

Understanding the Transformation of the Prospects of Place

Working Paper 2

The 1983 LWT/MORI Survey and the 1981 Census

There have been only four nationally representative scientific surveys of poverty in the past 50 years, listed below. All were funded by the Joseph Rowntree Foundation and two received additional funding from London Weekend Television. All were undertaken by academics, and all were relatively small.

- ❑ Poverty in the United Kingdom: a Survey of Household Resources and Standards of Living, 1967-1969, 2,052 households (Townsend, 1979)
- ❑ Living in Britain, 1983, 1,174 households, published as Poor Britain (Mack and Lansley, 1985)
- ❑ Breadline Britain, 1990, 1,831 households (Gordon and Pantazis, 1997)
- ❑ Poverty and Social Exclusion survey, 1,534 households (Gordon et al., 2000)

Despite the restricted sample sizes, the above surveys reflect a broadly comparable relative approach to the definition and measurement of poverty. By adopting a synthetic modelling approach, it is therefore technically possible to examine the spatial distribution of area poverty over time based upon four discrete time slices: 1967-9 (1971 Census); 1983 (1981 Census); 1990 (1991 Census), and; 1999 (2001 Census) using a comparable methodology.

This approach involves the construction of reliable, valid and additive deprivation indices for each of the four surveys, and subsequently developing summary, binary indicators of 'poverty' based upon the 'fit' between material and social deprivation on the one hand, and net equivalised household income on the other. It is also possible to measure the extent of 'core poverty' based on the overlap between low income, material and social deprivation and subjective poverty. Using a logistic regression modelling approach the social and demographic predictors of poverty can then be estimated and the derived weightings applied to Census small area statistics.

This paper describes the methodology used to derive the models relating to the 1981 Census of Population with respect to 'poverty' and 'core poverty', based upon analysis of the 1983 Living in Britain Survey conducted by Mack and Lansley (1983) and funded by London Weekend Television (LWT). (See Appendix 1 for further details about the LWT survey).

1. Choice of Indicators

The central goal of the LWT survey, conducted by MORI, was to discover whether there was a public consensus on what was an acceptable standard of living for Britain in 1983 and, if there was a consensus, how many people and households fell below that standard. As with the 1969 Townsend survey, the LWT survey reflected a relative approach to the definition and measurement of poverty that focused upon both the material and social dimensions of relative deprivation. However, unlike the 1969 Townsend survey, the LWT deprivation index reflects a *consensual* approach to the definition and measurement of poverty in which poverty is understood as 'an enforced lack of socially perceived necessities'.

In contrast with the Townsend index in which items were selected on the basis of expert opinion, the LWT index selects only those items that a majority of the population viewed as necessities of life in modern Britain. The survey design comprised two phases. The first qualitative phase tapped the views of groups of different types of people across Britain with respect to what constituted the necessities of life in 1980s Britain the lack of which could be said to be definitional of material and social deprivation. The groups

were selected to be broadly representative of the poor themselves (the low paid, the unemployed and the elderly) and of middle-income earners. The objective here was to develop a set of indicators of poverty which both reflected the reality of living in poverty and broadly accorded with the views of the British population as a whole. In the second quantitative phase the 35 standard-of-living items emerging from the group interviews were included in the final LWT survey questionnaire.

Survey respondents were then invited to identify those items 'which...are necessary, and which all (adults) should be able to afford and which they should not have to do without' (Mack & Lansley, 1983: 294). The resulting data reveal two principal findings (see Mack & Lansley, 1983: 53-86). Firstly, people clearly judge a minimum standard of living on socially established criteria and not just the criteria of survival or subsistence. Secondly, the ranking of items reveals a considerable degree of social consensus about what constitutes the necessities of life in modern Britain. However, in developing deprivation indices it is also important to examine the characteristics of competing indices in terms of their political plausibility, construct validity, reliability and additivity. These issues are considered in greater depth below.

NB. Generalised Calibration.

In the analyses that follow the original survey weightings for selection bias have been reconstructed using a procedure called generalised calibration. Post-stratification weighting to 1981 Census data has then been applied based upon household type, age, and tenure status (see Section 2.4).

2.1 Creating a Preference-Free Index

Clearly, in developing a preference-free index it is important that index items should be defensible on the grounds that the components are items that most people would be unlikely to want to do without. This is easy to achieve based upon the 'consensual' or 'democratic' approach since only those items that a majority of the population view as necessities of life are included in the final index. Table 1 (*overleaf*) lists the full battery of 35 items included in the 1983 LWT/MORI survey and the proportion of respondents viewing each of these items as necessities. These data suggest that the following items should be removed from the final deprivation index on the grounds of political implausibility:

- A 'best outfit' for special occasions
- Telephone
- An outing for children once a week
- A dressing gown
- A night out once a fortnight
- Friends/family round for a meal once a month
- A car
- A packet of cigarettes every other day

In these cases it is not immediately obvious in what sense they could be said to constitute necessities of life, the lack of which would constitute material or social deprivation. These items were therefore excluded from further consideration

Table 1: Perceptions of the Necessities of Life, 1983.

Percentage of respondents viewing items as 'necessities' (Adult items).

	%
Heating to warm living areas of the home if it's cold	97
Indoor toilet (not shared with another household)	96
Damp-free home	96
Bath (not shared with another household)	94
Beds for everyone in the household	94
Public transport for one's needs	88
A warm waterproof coat	87
Self-contained accommodation	79
Two pairs of all-weather shoes	78
Refrigerator	77
Carpets in living rooms and bedrooms in the home	70
Celebrations on special occasions such as Christmas	69
A roast meat joint or its equivalent once a week	67
A washing machine	67
New, not second hand clothes	64
A hobby or leisure activity	64
Two hot meals a day	64
Meat or fish every other day	63
A holiday away from home for one week a year, not with relatives	63
Presents for friends or family once a year	63
A garden	55
A television	51
A 'best outfit' for special occasions	48
Telephone	43
An outing for children once a week	40
A dressing gown	38
A night out once a fortnight	36
Friends/family round for a meal once a month	32
A car	22
A packet of cigarettes every other day	14

Source: MORI 1983 Living in Britain Poll (Mack & Lansley, 1983: 298-99, weighted data)

2.2 Validity

Validity refers to the extent to which a measuring instrument measures what it purports to measure. However, establishing the validity of a measuring instrument is a complex problem, not least because the concept itself is quite elastic and, in some respects, less amenable to statistical analysis than other related concepts such as reliability or additivity. In addition to subjectively assessing the extent to which indicators 'look' like valid measures ('face validity'), validation exercises typically seek to determine the extent to which experimental measures correlate with some criterion measure whose validity is already known and accepted – 'construct validity'.

