The IFS Households Below Average Income Data Set

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Foreword

The authors are grateful to the The Joseph Rowntree Foundation which has supported this project as part of its Programme of work on Income and Wealt They would like to thank statisticians at the Department of Social Security their encouragement and assistance and for their work in developing the "Households Below Average Income" series

The construction of the data set builds on databases and programs construct under core-funding by the ESRC as part of the work of the Centre for the Microeconomic Analysis of Fiscal Policy at IFS

Anonymised Family Expenditure Survey data was supplied by the Central Statistical Office and the ESRC Data Archive, but the responsibilty for the information contained within this data set lies entirely with the authors

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Table of Contents

1 The IFS Households Below Average Income Data Set

This data set provides detailed information on the incomes and characteristics of over 200,000 households based on Family Expenditure Survey data collected over thirty-one years between 1961 and 1991

The aim has been to provide the first ever consistent description of household incomes available over such a long period, enabling a comprehensive analysis of the trends in poverty, inequality and real living standards in the UK over the last three decades A detailed analysis of the results has been published in Goodman and Webb (1994a), and a summary of this in Goodman and Webb (1994b) The results contained within these two publications can be reproduced with the use of this data set, although there are some minor differences between the data set and the statistics presented in the publications These differences are outlined in Appendix 1

The definitions used follow as closely as possible those used by the Department of Social Security in its Households Below Average Income series, although the methodology used does differ in some small respects These are outlined in Appendix 2 Results are provided for every single year between 1961 to 1991 inclusive This fills in the gaps in the DSS series, which exists only for 1979, 1981, and for the period since the late 1980s, and sets it in the context of the previous two decades

The construction of the statistics arose out of a project carried out during 1993 and 1994 by Alissa Goodman and Steven Webb of the Institute for Fiscal Studies, which was funded by the Joseph Rowntree Foundation as part of its *Programme of Work on Income and Wealth* The work also built upon data bases and programs constructed under core funding from the Economic and Social Research Council as part of the work of the Centre for the Microeconomic Analysis of Fiscal Policy at IFS

2 The Data Source: The Family Expenditure Survey

The data is derived from information contained within Family Expenditure Surveys for every year between 1961 and 1991 inclusive The Family Expenditure Survey is an annual survey of private households in the UK, in which participants are asked detailed questions about their incomes and expenditures Participation in the survey is voluntary and the results are fully anonymised

The number of households surveyed has varied over the period in question Between 1961 and 1966 the FES obtained completed questionnaires from around 3,000 - 3,500 households each year From 1967 onwards the sample size was roughly doubled, and so a typical FES consists of information on around 7,000 households This represents a response rate of around 70% of those contacted For the two years 1964 and 1967 data is only available for the first two quarters of each year Thus results for 1964 are based on only around 1500 households and should be treated with considerable caution

The FES is intended to provide a broadly representative sample of the population of UK private households. The sampling frame excludes those not living in private households, such as prisoners, the homeless and those in residential care. However, as with any voluntary survey there is inevitably a problem of non-response, and there is reason to believe that those who refuse to participate may be different in certain important respects from those who do participate. Cheesborough (1993) contains some recent results on the characteristics of those who fail to respond to the FES. Unless dealt with, this "non-response bias" could mean that the results were not truly representative of the population as a whole. The problem of differential non-response is dealt with in two ways, by the use of grossing factors, and by the "SPI Adjustment". Both of these are explained fully below.

3 The Location and Structure of the Data

The data set is made up of 31 separate ASCII format files, one for each year between 1961 and 1991. Each one is named "IFS" followed by two digits indicating the year in question, followed by the suffix ".OUT". For example, the data for 1961 is contained in a file called "IFS61.OUT.

The data within each file contains one line for each benefit unit within each household. The total number of benefit units contained within each file is given in Appendix 6.

This data set uses *household* income to measure living standards. Each benefit unit is therefore attributed the income of the entire household of which it is a member. By contrast, the variables which define the characteristics of the benefit unit are based solely on the characteristics of the benefit unit in question.

The following 25 variables are given for each benefit unit, as outlined below. The section which follows gives a broad explanation of the derivation of these variables.

1. IFS Household Reference Number
2. IFS Benefit Unit Number
3. Household Before Housing Costs (BHC) Income

   For certain households this variable has been "SPI Adjusted"
4. Household After Housing Costs (AHC) Income

   For certain households this variable has been "SPI Adjusted"
5. Household Income from Self-Employment
6. Household Income from Private Pensions
7. Household Income from Investments
8. Household Income from Earnings
9. Household Income from Social Security Benefits
10. Household Other Income

11 Household BHC Deductions

12 Indicator of SPI Adjustment

"0" not SPI adjusted household
"1" SPI adjusted household

13 Benefit Unit Type

"0" Couple Pensioner
"1" Single Pensioner
"2" Couple with Children
"3" Couple no Children
"4" Single with Children
"5" Single no Children

14 Economic Status of Benefit Unit

"0" Single or Couple, at least one Full-time Self-Employed
"1" Single or Couple, all in Full-time Employment
"2" Couple, one in Full-time Employment, one in Part-time Work
"3" Couple, one in Full-time Employment, one Not Working
"4" One or more in Part-time Work
"5" Head or Spouse aged 60 or over
"6" Head or Spouse Unemployed
"7" Others

15 Household Tenure Type

"0" Tenure Not Recorded
"1" Local Authority Rented Unfurnished
"2" Housing Association
"3" Other Rented Unfurnished
"4" Rented Furnished
"5" Owned with Mortgage (incl Owned by Rental Purchase)
"6" Owned Outright
"7" Rent Free

16 Region

"0" Region Not Recorded
"1" Northern
"2" Yorks and Humberside
"3" North Western
"4" East Midlands
"5" West Midlands
"6" East Anglia
"7" Greater London
"8" South East (except Greater London)
"9" South Western
"10" Wales
"11" Scotland
"12" Northern Ireland

17 Age of Head of Benefit Unit

18. Number of Children in Benefit Unit

19. Household Equivalence Scale (BHC)

    Division of BHC incomes and incomes sources by this scale will give the equivalent weekly BHC income for a childless couple.

