

The Incidence of UK Housing Benefit: Evidence from the 1990s Reforms

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Abstract

Housing Benefit (HB) in the UK subsidizes the rent of tenants in both the private and public sectors. Its share in total welfare benefits has risen markedly through time and there is widespread dissatisfaction with it. But, reform has been very slow. One important issue is the extent to which the incidence of HB is actually on the tenants. Exploiting two data sets from the mid-1990s when the subsidy regime changed for some tenants but not for others, this paper explores the incidence. We find that some of the incidence is on landlords though our two data sets differ in the extent to which this is true. We also find evidence in support of a 'matching' model of the rental market rather than a perfectly competitive one.

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1. Introduction

The UK social security system has undergone enormous changes in the past twenty years. But Housing Benefit (HB), the benefit that subsidises the housing of tenants (of either public or private landlords) has hardly changed at all. The details of Housing Benefit are described later in the paper but, essentially, Housing Benefit pays 100% of rents up to a maximum level and is subject to a means test. The lack of change is not because Housing Benefit is thought to be a successful welfare benefit: it has long been regarded as ripe for reform¹. There are a number of reasons for concern about the operation and effects of HB.

First, the cost has escalated rapidly. Because HB pays 100% of rents for many tenants, there is little incentive for tenants to resist landlords who want to raise rents or to shop around for cheaper accommodation. This became a particular problem after the de-regulation of rents in the private-sector in 1989 when there was a rapid rise in private sector rents and a corresponding rise in Housing Benefit payments. Figure 1 presents a time series on real rents in the private rental sector for workless households (the vast majority of whom will be receiving HB) and working households (the vast majority of whom will not be receiving HB). What is noticeable is that the rents for workless households are similar to those for working households even though their income is lower, almost certainly because of the impact of HB. And rents for both groups rose very fast in the early 1990s after the end of rent controls at a time when house prices generally were falling.

A related problem is that, while most welfare benefits have been indexed to retail prices, Housing Benefit is effectively indexed to rental rates that have tended to rise more rapidly than the retail price index (to a first approximation, housing costs might be thought to be closely related to wages). Figure 2 presents a time-series for 1991-2001 on the proportion of Housing Benefit in the most important welfare benefits for working age households. In 1991 HB was 21% of these benefits: this rose to 30% by the mid 1990s.

A second area of concern about HB is that the high level of withdrawal associated with Housing Benefit as income increases (the taper rate for much of the period is 65%) acts as an important component of the high marginal tax rate facing low-income households and, hence,

¹ That may now be about to happen. The housing 'Green Paper' (DETR, 2000) contained an array of proposals for improving Housing Benefit and this has been followed up by a specific proposal for very radical reform (DWP, 2002), namely to replace HB with a housing allowance that is paid to tenants even if rents are below that level.

acts as a powerful disincentive to work (see Bingley and Walker, 2001, for an analysis of this).

Thirdly the complexity of the system and the inefficiency of its administration create a great deal of uncertainty in the minds of both tenant and landlord about the exact level of benefit that is likely to be received.

But, while there has been a widespread feeling that the system needs reform, governments have proceeded with extreme caution. The main explanation for this is probably that there will almost certainly be ‘losers’ from any system of Housing Benefit reform and politicians fear the dreadful publicity which would surround the eviction of families from their home because their Housing Benefit payments had fallen and they could no longer afford the rent.

However, much of the discussion of HB implicitly assumes that the incidence of the subsidy is fully on the tenant so that, for example, any reduction in Housing Benefit will make tenants worse off. But, as private-sector rental housing is not likely to be in elastic supply in the short-run, one might expect that a large part of the incidence falls on landlords. The fact that the proportion of individuals living in private-rented accommodation has hardly changed after the abolition of rent controls even though rents have risen sharply suggests that the elasticity in the supply of private rental housing is not high: the proportion of individuals living in private-rented accommodation was 9% in 1980, 5% in 1990 and 9% in 2000. A recent paper by Susin (2002) considered the incidence of rent vouchers in the United States and concluded that rent vouchers caused rents to rise by so much that low-income households were actually worse off and landlords were much better-off (i.e. there was over-shifting).

This paper estimates the incidence of HB in the UK by looking at the impact of certain changes to the administration of Housing Benefit that were made in 1996 and 1997 on rents and benefit receipt. It exploits the fact that the changes affected only new claims so that the new rules were applied only to a fraction of tenants. It aims to answer several questions:

- What was the effect of the changes on Housing Benefit payments?
- What was the effect on private-sector rents?
- What was the effect on the quality of private-sector rented accommodation?

The plan of the paper is as follows. In the next section (2) we provide some more information about the operation of the HB system and the changes made in the 1990s. Then, in Section 3, we discuss the likely impact of the changes to HB on the rental market using a simple model. We contrast the predictions of a competitive model of the housing market where rents are determined ‘in the market’, independently of the circumstances of any

individual, with a matching model in which the rent is determined in a bargain between landlord and prospective tenant. Section 4 describes our empirical methods and data, and Section 5 presents the results. Section 6 concludes.

2. Housing Benefit and the 1990s Changes

The basic features of the system can be described simply. Both private-sector and public-sector tenants can apply for Housing Benefit which can pay up to 100% of their rent. Public sector tenants generally receive their housing benefit as a rent rebate. Private sector tenants receive a rent allowance. There are two main reasons why Housing Benefit may pay less than 100% of the rent.

First, Housing Benefit is means-tested and is withdrawn at a high taper rate as the claimants' household income increases. Currently the taper is 65% so that Housing Benefit is an important contributor to the high marginal tax rates faced by those on low incomes (and the marginal tax rate is even higher once one recognizes that most Housing Benefit recipients will also be receiving Council Tax Benefit that is withdrawn at a taper rate of 20%).

Secondly, there are restrictions on the maximum amount of rent that will be covered by Housing Benefit: these restrictions are decided by the rent officer in the Local Authority where the claimant lives². Prior to 1996 the Housing Benefit could be restricted to less than the rent if the rent was above the market level for the accommodation or the accommodation was too large for the claimant's household or the rent was exceptionally expensive. Beginning in 1996, a number of further restrictions were introduced. First, the concept of a 'Local Reference Rent' (LRR), the average market rate for the accommodation in the local area was introduced. From January 1996 to October 1997, 50% of the rent in excess of the LRR was eligible for Housing Benefit: from October 1997 this entitlement was removed and no Housing Benefit was payable on the excess of rent above the LRR. Secondly, in October 1996, new claims by single people aged under 25 were restricted to the 'single room rent' (SRR), the average rent in the local area for a single room with shared facilities. An

² These restrictions effectively apply to 'deregulated' private-sector tenants only. Public-sector, and 'regulated' private sector rents are typically below market levels and are not referred to rent officers. A tiny minority of Registered Social Landlord rents are also assessed under the LRR scheme – 13,000 out of 1,775,000 in May 2002 (Department of Work and Pensions, 2002).

additional reform introduced in 1996 was to change the Housing Benefit system to payment in arrears. The Housing Benefit system is outlined in more detail in Appendix A.

The rules that are used with regard to each Housing Benefit application are the rules that were applied when the claim was first made so the 1996 changes only had an impact on new claims beginning after the relevant dates. We exploit this fact in the empirical work below.

3. The Impact of the Changes: Theory

In this section, we describe the likely consequences in the private-sector rental market of the changes to the HB system. A first question (addressed below in the empirical part of the paper) is to what extent the changes have actually reduced HB payments: for the purposes of this section, we will assume that they have.

First consider how one can model in a simple way, the impact of Housing Benefit. The level of subsidy is determined by the rent, r , if it falls below the maximum allowable and the maximum allowable, r^* , if it does not. One of the features of the system noted (and criticised) by many commentators is that the process that determines r^* is a mystery to most claimants and subject to a great deal of uncertainty. For example, Kemp (2000, p17) reports that 70% of private tenants on Housing Benefit agreed with the statement that “it is hard to know what the local authority will accept in rent for Housing Benefit”. So, assume that r^* is a random variable with density function $f(r^*)$. The expected housing subsidy, $S(r)$ is then given by:

$$S(r) = E(\min(r, r^*)) = r[1 - F(r)] + \int r^* f(r^*) dr^* \quad (1)$$

Differentiating this we have that the expected subsidy varies with the rent according to:

$$S'(r) = [1 - F(r)] \quad (2)$$

i.e. the marginal expected subsidy rate is the probability of the rent not being restricted. If there are more stringent restrictions imposed on the allowable rent then the distribution of r^* will shift down and both the average and marginal subsidy rates will fall. So, we will

model the impact of a tightening of the restrictions on the maximum allowable rent as a fall in the subsidy rate that, to keep the theory simple, we assume is a linear one.

In the theory that follows we assume that all agents are risk-neutral so that it is only the expected subsidy that matters. Of course, this is not plausible especially for the tenants for whom a determination that their previously agreed rent is excessive can cause very real hardship as the decision is quite likely to be received after they have signed a tenancy agreement. One should also recognize that the subjective probabilities attached by claimants to the probability of having their Housing Benefit restricted may be some distance from reality e.g. Kemp (2000, p22) reports that 45% of private tenants said they did not know whether the local authority would increase their Housing Benefit if the rent was increased. We leave the implications of the uncertainty in the Housing Benefit subsidy to another paper.

We will consider a couple of models of rent determination: a competitive model and a matching model.

3.1. A competitive model

First, consider a standard market-clearing model in which there is a single rent, r , per unit of housing consumed in the market. Assume the supply of housing is given by $H^s(r)$ and that the demand for housing comes from (for simplicity) two groups, one of which is going to have its subsidy reduced (as happened in the HB reforms described in the previous section). Let us describe the two groups as the treated and the untreated: we are going to consider the impact of a reduction in the housing subsidy for the former group³. Assume that the demand for housing from the untreated is given by $H_u^d(r)$ (this will incorporate any subsidy they might be receiving) and from the treated by $H_t^d(\mathbf{r}r)$ where \mathbf{r} is the fraction of the actual rent paid (so is one minus the subsidy rate). We are interested in how rents are affected by changes in \mathbf{r} . For simplicity assume that the elasticity of housing demand with respect to rents is the same for the treated and untreated (denote it by $-\mathbf{e}^d$), that the elasticity of the supply of housing with respect to rents is given by \mathbf{e}^s , and that the share of housing demand from the treated is given by \mathbf{q} . Then the standard formula for the effect of a subsidy on the rent, r , is given by:

³ The terminology here is chosen to reflect the empirical application later in the paper. But, the set-up can be applied to any situation where the subsidy or tax regimes facing two groups in the same market is different.

$$\frac{d \ln(r)}{d \ln(\mathbf{r})} = -\frac{qe^d}{e^s + e^d} \quad (3)$$

The higher is the elasticity of the demand for and the lower is the elasticity of supply of private-rental housing the larger will be the impact of the subsidy reduction on rents. In this situation a reduction in the subsidy (an increase in \mathbf{r}) will reduce the rent per unit of housing by the same amount both for those treated and those untreated with the effect being largest in markets where a higher fraction of tenants are affected by the subsidy reduction. If tenants can choose the quantity and/or quality of their housing we would expect the treated to reduce the amount of housing consumed more than the untreated even though the rent per unit of housing is the same for the two groups.

