

---

## **The housing and heating of low-income households**

Analysis for the Eaga Charitable Trust by  
Sandra Hutton

**Eaga Charitable Trust**  
**Report Number 1**

**The housing and heating of low-income  
households**

**Analysis for the Eaga Charitable Trust**

*Sandra Hutton*  
*Social Policy Research Unit*  
*The University of York*  
*Heslington*  
*York*  
*YO1 5DD*

*Tel: 01904 433608*  
*Fax: 01904 433618*  
*email: hdj1@unix.york.ac.uk*

**Published by Eaga Charitable Trust  
20 Blencathra Street  
Keswick  
Cumbria  
CA12 4HP**

First published 1997

ISBN 1 901616 00 2

Copyright © Social Policy Research Unit, The University of York  
All rights reserved. No part of this publication may be reproduced,  
stored in a retrieval system or transmitted, in any form or by any  
means, electronic, mechanical, photocopying, recording or otherwise,  
without the prior permission of the copyright owner.

Printed by Ferguson The Printers, The Printers Pie, 24 St. John  
Street, Keswick, Cumbria

## **Acknowledgements**

The analyses presented in this report were made possible by a grant from Eaga Charitable Trust. I am indebted to Maggie Davidson from the Building Research Establishment who undertook the computation for the tables on the 1986 and the 1991 English House Condition Survey. She also provided considerable advice on how the data could be used. Professor John Chesshire commented on a draft of the report. The views expressed and any errors remain the responsibility of the author.

## Contents

	Page
<b>List of tables and figures</b>	iv
<b>Summary and main results</b>	vi
<b>1. Introduction</b>	1
Data used	2
<i>Information from the EHCS</i>	2
<i>Information from the GHS</i>	3
<i>Definition of low income</i>	4
<b>2. Housing</b>	7
Changes between 1986 and 1991	7
Comparison of the housing conditions of low-income households and others	13
<b>3. Housing and heating</b>	18
Proportions of low-income households with 'satisfactory' housing and heating	23
Housing and heating for different types of households on means-tested benefits	29
<b>4. Insulation</b>	34
Insulation measures for those on means-tested benefits compared with other households, EHCS 1986	34
Insulation and tenure for those on means-tested benefits, EHCS 1986	34
<b>5. Housing, heating and insulation</b>	37
Levels of insulation for different housing and heating combinations for those on means-tested benefits, EHCS1986	37
Housing, heating, insulation and fitness for those on means-tested benefits, EHCS 1986	39
Housing, heating and insulation for different household types on means-tested benefits, EHCS 1986	40
<b>6. Discussion</b>	48
<b>References</b>	50

## List of tables and figures

	Page
Figure 1: Housing changes for households on means-tested benefits	viii
Figure 2: Heating changes for households on means-tested benefits	xi
Figure 3: Insulation measures - means-tested and other households, 1986 EHCS	xiv
Figure 4: Insulation and tenure - households on means-tested benefits, 1986 EHCS	xv
Figure 5: House condition and insulation - households on means-tested benefits, 1986 EHCS	xvii
Figure 6: Condition, insulation, heating, - households on means-tested benefits, 1986 EHCS	xviii
Table 1: Comparison of alternative definitions of low income	6
Table 2: Changes in size, type, age and condition of all dwellings between the 1986 and 1991 EHCS and the 1992-93 GHS	8
Table 3: Comparison of housing conditions in 1986 and 1991 for all dwellings by size, type and age of housing (row percentages)	9
Table 4: Housing for those on means-tested benefits and in the lowest fifth of the income distribution in 1986, 1991 and 1992-93	11
Table 5: Housing of low-income households using the alternative definition and compared with those on means-tested benefits	13
Table 6: The housing conditions of low-income and other households by size, type and age of household, EHCS 1986 (row percentages)	15
Table 7: Comparison of housing conditions between low-income and other households by size, type and age of household, EHCS 1991 (row percentages)	16
Table 8: Proportions with defective or unfit housing for those on low incomes in the 1986 and 1991 EHCS	18
Table 9: Type of heating for those on means-tested benefits and others, EHCS 1986 and GHS 1992-93	20
Table 10: For those on means-tested benefits: combinations of housing and heating arrangements, EHCS 1986	22
Table 11: For those on means-tested benefits: combinations of housing and heating arrangements, GHS 1992-93	23
Table 12: Proportions of those on means-tested benefits living in satisfactory and unsatisfactory combinations of heating and housing, EHCS 1986	25
Table 13: Percentages of those on means-tested benefits in 1992 living in 'satisfactory' and 'unsatisfactory' combinations of housing and heating and the likelihood of poor health, GHS 1992-93	27
Table 14: Combinations of housing, heating and whether unfit or not, EHCS 1986	29
Table 15a: Combinations of housing and heating for different household types on means-tested benefits, EHCS 1986	32

Table 15b:	Combinations of housing and heating for different household types on means-tested benefits, GHS 1992-93	33
Table 16a:	Comparison of insulation measures - hot water tank jacket, loft insulation and draught exclusion for different tenures and whether or not on means-tested benefits, EHCS 1986	35
Table 16b:	Comparison of insulation measures - double glazing, cavity wall insulation by tenure and whether or not on means-tested benefits . . .	36
Table 17:	Comparison of the levels of insulation in different housing and heating arrangements for those on means-tested benefits and all households, EHCS 1986	38
Table 18:	Proportions of different types of accommodation which are unfit and have combinations of unfitness and lack of insulation for those on means-tested benefits, EHCS 1986	40
Table 19:	Comparison of insulation measures for different household types on means-tested benefits, EHCS 1986	41
Table 20a:	Common housing heating arrangements and whether any draught proofing for different working-age adult household types on means-tested benefits, EHCS 1986	43
Table 20b:	Common housing heating arrangements and whether any draught proofing for different types of families with children on means-tested benefits, EHCS 1986	44
Table 20c:	Common housing heating and insulation for different types of pensioner households on means-tested benefits, EHCS 1986	45
Table 21:	With poor insulation and condition or not for different household types on means-tested benefits, EHCS 1986	46
Table 22:	With poor insulation and condition or not for different housing and heating arrangements for those on means-tested benefits, EHCS 1986	47

# **THE HOUSING AND HEATING OF LOW-INCOME HOUSEHOLDS**

## **Analysis for the Eaga Charitable Trust**

### **Summary and main results**

It is common to describe the housing and heating of low-income households in stereotypes of inadequacy, but they are a heterogeneous group. Some low-income households live in small modern homes with good insulation and sound heating systems. This paper presents background information on the housing and heating of low-income households using data from the English House Condition Surveys (EHCS) for 1986 and 1991 (Department of the Environment, 1993), supplemented by the General Household Survey (GHS) of 1992-93 (OPCS, 1994). We had hoped to present analyses of the heating and insulation data gathered in the 1991 EHCS, but no access to this data is allowed until the published report has been released. This should happen soon and we hope to prepare an update of our analyses. The main difference among low income households between 1986 and 1991 is likely to be in the heating and insulation of those living in local authority housing. Local authorities have spent a considerable amount of money in uprating the heating and insulation of their housing over this period. Otherwise housing and heating arrangements change relatively slowly for low income households.

The aim of the study was to show how many and which low-income households had satisfactory or unsatisfactory housing, heating and insulation.

### **Definitions of low income**

The intention was to investigate households with low incomes defined in two ways: firstly those in receipt of means-tested benefits, and secondly those in the lowest 20 per cent of the income distribution. In the major part of the report low-income households were defined as those on means-tested benefits, such as income support, housing benefit and family credit. These are the majority of households which qualify for insulation measures under the Home Energy Efficiency Scheme (HEES). Use of this definition of low income, and establishing which of these households have unsatisfactory insulation, suggest priorities for HEES work. Information on receipt of means-tested benefits is available in both the EHCS and the 1992-93 GHS.

Households in the lowest 20 per cent of the income distribution include households which do not qualify for means-tested benefits but may be little better-off than those that do. Information about households in the lowest 20 per cent of the income distribution is presented in some tables using the 1991 EHCS and the 1992-93 GHS. Because of missing income data this was not possible for the 1986 EHCS.

---

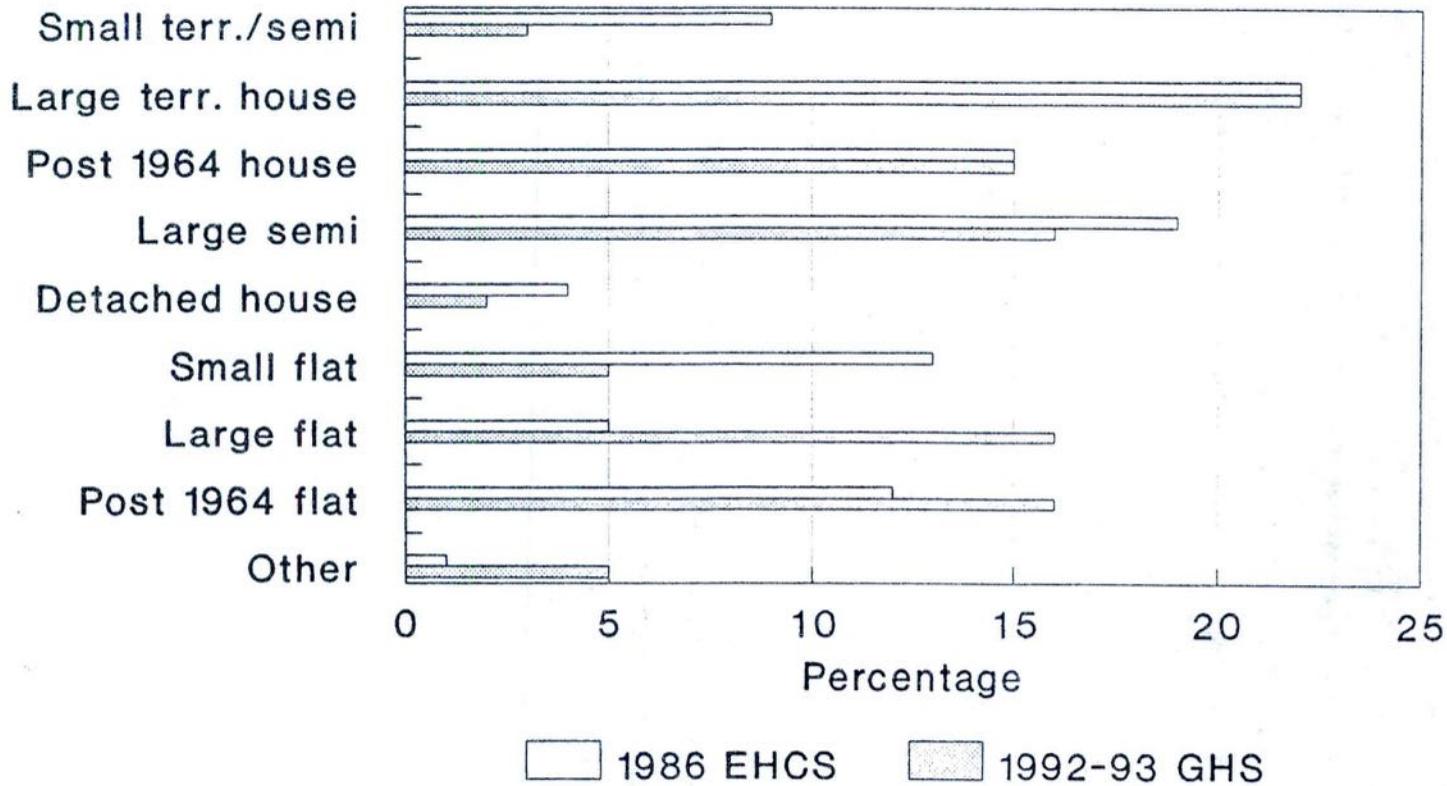
## Housing

The published report on the EHCS for 1991 (Department of the Environment, 1993) records that there have been significant changes in the housing stock between 1986 and 1991, and a change of particular note is that 1.3 million dwellings have changed tenure. This is a result of the Right to Buy initiative, reduction in the private rented sector, and reoccupation of vacant property. Over this interval there has been a considerable rise in the proportion of dwellings considered unfit partly because of changes in the stock and also a new fitness standard which was introduced in the 1989 Local Government and Housing Act. It includes some new requirements such as the exclusive use of a suitably located bath or shower and wash-hand basin with hot and cold water.

Figure 1 shows the types of housing occupied by households on means-tested benefits and how they have changed between 1986 and 1992-93. The main change has been a move from small flats (with four or fewer rooms) to larger flats [Table 4 in the main report].

**Figure 1: Housing changes**  
**For households on means-tested benefits**

**Type of housing**



Built before 1964 unless indicated

The housing of those on means-tested benefits in the 1986 EHCS, although only slightly less likely to be unfit than that of other higher income households, was considerably more likely to be defective (26 per cent were defective compared with 19 per cent for higher income households). In the 1991 EHCS, 12 per cent of low-income households lived in homes which were unfit, compared with 6 per cent of other households. The difference in the proportion with unfit or defective housing between low-income households and other higher income households was particularly noticeable in the 1986 EHCS for those living in detached houses built before 1964, and in 1991 for those living in large pre-1964 semi-detached homes. Otherwise, large terraced houses or flats built before 1964 in both the 1986 and the 1991 EHCS were the most likely to be unfit or defective, irrespective of whether those living there were on means-tested benefits or not [Tables 6 and 7 in the main report].

### **Housing and heating**

One of the main changes between 1986 and 1992-93 is the growth in the numbers of homes with central heating. The gap in the ownership of central heating between low-income households and others has closed, so that in 1986, 55 per cent of those on means-tested benefits had central heating compared with 75 per cent of other households. By 1992-93 these proportions had risen to 74 per cent and 87 per cent respectively. Low-income households were more likely to have electric central heating than others, 12 per cent compared with nine per cent in 1992-93. Those living in post-64 purpose-built flats were the most likely to have electric central heating (33 per cent), and were most likely to have some form of central heating. Among those on means-tested benefits without central heating, gas fires were the most common heating arrangement. Figure 2 shows the change in heating arrangements between 1986 and 1992-93 for households on means-tested benefits [Table 9 in the main report].