20. Household Equivalence Scale (AHC)

    Division of AHC incomes by this scale will give the equivalent weekly AHC income for a childless couple.

21. Benefit Unit Grossing Factor 1 (number of benefit units in overall population)

    Weighting the data by this variable will scale the number of observations up to the total number of benefit units in the UK.

22. Benefit Unit Grossing Factor 2 (number of people in overall population)

    Weighting the data by this variable will scale the number of observations up to the total number of individual people in the UK.

23. Benefit Unit Grossing Factor 3 (number of children in overall population)

    Weighting the data by this variable will scale the number of observations up to the total number of children in the UK.

24. Within Year Deflator (BHC)

    Multiplication of BHC incomes and incomes sources by this deflator will convert the incomes to January prices of the year in question.

25. Within Year Deflator (AHC)

    Multiplication of AHC incomes by this deflator will convert the incomes to January prices of the year in question.

4 The Construction of the IFS Households Below Average Income Data Set

4.1 Which Households Are Included?

Information is given on all but a few households surveyed in the FES. Certain households are rejected on the grounds that the information given on their incomes will be very unlikely to be a true reflection of their living standards.

Households which have been rejected fall into two categories:

(i) **The short-term self-employed**: Households containing any individuals who have been full time self-employed for one month or less.

(ii) **Temporarily separated couples**: Households containing any married or cohabiting person whose spouse is temporarily absent from the household.

Further to this, all households interviewed in the second quarter of 1991 have been rejected from this data set This is because these interviews took place during a time of considerable confusion over Community Charge bills, rendering all of the data relating to the payment of the Community Charge over this period unreliable

4.2 What Information is given about each Benefit Unit?

This data set provides information about total household incomes All the incomes data given have been accumulated over every member of each household In order to draw conclusions about the living standards of any particular member or group of members of a household, strong assumptions have to be made about how incomes within the household are shared In this data set, each separate benefit unit is attributed the total income of the household to which it belongs Implicit in this is the assumption that all benefit units draw equal benefit from household income in multiple benefit unit households Similarly, with use of the grossing factors it is possible to say, for example, how many individuals in the UK live in households whose income is below various fractions of the national mean In order to draw any conclusions about the living standards of these individuals, it must be assumed that they all benefit equally from household income

If it were the case, for example, that one benefit unit received all the income and denied other household members any benefit from it, then it would clearly be a mistake to measure each benefit unit's living standards on the basis of total household income In practice, such an extreme situation is unlikely to occur The principal alternative to measuring income over the whole household is to treat the living standards of different benefit units within the household as independent of one another This is the approach taken in the 'Low Income Families' series produced by the (then) DHSS during the 1970s and early 1980s, and since continued by IFS See, for example Social Security Committee (1993) This approach introduces the implicit assumption that no sharing between benefit units takes place at all Consider a household containing a couple with a school-age child and a grown-up child This household comprises two benefit units- a couple with a dependent child, and a single childless person It seems unlikely that the living standard of the grown-up youngster will be wholly independent of the incomes of his/her parents Indeed, analysis of FES data suggests that a number of such youngsters living in the parental home have no independent income at all In such cases, it is clear that they are sharing to some extent in the income of their parents

Information is given in this data set for each benefit unit of each household Many of the variables will be the same for every benefit unit in the household Such variables include the household reference number, the incomes and incomes sources, the equivalence scales, the deflators, and certain characteristics such as region and tenure type Other variables will differ between different benefit units within the same household These variables include the benefit unit number, grossing factors (which are determined on the basis of

detailed benefit unit types), the benefit unit type, the benefit unit economic status, the age of benefit unit head, and the number of children in the benefit unit.

IFS Household Reference Number

This is made up of six digits. The first two digits indicate the year the household was interviewed, the following four are the FES household reference number. An example of how the reference number for two different households has been constructed is set out below.

Table 4.2.1
The IFS Household Reference Number for two example households

Year	FES Household Reference Number	IFS Household Reference Number
1978	10	780010
1991	6435	916435

In order to merge other FES data into the data contained within this data set, the IFS Household Reference Number can be converted into the household reference number used by the CSO and the Department of Employment. Details of how this can be done are given in Appendix 3.

IFS Benefit Unit Number

Households are composed of separate benefit units. A benefit unit is defined as an adult or a married or cohabiting couple, together with any dependent children. On this basis, a household containing a couple with a school-age child, a grown-up child and a grandparent would contain three benefit units - a couple with one dependent child, a single childless person and a pensioner. Note that this benefit unit definition does not correspond to the FES income unit. This means that the benefit unit level data in this data set cannot be merged with the FES data on the basis of the FES income unit.

Each benefit unit is given its own benefit unit number within the household. The head of the household is always in benefit unit number 1. Each benefit unit is attributed the income of the entire household to which it belongs.

Household Income

The income measure used is one of *weekly, current, disposable, household* income. Income after tax is accumulated from all sources and across all individuals (including children) within the household, to arrive at Household Before Housing Costs (BHC) income. Gross housing costs are subtracted from BHC income to arrive at Household After Housing Costs (AHC) income.

