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THE TAKE-UP OF MEANS-TESTED BENEFITS, 1984–90

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PREFACE

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CHAPTER 1
INTRODUCTION

We report here the results of an investigation into the take-up of means-tested benefits in the UK. The study had three main objectives:

(1) to show the pattern of take-up over the period from 1984 to 1990;
(2) to build an economic model of the take-up decision;
(3) to use this model to study the effects of the major change in the benefit system in 1988.

We attempted to answer these questions by analysing data from the 1984–90 Family Expenditure Surveys (FESs). We estimated the entitlement to benefits of each family in the survey, given their recorded incomes, hours of work, housing costs etc., and then compared this with their recorded benefit receipts and tried to explain the differences.

We looked at the three UK means-tested benefits:

- housing benefit (HB), which provides help with rent and rates for all those on low incomes;
- supplementary benefit (SB), which was intended to bring families not in full-time work up to a minimum standard of living; and
- family income supplement (FIS), which provided help for families with children with a full-time worker on low pay.

In the 1988 reforms, SB was replaced by income support (IS) and FIS by family credit (FC).

Among the main questions to be investigated were:

(a) To what extent were take-up rates stable over the period 1984–87 (before the reforms of 1988)?
(b) What can be said about if and how they changed after the reform (1989–90)?
(c) Is it generally true, as found for SB and HB in earlier studies, that it is low entitlements that are not taken up, so that take-up measured by value of benefit is higher than take-up measured by case-load?
(d) Is it possible to build stable econometric models of the take-up decision over the pre-reform period and what do these predict after 1988?
(e) What does our evidence suggest are the main determinants of take-up?

There are, of course, problems with a study of this kind. The data have to be reliable and detailed. Even with good data (and the FES is a very good and rich data source), it is hard to estimate entitlement to benefits exactly, since the questions asked in the survey are rarely exactly those the benefit authorities would ask.

Two problems in particular have restricted the scope of our work. Firstly, we will be saying less about FIS/FC than about HB and SB/IS. This is largely because the earnings variables recorded in the FES are not appropriate. Secondly, we will concentrate on non-pensioners. This is because receipts of SB/IS for pensioners are not recorded adequately in the FES.

Despite these limitations, the study remains the largest and most detailed of the subject yet undertaken and the first to produce results for the post-1988 benefit system.

The plan of the report is as follows. Chapter 2 summarises previous work on take-up at IFS and elsewhere. Chapter 3 discusses our data, the Family Expenditure Survey. Chapter 4 discusses the benefits and some of the problems we encountered in modelling them. Chapters 5 and 6 present our main results on take-up under the pre- and post-1988 benefit systems, in the form of tables and graphs. We then give our econometric estimates in Chapter 7. Chapter 8 concludes.

CHAPTER 2
PREVIOUS WORK

Research on benefit take-up is reviewed in Craig (1991). Here we review some of the main empirical studies. There is also a considerable psychological literature (Kerr, 1983) and some theoretical economic work (Cowell, 1986).

The DSS Take-Up Estimates

The DSS has been publishing estimates of the take-up of means-tested benefits since the 1970s. These are published in *Social Security Statistics*, with more detail in accompanying technical notes (DSS, 1991b). It is concerned with aggregate take-up levels, breaking down its results only in a few broad ways. This allows it to combine data sources more easily than we could. It uses administrative data for benefit receipts and the Family Expenditure Survey (FES) only for its estimates of entitled non-recipients. This contrasts with our all-FES approach, which is not guaranteed to get the numbers of recipients right (and can get them very wrong at times, as we shall see), but which gives us the opportunity to disaggregate the figures and examine their determinants. Concentrating on aggregates also gives the DSS more scope for reweighting its data to allow for any apparent deficiencies in the FES.

Previous IFS Work on Take-Up

The present study is most heavily influenced by previous work at the Institute for Fiscal Studies. We summarise this work first. All of these studies use similar methods and the same data source.

IFS first worked on benefit take-up in 1986, in a project commissioned by the analytical branch of the (then) DHSS.

The DSS has its own benefit simulation program: the Policy Simulation Program (PSM). This is similar to IFS's TAXBEN program (Johnson, Stark and Webb, 1991). Both PSM and TAXBEN use data from the FES (see Chapter 3 below). Given the incomes, housing costs etc. recorded there, they calculate what benefit each household would be due under some proposed system.

PSM had been used extensively in the work that led to the 1985 *Reform of Social Security* Green and White Papers (DHSS, 1985a and 1985b; DSS, 1991a). These papers detailed the sweeping reform of the means-tested

benefit system that will concern us so much here. However, PSM could only calculate entitlements to means-tested benefits and it was known that not all of those entitlements were taken up.

IFS was asked to develop techniques that could allow PSM to correct for non-take-up. The procedure was essentially the same as here: to model entitlements for each household in the FES and then develop statistical models to explain the differences between these entitlements and recorded receipts. Output from this project consisted of an unpublished project report (Blundell et al., 1987) and several subsequent published papers.

The first of these was Blundell, Fry and Walker (1988) which examined take-up of standard housing benefit (SHB) in 1984. This paper used several of the techniques we will be using here. The authors built a probit statistical model of the take-up decision. We discuss probits and related techniques in Chapter 7 below; essentially probits can be used both to give the probability that a household takes up its benefits, given its characteristics and benefit entitlements, and to test whether some characteristic is significantly affecting that probability.

It was clear that the entitlement to SHB was measured with error, and Blundell et al. (1988) employed some relatively new techniques to test for any consequent bias in their estimates. The probability of taking up was found to rise with the size of entitlement and fall with other income. Single parents and council tenants were more likely to take up any given entitlement than other groups. These are recurring findings in subsequent work.

Fry and Stark (1987) looked at supplementary benefit in 1984. Compared with Blundell et al. (1988), this paper used re-estimated entitlements after problems were discovered with the FES SB receipt data (this is discussed further in Chapter 3 below). The factors identified in Blundell et al. (1988) were also found to be true for SB. Also, the long-term unemployed were significantly more likely and part-time workers less likely to take up than the average.

Fry and Stark (1991) showed how these econometric models could be used in a tax and benefit model. We examined costings of pension increases with and without take-up corrections. We showed that ignoring take-up behaviour would lead to miscalculations of the costs of benefit reforms. Some seemingly perverse results were shown to be possible. For example, cutting the state pension could lead to a *decrease* in the numbers of pensioners with incomes below the poverty line, because there could be an increase in the average entitlement to SB

and hence in the numbers taking it up.

Dorsett and Heady (1991) looked at the take-up of FIS and HB by working families with children over the period 1984–87. They used new estimates generated by an improved version of TAXBEN. It is possible to claim both FIS and HB, so they concentrated on modelling the interaction between the two. They found that FIS entitlement had no effect on the probability of taking up, but that those with large housing benefit entitlements would be more likely to take up not only HB but also any FIS due. They suggest that this could be because people discover about FIS whilst claiming HB, or because large HB entitlements are a better indicator of need than FIS entitlements.

Non-IFS Studies

Corden and Craig

Corden and Craig (1991) looked at take-up in the context of a wider study of perceptions of family credit. They screened 1,000 child benefit recipients, looking for potential non-claimants. Of these, 629 responded. From this group they eventually found just 14 who were likely eligible non-claimants. These 14 were encouraged to apply, but only four were known to have done so and succeeded. Corden and Craig view this poor result as evidence of the dangers of survey-based take-up studies: often incomes or family circumstances had changed between the initial interview and the eventual application, and often the DSS's views of people's incomes differed from those given to the interviewers.

The Oxford Social Policy Group

The Oxford Social Policy Group has recently completed a study of the take-up of family credit in 1991 in Oldham and Oxford (Noble, Smith and Munby, 1992). The group had access to the local authority Housing Departments' housing benefit tapes. These record all the information needed to calculate housing benefit for all the HB claimants who are not on income support. This source has a number of advantages. Firstly, as we shall see, the income questions for HB and FC are in principle the same, although the HB and FC authorities may not be equally rigorous in checking the answers. Secondly, the tapes are much more up to date than the FES. Thirdly, the group had access to the claimants themselves, via postal questionnaires, and so could follow up apparently non-taking-up households.

Against this, there is a sample selection problem. On the one hand,

everyone in the sample has claimed a benefit already, and we know from Dorsett and Heady's study of FIS and standard HB that those who claim one benefit tend to claim all those to which they are entitled. On the other hand, since FC counts as income for HB purposes, claiming FC would often sharply reduce or eliminate entitlement to HB. This makes the 'net worth' of claiming FC less than its face value, and for many (although the number is nowhere stated, so far as we can see) the problem reduces to a choice between benefits rather than a take-up decision *per se*.

Furthermore, as we discuss below, HB is in principle reassessed with every change in circumstances, whereas FC is paid for six months regardless of any change. This means that the HB records cannot tell you about those who were eligible at some point in the last six months but who are not at present. The data source Noble et al. use is thus no improvement over the FES in this critical area.

The local authority Housing Departments collect only those items of data that are strictly necessary for the HB calculation. Although this is more than enough to calculate FC entitlement (on the basis of current incomes, at any rate), there is less scope for subsequent statistical modelling than with the FES, where there is an abundance of additional variables with which to correlate take-up.

Despite all this, many familiar findings, and some new ones, emerge from Noble et al.'s work. Take-up is higher for single parents, council tenants and those with large families, and is higher measured by benefit expenditure than by case-load. Take-up seems higher in Oldham than in Oxford, which is curious since a much larger proportion of the Oxford sample are council tenants.

One of the main strengths of this study is the evidence it gathers from follow-up questionnaires. One striking finding is that many of those apparently entitled cite a previous claim refusal as their reason for not claiming now.

SCPR Hackney Study

The Social and Community Planning Research group (SCPR) carried out a study of the take-up of HB, FIS, SB and free school meals in the London Borough of Hackney in 1983 (Ritchie and England, 1984), using a questionnaire specifically designed for the purpose. The study found take-up rates in line with ours and the DSS's. Take-up was lower for employees, pensioner couples and owner-occupiers.

This is the one take-up study we know of that recorded the ethnic

group of the respondents. It found no association between ethnic origin and take-up, except for those for whom English was not the first language. Without running the kind of multivariate analysis that we will be using here, it is hard to be sure about conclusions like this, however.

The most obvious problem with this study is that 1983 was a bad year in which to do it. The housing benefit system was reformed that year and the system was in a considerable mess[1] until at least the following year.

Households Below Average Income/Low Income Families

Households Below Average Income (HBAI) replaced Low Income Families (LIF) in 1989 as the Government's source of information on the poor in Britain. Although these are not primarily take-up studies, they are relevant here because the issues they consider are closely related to take-up (especially in the case of LIF). Since 1990, IFS has been collaborating with the DSS in the production of these statistics. LIF showed figures for those families with incomes below their SB line and below 140 per cent of their SB line. Clearly a major reason for having income below one's SB line is non-take-up (although one could be disqualified from SB on grounds other than income). HBAI is more concerned with ranks of income (the composition of the poorest 10 per cent of the population, for instance, or the rate of growth of the income of the bottom quintile).

Both sets of figures are FES-based, and some of IFS's versions of LIF have included breakdowns of the reasons for non-receipt of SB for those families with incomes below their SB line.

Many of the technical aspects of the present study draw on IFS's work on LIF and HBAI. Examples are the interpretation of FES housing costs and the assignment of people within households to different benefit units,[2] plus a fair amount of the computer programs themselves.

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[1] See Kemp (1984).
[2] See Chapter 3 for a discussion of benefit units.

CHAPTER 3
THE FAMILY EXPENDITURE SURVEY

Our modelling uses the Family Expenditure Survey. This is an annual government survey answered by a stratified sample of around 7,000 households drawn from the UK population.[1] The initial purpose of the survey was to gather information on household expenditure which could be used to calculate the weights used in the construction of the Retail Price Index. This is still important: detailed information on the expenditure of each member of the household forms a large part of the data. In addition, the survey records household characteristics such as tenure type, household composition, number of cars and individual characteristics such as work status, occupation, age, education, sex and marital status. Perhaps most valuable for our purposes, it contains detailed information on incomes. Thus the FES provides much of the information which is required to calculate tax liabilities and benefit entitlements, as well as providing information on actual tax payments and benefit receipts.

IFS was one of the first organisations to use disaggregated FES data for modelling the tax and benefit system, in 1980–81. In 1987 we moved our collection of FES base tapes from their Oxford mainframe computer to our in-house network of personal computers. This allows us instant access to all the information on any household in any year from 1968 to 1990. It is this that has made much of our recent empirical work possible, including this study and the poverty studies mentioned previously.