Establishing validity is can be complex. However, the simplest way to achieve this is to ensure that the individual components of the index are all highly correlated with independent indicators known to be strongly associated with poverty. This can be done by calculating the relative odds ratios for the components against established correlates

of poverty whilst controlling for other factors known to co-vary with these indicators using logistic regression. In this case the following indicators have been used:

- ❑ **Limiting Illness:** Long-standing illness, disability or infirmity (Question 25) (controlling for age and sex)
- ❑ **Subjective poverty:** respondent feels genuinely poor 'all the time' (Question 23) (controlling for household size and composition)
- ❑ **Income Adequacy:** respondent 'very' or 'fairly' dissatisfied with standard of living at present (Question 2) (controlling for household size and composition)
- ❑ **Income Stress:** respondents were asked whether they had experienced a variety of personal difficulties in the past month as a result of a lack of money (Question 24a)¹. Respondents who had experienced *any* of these situations were classified as income stressed (controlling for household size and composition)

The results of these analyses are shown in Table 2 (*below*). For example, Table 2 shows that respondents who live in households which cannot afford a refrigerator are more than three times (3.53 to 1) more likely to consider themselves to be poor 'all the time' compared with those who can afford a refrigerator. They were also twice as likely (2.12 to 1) to be 'very' or 'fairly' dissatisfied with their income, and more than three times more likely (3.22 to 1) to be experiencing ill-health or disability.

Items in bold indicate those items for which we cannot be confident that the sample estimates reflect the underlying population parameters. For example, we cannot be certain of the effect of lacking sole use of a bath on the odds of income stress and limiting illness or disability because the sample estimates are not significant at the 95% level ($p < .05$). In this case we might choose to exclude such items from the index because we cannot be confident that they are associated with these established covariates of poverty. However, one problem with this approach is that running multiple tests means that we can expect 1 in 20 items to be misclassified, (*ie.* shown as not significant when in reality they are or vice versa). For this reason, items should only be excluded where they are not significant on at least two or more tests, where the probability of Type 1 or Type 2 errors is extremely small. Bearing this in mind, we should exclude the following items from our index on the grounds of uncertain criterion validity:

- ❑ Indoor toilet (not shared with another household)
- ❑ Bath (not shared with another household)
- ❑ Public transport for one's needs

¹ These difficulties were as follows: being stressed; problems with family; problems with friends; being bored; having difficulty making ends meet; feeling looked down on by other; feeling a failure; lack of hope for the future; letting down family.

Table 2: Odds Ratios for LWT Deprivation Index Items, 1983 – Criterion Validation.

	Subjective poverty ¹	Income adequacy ¹	Income stress ¹	Limiting illness ²
Indoor toilet (not shared)	5.54	4.23	2.18	1.27
Bath (not shared)	4.39	4.09	2.43	0.68
Public transport for one's needs	2.78	1.69	2.71	0.92
A television	15.21	8.41	7.09	0.26
A garden	3.26	3.24	2.32	1.24
A roast meat joint or equivalent weekly	10.67	6.95	10.56	1.68
Carpets in living areas	4.95	6.42	6.69	1.15
A refrigerator	3.53	2.12	2.90	3.22
Celebrations on special occasions	9.32	5.73	6.10	1.76
Presents for friends or family annually	9.81	4.12	9.04	1.66
Two hot meals a day	13.35	8.57	10.62	1.45
Self-contained accommodation	7.44	3.68	5.11	2.00
Meat or fish every other day	12.08	8.07	12.66	2.01
Heating to warm living areas	6.95	4.78	4.21	1.91
Two pairs of all-weather shoes	11.32	6.38	9.60	2.30
New, not second hand clothes	12.85	6.25	5.86	2.76
Beds for everyone in the household	12.85	5.31	5.08	1.87
Damp-free home	5.55	4.55	3.88	2.36
A hobby or leisure activity	6.11	4.13	5.98	1.95
A holiday away from home	8.86	4.38	5.75	1.83
A washing machine	4.56	3.17	4.22	2.45
A warm waterproof coat	9.24	4.12	4.47	1.91

Source: LWT/MORI Living in Britain Survey, 1983

Bold = Not significant at .05 level

¹ Controlling for household composition and size

² Controlling for age and sex

Finally, the indicators were re-validated against PSE equilibrated net weekly household income. We should expect that for valid indicators the mean incomes of households who lack the scale components would be significantly lower than for those that have them, and this proposition can be tested using one-way analysis of variance. There were no instances in which the incomes of those lacking the item were higher than for those who had the item.

In most of these cases the differences in mean equilibrated incomes between those who lacked the item and those who did not were substantial and statistically significant at the 95% confidence level. However, in the case of access to a garden the difference in means was small and confidence intervals overlapped at the 95% level, suggesting that we cannot be confident that these sample means reflect underlying population parameters. In addition to the items described above, this item was also excluded from the overall index.

2.3 Reliability

In scientific terms, a reliable measurement is not necessarily correct but it is precise. The concept of reliability suggests thus that repeated measurements of the same phenomenon should produce consistent results. For example, repeated measures an object with a one-foot ruler, which in reality was only 11 inches long, would produce a series of very similar measurements. This series of measurements would be highly reliable even though they were completely inaccurate!

Since reliability is concerned with the consistency of measures, and not their accuracy, a number of statistics are available to measure the internal reliability of deprivation indices. The most widely used of these is classical test theory (eg. Cronbach's Alpha). Table 3 (*below*) shows the results of classical reliability analysis for those adult items that are both politically acceptable and valid according to the above criteria. Items are unreliable (highlighted in bold) if their removal results in an improvement in the scale Alpha of the index. Since this is an iterative process the table shows the results for each iteration in this process by quoting item-total correlations (column 1) and the scale Alpha if each of these items were removed from the scale. The following items should be excluded due to a lack of reliability:

- ❑ A television
- ❑ A refrigerator
- ❑ Beds for everyone in the household
- ❑ A washing machine
- ❑ Self-contained accommodation

Table 3: Classical Reliability Analysis – valid adult necessities, 1983.

	Run 1	Run 2	Run 3	Run 4	Run 5
	Alpha	Alpha	Alpha	Alpha	Alpha
	if deleted	if deleted	if deleted	if deleted	if deleted
A television	.823				
A roast meat joint or its equivalent	.808	.810	.814	.815	.817
Meat or fish every other day	.805	.806	.809	.809	.810
Heating to warm living areas	.811	.813	.816	.817	.820
Two pairs of all weather shoes	.800	.801	.805	.805	.806
New not second hand clothes	.807	.809	.814	.814	.815
Carpets	.817	.819	.824	.825	.828
Refrigerator	.820	.822	.827		
Beds for everyone	.822	.824			
Damp-free home	.813	.815	.821	.821	.824
A hobby	.810	.812	.816	.816	.818
A holiday	.805	.807	.811	.811	.814
Celebrations on special occasions	.810	.812	.816	.817	.818
Presents for family	.810	.812	.815	.817	.818
Washing machine	.819	.821	.826	.829	
A warm water-proof coat	.806	.808	.812	.813	.814
Two hot meals a day	.813	.815	.819	.820	.822
Self-contained accommodation	.821	.823			
Scale Alpha	.821	.823	.827	.827	.837