The sources of household income have been grouped into six main categories

(i) **Earnings** this relates to income after tax and National Insurance Contributions derived from a main job and a second or subsidiary job, together with earnings from odd jobs, acting as a mail order agent or baby sitter etc Where the individual is on full pay, usual weekly pay is counted as earnings, where the individual is on part pay then the amount last paid is counted as earnings,

(ii) **Self-employment Income** covers net profits from one or more self-employment The self-employment accounts provided by households in the FES often cover a time period considerably before the interview date For the purposes of this data set, all self-employment incomes data are uprated by the average earnings index to the date of interview Appendix 5 gives the source for the indices used for this purpose Where losses are made, the contribution to total household income can be negative, although prior to 1977 no information was available in the FES about self-employment losses,

(iii) **Private Pensions** this includes income from occupational pensions and pensions from Trade Unions Note that income from personal pensions will appear under the investment income category,

(iv) **Investment Income** includes a range of sources of interest income (eg bank / building society accounts, government securities) as well as dividends, property income, and incomes from annuities and trusts,

(v) **Social Security Benefits** the whole range of social security benefits is covered, including all the National Insurance benefits (state retirement pension, unemployment and sickness benefits etc), the income-related benefits (Supplementary Benefit / Income Support, FIS / Family Credit, Rent Allowances and Rebates, local tax rebates etc) and all other benefits (notably Family Allowance / Child Benefit and benefits for the long term sick and disabled) Social Fund Loans are *not* counted as income, but repayments of Social Fund Loans are counted as negative income,

(vi) **Other** this residual category includes items such as maintenance payments and allowances from non-members of the household, benefits from friendly societies, children's incomes, and all other sources of income identified in the Family Expenditure Survey and not readily allocated to one of the above categories

Lump sum taxes paid by an individual are deducted from the largest income source of the individual who pays the tax If the lump sum tax is more than the amount of that particular income source, the balance is taken off the next largest source, and so on

Household income is net of local as well as direct taxes. It is not obvious from which source of income local taxes should be deducted to arrive at net income. For this reason, a separate category, called **BHC Deductions** is provided in the data. This category is always negative, since it is to be subtracted from total household income to arrive at the final BHC income figure. The category includes local taxes as well as a further deduction known as the "MIRAS Adjustment", which is explained under the description of gross housing costs below.

Local taxes are comprised either of domestic rates or the Community Charge. Both are counted gross of any benefits or rebates, since such benefits or rebates are included in social security income. On the grounds of maintaining anonymity, Community Charge payments in the FES have all been set to zero. The Community Charge payments contained within the local taxes component of this data set are all based on *average* Community Charge payments within a group of local authorities to which the household belongs. These were supplied to IFS by the CSO.

Summing all the sources of income and subtracting local taxes will give the total BHC income figure. There are two situations in which the component parts do not add up to the total. For the purposes of Households Below Average Income analysis, negative household BHC incomes are set to zero, but the sources of income are not correspondingly adjusted. Similarly, when the household contains very rich benefit units and has been "SPI Adjusted" (see section below and Appendix 5), the rich benefit unit's income has been imposed at the SPI mean. In Goodman and Webb (1994a) and (1994b) this problem was dealt with for the SPI Adjusted households by rescaling the incomes sources of these households so that they add up to the SPI adjusted total.

A figure is also given for After Housing Costs (AHC) income. This is simply BHC income (which includes housing-related benefits amongst social security income) less **housing costs** gross of any housing-related benefits. Gross housing costs are made up of the following components:

(i) **Rent**;

(ii) **Mortgage Interest**: the mortgage interest payment used is net of tax relief at source. A "MIRAS adjustment" is made for all those households who do not receive tax relief at source in order to make their incomes and housing costs consistent with those who do. In effect, the amount of the tax relief is added back onto these households' tax-bills, and subtracted from their mortgage interest payments. In the case of interest-principal mortgages, the capital component of the payment has been stripped out to leave only that part of the payment which is interest as a housing cost. Appendix 5 gives the source of the building society interest rates used to infer the amount of interest from the overall payment;

(iii) **Structural Insurance,**

(iv) **Ground Rent and Service Charges,**

(v) **Domestic Water Rates/Community Water Charge** Community Water Charge payments in the FES have all been set to zero As with the Community Charge payments, this data set uses the average payment for the group of local authorities in which the household lives, as supplied by the CSO,

Very rich households which have their incomes SPI adjusted also have their housing costs imposed upon them at the average level of housing costs of all the adjusted households (see below and Appendix 5)

For a discussion of the relative merits of using BHC or AHC income to measure living standards, see Johnson and Webb (1992) and Harris and Davis (1994)

The income and housing costs variables have all been derived from FES data using a complex set of algorithms, which take account of coding and definitional changes within the FES from year to year Further information on the derivation of the variables is available from IFS

The SPI Adjustment: The Incomes of the Rich

A correction is made for the non-response within the FES of the very rich Comparisons between the FES and the Inland Revenue's Survey of Personal Incomes (SPI), which is based on tax returns, indicates that reporting by the rich varies greatly between years This volatility presents a problem particularly for comparisons of the incomes of the poor with that of the mean or average income, since the mean will be highly sensitive to the incomes of the richest few households It is important that any results about changes in numbers of households below various fractions of mean income are not being distorted simply by fluctuations in the response rate of rich households

In order to correct for this an adjustment known as the "SPI Adjustment" is made to the incomes of very rich benefit units In essence, the SPI adjustment is intended to ensure that there are both the right *number* of rich benefit units and that they have the right average *income level* The approach taken is to consider the richest 200,000 benefit units in the country The Survey of Personal Incomes is consulted to discover first how much money is needed to be among the richest 200,000 in a particular year (the "cut-off point") and secondly, what is the mean income of this richest group

The next step is to take all the FES benefit units with income above this cut-off point and to weight them so that they represent exactly 200,000 benefit units In many years, without this adjustment there might otherwise be only the equivalent of around 150,000 benefit units above this cut-off The weights applied to all "non-rich" benefit units are also adjusted slightly so as to ensure that the estimate of the total population is still correct The

final stage is to *impose* on all the FES rich benefit units the mean income for "rich" benefit units derived from the SPI. Similarly, the mean housing costs of all the SPI adjusted households is imposed.