Problems with the FES

No data source is perfect. Any survey is prone to problems with coding errors and sampling bias. We will be using the FES here for very different purposes from those for which it was originally designed. In this section we discuss some of the difficulties we have encountered. Some are general problems that anyone using the survey will come across and some are largely specific to the modelling work required in the present study. In the main, these modelling problems arise because the

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[1] See Kemsley, Redpath and Holmes (1980) for a detailed description of the sampling frame and other survey procedures.

questions asked in the FES do not correspond exactly to those the benefit authorities would ask.

Although it is important to discuss the problems we encountered, a long list of difficulties can give an unfair impression. We would emphasise that the FES is an extremely rich data set which is remarkably well suited to our purpose.

Grossing Up

Participation in the FES is voluntary. It has an average response rate of around 70 per cent, but some groups, such as the very old, the very rich and the sick, are under-represented.[2] We attempt to deal with any consequent bias by differentially grossing up the data. The FES is roughly a one-in-3,000 sample of UK households (i.e. 7,000 out of 21,000,000), so to arrive at estimates for the population as a whole, one could multiply the results for each household in the sample by 3,000. Since, however, we know that some types of household (for example, single people and couples without children) are more likely to participate in the FES than others (for example, families with children and elderly pensioners), we can adjust the weights given to each type to reflect this. The weights used here are borrowed from the DSS, and are based on comparisons of the numbers of benefit units of each type in the sample with aggregate figures projected from the Census. This ensures that we get the correct number of families of each type, but it does not in itself ensure that we get the right number of, for instance, the sick or the very rich.

Benefit Unit Definitions

The individuals in each FES household are allocated in the data to 'income units'. A household can have more than one income unit; for example, a married couple living with a retired parent would be one household but two income units. We have to rearrange these income units into 'benefit units' which better correspond to DSS benefit rules. For example, the FES used to treat all those under 25 in full-time education as dependants, whereas a family can claim only for those under 19 in education.

There are sometimes coding inconsistencies in the FES allocation of

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[2] See Kemsley, Redpath and Holmes (1980), Atkinson and Micklewright (1983) and Atkinson, Gomulka and Sutherland (1989).

people to income units. For example, there are cases where someone is classed as the wife of the head of the household, but also as the unmarried head of her own income unit. We cannot know the extent to which these classifications reflect the true arrangements in a household. We attempt to iron out these inconsistencies by re-coding, since not doing so could cause programming problems.

Much of the early work of this study consisted of looking at the circumstances of individual households that seemed not to be taking up their benefits. From this it became clear that some of the apparent non-take-up might be caused by the DSS treating as a couple people classed in the data as single people (or vice versa), despite there being no inconsistencies in the FES coding. Although it was tempting, we have done nothing about these cases unless there was some additional evidence, such as the receipt of one-parent benefit by an apparently married couple. Otherwise there would be an element of circular argument about rearranging benefit units to fit with recorded benefit receipts in a take-up study.

Housing Costs

For this study, and other similar studies such as the HBAI, we need to know the values of a large number of housing cost components, such as mortgage interest payments, gross rent and rates, amounts paid for services and heating, water and sewerage rates and ground rent. The FES has a rather complicated housing cost record. For the most part, it records net payments (i.e. after any rebates), the rebates themselves and rate poundages and rateable values (including environmental and sewerage poundages). It can be difficult to work back from these to our gross payments in a consistent way. For example, it can be hard to split up rent and rates payments for those households (mainly council tenants) that pay both together. Sometimes, the values arrived at are inconsistent. For instance, gross rates can be estimated by adding rate rebates to net rate payments or by multiplying the rate poundage by the rateable value, and sometimes these two give different results.

Another example is mortgage payments. Most people know the size of their mortgage payment, but that payment includes both interest and principal. Since income support covers only the interest element of a mortgage payment, some way of splitting the two is necessary. While the FES asks for the split, it is not always available, and must sometimes be imputed. For the most part, the procedures used here to create our gross housing costs variables are based on the procedures used by the

DSS for its HBAI exercise. These have already been used at IFS for our own poverty studies.

Housing costs are recorded in the FES for the household as a whole, rather than for the individual income units within it. To model housing benefit, we therefore have to allocate responsibility for housing costs between the units in multiple-benefit-unit households (MBUs). In this study we simply assume all housing costs are borne by the benefit unit of the head of household. All other benefit units are 'non-householders' for SB purposes, therefore. There are cases where this may not be appropriate, especially for households full of students.

The Community Charge replaced rates in Scotland in April 1989 and in the rest of Great Britain in 1990. To help preserve anonymity, the Community Charge data in the FES are available in broad ranges only, so there is no real prospect of us modelling community charge benefit.

SB/IS Under-Reporting

A particularly critical (and disappointing) problem is that the FES records far too few receipts of income support and supplementary benefit for pensioners. From our previous work on take-up in the 1984 FES,[3] we knew that there was a problem here, but we had hoped to be able to correct for it. However, the problem has got much worse in the mean time and our correction procedures were less effective than we had anticipated. This has made it impossible to carry out much of the work for pensioners that we had hoped (and promised) to do.

The state pension and any SB/IS due are typically paid in the same order book. The root of the problem seems to be that pensioner respondents to the FES forget that some of the amount in their pension book is in fact income support. However, the problem has got much worse in recent years, despite no change in the method of payment.

In 1989, for instance, there were 1.54 million pensioners on income support, according to DSS administrative data. Grossing up the recorded FES IS receipts, however, produces a figure of 749,000 — 49 per cent of the actual total. Table 3.1 shows the problem in full: it gives the difference between administrative data on SB/IS receipt and FES grossed-up data for our sample period and before.

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[3] See Fry and Stark (1987).

TABLE 3.1

SB Receipts: Differences between Administrative and FES Data[a]

	Elderly		Sick		Unemployed		Lone parents	
	Difference (thous.)	Error (%)	Difference (thous.)	Error (%)	Difference (thous.)	Error (%)	Difference (thous.)	Error (%)
1980	−14	−1	−64	−31	−224	−26	72	24
1981	−72	−4	−86	−39	−201	−17	14	4
1982	27	2	−18	−8	−22	−1	46	11
1983	−506	−29	−54	−23	188	10	83	19
1984	−552	−32	1	0	112	6	−19	−4
1985	−669	−40	−100	−36	5	0	−59	−11
1986	−806	−45	−125	−42	−129	−8	−47	−8
1987	−1,001	−55	−168	−50	−60	−3	−29	−4
1988	−1,028	−63	−165	−47	−67	−4	−89	−12
1989	−793	−51	−139	−38	102	8	−222	−29

[a] Difference = Grossed-up FES − Administrative figure.
Error = 100 × Difference/Administrative figure.

The SB receipts for pensioners were quite accurate in the early 1980s, but started deteriorating in 1983. By 1988 the recorded receipts are only 37 per cent of that suggested by administrative figures.

The onset of the problem in 1983 coincided with the introduction of certificated housing benefit. Then, many pensioners saw a reduction in their SB payments and a corresponding increase in housing benefit, and they may have inferred from this that they were no longer on SB. But it is hard to see that this would still be a factor six years later and under another new system. The fact that state pensions increasingly now contain additions from SERPS and its predecessors may also be causing confusion, in that there are now more reasons than before why a pension could be different from the basic level. One possibility is that the problem may be linked to the cessation of routine visits to long-term claimants, who are thus no longer reminded that they are receiving some additional SB/IS.

It can be seen that there are also problems with other groups of SB/IS recipients, notably the sick and disabled and single parents. However, it is likely that the problem with the sick is due to uncorrected non-response bias (since anyone sick is unlikely to fill in the FES in the first place, but our grossing-up factors do not allow for this), and the pattern for single parents is erratic.

In our previous study (Fry and Stark, 1987) we had some success in correcting the pensions receipts data in the 1984 sample. We found that there were many cases where the amount of pension recorded in the

data exactly matched that family's supplementary benefit line. We inferred from this that some of this pension was in fact SB and imputed an SB receipt equal to the pension receipt less the basic state pension. Using this technique raised SB receipts to around 80 per cent of the administrative total. However, we discovered that this technique worked less well in subsequent years. We then experimented with other possible criteria for imputing SB receipt, such as spotting pensioner households that received 100 per cent housing benefit rebates but that had no apparent entitlement to them under standard housing benefit, but none was very satisfactory.

The DSS has been aware of this problem for some time. It is mainly concerned with producing aggregate figures and obtains these by giving a large weight to the pensioner cases that it does have.

However, our statistical models, and even our cross-tabulations, require case-by-case comparisons of entitlements and receipts, and we felt that the pensioner receipts data were so poor that it was best to concentrate on the non-pensioner population.

The Self-Employed

The FES records income from the last available set of accounts for the self-employed. Often these are a year or more out of date. The FES self-employment incomes are in fact quite close to National Accounts self-employment incomes once allowance is made for these lags.[4] However, in assessing benefits a more current definition of income would be used, and we do not know how specific self-employed families have done since their last accounts. The self-employed have therefore been excluded from this study.

[4] Atkinson and Micklewright, 1983.

CHAPTER 4
THE BENEFIT SYSTEM

This chapter provides short descriptions of the benefits under investigation and discusses some of the problems we encountered in producing estimates of entitlements to them. It is not intended to be a complete description of either the benefits themselves or of our program. See Child Poverty Action Group (1990a, 1990b and previous years) for a full description of the benefit system, and Johnson, Stark and Webb (1991) on the IFS Tax and Benefit Model.

To produce our results we had to construct a computer program to read the raw FES data, build it into a form we could use, calculate all the derived variables we needed and finally calculate entitlements for each of the 20,000 people in 7,000 households in each of six years' FESs. The resulting program is necessarily rather long and involved. A working paper giving full details will be published. A purpose-written program was used to generate estimates for 1984–87. For 1989 and 1990 we used a modified version of the IFS tax and benefit model (Johnson, Stark and Webb, 1991). Since 1988 was the year of the reform, we do not consider this.

The Pre-1988 System

Housing Benefit (HB)

The scheme we will be considering ran from 1983–84 to May 1988, although for non-SB recipients the system was substantially the same before 1983. It provided help with rent and rates for those on low incomes. The scheme was in two parts: certificated housing benefit (CHB) for those on supplementary benefit, and standard housing benefit (SHB) for the rest. Although the DSS publishes separate take-up estimates for CHB, we feel that CHB take-up is best looked at in conjunction with SB take-up. We therefore concentrate on SHB here.

SHB was calculated using a comparison of gross income, eligible rent and rates and a needs allowance. For households with more than one benefit unit, non-dependant deductions reduced any benefit payable.

Eligible rent was gross rent less any heating or water charges (and some service charges) included in rent.

Income consisted of earnings and other income. Earnings were gross weekly earnings (usually averaged over the last five weeks) less an

earnings disregard (£17.30 for the head of household in 1987). Most other benefits and investments counted as income.

Needs consisted of components for single people, a higher rate for couples and an allowance for children, with additions for pensioners and the sick. (These allowances were based on supplementary benefit scale rates plus an allowance for national average rent and rates.)

Non-dependant deductions (NDDs) were amounts deducted from HB in respect of other adults who shared the accommodation, who were not responsible for housing costs, but who were deemed to contribute towards them. The NDD rules were changed constantly over the period. Deductions were lower for young people, pensioners and the unemployed. There were separate NDDs for rents and rates, with the rent NDDs being higher.

Housing benefit was calculated as follows.

Needs were compared with income. If needs equalled income, entitlement was 60 per cent of eligible rent and 60 per cent of rates. If income was greater than needs, then a proportion of the excess (the 'upper taper') was deducted from these amounts. If income was less than needs, then a proportion of the difference (the 'lower taper') was added until all of rent and rates were paid. (The upper and lower tapers differed between rent and rates, and the lower tapers between pensioners and non-pensioners.) Any NDDs were then deducted. Amounts below 50p were not paid.

It is fair to say that SHB was not the Government's favourite benefit. The system was constantly tinkered with over the period. Most notably, the 'upper tapers', which reduced benefits for those with incomes above their needs allowance, were steadily increased from 21 per cent for rent and 7 per cent for rates in 1984 to 33 per cent and 13 per cent respectively in 1988.

Modelling HB

There are a number of problems in modelling housing benefit. The technical difficulty of finding our way around the FES housing record has been discussed previously, as has the difficulty of allocating housing costs between benefit units. NDDs are tricky to model simply because the system changed so much over the period. Students pose problems since it is more likely that groups of students in fact shared rents and rates between them and there were special reductions to eligible rents for students during term time which we have tried to capture.