Source: LWT/MORI Living in Britain Survey, 1983

2.4 Additivity

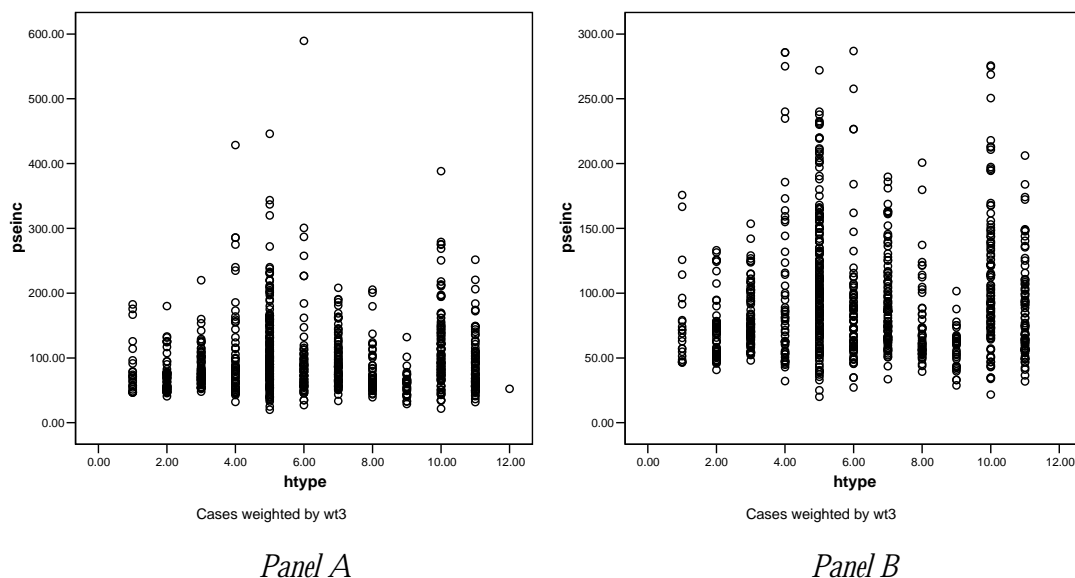
It is clearly important that the components of any deprivation index should be additive. For example, if a hypothetical deprivation index is composed of two variables - such as car and TV ownership - then we should be confident that households who lack both a TV and a car are likely to be poorer than those who lack only one of these items.

Standard statistical techniques can be used to establish additivity. Clearly, the most basic criterion is that the simple correlations between all variables included in the index should be positive. Secondly, first-order interactions can be examined by performing partial correlation plots. Finally, fully saturated ANOVA and GLM models can be used to examine higher order interactions.

Removing Outliers

However, before doing so it is essential to remove large outliers since there is always somebody in a survey who says they earn £1,000,000 but can't afford any item on the deprivation index! Even after equivilisation using the PSE scale and separating out different household types, outliers still remain. Panel A of Figure 1 (*below*) shows the raw data for equivilised net household income by household type. In order for the poverty line to not be unduly affected by a few households with very large incomes these cases should be removed from the model. The effects of excluding the wealthiest 2% of households from the poverty threshold analysis are shown in Panel B. Here, for each household type, those households with net equivilised income within the wealthiest 2% of the distribution have been excluded. This amounts to 25 cases, or 2.8% of the valid weighted sample (those supplying income data).

Figure 1: Outliers by Household Type, 1983



Household types: 1=single male pensioner; 2=single female pensioner; 3=pensioner couple; 4=single person; 5=couple no children; 6=couple, 1 child; 7=couple, 2 children; 8=couple, 3+ children; 9=lone parent; 10=3+ adults, no children; 11=3+adults with children

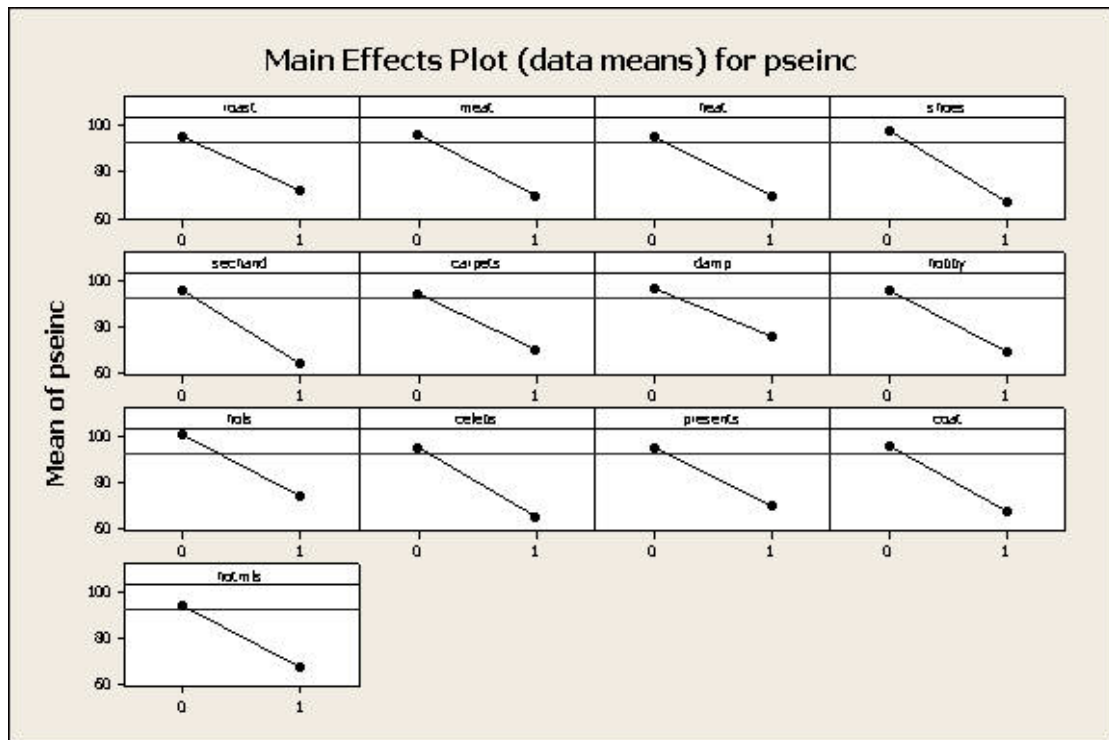
Source: LWT/MORI Living in Britain Survey, 1983

Determining Additivity: Main Effects and Interaction Plots

The main effects plots shown in Figure 2 (*below*) illustrate the mean amount of equivilised net household income of respondents who lack an item (black dot on right of graph)

compared with the income of those who reported having the item for each of the 17 remaining deprivation items. The dotted line is the average equivalised net household income for the sample as a whole. As the first plot shows, households going without a weekly roast meal (or its equivalent) have a lower equivalised household income than those who did not. For all items, those households reporting lacking these items (category '1') have much lower mean equivalised incomes than those households who have the item.

Figure 2: ANOVA Main Effects Plots - Final Index Items, 1983.



