

Poverty and the Distribution of Income in Northern Ireland

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Abstract: This paper uses the 1985 Family Expenditure Survey sample to examine the extent and incidence of poverty in Northern Ireland and to explore the relationship with the distribution of income. The study concludes that incomes are less equally divided in Northern Ireland than in Great Britain. The relative extent of poverty in Northern Ireland is a question that cannot be answered so straightforwardly since its extent varies with the measure employed. The indices of inequality are decomposed by family type and economic status. The major contribution to inequality came from within the population subgroups rather than between them.

I INTRODUCTION

This paper explores the relationship between poverty and the distribution of income by employing decomposition analysis on the Northern Ireland Family Expenditure Survey (FES) data of 1985. It thus provides an empirical perspective to the recent analysis of poverty and the distribution of income developed by Lewis and Ulph (1987). To be poor is considered by many, most particularly Townsend (1979), to be excluded due to lack of personal resources from participation in basic social activity. In contrast to this, some observers consider that poverty is synonymous with low income and thus its analysis may be subsumed within that of the distribution of income. It is clear then that normative issues will inevitably pervade our analysis. In response

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to this, following many other researchers, we have used several poverty lines to establish the sensitivity of our conclusions to the choice of poverty line. With respect to the distribution of income we have clearly established the welfare considerations that permit general conclusions.

This paper is set out as follows: the concept of income employed in the study and the nature of the sample is discussed in the following section. In Section III we examine the measurement and interpretation of inequality. The central issues are illustrated by comparing income inequality in Northern Ireland with that of Britain. In addition this establishes the regional characteristics of Northern Ireland. Following this section we examine the decomposition of inequality in Northern Ireland by family type and economic status.

The treatment of poverty follows the same pattern. In Section V the measurement of poverty is discussed and the experience of Northern Ireland is compared to Britain. The next section examines how the poverty index can be decomposed in similar fashion to income inequality. These results of the two decomposition exercises are discussed in our concluding section.

II THE MEASUREMENT OF INDIVIDUAL WELFARE

The concept of "income" employed in this paper is based on "current disposable resources", CDR. The measure is similar to that employed by Layard, Piachaud and Stewart (1978) and many other studies.

$$\text{CDR} = \frac{\text{Household Disposable Income} - \text{Net Housing Costs}}{\text{Supplementary Benefit Entitlement}} \quad (1)$$

All the income receipts of the household are aggregated, whether from employment, capital or state transfers. The earnings from employment are "current" in the FES definition.¹ From gross income, income tax and social insurance contributions are deducted, as are net housing costs.² Due to the absence of an unified, competitive market, net housing expenditure does not give an accurate measure of the housing services consumed by any household. In addition, the presence of council housing and price controls mean that

1. This is based on the week's actual receipts and is contrasted to "normal" earnings on which the 13 week rule operates. The income of an individual made redundant in the previous 13 weeks according to the "normal" definition would be his/her average earnings when employed. However this introduces an asymmetry since the rule does not operate for those individuals who are beginning employment after a period on social security.

2. Our measure of disposable income ignores the value of state benefits, such as education or health services, consumed by the household, due to the complexity, theoretical and practical, in their estimation. See Geary (1989) for a review.

housing costs are very imperfectly correlated with the quality of housing. Thus it is more plausible to rank similar households by their income net of housing costs than to compare their disposable incomes and assume housing services varied with expenditure. The numerator is in effect the budget constraint upon the household in the current week.

A given level of disposable income permits very different standards of living when possessed by a single person compared to a married couple with three children. Deflating disposable income by the Supplementary Benefit Entitlement (SBE) means that CDR expresses the resources of each household as a multiple of its benefit entitlement. Assuming that such entitlements incorporate social preference, the resulting index is a measure of a household's standard of living that can be legitimately ranked against the CDR of households with different demographic compositions. The advantage of using SBE as an equivalencing procedure is its simplicity (in contrast, for instance, to Muellbauer, 1977).

CDR is thus a measure of an individual's well-being in any particular household. It is constructed on the assumption that household resources are pooled among members and thus each member of the household enjoys the same standard of living. This follows recent government thinking (DHSS, 1988b). To construct a family measure is complicated by difficulties in the definition of a family and the allocation of housing expenditures in multi-family households.

Since it is reasonable to be more concerned with a household of 6 with a CDR of 0.9 than a single pensioner with the same CDR, we replicate CDR for each member of the household. (This conforms with the discussion in Cowell, 1984.) The weight given to each individual then is the same.

Although each individual is assumed to receive the household CDR, he/she is categorised in the following analysis by family type, or more precisely by the characteristics of the tax unit to which he/she belongs. The economic status of the family is determined by the status of the head of family. Thus in multi-family households, different individuals will belong to different family types and economic categories. All, though, will have the same CDR.

III THE MEASUREMENT OF INEQUALITY

The indices of inequality can be divided into two main classes, descriptive and normative. The former include the Gini coefficient and the coefficient of variation and are derived from the statistical examination of dispersion. The normative measures are grounded upon an explicit formulation of social welfare; the value of such an index is generally interpreted as the loss in welfare due to an unequal distribution of income. There is no rigorous division between the two types of measure (Sen, 1973).

