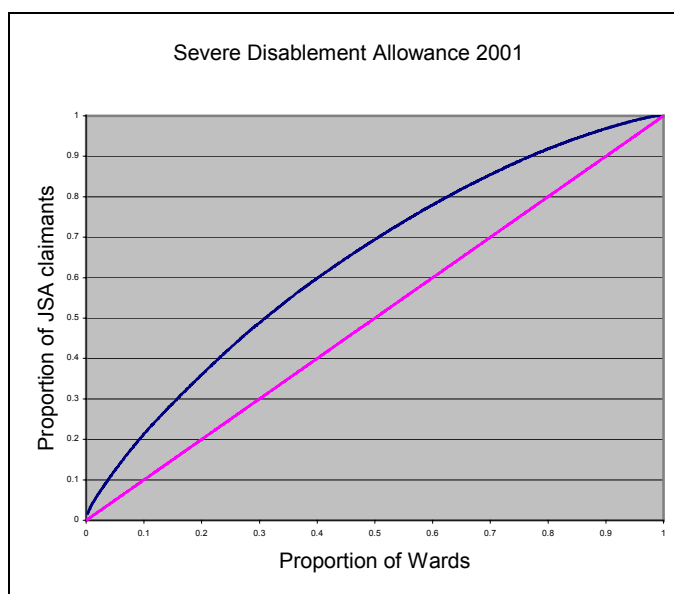
Figure 5: Lorenz curve – Incapacity Benefit



4.3 SEVERE DISABLEMENT ALLOWANCE

- 4.3.1 With a Gini coefficient of 0.28 for each of the four years analysed, this suggests relatively lower inequality across wards in claimants of SDA. This inequality can be illustrated in the distribution of claimants across the electoral wards. These figures, as their Gini coefficients would suggest are similar to those for Incapacity Benefit. Of those claiming SDA in Northern Ireland 50% live in 31% of wards while 75% live in 56% of wards.

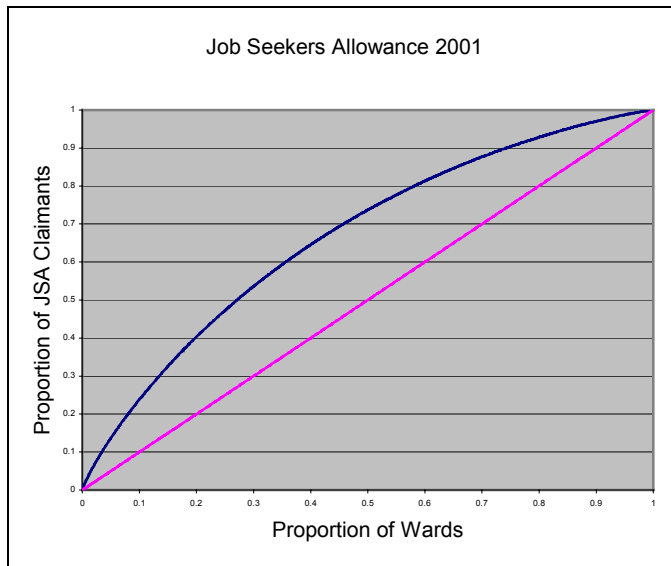
Figure 6: Lorenz curve – Severe Disablement Allowance



4.4 JOB SEEKERS' ALLOWANCE

- 4.4.1 Spatial inequality is slightly more pronounced for claimants of Job Seekers' Allowance (JSA), with a Gini coefficient of approximately 0.33 moving to 0.34 over the four years analysed. This higher level of inequality can be seen in Figure 7, showing the distribution of JSA claimants across the Northern Ireland electoral wards. Half of all JSA claimants reside in 27% of wards and 75% live in 51% of the wards.