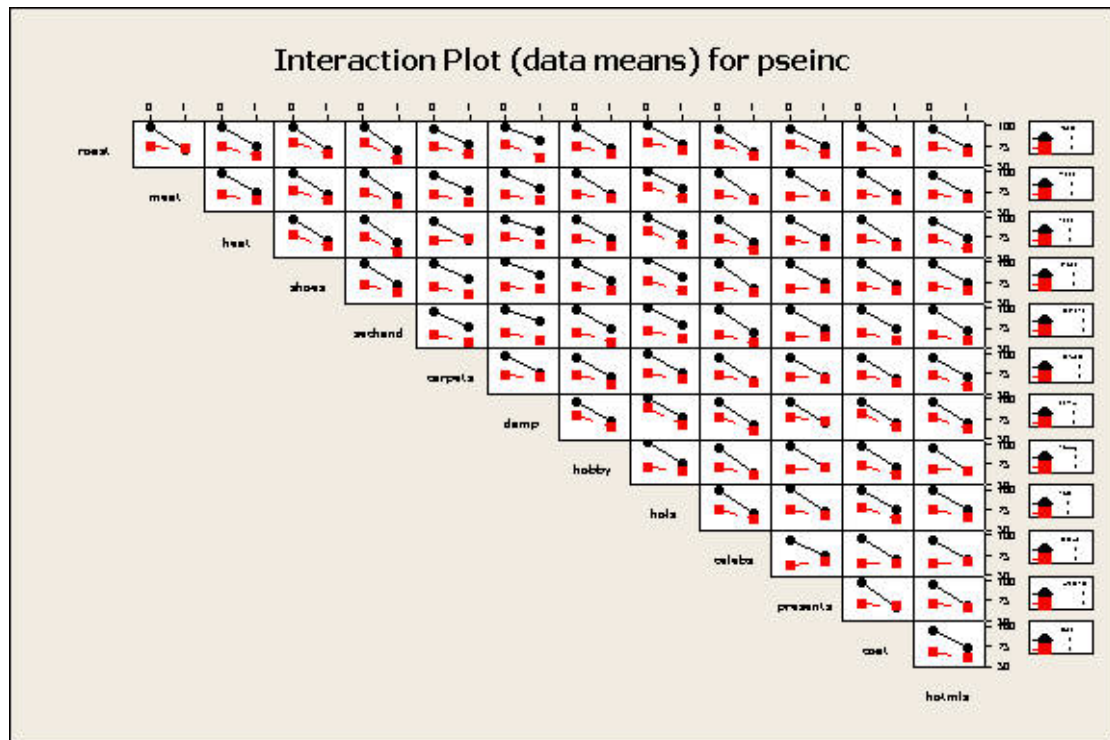
Source: LWT/MORI Living in Britain Survey, 1983

All possible second order interaction plots between these items are shown in Figure 3 (below). The graphs show the interaction between each item and the other reliable, valid and politically plausible items. In each case, the vertical scale on each graph is equivalised net household weekly income which ranges between about £50 and about £100. The horizontal scale indicates whether or not a household can afford the item (*ie.* don't have=1, have=0). There are two lines on the each graph – a solid black line and a dotted red line. The first black dot on the solid line (top left) shows the average equivalised net household income of those households who had both items. The first red dot on the dotted line (on the left) shows the income of those who could afford only one item X. The second black dot on the solid line (top right) shows the income of those who can't afford item Y but have item X, and the second red dot on the dotted line shows the average equivalised net household incomes of respondents who don't have either items X or Y. Therefore respondents who don't have either items are should be the 'poorer' than households who can't afford just one of these items.

Basically two parallel lines slanting from top left to bottom right are good (*eg.* the variables are additive). However, if the lines cross there may be problems such that the variables are not additive, and the angle of intersection denotes the degree of non-additivity. Note however, that there are likely to be a few graphs with crossing lines due

to multiple test effects so we should only get concerned if there are variables which do not appear to be additive with several other variables. Only in very few cases is there any evidence of interactions effects which may undermine the additivity of these items and even these cases the effects are minor (for example, between 'roast' and 'meat', or between 'damp' and presents').

Figure 3: ANOVA Interaction Plots - Final Index Items, 1983.



Source: LWT/MORI Living in Britain Survey, 1983

Since these cases are isolated, display no consistent pattern, and are in any case very minor, none of these items have been excluded on grounds of non-additivity. The final thirteen index items are therefore detailed below:

- A roast meat joint or its equivalent
- Meat or fish every other day
- Heating to warm living areas
- Two pairs of all weather shoes
- New not second hand clothes
- Carpets
- Damp-free home
- A hobby
- A holiday
- Celebrations on special occasions
- Presents for family
- A warm water-proof coat
- Two hot meals a day

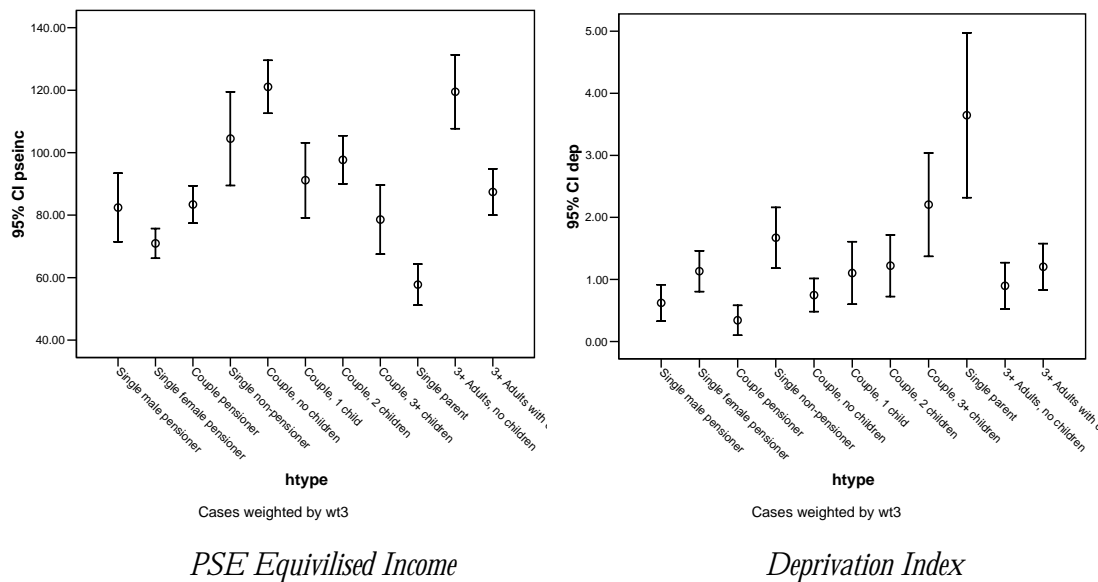
Having established the index components, the next step involves establishing the income threshold which maximises the fit between material and social deprivation and low

income. In the analyses that follow the generalised calibration weights (described above) have been re-weighted in order to ensure their representativeness with respect to 1981 Census small area statistics data. The household data are weighted by:

- Household type (single pensioner; single; lone parent; couple; couple with children; other)
- Age category (16-24; 25-34; 35-44; 45-54; 55-64; 65+)
- Tenure (owner occupier; LA/HA renter; other)

The relationship between PSE equivalised income (pseinc) and levels of observed deprivation (depind) is described by the following linear equation: $pseinc = \text{£}105.96 - \text{£}8.81 * depind$. Figure 4 (*below*) summarises mean deprivation index scores on this 14-point scale alongside mean levels of PSE equivalised income by household type.

Figure 4: Mean Deprivation Scores and Equivalised Household Income by Household Type, 1983.