As mentioned in our introduction any discussion of inequality will involve normative judgements. Consequently the performance of any index of inequality is frequently gauged by the extent to which it satisfies a set of axioms which are general enough to be accepted by most economists. The first of these is known as the Pigou-Dalton condition which states that if a transfer of income occurs from a poorer person to a richer one, *ceteris paribus*, then the measure of inequality should increase. This is a minimal property of a measure of inequality as are symmetry and the population principle. By symmetry we require that if the same incomes are redistributed between individuals, then the value of the index is unchanged. Thus symmetry involves treating all individuals in the same fashion. The population principle relates to the comparison of two distributions where the second is a replication of the first — for each individual in economy A there are n individuals with the identical income in B. The population principle requires the inequality index to be unaltered.

The above axioms are innocuous. A more difficult question arises when we consider the change in inequality due to a change in the incomes of every member of a group. For instance, if all incomes increase by the same proportion, do we require the index to rise, fall or be unaltered? Contrary opinions exist on this issue. A 10 per cent rise in the income of a poor person may reasonably be argued to increase his/her utility by an amount greater than a 10 per cent rise in the income of a rich person. Thus the loss in social welfare due to inequality is reduced and the inequality index should fall. This was Dalton's (1920) view.

Against this, an equi-proportionate change in all income leaves the rich better off absolutely and it is incongruous that this should reduce inequality. The response of Kolm (1976) to this situation was to develop a "leftist" measure of inequality that increases by the same amount as the factor of proportionality in the income change. The leftist measure is invariant to equal absolute increases in all incomes. (The Gini coefficient, for instance, will fall in such circumstances.)

The dominant view among researchers has been to accept invariance in the inequality index in the face of an equi-proportional rise in all incomes. In other words the index is required to be homogeneous of degree zero in incomes. The resulting measures of inequality are relative ones since the key variable is the proportion of total income an individual possesses and not the absolute amount.

Many indices satisfy all four of the above conditions — the Pigou-Dalton, symmetry, population principle and homogeneity. One such index is the familiar Gini coefficient, G . For a population of size N , mean income μ and income of the i^{th} individual y_i , $i = 1 \dots N$ we have

$$G = \frac{1}{2N^2\mu} \sum_{i=1}^N \sum_{j=1}^N |y_i - y_j| \quad (2)$$

Although a descriptive statistical measure, the Gini coefficient can be given several welfare interpretations, which illustrates how the division between descriptive and normative measures is not sharp. One such interpretation based on (2), is that in any pair-wise comparison of two individuals, the person with the lower income suffers depression proportional to the difference in incomes. The sum total of all the depressions over every possible pair-wise comparison is the heart of G (Sen, 1973, pp. 31-34).

In fact, Sen (1974) has constructed a set of axioms such that the derived welfare function will rank income distributions in the same way as G . Although concave the implied social welfare function is not strictly so; though how damaging this is, is debatable.

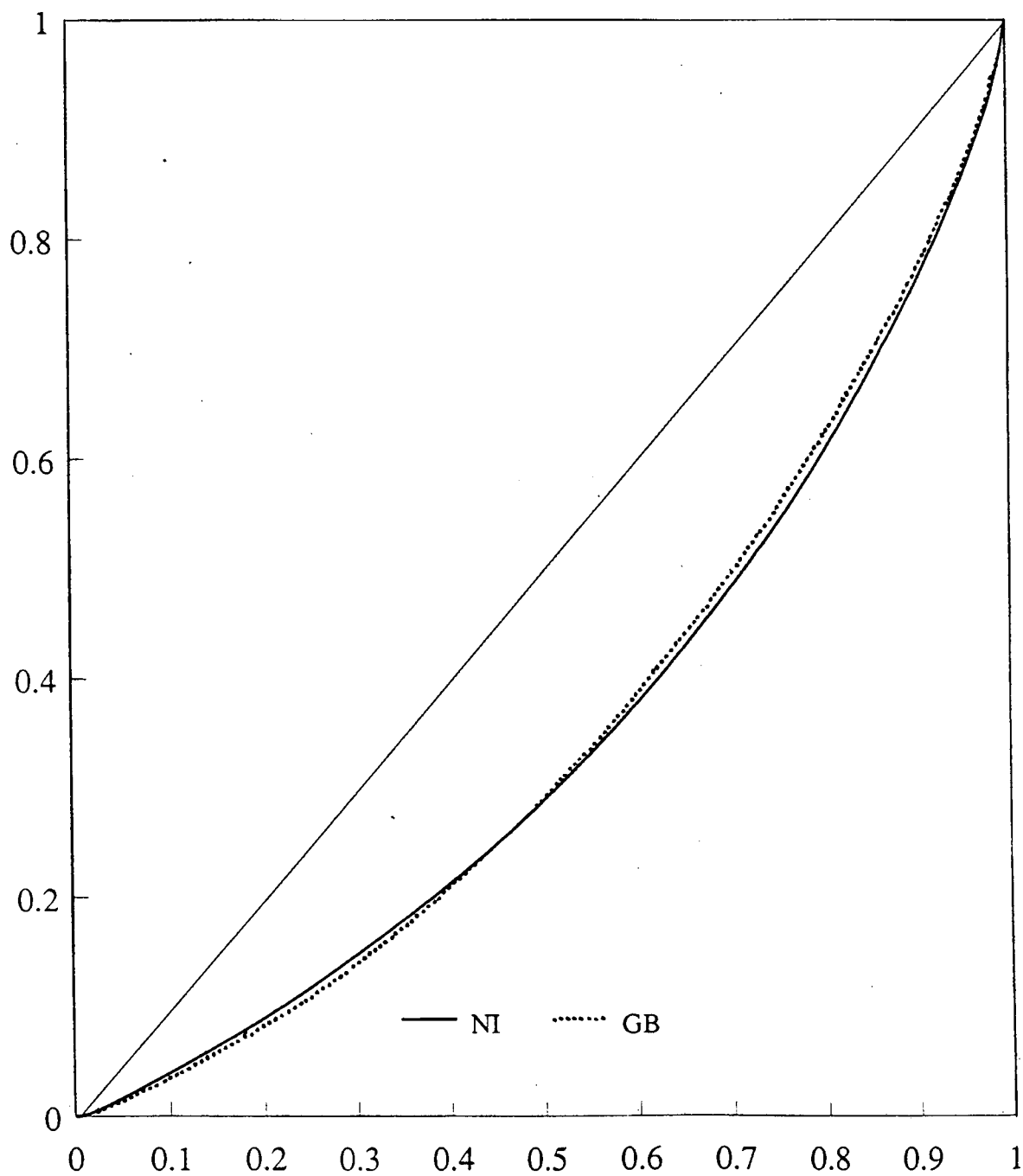
For Northern Ireland using the 1985 FES sample, G is 0.304 whereas it is 0.301 for Great Britain. According to Sen's welfare function Northern Ireland has a higher level of inequality. However, such a judgement will only be acceptable to those who agree with the particular form of the welfare function. A much stronger result would pertain if the ranking was independent of the form of the welfare function.