Family income supplement counted as income for HB purposes. This

presents us with a dilemma, since FIS is one of the benefits we are attempting to model. We have calculated SHB entitlements on the basis both of modelled FIS entitlement and recorded FIS receipt. In the tables and regressions that follow, we use SHB entitlement based on FIS receipts, since this seems closer to the measure of income that the housing benefit authorities would actually use. But for many purposes, such as use in a tax–benefit model or the modelling of the joint take-up of more than one benefit, calculating HB entitlement using modelled FIS entitlement might be better.

Earned income can be problematic where someone has just left work, for example because of sickness. It is also likely that we have not captured allowable deductions for work expenses adequately.

Supplementary Benefit (SB)

Supplementary benefit was in effect the state safety net. Those in full-time work (more than 30 hours a week, or 35 hours for the disabled) were ineligible, as were those with more than £3,000 of capital. Eligible claimants whose resources were less than their requirements received the difference between the two plus, in some cases, extra amounts. If the claimant was a householder, he or she then also qualified for certificated housing benefit.

Resources consisted of earnings net of tax, National Insurance and work expenses and less an earnings disregard of £4 (£4 plus 50 per cent of earnings up to £20 for single parents). Most other benefits counted as resources. Income from capital did not, but those with capital of more than £3,000 were disqualified.

Requirements consisted of normal requirements, housing requirements and additional requirements.

Normal requirements varied with the number of adults in the family and the number and ages of children. There were lower rates for non-householders and higher 'long-term' rates for those over 60 and for single parents and others not required to sign on as available for work.

Housing requirements consisted of net mortgage interest payments (not capital repayments),[1] water rates and ground rent, plus an allowance for insurance and maintenance for owner-occupiers. NDDs were deducted from mortgage interest, at the same rates as for

[1] Half of mortgage interest payments for the first 16 weeks on benefit from June 1987.

rents under housing benefit.

Additional requirements consisted of small additions for heating for the over-65s,[2] those with young children and the sick. There were also additions for the sick and blind. At the beginning of our period, additions were available for centrally heated houses.

For those who could make a valid claim, entitlement was simply the difference between requirements and resources. If this was positive, householder claimants also qualified for certificated housing benefit for their rates and rent (if any), and all claimants could qualify for a large number of single payments for bedding, children's clothing and the like. SB receipt acted as a 'passport' to other benefits such as free prescriptions (although SB receipt was not necessary for these).

Certificated housing benefit was simply all gross rent and rates, less the same NDDs as for SHB, but with slightly different rules about any deductions from rent.

Modelling SB

Two of the major problems in modelling SB have been covered in the previous chapter: the under-reporting of SB receipts for pensioners (which would also make our entitlement estimates inaccurate) and our likely disagreements with the benefit authorities on the composition of benefit units.

One major difficulty with SB, and all the post-1988 benefits, is estimating the benefit unit's capital stock. From 1987 onwards, the FES records the total amount of savings held in broad ranges. However, we have chosen to infer capital stocks by applying appropriate rates of return to recorded receipts of investment income. Clearly this is an error-prone procedure. Capital in non-interest-bearing accounts is effectively ignored, for instance. The rules on what counts as capital were quite complicated, with some elements, such as tax refunds, counting as capital in some circumstances and as income in others (e.g. when on strike), and it is unlikely that we have captured them fully.

Most SB claimants had to be actively seeking work in order to qualify. It is very hard to infer this from FES data. The FES classifies people as employed, seeking work, sick or unoccupied, but it is unlikely that this is much like the way the DSS would see the same people. 'Unoccupied' people include those who have never worked, and many of these, such

[2] Over-70s in 1984; but there were higher rates for the over-85s.

as the young unemployed, would be able to make an SB claim.

SB had a great number of additions, but we attempt to model only those for heating. Even this we do incompletely. For example, the heating additions were higher on 'hard-to-heat' council estates and for the sick. There is nothing we can do about the first problem, and we can only infer illness from the receipt of other benefits (statutory sick pay, invalidity benefit etc.), although receipt of one of these was not necessary to qualify for extra heating additions on health grounds.

Finally, we understate the true value of the benefit because we cannot model single payments.

Housing Benefit Supplement (HBS)

Housing benefit supplement was a form of SB, and had the same eligibility rules (hours, availability for work etc.). HBS was necessary because some people had incomes just too high to qualify for SB but did not receive 100 per cent rebates under the SHB system. Their net housing costs could then take their disposable income below their SB line. HBS was designed to make up the difference.

Results for HBS will not be reported here. Almost all the recipients were pensioners, and our problems with FES SB receipts discussed above would make estimation very hard. In any case, FES HBS receipts data are themselves something of a mess. HBS take-up in 1984 was estimated by the DSS to be 58 per cent by case-load and 66 per cent by value of benefit.[3]

Family Income Supplement (FIS)

Family income supplement was a means-tested benefit for those in full-time work with children. Full-time work meant more than 29 hours, or 23 hours for a single parent.

FIS was payable if gross income fell short of a *prescribed amount*, which depended on the number and (from November 1985) ages of children. Income excluded child benefit, one-parent benefit and housing benefit. Earnings were averaged over the previous five weeks (or two months if paid monthly). FIS was simply 50 per cent of the difference between income and the prescribed amount, up to a maximum weekly payment, which itself depended on the number and ages of children.

Once awarded, FIS was paid at the same rate for 12 months, regardless

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[3] *Social Security Statistics 1988*, p. 275.

of any change in circumstances.

Modelling FIS

In principle, the 'usual gross earnings' recorded in the FES is quite like the earnings measure required for FIS. As Corden and Craig (1991) have established for family credit, however, the income established by the benefit authorities, often after consulting with employers, may be very different, since the FIS authorities check incomes more stringently than FES interviewers (or, it seems, housing benefit authorities).

The critical problem, however, is the one-year payment of FIS. We can only model current entitlement (although on the basis of usual earnings). Only about half of those in receipt of FIS are entitled on the basis of current incomes. Presumably the other half were entitled a few months ago. Conversely, we cannot observe those who were entitled at some point in the previous year but who are not currently in receipt. Our figures provide an answer to the question 'what proportion of those entitled on the basis of their current income are currently receiving benefit?' but cannot answer questions such as 'what proportion of those currently entitled to receive benefit on the basis of their income over the last 12 months are in fact doing so?'.

The 1988 Reforms

This combination of benefits had a number of drawbacks. Each benefit had its own definition of income and needs, and the interaction between them was chaotic. It was possible, for example, for someone receiving both FIS and SHB to lose more than £1 in taxes and withdrawn benefits if he or she earned an extra £1. The entire system was swept away in May 1988. Family income supplement was replaced by family credit, and supplementary benefit by income support, and the housing benefit system was restructured.

Targeting also changed. The aim was to achieve a nil-cost re-targeting of benefits towards families with children and therefore away from pensioners, single people and others without children currently in the family. This was to be achieved through higher child scales under IS than SB and the increased generosity of FC relative to FIS, balanced by reductions in housing benefits. As a result of these changes, the characteristics (in particular, income and family structure) of those eligible for benefits have also changed, as has the distribution of entitlements among them.

Income Support (IS)

Income support replaced SB. Those under 60 have to be available for work. Only those working less than 24 hours per week[4] are eligible. A couple would be ineligible for IS if either member was ineligible, in contrast to SB where a couple was eligible if either member was eligible. Sixteen- and 17-year-olds are generally ineligible for IS (the main exceptions are young single parents and young disabled).

Like its predecessor, income support is based on a comparison of needs and income.

Needs comprise applicable amounts, housing costs and premiums.

Applicable amounts are allowances for basic living. They are higher for couples than for single people, and for single people they are higher for the over-24s. There are additions for children which vary by age. In contrast to SB, there are no non-householder or long-term rates.

Housing costs consist of net mortgage interest payments, less non-dependant deductions (discussed under *Housing Benefit* below). For those under 60, only 50 per cent of mortgage interest will be paid for the first 16 weeks on income support. Some other housing costs not met by housing benefit can also be paid, such as some service charges and ground rent.

Premiums are additions for particular groups. All those with children receive a 'family premium'. There are additional premiums for single parents, the disabled and pensioners (this last varying by age). Only the highest of these is payable. A disabled single parent, for instance, would qualify for the disablement premium, not the lower lone-parent premium, plus a family premium.

With the exception of a cold-weather addition, there are no other additions available. The system of SB single payments was replaced by the Social Fund, which provides discretionary loans.

Income is net family income (i.e. after tax and National Insurance). There are small earnings disregards. Most benefits count as income. Income from capital does not directly count as income. Those with capital above £6,000 (now £8,000) are disqualified. Those with capital between £3,000 and £6,000 have £1 added to their income for each £250 of capital between these amounts.

For those eligible, IS payable is simply the difference between needs

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[1] Sixteen hours from April 1992.

and income, where this is positive.

Transitional protection (TP) existed for those who would otherwise lose from the move from SB to IS. We cannot distinguish transitional payments in our data.

Modelling IS

Most of the remarks about modelling SB also apply to modelling IS. However, IS is in some respects a simpler benefit. The premium system is much simpler than the SB special needs and extra heating additions. In particular, the disability premium is based almost entirely on the receipt of a disability benefit, and so it is likely that we capture more of the increases for the sick and disabled than under SB. The modelled amount is also likely to be a better approximation of the value of benefit since there are no single payments available to recipients. This may be important for comparison of take-up rates. We discuss this in the next chapter.

Housing Benefit

The new housing benefit system is closely tied to income support. As with the previous scheme, HB is available both to those in and to those out of work.

The maximum housing benefit payable consists of 100 per cent of rent, less non-dependant deductions and deductions for heating etc. included in rent, and 80 per cent of rates, less any NDDs.

The needs allowances for HB are the same as for IS.[5] Income for HB purposes is also defined as for IS, except that there are higher earnings disregards for single parents and the disabled. The capital disqualification limit is also higher.

Those with income less than or equal to needs receive maximum housing benefit. Those on income support have income equal to needs by definition, and so all get maximum HB. For those with income greater than needs, HB is tapered away at a rate of 65p for each excess £1 for rents and 20p for rates. This scheme requires no separate rules for those on IS, as was necessary with the old certificated–standard HB system. Nor is there any need for an equivalent to housing benefit supplement.

A *non-dependant deduction* scheme operates. This is simpler than the

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[5] Except for the single-parent premium.

old SB/HB NDD scheme. There are just two sets of deductions, one for over-18s in work and earning above a set amount and one for other over-18s. Again, the same (higher) NDDs apply to rents under HB and mortgages under IS, with lower NDDs for rate rebates.

Transitional protection existed to ensure that certain groups, notably single parents, pensioners and the disabled, did not lose more than £3 p.w. as a result of the 1988 reforms. This protection has been gradually reduced, but it makes our analysis harder because we cannot distinguish transitional protection receipts from current HB receipts in our data.

The Community Charge replaced rates in Scotland in April 1989 and in the rest of Great Britain in April 1990. *Community charge benefit* (CCB) was introduced along with it. CCB is based closely on housing benefit rate rebates, except that it is available to non-householders (who are liable for Community Charge but not rates), it has a lower taper (15 per cent) than had rate rebates, there are no NDDs and the capital disqualification limits are raised still further. CCB is not modelled here, because the FES data on Community Charge have been removed from the publicly available tapes. Figures for housing benefit take-up in 1989 therefore include only rent rebates for Scotland.

Modelling HB

Much of the discussions of the problems with both IS and SHB apply here also. In our FES tapes, transitional protection payments are included with housing benefit payments, despite there being a separate HB transitional payments question in the questionnaire. As we shall see, there seem to be rather a lot of cases in the 1989 FES for which a receipt of HB is recorded but for which there is no modelled entitlement. It may be that some of these receipts are in fact receipts of transitional protection. However, by May 1989 there were only about 40,000 transitional protection receipts amongst non-pensioners, so this cannot be the whole story.

The question of whether FC receipts or modelled FC entitlements should be used in calculating income for HB purposes is even more acute than under the old HB system, since FC is generally worth more than FIS, and since the HB taper is greater. These two features mean that the size of HB entitlement varies a great deal according to whether or not FC is included as income. We modelled HB on both assumptions (and also with FC set to zero, which is useful for some of the econometrics that follows). The aggregate numbers entitled under both versions are surprisingly similar, but this is because of the timing

problems with FC and FIS: the same number of families are on FC under both assumptions, and so are entitled to reduced or zero housing benefit, but they are often different people in each case. The HB regulations specify that if someone fails to apply for FC but would be likely to get it if they claimed, the benefit authorities should include the likely receipt as 'notional income' in calculating HB. Arguably therefore recorded receipts should be used where they are present and modelled entitlements where they are not. However, it seems that in practice this rule is rarely applied. The results presented below use recorded FC.