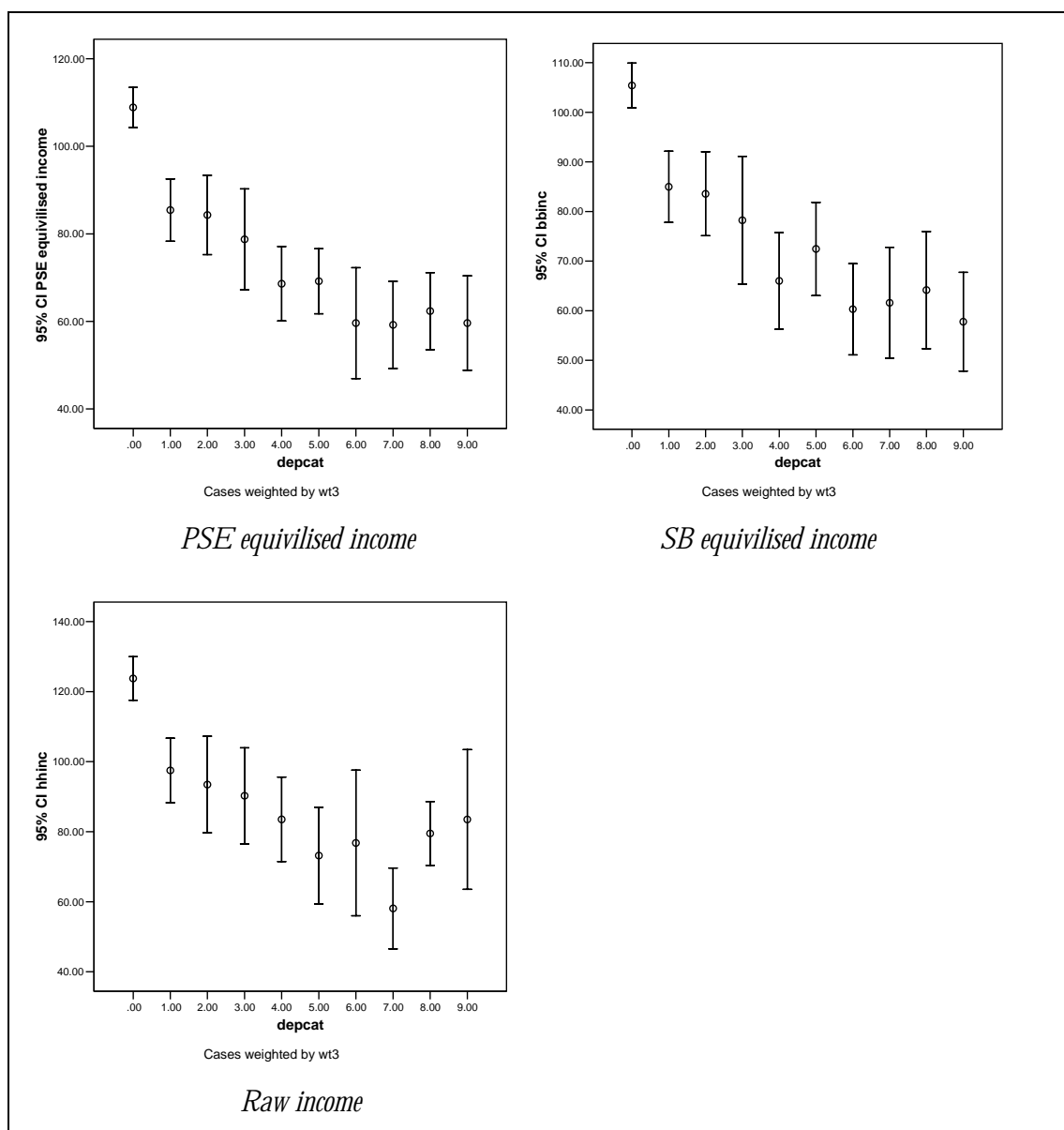


Source: LWT/MORI Living in Britain Survey, 1983
(Data weighted by household type, age, and tenure – see above)

3. Establishing the Deprivation Threshold

Determining the optimal deprivation threshold seeks to establish that level of income at which the incidence of deprivation begins to increase disproportionately. Figure 5 (*below*) presents data on mean levels of income based upon raw income data, and PSE and Supplementary Benefit (SB) equivalised income at various deprivation levels. Visual inspection of these plots suggests that we cannot rule out the possibility that there may be more than one income threshold at which the risk of deprivation increases disproportionately. Thus, significant ‘step changes’ in mean equivalised income levels are evident at the 1+, 3+ and 5+ levels.

Figure 5: Mean Household Income by Level of Deprivation Level.
 Raw income, PSE equilivised income, modified OECD equilivised income



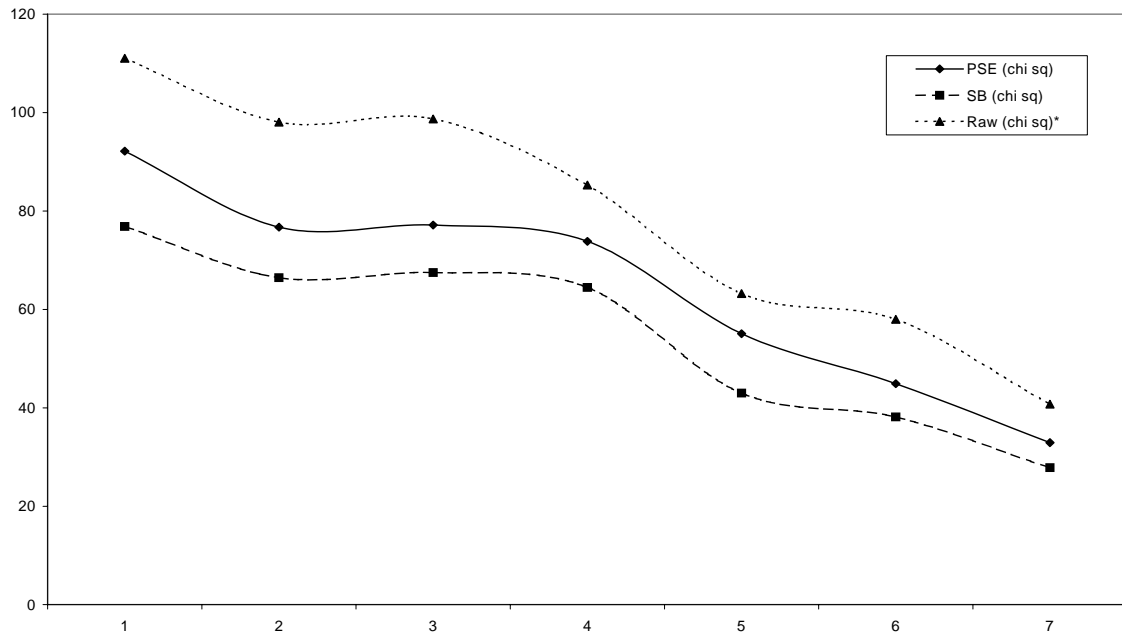
NB) Category 9='9+'.

Source: LWT/MORI Living in Britain Survey, 1983
 (Data weighted by household type, age, and tenure – see above)

However, in order to determine the degree of ‘fit’ between low income and deprivation it is useful to explore the relationship between household income and deprivation using more advanced modelling techniques such as logistic regression analysis and analysis of variance. Figure 6a (*below*) plots model chi square statistics for the relationship between income and deprivation at various deprivation thresholds and for different models of household income (*ie.* raw income, PSE and SB equilivised income). These data appear to confirm that the relationship between income and deprivation is most powerful when deprivation is operationalised at either the 1+ or 3+ deprivation thresholds.

Figure 6a: The Fit Between Household Income and Deprivation, 1983.

Logistic regression model chi square values (all significant at .001 level).