### **'Satisfactory' housing and heating**

Some of these combinations of accommodation and heating are more likely to provide a warm environment than others. Homes with gas central heating can generally be considered to be satisfactory from the point of view of providing a warm home at a reasonable cost. Work by a team of fuel experts chose whole-house gas central heating as the cheapest way to reach the standard of 'being warm at home' (Hutton and Wilkinson, 1992). Oil is not an

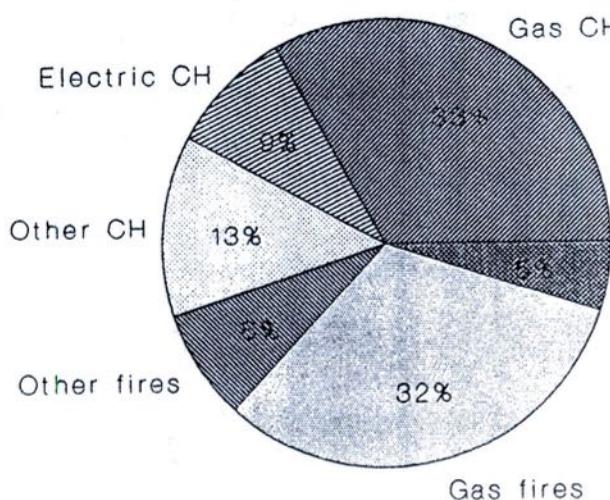
expensive fuel at present and so whole-house oil central heating could also be considered to be a satisfactory heating arrangement. Electric central heating can be cheap and efficient, depending on the system and size of the house or flat. The budget standard experts chose a modern electric heating system to meet the standard for a small modern purpose-built flat. Gas fires are less likely to be able to provide a satisfactory demand temperature throughout the accommodation, although they are not as expensive to run as electric or other fires. Generally, heating with electric or other fires is unlikely to be satisfactory, both from the point of view of expense and of maintaining a satisfactory temperature.

Combining the information on housing and heating shows the proportions of those on means-tested benefits living in combinations of housing and heating arrangements which can be considered to be satisfactory. In 1986, 44 per cent lived in homes where the combination of housing and heating were unlikely to be satisfactory, 33 per cent in homes and heating categories which were possibly satisfactory, and 23 per cent in homes likely to be satisfactory. By 1992-93, because of the growth in central heating, these figures had changed: 30 per cent were in satisfactory and 29 per cent were in unsatisfactory housing and heating arrangements, and 37 per cent in the intermediate category [Table 12 in the main report].

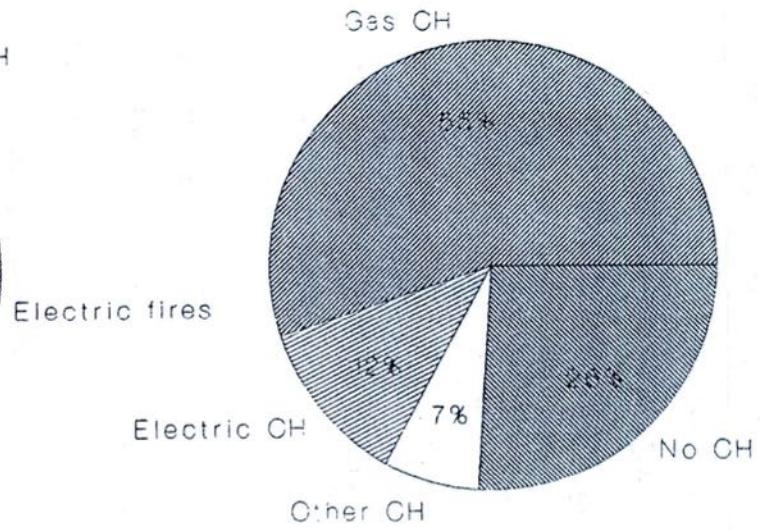
Single adult households, lone parents, and small families with dependent children were particularly likely to live in 'unsatisfactory' housing and heating arrangements.

A further aspect of these housing and heating arrangements is whether they are affordable or not. Having central heating installed in the home does not necessarily mean that it is used. However, in this analysis one of the aims was to find how far fuel poverty is a result of poor housing and heating. The policy measures to deal with a lack of income are different from those necessary to improve standards of housing and heating.

Figure 2: Heating changes  
For households on means-tested benefits



1986 EHCS



1992-93 GHS

A more precise indicator of satisfactory housing, including heating and fitness, was developed from information in the 1986 EHCS to show the proportions of households on means-tested benefits whose housing and heating arrangements were likely to be satisfactory, fit and with no defects. In 1986, 44 per cent of households on means-tested benefits lived in homes with central heating which were not unfit or defective. Of the remaining 56 per cent of households, 24 per cent, although in housing which was fit and with no defects, had no central heating. In this group, 13 per cent were heating detached, semi-detached or large semi-detached houses with gas fires. These households are unlikely to be warm enough. The housing of the remaining 32 per cent had no central heating and was unfit or defective [Table 14 in the main report].

### **Insulation**

Apart from being in a good state of repair, a further element in considering whether a combination of housing and heating is satisfactory is whether it is well insulated or not.

Information on insulation is only available from the 1986 EHCS. Households on means-tested benefits in 1986 were less likely to have a hot water tank jacket than other households (13 and four per cent respectively) although this is one of the most cost-effective energy efficiency measures. Households on means-tested benefits, however, were equally likely to have loft insulation, and more likely to have draught proofing. Not surprisingly, higher income households were more likely to have double glazing and cavity wall insulation. Figure 3 compares the insulation measures for households on means-tested benefits and other households.

Among those on means-tested benefits the presence of different insulation measures varied with tenure. Local authority and private tenants were half as likely to have a hot water tank jacket as owner-occupiers, but local authority tenants were most likely to have loft insulation and private tenants were least likely to have draught proofing. In general, households on means-tested benefits living in local authority accommodation did well for insulation measures. Although few had double glazing, owner-occupiers were more likely to do so than others, 29 per cent compared with less than ten per cent. Figure 4 shows how insulation varies with tenure for households on means-tested benefits [Tables 16a and 16b in the main report].

Among those on means-tested benefits in 1986, the following groups of households, lone parents, single working-age adult households, large families with dependent children and two pensioner households, were least likely to have a lagged hot water tank. Families with children have a high demand for hot water for bathing and laundry so a hot water tank jacket would be a particularly cost-effective measure for such households. Large families with dependent children were also among those least likely to have any loft insulation, although they are more likely than smaller households to live in housing with a loft. They are also more likely to want to make full use of all their accommodation so that the upstairs rooms need to be warmed as efficiently as possible. Lone parents were the least likely to have any draught excluders.

#### **Housing, heating and insulation**

Lack of insulation measures are associated with particular combinations of housing and heating. For example, 25 per cent of households on means-tested benefits living in small terraced houses or flats built before 1964 had no hot water tank jacket; 30 per cent of those living in large terraced houses built before 1964 with gas fires, and 30 per cent of those using electric or other fires for heating had no loft insulation.

**Figure 3: Insulation measures**  
Means-tested and other households, 1986 EHCS

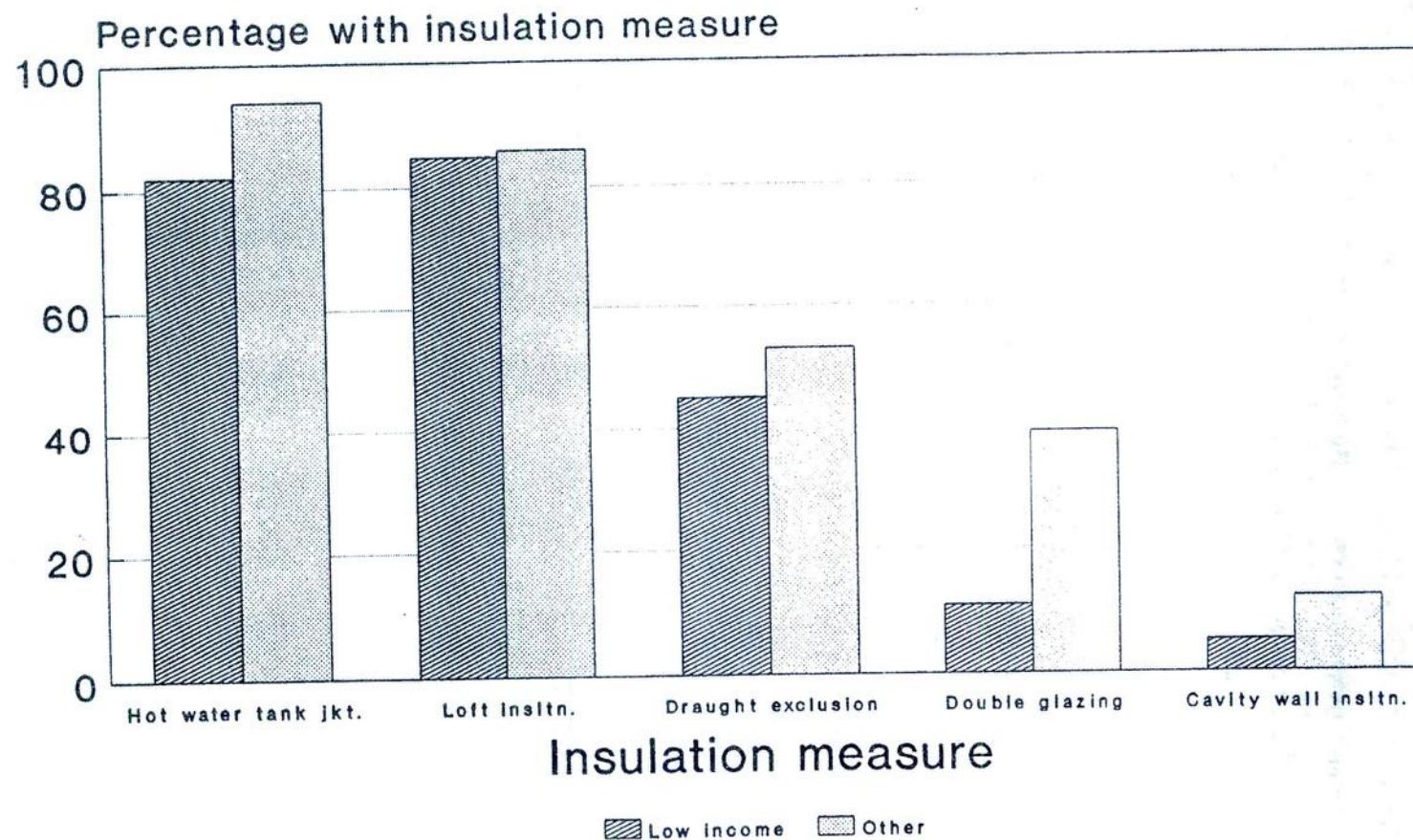
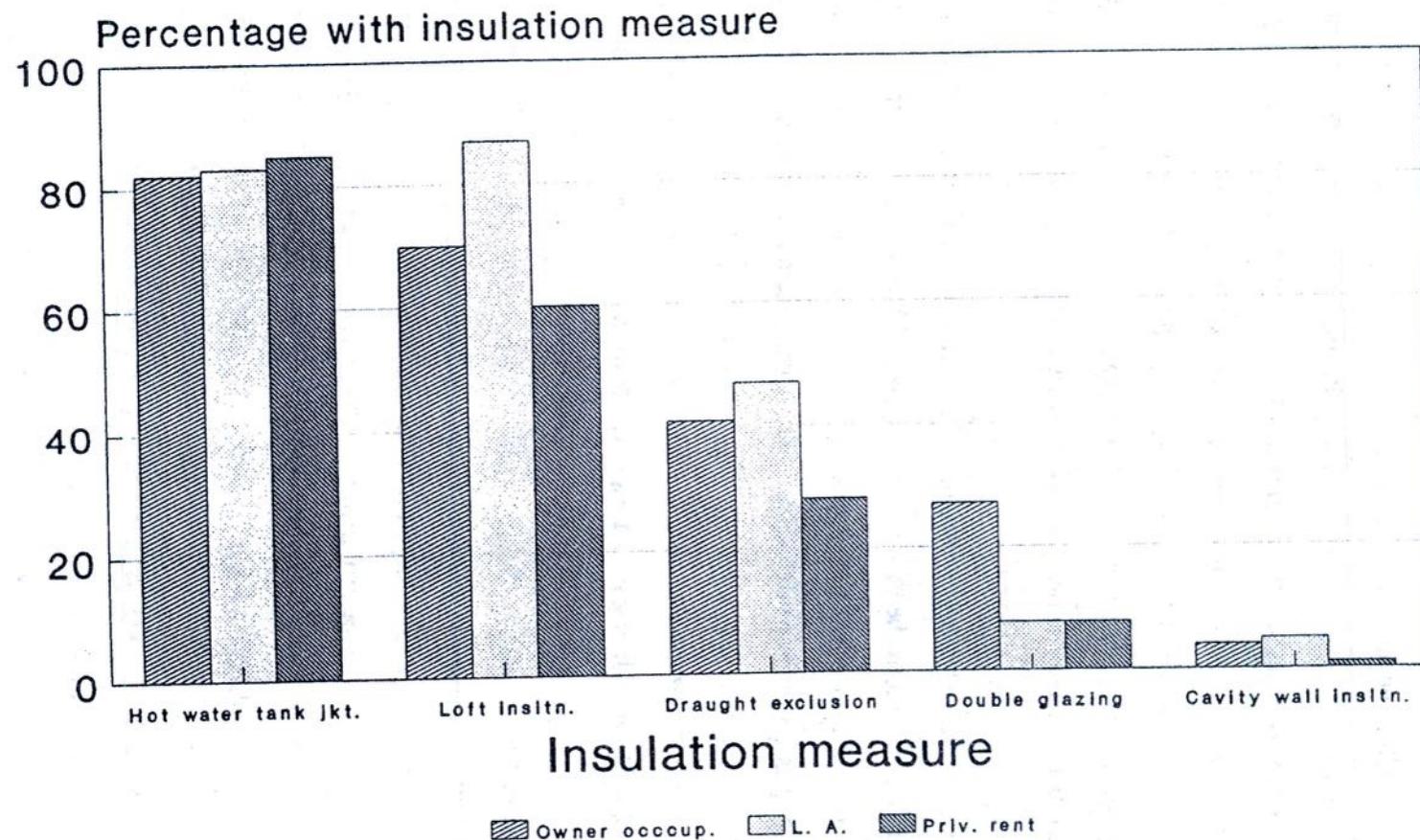


Figure 4: Insulation and tenure

Households on means-tested benefits, 1986 EHCS



Sixty-seven per cent of those in terraced houses or flats built before 1964 with oil or solid fuel central heating had no draught proofing. In contrast, only two per cent of those in new homes with gas central heating had no loft insulation; and only five per cent of those with electric central heating had no hot water tank jacket [Table 17 in the main report].