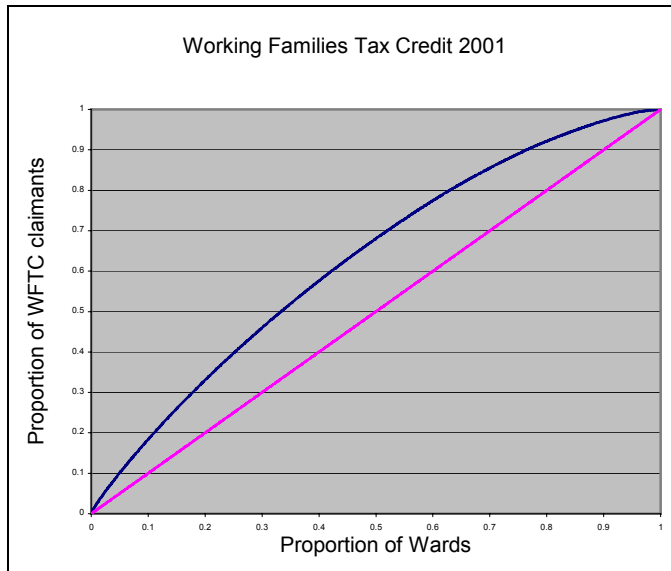
Figure 7: Lorenz curve – Job Seekers Allowance



4.5 WORKING FAMILY TAX CREDIT

4.5.1 Table 4 shows that there has been a decrease in the spatial inequality of Working Family Tax Credit (WFTC) over the four years reviewed. The GINI coefficient has fallen from 0.30 to 0.26 over this period. As Figure 8 shows 50% of claimants live in 33% of wards and 75% live in 57% of wards.

Figure 8: Lorenz curve – Working Families Tax



4.6 JOB SEEKERS' ALLOWANCE (INCOME BASED)

4.6.1 The Gini coefficient for Income Based Job Seekers' Allowance (JSA (IB)) was approximately 0.34 for each of the four years. Figure 9 illustrates what this means for the spatial distribution of JSA (IB). 50% of claimants reside in 27% of wards and 75% of claimants live in 50% of wards.

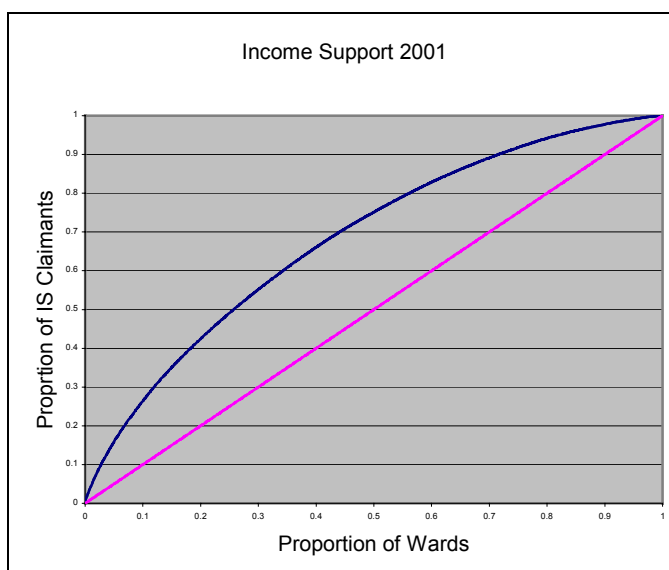
Figure 9: Lorenz curve – JSA Income Based



4.7 INCOME SUPPORT

4.7.1 The Gini coefficient for the spatial inequality of claimants of Income Support (IS) was 0.37. Figure 10 illustrates the effect this has on the distribution of claimants among the electoral wards. Half of all IS claimants live in a quarter of the wards (26%) while 75% of IS claimants live in 50% of wards.

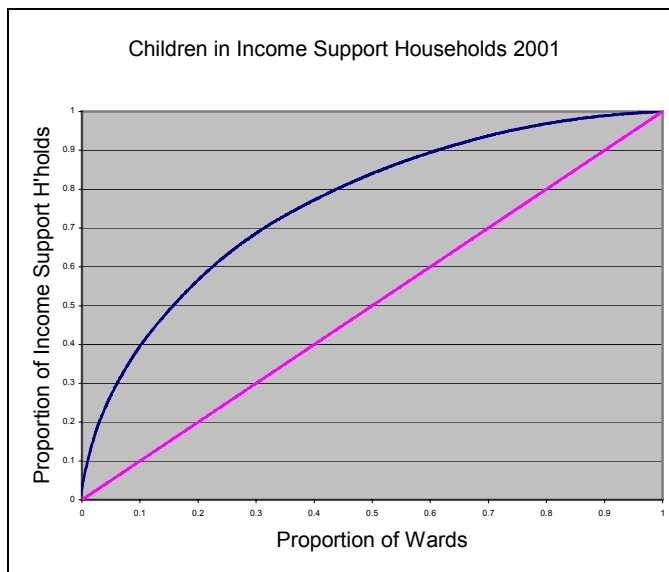
Figure 10: Lorenz curve – Income Support