The process of "SPI Adjustment" raises the question, if the SPI is a better data source than the FES, then why not simply use the SPI for the whole study? The answer to this is that the SPI is a better source only for taxpayers, and in particular for the rich, since the data is based on tax returns. The FES covers all groups in the population including the unemployed, lone parents, pensioners and part-time workers who may pay little or no tax. If we are concerned with all parts of the income distribution and all sorts of households then the FES is the best single data source.

Appendix 5 sets out the detailed figures used for the adjustment in each year.

The Characteristics of the Benefit Unit

Six characteristics of the benefit unit are given:

(i) **Benefit Unit Type**: in this case each individual is classified according to whether the benefit unit of which he / she is a member is headed by a single or married/cohabiting person, whether there are dependent children in the benefit unit, and whether the head is under or over state pension age. Following DSS definitions, where there are two adults in a benefit unit, the head is taken to be the man. This classification produces six categories: pensioner couple, single pensioner, couple with children, couple without children, single with children and single without children;

There is a regrettable discontinuity in the data (and also in that used by the DSS in their published statistics) which mainly affects the "couple, no children" and "single, no children" categories. The Family Expenditure Survey only identifies those individuals who are cohabiting from 1990 onwards. Before then, the respondent had to choose between "single" and "married". Investigation of the data of earlier years suggests that in general cohabiting couples with children would describe themselves as married whilst childless cohabitees would describe themselves as single. Since we treat both married couples and cohabitees as "couples", this means that in 1990 there is a sudden apparent decline in the number of single childless people and a rise in the number of childless couples.

It would have been possible to have made some correction for this discontinuity by devising a rule to guess which childless individuals in the data were in fact cohabiting. We chose not to do this for two main reasons. First, analysis of the effects of implementing such a rule suggested that many of the main results would not have been

significantly altered [1] Secondly, this would have meant that we needed to obtain estimates for the total number of cohabitees in the UK in each of our years so that this could be added to the figure for legal marriages when "grossing up" our data Such estimates are themselves rather imprecise and would have added further uncertainty to our results Nonetheless, this discontinuity should be borne in mind when interpreting results by family type, principally as they affect the split between the two categories of childless people of working age

(ii) **Economic Status** eight different economic status classifications are used Any benefit unit containing an individual working full-time (ie 30 hours per week or more) self-employed falls into the first category Next comes a group of categories for those benefit units with no-one in full-time self-employment but with someone in full-time employment The first is either for couples where both are working full-time or for single people working full time The next is for couples where one partner works full time and the other part time Note that no distinction is made between employment and self-employment for part-time workers Finally come couples where one partner works full time and the other is not in paid employment

Having exhausted benefit units containing a full-time worker, next come those containing any part-time worker, followed by those containing someone aged sixty or over The final two categories are for those unemployed and seeking work, and a residual "other" category which includes groups such as lone parents not seeking work, the long term sick and disabled aged under sixty and students,

(iii) **Tenure Type** benefit units are grouped according to the tenure status of the household in which they live There are four tenure groupings which apply to those who live in rented properties, namely, Local Authority rents (unfurnished), Housing Association rents, other unfurnished rents, and furnished rents Home-owners fall into two categories, those who own their property with a mortgage, and those who own their property outright The final tenure grouping is for those who live in a property rent-free

Prior to 1980 there is no separate coding in the FES for Housing Association tenants Housing Association rents prior to 1980 are included amongst the other unfurnished rents category

(iv) **Region** in the FES the United Kingdom is divided into twelve "standard regions", listed in section 3 above Unfortunately, region codes were not available in the 1964 FES data

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1 For a summary of our results, see DSS(1993), Appendix 10

The annual Households Below Average Income (HBAI) publication by the DSS is silent on differences in incomes across the regions of the UK. The main reason for this is that the FES sample size for some of the "standard regions" of the UK is relatively small and so detailed regional figures are subject to large degrees of uncertainty.

Goodman and Webb (1994a) provided regional trends by grouping together the twelve standard regions into five broad region groups covering Great Britain only. Northern Ireland was dropped from the regional analysis altogether since not only is the sample size very small in some years, but also the response rate in Northern Ireland has dropped steadily over the 1970s and 1980s. Since the grossing factors correct for under-reporting by family type but not by region, this would introduce unacceptable biases into any results. See McGregor and McKee (1992) for information on response rates within the Northern Ireland FES. There is evidence to suggest that the response rate in Northern Ireland has improved in recent years.

Some of the sample sizes are still relatively small even when grouped into broad regional categories, and so it would be unwise to place too much emphasis on fluctuations from year to year in the incomes of particular regions.

(v) The age of the head of the benefit unit is provided.

(vi) The number of children in the benefit unit is provided.