The homes of those on means-tested benefits which seemed most likely to be fit and with no defects, and to have a full range of the common insulation measures, were those built after 1964 with gas central heating and older homes with oil or solid fuel central heating. Twenty-seven per cent of households on means-tested benefits lived in such accommodation. In contrast, homes heated with electric or other fires were also most likely to be unfit or defective, and least likely to have any loft insulation or draught excluders. Twelve per cent of households on means-tested benefits lived in this type of housing and heating [Table 18 in the main report].

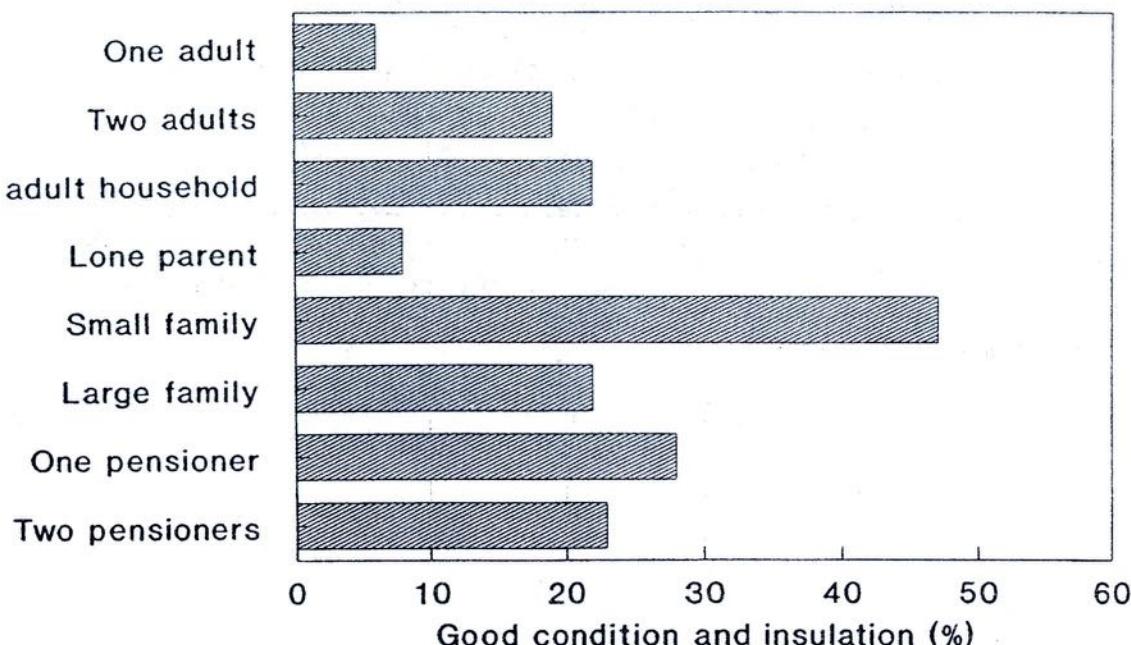
An indicator was created which combined the information on insulation and fitness as follows: dwellings were considered to be of poor insulation and fitness if they were unfit or defective with no insulation or only a hot water tank jacket; good insulation and condition referred to housing which was not unfit or defective, with loft insulation (or no loft), a hot water tank jacket (or no tank) and draught excluders. The remaining category referred to households with some but not all of the common insulation measures. Overall, five per cent of households on means-tested benefits were living in homes in the poor insulation and condition category, and 25 per cent were in the good insulation and condition category. Lone parents and single working-age adult households on means-tested benefits were least likely to live in homes in the good insulation and condition category, eight and six per cent respectively, whereas 47 per cent of small families with dependent children lived in this type of accommodation [Table 21 in the main report]. Figure 5 shows the proportion of different types of households on means-tested benefits living in homes in good condition with all the common insulation measures (hot water tank jacket, loft insulation, and draught exclusion). Figure 6 shows the proportions of different types of housing and heating arrangements, for those on means-tested benefits in 1986, which were also in good condition and had all the common insulation measures. Older semi-detached and detached houses with oil or solid fuel central heating were the most likely to be in good condition and well insulated, as were new (post-1964) homes with gas central heating, and, surprisingly, older terraced houses with gas fires. Homes heated with gas, or electric or other

fires were the least likely to be in good condition and have all the common insulation measures [Table 22 in the main report].

**Figure 5: House condition and insulation**

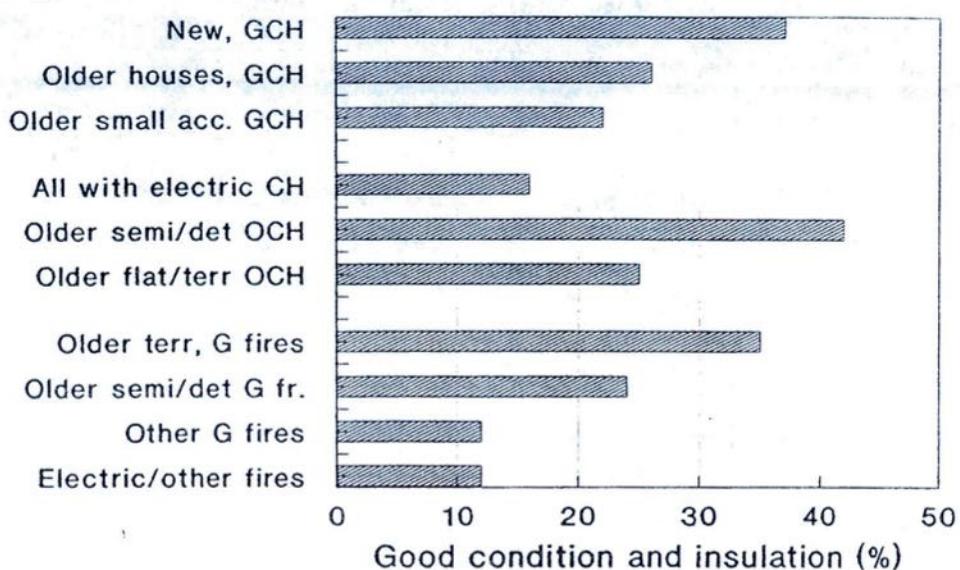
**Households on means-tested benefits, 1986 EHCS**

**Household type**



**Figure 6: Condition, insulation, heating**  
**Households on means-tested benefits, 1986 EHCS**

### Housing and heating



CH central heating; G gas; O other

## **Discussion**

In this analysis of the information on the housing and heating of low-income households from the 1986 and 1991 EHCS, and the 1992-93 GHS, we have shown that not all low-income households have inadequate or unsatisfactory housing and heating. Thirty per cent of those on means-tested benefits in 1992-93 lived in homes which were 'satisfactory', with central heating, likely to be fit and without defects. A further 29 per cent lived in 'unsatisfactory' accommodation with no central heating, and the remaining group lived in 'possibly satisfactory' accommodation. This latter category included dwellings with gas central heating but less likely to be in good condition, and dwellings with electric or other central heating.

Using the information on fitness and defects available in the 1986 EHCS, we estimated that 44 per cent of households on means-tested benefits lived in homes with central heating which were not unfit or defective. At a superficial level, if the central heating is efficient and appropriate for the dwelling and the dwelling is properly insulated (perhaps major qualifications), any fuel poverty experienced by these households is more related to income than to the housing and heating arrangements. Of the remaining 56 per cent, 24 per cent had no central heating, although the housing was not unfit or defective, and 32 per cent had unfit or defective housing.

When the housing, heating and insulation contributions to energy efficiency are considered together, it is clear that for some households, even those on means-tested benefits, all these aspects seem satisfactory. For example, 27 per cent of households on means-tested benefits lived in homes built after 1964 with gas central heating, or older homes with oil or solid fuel central heating, which were neither unfit nor defective and which had the full range of common insulation measures. Other households, however, lived in homes heated with electric or other fires (12 per cent of those on means-tested benefits) which were most likely to be unfit or defective and least likely to have any loft insulation or draught proofing. Such households would be the primary target for remedial insulation.

# **THE HOUSING AND HEATING OF LOW-INCOME HOUSEHOLDS**

## **Analysis for the Eaga Charitable Trust**

### **1. Introduction**

It is common to describe the housing and heating of low-income households in stereotypes of inadequacy but they are a heterogeneous group. Some low-income households live in small modern homes with good insulation and sound heating systems.

This paper presents background information on the housing and heating of low-income households using data from the English House Condition Surveys (EHCS) for 1986 and 1991 (Department of the Environment, 1993), supplemented by the General Household Survey (GHS) of 1992-93 (OPCS, 1994). We had hoped to present analyses of the heating and insulation data gathered in the 1991 EHCS, but no access to this data is allowed until the published report has been released. This should happen soon and we hope to prepare an update of our analyses. The main difference among low income households between 1986 and 1991 is likely to be in the heating and insulation of those living in local authority housing. Local authorities have spent a considerable amount of money in uprating the heating and insulation of their housing. Otherwise housing and heating arrangements change relatively slowly for low income households.

The aim of the study was to show how many and which low-income households had satisfactory or unsatisfactory housing, heating and insulation.

The first section describes the data and discusses the measure of low income used. Subsequent sections examine in turn the housing, heating, and the combined housing and heating arrangements of low-income households. The final sections set out the insulation measures in low-income households and shows how these combine with various housing and heating circumstances. The paper concludes with a brief discussion of how the findings can guide future work on the housing and heating of low-income households.

## **Data used**

### *Information from the EHCS*

The 1986 and 1991 EHCS are the most recent of the quinquennial surveys of housing in England undertaken by the Department of the Environment. The EHCS has a wealth of information on the housing and heating circumstances of households. It consists of four separate but related surveys, two of which are of interest to this study: first, the physical survey of dwellings; secondly, the interview survey of householders. A sample of approximately 30,000 dwellings was drawn for the physical survey, yielding information on 25,000 dwellings. The interview survey provided complete interviews with approximately 7,000 households. The published report compares the circumstances of those on low incomes with others but does little to disaggregate within the low-income group. In these analyses we will identify the distribution of low-income households over different housing and heating types, and describe the levels of insulation. For more detail on income, the EHCS and the GHS are linked by type of housing and heating, and receipt of benefits. Linked information from two surveys has proved valuable in earlier work (Hutton, 1992).

The current publicly available information from the EHCS on energy consumption and insulation is from the 1986 survey. The energy report for the 1991 EHCS will not be published until the autumn of 1996, and, until that report is published, no analyses can be undertaken for external users. Although it would be preferable to analyse the 1991 survey, the main categories of housing and heating are unlikely to have changed a great deal between 1986 and 1991, so analysis of this information is still valuable. It has proved possible to undertake analysis of the housing information on the 1991 data. This report will undertake detailed analysis of heating and insulation on the 1986 survey, and by matching the housing circumstances from 1986 to 1991, will be able to make some inferences about how heating arrangements have changed in the interval. It would be an interesting second phase, when the 1991 data becomes available, to update the analyses and show what change has in fact occurred. Part of the initial proposal was to analyse the fuel consumption data from 1986, but unfortunately this was not readily available. It seemed more sensible in the circumstances to wait until the consumption data from the 1991 survey is released.

One slight disadvantage of using the EHCS is that, unlike the usual arrangements for access to data, researchers have to specify the analyses they require and the computing is done by the Building Research Establishment (BRE). This does not allow as much flexibility in analysis as would direct access to the data but, within these restrictions, there is still ample scope for new and valuable information to be gained from a series of tabulations which focus on the heating and housing of those on low incomes. The BRE charges for computing and producing the tabulations and at this point I would like to acknowledge the work of Maggie Davidson who does the computing at the BRE. She was most helpful in discussing and making clear the information available in the surveys.

It should be noted that in the tabulations using information from either the 1986 or 1991 EHCS the figures are grossed up to the number of households in England in thousands rather than millions. Thus the total number of households in the tabulations using the 1986 EHCS is 18,726 whereas there were approximately 18 million households in England. The number of households on means-tested benefits is given as 2,610 (rather than over two million), and is based on an actual sample size of approximately 980 households. Approximately 7,000 households were interviewed, and 14 per cent were on means-tested benefits (see Table 1).