Atkinson's (1970) theorem asserts that for a utilitarian welfare function, the sum of an increasing and concave function of individual incomes, the social welfare derived from income distribution X is greater compared to another of equal mean Y , if the Lorenz curve of X lies entirely within that of Y . This result was subsequently strengthened by Dasgupta, Sen and Starett (1973) by extending the welfare function to one which was just symmetric and quasi-concave in individual incomes.

The upshot of this is that the Gini ranking of Northern Ireland and Great Britain will be consistent with a general welfare function if the Great Britain distribution was Lorenz superior to Northern Ireland. From Figure 1 we can see that the Lorenz curves intersect. Individuals in the lower deciles in Northern Ireland are relatively better off than those in Great Britain. Supplementary Benefit and similar welfare benefits are uniform throughout the United Kingdom, while wage rates in Northern Ireland are relatively lower. The lowest deciles are better off relative to the rest of the distribution in Northern Ireland than in Great Britain. Thus there exist social welfare functions that will rank the two distributions differently.

This can be illustrated for the present case by considering a generalisation of the Gini curve suggested by Donaldson and Weymark (1980). The S-Gini index, $S-G(\delta)$ has a single parameter that reflects "distributional sensitivity".

Figure 1: *Lorenz Curves for Equivalent Income: Great Britain and Northern Ireland 1985*



Source: Own calculations from the 1985 Family Expenditure Survey.

The higher δ is the greater the concern for those on low incomes. For $\delta = 2$ the index reduces to the standard Gini.

$$S-G(\delta) = \frac{1}{\mu} \left\{ \mu - \frac{1}{N^\delta} \sum_{i=1}^N [(N-i+1)^\delta - (N-i)^\delta] y_i \right\} \quad (3)$$

The results for the S-Gini are presented in Table 1. The higher values of δ lead to Northern Ireland having less measured inequality than Great Britain where the lower deciles are worse off. The reverse occurs for low values of δ , which emphasise the position of the affluent.