So, a competitive model predicts that, controlling for the quality and quantity of housing, rents will change by equal amounts for those affected and unaffected by the change in the subsidy. One can estimate the incidence of the subsidy by seeing how much more rents fall in markets where a large proportion of tenants are affected by the change. This is essentially the set-up used by Susin (2002) in his analysis of the incidence of US rental vouchers.

In a competitive market a finding that rents change more for those affected by for the subsidy reduction more than those unaffected would suggest a failure (perhaps understandable given the quality of most available data) to control adequately for the quality and quantity of housing. However, there are alternative plausible models of the housing market in which those affected by the subsidy reduction have their rents fall when rents are restricted by more than those who are not affected even for the same accommodation. Perhaps the simplest form of alternative model is a matching model.

3.2. A matching model

In matching model, rents are negotiated between landlord and tenant so differences in subsidy status will be reflected in the rent paid per unit of housing. A search model with negotiation between the two sides of the housing market has been used in the analysis of owner-

occupation (e.g. Wheaton, 1990) but also seems appropriate for the rental sector as survey evidence suggests that some negotiation does take place⁴.

Consider the following very stylised model of the private-rental market. As in the model of the previous section, there are two types of tenants, the treated (who are affected by a subsidy reduction) and the untreated (who are not) but only one type of flat. To keep matters simple we assume that the treatment status of tenants is fixed through time. Assume that the per-period utility from the consumption of housing services for untreated tenants is given by $y - \rho r_u$ where r_u is the rent paid to the landlord and ρ is the fraction of the rent that the tenant pays. On the other hand, treated tenants pay a higher fraction $(\rho + \eta)$ of their rent so their per-period utility is given by $[y - (\rho + \eta)r_t]$.

Those potential tenants without accommodation are assumed to have a per-period utility of 0 (think of this as staying with friends or family). They are matched with potential flats at a rate β . Tenants of both types are assumed to leave flats at an exogenous rate s .

Define the value functions for untreated and treated tenants to be V_u and V_t respectively and for untreated and treated individuals looking for a flat to be V_{u0} and V_{t0} respectively. Using the information given above we must have:

$$dV_u = y - r r_u + s(V_{u0} - V_u) \quad (4)$$

$$dV_t = y - (\mathbf{r} + \mathbf{h}) r_t + s(V_{t0} - V_t) \quad (5)$$

$$dV_{u0} = \mathbf{b}(V_u - V_{u0}) \quad (6)$$

$$dV_{t0} = \mathbf{b}(V_t - V_{t0}) \quad (7)$$

Now, let us consider things from the perspective of the landlord. A vacant flat matches with a potential tenant at a rate γ and a fraction θ of matches are assumed to be affected by the subsidy reduction (so are in the treated group). For simplicity let us assume that the number of flats and people in the market are equal so that $\mathbf{g} = \mathbf{b}$: nothing of importance depends on this.

Define Π_u and Π_t to be the value of a flat if there is an untreated or treated tenant respectively and Π_0 to be the value of an empty flat. These value functions will be given by:

$$d\Pi_u = r_u + s(\Pi_0 - \Pi_u) \quad (8)$$

$$d\Pi_t = r_t + s(\Pi_0 - \Pi_t) \quad (9)$$

⁴ Although the evidence also suggests that any negotiation takes place before the tenancy agreement is signed and is not renegotiated ex post if, as is quite common, the Housing Benefit is restricted (see Kemp, 2000).

$$d\Pi_0 = \mathbf{g}[(1-\mathbf{q})(\Pi_u - \Pi_0) + \mathbf{q}(\Pi_t - \Pi_0)] \quad (10)$$

Now, let us consider our assumptions about rent determination. We will assume that the rent is chosen to maximise an asymmetric Nash bargain between landlord and tenant so that:

$$r_i = \operatorname{argmax}[(\Pi_i - \Pi_0)^{1-I} (V_i - V_{i0})^I] \quad (11)$$

The solution to this model is derived in the Appendix B. The solution for the rents is:

$$r_u = (1-I) \frac{y}{\mathbf{r}} - \frac{I \mathbf{g} \mathbf{f} [r_u - r_t]}{\mathbf{d} + s} \quad (12)$$

$$r_t = (1-I) \frac{y}{\mathbf{r} + \mathbf{h}} + \frac{I(1-\mathbf{f}) \mathbf{g} [r_u - r_t]}{\mathbf{d} + s} \quad (13)$$

We can represent these two relationships between the rents in Figure 3 where (12) is represented by the line R_u and (13) by the line R_t . In the initial situation where the treated and untreated are the same ($\eta=0$), rents will be equal.

If there is a fall in the subsidy for the treated group so that now $\eta > 0$, the R_t line will shift to the left. As can be seen from inspection of Figure 3, both rents will fall, though that of the treated will fall more. The net rent paid by tenants suffering the subsidy reduction must rise so not all the incidence is on the landlord. The intuition for this is that, as the subsidy for the untreated is unaffected, the relative profits of renting to an untreated tenant rise and this strengthens the hand of the landlord when bargaining with the treated group.

Also note that, as in the competitive market the fraction of those receiving the subsidy affects the size of the change in rents with larger effects in markets with higher proportions of tenants affected.

If the markets for treated and untreated tenants are completely segmented⁵ so either $\mathbf{q} = 0$ or $\mathbf{q} = 1$, then we get the very simple equations that:

$$(\mathbf{r} + \mathbf{h})r_t = (1-I)y \quad (14)$$

and:

$$\mathbf{r}r_u = (1-I)y \quad (15)$$

(14) says that, in this case, the amount of the rental payment by the tenant is independent of the level of the subsidy so that the incidence will always be on the landlord.

The conclusions of this theoretical discussion can be summarized as:

⁵ Note this is not implausible. Many landlords are unwilling to let to Housing Benefit claimants, or, in the "Buy-to-Let" market are prevented from doing so by their mortgage terms and conditions.

1. In a competitive market, rents for the same accommodation will be independent of the level of subsidy received by the tenant but the impact on rents of any change in the subsidy will be larger in markets where a higher fraction of tenants are affected.
2. In a competitive market a reduction in subsidy for some tenants can only lead to larger changes in rents for those suffering the reduction compared to those who do not if one has inadequately controlled for the quantity and/or quality of the accommodation.
3. In a matching model, a reduction in subsidy for some tenants would be expected to have a larger effect on rents for the treated than the untreated.
4. The size of the change in rents will also be affected by the proportion of tenants having their subsidy reduced.

In the empirical part of the paper we look for these impacts of individual treatment and the proportion treated in the local area to see what the incidence of the subsidy is and to shed light on the appropriate model of rent determination.

4. Empirical Specification

4.1. Basic strategy

In the empirical section of the paper, we describe how the benefit reforms have changed the rental housing market in England, and test the matching model of Section 3.2 against the competitive model of Section 3.1 using the conclusions of those sections. Our objective is to model the impact of the post-1996 Housing Benefit reforms on a number of outcomes for households in the rental sector. We look at the impacts on

1. Housing Benefit receipt
2. Rents
3. The benefit-to-rent ratio
4. Housing ‘quality’, measured by the number of rooms occupied by the household.

To do this, we estimate simple OLS regressions of the form:

$$y_{it} = z'_{it}\mathbf{b} + x'_{it}\mathbf{g} + \mathbf{e}_{it} \quad (16)$$

where y_{it} is the outcome variable for household i in period t , x_{it} is a vector of tenancy characteristics, year, region and other dummy variables, and z_{it} is a vector of ‘treatment’ variables. Our basic ‘treatment’ variables relate to whether the new Housing Benefit rules apply to a household in our data set. These relate to two rule changes: those that occurred in January 1996, when the Local Reference Rent system first came into operation, and those that occurred in October 1997 when the rent restrictions were fully implemented. Unfortunately, we have no direct information about whether the household’s Housing Benefit application was subject to the post-1996 rules. But we know that the new rules apply to private tenants who: 1) started their tenancy after the relevant date (January 1996 or October 1997) and claimed Housing Benefit, or 2) became eligible for Housing Benefit through low income or unemployment. So we calculate the probability that the any Housing Benefit claim was subject to the new rules from information on length of tenancy, interview date, and year in which the head of household last worked. These variables are our treatment variables.

4.2. Interpretation in the light of the theoretical models

Let us define:

\mathbf{b}_b : treatment coefficients in the Housing Benefit equation

\mathbf{b}_r : treatment coefficients in the rent equation

\mathbf{b}_s : treatment coefficients in the benefits/rent ratio equation

\mathbf{b}_q : treatment coefficients in the housing quality (rooms) equation

If Housing Benefit reforms have any ‘bite’ then we would at least expect $\mathbf{b}_b < 0$: tenants making new claims after the reform receive lower benefits than they would have done before.

The parameters in the other equations are informative about the extent to which the burden of the benefit reforms is borne by tenants or landlords. In general, part of the benefit is borne by landlords if $|\mathbf{b}_r| \leq |\mathbf{b}_b|$, unless $\mathbf{b}_q < 0$. Consider the following extreme cases in the competitive model with a downward sloping housing demand curve:

1. The housing market is competitive, but the supply of rental housing to the benefit-claiming sector is completely inelastic. The benefit reforms result in falling benefits, falling rents (the size of which will be related to the fraction of tenants affected by the subsidy reduction) and no change in the quality of rental

housing within the entire Housing Benefit claiming sector. The impact on rents is felt throughout this sector, *not just by new claimants*⁶, so in our models of individual treatment effects $b_b < 0$; $b_r = 0$, $b_q = 0$.

2. The housing market is competitive, but the supply of housing to the benefit claiming rental sector is perfectly elastic. Benefit reform leads to falling benefits, but rents for a given quantity and quality of housing do not fall. The treated may downsize their accommodation or reduce other consumption. $b_b < 0$; $b_r = 0$, possibly $b_q < 0$.