#### *Information from the GHS*

The GHS is a large national survey based on a sample of the general population resident in private households in Great Britain. The survey aims to provide a means of examining relationships between the main variables with which social policy is concerned. It is widely used as a source of background information for central government decisions and is a valuable source of data about particular social groups. The survey yields information on approximately 10,000 responding households. The advantage of the GHS is that the data on each household is available for transfer to a local computer for analysis. Thus detailed disaggregations can be explored. It has the following information on housing: the type of accommodation, floor level, date built, number of rooms, and tenure. The information on fuel use is not extensive but there is information on the presence and type of central heating and lists of electrical equipment owned. Also, in determining domestic fuel costs, the size and structure of the dwelling are major factors. Using this information we can describe the range of housing and heating occupied by low-income households.

### *Definition of low income*

One way to define low income is receipt of means-tested benefits such as income support, housing benefit and family credit. These are the main benefits receipt of which leads to entitlement under the Home Energy Efficiency Scheme (HEES). Between April 1994 and April 1996 all householders aged 60 or over were eligible for HEES. After April 1996, however, those aged 60 or over but not on means-tested benefits had their entitlement reduced to 25 per cent of the existing grant maxima. Background information on the heating and insulation of households on means-tested benefits is therefore useful in targeting HEES measures. Alternatively, low income could be defined as the lowest 20 per cent of the income distribution which would include low-income households who do not qualify for means-tested benefits. Some of these households may be very little, if at all, better off than those in receipt of means-tested benefits. The intention was to compare results using both definitions of low income, but problems with the data made this impossible. In the 1986 EHCS, although the response to the receipt of benefits questions was satisfactory and people could be defined as being in receipt of means-tested benefits, 25 per cent of income data was missing. Thus it was not possible to define satisfactorily the lowest 20 per cent of the income distribution. In the 1991 EHCS, the reverse was true: the information on receipt of means-tested benefits was missing for 17 per cent of households, but the information on the level of income was satisfactory. Thus we were faced with a dilemma about the definition of low income.

Because we had to use the 1986 EHCS for the information on heating and insulation, the majority of the report considers the housing, heating and insulation measures for those on means-tested benefits. The main problem arose in making comparisons of housing between the 1986 and 1991 EHCS. Table 1 compares the numbers involved under different definitions of low income in the 1986 and 1991 EHCS and the 1992-93 GHS. According to the 1986 EHCS, there were 14 per cent of households on means-tested benefits, fewer than in the lowest fifth, whereas according to the 1991 EHCS, 31 per cent of those for whom information was available said they were in receipt of means-tested benefits. This compares with 23 per cent in the 1992-93 GHS. Hence it is not possible to use receipt of means-tested benefits as a measure of low income in the 1991 EHCS. To compare housing between the 1986 and 1991 EHCS it was necessary to construct an alternative measure which was available in both data sets. We investigated a measure based on having no one in full-time work in a working age household.

and, for pensioner households, not being in receipt of an occupational pension. Too many pensioners were included by this method so we reverted to the lowest fifth of the income distribution for pensioners. In the 1986 EHCS income was imputed on the basis of employment status and socio-economic grouping. It was felt that the imputation which was necessary to create the income variable in 1986 would be more likely to be accurate for pensioners who have a more standard set of sources and amounts of income than younger people. The lower part of Table 1 shows that for those of working age in 1986, the proportion on means-tested benefits was lower than the proportion of households with no one in full-time work. The comparison between the latter households in 1986 and 1991 shows that the proportions are similar, 24 and 21 per cent respectively. Nearly a fifth of retired households were on means-tested benefits in 1986. The distributions of dwelling types for each definition of low income were estimated and are discussed in the section on housing below.

**Table 1: Comparison of alternative definitions of low income**

Definition of low income and data set	Number included	Percentage of whole sample	Size of whole sample	Comments
On means-tested benefits, EHCS 1986	2610 <sup>2</sup>	14	18058	1% did not know if on means-tested benefits
Lowest 20% of income distribution, EHCS 1986	3607	20	18276 <sup>1</sup>	Income was imputed from employment status, and socio-economic grouping
On means-tested benefits, EHCS 1991	4892	31	15289	Receipt of means-tested benefits missing for 17 per cent
Lowest fifth of income distribution, EHCS 1991	3786	20	19111 <sup>3</sup>	
On means-tested benefits, GHS 1992-93	2316	23	10034	
Lowest fifth of income distribution, GHS 1992-93	1870	20	9353	681 cases missing income data
<hr/>				
<i>Alternative:</i>				
<i>Working age</i>				
On means-tested benefits, 1986	1715	13	13065	
No one in full-time work 1986	3131	24	13065	
No one in full-time work 1991	3729	21	13172	
<i>Retired</i>				
On means-tested benefits, 1986	894	18	4992	
Lowest 20%	1005	20	4996	
Lowest 20%	1228	20	5938	

Sources: EHCS, 1986 and 1991; GHS, 1992-93

<sup>1</sup> This is the grossed up number of households in England in 1986 in thousands rather than millions.

<sup>2</sup> Given that 14 per cent of households were on means-tested benefits in 1986, and completed household interviews were obtained from approximately 7,000 in the 1986 EHCS; the number of households in the sample is 980 and our analyses were based on this number of cases.

<sup>3</sup> Grossed up number of households in England in 1991 is in thousands rather than millions.

## 2. Housing

### Changes between 1986 and 1991

The published report on the EHCS for 1991 (Department of the Environment, 1993) records that there have been significant changes in the housing stock between 1986 and 1991, and a change of particular note is that 1.3 million dwellings have changed tenure, mainly as a result of council house sales, reduction in the private rented sector, and reoccupation of vacant property.

Table 2 shows some of the changes which are relevant to heating - the size, age, type of construction, and condition of dwellings. Between 1986 and 1991 the proportion of larger homes, with four or more rooms, rose from 71 per cent to 79 per cent. The age of the housing stock has changed mainly as a result of a reduction in the proportion of housing built between 1919 and 1964, from 46 per cent to 42 per cent. The proportions of housing built before 1919 and after 1964 rose slightly. The types of dwelling changed little. In 1991, 29 per cent of dwellings were terraced houses, 31 per cent semi-detached homes, 12 per cent purpose-built flats, five per cent converted flats and 22 per cent detached and other dwellings. Between 1986 and 1991 there seems to have been a considerable rise in the proportion of dwellings considered unfit. The information on fitness and defects is taken from the physical survey of the dwellings. Surveyors judged dwellings as being unfit on the 11 point fitness scale used in accordance with the 1989 Local Government and Housing Act fitness standard. In the physical survey, surveyors also recorded items as defective which, although not bad enough to be classified as unfit, were not satisfactory. The 1991 EHCS published report notes that a new fitness standard was introduced in the 1989 Local Government and Housing Act. Similar to the previous standard, it aims to provide the means for determining whether the content and premises are fit for human habitation. The new standard includes some new requirements such as exclusive use of a suitably located bath or shower and wash-hand basin, each of which is provided with a satisfactory supply of hot and cold water. The assessment criterion has also changed slightly.

Reasons for unfitness vary with the age of the dwelling, with disrepair and dampness being more prevalent in the pre-1919 housing stock than in more recently built homes where there were more problems connected with food preparation, the adequacy of the bath/shower and WC arrangements. Over half of all unfit dwellings were built before 1919, although dwellings

of this date are only a quarter of the housing stock. Private rented dwellings still have the highest rates of unfitness.

**Table 2: Changes in size, type, age and condition of all dwellings between the 1986 and 1991 EHCS and the 1992-93 GHS**

	Percentage in 1986 EHCS	Percentage in 1991 EHCS	Percentage in 1992-93 GHS
<i>Size (number of habitable rooms)</i>			
3 or fewer	29	21	11*
4 or more	71	79	89*
<i>Age</i>			
Pre-1919	24	26	21
1919-1964	46	42	45
Post-1964	30	31	32
<i>Type of dwelling</i>			
Terraced	28	29	28
Semi-detached	33	31	31
Purpose-built flat	12	12	15
Converted flat	3	5	4
Detached and other	24	22	21
<i>Condition</i>			
Unfit	4	7	NA
Defective	20	19	NA
Neither	76	73	NA
All	18276	19111	10034

Sources: EHCS, 1986 and 1991; GHS, 1992-93

\* Not necessarily habitable

NA Not available

Table 3 compares the conditions of housing of different size, age and type between 1986 and 1991. In general there was a rise in the proportions assessed as unfit for all types of housing. The proportions rose most for large pre-1964 semi-detached housing and for small pre-1964 purpose-built flats. In both cases the proportion rose by five percentage points. Changes in the proportions of defective housing were more mixed. The proportions rose for small pre-

1964 terraced or semi-detached housing, for post-1964 houses and purpose-built flats, for large pre-1964 flats, and for the 'other' category of housing, but fell for the remaining housing types. The resulting proportions which were neither unfit nor defective were in general similar, except for large pre-1964 flats in which case the proportion neither unfit nor defective had fallen from 65 to 49 per cent.

**Table 3: Comparison of housing conditions in 1986 and 1991 for all dwellings by size, type and age of housing (row percentages)**

Type of dwelling	1986				1991			
	Unfit	Defective	Neither	Total	Unfit	Defective	Neither	Total
Small pre-64 terraced or semi (%)	6	25	69	1682	10	28	62	934
Large pre-64 terraced (%)	9	31	60	3357	13	26	61	3715
Post-64, all houses (%)	0	5	95	4291	1	9	90	4603
Large pre-64 semi (%)	3	25	72	3784	8	20	72	4289
Pre-64 detached (%)	2	17	81	2062	6	17	78	2034
Small pre-64 purpose built flat (%)	2	29	69	909	7	23	69	714
Large pre-64 flat (%)	13	26	64	750	15	36	49	1293
Post-64 purpose built flat (%)	3	9	88	1115	4	12	84	1281
Other (%)	10	24	65	254	8	27	65	146
Total (%)	4	19	77	18276	7	19	75	19111

Source: EHCS 1986 and 1991

Tables 4 and 5 show the effect of using alternative definitions of low income to understand the changes in the housing of low-income households between 1986 and 1991. Fortunately, it is possible to make a direct comparison of the housing of those on means-tested benefits in the 1986 EHCS and the 1992-93 GHS.

Table 4 compares the distribution over different housing types for households on means-tested benefits and in the lowest fifth of the income distribution. In 1986, 22 per cent of households on means-tested benefits lived in large (with four or more rooms) homes, 23 per cent in large semi-detached or detached houses built before 1964, and 27 per cent lived in homes built after 1964. These were the most common categories of housing for those on means-tested benefits. The pattern for those in the lowest fifth of the income distribution in 1986 was not dissimilar. In 1986 and 1991, the distributions were generally similar whether low income is defined as being on means-tested benefits or in the lowest quintile of the income distribution. The main differences were among those living in large pre-1964 semi-detached houses. In 1986, 19 per cent of those on means-tested benefits lived in this type of accommodation compared with 24 per cent of those in the lowest quintile of the income distribution. There was a similar gap in 1991. Those in the lowest fifth of the income distribution were more likely than those on means-tested benefits to live in large pre-64 semi-detached or detached houses, whereas the latter were more likely to live in post-64 purpose-built flats. Overall, however, the comparison suggests that either definition of low income is likely to cover much the same pattern of housing. Large, older houses are expensive to heat so there was a group of people with low incomes at risk of poor housing and heating arrangements who did not have access to the benefits of HEES available to those on means-tested benefits.

**Table 4: Housing for those on means-tested benefits and in the lowest fifth of the income distribution in 1986, 1991 and 1992-93**

Type of dwelling	1986 EHCS		1991 EHCS		1992-93 GHS	
	On means-tested benefits %	Lowest fifth of income* %	On means-tested benefits** %	Lowest fifth of income %	On means-tested benefits	Lowest fifth of income
Small pre-1964 terraced or semi	9	9	8	6	3	2
Large pre-1964 terraced	22	25	23	24	22	21
Post-1964, all houses	15	11	14	16	15	18
Large pre-1964 semi or pre-1964 detached	23	31	23	27	18	24
Small pre-1964 purpose built flat	13	10	8	6	5	4
Large pre-1964 flat	5	5	11	12	16	15
Post-1964 purpose built flat	12	10	13	9	16	12
Other	1	1	1	1	5	6
Total	2610	3607	4892	3786	2316	1870

Source: EHCS 1986 and 1991

\* 25 per cent of income data in 1986 was missing and imputed from working status (in full-time or part-time work etc) and socio-economic grouping. Some, but much less, income data in 1991 was also imputed.

\*\* The information on receipt of means-tested benefits was missing for 17 per cent of households in 1991.

Use of a wider definition than being on means-tested benefits was felt to be important. Take-up of benefit is not complete. For example, for the year 1993-94, between 27 and 35 per cent of eligible pensioners did not take up their entitlement to income support (Department of Social Security Analytical Services Division, 1995). Most help and policy initiatives are directed to those in receipt of benefit but many not in receipt of benefit may be in difficulties with heating and fuel costs. Table 5 sets out the housing distributions for an alternative definition of low-income. Households with the head of working age and having no one in full-time work and pensioner households in the lowest quintile of pensioner income were defined as low-income households. Table 5 compares the housing of low-income households using the alternative

definition in the 1986 and 1991 EHCS and 1992-93 GHS with those on means-tested benefits in 1986. For working age households, the distribution over housing types of households on means-tested benefits in 1986 was very much the same as that for those with no one in full-time work. The largest differences were in the percentages of households living in small pre-1964 purpose-built flats and in pre-64 detached houses. Those on means-tested benefits were more likely to live in this type of accommodation than those households with no one in full-time work, 12 per cent compared with seven per cent. The reverse was the case for those in pre-64 detached houses. Comparing households of working age with no one in full-time work in the 1986 and 1991 EHCS suggests, not surprisingly, that over this period there was an increase in the proportion living in homes built after 1964, from 12 to 17 per cent. The proportion living in detached houses built before 1964 declined from 11 to seven per cent, but the proportion in large pre-1964 flats rose from six to 11 per cent.