Equivalence Scales: Adjusting for Household Size

In order to measure living standards it is not just total income which matters but income relative to needs in terms of numbers of people who that income has to support. One approach would be to look at income per head - in other words simply to divide total household income by the number of people in the household. The problem with this is that it assumes that the presence of an extra child in the household has the same effect on living standards as the presence of an extra adult. In practice it is likely that the costs of feeding and clothing a young child will be significantly less than those of maintaining an adult or even a teenager, and account should be taken of this.

The way in which this is done for purposes of "Households Below Average Income" analysis is by means of a so-called "equivalence scale". This is a scale which estimates the needs of a family of a particular type relative to some benchmark family. In this case the benchmark family is a childless couple, and the scale expresses the needs of other families relative to this sort of family. Table 4.2.2 shows the scales used in HBAI analysis and hence provided in this data set.

Table 4.2.2
McClements Equivalence Scales

Household Member	Income Before Housing Costs	Income After Housing Costs
First adult (head)	0 61	0 55
Spouse of head	0 39	0 45
Other second adult	0 46	0 45
Third adult	0 42	0 45
Subsequent adults	0 36	0 40
Each dependent aged		
0 - 1	0 09	0 07
2 - 4	0 18	0 18
5 - 7	0 21	0 21
8 - 10	0 23	0 23
11 - 12	0 25	0 26
13 - 15	0 27	0 28
16 or over	0 36	0 38

Source DSS (1993), p124

The "equivalence scale" for a particular household is obtained simply by adding up the scales applicable to each of the household members The BHC scale for the benchmark childless couple is therefore 1 0, that for a single person living alone is 0 61 and that for a couple with two children aged 11 and 4 is 1 43 One way of interpreting this is to say that a single person needs 61% of the income a childless couple to attain the same living standard, whilst the couple with two children needs 143% of the income of a childless couple Adding up all sources of income for all household members and then dividing through by the equivalence scale for that household gives one of the measures of living standards used in HBAI analysis

This scale and many others like it are derived by an examination of the spending patterns of households of different compositions This scale was derived by McClements (1977) and reflects quite well the relative amounts of money which families of different sorts receive through the means-tested benefit system A wide range of other scales is in existence and the relative weights accorded to adults and children and to children of different ages varies greatly This fact is of some concern since some of the results presented will be rather sensitive to the particular equivalence scale chosen For a recent evaluation of the McClements scale and other scales, see Banks and Johnson (1993)

In order to address this issue, the DSS's own Households Below Average Income publication presents some of its key results on the basis of a range of equivalence scales The general conclusion of this analysis is that

aggregate estimates, such as those for the number of individuals in households below half average income, are relatively insensitive to the choice of scale. However, results for the composition of particular groups (eg the sorts of families found in the poorest tenth of the population) can be strongly influenced by the particular scale chosen.

Within Year Deflators

In order to compare the living standards of households who have been interviewed during different months of the same year, the effects of inflation within the year have to be stripped out. If the effects of inflation were not stripped out, it would look as if households interviewed at the end of a year in which there had been inflation had higher living standards than households interviewed at an earlier part of the year.

Within year deflators are provided in the data to convert all the incomes and income sources to January prices of the year in question. Two deflators are provided, one which deflates BHC incomes and the other which deflates AHC incomes. The BHC deflator uses the all items RPI, less that part of it which measures changes in the "price" of local taxes (since local taxes are netted off BHC income). The AHC deflator uses what is known as the "Rossi" Index. This is the all items RPI less that part of it which accounts for changes in the price of housing.

Of course the use of these deflators only makes the household incomes comparable within years. To compare living standards between different years, the incomes must further be converted into the prices of a chosen month of a particular year. For example, Goodman and Webb (1994a and 1994b) present final results in January 1994 prices. The inflators which were used to convert the incomes data from the prices of January of each year to January 1994 are set out in Appendix 4.

Grossing Factors: Dealing with Non-Response in the FES

Results for the sample population can be "grossed up" to figures for the whole UK population. The FES is roughly a 1 in 3000 sample of UK private households from 1967 onwards. If there were no problem of non-response the results could simply be multiplied by 3000 to obtain estimates for the population as a whole. However, it is known that certain types of household (such as those containing the very elderly) are under-represented in the sample, whilst others (such as couples with children) are over-represented. As a result, different weights are applied to the results for different types of family. Such weights are known as **grossing factors**. A separate grossing factor is given for each benefit unit within each household, depending upon which of seventeen different benefit unit categories it belongs to. Benefit Unit type categories are determined by the age, sex, marital status and number of dependents in the family. A different set of weights has to be used

each year since the pattern of under- and over-reporting varies from year to year Details of how the grossing factors have been constructed are given in Appendix 5

Three different grossing factors are provided in the data Weighting the data by Benefit Unit Grossing Factor 1 enables the results to be presented in terms of the total number of Benefit Units in the population Weighting the data by Benefit Unit Grossing Factor 2 allows results to be presented in terms of the total number of individuals in the population Benefit Unit Grossing Factor Number 3 weights the data to represent the total number of children in the population

4.3 A health warning

An inevitable consequence of using survey data over a long period of years is that there will be problems of consistency and comparability of results over time, for example because of changes in the questions respondents are asked or changes in the way their answers have been classified Whilst it will always be the case that certain inconsistencies remain, every effort has been made to make sure that all the results are on as consistent a basis as possible

Occasionally the FES contains information about certain households which is highly implausible Many of these households have been spotted, and where possible the data has been corrected In other cases where the data has been impossible to correct, the household has been left out of the analysis altogether It is likely that there are still some households within the data set which contain uncorrected but implausible outliers While the SPI adjustment takes care of any implausibly high income results, there is no similar process to deal with implausibly high housing costs As a result, there may be a few households remaining whose housing costs information is unreliable