4.8 CHILDREN IN INCOME SUPPORT HOUSEHOLDS

- 4.8.1 Of all the claimant counts analysed Children in Income Support Households had the most unequal spatial distribution. With a Gini coefficient ranging between 0.55 and 0.52, the inequality was marked. Figure 11 illustrates this, showing that half of all children that live in households in receipt of Income Support reside in 16% of wards and 75% of children live in 37% of wards.

Figure 11: Lorenz curve – Children in Income Support Households 2001



5.0 CONCLUSIONS

5.1 FAMILY EXPENDITURE SURVEY

- 5.1.1 The Gini coefficient analyses for FES disposable income appear to be relatively consistent with those calculated for the UK as a whole. The lower degree of inequality seen with disposable income compared to gross income is probably due to the impact of taxation.
- 5.1.2 The Gini analyses are consistent for gross income, disposable income and household expenditure over the three years examined. Analyses of the quartiles of households indicate the extent to which those households in the bottom two quartiles share proportionately less income and expenditure compared to the top two quartiles.
- 5.1.3 Significant differences do exist between Northern Ireland and the rest of the UK in terms of average income, however this is not reflected in any greater degree of inequality within each region.
- 5.1.4 Of note however, are international comparisons which place the UK amongst a group of nations with the highest levels of income inequality.

5.2 SOCIAL SECURITY BENEFITS

- 5.2.1 When the spatial analysis of inequality across electoral wards in relation to social security benefit data is reviewed, it reveals a not unexpected picture.
- 5.2.2 Benefits which show the least spatial inequality are benefits for disability (Incapacity Benefit and Severe Disablement Allowance).
- 5.2.3 A more uneven distribution is reflected by those benefits for people who are unable to work, or earn very little. For these we see that around 50% of claimants reside in approximately 30% of wards.
- 5.2.4 Possibly the most note-worthy finding is that in relation to children in Income Support households. The spatial distribution of children in Income Support households across wards highlights the impact of income poverty on children and the degree to which this is spatially distributed.

ANNEX 1: USES OF THE GINI COEFFICIENT

A1.1 WHAT IS A GINI COEFFICIENT?

A1.1.1 The Gini Coefficient is a mathematical measure that can be used to compare the similarity, or dissimilarity, of two distributions. It is best explained by example. Suppose that a sample survey of 1,000 households determines the wealth of each individual household, expressed in pounds (£). The Gini coefficient can be used to measure how close the observed distribution of household incomes is to a distribution of total equality where each household has an equal amount of wealth. The score can lie between 0 (total equality) and 1 (total inequality).