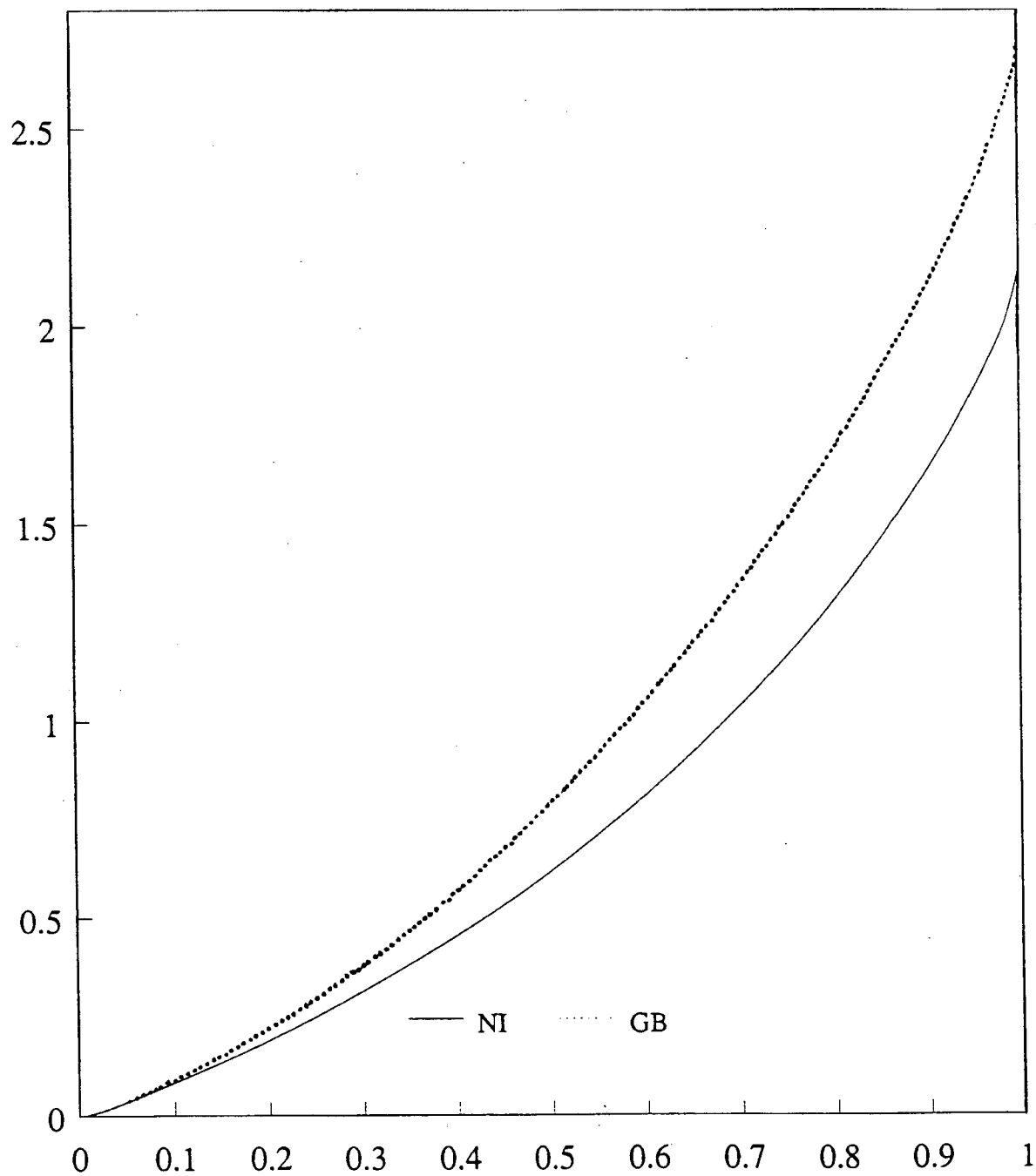
Table 1 also indicates that mean income in Britain is over a quarter greater than in Northern Ireland. Shorrocks (1983) has argued that two distributions can be ranked unambiguously according to a general welfare function even if

Table 1: *Income Inequality in Northern Ireland and Great Britain, 1985*

δ S-Gini	NI	GB	NI/GB
(1.5)	0.2034	0.1978	1.028
(2.0) Gini	0.3040	0.3005	1.012
(2.5)	0.3652	0.3663	0.997
(3.0) Mehran	0.4068	0.4130	0.985
(3.5)	0.4371	0.4483	0.975
(4.0)	0.4602	0.4761	0.967
<i>Population</i>	1963	17,843	
<i>Mean</i>	2.149	2.719	

the two Lorenz curves intersect. Distribution A will be preferred to B for *all* welfare functions that are S-concave and non-decreasing in individual income if, and only if, A's Generalised Lorenz Curve lies inside that of B. The Generalised Lorenz Curve has income rather than the share of total income on the vertical axis. The vertical ordinates are given by multiplying the Lorenz ordinate by mean income. The result is illustrated in Figure 2. The position now favours Britain to a much greater extent given its higher mean income. However, the Generalised Lorenz Curves still cross one another close to the origin so the normative comparison cannot be undertaken.

Figure 2: *Lorenz Curves for Absolute Incomes: Great Britain and Northern Ireland 1985*



Source: Own calculations from the 1985 Family Expenditure Survey.

Instead of comparing inequality between Northern Ireland and Great Britain where the two economies are judged separately, it is possible to calculate the inequality in the combined samples and then examine the contribution of each region to the United Kingdom aggregate. Total inequality can be broken down into the inequality within each region and a further component which is the inter-regional component due to the difference in mean incomes.

If in addition to the Pigou-Dalton condition, symmetry, population principle and homogeneity we desire a decomposition of the form outlined below, then Foster (1983) has proved that a positive multiple of only one index, the Theil, T , will satisfy these properties.³ The index was originally derived from information theory. It can be considered as representing a particular social welfare function but this interpretation is somewhat arbitrary. The index has the attractive property that it is more sensitive to income transfers at lower incomes than among the affluent. We have for G regions, each with N_G individuals and mean incomes μ_G :

$$\begin{aligned} T(y_1 \dots y_N; N) &= \frac{1}{N} \sum_{i=1}^N \frac{y_i}{\mu} \log \frac{y_i}{\mu} = \sum_{g=1}^G \frac{N_g \mu_g}{N \mu} T(y_1 \dots y_g; N_g) \\ &\quad + \frac{1}{N} \sum_{g=1}^G N_g \frac{\mu_g}{\mu} \log \frac{\mu_g}{\mu} \end{aligned} \quad (4)$$

The Northern Ireland FES sample is actually an augmented one — only just over a quarter of the Northern Ireland sample is forwarded onto the UK analysis. In Great Britain there are 35 times the number of individuals that there are in Northern Ireland, in the samples we are considering the ratio is 9 to 1. To utilise the decomposition of Theil's index, the British sample was replicated by a factor of four. The Theil index for the aggregated "United Kingdom" sample was 0.1554; the Northern Ireland index was 0.1623 and that for Great Britain was 0.1547. (The contribution of the differences in mean income was 0.0006.) Thus income inequality in Northern Ireland makes a disproportionately high contribution to UK inequality. This decomposition approach is now applied to the Northern Ireland sample on the basis of family type and economic category.