5 Reproducing HBAI-style results

There are several steps which need to be taken before the results set out in Goodman and Webb (1994a) and (1994b) can be reproduced Apart from the correction of two minor errors (see Appendix 1), this data set will reproduce exactly the results which appeared in the two publications

(i) **Equivalise**

Divide Household BHC Income, and all incomes sources by the BHC Equivalence Scale,
Divide Household AHC Income by the AHC Equivalence Scale

(ii) **Deflate to January prices**

•Multiply Household BHC Income, and all incomes sources by the BHC deflator,
Multiply Household AHC Income by the AHC deflator

(iii) **Reflate to a common year's prices**

Put all the incomes data into the prices of a common year, for example using the inflators contained in Appendix 4.

(iv) **Re-scale the incomes sources of SPI adjusted households**:

Rescale the sources so that they add up to total Household BHC Income

(v) **Weight the Data**:

All the results are produced on the basis of data weighted to represent the total number of individuals in the population.

6 References

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Appendix 1: Differences between the IFS Households Below Average Income Data Set and Goodman and Webb (1994a) and 1994(b)

The data contained within this data set will not in all years reproduce exactly the statistics published in Goodman and Webb (1994a) and (1994b). This is because of two minor errors contained in the two publications which have since been spotted and corrected for.

The first error affects the results for the years 1961-1967. Income from part-time self-employment was inadvertently omitted from total household income in producing the results for the two publications. The result is that the income figures for 1961-1967 in the two publications are lower than they should be. Table A1 shows the overall population mean BHC and AHC incomes (weighted to represent the mean over all individuals) as derivable from this data set as compared to that which would be derived from the data used to compile Goodman and Webb (1994a) and (1994b).

Table A1
Mean BHC and AHC Weekly Household Equivalised Incomes (January 1994 Prices), 1961-1967

Year	IFS HBAI Data Set	Goodman and Webb (1994)	IFS HBAI Data Set	Goodman and Webb (1994)
	Mean BHC Income	Mean BHC Income	Mean AHC Income	Mean AHC Income
1961	140.70	139.95	127.56	126.84
1962	137.39	136.64	123.52	122.81
1963	144.86	144.20	131.60	130.97
1964	145.46	145.01	131.65	131.23
1965	153.10	152.49	138.58	138.00
1966	157.02	156.17	142.21	141.39
1967	157.89	157.34	143.05	142.51

The second error which has been corrected involves mis-coding within the FES of income from concessionary coal and coke in 1987. The FES data supplied to IFS for both 1986 and 1987 contained coding for free coal and coke which had been erroneously scaled up by a factor of twenty. The miscoding in the 1986 data was spotted and corrected for prior to publication of Goodman and Webb (1994a) and (1994b), but the same mistake was not spotted in the 1987 data until after the publication of Goodman and Webb (1994a). The subsequent correction of the data makes a negligible difference to any of the summary results.

Further to this, the results on income shares contained in Figure 4.2 in Goodman and Webb (1994a) can only be reproduced using unweighted data.

At the time of publication of Goodman and Webb (1994a), no information on standard regions in the 1966 FES was available This information has since been recovered and is contained within this data set

Appendix 2: Differences between IFS and the DSS in producing Households Below Average Income statistics

The methodology used to construct this data set is very similar to that used by the DSS in its own Households Below Average Income series. There are a few minor differences however.

The Grossing Factors contained within this data set are derived from UK population totals and apply to all benefit units in the FES across Great Britain and Northern Ireland. The DSS produces separate Grossing Factors for Great Britain and for Northern Ireland, based on separate population totals for the two.

There are certain circumstances where the definition of a child differs between IFS and the DSS and also certain small differences in the income definition used. In general however, the results produced by this dataset for years also covered by the official HBAI series should be broadly the same. Furthermore, there should be no significant discontinuity between the last year of the IFS Households Below Average Income series (1991) and subsequent editions of the DSS series.

Appendix 3: Converting IFS Household Reference Number into CSO/DE Household Reference Number

The data in this data set can be merged with other FES data For this purpose, the IFS Household Reference Number can be easily converted into the CSO/Department of Employment Household Reference Number, which is often used to identify households in the FES from 1985 onwards

The first two digits of the CSO/DE reference number represent the number of years since 1980 Until 1989 the number of years since 1980 comprises only one digit and so is followed by a zero From 1990 onwards the number of years comprises of two digits and so no additional zero is used

The last four digits of the CSO/DE Household Reference Number are made up of the FES household reference number

In order to convert the IFS Reference number it is only the first two digits which have to be changed, as shown in Table A3

Table A3
The IFS Household Reference Number and Corresponding CSO/DE Household Reference Number

Year	IFS Household Reference Number	CSO/DE Household Reference Number
1985	85xxxx	50xxxx
1986	86xxxx	60xxxx
1987	87xxxx	70xxxx
1988	88xxxx	80xxxx
1989	89xxxx	90xxxx
1990	90xxxx	10xxxx
1991	91xxxx	11xxxx

Appendix 4: Converting the data into January 1994 prices

The results presented in Goodman and Webb are all in January 1994 prices. The following inflators were used to convert incomes in the January prices of each year into January 1994 prices.