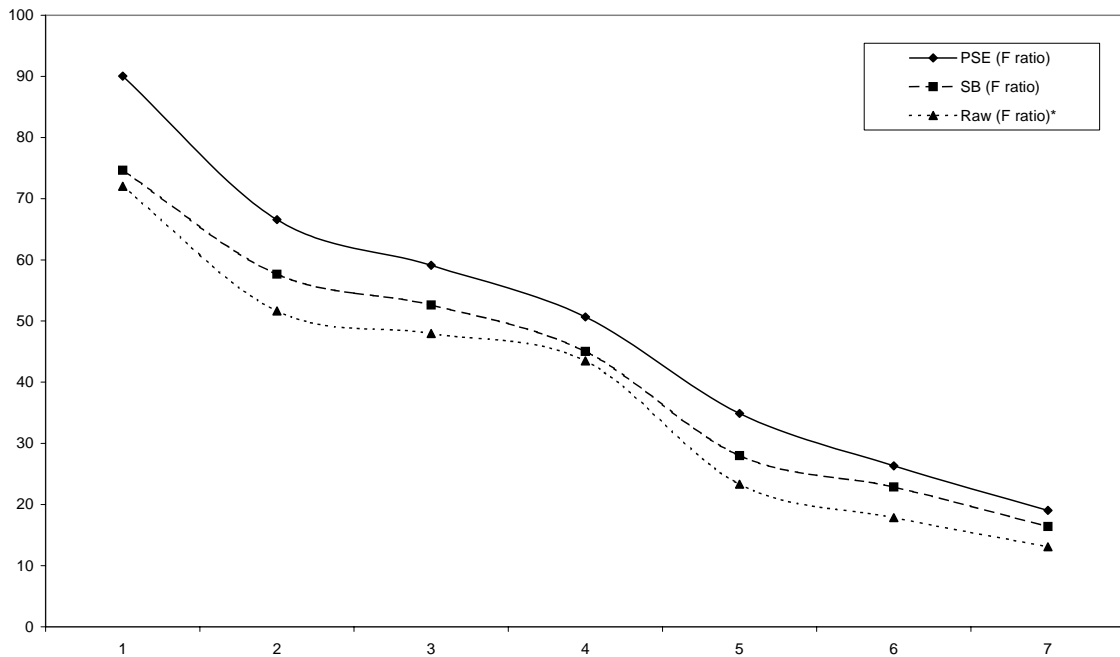


Source: LWT/MORI Living in Britain Survey, 1983 (weighted data)

However, to some extent these results may be method-dependent, not least because the statistical power of logistic regression is limited in comparison with some other statistical techniques such as analysis of variance. Figure 6b (*below*) therefore adopts a similar approach to model the relationship between income and deprivation based upon analysis of variance by plotting F-statistics for various threshold values of deprivation. Whilst there are some slight variations depending on the method of analysis (and the type of equilisation used, if any), in general these data again suggest that it is difficult to discern an unambiguous deprivation threshold.

Figure 6b: The Fit Between Household Income and Deprivation.

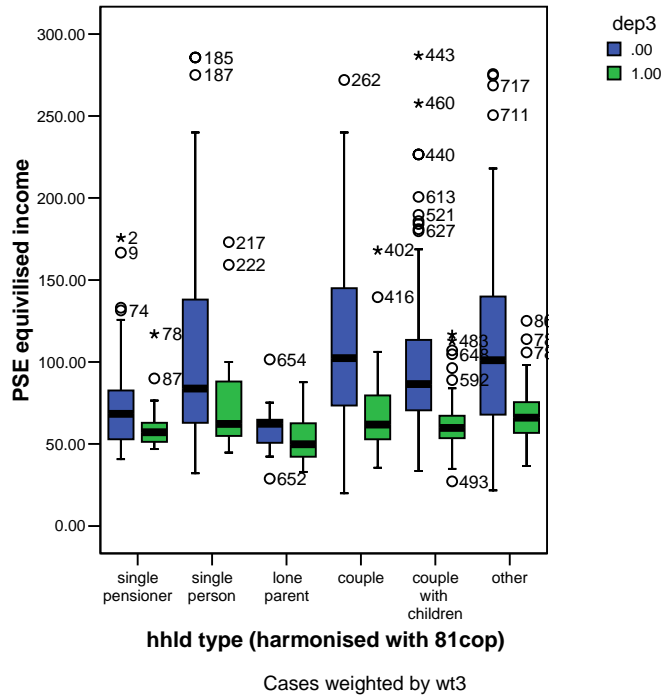
Univariate ANOVA Main Effects models, F ratios (all significant at .001 level).



Source: LWT/MORI Living in Britain Survey, 1983 (weighted data)

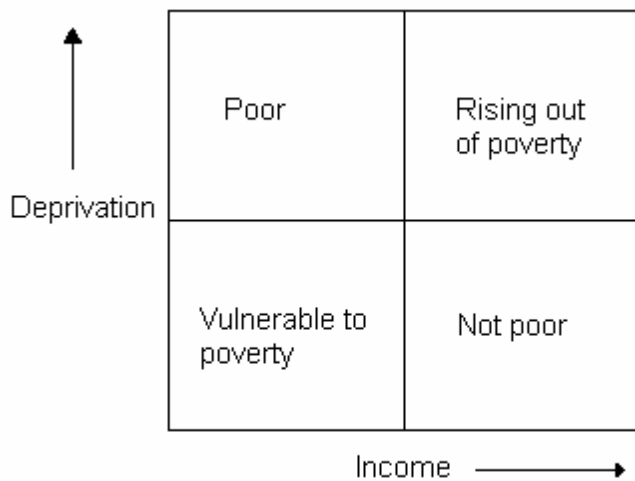
Setting the poverty threshold is best achieved on the basis of analysis of the relationship between raw income and deprivation *by household type*. The distribution of income by deprivation status (poor/non-poor) and household type (based upon 1981 Census categories) is shown in Figure 7 (*below*) at the 3+ deprivation threshold (*ie.* where lacking three or more deprivation items is taken as the poverty threshold). Conceptually, households may be considered to be rising out of poverty if they are deprivation poor but have incomes that are atypically high for poor households. (These are shown in box plot columns labelled 'dep3=0'). Households may be considered to be vulnerable to poverty if they are not deprivation poor but have incomes which are atypically low for non-poor households. (These are shown in box plot columns labelled 'dep3=0').

Figure 7: Boxplots of Raw Household Income by Deprivation Status and Household Type, 1983.