For retired households, the distributions over different types of housing between those on means-tested benefits and in the lowest quintile of the income distribution were not the same. Those on means-tested benefits were more likely to live in purpose-built flats, whether built before or after 1964, and less likely to live in large terraced, or semi-detached houses built before 1964. Judging what has happened to the housing of low-income households between 1986 and 1991 is therefore more difficult for pensioner households. It seems to be relatively clear that the proportions living in small pre-1964 terraced housing or flats or in small purpose-built pre-1964 flats has fallen, irrespective of whether the definition of low income in 1986 is taken as being on mean-tested benefits or in the lowest quintile of the income distribution. Similarly, the proportion living in large pre-1964 flats has risen. Otherwise the trend is not clear because the proportion living in a given type of accommodation in 1991 falls between the proportions for those on means-tested benefits and those in the lowest quintile in 1986.

For pensioners, therefore, the best indicator of how the housing of low-income households has changed over time is the comparison between the housing of pensioners on means-tested benefits in the 1986 EHCS and in the 1992-93 GHS. Table 5 shows that pensioners on means-tested benefits in 1992-93 were less likely than in 1986 to live in small terraced, semi-detached or detached houses or flats built before 1964. The proportion of pensioners living in each of these housing types had halved.

**Table 5: Housing of low-income households using the alternative definition and compared with those on means-tested benefits**

	Working age					Retired				
	EHCS			GHS 92/93		EHCS			GHS 93/93	
	1986 MTB	1986 No FTW	1991 No FTW	No FTW	MTB	1986 MTB	1986 Lowest 20%	1991 Lowest 20%	MTB	Lowest 20%
	%	%	%	%	%	%	%	%	%	%
Small pre-64 terraced or semi	7	6	5	1	1	14	10	8	6	4
Large pre-64 terraced	28	27	25	22	26	11	19	15	16	19
Post-64, all houses	14	12	17	19	16	15	13	17	13	13
Large pre-64 semi	24	23	22	21	17	11	23	19	14	19
Pre-64 detached	3	11	7	7	2	7	8	6	3	9
Small pre-64 pb flat	12	7	6	2	3	16	10	6	8	5
Large pre-64 flat	5	6	11	16	19	4	4	14	11	9
Post-64 pb flat	6	7	7	8	11	22	12	15	24	19
Other	2	1	1	5	6	0	1	0	5	4
Total	1715	3131	3729	2295	1372	895	1005	1228	841	495

Source: EHCS 1986 and 1991

Key: MTB - on means-tested benefits  
No FTW - no-one in full-time work

### Comparison of the housing conditions of low-income households and others

In this section we compare the housing conditions of those on low incomes with other higher income households.

Overall, in the 1986 EHCS, the homes of those on means-tested benefits were more likely to be defective than others: 26 per cent were assessed as defective compared with 19 per cent of the general population (see Table 6). There was little difference in the proportion of homes assessed as unfit, but households on means-tested benefits were less likely to live in homes

assessed as unfit, but households on means-tested benefits were less likely to live in homes which were fit and with no defects than others, 69 per cent compared with 78 per cent. Those living in small or large terraced or large semi-detached housing built before 1964 were, however, almost equally likely to live in homes which were fit and with no defects, irrespective of whether they were on means-tested benefits or not. In contrast, households on means-tested benefits were much less likely than those on higher incomes to live in homes which were fit and with no defects if they lived in detached houses built before 1964 (61 per cent compared with 80 per cent).

Among households on means-tested benefits, those living in large pre-1964 flats and terraced houses were least likely to be in homes which were fit and with no defects. Those most likely were those in purpose-built flats built after 1964.

**Table 6: The housing conditions of low-income and other households by size, type and age of household, EHCS 1986 (row percentages)**

Type of dwelling	On means-tested benefits				Others			
	Unfit	Defective	Neither	Total	Unfit	Defective	Neither	Total
Small pre-64 terraced or semi (%)	3*	2	68	238	6	24	70	1440
Large pre-64 terraced (%)	13	28	59	583	8	32	60	2773
Post-64, all houses (%)	0	10	90	377	0	4	96	3806
Large pre-64 semi (%)	5	68	72	501	2	25	73	3281
Pre-64 detached (%)	6*	33	61	104	2	16	80	1959
Small pre-64 pb flat (%)	3	34	64	343	2	26	72	566
Large pre-64 flat (%)	3*	42	56	127	15	22	63	623
Post-64 pb flat (%)	0	16	84	307	4	6	90	771
Other (%)	0	79	21	29	11	17	71	228
<sup>1</sup> Total (%)	5	26	69	2610	4	19	78	15448

Source: EHCS 1986

\* Percentages based on fewer than ten cases

<sup>1</sup> Not known if 218 cases are on means-tested benefits

In 1991, the gap between the housing conditions of low-income households (in this case defined as being in the lowest quintile of the income distribution) and others has widened: only 64 per cent of households on low incomes compared with 76 per cent of the general population lived in homes which were fit and with no defects (shown in Table 7). The gap was particularly wide for those living in large semi-detached houses built before 1964, and there was a considerable difference for those living in detached and large terraced houses and flats built before 1964.

Among those on low incomes, more than half of those in large flats built before 1964 were living in homes which were unfit or defective, as were half of those in large terraced houses built before 1964. In contrast, over 80 per cent of those in homes built after 1964 were in

housing which was fit and with no defects, as were over two-thirds of those in small purpose-built flats and detached homes built before 1964.

**Table 7: Comparison of housing conditions between low-income and other households by size, type and age of household, EHCS 1991 (row percentages)**

Type of dwelling	In lowest quintile of equivalent income distribution				Others			
	Unfit	Defective	Neither	Total	Unfit	Defective	Neither	Total
Small pre-64 terraced or semi (%)	15	28	57	259	8	28	64	675
Large pre-64 terraced (%)	22	28	50	741	11	25	63	2975
Post-64, all houses (%)	2	14	84	557	1	8	90	4046
Large pre-64 semi (%)	15	29	56	611	6	19	75	3680
Pre-64 detached (%)	13	21	66	225	5	16	79	1809
Small pre-64 pb flat (%)	9	22	69	338	7	24	69	376
Large pre-64 flat (%)	13	42	45	518	14	28	57	874
Post-64 pb flat (%)	3	14	83	540	4	11	85	741
Other (%)	6*	0	94	32	9*	35	57	115
Total (%)	12	25	64	3822	6	18	76	19111

Source: EHCS 1991

\* Percentage based on fewer than ten cases

Because of the difficulty of using means-tested benefits as a measure of low income in the 1991 EHCS, Table 8 presents side by side the alternative measures we have used in an attempt to judge any change in the housing conditions of those on low incomes between 1986 and 1991. The table is split into two sections, referring to those of working age and retired households. For those of working age, households on means-tested benefits in the 1986 survey are compared with households with no full-time worker in the 1991 survey. As a check information is also presented for households with no one in full-time work in 1986. For the pensioners, those on means-tested benefits in 1986 are compared with those in the lowest

quintile of pensioners incomes in 1991. Although there is considerable doubt about the income measure in the 1986 EHCS, the information on pensioners in the lowest quintile of the income distribution in 1986 is presented as an intermediary between being on means-tested benefits in 1986 and in the lowest quintile in 1991.

For those of working age most of the results are consistent with an increase in the proportions living in defective or unfit housing in 1991, compared with 1986. The housing types associated with higher proportions of defective or unfit housing were similar in 1991 and 1986: large flats, terraced and semi-detached houses built before 1964. However, there is one outlying result: 70 per cent of those of working age on means-tested benefits in 1986 living in detached homes built before 1964 were in defective or unfit housing, whereas for those households with no one in full-time work only 11 per cent have defective or unfit housing. One explanation could be that this type of housing is used particularly by early retired households with no one working but not short of income.

For those over retirement age, the results seem more erratic, and this may be connected with the difficulty in reconciling the income definition.

**Table 8: Proportions with defective or unfit housing for those on low incomes in the 1986 and 1991 EHCS**

	Working age				Retired	
	On means-tested benefits 1986	No one in full-time work 1986	No one in full-time work 1991	On means-tested benefits 1986	Lowest 20% - 1986	Lowest 20% 1991
Small pre-64 terraced or semi (%)	40	41	45	26	69	40
Large pre-64 terraced (%)	36	39	46	63	40	49
Post-64, all houses (%)	9	7	15	12	2*	75
Large pre-64 semi (%)	29	30	36	14*	21	33
Pre-64 detached (%)	70	11	20	44	24	41
Small pre-64 pb flat (%)	32	34	33	44	48	30
Large pre-64 flat (%)	53	45	56	22	35	82
Post-64 pb flat (%)	19	27	20	14	4*	15
Other (%)	85	48	8*	50*	100*	0
All	1715	3131	3729	4892	1005	1228

Source: EHCS 1986 and 1991

\* Percentages based on fewer than 10 cases

### 3. Housing and heating

In this section we explore the housing and heating of those on means-tested benefits in 1986. The information on heating in 1991 is not available to us from the 1991 EHCS until the energy report from that survey is published, and further analysis of the heating data is permitted. Some information, however, is available from the 1992-93 GHS on whether or not a household has central heating and what type of fuel it uses. There is no detailed information on the types of heating for those with no central heating.

The focus of this work is low-income households so the first point to make is that low-income households are less likely to have central heating than others. For example, in the 1991 Family

Expenditure Survey, 69 per cent of households in the lowest ten per cent of the income distribution had central heating compared with 96 per cent in the highest (Hutton and Hardman, 1993a). Table 9(a) also shows that 55 per cent of those on means-tested benefits in the 1986 EHCS had central heating compared with 75 per cent of those not on means-tested benefits. The difference is mainly a result of differences in the proportions with gas central heating; only 33 per cent of those on means-tested benefits had gas central heating compared with 57 per cent of others. Also in agreement with earlier work, those on means-tested benefits were more likely to have electric central heating than higher income households. Using the EHCS gives more information about how those with no central heating heated their homes. Among those with no central heating the greatest number of households used gas fires and the fewest used electric fires as their main form of heating. Table 9(b) shows the more up-to-date figures on central heating from the 1992-93 GHS. By 1992, the proportion of households on means-tested benefits with central heating was 74 per cent compared with 85 per cent for other households. The gap is narrowing - between 1986 and 1992 there was a 22 percentage point increase in households on means-tested benefits with gas central heating, compared with only a 12 percentage point increase for other households.

**Table 9: Type of heating for those on means-tested benefits and others, EHCS 1986 and GHS 1992-93**

Type of heating	On means-tested benefits (%)	Others (%)	All (%)
<i>a) From the 1986 EHCS</i>			
Gas central heating	33	57	53
Electric central heating	9	5	6
Other central heating	13	13	13
Gas fires	32	15	17
Electric heaters	5	3	4
Other heaters	8	6	6
All*	2598	15442	18258
<i>b) From the 1992-93 GHS</i>			
Gas central heating	55	68	65
Electric central heating	12	9	10
Other central heating	7	8	8
No central heating	26	15	17
All	2316	7718	10034

Source: EHCS 1986 and GHS 1992-93

\* 18 households did not know what kind of heating they had

Table 10 explores the combinations of heating and housing experienced by households on means-tested benefits in the 1986 EHCS. All types of housing were likely to have gas central heating installed although it was more common in some than others. For example, 74 per cent of houses built after 1964 had gas central heating, compared with only ten per cent of detached houses built before 1964. Detached houses built before 1964 were most likely to have central heating using fuel other than gas or electricity. Oil and solid fuel were the most common alternatives, and these homes were probably mainly in rural areas. Further evidence that those on means-tested benefits living in detached houses built before 1964 were in rural areas is given

further down the table, which shows that even those without central heating used fuel other than gas or electricity to burn in fires.

In discussing the heating arrangements of low-income households, the point is often made that they are likely to use electric central heating, generally with the inference that this puts them at a disadvantage. Whether electric central heating is disadvantageous depends on the housing and insulation circumstances in which it is used. Purpose-built flats built after 1964 were most likely to use electric central heating (41 per cent) and in some circumstances, if the systems are modern and the flats soundly constructed with good thermal characteristics, this can be a satisfactory combination. However, the combination of 1960s deck-access flats with electric ceiling heating is notorious for inadequate warmth at high cost. Electric central heating was also relatively common for large flats and small terraced houses built before 1964. Often this may refer to electric storage heating, which is generally only satisfactory as the main source of heat for relatively small accommodation.

Sixty per cent of large terraced houses built before 1964 were heated with gas fires which, although relatively efficient, are unlikely to provide a warm environment throughout the home. Similarly, the 41 per cent of large semi-detached houses and 26 per cent of large flats built before 1964 heated with gas fires were unlikely to maintain a satisfactory temperature. It is less clear whether the 26 per cent of small terraced homes and small purpose-built flats built before 1964 and heated with gas fires were satisfactory or not. A surprising finding is that it was housing built after 1964 which had the highest likelihood of being heated with electric fires - 14 per cent of all houses and 13 per cent of purpose-built flats.

**Table 10: For those on means-tested benefits: combinations of housing and heating arrangements, EHCS 1986**

	Small pre-64 terraced (%)	Large pre-64 terraced (%)	Post-64, all houses (%)	Large pre-64 semi detached (%)	Pre-64 detached (%)	Small pre-64 pb flat (%)	Large pre-64 flat (%)	Post-64 pb flat (%)	All (%)
<i>With central heating</i>									
All	57	31	85	51	57	43	57	88	55
Gas	31	25	74	27	10	35	28	25	33
Electric	15	0	1*	2*	6*	5	26	41	9
Other	11	6	10	22	46	3	3*	22	13
<i>No central heating</i>									
All fires	43	69	15	49	43	57	43	12	45
Gas	26	60	1*	41	7*	45	26	6	32
Electric	2*	3	14	2*	1*	4	13	6	5
Other	16	7	0	7	35	7	2*	0	8
N of cases	238	583	378	501	105	334	126	306	2598!