Family Credit (FC)

Family credit replaced FIS as the benefit payable to low-income working families with children. Only those working more than 23 hours per week can qualify.[6]

FC payable consists of credits, less a proportion of the excess of income over an applicable amount, if any.

The *applicable amount* is the same as the income support couples' applicable amount.

Credits consist of an adult credit and child credits, with the child credits varying with age. (The child credits are also linked to the IS dependants' applicable amounts, less child benefit.)

Income for FC purposes is as for IS, except that child benefit and one-parent benefit are ignored, there are no earnings disregards, maintenance payments are treated differently and earnings are usually averaged over the last five weeks (or two months if paid monthly). The capital rules are also as for IS.

Maximum FC is payable to all those with income below the applicable amount. Seventy pence is deducted from FC for each £1 of income above this level. A minimum of 50p is payable.

Once awarded, FC is payable for six months at the same rate.

Modelling FC

The problems encountered with FIS modelling apply here also, except that a six-month pay period should mean that there are fewer who are receiving and not currently entitled.

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[6] Fifteen hours from May 1992.

CHAPTER 5
THE PATTERN OF TAKE-UP, 1984–87

Expressing Take-Up Rates

Most previous studies and most popular discussion of take-up have focused on 'take-up rates' — proportions of those entitled to a benefit who in fact claim it. However, because of the scope for error in the calculation of entitlements described previously, the measurement of such rates is not as unambiguous as it sounds; a number of alternative methods have been used and so care must be taken when comparing our results with those of previous studies.

The DSS measures take-up as:

$$\frac{\text{Number actually receiving a benefit}}{\text{Number actually receiving + Estimate from FES of number not taking up}}$$

The DSS takes its figures for numbers actually receiving from administrative sources, notably the Annual Statistical Enquiry (ASE) for SB/IS. (There was in fact no such administrative source for SHB — although there is for the post-1988 system — and so all the DSS figures for SHB are from the FES.)

Apart from the complications arising from the use of two different sources of data, which would make much of our econometric work impossible, this differs from the measure used in Fry and Stark (1987) in two respects. The number receiving a benefit may include some people who in their current circumstances are not entitled. SB claimants who have just returned to work are an example, and, as we saw above, this is an acute problem with FIS/FC. This will tend to increase the DSS figure by increasing the number of recipients on both the top and bottom of the equation.

In contrast, Fry and Stark (1987) measure take-up as the proportion of those with calculated entitlement who also receive benefit, thereby excluding recipients without calculated entitlement. Abstracting from other possible errors, to the extent that members of this group represent mistakes in the measurement of entitlement (i.e. they are in fact entitled), this measure will be 'too low'; to the extent that there are genuine cases of receipt without current entitlement, the DSS measure will be 'too high'. In what follows, we present FES-based take-up rates that both exclude this group, as in Fry and Stark (1987), ('XNER' —

excluding non-entitled recipients) and include them as entitled as well as receiving ('INER' — including non-entitled recipients).

For SB/IS there is the additional complication that a number of those not taking up are receiving SHB instead. While the DSS includes these in the take-up measure, we exclude them (although the numbers are not large — this is more of a problem for pensioners, and was especially acute before the 1983–84 housing benefit reform, which is one reason why we started in 1984 rather than before).

The size of measured take-up rates relative to each other and to the 'true' rate depends on the sorts of errors and omissions that are inevitably made in the process of calculating eligibility and entitlement and on exactly what is intended to be measured. Without making specific assumptions about the nature of these errors, little can be said about what is the 'correct' way of measuring take-up; here we prefer to take an agnostic viewpoint, concentrating on maximising the accuracy of the entitlement calculation within the constraints of the available data and presenting the results in as comprehensive and informative a format as possible.

Table 5.1 illustrates the issues using 1987 SB data. The table is in a format we shall be using throughout this and the following chapters.

TABLE 5.1

Supplementary Benefit in 1987: Entitlements and Receipts

	Entitled and receiving (a)	Entitled; receiving SHB (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)	2,483	115	478	126	84	81

Column (a) shows the numbers of benefit units with both a modelled entitlement to SB and a recorded receipt. Column (b) shows the number modelled as entitled but who appear instead to be receiving only standard HB. (This column is clearly not needed for benefits other than SB and IS.) Column (c) shows the number modelled as entitled but who receive nothing. Column (d) shows the numbers recording a receipt but with no apparent entitlement.

The numbers are estimates for the whole of Great Britain, grossed up using the techniques discussed in Chapter 3. We also present similar tables for the value of benefit. For these, columns (a) and (d) use

recorded receipts and columns (b) and (c) use modelled entitlements. Values are in million pounds per annum.

Our tables exclude some benefit units. Most of these exclusions have been heralded above: pensioners (men over 64, women over 59), the self-employed (in both main and subsidiary occupations) and, for consistency with the DSS, those in Northern Ireland. However, we do include students and those on YOPs and similar schemes, whereas the DSS excludes them.

The XNER measure (column (e)) is simply column (a) / columns (a + c), whereas the INER measure (column (f)) is columns (a + d) / columns (a + b + c + d). These are close in this instance, but we will show examples below where they deviate a lot.

TABLE 5.2

Estimated Take-Up Rates for Standard Housing Benefit

Per cent

	Case-load		Value	
	XNER	INER	XNER	INER
1984	52	59	70	74
1985	52	59	69	72
1986	48	57	64	68
1987	54	62	72	74

TABLE 5.3

Estimated Take-Up Rates for Supplementary Benefit

Per cent

	Case-load		Value	
	XNER	INER	XNER	INER
1984	84	82	90	90
1985	85	82	90	89
1986	83	81	89	88
1987	84	81	90	89

Tables 5.2 and 5.3 give summaries of our estimates of the take-up rates for SHB and SB. On the XNER measure, take-up of SHB averages just over 50 per cent by case-load and 68 per cent by value of benefit over the period, with a dip in 1986. Take-up of SB averages 84 per cent by

case-load and 90 per cent by value, with little variation by year. The difference between the XNER and INER measures is greater for SHB than for SB.

In the following section we break down our results in various ways. To keep things manageable, we will concentrate on 1987, the last full year of the system, but we will also show some figures for earlier years.

Standard Housing Benefit

One way of assessing the accuracy of calculated entitlements is to compare calculated entitlement and recorded receipts for families for whom both are positive. This is done in Figure 5.1, which shows the bivariate Kernel surface for entitlement/receipt of standard HB.[1] In this graph, modelled entitlements (in pounds per week) are measured along the horizontal axis and recorded receipts along the vertical axis. The contours on the diagram represent densities of observations: the more observations at or near a point, the higher the contour.

FIGURE 5.1

How Well Do We Model Take-Up? Housing Benefit, 1984–87

[1] These Kernels were produced using the NP-REG package (Duncan and Jones, 1992).

In an ideal world, in which all our modelled entitlements equalled receipts, the graph would collapse into a ridge running up the 45-degree line if the scales were the same. Conversely, the flatter the 'hill' the less accurate is our modelling. Figure 5.1 suggests that, if recorded receipts are accurate, modelled entitlement errors are likely to account both for some of those receiving without modelled entitlement and for some of those entitled without receipt. However, there is no obvious overestimation or underestimation on average. Bearing in mind the modelling problems described earlier, we were quite reassured by this picture.

TABLE 5.4

Standard Housing Benefit: Aggregate Take-Up, 1984–87 (non-pensioners only)

	Entitled and receiving	Entitled and not receiving	Receiving and not entitled	Take-up, XNER (%)	Take-up, INER (%)	DSS estimates		
	(a)	(b)	(c)	(d)	(e)	(a)+(c)	(b)	(e)
Case-load (thous.)								
1984	878	824	324	52	59	—	—	53
1985	721	657	245	52	59	980	860	53
1986	695	740	274	48	57	—	—	—
1987	626	534	259	54	62	880	580	60
Value (£m p.a.)								
1984	426	179	88	70	74	—	—	65
1985	407	182	56	69	72	440	230	65
1986	487	273	87	64	68	—	—	—
1987	507	200	74	72	74	490	230	68

Table 5.4 shows the SHB take-up pattern over 1984–87. There is a steady drop in the numbers receiving; this matches administrative data. However, the nominal value of benefit paid goes up. Take-up drops in 1986 on our figures. We are unsure of why this is, but the econometric work reported in Chapter 7 shows no apparent break in the relationship between take-up and entitlement. The other main point to note, and this will occur throughout our tables, is the higher take-up measured by value of benefit than measured by numbers of claimants. This, of course, reflects the fact that, as we have seen from previous studies, larger entitlements are more likely to be taken up.

On the right-hand side of the table we present the DSS's estimates of take-up (using, as we have seen, the INER measure and administrative data on receipts). By case-load, its figures are quite close to ours, with

880,000 recipients in 1987 against our 885,000, and 580,000 not taking up against our 534,000. Our estimates of the value of benefit not taken up are quite close too: the DSS's £230 million against our £200 million. The odd result is that we have HB receipts higher than the DSS by £90 million. This may be due to the DSS using different methods of grossing up the HB receipts data. This difference is the reason why our take-up by value rate in column (e) is six percentage points higher than the DSS's.

TABLE 5.5

SHB Take-Up in 1987 by Family Type

	Entitled and receiving (a)	Entitled and not receiving (b)	Receiving and not entitled (c)	Take-up, XNER (%) (d)	Take-up, INER (%) (e)
Case-load (thous.)					
Single people	311	231	76	57	63
Single-parent families	57	26	42	69	79
Childless couples	127	147	56	46	56
Couples with children	131	131	85	50	62
Value (£m p.a.)					
Single people	282	79	22	78	79
Single-parent families	49	10	16	83	87
Childless couples	81	65	10	55	58
Couples with children	95	46	25	67	72

Table 5.5 breaks down our 1987 take-up estimates by family type. The results are much as might be expected from previous studies. The most striking result is the much higher take-up amongst single parents. As we have seen in Chapter 2, this is a common finding in previous take-up studies, and we will encounter it again subsequently. Take-up is lowest for childless couples. The SCPR Hackney study also found this. It may simply be driven by the relatively low entitlement levels of this group.

Next (Table 5.6) we break down our results by the economic position of the head of the household. As Corden and Craig (1991) have observed, the incomes of employees may be more subject to under-reporting (see Chapter 2 above). However, the take-up for this group is in fact slightly above average. The sick are quite a large group with high take-up. Many of the sick have enough invalidity benefits, statutory sick pay or earnings to take them above their SB line, and so

into scope for SHB, but most have relatively stable circumstances. The low take-up amongst the early retired and unoccupied is striking. This may be because they have capital to draw on.

TABLE 5.6

SHB Take-Up in 1987 by Economic Position of Head of Household

	Entitled and receiving (a)	Entitled and not receiving (b)	Receiving and not entitled (c)	Take-up, XNER (%) (d)	Take-up, INER (%) (e)
Case-load (thous.)					
Employee	263	198	193	57	70
Seeking work	58	92	3	39	40
Sick but seeking work	36	15	3	71	72
Sick, not seeking work	176	60	31	75	78
Early retired	15	53	10	22	32
Unoccupied	78	117	20	40	45
Value (£m p.a.)					
Employee	220	60	54	79	82
Seeking work	54	32	1	63	63
Sick but seeking work	29	4	4	89	90
Sick, not seeking work	143	31	6	82	83
Early retired	3	21	2	13	20
Unoccupied	57	52	8	53	56

Table 5.7 disaggregates our results by tenure type. Again the pattern confirms previous studies. Council and Housing Association tenants have very high take-up. Owner-occupiers (who, of course, are only entitled to relatively small rate rebates) have low take-up.

In Chapters 3 and 4 we discussed the problems in modelling entitlement that can arise when there is more than one benefit unit in the household. Table 5.8 breaks down our results by the number of distinct benefit units in the household. There is in fact not much variation in take-up rates between different-sized households. We might have expected to see lower take-up for multiple-benefit-unit households (MBUs) because of the effects of the incomes of other household members, or perhaps because housing costs were being shared between units. In fact, take-up is slightly higher for MBUs. This contrasts sharply with the results shown below for SB, where take-up of SB is shown to be much lower for benefit units other than the first (see Table 5.14).