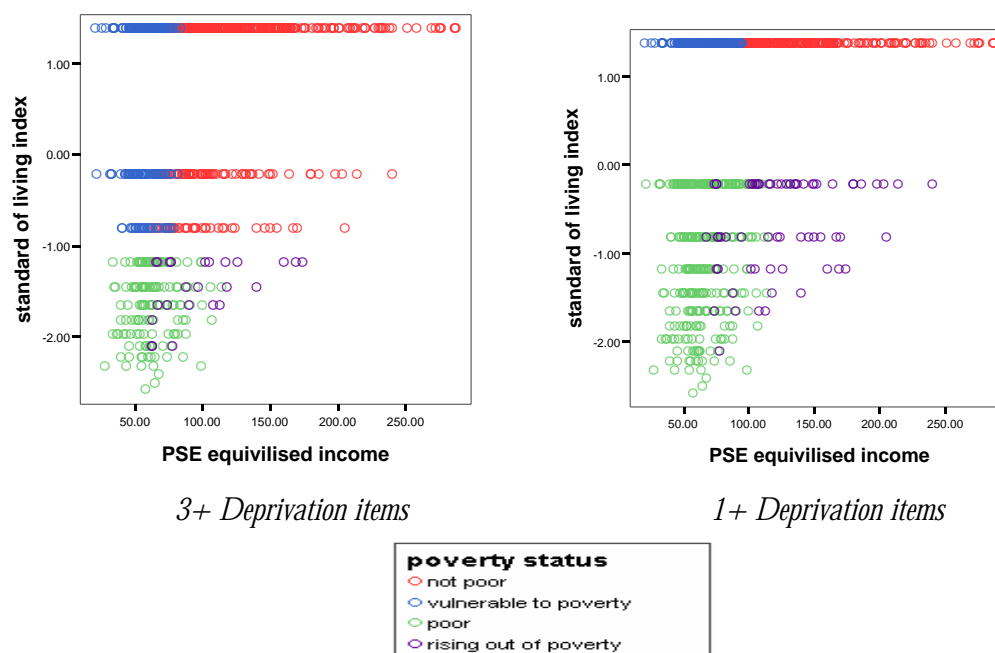
Source: LWT/MORI Living in Britain Survey, 1983 (weighted data)

Ideally we would expect to find a clear separation between these different groups when we plot household score by deprivation score and equivalised income. In theory, we would expect 'poor' households to have low incomes and high deprivation scores, and that those 'vulnerable to poverty' would have relatively low deprivation scores but also low incomes. Conversely, we should also expect that 'not poor' households would have low deprivation scores and relatively high incomes and that those 'rising out of poverty' would have relatively high deprivation scores but also high incomes. This is illustrated conceptually below:



This pattern of results is broadly replicated by the empirical data presented in Figure 8 (*below*) both with respect to the 3+ and 1+ deprivation thresholds. These scatterplots examine the relationship between levels of observed household deprivation and net weekly equivalised household income for each of the four groups identified above. These data show that there is a high degree of separation between groups and that these data conform quite closely to the theoretical model described above.

Figure 8: The Relationship Between Standard of Living and Household Income by Poverty Status, 1983.



NB) Standard of living = $\ln(1/\text{depindex} + 0.25)$.
 Source: LWT/MORI Living in Britain Survey, 1983 (weighted data)

Finally, it is useful to examine the validity of these two different operationalisations of poverty against external validators such as perceived income adequacy, subjective poverty and long-term illness as defined above (see Section 2.2). Table 5 (*below*) examines the relationship between poverty based upon the 1+ and 3+ deprivation thresholds and these external validators using logistic regression. These results suggest that in terms of strength of effect (as measured by the odds ratio statistic, $\exp(B)$), the 3+ threshold performs better in that poverty measured in this way is more strongly associated with variations in income adequacy, subjective poverty and long-term illness. This is unsurprising since (and if the items are additive) the 3+ threshold measures relatively more intense deprivation. However, in terms of model fit, that is the coverage of the model, results are more mixed and the 1+ threshold performs better with respect to income adequacy and subjective poverty, though not with regard to long-term illness.

Table5: Deprivation Thresholds – External Validation, 1983.

		Exp(B)	Model Chi Sq.	Quasi R sq.
Income adequacy	1+ items	5.08	87.6	0.150
	3+items	6.34	77.1	0.133
Subjective poverty	1+ items	11.94	147.2	0.274
	3+items	12.89	131.8	0.247
Long-term illness	1+ items	1.51	6.25	0.011
	3+items	1.75	7.02	0.012

Source: LWT/MORI Living in Britain Survey, 1983 (weighted data)

In summary, we might conclude that, based upon the data analysed here, it is not possible to definitively choose between these two different poverty thresholds on the solely on the basis of scientific criteria. This almost certainly reflects inadequacies in the reconstructed weights generated through generalised calibration. Conceptually, however, we might argue that since poverty is assumed to have multiple impacts on a household's style of living poverty must be a more pervasive upon living standards than could be encompassed by the enforced privation of a single index item.

This is certainly the approach taken by Mack and Lansley (1983) in their original analysis of the LWT/MORI data. Based upon their relationship with household income and expenditure Mack and Lansley (1983) identify the lack of *three or more* necessities as that level of deprivation at which deprivation is overwhelmingly enforced. Based upon a sub-set of 18 deprivation indicators these authors go on to estimate that 7.5 million people were living in poverty in Britain in 1983, equating to an overall poverty rate of 13.8% (Mack & Lansley, 1983: 182).

Based upon the 3+ deprivation threshold discussed above, and in comparison with the earlier analyses of the Townsend survey data (see Working Paper 1), the proportion of households in 1983 who were poor, vulnerable to poverty, or rising out of poverty is given below:

Poverty Rates:	1968-69	1983
Not poor	52.7%	58.8%
Vulnerable to poverty	17.6%	24.7%
Poor	24.9%	14.1%
Rising out of poverty	4.9%	2.4%
Core Poverty Rates:	17.7%	9.8%

Source: LWT/MORI Living in Britain Survey, 1983
(Data weighted by household type, age, and tenure – see above)

4. Core Poverty

The concept of 'core poverty' is also used here to describe those households that are simultaneously income poor, deprivation poor and subjectively poor. The analyses outlined here use the following definitions of these terms:

Income Poverty Equivalised net weekly household income less than 70% of equivalised net weekly household income of all sampled households

Deprivation Poor Following Whelan et al. (2001) deprivation is operationalised here by the Basic Deprivation Index in which a household is said to be poor if they respond positively to any of the following statements:

- ❑ In arrears on rent/mortgage, utilities and HP
- ❑ Buy new not second hand clothes
- ❑ Cannot afford meat, chicken or fish every second day
- ❑ Cannot afford to keep home adequately warm
- ❑ Cannot afford to carpets in living areas*
- ❑ Cannot afford a week's annual holiday away from home
- ❑ Cannot afford to have friends/family for a meal once a month

* NB: Whelan et al. use inability to afford to replace worn out furniture. This variable is not available in the 1983 LWT/MORI survey.

Subjectively Poor The respondent was asked the following question about their household circumstances: "Do you think you could genuinely say you are poor now?" (Question 23). Respondents who answered positively (*ie.* 'all the time' or 'sometimes') are considered to be subjectively poor.

Households are defined as 'core poor' if their equivalised household income is less than 70% of the median *and* they are deprivation poor (according to the Basic Deprivation measure) *and* they consider their household to be poor 'sometimes' or 'all the time'. Based upon this definition, about one household in ten (9.8%) was 'core poor' in 1983 as shown in Section 3 (*above*).

5. Modelling Poverty in the 1981 Census

Table 6 (*below*) shows the distribution of poverty and of core poverty at the household level by household type using the 1981 Census harmonised household typology applied to the 1983 LWT/MORI survey data. These data show that both poverty and 'core poverty' are especially concentrated amongst large families and lone parent families.

Table 6: Poverty and Core Poverty by Household Type, 1983.