Source: EHCS 1986

\* Percentages based on fewer than 10 cases

! 27 households were in other forms of housing

Table 11 shows that the use of central heating rose for all types of housing between 1986 and 1992-93. Purpose-built flats built after 1964 were most likely to have central heating in both 1986 and 1992-93, and the proportion with central heating had increased from 88 to 95 per cent in that time. In both 1986 and 1992-93, large terraced houses built before 1964 were the least likely to have central heating, but the percentage with central heating rose from 31 to 59 per cent over that period. The rise in the proportions with central heating was greatest, as might be expected, among the types of housing least likely to have it in 1986. Thus by 1992-93, there had been an increase of over 20 percentage points in the proportion with central heating among households on means-tested benefits living in large terraced houses, semi-detached and detached houses and purpose-built flats built before 1964. Detached and semi-detached houses built before 1964 were particularly likely to have had gas central heating installed.

**Table 11: For those on means-tested benefits: combinations of housing and heating arrangements, GHS 1992-93**

	Small pre-64 terraced (%)	Large pre-64 terraced (%)	Post-64, all houses (%)	Large pre-64 semi (%)	Pre-64 detached (%)	Small pre-64 pb flat (%)	Large pre-64 flat (%)	Post-64 pb flat (%)	Other (%)	All (%)
<i>With central heating</i>										
All	71	59	91	71	88	65	61	95	77	74
Gas	52	50	72	58	60	48	45	54	50	55
Electric	11	4	10	5	10	12	12	33	16	12
Other	8	5	9	8	18	5	4	8	11	7
<i>No central heating</i>										
All	29	40	9	28	12	35	40	5	23	26
No. of cases	62	518	344	377	50	115	369	361	120	2316

Source: GHS 1992-93

#### **Proportions of low-income households with 'satisfactory' housing and heating**

Some of these combinations of accommodation and heating are more likely to provide a warm environment than others. Homes with gas central heating can generally be considered to be satisfactory from the point of view of providing a warm home at a reasonable cost. Work by a team of fuel experts chose whole-house gas central heating as the cheapest way to reach the standard of 'being warm at home'. This was the standard for the fuel component part of the 'modest-but-adequate' standard adopted by the Family Budget Unit (Hutton and Wilkinson, 1992). It was considered to be an efficient and not expensive way to meet the demand temperature set for the standard. Oil is not an expensive fuel at present and so whole-house oil central heating could also be considered to be a satisfactory heating arrangement. Electric central heating can be cheap and efficient, depending on the system and size of the house or flat. The budget standard experts chose a modern electric heating system to meet the standard for a small modern purpose-built flat. Gas fires are less likely to be able to provide a satisfactory demand temperature throughout the accommodation, although they are not as expensive to run as electric or other fires. Generally, heating with electric or other fires is unlikely to be satisfactory, both from the point of view of expense and of maintaining a satisfactory temperature.

Rearranging the above table begins to give an impression of how many households on means-tested income are likely to live in satisfactory combinations of housing and heating. Whether they are in fact satisfactory depends on other factors, such as the size of the household, the state of repair, and level of insulation, which will be investigated in further analyses.

According to the housing and heating arrangements, however, 23 per cent of households on means-tested benefits lived with satisfactory housing and heating combinations (see Table 12). Homes with other and electric central heating have been included in a 'possibly satisfactory' category. It depends on the actual fuel and system used. Large terraced, semi-detached and detached homes built before 1964 have been allocated to the 'possibly satisfactory' group partly because these are the types of accommodation most likely to be unfit or defective. If all the 'possibly satisfactory' arrangements are included (in effect including all with central heating), 56 per cent lived in satisfactory heating and housing. This is likely to be an overestimate, since some electric central heating arrangements are far from satisfactory and some of the older housing is likely to be in poor condition. A further aspect of these housing and heating arrangements is whether they are affordable or not. Having central heating installed in the home does not necessarily mean that it is used. However, in this analysis one of the aims is to find how far fuel poverty is a result of poor housing and heating. The policy measures to deal with a lack of income are different from those necessary to improve standards of housing and heating.

**Table 12: Proportions of those on means-tested benefits living in satisfactory and unsatisfactory combinations of heating and housing, EHCS 1986**

Combinations of housing and heating	Number of households	Per cent of those on means-tested benefits
<i>Satisfactory:</i>		
Post-64 houses and flats with gas central heating	359	14
Pre-64 flats and small terraced with gas central heating	226	9
<i>Possibly satisfactory:</i>		
Pre-64 large terraced, semi or detached with gas central heating	287	11
Pre-64 semi or detached with other central heating	158	6
All other homes with other central heating	182	7
All with electric central heating	232	9
<i>Unlikely to be satisfactory:</i>		
Large pre-64 terraced with gas fires	347	13
Pre-64 semi or detached with gas fires	210	8
Others with gas fires	269	10
All with electric heaters	130	5
All with other heaters	196	8
	2598!	100

Source: EHCS, 1986

! 4 cases did not know what kind of heating they have

Table 13 compares the health and income of those on means-tested benefits living in different housing and heating arrangements from the 1992-93 GHS. The proportion living in 'satisfactory' housing and heating conditions in 1992-93 was greater than in 1986, 30 compared with 23 per cent, due mainly to the rise in the use of central heating between 1986 and 1992. The proportions in 'unsatisfactory' housing and heating arrangements fell from 44 per cent in 1986 to 29 per cent in 1991.

Table 13 also shows the proportions of people in each type of housing and heating recorded as being in poor health. The relationship between health, housing and heating arrangements is not straightforward. Those most likely to report poor health were living in the 'possibly satisfactory' combinations of housing and heating, followed by those in 'satisfactory' combinations. Surprisingly, those least likely to record poor health were those in 'unsatisfactory' housing and heating arrangements. In comparing the health of households in different types of dwelling, an intervening factor is the age of the occupants. Table 15, below, shows that the households most likely to live in 'possibly satisfactory' combinations of housing and heating were single pensioners. Younger families, two adults and pensioner couples were most likely to live in 'satisfactory' accommodation. Many of those living in the 'unsatisfactory' arrangements were single adult households who are younger and less likely to have health problems.

A further factor in whether the housing and heating arrangements are satisfactory or not is whether they are affordable. The last column in Table 13 gives average net household income for the households on means-tested benefits living in each type of housing. Because the households are on means-tested benefits, the income level reflected the size of the household. Fuel expenditure is also governed by the size of the household but, as household size increases, income rises at a greater rate than fuel expenditure. For example, for households in the lowest quintile of the income distribution in the 1991 Family Expenditure Survey, single pensioners spent £8.84 per week on fuel and their income was £65.42 per week, whereas families with children spent £13.96 on fuel and had an income of £144.17 per week (Hutton and Hardman, 1993b). Thus higher income, although meeting the needs of more people, does represent an increase in flexibility.

Among dwellings likely to have high fuel expenditure and unsatisfactory levels of warmth, such as large terraced, semi-detached or detached houses with no central heating, income was £123.94 and £107.02 per week. The income of those in homes with gas central heating built after 1964 was similar, £108.83 per week, but the level of comfort and expenditure would be quite different. A similar contrast exists between those in older flats and small terraced houses with gas central heating and those in similar housing with no central heating. The incomes were almost the same but the heating arrangements very different.

**Table 13: Percentages of those on means-tested benefits in 1992 living in 'satisfactory' and 'unsatisfactory' combinations of housing and heating and the likelihood of poor health, GHS 1992-93**

Combinations of housing and heating	Percentage living in different combination of housing and heating (column %)	Percentage in given combination with poor health	Mean net income, £/week
<i>Satisfactory:</i>			
Post-64 houses with gas central heating	19	29	108.83
Pre-64 flats and small terraced with gas central heating	11	29	94.34
<i>Possibly satisfactory :</i>			
Pre-64 large terraced, semi or detached with gas central heating	21	30	114.93
Pre-64 semi or detached with other central heating	-	33	217.94
All other homes with other central heating	5	36	99.46
All with electric central heating	11	33	101.64
<i>Unlikely to be satisfactory:</i>			
Large pre-64 terraced with no central heating	9	28	123.94
Pre-64 semi or detached with no central heating	5	28	107.02
Others with no central heating	11	25	91.16
Other	4	25	93.57
All	2316	29	110.72

Source: GHS 1992-93

Whether these combinations of housing and heating were satisfactory depends on further factors such as whether the accommodation was also unfit or not. Table 14 shows how many of those homes, which appeared satisfactory on the housing and heating score, failed because they were unfit or defective, and how many of those which were unlikely to be satisfactory on housing and heating also had the disadvantage of being unfit or defective.

The first column shows the number in each category which were deemed unfit or with defects. Homes built after 1964 with gas central heating were much less likely to be defective or unfit

than others; only eight per cent of such homes fell into this category. Other housing and heating combinations with relatively low proportions of unfit or defective dwellings were those with other (probably solid fuel or oil) central heating irrespective of when they were built. Homes with electric central heating had a lower likelihood of being unfit or defective than some other combinations, notably any home without central heating, or even flats and small terraced houses with gas central heating built before 1964. However, dwellings heated with electric or other fires were particularly likely to be unfit or defective. For those on means-tested benefits such homes were the least satisfactory in terms of housing and heating combinations and fitness, and should be the target for improvement measures.

The penultimate column gives an indication of how many of those on means-tested benefits lived in homes which were satisfactory in terms of both housing condition and heating. Because of the relatively high proportion of pre-1964 flats and small terraced houses with gas central heating which were unfit or defective, the proportion of households on means-tested benefits which were satisfactory falls from 23 per cent, as shown in Table 12 to 19 per cent. However, one reason for considering the pre-1964 large terraced, semi-detached or detached homes with gas central heating as only possibly satisfactory was the likelihood of them being unfit. Those that were not unfit or defective among this group should be considered satisfactory. If this is done, the proportion of those on means-tested benefits with satisfactory housing and heating rose to 44 per cent. The question mark over the other heating arrangements still remains, which leaves 56 per cent of households unlikely to have satisfactory housing and heating.

The last column shows that five per cent of households on means-tested benefits lived in large terraced houses built before 1964 which were unfit or defective. These homes were in poor condition and likely to be difficult to heat. Overall, 19 per cent of households on means-tested benefits lived in homes where the combination housing and heating arrangements were unlikely to be satisfactory, and which were unfit or defective.

**Table 14: Combinations of housing, heating and whether unfit or not,  
EHCS 1986**

Combinations of housing and heating	Number unfit or defective	Per cent unfit	Number fit with no defects	Percent fit and not defective	Distribution over housing and heating combinations (Sum over column)	
<i>Satisfactory:</i>						
Post-64 houses with gas central heating	30	8	329	92	13	1
Pre-64 flats and small terraced with gas CH	72	32	154	68	6	3
<i>Possibly satisfactory:</i>						
Pre-64 large terraced, semi or detached with gas CH	95	33	192	67	7	4
Pre-64 semi or detached with other CH	20	13	138	87	5	1
All other homes with other CH	14	7	168	93	6	1
All with electric CH	60	26	172	74	7	2
<i>Unlikely to be satisfactory:</i>						
Large pre-64 terraced with gas fires	129	37	218	63	8	5
Pre-64 semi or detached with gas fires	81	39	129	61	5	3
Others with gas fires	113	42	151	58	6	4
All with electric heaters	50	39	79	61	3	2
All with other heaters	139	71	57	29	2	5
All	835	32	1801	69	69	32

Source: EHCS 1986

#### Housing and heating for different types of households on means-tested benefits

Particular household types were more likely to live in certain housing and heating arrangements than others. For example in 1986, 69 per cent of single adult households on means-tested benefits lived mainly in three types of housing and heating: 21 per cent in flats and small

terraced houses with gas central heating built before 1964; 23 per cent in flats and small terraced homes with gas fires; and 25 per cent in homes with electric or other fires (Table 15a). Over half (57 per cent) lived in combinations of housing and heating that were unlikely to be satisfactory.

Two adult households were most likely to live in flats and small terraced houses with gas fires, whereas the range of accommodation occupied by lone parents was wider but split almost evenly between those in a variety of housing with gas central heating and those heating with gas or other fires. Almost a third of lone parents and small families with dependent children could be said to be living in satisfactory housing and heating arrangements although around a half were living in arrangements which were unlikely to be satisfactory. Large families were less likely to live in recently built accommodation, and more likely to live in homes with other central heating, but apart from this, the pattern was similar to that for small families. Over 10 per cent of all families with children and up to 15 per cent of lone parents were living in homes heated with electric or other fires. These arrangements seem to be doubly unsatisfactory because of the expense and the lack of warmth. Compared with other household types, relatively few of all-adult households lived in accommodation without central heating, although 13 per cent, heated their homes with electric or other fires.

Single pensioners were the most likely to have electric central heating, 20 per cent compared with 3 and 5 per cent of families. Some single pensioners were also living in large houses built before 1964 heated with gas fires; five per cent in large terraced houses and four per cent in semi-detached or detached homes. It is unlikely that this combination would give adequate warmth at an affordable cost.

Table 15b gives the same information as Table 15a but uses the 1992-93 GHS to show the more recent pattern. The main differences are that by 1992-93 many more one-adult households lived in houses built after 1964 with gas central heating, 17 per cent in 1992-3 compared with two per cent in 1986. By 1992-3 there was also an increase in the proportions living in large terraced, semi-detached or detached houses built before 1964 with gas central heating. This was true of one- and two-adult households, lone parent families and large and small families

with dependent children. Pensioner couples were unusual in being less likely to live in this type of accommodation in 1992-93 than in 1986.

Small families with dependent children were also less likely to live in houses built after 1964 with gas central heating but more likely to have electric central heating in 1992-93 than in 1986.