TABLE 5.7

SHB Take-Up in 1987 by Tenure Type

	Entitled and receiving (a)	Entitled and not receiving (b)	Receiving and not entitled (c)	Take-up, XNER (%) (d)	Take-up, INER (%) (e)
Case-load (thous.)					
Council rented	394	167	116	70	75
Housing Association	35	16	3	69	71
Private rented (unfurnished)	30	27	0	53	53
Private rented (furnished)	67	121	15	36	40
Mortgaged	49	78	92	39	65
Owned outright	51	114	30	31	42
Rent-free	0	12	3	—	—
Value (£m p.a.)					
Council rented	333	93	50	78	81
Housing Association	19	6	1	75	76
Private rented (unfurnished)	16	9	0	64	64
Private rented (furnished)	100	54	7	65	67
Mortgaged	18	15	11	56	67
Owned outright	21	22	4	49	53
Rent-free	0	2	1	—	—

TABLE 5.8

SHB Take-Up in 1987 by Number of Benefit Units in Household

Number of benefit units in the household	Entitled and receiving (a)	Entitled and not receiving (b)	Receiving and not entitled (c)	Take-up, XNER (%) (d)	Take-up, INER (%) (e)
Case-load (thous.)					
1	479	402	170	54	62
2	121	88	62	58	67
3	15	18	25	45	69
4 or more	12	27	3	31	36
Value (£m p.a.)					
1	360	158	49	69	72
2	87	25	20	78	81
3	13	4	4	75	80
4 or more	47	13	0	78	78

Supplementary Benefit

We now present much the same pictures and tables for supplementary benefit. We will see some of the same patterns emerging, but also some new ones. Again, we begin with a Kernel plot of entitlement and receipt for those both eligible and receiving (Figure 5.2). Clearly, the fit is a good deal closer than for SHB; the risk of misclassifying households as entitled or non-entitled appears smaller. This may well be because most of those on SB have fairly stable circumstances, and have either no other income or only benefit income. We will return to this below.

FIGURE 5.2

How Well Do We Model Take-Up? Supplementary Benefit, 1984–87

Table 5.9 shows our estimates of the aggregate take-up of SB for non-pensioners over our sample period, and shows some comparable DSS estimates.

There is no trend at all in the data and the take-up rates seem remarkably stable. For non-pensioners, SB case-loads are likely to follow approximately the level of unemployment (Disney and Webb, 1991); unemployment was roughly constant over the period, whilst the value of benefit rose in line with price inflation. Our estimates are

encouragingly close to the DSS estimates (where these are available), despite all the differences in method and data. Note that these figures, and all those that follow, exclude the value of certificated housing benefit. This makes it easier to compare our results with those of the DSS.

TABLE 5.9

Supplementary Benefit: Aggregate Take-Up, 1984–87 (non-pensioners only)

	Entitled and receiving (a)	Entitled; receiving SHB (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)	DSS estimates (a)+(d)	(b)+(c)	(f)
Case-load (thous.)									
1984	2,553	103	499	193	84	82	—	—	—
1985	2,452	140	436	176	85	82	—	—	86
1986	2,424	128	493	152	83	81	—	—	—
1987	2,483	115	478	126	84	81	3,040	570	84
Value (£m p.a.)									
1984	4,429	52	474	208	90	90	—	—	—
1985	4,670	96	522	235	90	89	—	—	92
1986	4,777	88	584	217	89	88	—	—	—
1987	5,283	96	578	129	90	89	6,000	570	91

TABLE 5.10

SB Take-Up in 1987 by Family Type

	Entitled and receiving (a)	Entitled; receiving SHB (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)						
Single people	1,130	50	368	75	75	74
Single-parent families	628	15	35	23	95	93
Childless couples	217	20	31	8	87	82
Couples with children	508	30	45	19	92	87
Value (£m p.a.)						
Single people	1,645	28	374	81	81	81
Single-parent families	1,394	13	58	23	96	95
Childless couples	603	34	46	10	93	88
Couples with children	1,641	21	100	16	94	93

As with SHB, we next break down our results in a variety of ways. First, in Table 5.10, we show them by family type. In contrast to the results for SHB, these (and subsequent) tables include secondary benefit units separately where more than one unit shares the household (see Chapter 3 for a discussion of this).

Once again, take-up is high for single parents, and in contrast to SHB, the presence of children generally seems to be associated with higher take-up. Single people without children have especially low take-up. As we shall see, this may be due to many of them being non-householders who share living arrangements with higher-income relatives.

TABLE 5.11

SB Take-Up in 1987 by Economic Position of Head of Tax Unit

	Entitled and receiving (a)	Entitled; receiving SHB (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)						
Employee	153	23	79	55	66	67
Seeking work	1,387	52	318	35	81	79
Sick but seeking work	62	7	32	3	66	63
Sick, not seeking work	122	18	20	14	86	78
Early retired	61	9	9	0	87	78
Unoccupied	698	6	21	17	97	96
Value (£m p.a.)						
Employee	306	17	104	50	75	75
Seeking work	2,979	41	388	47	88	88
Sick but seeking work	144	1	29	2	83	83
Sick, not seeking work	245	10	19	8	93	90
Early retired	148	19	13	0	92	82
Unoccupied	1,462	7	24	21	98	98

Table 5.11 disaggregates by employment status. Take-up is lowest for employees. In principle it is quite hard for a family unit headed by an employee to qualify for SB: the head must either be working part-time (under 30 hours), or be working full-time on low earnings and have an unemployed partner.

The low take-up for those sick but seeking work may be in part due to the relatively large amounts of other non-means-tested benefits received by this group, and possibly be due to their having been eligible for a relatively short time on average. But note the relatively small sample size for this group.

TABLE 5.12

SB Take-Up in 1987 by Tenure Type

	Entitled and receiving (a)	Entitled; receiving SHB (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)						
Council rented	1,542	52	127	40	92	90
Housing Association	59	0	0	10	100	100
Private rented (unfurnished)	95	18	4	9	96	83
Private rented (furnished)	141	11	33	7	81	77
Mortgaged	416	25	200	32	68	67
Owned outright	210	9	95	27	69	70
Rent-free	21	0	19	0	51	51
Value (£m p.a.)						
Council rented	3,220	43	138	39	96	95
Housing Association	139	0	0	8	100	100
Private rented (unfurnished)	215	15	5	5	98	92
Private rented (furnished)	297	1	34	5	90	90
Mortgaged	995	26	264	41	79	78
Owned outright	379	10	114	31	77	77
Rent-free	38	0	23	0	62	62

Table 5.12, by tenure type, shows that council and Housing Association tenants once again have very high take-up, and owner-occupiers low take-up. This is despite the fact that mortgage payments could be met only under SB. In contrast to SHB, take-up seems quite high amongst those privately renting.

Table 5.13 is the first table we did not include for SHB. It shows that take-up is much higher for those unemployed who have been away from work for longer periods. The number of weeks away from work is likely to be highly correlated with the number of weeks of eligibility to SB. There may be several reasons for this result, including administrative lags (SB was paid in arrears), perceived need and declining savings. Unfortunately, there is no equivalent way of capturing how long people have been eligible for other benefits.

TABLE 5.13

SB Take-Up in 1987 by Weeks Away from Work (unemployed benefit unit heads only)

Number of weeks away from work	Entitled and receiving (a)	Entitled; receiving SHB (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)						
1–2	7	3	48	0	12	11
3–4	27	9	48	4	36	35
5–12	85	3	78	0	52	51
13–52	213	30	56	13	79	73
53 or more	884	21	47	19	95	93
Value (£m p.a.)						
1–2	8	9	86	0	9	8
3–4	39	17	64	8	38	37
5–12	158	0	116	0	58	58
13–52	396	13	47	11	89	87
53 or more	2,217	13	54	29	98	97

TABLE 5.14

SB Take-Up in 1987 by Relationship to Head of Household

	Entitled and receiving (a)	Entitled; receiving SHB (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)						
Head	1,776	115	138	81	93	88
Son or daughter	594	0	298	34	67	68
Other relative	57	0	11	0	83	83
Non-relative	57	0	32	11	64	68
Value (£m p.a.)						
Head	4,324	96	230	84	95	93
Son or daughter	762	0	298	29	72	73
Other relative	82	0	15	0	84	84
Non-relative	115	0	36	15	76	78

Table 5.14 (also not presented for SHB) breaks down take-up by the recorded relationship of the benefit unit to the head of household. Take-up is much lower for all non-householders, and lowest for sons and daughters and non-relatives. This may indicate a degree of sharing amongst household members.

Family Income Supplement

We discussed in Chapter 3 the problems we had with modelling family credit. Here, we will present enough to show broadly what is going on.

Firstly, we present a scatter plot (there were not enough observations to produce a reliable Kernel plot) of entitlements and receipts for all those entitled and receiving (Figure 5.3). There is quite a scatter here, as one might expect, although on average no apparent overestimation or underestimation.

FIGURE 5.3

How Well Do We Model Take-Up? Family Income Supplement, 1984–87

Table 5.15 shows our aggregate estimates for 1984 to 1987. We feel that it is not worth breaking down FIS take-up in other ways: the cell sizes are small and there is in any case little variation.

TABLE 5.15

Family Income Supplement: Aggregate Take-Up, 1984–87

	Entitled and receiving (a)	Entitled and not receiving (b)	Receiving and not entitled (c)	Take-up, XNER (%) (d)	Take-up, INER (%) (e)	DSS estimates[a] (a)+(c)	(b)	(e)
Case-load (thous.)								
1984	94	117	53	45	56	—	—	54
1985	69	129	81	35	54	—	—	—
1986	114	135	80	46	59	—	—	48
1987	87	119	71	43	57	185	180	51
Value (£m p.a.)								
1984	61	81	28	43	52	—	—	65
1985	45	104	47	30	47	—	—	—
1986	84	106	52	44	56	—	—	54
1987	56	83	44	40	55	125	85	60

[a] The DSS estimates are averaged over two years: '1984' means 1983 to 1984 average, '1986' 1985 to 1986, and '1987' 1986 to 1987.

The problems that we have had with FIS are clear to see here. The sample sizes are small. There are large groups of recipients with no modelled entitlement (some of these report having no children!). As we discussed previously, most of these will have been entitled at the time of claiming, which could have been up to 12 months ago.

On the INER measure, we estimate take-up to be around 55 per cent by case-load and slightly lower by value of benefit. This last result is very curious and is not found by the DSS. However, it is consistent with the findings of Dorsett and Heady (1991) discussed in Chapter 2 above, who find no relationship between size entitlement and take-up for FIS.

There is some fluctuation from year to year, and some differences from the corresponding DSS estimates, but it is unlikely that any of these is statistically significant.

Conclusions

This chapter has presented many of our results in tabular form. We have looked at three benefits over four years, with 7,000 households in each year's data. This makes these results the most comprehensive and detailed to date. Our aim has been to reduce the large quantity of data to a manageable form, and so, despite the length of this chapter, a lot more has been left out than put in.

Overall, our estimates seem plausible to us and confirm our

expectations. In aggregate they are usually in line with corresponding DSS estimates where these are available. Many of the detailed patterns that emerge are consistent with the previous, more partial, studies discussed in Chapter 2.

We have found that take-up over the period 1984–87 was:

- higher for supplementary benefit than for housing benefit;
- higher for large entitlements than for small ones;
- higher for council tenants, single parents and the long-term unemployed;
- broadly stable from year to year.

In the following chapter we turn to examination of what has happened to take-up since the 1988 reforms.

CHAPTER 6
TAKE-UP PATTERNS UNDER THE POST-1988 SYSTEM

We now come to our results for the new system. Here, we are rather more on our own: we have only two years' data (1989 and 1990) at present and have no alternative estimates with which to make comparisons. We present similar tables to those given for the pre-1988 system.

Non-IS Housing Benefit

As discussed in Chapter 4, there is strictly speaking no equivalent to standard housing benefit under the new system. However, for comparability we maintain the distinction as far as possible, by showing results for non-income-support recipients only. Unfortunately the sample size is rather small, and we cannot resort to pooling years as for FIS. As for the pre-1988 system, our estimates of HB entitlements here, and in the tables that follow, are calculated using recorded family credit receipts, rather than modelled entitlements. However, this choice is of greater importance here since receipt of family credit has a more severe effect on entitlement to housing benefit than had receipt of FIS: FC is typically worth more than FIS was and HB is withdrawn more sharply as income (including that from FC) rises than the former SHB was. Some of the results in this section are clearly driven by the interaction of HB with family credit.