Now consider the case where the housing market conforms to the matching model in Section 3.2. Now, tenants faced with lower benefits can bargain for lower rents for an equivalent quality property without losing the contract, even if rents elsewhere in the market are unaffected. So, the matching model predicts:

3. Benefit reform leads to falling benefits for the affected tenants. This group pays lower rents without adjusting housing quality, so in our models: $b_b < 0$, $b_r < 0$, $b_q = 0$

Both models predict that the effect of the reforms on the rent depends on the market proportion of tenants who are affected by the reforms. But again, the matching model differs from the competitive model in that only new claimants who are affected by the subsidy reduction should receive the rent reductions. We test for this type of effect in the rent models using a measure of the impact of the reform at the local government level⁷.

Another consideration is that Housing Benefit reform in a competitive market will lead to falling rents for all new private renters – not just benefit claimants – unless the markets for benefit-claiming and other private renters is highly segmented.

4.3. Identification when there are length of tenure effects

Our post-‘treatment’ groups have, by definition, shorter tenures than the pre-treatment groups. This would not present a problem if we could be sure that there was no general change over time in the relationship between length-of-tenure and our outcome variables –

⁶ This assumes away any rent stickiness for existing tenants in a competitive market. We assume that rents in the private, benefit-claiming sector track market rents in that sector, due to regular and frequent re-contracting, with low fixed costs.

⁷ This information comes from Department of Social Security administrative records at the Unitary Authority level.

any difference in outcome between post-treatment and pre-treatment groups would measure the impact of the reforms. But, new, shorter tenancies may face higher rents than those in older, longer running tenancy agreements for reasons other than benefit reform. And if this pattern is changing over time it becomes impossible to identify the reform impacts without further assumptions.

So, we have two identification strategies available: 1) look for breaks in the time series behaviour of new, shorter tenancies at the treatment dates; or 2) look for cross-sectional differences between our treatment group and some comparison group that we know was not subject to the benefit reforms. The first strategy requires some parametric assumption about the underlying trend in length of tenure effects. We assume that trends in benefits and rents are linear within tenure-length groups.

The second strategy requires a suitable comparison group. New benefit rules apply to all Housing Benefit applicants across the country so we are unable to find a comparison group for Housing Benefit and rents within the benefit-claiming private rental sector⁸. But we can make a comparison with the *social* rented sector, for which the new rules do not apply. An obvious drawback, is that social rents are only weakly indexed to the private market, so trends in rents and benefits may deviate from those in the private rental sector, even in the absence of the reforms. Nevertheless, comparison with benefit claimants in the social sector is useful, if only to highlight any differences in outcomes for similar households according to their tenancy group.

Another approach is to compare *rents* (but not benefits) in the benefit-claiming private sector with other rents in the private sector, as discussed at the very end of Section 4.1. The problem here of course is that the composition of the non-claimant sector is entirely different from the claimant sector.

4.4. Data and sample selection

We apply all these strategies to data from two main sources: the Family Resources Survey (FRS) from April 1994 to March 2000, and the Survey of English Housing (SOEH), April 1993 to March 2000. The more recent years of the FRS (2000, 2001) are not used, because of the likelihood of increasing recall errors and regarding start of tenure dates around the time of

⁸ If we are considering rents only, then students might be a suitable comparison group, since they are ineligible for Housing Benefit. Obviously, they are no use as a comparison group for measuring benefit changes. In any case, the student group in our sample is too small.

the benefit reforms. Only the English regions of the FRS are used, so that we have comparable samples from both data sets. Both data sets contain information on housing tenure, length of residence, housing costs, the receipt of Housing Benefit and labour market information. We suspect that reported benefits are measured with error in both datasets. To minimise errors due to mis-reporting by non-claimants, we restrict the sample to those households whose characteristics mean that they should be entitled to Housing Benefit. We also omit those in this group who do not report receiving any Housing Benefit even though they report being on Income Support as these ‘zeroes’ are also very likely to be mistakes. Specifically, our baseline results come from a sub-sample of households with: at least one member claiming Housing Benefit, no member working, and a head of household between ages 18 and 64 who was not a student or retired person. We split this sample into private tenants and social tenants. Summary statistics for the base sample are presented in Table 14 in Appendix C.

5. Empirical Results

5.1. General trends and patterns

Let us look first at the aggregate pattern in Housing Benefit claims. Table 1 shows the figures for Britain from May 1996, after the Local Reference Rent scheme was introduced, up to 2002. These figures are compiled from administrative data and show the stock of cases recorded in May of each year, along with mean ‘eligible’ rents, mean Housing Benefit payments and the ratio of mean eligible rents to mean Housing Benefit. The term ‘eligible rent’ refers to the amount of a tenant's rental liability which can be met by Housing Benefit, after adjustment for service charges, meals, abnormally high rents and the Local Reference Rent (see Appendix C). Rents and benefits are in 1996 prices. The top panel of the tables shows all Housing Benefit cases. The second panel shows all private sector cases, including ‘regulated’ rents in the private sector (regulated as ‘fair rents’, under legislation predating the 1988 Housing Act), and Registered Social Landlords (principally housing associations). The third panel shows figures for all ‘de-regulated’ tenancies, meaning those in which rents are market determined, and thus liable to some sort of benefit capping. These rents can be assessed occur under pre-1996 rules, when rents were assessed by the local rent officer in a

fairly ad-hoc fashion – shown in the fourth panel. Or they may be assessed under the 1996 and 1997 Local Reference Rent schemes – fifth panel.

The total number claiming Housing Benefit has declined by around 20% over this period. At the same time, the number of private deregulated benefit recipients fell by 248,000 (29%). This change is documented in Wilcox (2001), who attributes much of the decline to the 1996 and 1997 changes in the Housing Benefit system. We need to be cautious about inferring too much from these trends, since the patterns of claims reflect changes in the labour market, household incomes, benefit entitlement, and housing supply, in addition to changes in the way the system is administered. For instance, the number of claims from council tenants also fell by 27% (754,000) between May 1997 and May 2002, whilst claims from tenants of Registered Social Landlords rose by 275,000 (35%). Since neither of these groups pay market rents, they are largely unaffected by the reforms. The total number of cases assessed under the Local Reference Rent (LRR) schemes shows no clear trend, but has risen rapidly as a proportion of all private deregulated tenancies. This simply reflects the inflow and outflow rates of private tenant claims; by 2002, 97.1% of the stock claims must have started after January 1996.

Mean rents have continued to grow in excess of general price inflation over the 1990s, especially in the de-regulated private sector covered by the Local Reference Rent Scheme. Eligible rents assessed under the LRR scheme rose by 22% between May 1996 and May 2002. However, it does look like the LRR system might have had an effect. Certainly, the eligible rents and the amount post-1996 claimants receive in benefits are lower than they are for claimants still assessed under the old rules. The difference, shown at the bottom of the table, is around £7 (in 1996 prices), or about 12%. Note though, we have no information here on what rent the tenant is *actually paying*, only what the Local Authority takes into account for assessment of housing benefit. What is more, simple comparisons of new and old-rule claimants do not take into account the tenure-length differences between the two groups. For all these issues, we need more detailed survey data.

We look now, in Figure 4, at the picture for workless households in our FRS and SOEH samples. The figure traces mean log-Housing Benefit for three tenure-length groups, from 1993/1994 to 1999/2000⁹. If the 1996 reforms had any bite on mean Housing Benefit payments, we should see falling mean benefits for short-tenure households after 1996/1997. Although Housing Benefit receipts for the short-tenure groups seems to have been quite

⁹ The basic summary statistics are in Appendix D.

stable over this period, they have fallen relative to the HB receipts of longer-tenure households, suggesting that the reforms might have had some bite.

Many of these changes will be linked to underlying changes in rents, which we consider next. Figure 5 and Figure 6 illustrate the trends for log rents over the 1990s for: (a) private sector workless households; (b) social sector workless households and (c) private sector non-claimant households. Some general patterns are evident. Private tenants with longer tenures (over 3 years) generally pay lower rents than those with short tenure (3 years or less), with a gap of over 35% in 1994. This differential may be in part due to historical changes in rent control, with a few long-tenure rents still controlled under the ‘fair rents’ scheme of the 1965 Rent Act, and others regulated as shorthold tenancies under the 1988 Housing Act. But transaction, search and information costs may play their part too. Landlords avoid transaction and search costs if they extend an existing tenancy agreement with a known tenant, and some of this may be passed on to tenants as lower rent increases. What is striking about Figure 5 and Figure 6 though, is that whilst this tenure-length differential has persisted amongst working tenants, we see it almost completely eroded in the private, benefit-claiming sector by the 1999/2000. And this can, for the most part, be put down to decreasing or non-increasing real rents for short-tenure, benefit claimants. Certainly any number of factors could be at work here, but one candidate could be increasing ‘toughness’ in the rules for administration of Housing Benefit.

One of the first objectives of the paper then is to find out if the LRR reforms actually had any effect on Housing Benefits. We go on to this in some detail below. But first, we present some direct evidence based on a question in the Survey of English Housing that asks directly about benefit reductions. The survey asks “Is the benefit based on the full rent, or a reduced figure determined by the Rent Officer?”. Table 1 tabulates the responses for workless households. There is no obvious trend to be seen here, though the last two post-reform years have high significantly (p -value < 0.001) higher proportions reporting a reduced figure (28% and 33% respectively).

5.2. Regression results

The trends in Figure 4 to Figure 6 do not clearly delineate the groups affected and unaffected by the reforms, and the aggregate data in Table 1 is uninformative about compositional changes and actual rent payments. A better way to look at the reform is through the effects on

individuals making new claims, using the FRS and SOEH data and the empirical model of Section 4. The next sections present these results.

Table 3 to Table 9 provide OLS regression results from this exercise, for the outcomes described in Section 4.1, using FRS and SOEH data. In all Tables, Set (1) includes only year dummies, regional dummies and length of tenure dummies as control variables. Set (2) adds in basic household demographics and the number of rooms occupied by the household. Set (3) allows for general changes in the length-of-tenure effects by interacting length-of-tenure dummies with a linear time trend. The tables report only the coefficients of interest, and tests of significance. The coefficients are those relating to our policy reform ‘treatment’ variables: the probability that the household moved after the policy reform dates, and the probability that the head of household ended work after the reform dates. All the coefficients are $\times 100$, so show the percentage change in outcome.

5.2.1 Housing Benefit

The first step is to confirm whether the introduction of Local Reference Rents had any ‘bite’ on household Housing Benefit receipts in our data. The aggregate administrative data discussed in 5.1 certainly suggest that many payments were assessed on the basis of the LRR rules, and that claimants were receiving less under the new scheme. Table 3 and Table 4 look again at this issue, using log-Housing Benefit as the dependent variable. Looking at the first results for private tenants, in Column (a) and Column (c) of both tables, it seems that new Housing Benefit claimants in the private sector received lower benefits *relative* to comparable claimants who started their tenancy in the pre-reform years. Adding income and demographic controls in Column (c) has little effect. The figures suggest that benefits for claimants in new private tenancies after January 1996 were at least 10% down compared to those starting similar tenancies pre-1996. After 1997, when the allowance for ‘high rents’ above the LRR was removed, this relative disadvantage increases to 15%-18%. Entry into unemployment after these dates is also associated with lower Housing Benefits, but these effects are smaller and rarely significant¹⁰. In terms of our empirical specification in 4.1, we have $b_b < 0$.