	Poor	Core Poor
Single pensioner	10.9	10.2
Pensioner couple	3.3	1.6
Single person	21.8	10.3
Couple, no children	7.3	4.3
Couple, 1-2 children	14.7	9.3
Couple, 3+ children	27.5	24.4
Lone parent	34.8	41.7
Other	16.8	10.5
<i>ALL</i>	<i>14.1</i>	<i>9.8</i>

Source: LWT/MORI Living in Britain Survey, 1983 (weighted data)

Based upon the above approach it is therefore possible to build predictive models of poverty and core poverty using variables included in the 1981 Census of Population. Tables 7a and 7b (*below*) show the odds of poverty and core poverty respectively for a selection of variables included in both the 1983 LWT/MORI survey and the 1981 Census of Population Small Area Statistics based upon univariate binary logistic regression.

Table 7a: Odds of Poverty in 1983 – Univariate Odds Ratios.

	exp(B)	se	Wald	Sig.	%poor
Accommodation not self-contained	12.993	0.462	30.777	<.001	63.6
No exclusive use of bath or indoor toilet	11.195	0.454	28.25	<.001	63.6
Unemployed household	4.818	0.269	34.163	<.001	39.1
No access to a car	4.597	0.206	54.627	<.001	31.3
Lone parent household	3.354	0.449	7.27	<.01	34.8
Council/HA tenant	2.698	0.199	24.946	<.001	22.2
Household with 3+ dependent children	2.522	0.363	6.509	<.05	27.5
Single person household	1.764	0.295	3.703	ns	21.8
Private rental tenant/'other'	1.698	0.264	4.111	<.05	20.4
Lone pensioner household	0.719	0.276	1.431	ns	10.9

Source: LWT/MORI Living in Britain Survey, 1983 (weighted data)

Table 7b: Odds of Core Poverty in 1983 – Univariate Odds Ratios.

	exp(B)	se	Wald	Sig.	%poor
Lone parent household	7.286	0.439	20.483	<.001	41.7
Unemployed household	7.263	0.284	48.913	<.001	36.2
No access to a car	4.011	0.242	32.892	<.001	20.2
No exclusive use of bath or indoor toilet	3.52	0.5	6.338	<.01	27.3
Accommodation not self-contained	3.354	0.504	5.751	<.05	27.3
Household with 3+ dependent children	3.027	0.39	8.086	<.01	24.4
Council/HA tenant	2.96	0.235	21.393	<.001	16.1
Lone pensioner household	1.05	0.295	0.012	ns	10.2
Single person household	1.05	0.394	0.016	ns	10.3
Private rental tenant/'other'	0.487	0.444	2.63	ns	5.6

Source: LWT/MORI Living in Britain Survey, 1983
(Data weighted by household type, age, and tenure – see above)

The above data consider the relationship between poverty and its predictors separately for each of the variables considered here. However, it is clearly important to consider their effects simultaneously since many of these variables are themselves inter-correlated. This can be achieved using multivariate binary logistic regression analysis where variable selection is based upon backward stepwise selection using the likelihood ratio method. Significant model coefficients are then entered in one block in a further logistic regression model and the results of these analyses are presented in Tables 8a and 8b (*below*). The larger the coefficient (B) and associated odds (exp(B)), the larger the effect of the characteristic upon the odds of being poor. For example, households

lacking exclusive use of either an indoor WC or bath are nearly nine times (8.88 to 1) more likely to be poor compared with households who lack neither of these amenities.

Table 8a: Odds of Poverty in 1983 – Multivariate Odds Ratios.

	B	exp(B)	se	Wald	Sig.
No exclusive use of bath or indoor toilet	2.18	8.88	0.53	16.8	<.001
Accommodation not self-contained	1.83	6.26	0.53	12.2	<.001
No access to a car	0.90	2.47	0.24	14.7	<.001
Council/HA tenant	1.12	3.06	0.26	18.0	<.001
Private rental tenant/'other'	0.79	2.19	0.36	4.7	<.05
Unemployed household	1.15	3.15	0.31	13.5	<.001
Household with 3+ dependent children	0.99	2.69	0.41	5.8	<.001
Constant	-3.10	0.04	0.22	202.6	<.05
<i>Model Chi Sq. (df)</i>					128.7 (7)
<i>Nagelkerke R sq.</i>					.254
<i>% correctly classified: poor</i>					24.9
<i>% correctly classified: overall</i>					86.9

Source: LWT/MORI Living in Britain Survey, 1983
(Data weighted by household type, age, and tenure – see above)

Table 8b: Odds of Core Poverty in 1983 – Multivariate Odds Ratios.

	B	exp(B)	se	Wald	Sig.
No exclusive use of bath or indoor toilet	1.29	3.63	0.59	4.7	<.05
No access to a car	0.75	2.12	0.28	7.4	<.01
Council/HA tenant	0.90	2.45	0.28	10.0	<.01
Unemployed household	1.69	5.44	0.32	28.2	<.001
Lone parent household	1.71	5.55	0.50	11.8	<.001
Household with 3+ dependent children	1.05	2.86	0.45	5.5	<.05
Constant	-3.43	0.03	0.23	220.8	<.001
<i>Model Chi Sq. (df)</i>					94.4 (6)
<i>Nagelkerke R sq.</i>					.229
<i>% correctly classified: poor</i>					12.1
<i>% correctly classified: overall</i>					91.5

Source: LWT/MORI Living in Britain Survey, 1983
(Data weighted by household type, age, and tenure – see above)

The reflatd weightings derived from the logistic regression parameter coefficients presented in Table 8a (*above*) mean that for households living in Great Britain in 1983 (and weighted to the population distribution of the 1981 Census), the total number of households classified as living in poverty are:

'Poverty' weightings, 1983

34% of households lacking exclusive use of bath or indoor toilet +
28% of households sharing accommodation +
14% of households lacking access to a car +
17% of households living in council accommodation +
12% of households living in private rental or 'other' accommodation +
18% of unemployed households +
15% of households containing three or more dependent children.

Similarly, the reflatd weightings derived from the logistic regression parameter coefficients presented in Table 8b (*above*) mean that for households living in Great Britain in 1983 (and weighted to the population distribution of the 1981 Census), the total number of households classified as living in 'core poverty' is:

'Core Poverty' weightings, 1983

13% of households lacking exclusive use of bath or indoor toilet +
8% of households lacking access to a car +
9% of households living in council accommodation +
17% of unemployed households +
17% of lone parent households+
11% of households containing three or more dependent children.

Appendix 1

Title: MORI Living in Britain Poll, 1983 (SN1865).

Principal Investigators:

Worcester, R.M., MORI

Gosschalk, B., MORI

Data Collector:

MORI

Sponsor:

London Weekend Television. Breadline Britain Programme

Abstract:

A public opinion poll conducted amongst adults in Britain on behalf of London Weekend Television

Coverage:

Dates of Fieldwork: 15 February 1983 - 24 February 1983

Country: Great Britain

Spatial Units: No information recorded

Observation Units: Individuals; Families/households

Universe Sampled:

Location of Units of Observation: National

Population: Adults (over sixteen) in Great Britain

Methodology:

Time Dimensions: Repeated cross-sectional study

Sampling Procedures: Quota sample

based upon census enumeration districts stratified by region and was designed to over-sample poorer areas using ACORN neighbourhood types. The data were then weighted to adjust for the over-sampling of particular ACORN neighbourhood types

Number of Units: 1174 (obtained)

Method of Data Collection: Face-to-face interview