3. The range of inequality indices is extremely wide: they are surveyed in Kakwani (1980). Our analysis concentrates upon interpretation rather than a comprehensive coverage of possible measures.

IV THE STRUCTURE OF INCOME INEQUALITY IN NORTHERN IRELAND

The decomposition of Theil's index for Northern Ireland by family type is presented in Table 2 and by economic status in Table 3. Starting with family type we notice that three types have low intra-group inequality, married with more than 2 children, single with 1 or 2 children, and single with more than 2 children. These subgroups are all associated with low mean incomes. The subgroup, married with more than 2 children, have a mean income of 72 per cent of the overall mean and comprise almost one-quarter of the entire sample. We may note the role of children in these three subgroups.⁴ Each subgroup appears to be relatively homogeneous with a standard of living significantly below the overall average.

Table 2: *Decomposition of Theil's Inequality Index by Family Type*

<i>Family Type</i>	<i>Theil</i>	<i>% Sample</i>	<i>Mean CDR</i>
Married Pensioner	0.158	7.5	2.269
Single Pensioner	0.169	6.6	1.922
Married, No Children	0.146	11.6	3.092
Married, 1-2 Children	0.126	30.2	2.232
Married, > 2 Children	0.111	23.5	1.543
Single, No Children	0.176	13.9	2.529
Single, 1-2 Children	0.060	4.8	1.713
Single, > 2 Children	0.042	2.0	1.325
Within Group Inequality	0.137		
Between Group Inequality	0.026		
Aggregate	0.162		2.150

In contrast both married and single pensioner families⁵ (married pensioner and single pensioner respectively) appear to be representative of the sample as a whole in terms of mean income and the level of inequality. The most affluent subgroups, married, no children and single, no children, demonstrate

4. In an earlier paper (Borooah and McGregor, 1989) we considered children a separate economic category. 31.9 per cent of the total sample were children, though they comprised 40.5 per cent of the lowest decile and 37.1 per cent of individuals with incomes below the median (Table 6). Thus children are disproportionately represented in the lower half of the income distribution.

5. The retired subgroups present an anomaly. The family category is based on age while the economic status is based on the FES variable A210. This leads to some mismatch as is seen in Table 7.

the advantages of being economically active and not having the responsibility of children. Although mean incomes are high in these subgroups, the mean for married, no children being 44 per cent greater than the sample overall, incomes are also markedly more dispersed than for the other economically active subgroups.

Table 3: *Decomposition of Theil's Inequality Index by Economic Status*

<i>Economic Status</i>	<i>Theil</i>	<i>% Sample</i>	<i>Mean CDR</i>
Employed, Low Paid ^(a)	0.060	7.1	1.987
Employed, Other	0.116	40.6	2.812
Self-Employed	0.256	9.1	2.203
Sick	0.070	5.3	1.625
Unemployed	0.123	14.8	1.396
Retired	0.121	10.6	1.955
Other	0.076	12.5	1.344
Within Group Inequality	0.122		
Between Group Inequality	0.041		
Aggregate	0.162		2.150

^(a) Low pay is defined as below half median earnings.

Overall, the overwhelming contribution to aggregate inequality (85%) comes from inequality within each family subgroup with the remainder due to differences in mean incomes of the groups. Thus although for instance, the single, more than 2 children subgroup has a very low mean income, 62 per cent of the aggregate mean, its small population size, 2 per cent of the total sample, means its contribution to inter-group inequality is very small.

Turning to economic status, a major contribution to inequality is made by the self-employed subgroup, despite its mean income being very similar to the overall figure. The reason for this appears to be that the subgroup includes many poor members such as window cleaners as well as much better off members who would be small employers. Again there are several groups, the sick and others who have low mean incomes and are homogeneous.

It is interesting to note that inequality among families whose head is unemployed is greater than among those whose head is paid more than half median earnings — the "employed-other" group. This could be the result of a number of factors. By using the household as the income unit young, single, unemployed adults still resident with parents (but classified by economic status of family head) will be given the pooled household CDR which in some cases

will be considerably above the level of benefit which would be their contribution. In other cases, wives of some family heads might be employed (an occurrence particularly associated with the textile industry) which would increase inequality. Finally it is important to note that the difference between the two indices is relatively small and both are around the within group level. Thus sampling error may be responsible for this result. Unfortunately the sampling distributions of inequality and poverty indices have not been developed extensively, though they have begun to receive more attention recently.

Finally we may refer to our earlier work (Borooah and McGregor, 1989, pp. 31-40) where income inequality was decomposed by factor components following Shorrocks (1982). The principal finding was that 85 per cent of inequality in total disposable income was contributed to by wages and salaries and 22 per cent by self-employment income. On the other hand, social security benefits tended to moderate inequality by about 15 per cent. If wages and salaries had been the only source of inequality, the overall index would have risen from 0.46 to 0.53. Against this, if wages and salaries had been equally distributed the index would have fallen to 0.21.