Columns (b) and (d) show *no* effects of comparable magnitudes for social tenants who moved after the 1996 reforms, or for those who became unemployed over the period. But

¹⁰ The numbers entering unemployment after the reform dates are quite low. See Table 14 in Appendix D.

there is a fall of about 5% in the value of benefit claims for social tenants who moved after October 1997. This cannot be attributed to the reforms, since social tenants are exempt¹¹, but might reflect unobserved general differences in the composition of Housing Benefit claimants, or something else specific to the social rental sector. To err on the side of caution, we could use a difference in difference approach and deduct any observed contemporaneous changes on social tenants when we report the reform impacts on the private sector.

A look back at Figure 4 shows that housing benefit trends are not the same for all tenure-length groups. As we noted above (Section 4.3) this is a problem, since our LRR-covered tenants are all short-tenure. The most general specification in Set (3) allows for differences in the general time trend by length-of-tenure groups. The effect of this is to drive all the coefficients towards zero, and render them insignificant at conventional levels – even when tested as a group. By contrast, the length-of-tenure-time interactions are jointly highly significant for private tenants. The main lesson to be learnt from this is that it is not possible to distinguish the impacts of the reforms from general changes in the relationship between length of tenure and rents over time. This does not mean that the reforms had no impact – it seems certain from the administrative data that the benefit rules had some effect on benefits. But we cannot be certain from our data that the effects we observe are not attributable to a general tendency over time for low length-of-tenure claimants in the private sector to receive lower Housing Benefits. General tightening of the Housing Benefit rules, may be responsible.

5.2.2 Rents

If the intention of the reforms was purely to bring down benefit payments in this sector then, on this evidence, they must be judged a success. But how has the burden of this reduction in subsidy been divided between tenants and the private landlords providing rental accommodation? Have tenants or landlords become worse off? To answer this we must look at rents, though as we shall see, the answer is not clear-cut. Table 5 and Table 6 show the results from the FRS and SOEH respectively. The dependent variable is the log of weekly rents.

There are notable similarities between these tables and the Housing Benefit results. The reforms have strong negative impacts on movers in the private sector, particularly for 1997.

¹¹ Except some those with some Registered Social Landlords. These are only 1% of the LRR-covered sector and are not identified in our data.

For social tenants, we detect a fall in rents of 3%-4% for movers after October 1997, which cannot be attributed to benefit reform. Adding demographics and tenure controls makes little difference in Set (2), but introducing length-of-tenure-time-trend interactions wipes out the estimated impacts in Set (3). As before, we cannot distinguish reform impacts from general changes in the relationship between length of tenure and rents. Note that there are no separate effects for claimants becoming unemployed after the reforms – rents are only affected for those moving to new accommodation.

But there are some anomalies. For the SOEH, the changes in rents reflected in the coefficients in Table 6 are a very close match to the changes in benefits recorded in Table 4. The picture we get from the SOEH is of private tenants affected by the LRR reforms receiving some 10% to 13% less in benefits, but paying a similar proportion less in rents compared to those unaffected by the reforms¹². This is highly supportive of our matching model of the housing market, and suggests that the burden of the subsidy reduction largely fell on landlords (assuming we have adequately controlled for housing quantity and quality). But the FRS tells a slightly different story. Benefits for movers affected by the LRR reforms fell by 10%-13%, whilst rents fell by much less – by 5% after January 1996, and by 7% after October 1997. And the FRS rent results are less statistically significant than those from the SOEH¹³. Still, the effects for movers after both reforms are negative and individually and jointly significant at the 5% level when we control for household characteristics. In term of our empirical model, we find that $b_r < 0$, and that $|b_r| \leq |b_b|$.

Both our theoretical models predict that rents will fall by more when tenants covered by the reform take a larger market share. In the competitive case, rents are lowered throughout the sector. In the matching case, rents are lowered for new claimants only. We look for this in Table 11, using the Local/Unitary Authority proportion of all benefit claimants subject to the post-96 reforms as an indicator of market share. This is an imperfect measure, because the denominator includes claimants in the social rented sector, whereas we really want the private market share. Yet we see some evidence that a higher local proportion of affected claimants in the local market leads to lower rents in Column (a), and in (b) where we re-introduce the

¹² Here we treat the reductions experienced by social tenants as non-reform related and deduct these from the private tenant impacts.

¹³ The contradiction between the FRS and SOEH results is a data anomaly, for which we are unable to find a good explanation. Comparison of the means and standard deviations of all the variables shows that the samples are closely matched (Table 14 in Appendix C), although mean benefit/rent ratios are 2.5 percentage points lower in the FRS than the SOEH, and the difference is significant. One symptom of the discrepancy is evident in Figure 5 and Figure 6: rents for longer-tenure tenants in the FRS are higher in 1994/5 and show a slower rate of growth than in the SOEH.

household level ‘treatment’ variables. Column (c) interacts the market share variable with the treatment variables; the coefficients remain negative but are insignificant, so there is no further information here that helps us discriminate between our competitive and matching models.

We make one further comparison in Table 10, by looking at rents for non-claimant, working households. In a purely competitive market, any effects of subsidy reduction on rents should be felt throughout the market, and will also impact on the rents paid by new tenants who are not benefit claimants. But this is not obviously what has happened. Many of the coefficients in this table are negative, but all are of low significance, especially compared with the rent effects on claimants in Table 5 and Table 6. It really does appear that if rents fall, they do so only for claimants directly affected by the 1996 and 1997 reforms.

5.2.3 Benefit-rent ratios

The discrepancy between the results from the FRS and SOEH becomes even more evident in Table 7 and Table 8. These results pull together what we have found so far, by exploring the impact of the LRR reforms on the benefit-rent ratio. If rents and benefits fall by the same proportion, then there is no immediate impact on the incomes, net of housing costs. But if rents fall by less than benefits then the benefit to rent ratio falls and claimants are worse off. From the FRS (Table 7), we find that benefit-rent ratios are systematically lower in the post-reform period for private tenants. The average tenant affected by the LRR reforms suffers a 4%-6% reduction in the benefit/rent ratio, with particularly important changes for movers. At the sample mean for workless private tenants, this amounts to a 10%-15% reduction in disposable incomes¹⁴. The coefficients become insignificant when length-of-tenure-time-trend interactions are included, though these interactions are statistically insignificant and unnecessary. In contrast, the figures from the SOEH (Table 8) suggest that benefit/rent ratios were unaffected – except for those becoming unemployed after the October 1997 reforms. The reform ‘treatment’ coefficients are jointly insignificant. According to the SOEH data, rents and benefits fell by the same proportion, and tenants are not, on average worse off after the LRR reforms.

¹⁴ Define η as the benefit/rent ratio and μ as the income/rent ratio. We can write income after housing costs as $y = [\mu - (1-\eta)] \times r$. The proportional change in y with respect to a small change $\partial\eta$ is $\partial\eta/[\mu - (1-\eta)]$. Substituting sample means of $\mu=1.29$ and $\eta=0.89$ gives the result.

5.2.4 Housing quality

As noted in the Sections 3.1 and 4.1, tenants may downsize in response to a reduction in subsidy. Rents may stay constant, but tenants bear the burden through reduced housing quality. We included housing size (rooms) as a control in our rent and benefit models, but now examine the downsizing issue more explicitly using number of rooms as the dependent variable. The regression coefficients in Table 9 gives some indication that private tenants covered by the post-1996 reforms live in smaller accommodation than their pre-reform counterpart. The reduction is about 1 room less in every four or five households, which seems large, but the effects are statistically very weak. Perhaps this is too crude a measure of housing quality to be really informative, but substitution to smaller dwellings does not seem to be an important issue empirically.

6. Conclusions

We have looked at the impacts of Housing Benefit reform on a number of outcomes for tenants in England, and assessed our findings in the light of two competing models of rent determination – a competitive and a matching model.

The 1996 and 1997 reforms to the British Housing Benefit system seem to have had an impact on private tenant Housing Benefits. Average claims fell for private sector moving after the benefits reforms, relative to existing claimants in the private sector and relative to new and existing claimants in the social sector. The benefit gap in our data is around 10%-13%, which corresponds closely to the aggregate administrative figures.

Our theoretical framework made the point that changes to rent subsidies, in a purely competitive, non-segmented housing market should alter rents throughout the market. We do find that the reduction in effective rent subsidy introduced by the 1996/1997 Housing Benefit reforms has fed through into lower rents. But contrary to the competitive model, this happens only for tenants whose claims would have been assessed under the new benefit rules and were in a position to negotiate lower rents – that is, private sector benefit-claiming tenants who moved into new accommodation after the reforms. Claimants under pre-1996 rules and non-claimants are not affected. This is hard to reconcile with a purely competitive market,

since landlords have no reason to accept rents from benefit claimants that are below market value. An alternative model, such as a matching model, is more appropriate.

We are unable to make many firm statements about the size of rent reductions that have occurred. Results from one source, the Survey of English Housing, suggest that rents have fallen by the same proportion as benefits. Landlords have borne the burden of the reduction in rent subsidy and tenants are no worse off than before the reform. This is ‘music to the ears’ for policy makers. But the results from the Family Resources Survey show rents falling by less than benefits. The burden is shared between tenants and landlords, and tenants have seen an average reduction of 10%-15% in disposable income as a result of the reforms.

Our results come with one severe health warning. The fall in rents and benefits for new claimants after 1996, relative to those with longer tenures, might have occurred without the reforms due to falling rent differentials between short and long-tenure private tenants. Our results indicate that these general changes in length-of-tenure rent trends have been important during the 1990s, and that they can equally well explain the patterns that we attribute to Housing Benefit reform. These trends can also generate the pre-reform and post-reform benefit differentials in the aggregate administrative figures. Differentials in rents and benefits between claimants assessed under the post-1996 rules (shorter tenure) and those assessed under the old rules (longer tenure) might just reflect that fact that longer-tenure rents are rising faster than shorter-tenure rents. It is the fact that these changes have occurred *only* in the benefit-claiming private rental sector that leads us to conclude that the Housing Benefit system reforms must be a driving force behind the changes.