Table A4
Inflators for converting BHC and AHC incomes from January prices of each year into January 1994 prices

Year	Inflator for BHC Incomes (RPI less local taxes, 1987=100)	Inflator for AHC Incomes (Rossi Index, 1987=100)
1961	13.1	13.5
1962	13.7	14.1
1963	14.0	14.4
1964	14.3	14.7
1965	14.9	15.3
1966	15.5	15.9
1967	16.1	16.5
1968	16.5	16.8
1969	17.6	17.9
1970	18.4	18.8
1971	20.0	20.4
1972	21.6	22.1
1973	23.2	23.6
1974	26.0	26.5
1975	31.3	32.1
1976	38.4	39.6
1977	44.9	46.3
1978	49.3	51.1
1979	53.9	55.5
1980	63.8	65.2
1981	71.9	73.0
1982	80.0	80.5
1983	83.7	85.3
1984	87.8	89
1985	92.2	92.8
1986	97.3	97.0
1987	100.0	100.0
1988	103.1	103.2
1989	110.7	108.5
1990	119.1	114.6
1991	128.5	122.7
January 1994	141.9	139.3

Appendix 5: External Data used to compile the Data Set

Some of the data in this data set is constructed with the use of information external to the FES This Appendix outlines the main sources of external data used

The Survey of Personal Incomes : The SPI Adjustment

The SPI adjustment is conducted on the basis of data from the Survey of Personal Incomes (SPI) The SPI is used to determine the benefit unit income above which there are 200,000 benefit units in the population (the "SPI cut-off") The SPI is also used to determine mean income of those 200,000 benefit units This mean income is then imposed on the benefit units in the FES who have incomes above the cut-off The incomes of the other benefit units within the household are then added to the "rich" benefit unit's imposed income, to arrive at total Household BHC Income

The mean level of housing costs for all the SPI Adjusted households is deducted from the SPI Adjusted total Household BHC income to arrive at AHC income

All households with mortgages which do not attract tax relief at source have an adjustment made to their incomes and mortgage payments to make them consistent with the mortgagers who do receive tax relief on their mortgage interest at source Households whose incomes are SPI adjusted have their "MIRAS Adjustment" imposed on them at the level of the average MIRAS adjustment for all the SPI Adjusted households

Finally the Benefit Unit Grossing Factors of all benefit units are re-scaled, so that the SPI adjusted benefit units within the FES represent exactly 200,000 benefit units in the total population, and the remaining benefit units represent the total population minus the 200,000 rich benefit units

Table A5 shows all the parameters which have been used to conduct the SPI adjustment Note that the grossing factors contained within this data set have been re-scaled by division by the factors shown in Table A5

Table A5
Data Used For SPI Adjustment

Year	SPI Cut-off[a]	Imposed SPI Benefit Unit Income[a]	Imposed MIRAS Adjust-ment[b]	Imposed Housing Costs[b]	Re-scaling factor (rich)[b]	Re-scaling factor (non-rich)[b]
1961	2521.15	3277.20	0.217	1.156	0.7580	1.001941
1962	2732.95	3552.93	0.236	1.167	1.4929	0.998074
1963	3051.07	3965.89	0.176	0.894	0.8772	1.000957
1964	3197.02	4155.83	0.229	3.171	0.6201	1.002954
1965	3375.84	4388.79	0.394	1.631	0.5155	1.003775
1966	3439.99	4471.98	0.478	1.182	0.6026	1.003081
1967	3597.11	4675.36	0.538	1.805	0.7680	1.001786
1968	3636.60	4727.58	0.725	3.012	0.6819	1.002457
1969	3906.44	5078.57	1.414	3.404	0.9074	1.000712
1970	4095.42	5251.34	1.483	3.273	0.8736	1.000975
1971	4537.15	5948.42	1.797	4.012	1.1196	0.999067
1972	4952.04	6630.31	2.204	4.747	0.9024	1.000759
1973	5650.43	7780.92	2.054	5.733	1.0062	0.999952
1974	5848.67	7827.55	2.994	7.643	1.3061	0.997622
1975	6127.20	7956.85	2.845	6.759	1.5009	0.996128
1976	7330.50	9321.50	3.651	10.931	1.2442	0.998123
1977	8577.52	10942.14	4.871	11.877	1.1991	0.998509
1978	9973.54	12702.15	3.605	11.733	1.1528	0.998862
1979	12084.96	16527.96	8.314	22.505	0.7190	1.002076
1980	14421.30	19772.60	6.114	17.855	1.3876	0.997162
1981	16018.44	22002.3	7.243	27.258	1.4902	0.996489
1982	18439.68	25738.72	8.478	27.536	1.0279	0.999802
1983	19909.26	27892.20	3.344	28.213	1.1482	0.998960
1984	22797.03	31742.70	4.118	36.522	0.6915	1.002138
1985	25577.92	37221.60	7.079	53.478	0.8397	1.001097
1986	28591.10	41506.39	3.977	49.635	1.1002	0.999321
1987	31414.32	45755.64	4.022	58.978	1.1746	0.998828
1988	37620.00	63840.00	2.679	68.012	0.9595	1.000270
1989	43192.32	72460.80	4.084	108.664	0.7690	1.001526
1990	48046.08	80702.40	2.337	133.323	0.9036	1.000658
1991	51804.16	87014.80	0.950	87.139	0.7666	1.001600

a Source: Survey of Personal Incomes
b Source: IFS calculations based on FES and SPI data.

Population Totals : Grossing Factors

The Grossing Factors have been derived from the construction of population totals based on seventeen different family unit types. These are listed below.