V POVERTY

The classic approach to quantifying the extent of poverty was to determine a minimum level of consumption consistent with social existence. The monetary value of such a bundle of commodities was the poverty line. If an individual's income was below the poverty line then he/she was poor. A straightforward measure of the extent of poverty was provided by the Head Count Ratio, the number of individuals in poverty, m , divided by total population.

The Head Count Ratio is concerned solely with the numbers and takes no account of the "depth of poverty" of the poor. This is addressed by the Poverty Gap Ratio which expresses the mean income shortfall of the poor as a proportion of the poverty line. The drawback of this measure is that it is insensitive to the degree of inequality among the poor. In a seminal article published in 1976, Sen extended the axiomatic welfare approach to the measurement of poverty. Sen's index incorporates both the Head Count and the Poverty Gap Ratio and in addition the Gini coefficient among the poor.

Sen's work has spawned many developments, which are surveyed in Foster (1984). Many of the resulting indices have been employed by Morris and Preston in their comprehensive 1986 study of poverty and income inequality in the UK. Their conclusion is particularly relevant to our analysis — that it is "possible to gain an adequate understanding of what has happened to poverty by looking solely at the basic statistics" (p. 344). In the light of this we present the results of a single index of poverty, that developed by Foster,

Greer and Thorbecke (1984), FGT (α). Given a poverty line, z , below which there are M individuals, we have

$$FGT(\alpha) = \sum_{i=1}^M (z - y_i)^\alpha / Nz^\alpha = \sum_{k=1}^K N_k FGT_k(\alpha) / N$$

where

$$FGT_k(\alpha) = \sum_{i=1}^{M_k} (z - y_{ik})^\alpha / N_k z^\alpha \quad (5)$$

As is indicated by (5), the FGT index can be additively decomposed into subgroup indices, where the population is divided into k mutually exclusive and collectively exhaustive subgroups, $k = 1 \dots K$ of size N_k with M_k poor in each subgroup, so $\sum_{k=1}^K N_k = N$ and $\sum_{k=1}^K M_k = M$. The weights of the sub-indices are their population share, N_k/N . The value of the parameter α is indicative of the aversion felt towards poverty: a larger α gives greater emphasis to the poorest poor. For $\alpha = 0$ the index becomes simply the Head Count Ratio, while with $\alpha = 1$ we get this multiplied by the Income Gap Ratio. With $\alpha \geq 2$ the measure satisfies both the Monotonicity Axiom and the Transfer Axiom.⁶

The results for the entire Northern Ireland sample are presented in Table 4. The analysis of poverty like that of inequality, contains a substantial normative element. In order to prevent the conclusions of any analysis being rejected on the basis of the concept of poverty employed, Atkinson (1987) suggested that propositions concerning poverty that held across a number of "reasonable" poverty lines would be more generally acceptable than those sensitive to a particular line. We have thus considered three poverty lines – the Supplementary Benefit scale that gives a CDR of unity, and this increased by 20 per cent and then 40 per cent. It is clear from the first column of the table that the proportion of individuals in poverty in Northern Ireland is considerably greater than in Great Britain for all of these poverty lines. This relationship is generally maintained when we take into account the depth of poverty, but the contrast is much less marked. (In fact for $\alpha = 2$ and a poverty line at the SB level, Britain has a higher index than Northern Ireland.) Thus while poverty is much more widespread in Northern Ireland its depth on the whole is less than in Britain.

6. The Monotonicity Axiom requires a reduction in the income of a poor household to increase the poverty measure, *ceteris paribus*. The Transfer Axiom maintains that a transfer of income from a poor household to one that is richer will increase the poverty measure.

Table 4: *The Foster, Greer, Thorbecke Poverty Index for Northern Ireland and Britain, 1985*

<i>Poverty Line = SBE</i>			
	$\alpha = 0$	$\alpha = 1$	$\alpha = 2$
Northern Ireland	0.079	0.015	0.008
Britain	0.045	0.014	0.009
<i>Poverty Line = SBE + 20%</i>			
Northern Ireland	0.226	0.039	0.013
Britain	0.105	0.024	0.012
<i>Poverty Line = SBE + 40%</i>			
Northern Ireland	0.354	0.074	0.025
Britain	0.187	0.041	0.017

Our estimates of the Head Count Ratio diverge substantially from those that may be derived from the DHSS' statistics on Low Income Families (DHSS, 1988a). These statistics – published since 1974 – present data for two categories of families. The first relates to the number of families in receipt of supplementary or housing benefit, where this number is derived from the Department's *Supplementary Benefit Annual Statistical Enquiries*. The second relates to the number of families not claiming benefit but whose resources nevertheless fall below some specified percentage of their Supplementary Benefit Entitlement. The data for this are derived from the annual FES. The total number of families in the two categories considered together can then be regarded as the number of low income families in Great Britain.

Our results are not comparable to those of the DHSS. Ours are based entirely on the FES; those of the DHSS, as noted above, were based partly on its own administrative statistics. Therefore in the DHSS statistics the mere fact of a family claiming Supplementary Benefit was sufficient to place it in the low income family category and it was only for families not claiming benefit that judgement was exercised – via the FES – as to whether their resources fell below some minimum desirable level.⁷ The income unit for the DHSS statistics is the family, while ours is the household (see Johnson and Webb, 1989, for the substantial increase in low incomes which use of the family can produce). In our FES based analysis a household was classified as poor only on the basis of its resources being below a critical level; the fact of its claiming, or not claiming, Supplementary Benefit was irrelevant. Finally we may note our results are in broad agreement with those of Morris and Preston (1986) whose methodology is similar to our own.