Appendix A: Housing Benefit

This description of the Housing Benefit system is taken from DWP (2002):

Housing Benefit reformed scheme introduced April 1988

Housing Benefit (HB) is administered by Local Authorities. People are eligible only if they are liable to pay rent (or are treated as if they were so liable) in respect of the dwelling they occupy as their home. Couples are treated as a single benefit unit. The amount of benefit depends on eligible rent, income, deductions in respect of any non-dependants, deductions where food, fuel and water are included and the applicable amount. Also, people who are liable to pay rent but who have capital in excess of £16,000 are not entitled to Housing Benefit.

‘Eligible rent’ is the amount of a tenant's rental liability that can be met by Housing Benefit. Payments made by owner occupiers do not count but payments such as mooring charges for houseboats, site fees for mobile homes, rental purchase payments, mesne profits and payments for compulsory housing - related services all count for Housing Benefit. Deductions are made for service charges in the rent which relate to personal needs, such as the supply of meals. Housing Benefit may also be reduced if the amount of rent payable is unreasonably high or the accommodation is over-large or if the claimant or their partner is a full time student.

The ‘Local Reference Rent (LRR) Scheme’ was introduced on 2 January 1996 and has been applied to new and change of address claims from certain private sector tenants, claiming on or after that date. The LRR is an average amount of rent, which reflects the general level of rents for similar sized properties in the locality of the tenancy, and it is an additional value used in the calculation of the eligible amount. However, where the Claim Related Rent is more than the LRR, generally, 50% of the difference between the actual rent and the LRR is met, thereby increasing the amount of eligible rent used to calculate Housing Benefit.

On 6 October 1997, the LRR Scheme rules were amended, and the 50% addition was removed from the calculation of the eligible rent for all new claims.

On 7 October 1996, the ‘Single Room Rent (SRR) Scheme’ was applied to single people under 25 without dependent children in certain private sector tenancies. The SRR is an

average amount of rent reflecting the general level of rents for a single room with shared facilities in the locality of the tenancy. The SRR restricts the amount of rent that can be used to calculate HB.

The authorities have discretion to allow higher amounts of HB to alleviate exceptional hardship where the LRR or SRR restricts the amount of rent used to calculate HB.

Appendix B: Solution of the Matching Model

For those in the untreated group, the maximisation of (11) this leads to a first-order condition that can be written as:

$$\mathbf{I} \mathbf{r}(\Pi_u - \Pi_0) = (1 - \mathbf{I})(V_u - V_{u0}) \quad (17)$$

while for the treated tenants we have that:

$$\mathbf{I}(\mathbf{r} + \mathbf{h})(\Pi_t - \Pi_0) = (1 - \mathbf{I})(V_t - V_{t0}) \quad (18)$$

The difference in the first-order conditions reflects the fact that the treated tenants pay a higher fraction of their housing costs. Define $\pi_i = (\Pi_i - \Pi_0)$ and $v_i = (V_i - V_0)$ for $i = u, t$. Then, from (4)-(10) we have that:

$$\mathbf{d}v_u = y - \mathbf{r}r_u - (s + \mathbf{b})v_u \quad (19)$$

$$\mathbf{d}v_t = y - (\mathbf{r} + \mathbf{h})r_t - (s + \mathbf{b})v_t \quad (20)$$

$$\mathbf{d}p_u = r_u - \mathbf{g}q(p_t - p_u) - (s + \mathbf{g})p_u \quad (21)$$

$$\mathbf{d}p_t = r_t - (1 - q)\mathbf{g}(p_u - p_t) - (s + \mathbf{g})p_t \quad (22)$$

These can be solved to give:

$$(\mathbf{d} + s + \mathbf{b})v_u = (y - \mathbf{r}r_u) \quad (23)$$

$$(\mathbf{d} + s + \mathbf{b})v_t = (y - (\mathbf{r} + \mathbf{h})r_t) \quad (24)$$

$$(\mathbf{d} + s + \mathbf{g})p_u = r_u + \frac{\mathbf{g}q[r_u - r_t]}{\mathbf{d} + s} \quad (25)$$

$$(\mathbf{d} + s + \mathbf{g})p_t = r_t - \frac{(1 - q)\mathbf{g}[r_u - r_t]}{\mathbf{d} + s} \quad (26)$$

Using (23)-(26) in (17) and (18) we get the equations (12) and (13) for the determination of rents:

Figures

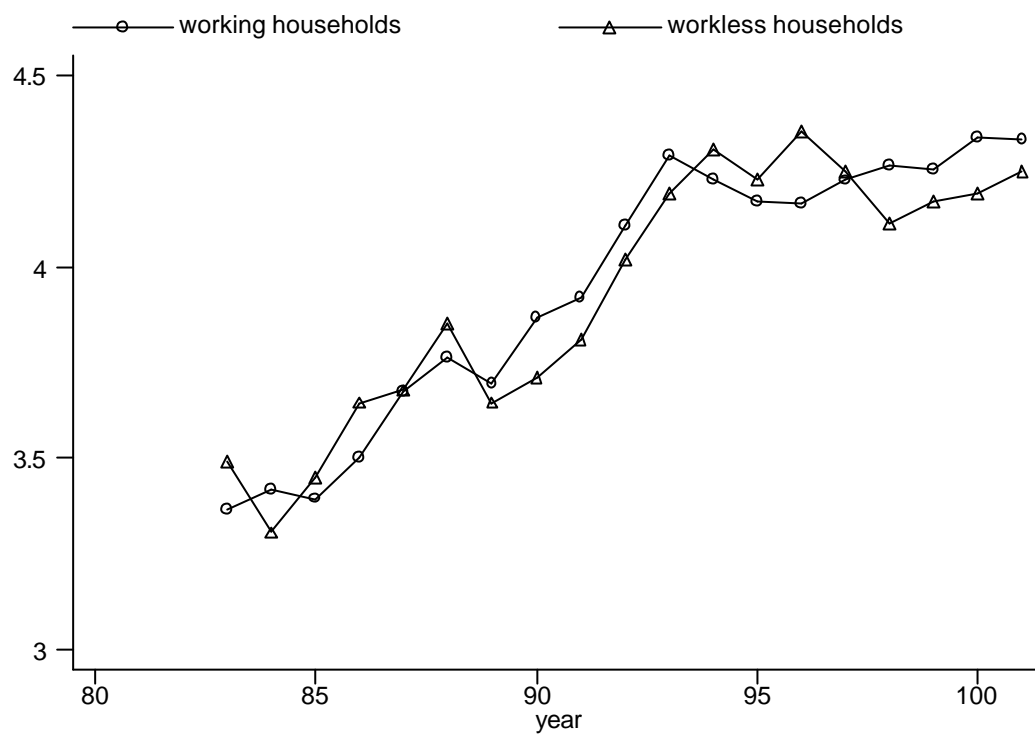


Figure 1: Median real weekly rents for private-sector tenants

Notes: Source is Family Expenditure Survey. The sample is restricted to households of working age. A typical sample size in each year is about 120 for workless households and 600 for working households.

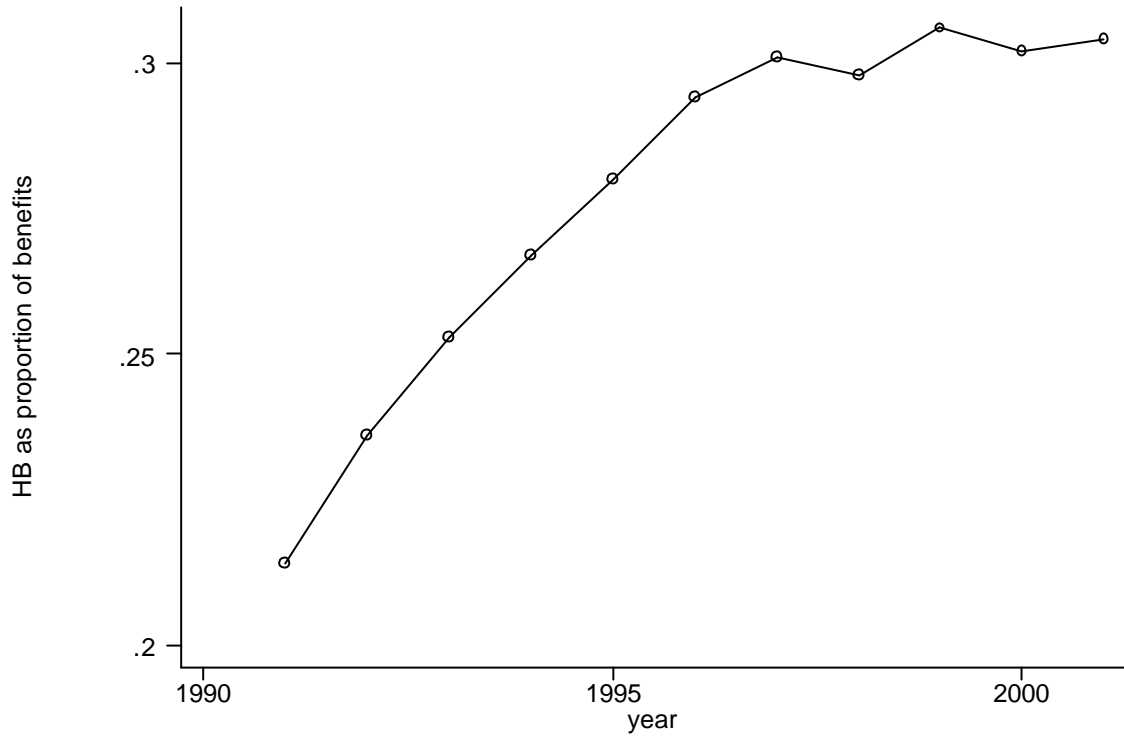


Figure 2: Housing benefit as proportion of selected benefits, 1991-2001

Notes: The benefits included in the denominator are Unemployment Benefit & Jobseeker's Allowance, Incapacity Benefit, Income Support and Housing Benefit.

The figures relate to households of working age.