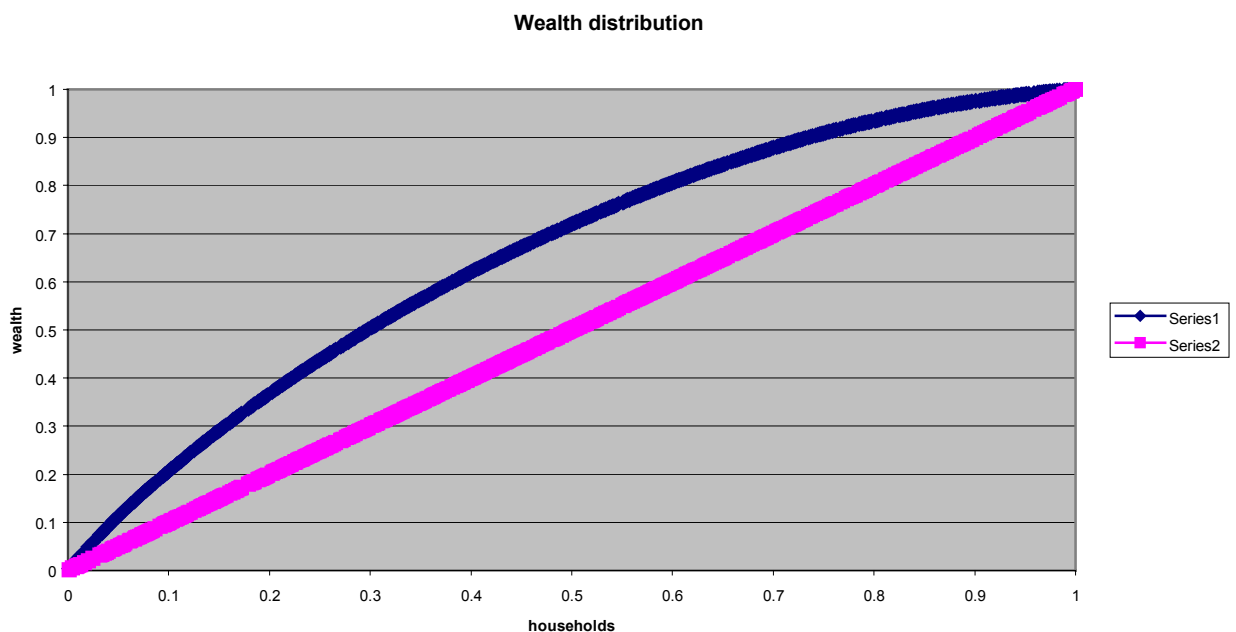
A1.1.2 Suppose that the 1,000 households are placed in rank order of wealth, from the largest to the smallest, and each household's wealth is expressed as a proportion of the total wealth of the 1,000 households.

Household	proportion of all households	Cumulative proportion of households	Proportion of total wealth	Cumulative proportion of total wealth
1	0.001	0.001	0.050000	0.050000
2	0.001	0.002	0.020000	0.070000
3	0.001	0.003	0.010000	0.080000
...	
999	0.001	0.999	0.000021	0.99999
1,000	0.001	1.000	0.000010	1.000000
All households	1.000		1.000	

A1.1.3 Each household represents 0.001 (proportion) of all households, but the first two (richest) households represent, respectively, 0.05 and 0.02 (proportion) of total wealth. At the other extreme, the two poorest households represent only 0.000010 and 0.000021 (proportion) of total wealth, bringing the cumulative proportions of households and wealth each to 1.00. A plot of the cumulative proportion of wealth (Y-axis) against the cumulative proportion of households (X-axis) is termed a Lorenz Curve.

A1.1.4 If there is total equality, the Lorenz curve is simply the straight line, $Y=X$. The Gini coefficient measures how close, or conversely far apart, are the observed Lorenz curve and the $Y=X$ line. Graphically, the Gini coefficient is determined by taking the area between the observed curve and the $Y=X$ line and doubling it, because the total area of the graph represents an area of unity.

A1.1.5 Plotting a Lorenz curve for data such as that above would result in a graph like that below, which illustrates a Gini coefficient of approximately 0.3. Each household having similar amounts of wealth would give a Gini coefficient of zero, while one household possessing all the wealth would have resulted in a Gini coefficient of unity (1).



A1.2 WHEN CAN A GINI COEFFICIENT BE USED?

A1.2.1 The Gini coefficient measures the similarity / dissimilarity between two distributions, and requires quantitative information about some variable that can be aggregated over a base population. In the example above, information is available on household wealth across the base population of households in the sample. Determination of a Gini coefficient requires that the base population can be placed in rank order by the quantitative variable, and the cumulative proportions of the quantitative variable compared with the

cumulative proportions of the base population, as shown in the Lorenz curve. The cumulative proportions must make sense.