7. It was estimated by DHSS (1988b) that in 1983 almost 40 per cent of families receiving Supplementary Benefit had resources between 120 and 140 per cent of their entitlement.

VI THE STRUCTURE OF POVERTY IN NORTHERN IRELAND

The results of the decomposition of the FGT index by family type and economic status are given in Tables 5 and 6. Now the aggregate FGT index is a weighted average of the subgroup indices where the weights are the population shares. Thus we may compare the subgroup indices directly with the composite index. The contrast between the family subgroups is sharp; only one, married, with more than 2 children, is consistently above the overall index as the poverty aversion parameter and the poverty line is varied. The single, with more than 2 children subgroup is above the overall index in five of the six cases reported. In terms of percentage contribution, due to its share of the sample (23.5%) the married, with more than 2 children subgroup dominates all others, varying between 40 per cent and almost 50 per cent. The single, with more than 2 children subgroup represents only 2 per cent of the total sample and thus its contribution to the overall index is minor.

Table 5: *Decomposition by Family Type of the Foster, Greer, Thorbecke Poverty Index*

<i>Poverty Line</i> <i>Population Subgroup</i>	<i>SBE + 20%</i>			<i>SBE + 40%</i>		
	$\alpha = 0$	$\alpha = 1$	$\alpha = 2$	$\alpha = 0$	$\alpha = 1$	$\alpha = 2$
Married Pensioner	0.068 (2.3)	0.003 (0.6)	0.000 (0.1)	0.299 (6.3)	0.025 (2.5)	0.003 (1.0)
Single Pensioner	0.101 (2.9)	0.013 (2.1)	0.003 (1.3)	0.333 (6.2)	0.037 (3.3)	0.008 (2.2)
Married, No Children	0.070 (3.6)	0.023 (6.8)	0.018 (16.7)	0.105 (3.5)	0.031 (4.9)	0.021 (9.9)
Married, 1-2 Children	0.198 (26.4)	0.034 (26.5)	0.012 (29.2)	0.292 (25.0)	0.062 (25.6)	0.022 (27.3)
Married, >2 Children	0.460 (47.9)	0.081 (48.7)	0.022 (40.3)	0.601 (40.0)	0.145 (46.2)	0.046 (44.9)
Single, No Children	0.169 (10.4)	0.029 (10.2)	0.008 (9.2)	0.232 (9.1)	0.052 (9.8)	0.017 (9.7)
Single, 1-2 Children	0.128 (2.7)	0.013 (1.6)	0.003 (1.0)	0.415 (5.6)	0.056 (3.6)	0.011 (2.1)
Single, >2 Children	0.436 (3.8)	0.066 (3.3)	0.010 (1.6)	0.769 (4.3)	0.151 (4.1)	0.036 (3.0)
Aggregate	0.226	0.039	0.013	0.353	0.074	0.024

Note: Figures in parentheses are the percentage contribution of the subgroup to the overall index, that is, the subgroup index multiplied by the population share of the subgroup expressed as a percentage.

Table 6: *Decomposition by Economic Status of the Foster, Greer, Thorbecke Poverty Index*

<i>Poverty Line</i>	<i>SBE + 20%</i>			<i>SBE + 40%</i>		
<i>Population Subgroup</i>	$\alpha = 0$	$\alpha = 1$	$\alpha = 2$	$\alpha = 0$	$\alpha = 1$	$\alpha = 2$
Employed, Low Paid	0.072 (2.3)	0.005 (1.0)	0.001 (0.3)	0.194 (3.9)	0.021 (2.1)	0.004 (1.1)
Employed, Other	0.047 (8.3)	0.013 (13.9)	0.010 (33.2)	0.112 (12.8)	0.022 (12.3)	0.012 (20.5)
Self-Employed	0.264 (10.6)	0.074 (17.2)	0.027 (19.1)	0.388 (10.0)	0.106 (13.0)	0.044 (16.4)
Sick	0.231 (5.4)	0.016 (2.1)	0.001 (0.5)	0.490 (7.4)	0.063 (4.5)	0.011 (2.4)
Unemployed	0.660 (43.3)	0.095 (36.3)	0.019 (21.7)	0.742 (31.1)	0.181 (36.5)	0.051 (31.3)
Retired	0.082 (3.8)	0.005 (1.4)	0.001 (0.0)	0.337 (10.1)	0.029 (4.2)	0.004 (1.8)
Other	0.472 (26.2)	0.087 (28.1)	0.025 (24.4)	0.695 (24.7)	0.161 (27.4)	0.051 (26.6)
Aggregate	0.229	0.039	0.013	0.353	0.074	0.024

Despite its subgroup index never being above the overall index, the married, more than 2 children group gives the second largest contribution to aggregate poverty, because of its high weight/population share (see Table 2). Thus it is worth highlighting the role of children in the incidence of poverty.⁸ This contrasts with age where the retired groups consistently have indices considerably below the overall figure.