Source: Department for Work and Pensions

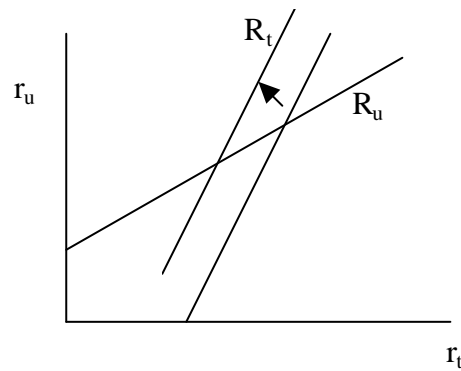
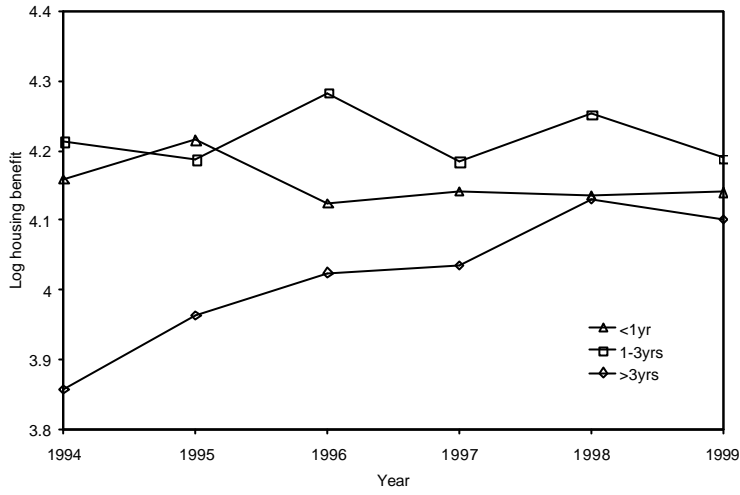
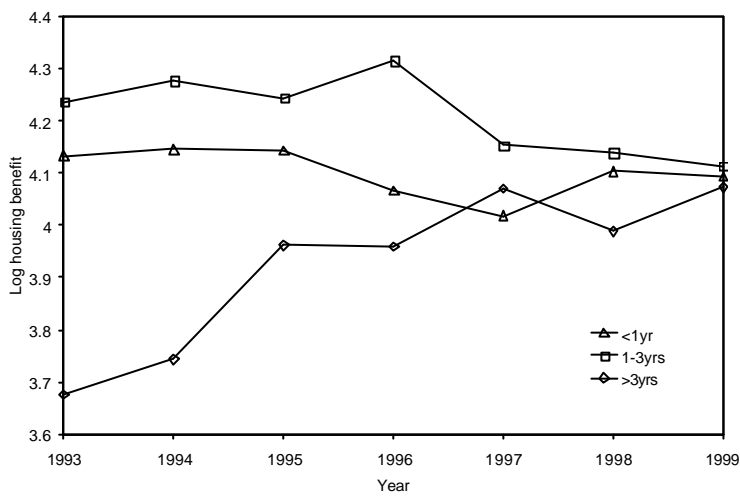


Figure 3: The impact of a decline in subsidy in the matching model

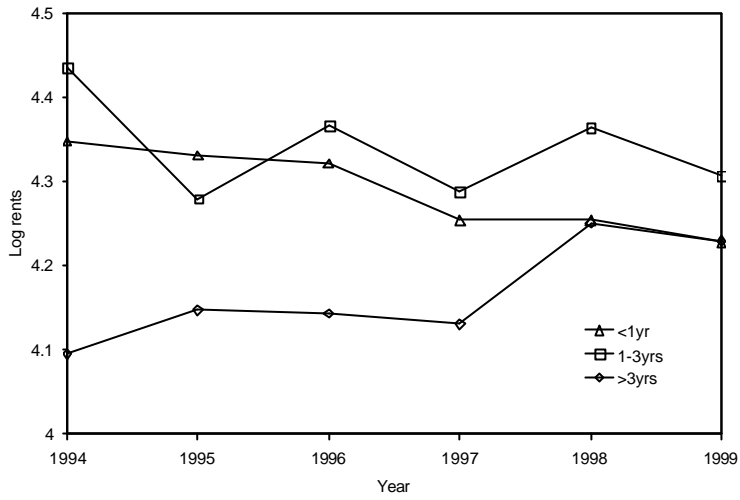
Family Resources Survey



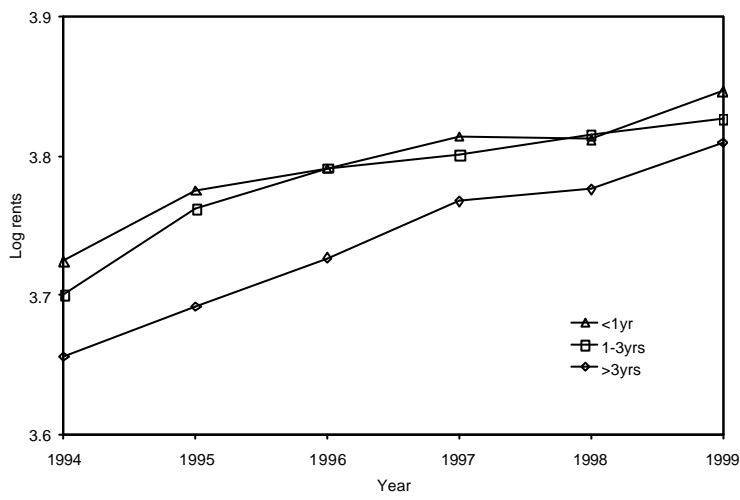
Survey of English Housing



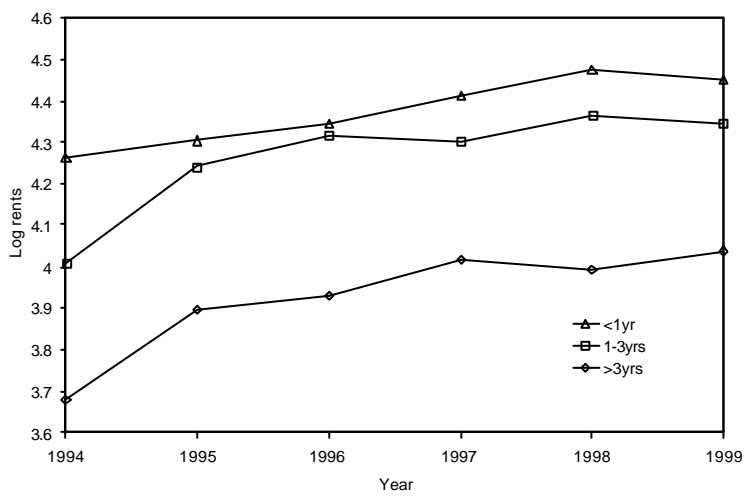
**Figure 4: Housing benefit trends, by length of tenure:
private tenants, workless households**



Workless private tenants, claimants



Workless social tenants, claimants



Working private tenants, non claimants

Figure 5: Rent trends by length of tenure, frs

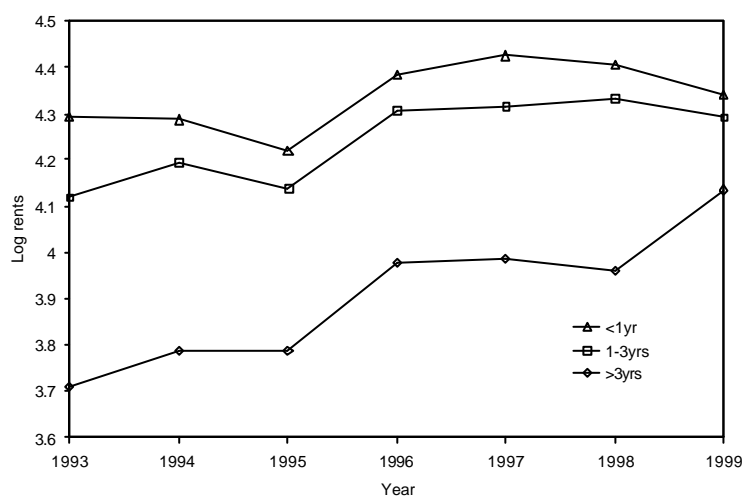
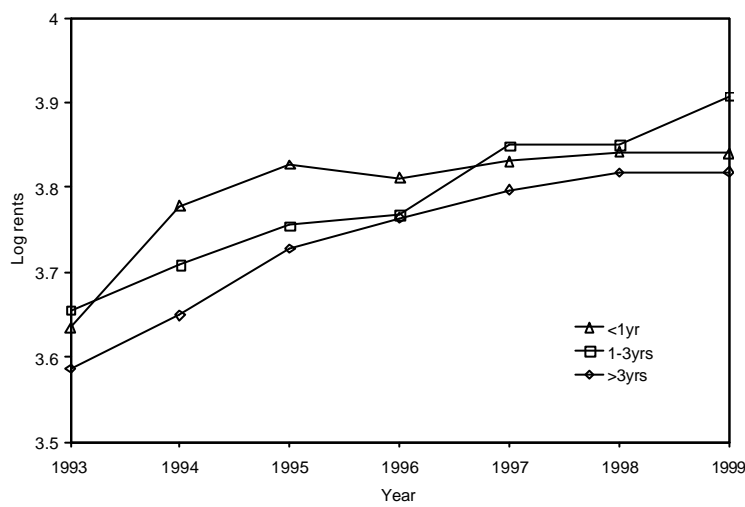
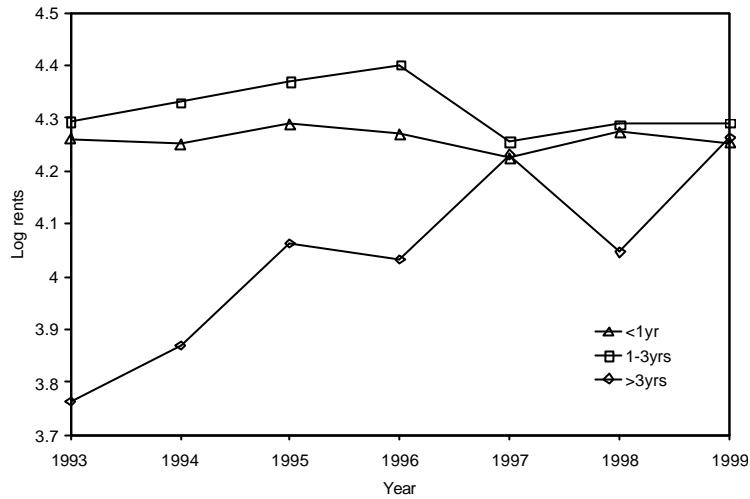


Figure 6: Rent trends by length of tenure, soeh

Tables

Table 1: Housing benefit caseload, Great Britain

	1996	1997	1998	1999	2000	2001	2002
<i>All Housing Benefit cases:</i>							
Total number	4776000	4640000	4475000	4313000	4033000	3874000	3813000
Mean eligible rents	46.61	47.49	47.88	48.95	50.52	52.09	54.89
Mean Housing Benefit	41.92	42.67	42.68	44.01	45.7	47.53	50.46
<i>All private tenants¹</i>							
	1878000	1848000	1811000	1795000	1745000	1741000	1775000
	56.49	57.21	58.09	58.65	59.70	60.84	64.30
	52.30	52.63	53.08	53.61	54.49	55.81	59.32
<i>Private deregulated tenants</i>							
Total number	-	869000	799000	749000	687000	634000	621000
Mean eligible rents	-	64.33	64.45	64.54	65.56	67.35	71.03
Mean Housing Benefit	-	60.33	60.02	59.98	60.64	62.05	65.41
<i>Pre-1996 scheme cases:</i>							
Mean eligible rents	-	70.66	70.91	71.48	72.56	71.91	76.48
Mean Housing Benefit	-	66.28	66.28	66.92	67.74	67.16	72.14
<i>1996 and 1997 scheme cases:</i>							
Total number	229000	502000	549000	567000	553000	528000	603000
Mean eligible rents	57.88	62.24	63.44	63.68	65.00	67.26	70.66
Mean Housing Benefit	53.99	58.21	59.03	59.02	59.83	61.95	64.85
% of all private deregulated		57.8%	68.7%	75.7%	80.5%	83.3%	97.1%
<i>Difference between new and old scheme</i>							
Mean eligible rents	-	8.42	7.47	7.80	7.56	4.65	5.82
Mean Housing Benefit	-	8.07	7.25	7.90	7.91	5.21	7.29

Source: DSS Housing Benefit and Council Tax Benefit Management Information System Quarterly 100% caseload stock-count taken in May 2000.