A1.2.2 The base population can itself be composed of statistical aggregates. For example the base population could be the set of all electoral wards in Northern Ireland, and the quantitative variable some deprivation score. A restriction on this is that it must make sense to cumulate the deprivation score across wards. Thus, while the Multiple Deprivation Measure could not be analysed by a Gini score, the scale of income deprivation score could be analysed. A Lorenz curve of the distribution of income deprived people across Northern Ireland's 566 electoral wards would require:

- collating data on the overall population and number of income deprived people in each ward
- ranking the 566 wards by the percentage of their population that is income deprived
- determining the cumulative proportions of the population and income-deprived people
- plotting the cumulative proportion of income deprived people (Y) against the cumulative proportion of the population (X) for each of 566 wards.

A1.2.3 The base population could also be groups from society, such as religious or ethnic groups. Thus, if robust statistics were available for the numbers of people belonging to various ethnic groups in the population, and similarly for the numbers of income-deprived people in each ethnic group, the Gini coefficient could be used to measure the equal / unequal distribution of income-deprived people across the ethnic groups.

A1.3 SOME FEATURES OF A GINI COEFFICIENT

A1.3.1 NUMBER OF GROUPS

In theory, a Gini coefficient can be determined even if there are only two groups in the population; for example a Gini coefficient could measure the equality / inequality in the distribution of unemployed males among economically active Protestants and Catholics. However, with such small numbers of groups the Gini coefficient adds little to the simple statement of the unemployment rates for the two groups.

A1.3.2 A SUMMARY OF ALL THE DATA

A positive feature of the Gini coefficient is that it attempts to summarise all the available data within one measure. For example, the analysis of the distribution of income deprived people across electoral wards contains 566 comparisons of the type "the most deprived n (n=1 to 566) wards (population weighted) contain x per cent of the income deprived compared to y per cent of the population". For example, the most deprived 10 per cent of wards (population weighted) contain 21 per cent of the income deprived people.

While the previous sentence is easy to understand, it only conveys one small part of the available information whereas the Gini coefficient summarises all of the information.

A1.3.3 THE USE OF ELECTORAL WARDS TO MEASURE SPATIAL INEQUALITY

Electoral wards are just one of many geographical units by which Northern Ireland, or any other area can be disaggregated. In deprivation analyses, it is recognised that deprivation need not follow electoral ward boundaries, and that the use of a different set of geographical units may lead to different areas being classified as disadvantaged. Similar arguments apply to the Gini coefficient. The analysis above on the distribution of income deprived people across electoral wards gives a measure of inequality of 0.31, but an analysis using a different set of geographical units may yield a different Gini coefficient.

A1.3.4 COMPARING GINI COEFFICIENTS FOR DIFFERENT GEOGRAPHIES

Gini coefficients could be produced measuring inequalities for Northern Ireland's 566 electoral wards or its 26 LGDs. Gini coefficients should not be compared for different sets of geographical units at different orders of magnitude because, in general, the use of larger units will tend to make the units more homogeneous. The Gini coefficient for the distribution of income deprived people across 566 electoral wards is 0.31. However, analysing the same data but aggregated to 26 LGDs gives a Gini coefficient of 0.17. This implies less inequality at LGD level, but this is undoubtedly an artefact of the way in which LGD level statistics will smooth out inequalities at ward level.

A similar warning would apply to comparing Gini coefficients across different groups in society. A priori, one would expect a higher Gini coefficient when comparing a classification based on 200 groups than one based on 20 groups.

A1.3.5 CHANGE OVER TIME

Suppose that a targeting programme has an objective of reducing inequalities between wards. To put this into practice it identifies the worst 25 electoral wards and implements a number of programmes. The difference between these 25 wards and some national benchmark might be quantified prior to the programme. A possible success criteria might be to re-measure the difference between the 25 target wards and the national benchmark after the programme. A criticism of this success criteria might be that it fails to allow for displacement of the problem, and that the targeting has merely resulted in a new set of 25 worst wards, that might be relatively worse-off than the original set. A success criteria that allows for such displacement is to define the post-programme measure as the difference between the new worst 25 wards and the national benchmark.

Because the Gini coefficient takes into account information for all wards, it is - by definition – a measure that allows for this type of displacement and will take account of re-arrangement in the ordering of areas over time.