Two aspects of Table 5 deserve attention. The first of these is the effect on the contribution of a subgroup of an increase in the value of the aversion to poverty parameter, α . The married pensioner and single pensioner, single, 1-2 children and single, with more than 2 children subgroups all consistently have lower contributions as α is increased. This suggests that the depth of poverty is less of a concern in these subgroups than in the others. Both married, without children and married, 1-2 children consistently increase their contribution to poverty as α is increased.

8. Although children constitute 30.9 per cent of the sample, they represent over 36 per cent of the individuals in poverty, irrespective of the poverty line (Borooah and McGregor, 1989, Table 4). Considered as an economic category in their own right, they account for between 36.5 and 41.8 per cent of the FGT poverty index, depending on poverty line and aversion (Table 18).

The results are mirrored, though in reverse, when we consider the effect of an increase in the poverty line. The married pensioner, single pensioner, single, 1-2 children and single, with more than 2 children subgroups all increase their contribution as the poverty line is increased from SBE + 20 per cent to SBE + 40 per cent, holding α constant while that of married without children and married, 1-2 children consistently falls. The former groups have low mean incomes and thus an increase in the poverty line leads to proportionally more of them falling into the poverty set. However, their depth of poverty is less marked than the other subgroups, so their contribution falls as α is increased.

Turning to Table 6, where results of the decomposition by economic status are presented, we note that three subgroups, the self-employed, the unemployed and "other" consistently have values for the poverty index which are above the overall aggregate. The other subgroups, except for the sick, are consistently below.

For the low paid, the sick and the retired, an increase in α reduces their percentage contribution to overall poverty. In contrast, it increases the contribution of the self-employed. The effect of an increase in the poverty line reverses this, with a reduction in the contribution of the unemployed and an increase for the other subgroups.

It is not surprising that the unemployed subgroup should dominate the contribution to the overall poverty index. It is remarkable though that the subgroup whose head of family earns more than half median earnings, the "other employed", should contribute one-third of total poverty when $\alpha = 2$ and the poverty line is SBE + 20 per cent. Taking into account depth of poverty thus sharply increases the role of this subgroup, which would superficially be considered relatively affluent. In Table 7 we cross tabulate the family and economic status categories. This indicates that the other employed are strongly represented in the married, 1-2 children family group, whose contribution to overall poverty is substantial. Thus again the presence of children has a major impact upon the relationship with poverty. The married, with more than 2 children, group is disproportionately represented in both the self-employed and unemployed subgroups, both of which have strong contributions to the overall poverty index.

VII CONCLUSION

This paper examines the relationships between poverty and the distribution of income in Northern Ireland, a region where — using a common poverty line — the incidence of poverty is much greater than Great Britain but where its depth appears less pronounced. This is reflected in the distribution of income where the lower deciles do better in relative terms than the corresponding deciles in Great Britain.

Table 7: *Cross-Tabulation of Family Type and Economic Status*

	<i>Low Paid</i>	<i>Other Employed</i>	<i>Self-Employed</i>	<i>Sick</i>	<i>Unemployed</i>	<i>Retired</i>	<i>Other</i>	<i>Total</i>
Retired, Married	6 (4.3)	2 (0.3)	8 (4.5)	0 (0.0)	0 (0.0)	131 (63.0)	0 (0.0)	147 (7.5)
Retired, Single	1 (0.7)	2 (0.3)	2 (1.1)	1 (0.0)	0 (0.0)	75 (36.1)	48 (19.5)	129 (6.6)
Married, No Children	8 (5.8)	141 (17.7)	21 (11.8)	31 (29.8)	17 (5.8)	2 (1.0)	8 (3.3)	228 (11.6)
Married, 1-2 Children	14 (10.1)	353 (44.3)	65 (36.5)	41 (39.4)	91 (31.3)	0 (0.0)	28 (11.4)	592 (30.2)
Married >2 Children	31 (22.3)	174 (21.9)	69 (38.8)	17 (16.3)	109 (37.5)	0 (0.0)	61 (24.8)	461 (23.5)
Single, No Children	54 (38.8)	102 (12.8)	13 (7.3)	14 (13.5)	68 (23.4)	0 (0.0)	21 (8.5)	272 (13.9)
Single, 1-2 Children	20 (14.4)	17 (2.1)	0 (0.0)	0 (0.0)	6 (2.1)	0 (0.0)	51 (20.7)	94 (4.8)
Single, >2 Children	5 (3.6)	5 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	29 (11.8)	39 (2.0)
Total	139	796	178	104	291	208	246	1,962

Note: Figures in parentheses are the cell counts expressed as percentages of the column totals.

The relationship between poverty and the distribution of income becomes much less clear when they decomposed. Take, for instance, the three economic categories, employed other, self-employed and unemployed. They have mean incomes respectively above, similar to and below the regional mean. All three subgroups make a major contribution to poverty when its depth is emphasised. Yet the employed, other subgroup has relatively low inequality, the self-employed high inequality and the unemployed about average.

The picture is more stable when we decompose by family type. The married, with more than 2 children subgroup has a low mean income, relatively low inequality and a substantial contribution to overall poverty. The single, no children subgroup has high mean income, high inequality and a steady contribution to poverty at a level below its share of the sample. A major role thus seems to be attributable to the presence of children and it is this which is the crucial influence on the incidence of poverty rather than economic status. This is supported by the fact that the elderly retired subgroups make a relatively small contribution to poverty and have an income distribution similar to that of the region as a whole.

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