Additional figures (May 01, May 02) from DWP (2002)

¹ Includes registered social landlords

- data unavailable

Table 2: Reduced benefit payments, survey of English housing

Survey year	Housing benefit payment	
	Full	Reduced
1993/4	154 70.64%	64 29.36%
1994/5	197 77.25%	58 22.75%
1995/6	261 79.57%	67 20.43%
1996/7	256 83.93%	49 16.07%
1997/8	213 77.17%	63 22.83%
1998/9	192 71.64%	76 28.36%
1999/2000	149 67.12%	73 32.88%
All years	1,422 75.96%	450 24.04%

Notes: Table shows cell counts and annual percentages for workless, private tenant households in the Survey of English Housing

**Table 3: Impact of 1996 and 1997 reforms on log housing benefit receipt,
family resources survey 1994-2000**

	Set (1)		Set (2)		Set (3)	
	(a)	(b)	(c)	(d)	(e)	(f)
	Private renters	Social tenants	Private renters	Social tenants	Private tenants	Social tenants
Moved Jan 96-Sept 97	<u>-10.179</u> (-3.23)	-0.816 (-0.63)	<u>-11.220</u> (-3.80)	-1.182 (-0.95)	-4.556 (-1.34)	0.837 (0.47)
Became unemployed Jan 96-Dec 97	-2.734 (-1.14)	-0.841 (-0.68)	-1.552 (-0.69)	-1.309 (-1.09)	-1.603 (-0.71)	-1.255 (-1.04)
Moved Oct 1997 or later	<u>-18.648</u> (-3.93)	<u>-5.284</u> (-2.64)	<u>-19.287</u> (-4.35)	<u>-5.593</u> (-2.90)	-7.749 (-1.24)	-0.409 (-0.11)
Became unemployed Jan 98 or later	-7.500 (-1.90)	<u>3.182</u> (1.96)	-4.184 (-1.16)	1.592 (1.03)	-3.249 (-0.89)	1.537 (0.99)
Joint test of 'treatment' coefficients p-value	0.000	0.017	0.000	0.021	0.579	0.560
Joint test of 'move' coefficients	0.000	0.023	0.000	0.013	0.389	0.715
Joint test of tenure-trend interactions	-	-	-	-	0.030	0.511
R ²	0.294	0.288	0.417	0.352	0.421	0.353
Sample size	2152	8634	2152	8634	2152	8634
Other controls	Length of tenure, region, year		Set (1) plus log household income, no. of rooms, male head, age group, household composition, number of adults, number of children,		Set (2) plus length of tenure and time trend interactions	

Reported parameters are regression coefficients $\times 100$

Robust t-statistics in parentheses

Bold coefficients significant at 1% level, Underline significant at 5% level

Sample is households in receipt of Housing Benefit, with workless head of household, non-retired, non-student

**Table 4: Impact of 1996 and 1997 reforms on log housing benefit receipt,
survey of English housing 1993-2000**

	Set (1)		Set (2)		Set (3)	
	(a) Private renters	(b) Social tenants	(c) Private renters	(d) Social tenants	(e) Private tenants	(f) Social tenants
Moved Jan 96-Sept 97	<u>-10.338</u> (-2.62)	-2.254 (-1.37)	<u>-10.938</u> (-2.89)	-1.708 (-1.09)	-1.018 (-0.21)	0.535 (0.22)
Became unemployed Jan 96-Dec 97	<u>-6.901</u> (-2.06)	-1.820 (-1.19)	-4.205 (-1.34)	<u>-2.894</u> (-1.97)	-4.152 (-1.32)	-2.833 (-1.92)
Moved Oct 1997 or later	<u>-15.139</u> (-2.53)	<u>-5.075</u> (-2.02)	<u>-16.609</u> (-2.88)	-4.095 (-1.68)	-1.469 (-0.16)	1.488 (0.31)
Became unemployed Jan 98 or later	-13.587 (-1.67)	-1.454 (-0.51)	-8.715 (-1.07)	-3.168 (-1.18)	-8.904 (-1.11)	-3.422 (-1.28)
Joint test of 'treatment' coefficients p-value	0.003	0.188	0.005	0.088	0.544	0.286
Joint test of 'move' coefficients p-value	0.019	0.115	0.007	0.230	0.977	0.951
Joint test of tenure-trend interactions	-	-	-	-	0.004	0.659
R ²	0.313	0.235	0.445	0.295	0.450	0.295
Sample size	1643	7769	1643	7769	1643	7769
Other controls	Length of tenure, region, year		Set (1) plus log household income, no. of rooms, male head, age group, household composition, number of adults, number of children,		Set (2) plus length of tenure – year trend interactions	

Reported parameters are regression coefficients × 100

Robust t-statistics in parentheses

Bold coefficients significant at 1% level, Underline significant at 5% level

Sample is households in receipt of Housing Benefit, with workless head of household, non-retired, non-student

**Table 5: Impact of 1996 and 1997 reforms on log-rents,
family resources survey 1994-2000**

	Set (1)		Set (2)		Set (3)	
	(a)	(b)	(c)	(d)	(e)	(f)
	Private renters	Social tenants	Private renters	Social tenants	Private tenants	Social tenants
Moved Jan 96-Sept 97	-4.645 (-1.51)	-0.469 (-0.40)	<u>-6.071</u> (-2.08)	-1.213 (-1.09)	-1.011 (-0.31)	0.165 (0.10)
Became unemployed Jan 96-Dec 97	-0.307 (-0.14)	-0.157 (-0.15)	1.922 (0.91)	0.577 (0.56)	1.735 (0.82)	0.623 (0.60)
Moved Oct 1997 or later	<u>-10.275</u> (-2.25)	-2.897 (-1.65)	<u>-11.196</u> (-2.63)	<u>-3.874</u> (-2.27)	-3.458 (-0.58)	-0.603 (-0.18)
Became unemployed Jan 98 or later	-2.003 (-0.52)	1.831 (1.17)	1.772 (0.49)	2.192 (1.47)	2.423 (-0.58)	2.134 (1.43)
Joint test of 'treatment' coefficients p-value	0.224	0.389	0.119	0.136	0.869	0.666
Joint test of new tenancy coefficients p-value	0.076	0.243	0.031	0.076	0.826	0.931
Joint test of tenure-trend interactions	-	-	-	-	0.043	0.491
R ²	0.263	0.343	0.381	0.395	0.386	0.396
Sample size	2152	8634	2152	8634	2152	8634
Other controls	Length of tenure, region, year		Set (1) plus log household income, no. of rooms, male head, age group, household composition, number of adults, number of children,		Set (2) plus length of tenure and time trend interactions	

Reported parameters are regression coefficients × 100

Robust t-statistics in parentheses

Bold coefficients significant at 1% level, Underline significant at 5% level

Sample is households in receipt of Housing Benefit, with workless head of household, non-retired, non-student

**Table 6: Impact of 1996 and 1997 reforms on log-rents,
survey of English housing 1993-2000**

	Set (1)		Set (2)		Set (3)	
	(a) Private renters	(b) Social tenants	(c) Private renters	(d) Social tenants	(e) Private tenants	(f) Social tenants
Moved Jan 96-Sept 97	<u>-11.696</u> (-3.25)	-0.793 (-0.57)	<u>-11.510</u> (-3.40)	-0.871 (-0.64)	-4.295 (-1.01)	-0.138 (-0.06)
Became unemployed Jan 96-Dec 97	-4.525 (-1.54)	-2.143 (-1.68)	-2.773 (-0.97)	-1.328 (-1.07)	-2.961 (-1.03)	<u>-1.276</u> (-1.02)
Moved Oct 1997 or later	<u>-16.160</u> (-3.09)	-4.314 (-1.91)	<u>-16.554</u> (-3.43)	<u>-4.368</u> (-2.00)	-6.814 (-0.93)	0.156 (0.04)
Became unemployed Jan 98 or later	-0.595 (-0.10)	-1.557 (-0.63)	-3.248 (-0.63)	-0.924 (-0.39)	3.028 (0.59)	-1.243 (-0.52)
Joint test of 'treatment' coefficients p-value	0.003	0.157	0.002	0.268	0.519	0.874
Joint test of 'move' coefficients p-value	0.003	0.158	0.001	0.133	0.588	0.998
Joint test of tenure-trend interactions	-	-	-	-	0.047	0.010
R ²	0.343	0.308	0.475	0.357	0.479	0.358
Sample size	1643	7769	1643	7769	1643	7769
Other controls	Length of tenure, region, year		Set (1) plus log household income, no. of rooms, male head, age group, household composition, number of adults, number of children,		Set (2) plus length of tenure – year trend interactions	

Reported parameters are regression coefficients $\times 100$

Robust t-statistics in parentheses

Bold coefficients significant at 1% level, Underline significant at 5% level

Sample is households in receipt of Housing Benefit, with workless head of household, non-retired, non-student