We begin with a Kernel plot of receipts versus entitlements for those both entitled and receiving (Figure 6.1). The sample size is relatively small (119 cases), but the fit is not too bad, except for a few large outliers. These are students.

We have excluded student households from the following tables, so these are not strictly comparable with the pre-1988 HB results. However, there are only a few of these households, but some had, on our method, very large housing benefit entitlements. This increased considerably our estimates of the value of benefit not taken up, especially given the relatively small total sample size. Housing benefit for students was abolished in 1990, so there is little policy significance in non-take-up amongst students. Removing students from the pre-1988 estimates, by contrast, makes little difference, since the sample sizes are larger and their entitlements are smaller (and often taken up).

FIGURE 6.1

How Well Do We Model Take-Up? Non-IS Housing Benefit, 1989–90

Table 6.1 shows our estimates of the aggregate take-up of HB in 1989 and 1990. The figure for the value of benefit not taken up in 1990 is distorted by the inclusion of a few very large outliers; excluding these would produce figures in line with 1989.

TABLE 6.1

Non-IS Housing Benefit: Entitlements and Receipts

	Entitled and receiving (a)	Entitled and not receiving (b)	Receiving and not entitled (c)	Take-up, XNER (%) (d)	Take-up, INER (%) (e)
Case-load (thous.)					
1989	398	339	244	54	65
1990	363	256	159	59	67
Value (£m p.a.)					
1989	375	196	117	66	72
1990	413	276	94	60	65

As in the previous chapter, we now present some disaggregated tables. Table 6.2 is by family type (compare with Table 5.5). The most striking result here is the low take-up by single parents. However, note the low sample size. Almost all single parents here would be entitled to family credit (their earnings and/or their hours of work are high enough to make them ineligible for IS). Receipt of family credit diminishes and often extinguishes HB entitlement. So we are left here with the relatively small group of single parents who seem disinclined to take up anything or who have only a small HB entitlement. For similar reasons, take-up is lower still for couples with children. Take-up for the childless is actually higher than for the pre-1988 system, though again the sample size is lower.

TABLE 6.2

Non-IS HB Take-Up in 1989 by Family Type

	Entitled and receiving (a)	Entitled and not receiving (b)	Receiving and not entitled (c)	Take-up, XNER (%) (d)	Take-up, INER (%) (e)
Case-load (thous.)					
Single people	241	119	107	67	74
Single-parent families	18	27	25	40	61
Childless couples	84	60	32	58	66
Couples with children	56	132	81	30	51
Value (£m p.a.)					
Single people	216	69	54	76	80
Single-parent families	18	13	10	58	69
Childless couples	75	36	11	68	71
Couples with children	66	78	42	46	58

Table 6.3, by employment status of the head of the household, shows a somewhat different pattern from that for standard housing benefit (Table 5.6). Take-up for the sick seems broadly constant, but take-up for employees is sharply down, whilst that for the early retired and unoccupied is higher than before.

Table 6.4 shows that the pattern of take-up by tenure type is broadly as it was in 1987 (Table 5.7). However, there are considerable falls in the numbers of receipts, especially amongst owner-occupiers.

TABLE 6.3

Non-IS HB Take-Up in 1989 by Economic Position of Head of Household

	Entitled and receiving (a)	Entitled and not receiving (b)	Receiving and not entitled (c)	Take-up, XNER (%) (d)	Take-up, INER (%) (e)
Case-load (thous.)					
Employee	101	219	181	31	56
Seeking work	70	32	4	68	69
Sick but seeking work	10	6	0	62	62
Sick, not seeking work	151	46	45	77	81
Early retired	18	11	3	63	67
Unoccupied	48	25	11	66	71
Value (£m p.a.)					
Employee	89	129	92	41	58
Seeking work	70	26	5	73	75
Sick but seeking work	7	2	0	79	79
Sick, not seeking work	151	23	14	87	88
Early retired	19	3	0	86	86
Unoccupied	38	13	5	75	77

TABLE 6.4

Non-IS HB Take-Up in 1989 by Tenure Type

	Entitled and receiving (a)	Entitled and not receiving (b)	Receiving and not entitled (c)	Take-up, XNER (%) (d)	Take-up, INER (%) (e)
Case-load (thous.)					
Council rented	289	125	110	70	76
Housing Association	30	3	18	91	94
Private rented (unfurnished)	10	20	3	33	39
Private rented (furnished)	23	51	10	31	39
Mortgaged	19	85	70	18	51
Owned outright	27	54	34	33	53
Rent-free	0	0	0	—	—
Value (£m p.a.)					
Council rented	308	85	79	78	82
Housing Association	24	0	14	98	99
Private rented (unfurnished)	10	12	3	45	52
Private rented (furnished)	23	63	4	27	30
Mortgaged	5	23	12	18	42
Owned outright	6	12	6	31	48
Rent-free	0	0	0	—	—

Income Support

Income support is a rather simpler benefit than its predecessor, SB (see Chapter 4). Figure 6.2 shows a Kernel plot of entitlement versus receipts.

FIGURE 6.2

How Well Do We Model Take-Up? Income Support, 1989–90

The case-load-based take-up of income support by non-pensioners in 1989 (Table 6.5) is estimated to be 76 per cent — eight percentage points lower than for SB in 1987. The position is estimated to be similar in 1990. In 1989, take-up by value is 84 per cent, as against 90 per cent for SB in 1987. Why might this be? The econometric models discussed in the next chapter can go a little of the way to explaining it, but not all. As a preliminary to this, we will show below some quite interesting differences between our previous SB tables and those for IS.

TABLE 6.5

Income Support: Aggregate Take-Up, 1989–90 (non-pensioners only)

	Entitled and receiving (a)	Entitled; receiving HB only (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)						
1989	1,898	160	597	161	76	73
1990	2,065	103	634	146	77	75
Value (£m p.a.)						
1989	4,509	174	857	282	84	82
1990	5,293	99	963	264	85	84

Table 6.6 breaks down our results by family type. Split in this way, while there is a fairly even decline in take-up rates the decline has been greatest among those without children: compared with SB in 1987 (Table 5.10), case-load take-up (on the XNER measure) by single people is nine percentage points lower, single parents two points lower, childless couples seven points and couples with children also seven points. This is not inconsistent with the increased relative generosity of IS to those with children. However, the broad pattern, with single parents highest and single people without children lowest, remains the same as in 1987.

TABLE 6.6

IS Take-Up in 1989 by Family Type

	Entitled and receiving (a)	Entitled; receiving HB only (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)						
Single people	923	84	468	95	66	65
Single-parent families	515	17	38	8	93	91
Childless couples	141	17	35	26	80	76
Couples with children	319	42	56	33	85	78
Value (£m p.a.)						
Single people	1,636	59	585	118	74	73
Single-parent families	1,339	25	81	14	94	93
Childless couples	400	12	29	69	93	92
Couples with children	1,133	79	162	81	88	83

In Table 6.7, by employment status of the head of the unit, we see a somewhat different pattern from that for SB in 1987 (Table 5.11). Take-up by employees is lower than before. Nevertheless, since the modelling of take-up (of both SB and IS) by the employed is relatively error-prone, we can attach little weight to this. Take-up by those seeking work (the largest group) is much as it was in 1987, and likewise for the sick. But take-up for the early retired and unoccupied is sharply down — by 23 and 19 percentage points respectively.

TABLE 6.7

IS Take-Up in 1989 by Economic Position of Head of Tax Unit

	Entitled and receiving (a)	Entitled; receiving HB only (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)						
Employee	114	21	89	44	56	59
Seeking work	829	53	234	57	78	76
Sick but seeking work	41	10	15	6	73	65
Sick, not seeking work	184	39	38	29	83	73
Early retired	43	10	24	0	64	56
Unoccupied	688	28	196	26	78	76
Value (£m p.a.)						
Employee	261	20	103	87	72	74
Seeking work	1,899	82	366	113	84	82
Sick but seeking work	153	6	15	9	91	89
Sick, not seeking work	394	9	22	41	95	93
Early retired	108	4	36	0	75	73
Unoccupied	1,694	54	315	33	84	82

Many possible reasons for this suggest themselves. The early retired are quite a small group. We speculate that the fall here may be related to the looser capital rules under IS, which make people with higher savings eligible but they may prefer to run these down rather than claim benefit.

The unoccupied result is harder to explain. 'Unoccupied' typically means never having worked — either young people who have not yet found a job or widows, single parents or divorcees whose former spouses worked. It may be that we are failing to capture the IS eligibility tests for these people adequately, in particular the operation of youth training programmes.

Comparing Tables 6.8 and 5.12, we see that the take-up rate for

council tenants (by far the largest group) is much as it was in 1987. Take-up for all other groups is down, although some of the sample sizes are not large. Most striking is the decline amongst owner-occupiers, down 18 percentage points for mortgagees and 10 percentage points for outright owners. This may simply be because of correlations with other factors, for instance because owners are more wealthy and the IS capital rules somewhat more relaxed than was the case under SB.

TABLE 6.8

IS Take-Up in 1989 by Tenure Type

	Entitled and receiving (a)	Entitled; receiving HB only (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)						
Council rented	1,287	111	153	90	89	84
Housing Association	91	12	20	3	82	74
Private rented (unfurnished)	52	4	39	0	57	55
Private rented (furnished)	89	14	41	12	68	64
Mortgaged	236	16	240	34	50	51
Owned outright	133	3	94	23	59	62
Rent-free	9	0	9	0	51	51
Value (£m p.a.)						
Council rented	3,031	135	240	120	93	89
Housing Association	210	12	18	9	92	88
Private rented (unfurnished)	118	5	47	0	72	69
Private rented (furnished)	196	14	45	15	81	78
Mortgaged	655	5	379	90	63	66
Owned outright	270	3	120	48	69	72
Rent-free	28	0	9	0	75	75

Table 6.9 is by unemployment duration. For those who report this variable — and those classed as unoccupied do not — all the decline in take-up since 1987 (Table 5.13) is amongst those unemployed for less than 12 weeks. So whatever it is that is causing the decline wears off eventually. Some of those who have been claiming for more than 52 weeks will have been receiving SB before the reform, so their take-up decision will have initially been made under the old system. However, the sample sizes for the newly unemployed are rather small, and most

of the decline in take-up is, as we saw above, concentrated amongst the unoccupied.

TABLE 6.9

IS Take-Up in 1989 by Weeks Away from Work (unemployed benefit unit heads only)

Number of weeks away from work	Entitled and receiving (a)	Entitled; receiving HB only (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)						
1–2	7	8	43	4	14	18
3–4	18	11	68	4	21	22
5–12	54	0	75	8	42	45
13–52	191	24	46	6	80	74
53 or more	513	25	18	27	97	93
Value (£m p.a.)						
1–2	20	14	82	3	19	19
3–4	40	24	135	5	23	22
5–12	115	0	112	9	51	52
13–52	441	20	40	29	92	89
53 or more	1,285	37	18	55	99	96

Compared with SB (Table 5.14), income support take-up is sharply down for other relatives and non-relatives (Table 6.10), but the sample sizes are again quite small. Take-up is slightly down on that of SB for the two major groups: heads and their dependent children.

TABLE 6.10

IS Take-Up in 1989 by Relationship to Head of Household

	Entitled and receiving (a)	Entitled; receiving HB only (b)	Entitled and not receiving (c)	Receiving and not entitled (d)	Take-up, XNER (%) (e)	Take-up, INER (%) (f)
Case-load (thous.)						
Head	1,420	160	207	96	87	81
Son or daughter	393	0	311	50	56	59
Other relative	47	0	36	4	57	59
Non-relative	39	0	42	12	48	54
Value (£m p.a.)						
Head	3,704	174	371	194	91	88
Son or daughter	630	0	385	65	62	64
Other relative	86	0	45	8	66	68
Non-relative	88	0	55	15	61	65

Family Credit

Finally, Table 6.11 shows family credit take-up in 1989. We would attach no great weight to this at this stage. The sample size is very small: too small in fact to produce a respectable picture.

TABLE 6.11

Family Credit Take-Up in 1989

	Entitled and receiving (a)	Entitled and not receiving (b)	Receiving and not entitled[a] (c)	Take-up, XNER (%) (d)	Take-up, INER (%) (e)
Case-load (thous.)					
Total	99	194	92	34	50
Single parents	42	47	31	47	61
Couples with children	58	147	59	28	44
Value (£m p.a.)					
Total	117	181	151	39	60
Single parents	52	42	49	56	71
Couples with children	64	140	94	32	53

[a] The cells do not sum to the totals in this column because some currently childless couples report FC receipt.