1. Married, under pension age, without children
2. Married, under pension age, with one child
3. Married, under pension age, with two children
4. Married, under pension age, with three or more children
5. Married, over pension age, head aged 65-74

6 Married, over pension age, head aged 75+
7 Single males, under pension age, no children, aged 0-29
8 Single males, under pension age, no children, aged 30-54
9 Single males, under pension age, no children, aged 55-64
10 Single females, under pension age, no children, aged 0-19
11 Single females, under pension age, no children, aged 20-39
12 Single females, under pension age, no children, aged 40-59
13 Single males, under pension age, with children
14 Single females, under pension age, with children
15 Single males, over pension age
16 Single females, over pension age, aged 60-74
17 Single females, over pension age, aged 75+

The UK private household population in each year is divided up into these seventeen different benefit unit types, using census data, OPCS population estimates, and Child Benefit administrative data The population totals constructed are then compared to the number of each of these detailed benefit unit types occurring in each year's FES

Building Society Interest Rates and Basic Tax Rates : Net Mortgage Interest

Where possible, Net Mortgage Interest payments are inferred from the total mortgage payment of interest-principal mortgage-holders on the basis of how many years the mortgage has left to run, and the prevailing mortgage interest rate The mortgage interest rate used for this purpose is the Building Society Average Rate from 1980 onwards This is to be found in the CSO's Financial Statistics, series AJNN Before 1980, this series is unavailable and the Building Society New Mortgage Rate is used This data was obtained from the Council of Mortgage Lenders

The amount of tax relief received on the interest payment is inferred from the total interest payment on the basis of the prevailing basic rate of income tax

Average Earnings Indices : Uprating the accounts of the Self-Employed

The series for the uprating of the accounts of the self-employed to the date of interview is the unadjusted, all industries, monthly average earnings index This was obtained from various issues of the Annual Abstract of Statistics

Appendix 6: The Number of Observations in each file

Table A6 shows the number of observations (benefit units) appearing in each file, and the number of benefit units, individuals, and children in the total UK private household population which this represents.

Table A6
Number of Observations and Population Totals in Each File

Year	Number of Observations	Total Benefit Units in UK Population	Total Individuals in UK Population	Total Children in UK Population
1961	4837	25,161,781	50,364,147	12,219,853
1962	5063	25,652,012	50,936,446	12,149,184
1963	4800	25,858,179	51,585,411	12,496,442
1964	2473	25,952,919	51,829,410	12,526,491
1965	4505	25,913,185	51,896,461	12,618,373
1966	4558	26,032,741	52,697,802	13,168,673
1967	4606	26,197,171	53,085,346	13,213,763
1968	9747	26,104,351	53,142,534	13,328,774
1969	9329	26,205,102	53,507,405	13,536,964
1970	8404	26,130,985	53,647,949	13,694,964
1971	9511	25,825,708	53,157,010	13,596,236
1972	9102	25,911,118	53,464,267	13,718,531
1973	9122	26,011,374	53,603,532	13,732,829
1974	8516	25,919,239	53,432,152	13,675,131
1975	9202	26,044,047	53,415,497	13,573,626
1976	9204	26,189,000	53,316,409	13,373,387
1977	9186	26,888,868	54,442,593	13,648,556
1978	8921	27,034,620	54,443,937	13,555,024
1979	8618	27,281,589	54,522,343	13,386,810
1980	8834	27,473,592	54,356,126	13,145,328
1981	9772	28,082,536	54,872,650	13,101,753
1982	9567	28,373,710	54,899,588	12,905,269
1983	8942	28,699,527	54,707,930	12,490,044
1984	9132	29,062,907	54,960,158	12,379,534
1985	8991	29,419,300	55,172,223	12,312,480
1986	9131	29,718,123	55,122,892	12,072,029
1987	9391	29,988,586	55,328,246	12,043,307
1988	9238	30,258,425	55,392,816	11,875,294
1989	9361	30,487,310	55,700,620	11,976,947
1990	8614	29,506,010	55,959,139	12,080,881
1991	6468	29,375,194	55,851,705	12,014,745

Archive Notes

Study No: 3300

Please note the following correction

Appendix 6

Year	Number of Observations	Total Benefits Units in UK Population	Total Individuals in UK Population	Total Children In UK Population
1966	4573	26,120,910	52,837,818	13,178,825

Appendix 7: The Layout of the Data

This Appendix sets out the layout of the data, by specifying the number of columns taken up by each variable and the number of decimal places provided The number of observations in each file has been set out in the Appendix above

Each line contains 172 separate columns, in which the data is set out as in Table A7

Table A7
The Position of the Variables and Number of Decimal Places

Column Number	Variable Name	No of decimal places
1-9	IFS Household Reference Number	0
10-11	IFS Benefit Unit Number	0
12-20	Household Before Housing Costs Income	2
21-29	Household After Housing Costs Income	2
30-38	Household Income from Self-Employment	2
39-47	Household Income from Private Pensions	2
48-56	Household Income from Investments	2
57-65	Household Income from Earnings	2
66-74	Household Income from Social Security Benefits	2
75-83	Household Other Income	2
84-92	Household BHC Deductions	2
93-94	Indicator of SPI Adjustment	0
95-96	Benefit Unit Type	0
97-98	Economic Status of Benefit Unit	0
99-100	Household Tenure Type	0
101-104	Region	0
105-108	Age of Head of Benefit Unit	0
109-112	Number of Children in Benefit Unit	0
113-121	Household Equivalence Scale (BHC)	2
122-130	Household Equivalence Scale (AHC)	2
131-138	Benefit Unit Grossing Factor 1	0
139-146	Benefit Unit Grossing Factor 2	0
147-154	Benefit Unit Grossing Factor 3	0
155-163	Within Year Deflator (BHC)	4
164-172	Within Year Deflator (AHC)	4