As a result of these changes, the proportion of one adult households on means-tested benefits living in housing and heating arrangements which were unlikely to be satisfactory had decreased from 57 per cent in 1986 to 37 per cent in 1992-93. Other types of household where the proportion in unsatisfactory housing and heating had fallen from approximately half to one third were two adult households, lone parents, and small families with dependent children. The reduction in the proportion in unsatisfactory housing and heating was greater for large families with dependent children and pensioner couples. Around 30 per cent of single pensioner households were in unsatisfactory housing and heating arrangements in both 1986 and 1992-93.

**Table 15a: Combinations of housing and heating for different household types on means-tested benefits, EHCS 1986**

	One adult (%)	Two adults (%)	Lone parent (%)	Small family with dependent children (%)	Large family with dependent children (%)	All adult (%)	Pensioner couple (%)	One pensioner (%)
<i>Satisfactory:</i>								
Post-64 houses with gas central heating	2*	19	13	26	10	2*	19	11
Pre-64 flat, small terraced, semi with gas central heating	21	7	20	4	1*	7	5	11
<i>Possibly satisfactory:</i>								
Pre-64 large terraced, semi or detached house with gas central heating	5*	6	10	12	18	34	9	4
Pre-64 semi or detached with other central heating	2*	13	2*	3	14	3*	1*	7
All other homes with other central heating	7	-	3*	1*	2*	19	2*	16
All with electric central heating	8	7	3*	3	5	-	12	20
<i>Unlikely to be satisfactory:</i>								
Large pre-64 terraced with gas fires	9	8	6	26	24	13	9	5
Pre-64 semi and detached with gas fires	0	9	14	7	14	5	12	4
Others with gas fires	23	28	10	5	2*	4*	21	10
All with electric heaters	25	4*	15	12	11	13	11	12
Other heaters	0	1*	4	0	0	0	0	-
	171	190	269	503	385	198	226	668

Source: EHCS, 1986

\* Percentages based on fewer than 10 cases.

**Table 15b: Combinations of housing and heating for different household types on means-tested benefits, GHS, 1992-93**

	One adult (%)	Two adults (%)	Lone parent (%)	Small family with dependent children (%)	Large family with dependent children (%)	All adult (%)	Pensioner couple (%)	One pensioner (%)	All (%)
<i>Satisfactory:</i>									
Post 64 houses with gas central heating	17	19	19	17	16	17	22	22	19
Pre 64 flat, small terraced, semi with gas central heating	18	5*	11	8	4*	7	5*	15	11
<i>Possibly satisfactory:</i>									
Pre 64 large terraced, semi or detached house with gas central heating	13	24	24	30	39	36	24	13	21
Pre 64 semi or detached with other central heating	1*	3*	1*	3*	3*	3*	2*	1	2
All other homes with other central heating	2*	3*	4	3*	4*	2*	9	5	5
All with electric central heating	13	12	9	8	10	10	18	16	12
<i>Unlikely to be satisfactory:</i>									
Large pre-64 terraced with no central heating	5	12	9	14	14	13	9	7	9
Pre 64 semi and detached with no central heating	5	6*	5	4*	3	6	4*	5	5
Others with no central heating	21	11	11	9	4*	4	5*	12	11
Other	6	7	8	5	4	2*	3	5	4
Number of households	300	156	442	238	113	176	177	664	2316

Source: GHS 1992-93

\* Percentages based on few than 10 cases

#### **4. Insulation**

Apart from being in a good state of repair, a further element in considering whether a combination of housing and heating is satisfactory is whether it is well insulated or not.

##### **Insulation measures for those on means-tested benefits compared with other households, EHCS 1986**

Table 16a compares the insulation measures present in the homes of households on means-tested benefits and other higher income households. Those on means-tested benefits were more likely than higher income households not to have their hot water tank lagged, 13 per cent compared with four per cent, and 55 per cent did not have any draught-proofing compared with 47 per cent of other households. The proportions with some loft insulation were similar, but there may be a difference in the average thickness of loft insulation between the two groups of households.

More striking differences are revealed in Table 16b which shows that 89 per cent of those on means-tested benefits did not have any double glazing compared with 60 per cent of other households. Few households had cavity wall insulation but those on means-tested benefits were even less likely than others to do so.

##### **Insulation and tenure for those on means-tested benefits, EHCS 1986**

The presence of insulation measures in housing varied with tenure. Owner-occupiers benefit from the capital outlay in reduced fuel costs, whereas in rented accommodation the capital outlay falls on the landlord and the benefit accrues to the tenant. In general, owner-occupiers were more likely than tenants to have put in draught stripping, loft insulation or hot water tank jackets. However, local authority tenants, whether on means-tested benefits or not, were more likely to have loft insulation than owner-occupiers. For those on means-tested benefits, only 8 per cent of local authority tenants had no loft insulation, compared with 27 per cent of owner-occupiers. Those on means-tested benefits were, as a rule, less likely than higher income households to have any insulation measures irrespective of tenure. The exceptions were that among tenants, those on means-tested benefits were more likely to have loft insulation than higher income households, and among local authority tenants those on means-tested benefits were more likely than others to have draught exclusion. Being on means-tested benefits made a greater difference to the presence of insulation measures for owner-occupiers than tenants, which is not surprising as the

capital expenditure would have to come out of benefit income in the case of the owner-occupier on means-tested benefits and not from a landlord. It may also be because many owner-occupiers on means-tested benefits are pensioners.

**Table 16a: Comparison of insulation measures - hot water tank jacket, loft insulation and draught exclusion for different tenures and whether or not on means-tested benefits, EHCS 1986**

	On means-tested benefits			Others		
	Owner-occupied (%)	L.A. or H.A. (%)	Private rented (%)	Owner-occupied (%)	L.A. or H.A. (%)	Private rented (%)
<i>Hot water tank jacket</i>						
No	7	14	12	3	8	8
Yes	77	68	72	88	81	62
No tank	15	7	15	8	7	26
Unknown	1*	11	1*	1	4	4
<i>Loft insulation</i>						
No	27	8	24	11	9	29
Yes	64	53	38	83	58	34
No loft	4	26	23	3	20	16
Unknown	5	13	14	3	13	21
<i>Draught exclusion</i>						
None	58	52	71	43	53	60
Partial	35	32	28	45	37	35
Full	6	15	1*	11	9	4
Unknown	-	-	0	-	-	2
Number of cases	452	1933	225	10955	3314	1178

Source: EHCS 1986

\* Based on fewer than 10 cases

- Less than 0.05 per cent

**Table 16b: Comparison of insulation measures - double glazing, cavity wall insulation by tenure and whether or not on means-tested benefits, EHCS 1986**

	On means-tested benefits			Others		
	Owner-occupied (%)	L.A. or H.A. (%)	Private rented (%)	Owner-occupied (%)	L.A. or H.A. (%)	Private rented (%)
<i>Double glazing</i>						
No	71	92	91	48	91	90
Partial	25	5	0	30	5	4
Full	2*	3	8	20	4	5
Unknown	2*	-	1*	1	-	-
<i>Cavity wall insulation</i>						
No	96	95	99	85	92	98
Yes	4	5	1*	15	8	2
Number of cases	452	1933	225	10955	3314	1178

Source: EHCS 1986

\* Based on fewer than 10 cases

- Less than 0.05 per cent

## **5. Housing, heating and insulation**

### **Levels of insulation for different housing and heating combinations for those on means-tested benefits, EHCS 1986**

Table 17 compares the levels of insulation in different types of housing and heating for those on mean-tested benefits and others. Households on means-tested benefits were generally less likely to have hot water tank jackets than higher income households. The exceptions were those living in accommodation with electric central heating or heated with electric or other non-gas fires. In most circumstances they were also less likely to have draught excluders than higher income households apart from those in large pre-1964 terraced houses with gas fires, those in pre-1964 flats or small terraced or semi-detached houses with gas central heating, and in pre-1964 semi-detached or detached houses with gas fires. Higher income households were, however, less likely than those on means-tested benefits to have loft insulation in all categories of housing and heating except two: other housing with other than gas or electric central heating; and pre-1964 semi-detached or detached houses with gas fires.

A quarter of households on means-tested benefits and living in pre-1964 flats or small terraced or semi-detached houses with gas central heating were without a hot water tank jacket, although this is one of the more satisfactory housing and heating combinations. Those particularly likely to lack loft insulation among those on means-tested benefits were those living in large pre-1964 terraced houses heated with gas fires and all those heating with electric and other non-gas fires.

**Table 17: Comparison of the levels of insulation in different housing and heating arrangements for those on means-tested benefits and all households, EHCS, 1986**

	On means-tested benefits			Others		
	Percentage with no:			Percentage with no:		
	Hot water tank jacket	Loft insulation	Draught excluders	Hot water tank jacket	Loft insulation	Draught excluders
<i>Satisfactory:</i>						
Post-64 houses with gas central heating	15	2*	58	3	4	43
Pre-64 flat or small terraced house or semi with gas central heating	25	2*	51	9	4	51
<i>Possibly satisfactory:</i>						
Pre-64 large terraced, semi or detached with gas central heating	8	9	60	2	10	43
Pre-64 semi or detached with other central heating	12	11	44	7	15	42
Other with other central heating	16	17	67	5	14	48
All with electric central heating	5	11	63	7	12	55
<i>Unlikely to be satisfactory:</i>						
Large pre-64 terraced with gas fires	14	30	39	7	32	52
Pre-64 semi or detached with gas fires	13	16	56	10	13	56
Other with gas fires	18	12	58	10	16	61
All with electric or other fires	9	30	55	12	31	51
All	13	15	55	6	13	47

Source: EHCS 1986

\* Percentages based on fewer than 10 cases

### **Housing, heating, insulation, and fitness for those on means-tested benefits, EHCS 1986**

Table 18 presents the likelihood of particular combinations of housing and heating being unfit or defective, and lacking some common insulation measures, for households on means-tested benefits in 1986. Not surprisingly, homes built after 1964 with gas central heating were among the least likely to be unfit or defective, none were without loft insulation, and they were among those most likely to have draught excluders installed. It is surprising, however, that even four per cent of those in this generally energy-efficient accommodation had no hot water tank jacket, one of the cheapest and most cost-effective insulation measures. Two other categories of homes which appeared to be relatively fit, without defects and well-insulated, were pre-64 flats and terraced houses with other central heating, and pre-64 semi-detached or detached houses with other central heating. These groups of homes can be considered to be relatively satisfactory for heating, fitness and insulation. Overall they formed 27 per cent of the homes occupied by households on means-tested benefits.

More than half (58 per cent) of homes heated with electric or other fires were unfit or defective, and these homes were the least likely to have any loft insulation, or draught excluders fitted. Twelve per cent of households on means-tested benefits lived in such accommodation. Semi-detached and detached houses built before 1964 and heated with gas fires also scored poorly on all counts, being among those most likely to be unfit and least likely to have any item of insulation. Terraced houses built before 1964 and heated with gas fires were only marginally better, being more likely to have hot water tank jackets fitted. Other dwellings likely to be unfit and without draught excluders were flats built before 1964 heated with gas fires; 42 per cent were unfit or defective and 28 per cent had no draught excluders. Taken together, these groups of dwellings formed 44 per cent of the homes of those on means-tested benefits.

Homes with electric central heating and large houses built before 1964 with gas central heating were marginally better, either in terms of heating or the presence of loft insulation or hot water tank jackets.

**Table 18: Proportions of different types of accommodation which are unfit and have combinations of unfitness and lack of insulation for those on means-tested benefits, EHCS 1986**

	Unfit or defective (%)	Percentage unfit and with no:			Number of households
		Hot water tank jacket	Loft insulation	Draught excluders	
All post-64 dwellings with gas central heating	8	4	-	7	359
Pre-1964 large terraced, semidetached with gas CH	33	4	14	25	287
Pre-1964 flat, small terraced, semi with gas Ch	32	5	1*	11	227
All with electric CH	25	1*	1*	17	232
Pre-1964 semi, detached with other CH	13	5*	1*	8	158
Pre-1964 flat, terraced with other CH	8	1*	0	5	182
Pre-1964 large terraced with gas CH	37	6	13	23	347
Pre-1964 semi, detached with gas fires	38	13	11	21	210
Pre-1964 flat, terraced with gas fires	42	9	6	28	268
All with electric or other heaters	58	7	20	36	326
All	31	5	7	19	2610

Source: EHCS 1986

\* Percentages based on fewer than 10 cases

#### **Housing, heating and insulation for different household types on means-tested benefits, EHCS 1986**

Table 19 shows the proportions with the various common forms of insulation by household type for those on means-tested benefits in 1986. Lone parents, single working-age adult households, large families with dependent children and two pensioner households, were least likely to have a lagged hot water tank. Families with children have a high demand for hot water for bathing and laundry so a hot water tank jacket would be a particularly cost-effective measure for such households. Large families with dependent children were also among those least likely to have

any loft insulation, although they are more likely than smaller households to live in housing with a loft. They are also more likely to want to make full use of all their accommodation so that the upstairs rooms need to be warmed as efficiently as possible. Lone parents were the least likely to have any draught excluders.

**Table 19: Comparison of insulation measures for different household types on means-tested benefits, EHCS 1986**

	One adult (%)	Two adults (%)	Lone parent (%)	Small family with dependent children (%)	Large family with dependent children (%)	All adult (%)	Two pensioners (%)	Single pensioner (%)
<i>Hot water tank jacket</i>								
No	20	14	22	5	19	6	18	9
Yes	63	54	68	70	71	84	75	71
No tank	11	10	5	24	7	8	5	14
Unknown	6	22	5	1*	3	5*	2*	6
<i>Loft insulation</i>								
No	10	9	7	13	19	17	11	14
Yes	29	51	30	73	71	67	52	42
No loft	47	32	34	8	5	4*	28	30
Unknown	14	9	29	5	5	13	10	14
<i>Draught exclusion</i>								
None	60	50	71	41	53	67	54	57
Partial	28	48	24	21	40	27	42	34
Full	12	2*	5	38	7	6	4*	8
Unknown	0	0	1*	0	0	1*	0	-
Number of cases	171	190	269	503	385	198	226	668

Source: EHCS 1986

\* Percentages based on fewer than 10 cases

- Less than 0.05 per cent

We investigated which types of household lived in particular combinations of housing and heating with the common insulation measures. Numbers were too small to present tables of those without loft insulation or hot water tank jackets, but Tables 20a, 20b, and 20c present the results for those without draught excluders. Table 20a describes the housing, heating and draught exclusion arrangements for adult households, Table 20b those for families, and Table 20c those for pensioners. Where numbers allowed, results for loft insulation are reported in the text.