Two of the same features that we saw with family income supplement emerge here also: the large number of receipts with no modelled entitlements and the lack of an apparent relationship between size of receipt and take-up.

Conclusions

In this chapter we have examined take-up under the post-reform benefit system, using data for 1989 and 1990. Our results show that take-up of (non-IS) housing benefit has been similar to that of its predecessor, standard housing benefit. In contrast, measured take-up of income support is lower than that of supplementary benefit.

We have considered many possible reasons for this. One is simply modelling error, so, unfortunately, we cannot tell at this stage if this fall is genuine or an artefact. However, if there is an error we have been unable to spot it. There are other plausible possibilities. We may have captured the IS calculation more completely than the corresponding SB calculation, so identifying more non-take-up cases. The more

relaxed capital rules have made eligible some benefit units with enough other resources to be able to defer take-up. Finally, the population itself may be changing: unemployment was at its lowest in 1989, and there is some evidence of a rise in the number of non-householder benefit units in the population, as children defer leaving their parents' home. All three possibilities have worrying implications for the effectiveness of IS (and in the case of the first, SB) in reaching its intended client groups.

Although they seem to us to be a key way of gaining an impression of what is going on in a data set, tables and graphs are never going to tell the full story. This is because, in any real-world data set, everything depends on everything else. We know, for instance, that take-up is higher for single parents and council tenants, but could it simply be that council tenants have a higher take-up because they are disproportionately single parents? Might single parents have above-average entitlements? We can get a little of the way towards answering these questions with two-, three- or four-way cross-tabulations, but to answer them conclusively we need to employ multivariate statistical analysis. It is to this that we now turn.

CHAPTER 7
ECONOMETRIC RESULTS[1]

Introduction

In this chapter we build a statistical model to examine the factors that determined benefit take-up by non-retired households over the period 1984–87 and how these appear to have changed since the 1988 social security reforms.

Chapters 5 and 6 identified the groups among which take-up is low and discussed some possible explanations. In this chapter we attempt to differentiate between the proximate causes of non-take-up in order to establish, for example, the extent to which the low take-up among owner-occupiers or employees is explained by low entitlement and to examine the effects of interactions between the characteristics associated with low take-up.

As demonstrated in previous chapters, the reforms brought about substantial changes both in the characteristics (in particular, income and family structure) of those eligible to claim benefits and in the distribution of entitlements among them. These are among the main factors previous studies have found to influence take-up rates (Fry and Stark, 1987; Blundell, Fry and Walker, 1988; Dorsett and Heady, 1991).

Non-take-up of benefits by entitled families may be frictional or the outcome of choice: at the time they are surveyed, they may have experienced a recent change of circumstance, such as a job loss or rent rise, which entitles them to a benefit which they have not yet found out about or for which they have not yet made an intended claim or for which they have made a claim which has not yet been processed; alternatively, they may have made a judgement that the perceived stigma associated with benefit receipt (Moffitt, 1983; Atkinson, 1984), the information costs of investigating entitlement and/or the hassle of lodging a claim (Cowell, 1986) together outweigh the expected benefits. Family Expenditure Survey data can offer only indirect proxies for factors such as information about and attitudes to the benefit system; however, both the choice model of take-up behaviour and the frictional interpretation provide some testable hypotheses (Blundell, Fry and

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[1] In contrast to the earlier chapters in this report, no differential grossing-up factors are used here, as is usual in econometric work of this type.

Walker, 1988): if take-up is the outcome of a decision that the benefits of claiming outweigh the (fixed) costs, then it would be expected that the probability of take-up would rise with entitlement and fall with non-benefit income; some frictional factors, such as the duration of unemployment, are also observable.

While such hypotheses may be rejected by the data, their non-rejection is always open to other interpretations; moreover, alternative explanations of non-take-up are not exclusive and may coexist in the data. Nevertheless, the fact that the 1984–90 period covers a major restructuring and re-targeting of benefits as well as changes in labour market conditions provides an ideal opportunity to investigate them.

Because both the calculation of benefit entitlements and in some instances the recording of benefit receipts in the FES are imperfect in the ways analysed in previous chapters, a third possible explanation for observing non-take-up is measurement error — the household may be both entitled and receiving benefit but its receipt has been misrecorded, or it may be neither entitled nor receiving but appear to be entitled because the entitlement calculation is based on imperfect or incomplete income and demographic data.

Below, we use our data on households with positive calculated entitlements to model the probability that a household in a given set of circumstances will take up its benefit. The problem of measurement error complicates this process because it could bias the sample: those wrongly thought to be entitled and so included in the sample cannot take up. Though we cannot know (by definition) what the effects of such unknown errors are on mean take-up rates for each benefit, we can employ appropriate statistical techniques to prevent such errors biasing our estimates of the effect of entitlement and other variables on take-up.

The Determinants of Take-Up Behaviour

Non-take-up of benefits by eligible households may be the result of frictional factors and/or claim costs. Information about the benefit system may also be costly to obtain and indeed one of the principal methods of finding out entitlement may be to actually make a claim. It is interesting to note that if both claims are costly and their outcome is uncertain, knowledge about eligibility may also depend on the extent

of stigma and other claim costs.[2] The Appendix gives a utility-based interpretation of take-up behaviour and details of estimation methods.

In modelling the determinants of take-up decisions, we take an agnostic view about the relative importance of these factors, including in our analysis a variety of both demographic and non-demographic characteristics which may be associated with needs (relative to benefit scales), attitudes to the benefit system and expectations concerning future household circumstances.

More specifically, we use our observations of whether those with calculated entitlement take up or not to predict, on the basis of their entitlement level, income and characteristics, a probability that an individual takes up. This predicted probability can be interpreted as the proportion of identical individuals in the population who would be expected to take up. We estimate a probit model of take-up among those with positive calculated entitlements, controlling for the potential biases arising from measurement error as detailed in the Appendix (see also Blundell, Fry and Walker (1988)).

Tables 7.1 and 7.2 present some of the most interesting parameters of the estimated take-up relationship for supplementary benefit and housing benefit, respectively, using pooled data for the four years 1984–87.[3] Separate results are given for benefit units headed by men and women. Given the known differences in their underlying labour market decisions, it might be the case that their take-up behaviour also differs, and in fact we find that there are statistically significant differences between the determinants of take-up for the two groups.

In interpreting these parameters, the most important factors are their sign and their statistical significance rather than their absolute size. (Figures 7.1 to 7.4 give some illustration of the size of the entitlement effects on take-up probabilities for the two benefits for different groups (see below).) The parameters represent the direction of the effect of each variable on the probability of take-up relative to that of a 'reference' individual; for both benefits this is a household composed of a single employed adult without children and living in council accommodation in the Midlands in 1987. (The plausibility or otherwise

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[2] Noble, Smith and Munby (1992) find that an important reason given for non-take-up of family credit among housing benefit recipients is having had a claim refused in the past.

[3] The samples exclude students. That for SB excludes unoccupied men for whom take-up was complete over the period 1984–87. Those for HB exclude families also entitled to FIS; take-up of the two benefits for these families is best analysed simultaneously because of the relationship between take-up of FIS and the level of entitlement to HB (see Dorsett and Heady (1991)).

of the coincidence of this particular set of characteristics is not important — it simply provides a point of reference.)

TABLE 7.1

Take-Up of Supplementary Benefit, 1984–87: Probit Parameters

Variable	Men		Women	
	Parameter	t-ratio	Parameter	t-ratio
Intercept	–0.739	1.21	0.105	0.13
No. of adults – 1	0.080	1.33	0.109	1.31
Age	–0.0003	0.06	0.014	1.49
No. of children, 0–5 years	0.140	1.50	0.102	0.84
No. of children, 6+ years	–0.072	1.08	–0.011	0.13
Single parent	—	—	0.161	0.62
Unoccupied	—	—	0.707	2.63
Private tenant	–0.357	2.09	–0.688	3.81
Owner-occupier	–0.536	4.06	–0.466	2.72
Sick	0.707	3.82	0.545	2.08
Unemployed	–0.063	0.44	–0.001	0.01
No. of weeks unemployed	0.014	7.33	0.011	3.83
Regional unemployment	0.014	0.37	0.043	0.80
North	0.105	0.13	–0.026	0.15
South	–0.460	2.39	–0.230	0.89
Scotland	0.281	1.47	0.407	1.58
Relative of head of household	0.261	0.96	–0.579	1.82
Non-relative of head	1.097	2.69	–1.215	3.74
Benefit unit income	–0.004	0.79	–0.011	0.73
Other household income	–0.0008	1.52	–0.002	2.75
SB entitlement	0.038	4.82	0.025	1.88
(SB entitlement)^2	–0.0001	3.63	–0.0001	1.17
1984	0.079	0.63	0.217	1.33
1985	0.093	0.70	0.163	0.95
1986	0.111	0.84	–0.159	0.98
Pseudo R^2	37.1		40.8	
Sample size	1,968		1,467	
Take-up (%)	82		85	

Turning to the detailed parameter estimates of Tables 7.1 and 7.2, for both benefits and both groups, take-up rises with entitlement (though at a diminishing rate) and falls with components of income, in accordance with the claims costs model and with previous empirical findings on HB and SB take-up in 1984 (Blundell, Fry and Walker, 1988; Fry and Stark, 1987). However, while this result captures the central feature of take-up behaviour, other factors also play an important part.

For those with calculated entitlement to SB, a large proportion (approximately 80 per cent of men and 30 per cent of women) are unemployed; the low take-up among the newly unemployed and its

TABLE 7.2

Take-Up of Housing Benefit, 1984–87: Probit Parameters

Variable	Men		Women	
	Parameter	t-ratio	Parameter	t-ratio
Intercept	0.667	0.93	0.341	0.21
No. of adults – 1	0.272	1.71	0.045	0.27
Age	–0.004	1.05	0.015	2.50
No. of children, 0–5 years	0.304	2.43	0.105	0.32
No. of children, 6+ years	0.397	3.24	0.113	0.31
Single parent	—	—	0.364	0.98
Unoccupied	–0.448	1.93	–0.077	0.98
Private tenant	–0.908	6.29	–0.797	3.90
Owner-occupier	–0.526	3.77	–0.416	1.48
Sick	0.574	5.06	0.657	1.59
Unemployed	–0.507	2.86	0.389	0.58
No. of weeks unemployed	0.0004	0.17	0.009	0.72
Regional unemployment	0.094	2.62	–0.007	0.10
North	–0.300	2.48	–0.037	0.16
South	0.041	0.24	–0.262	0.78
Scotland	–0.272	1.75	0.255	0.84
Benefit unit income	–0.023	2.86	–0.005	0.25
Other household income	–0.006	2.25	0.001	0.55
HB entitlement	0.031	2.17	0.124	3.01
(HB entitlement)^2	–0.0001	0.71	–0.002	2.07
1984	0.239	1.91	0.259	1.20
1985	0.083	0.65	0.256	1.16
1986	–0.063	0.47	0.089	0.41
Pseudo R^2	18.5		24.6	
Sample size	1,168		521	
Take-up (%)	47		64	

subsequent rise with the duration of unemployment spells may reflect frictional factors during the first weeks of unemployment, the subsequent fall in real resources as savings are run down and perhaps diminishing expectations of re-employment. For both benefits, lower take-up among owner-occupiers than the reference local authority tenant may also reflect real income effects, while low take-up among private tenants and conversely high take-up among the long-term unemployed and the sick may reflect (expectations of) the duration of entitlement. Age and family composition have relatively little impact on the take-up of SB once the effects of entitlement and other factors are taken into account, though for HB, take-up rises with the number of children among 'men' and with age among 'women'. Take-up of SB is considerably higher among women who are 'unoccupied', most of whom are single parents.[4]

[4] The number of male single parents is negligible.

Some indication of the magnitude of these effects is given in Figures 7.1 to 7.5. Figures 7.1 and 7.2 illustrate the effect of varying SB entitlement levels on take-up proportions for alternative benefit units headed by men and women respectively. Figures 7.3 and 7.4 do the same for HB. These figures show the hypothetical effects of varying entitlement, holding all other factors including income constant (not the actual take-up of households with those entitlements). Figure 7.5 shows how varying duration of unemployment affects take-up of SB by hypothetical single men.

FIGURE 7.1

Predicted Take-Up Proportions: Men Entitled to Supplementary Benefit

Note: All three benefit units are household heads with average benefit unit income and no other household income. The single man is an 18-year-old private tenant, unemployed for three months; the couple are 35-year-old owner-occupiers with two children, one in each age-group, and otherwise similar; the sick couple are 50-year-olds, without children, council tenants, absent from work through sickness.