From Table 20a it can be seen that for single working-age adults those living in pre-1964 flats heated with gas fires were least likely to have any draught excluders. Those in flats built before 1964 with gas central heating were more likely than others to have some draughtstripping and, although not presented in the table, the analysis showed that they were particularly likely to have full draught exclusion (15 out of the 28 cases with some draught exclusion).

The proportions with draughtstripping also varied with type of housing for two-adult households, those in homes built after 1964 with gas central heating being unlikely to have any draught exclusion and, surprisingly, those in flats built before 1964 with gas fires most likely. Perhaps it was felt to be more necessary in the latter housing. The likelihood of having any draughtstripping was similar for all types of housing and heating for large adult households.

Of the 17 one-adult households with no loft insulation, 11 lived in large terraced houses with gas fires built before 1964. Similarly, for large adult households, 19 per cent (33 cases) had no loft insulation, and 19 of these lived in large terraced houses with gas fires built before 1964. Thirteen out of the 16 two-adult households with no loft insulation were in housing without central heating.

**Table 20a: Common housing heating arrangements and whether any draught-proofing for different working-age adult household types on means-tested benefits,  
EHCS 1986**

	Percentage with no draught excluders	Number of cases
<i>One adult</i>		
Pre-1964 flat, small terraced, semi with gas CH	22*	36
Pre-1964 flat, small terraced with gas fires	89	38
All with electric or other heaters	58	43
Other	64	54
<i>Two adults</i>		
Post-1964 with gas CH	71	35
Pre-1964 flat, small terraced with gas fires	17*	52
Other	58	103
<i>Large adult household</i>		
Large terraced, semi, detached with gas CH	69	67
Terraced, flat with other CH	65	37
Other	67	94

Source: EHCS 1986

\* Percentages based on fewer than 10 cases

Almost all lone parents living in semi-detached or detached homes built before 1964 and heated with gas fires had no draughtstripping (Table 20b). It seems unlikely that these homes would approach satisfactory levels of warmth or comfort. Those living in post-1964 homes and pre-1964 flats and small terraced houses, although they are unlikely to have any draughtproofing, did have better heating arrangements. Among small families with dependent children, those living in homes with the poorest heating arrangements, heating with electric or other fires, were also least likely to have any draughtproofing (94 per cent had none). These heating and insulation arrangements are not likely to provide a warm and comfortable environment for children, particularly young children and babies. The heating and insulation arrangements were unlikely to be satisfactory for those living in semi-detached or detached houses heated with gas fires, 72 per cent of whom had no draughtproofing.

For large families with dependent children, the proportions with no draughtstripping varied from 21 per cent living in semi-detached or detached homes built before 1964 and heated with gas fires, to 64 per cent of those in homes heated with electric or other fires.

**Table 20b: Common housing heating arrangements and whether any draught-proofing for different types of families with children on means-tested benefits,  
EHCS 1986**

	Percentage with no draught excluders	Number in category
<i>Lone parents</i>		
Post-1964 with gas CH	82	34
Pre-1964 flat, small terraced, semi with gas CH	81	55
Pre-1964 Semi detached with gas fires	95	38
All with electric or other heaters	50	40
Other	61	102
<i>Small family with dependent children</i>		
Post-1964 with gas CH	21	128
Pre-1964 large terraced, semi detached with gas CH	52	61
Pre-1964 large terraced with gas fires	8	131
Pre-1964 semi, detached with gas fires	72	36
All with electric and other heaters	94	62
Other	64	85
<i>Large family with dependent children</i>		
Post-1964 with gas CH	46	37
Pre-1964 large terraced, semi, detached with gas CH	57	68
Pre-1964 semi, detached with other CH	78	54
Pre-1964 large terraced with gas fires	55	94
Pre-1964 semi,detached with gas fires	21	53
All with electric or other heaters	64	42
Other	46	37

Source: EHCS 1986

The pensioner households (whether single pensioners or couples) least likely to have any draughtproofing, were those in modern homes with gas central heating. Perhaps it is less necessary in these circumstances, but it could make a difference even here. Among single pensioners, those most likely to have some draught excluders were those living in semi-detached or detached houses with other central heating built before 1964 (eight per cent) and; surprisingly, those living in homes heated by electric or other fires. Approximately 20 per cent of single pensioner households living in flats or terraced houses built before 1964 with other central heating, or in homes heated with electric or other fires, had full draught exclusion.

Pensioner couples most likely to have draught excluders were living in flats with gas fires built before 1964. This contrasts with single pensioners in this type of accommodation who were among the least likely.

**Table 20c: Common housing heating and insulation for different types of pensioner households on means-tested benefits, EHCS 1986**

	Percentage with no draught excluders	Number in category
<i>One pensioner</i>		
Post-1964 with gas CH	93	75
Pre-1964 flat, small terraced, semi with gas CH	34	71
All with electric CH	67	135
Pre-1964 semi,detached with other CH	8*	49
Pre-1964 flat, terraced with other CH	67	104
Pre-1964 large terraced with gas fires	76	66
All with electric or other heaters	29	79
Other	57	89
<i>Pensioner couple</i>		
Post-1964 with gas CH	90	42
Pre-1964 flat, small terraced with gas fires	32	47
Other	50	137

Source: EHCS 1986

\* Percentages based on fewer than 10 cases

An indicator was created which combined the information available on insulation and fitness. Poor insulation and condition referred to dwellings which were unfit or defective, with no insulation, or only a hot water tank jacket. Good insulation and condition described those dwellings which were not unfit or defective, with loft insulation (or no loft), plus a hot water tank jacket (or no tank), plus some draught exclusion. The remaining category referred to dwellings which had some but not all of the insulation measures specified. Of all households on means-tested benefits, 25 per cent were in good condition and had all the common insulation measures (see Table 21). The insulation measures did not necessarily reach an appropriate standard - they were simply included if any amount was present. However, by these criteria, small families with dependent children were most likely to live in satisfactory housing and insulation conditions (47 per cent). Single adult and lone parent households were least likely, six and eight per cent respectively.

Five per cent of the homes of households on means-tested benefits were unfit or defective with no loft insulation or draughtproofing. The proportion was slightly higher (7 per cent) for single pensioners.

**Table 21: With poor insulation and condition or not for different household types on means-tested benefits, EHCS 1986**

	Percentage with:			Number of cases
	Poor insulation and condition	Good insulation and condition	Other	
One adult	5*	6	90	171
Two adults	4*	19	78	190
Large adult household	5	22	73	385
Lone parents	3*	8	89	269
Small family with dependent children	6	47	47	503
Large family with dependent children	5	22	73	385
One pensioner	7	28	65	226
Pensioner couple	4	23	73	668
All households	5	25	70	2610

Source: EHCS 1986

\* Percentages based on fewer than 10 cases

Table 22 shows that semi-detached or detached houses built before 1964 with other central heating were, surprisingly, more likely than homes built after 1964 with gas central heating to be in good condition and with good insulation; 42 per cent compared with 37 per cent. Large terraced houses heated with gas fires were both among those most likely to be in good condition with insulation (35 per cent) and among those in poor condition with little insulation (eight per cent). Not surprisingly, those dwellings heated with electric or other heaters were most likely to be in poor condition with little insulation (15 per cent) and least likely to be in good condition with insulation (ten per cent). Similarly only 12 per cent of smaller accommodation heated with gas fires were in good condition with insulation.

**Table 22: With poor insulation and condition or not for different housing and heating arrangements for those on means-tested benefits, EHCS 1986**

	Percentage with:			Number of cases
	Poor insulation and condition	Good insulation and condition	Other	
All post-1964 with gas central heating	-	37	63	358
Pre-1964 large terraced, semi or detached with gas central heating	5	26	69	287
Pre-1964 flat, small terraced or semi with gas central heating	1*	22	76	227
All with electric central heating	1*	16	83	232
Pre-1964 semi or detached with other central heating	1*	42	56	158
Pre-1964 flat or terraced with other central heating	0	25	75	182
Pre-1964 large terraced with gas fires	8	35	56	347
Pre-94 semi, detached with gas fires	8	24	68	210
All others with gas fires	2*	12	87	268
All with electric or other heaters	15	10	75	325
Other	0	0	100	14
All households	5	25	70	2610

Source: EHCS 1986

\* Percentages based on fewer than 10 cases

## **6. Discussion**

In this analysis of the information on the housing and heating of low-income households from the 1986 and 1991 EHCS, and the 1992-93 GHS, we have shown that not all low-income households have inadequate or unsatisfactory housing and heating. Thirty per cent of those on means-tested benefits in 1992-93 lived in homes which were 'satisfactory', with central heating, likely to be fit and without defects. A further 29 per cent lived in 'unsatisfactory' accommodation with no central heating, and the remaining group lived in 'possibly satisfactory' accommodation. This latter category included dwellings with gas central heating but less likely to be in good condition, and dwellings with electric or other central heating. Mainly because of the growth in the use of central heating and the higher proportions living in homes built after 1964, these figures are an improvement on the situation in 1986 when 23 per cent lived in homes which were 'satisfactory' and 44 per cent lived in 'unsatisfactory' housing and heating arrangements.

Using the information on fitness and defects available in the 1986 EHCS, we estimated that 44 per cent of households on means-tested benefits lived in homes with central heating which were not unfit or defective. At a superficial level, if the central heating is efficient and appropriate for the dwelling and the dwelling is properly insulated (perhaps major qualifications), any fuel poverty experienced by these households is more related to income than to the housing and heating arrangements. Of the remaining 56 per cent, 24 per cent had no central heating, although the housing was not unfit or defective, and 32 per cent had unfit or defective housing.

The types of housing occupied by low-income households in the 1991 EHCS and the 1992-93 GHS, were similar to those of households on means-tested benefits in the 1986 EHCS, so inferences can be made about the fitness of housing in the 1992-93 GHS. The levels of fitness and defects of housing in the 1992-93 GHS is also likely to be similar to that in the 1991 EHCS. The proportion of housing which was recorded as unfit or defective in 1991 was greater than in 1986 mainly because of a change in the definition of fitness. The definition, however, has changed in line with expectations and prevailing standards so, although by some absolute standard housing in 1991 is not more unfit than in 1986, the proportion needing attention to bring it into line with the rest of housing in 1991 has risen. The information on fitness is not available in the GHS, but this suggests that if it were, the net result of the improvement in proportions with central heating and the decline in fitness might leave the proportions in 'satisfactory' housing (in good condition

with satisfactory housing and heating arrangements) not very different from the 44 per cent estimated for 1986. This is of course something which could easily be checked when the heating information becomes available for the 1991 EHCS.

Recent work (Brechling and Smith, 1994) has suggested that lack of insulation has more to do with tenure than income, but the relationship is not so simple. Households on means-tested benefits were equally likely to have loft insulation as other higher income households, and more likely to have some draught proofing. They were, however, less likely to have hot water tank jackets, one of the most cost-effective and easily installed energy efficiency measures. It was particularly noticeable that families with children were among those least likely to have lagged hot water tanks. Families with children have a high demand for hot water and lagging the tank would be particularly valuable for such households.

For the more expensive insulation measures such as double glazing and cavity wall insulation, tenure and income both seem to be factors. Households on means-tested benefits were less likely to have either of these measures than other higher income households. Owner occupiers overall were more likely to have double glazing than tenants, but those on means-tested benefits were less likely to have double glazing than higher income owner-occupiers.

When the housing, heating and insulation contributions to energy efficiency are considered together, it is clear that for some households, even those on means-tested benefits, all these aspects seem satisfactory. For example, 27 per cent of households on means-tested benefits lived in homes built after 1964 with gas central heating, or older homes with oil or solid fuel central heating, which are neither unfit nor defective and which have the full range of common insulation measures. Other households, however, lived in homes heated with electric or other fires (12 per cent of those on means-tested benefits) which were most likely to be unfit or defective and least likely to have any loft insulation or draught proofing. Such households would be the primary target for remedial insulation.

## References

- Brechling, V. and Smith, S., 'Households energy efficiency in the UK', *Fiscal Studies* (1994), 15, 2: 44-56.
- Department of the Environment, *The English House Condition Survey: 1986*, London: HMSO (1988).
- Department of the Environment, *The English House Condition Survey: 1991*, London: HMSO (1993).
- Department of Social Security Analytical Services Division, *Income Related Benefits Estimates of Take-Up in 1993/94* Government Statistical Services (1995).
- Hutton, S., 'Linking the FES and GHS', *General Household Survey Newsletter* (1992), Number 9, ESRC Data Archive.
- Hutton, S. and Hardman, G., *Expenditure on Fuels 1991*, Gas Consumers Council (1993a).
- Hutton, S. and Hardman, G., *Assessing the Impact of the Imposition of VAT on Fuel on Low Income Households: Analysis of the fuel expenditure data from the 1991 Family Expenditure Survey*, Working Paper GCC 1058 4.93, Social Policy Research Unit, University of York (1993b).
- Hutton S. and Wilkinson B., *Modest-but-adequate Budget Standards: Fuel budgets for six household types* Working Paper 8, Family Budget Unit, Department of Social Policy and Social Work, University of York, Heslington, York YO1 5DD (1992).
- OPCS, *General Household Survey 1992-93* (computer files), Colchester: ESRC Data Archive (distributor) (1994).