Given that the data cover four years, it is interesting to examine variation over time in take-up behaviour. Regional unemployment rates (varying quarterly over 10 regions) were included to examine whether

labour market conditions affected take-up. This might occur, for instance, if high local unemployment affected expectations of re-employment and hence duration of benefit entitlement, or if a high number of claimants locally reduced the perceived stigma of claiming. Among men entitled to HB, regional unemployment has a significant positive effect on take-up, but it is not significant among other groups.

FIGURE 7.2

Predicted Take-Up Proportions: Women Entitled to Supplementary Benefit

Note: All four benefit units are 20-year-olds with average benefit unit income and unemployed for three months. The first is a single woman, a household head and private tenant; the second is similar but a council tenant; the third is a single parent (unoccupied) with one child under six, living with relatives with average household income and who are council tenants; the fourth is an otherwise similar single parent who is a householder, with no other household income.

For comparison with the post-reform period, it is clearly also important that a stable relationship over 1984–87 can be established. Year dummies were all insignificant, though take-up in 1984 among men entitled to HB was close to being significantly higher than for other years. The hypothesis that other parameters of take-up behaviour are constant over the four years is statistically acceptable, though only marginally so for the two groups of men. Therefore, overall, the

determinants of take-up were stable over the pre-reform period and it is reasonable to associate any changes between 1984–87 and 1989–90 with the 1988 reform.

FIGURE 7.3

Predicted Take-Up Proportions: Men Entitled to Housing Benefit

Note: All three benefit units are council tenants. The first is a single 25-year-old employee; the second is a 35-year-old employed couple with two children; the third is a 55-year-old couple, absent from work through sickness.

The calculated take-up rates for HB and IS among women during 1989 (the year beginning nine months after the introduction of the reforms) and 1990 are on average similar to those for the pre-reform period, but substantially lower for men entitled to IS (see Chapter 6).[5] For the non-pensioner sample as a whole, the take-up rate for HB remains similar to that observed over the pre-reform period, while that for IS is around 75 per cent compared with a pre-reform SB rate of 83–85 per cent between 1984 and 1987.

[5] The take-up estimates used for the post-reform period in this chapter are slightly different from the ones used in earlier chapters, but not, we believe, in ways which make a material difference to the reported results.

FIGURE 7.4

Predicted Take-Up Proportions: Women Entitled to Housing Benefit

Note: All three benefit units are employed 25-year-old single parents with one child under six. They are a private tenant, a council tenant and an owner-occupier respectively.

To examine the extent to which these changes can be explained by changes in the structure of the benefits, we begin by pooling the data for each group and testing whether the parameters are constant for HB take-up and SB/IS take-up over the pre- and post-reform periods. It is clear that the estimated relationships between take-up and the variables of interest are statistically different for income support for both men and women from those for supplementary benefit; however, for housing benefit less seems to have changed. The hypothesis that the parameters are constant can be accepted for women and is close to acceptance for men.

A second way of examining the changes is to compare actual post-reform take-up rates with those predicted from the pre-reform estimates. Table 7.3 compares observed take-up rates over 1989 with those we would expect from the parameters of 1984–87 take-up behaviour (when applied to the 1989 eligible sample).

FIGURE 7.5

Predicted Take-Up Proportions: Men Entitled to Supplementary Benefit

Note: Both benefit units are single unemployed men aged 25 with average benefit unit income, no other household income and average benefit entitlement. One is a council tenant and the other a private tenant.

TABLE 7.3

Actual and Simulated Take-Up Rates for IS and Non-IS HB in 1989

	Men		Women	
	IS	HB	IS	HB
Actual	75.0	48.3	83.9	72.5
Simulated	79.6	43.1	86.1	71.1
Sample size	336	156	321	51

The results suggest that some fall in the take-up of income support among families headed by men was to be expected as the joint outcome of changes in the characteristics of those entitled and changes to entitlement levels. However, the observed fall was greater. More

detailed examination of the results suggests that this effect was particularly strong among the very short-term unemployed (less than two weeks) and to a lesser extent among employees and the sick. Moreover, our estimates in Tables 7.1 and 7.3 exclude 'unoccupied' men. Over the period 1984–87, of 282 families in the sample classified as 'unoccupied' and with positive calculated SB entitlement, only three had no recorded receipt. Of 160 similar families in 1989–90, 56 had no recorded receipt. The low predicted take-up of HB by men is partly the result of sharply falling unemployment during 1989–90; it may be that other time-varying factors are being picked up by this variable in the earlier period and further investigation is needed.

Conclusions

In this chapter we have analysed the determinants of take-up behaviour for the two largest means-tested benefits, supplementary benefit and housing benefit, during the four years prior to their replacement/reform in 1988, and made a first examination of the first two years of the reformed system, 1989 and 1990.

Over the pre-reform period, while the sizes of the effects of entitlement, income and other characteristics on take-up behaviour were found to differ both between the two benefits and between men and women claimants, overall a remarkably consistent pattern emerges. In addition to the increase of take-up proportions with entitlement levels and their fall with income, the positive effects of the duration of unemployment, sickness and single-parenthood and the negative ones of private tenancy and owner-occupation are confirmed. Moreover, for most groups these factors are sufficient to explain the direction of year-to-year fluctuations in take-up rates.

The observed fall in income support take-up relative to that of its predecessor, supplementary benefit, is larger than predicted from the associated changes in the entitlement and income levels of eligible benefit units. This may be due either to changes in behaviour or to problems with the data. There are (at least) four possibilities. Firstly, take-up may have fallen, but the problem is transitional; it may be that in the short term, lack of information about or understanding of the new system may have depressed take-up. While this is possible, the fact that the same pattern appears to persist in 1990 suggests there is no positive evidence for this as yet. Secondly, take-up may have fallen because of a 'change in attitudes' to IS; our data cannot provide direct evidence of this but again, it is difficult to think of convincing reasons

why this should be so. Alternatively, it may be that the observed fall is due to measurement problems: either the true rate after 1988 is higher or the true rate before 1988 was lower. The greater simplicity of the structure of IS is likely to mean that it has been possible to identify non-take-up cases more accurately than was the case for SB, and hence that take-up was lower in the pre-reform period than previously thought. This seems particularly likely for the unoccupied category: there is a large increase in the number of 'unoccupied' in receipt of sickness and disability benefits among those not receiving their calculated entitlement to IS.

It may be that subsequent experience of the reformed system will resolve these issues. However, whether take-up of IS is lower than for SB or whether, as seems more likely, SB take-up was lower than previously thought, it seems clear that the problem of non-take-up is a persistent one, with potentially worrying consequences for the welfare of those on the lowest incomes.

CHAPTER 8
CONCLUSIONS

This study is the largest and most comprehensive study of the take-up of means-tested benefits yet undertaken. We have produced consistent take-up estimates for each of the three main means-tested benefits over 1984 to 1990, a period which spanned a major change in the benefit system. In the process, we have calculated results for some 35,000 households, of which over 10,000 were either eligible for or receiving a means-tested benefit. This has given us the ability to break our results down in much more detail than was previously possible, and to produce much more reliable econometric models.

One product of this has been to confirm earlier findings: take-up is higher for large entitlements, higher for SB/IS than for other means-tested benefits, and higher for groups such as single parents and council tenants.

We have one striking new result: that the take-up of income support is lower than the take-up of supplementary benefit, the benefit it replaced. Unfortunately, with only two years' data on this and no corroborating evidence, we cannot know whether to believe this. It could be true, or it could be modelling error, or it could even be modelling success: we may be modelling IS entitlement more accurately than SB entitlement because it is such a simpler benefit. At present, this seems more likely than that the result reflects transitional effects on the introduction of a new benefit, since the same result persists into 1990. It suggests that take-up of SB may have been lower than previously thought because of the difficulty of identifying small, unclaimed entitlements under the old system. If this is the case, it suggests that take-up of SB/IS, the main 'safety net' benefit, as well as of HB and FIS/FC, should be a cause for concern.

This has been primarily an empirical study. Its most obvious implication for policy purposes is simply that means testing is costly. Although obvious enough, this has important consequences for the debate over the role of means-tested benefits. We have explored this question in an earlier paper (Fry and Stark, 1991). We can return to it now with much more ammunition.

We are now in a position to incorporate new take-up equations into IFS's tax and benefit model. This will allow us to pursue our work on the costs of claiming and the relative merits of universal and

means-tested benefits, as well as improving the forecasting power of the model generally.

APPENDIX
MODELLING TAKE-UP BEHAVIOUR

Consider a family or individual who is imperfectly informed about their entitlement and who regards claiming benefits as costly. These costs may include a sunk cost of making a claim, representing time, hassle and any stigma associated with the claim process (arising either from the unpleasantness of the experience or the demoralising effects of acknowledging one's own need); they may also include a continuing (stigma) cost of being in receipt of benefit, which may be related to the size of benefit but which we assume to be fixed per time period. (See Moffitt (1983), Atkinson (1984) and Cowell (1986) for more detailed discussion of the form of potential claim costs.) Assuming that the only way of obtaining information about eligibility is to make a claim, and assuming that pre-benefit income is fixed,[1] the individual claims if expected benefits are positive, i.e.

$$\hat{P}.U(y+B, \mathbf{z}, s, c) + (1 - \hat{P}).U(y, \mathbf{z}, c) > U(y, \mathbf{z}) \tag{A.1}$$

where $\hat{P}$ is the probability, as perceived by the claimant, that the claim will be successful, $B=B(y, \mathbf{z})$ is the amount of expected entitlement, y is pre-benefit net income, $\mathbf{z}$ is a vector of demographic and other characteristics, $s=s(y, \mathbf{z})$ is the continuing cost of receiving benefit and $c=c(y, \mathbf{z})$ is the sunk cost of making a claim, all discounted where appropriate over the expected duration of entitlement.

If, for the sake of illustration, $U(.)$ is linear in claim costs, i.e.

$$U(y+B, \mathbf{z}, s, c) = u(y+B, \mathbf{z}) - s(\mathrm{y}, \mathbf{z}) - c(\mathrm{y}, \mathbf{z}) + v \tag{A.2}$$

where v is an added error term representing unobservable preferences, then the probability that an eligible individual makes a claim can be written

$$\Pr\{v > -\hat{P}.[u^*(y, B, \mathbf{z}) - s(y, \mathbf{z})] + c(y, \mathbf{z})\} \tag{A.3}$$

---

[1] In subsequent work we plan to relax this assumption to take into account labour supply decisions. The fixed-income assumption may be more acceptable for men than women, one reason why we separate male- and female-headed households in the empirical results presented here.

where $u^*(.) = u(y+B, \mathbf{z}) - u(y, \mathbf{z})$. While it is not practical to expect to identify the structural parameters of the take-up decision, from the above overview we would expect take-up to be positively related to benefit levels and negatively to income, through $u^*(.)$ and possibly also via $s(.)$ and $c(.)$; it will also increase with any factors that raise $\hat{P}$ (for example, government information campaigns or a rise in claimants among peer-group members) and with the expected duration of eligibility (either personal factors associated with stable household circumstances or external factors such as deteriorating labour market conditions), and decrease with any observable characteristics associated with perceptions of high $s(.)$ and $c(.)$.

Assuming a Normal distribution for v_i, equation (A.3) can be estimated using probit techniques. However, the problems caused by measurement error in the entitlement calculation must be taken into account. Blundell, Fry and Walker (1988) investigate the robustness to misclassification of probit estimates of take-up behaviour using non-parametric methods, and reach positive conclusions. However, measurement error in the entitlement variables may still cause these to be endogenous; here (as in Blundell, Fry and Walker (1988)) we test and control for the possible endogeneity of entitlement (and income) variables resulting from measurement error using the instrumental variable exogeneity test of Blundell and Smith (1985).

The parameters reported in Tables 7.1 and 7.2 are those in which the potential endogeneity of entitlement and tax unit income variables has been taken into account, using the following instruments: for entitlement, rents, mortgage costs and other elements of housing costs; for the square of entitlement, the square of these, the square of non-tax-unit income in the household and interactions between non-tax-unit income and elements of housing costs; for tax unit income, years of education, the square of this, age and non-tax-unit income.

Among tax units headed by men entitled to housing benefit, there was evidence of endogeneity of all three variables; for women entitled to housing benefit and both men and women entitled to supplementary benefit, it was possible to accept the hypothesis that all three were exogenous.

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