**Table 7: Impact of 1996 and 1997 reforms housing benefit to rent ratio,
family resources survey 1994-2000**

	Set (1)		Set (2)		Set (3)	
	(a)	(b)	(c)	(d)	(e)	(f)
	Private renters	Social tenants	Private renters	Social tenants	Private tenants	Social tenants
Moved Jan 96-Sept 97	<u>-4.113</u> (-2.77)	-0.443 (-0.91)	<u>-3.923</u> (-2.72)	-0.179 (-0.37)	-2.610 (-1.53)	0.435 (0.67)
Became unemployed Jan 96-Dec 97	-1.743 (-1.48)	-0.512 (-1.01)	<u>-2.293</u> (-1.97)	<u>-1.313</u> (-2.62)	-2.217 (-1.91)	<u>-1.309</u> (-2.61)
Moved Oct 1997 or later	<u>-5.951</u> (-2.75)	<u>-1.967</u> (-2.56)	<u>-5.912</u> (-2.77)	<u>-1.510</u> (-2.01)	-2.900 (-0.93)	-0.021 (-0.02)
Became unemployed Jan 98 or later	<u>-4.575</u> (-2.42)	0.923 (1.48)	<u>-4.745</u> (-2.52)	-0.384 (-0.61)	<u>-4.510</u> (-2.34)	-0.365 (-0.58)
Joint test of 'treatment' coefficients p-value	0.002	0.033	0.001	0.013	0.052	0.106
Joint test of 'move' coefficients p-value	0.011	0.032	0.012	0.093	0.286	0.618
Joint test of tenure-trend interactions	-	-	-	-	0.579	0.752
R ²	0.047	0.035	0.105	0.086	0.110	0.086
Sample size	2152	8634	2152	8634	2152	8634
Other controls	Length of tenure, region, year		Set (1) plus log household income, no. of rooms, male head, age group, household composition, number of adults, number of children,		Set (2) plus length of tenure - year trend interactions	

Reported parameters are regression coefficients $\times 100$

Robust t-statistics in parentheses

Bold coefficients significant at 1% level, Underline significant at 5% level

Sample is households in receipt of Housing Benefit, with workless head of household, non-retired, non-student

**Table 8: Impact of 1996 and 1997 reforms housing benefit to rent ratio,
survey of English housing 1994-1999**

	Set (1)		Set (2)		Set (3)	
	(a) Private renters	(b) Social tenants	(c) Private renters	(d) Social tenants	(e) Private tenants	(f) Social tenants
Moved Jan 96-Sept 97	-1.085 (-0.07)	-0.930 (-1.37)	-0.621 (-0.42)	-0.507 (-0.77)	1.042 (0.53)	0.243 (0.24)
Became unemployed Jan 96-Dec 97	-1.996 (-1.49)	0.439 (0.63)	-1.436 (-1.08)	-0.836 (-1.23)	-1.273 (-0.96)	-0.826 (-1.21)
Moved Oct 1997 or later	-0.472 (-0.20)	-0.569 (-0.59)	-1.209 (-0.51)	0.143 (0.15)	2.244 (0.55)	0.958 (0.50)
Became unemployed Jan 98 or later	-7.691 (-2.14)	0.031 (0.02)	-7.256 (-2.01)	-1.538 (-1.31)	-7.228 (-2.01)	-1.493 (-1.26)
Joint test of 'treatment' coefficients p-value	0.128	0.711	0.295	0.406	0.281	0.554
Joint test of 'move' coefficients p-value	0.979	0.389	0.701	0.637	0.850	0.862
Joint test of tenure-trend interactions	-	-	-	-	0.410	0.395
R ²	0.030	0.043	0.125	0.105	0.128	0.105
Sample size	1643	7769	1643	7769	1643	7769
Other controls	Length of tenure, region, year		Set (1) plus log household income, no. of rooms, male head, age group, household composition, number of adults, number of children,		Set (2) plus length of tenure – year trend interactions	

Reported parameters are regression coefficients $\times 100$

Robust t-statistics in parentheses

Bold coefficients significant at 1% level, Underline significant at 5% level

Sample is households in receipt of Housing Benefit, with workless head of household, non-retired, non-student

Table 9: Impact of 1996 and 1997 reforms on private rental rooms per household, frs and soeh

	FRS	SoEH
	(a)	(b)
Moved Jan 96-Sept 97	-0.114 (-1.27)	-0.157 (-1.30)
Moved Oct 1997 or later	-0.211 (-1.60)	-0.338 (-1.94)
Joint test of 'treatment' coefficients p-value	0.258	0.151
R ²	0.409	0.434
Sample size	2152	1643
Other controls	Length of tenure, region, year, log household income, male head, age group, household composition, number of adults, number of children	Length of tenure, region, year, log household income, rooms, male head, age group, household composition, number of adults, number of children

Robust t-statistics in parentheses

Bold coefficients significant at 1% level, Underline significant at 5% level

Sample is households in receipt of Housing Benefit, with workless head of household, non-retired, non-student

Table 10: Impact of 1996 and 1997 reforms on log-rents, non-claimant private-renter households, frs and soeh

	FRS			SOEH		
	Set (1) (a)	Set (2) (b)	Set (3) (c)	Set (1) (d)	Set (2) (e)	Set (3) (f)
Moved Jan 96- Sept 97	-2.500 (-0.79)	-0.543 (-0.19)	0.530 (0.16)	-5.070 (-1.45)	-2.517 (-0.76)	2.911 (0.65)
Moved Oct 1997 or later	-1.320 (-0.29)	0.892 (0.21)	5.937 (1.02)	-8.454 (-1.76)	-6.342 (-1.39)	2.603 (0.35)
Joint test of 'treatment' coefficients p- value	0.679	0.860	0.377	0.205	0.362	0.768
Joint test of tenure-trend interactions	-	-	0.611	-	-	0.078
R ²	0.239	0.373	0.374	0.263	0.347	0.349
Sample size	4938	4938	4938	4581	4581	4581
Other controls	See set definitions in Tables above					

Reported parameters are regression coefficients $\times 100$

Robust t-statistics in parentheses

Bold coefficients significant at 1% level, Underline significant at 5% level

Sample is households in receipt of Housing Benefit, with workless head of household, non-retired, non-student

Table 11: Impact of 1996 and 1997 reforms, market effects on rents, family resources survey 1994-2000

	(a)	(b)	(c)
Local Authority 1996 reform impact index	-2.418 (-1.30)	-1.506 (-0.83)	-0.549 (-0.24)
Local Authority 1997 reform impact index	-6.472 (-1.99)	<u>-6.458</u> (-2.13)	-4.225 (-1.01)
Moved Jan 1996 or later	-	<u>-5.847</u> (-2.02)	-4.028 (-1.12)
Moved Oct 1997 or later	-	<u>-10.813</u> (-2.55)	<u>-9.220</u> (-2.01)
Market-household interaction 1996 rules	-	-	-2.780 (-0.86)
Market-household interaction 1997 rules	-	-	-4.809 (-0.91)
Joint test of 'treatment' coefficients p-value	0.034	0.015	0.027
Joint test of market effects	0.034	0.053	0.082
R ²	0.356	0.382	0.383
Sample size	2152	2152	2152
Other controls	Length of tenure, region, year, log household income, rooms, male head, age group, household composition, number of adults, number of children	Length of tenure, region, year, log household income, male head, age group, household composition, number of adults, number of children	Length of tenure, region, year, log household income, male head, age group, household composition, number of adults, number of children

Reported parameters are regression coefficients $\times 100$ for log-rents

Robust t-statistics in parentheses

Bold coefficients significant at 1% level, Underline significant at 5% level

Sample is households in receipt of Housing Benefit, with workless head of household, non-retired, non-student

Appendix C: Summary Statistics

Table 12: Workless households' housing benefit

Means, standard deviations and sample frequencies, Family Resources Survey

Survey year	Length of tenure			
	Less than 1 year	1 year to 3 years	More than 3 years	All tenures
1994/5	71.53	76.12	57.30	69.63
	31.40	33.75	37.97	34.52
	170	131	95	396
1995/6	78.26	73.61	66.74	73.94
	36.19	30.64	45.01	37.20
	173	125	98	396
1996/7	67.20	79.37	60.37	70.53
	24.32	31.58	33.53	30.47
	135	145	82	362
1997/8	67.67	73.37	65.62	69.28
	23.37	33.35	35.30	30.48
	127	121	79	327
1998/9	68.14	75.47	69.11	70.90
	28.75	28.86	35.14	30.82
	119	107	90	316
1999/2000	70.16	74.009	70.999	71.67
	36.29	32.40	33.95	34.32
	123	105	88	316
All years	70.96	75.48	65.01	71.03
	30.98	31.83	37.40	33.22
	847	734	532	2113

Table 13: Workless households' housing benefit

Means, standard deviations and sample frequencies, Survey of English Housing

Survey year	Length of tenure			
	Less than 1 year	1 year to 3 years	More than 3 years	All tenures
1993/4	73.67	75.31	41.61	66.79
	41.15	39.55	18.90	39.06
	99	68	50	217
1994/5	68.77	79.96	47.81	67.46
	29.60	35.94	24.56	32.61
	131	79	59	269
1995/6	74.94	76.890	56.08	71.23
	38.90	32.47	25.88	34.95
	148	123	82	353
1996/7	68.07	83.78	58.43	70.94
	27.98	36.57	32.69	33.51
	139	106	77	322
1997/8	66.13	69.16	71.06	68.47
	40.21	27.93	45.41	38.71
	119	84	85	288
1998/9	65.76	71.27	58.61	65.60
	26.02	35.93	30.44	31.12
	114	98	82	294
1999/2000	65.03	66.16	73.21	67.79
	25.61	25.36	39.26	30.25
	87	75	67	229
All years	69.15	75.09	59.26	68.54
	33.62	34.05	34.23	34.42
	837	633	502	1972

**Table 14: Summary statistics for workless households in England
receiving housing benefit**

	Family Resources Survey April 94 to Mar 00		Survey of English Housing April 93 to Mar 00	
	Private Tenants	Social Tenants	Private Tenants	Social Tenants
Log Housing Benefit (1996 prices)	4.132 (0.439)	3.709 (0.348)	4.121 (0.458)	3.666 (0.383)
Log rents (1996 prices)	4.280 (0.432)	3.755 (0.309)	4.232 (0.414)	3.754 (0.323)
Housing Benefit/rent	0.889 (0.179)	0.968 (0.126)	0.913 (0.150)	0.935 (0.150)
Number of rooms	4.241 (1.443)	4.442 (1.076)	4.138 (1.537)	4.425 (1.199)
Moved Jan 1996 – Sept 1997	0.368	0.219	0.235	0.141
Unemployed 1996 or later	0.045	0.062	0.097	0.066
Moved Oct 1997 or later	0.137	0.070	0.095	0.042
Unemployed 1998 or later	0.013	0.028	0.024	0.016
Tenure < 1yr	0.409	0.183	0.432	0.195
1yr ≤ Tenure < 2yrs	0.216	0.141	0.201	0.140
2yrs ≤ Tenure < 3yrs	0.127	0.115	0.124	0.101
3yrs ≤ Tenure < 5yrs	0.119	0.152	0.121	0.145
5yrs ≤ Tenure < 10yrs	0.071	0.189	0.060	0.194
10yrs ≤ Tenure	0.058	0.220	0.063	0.225
One adult only	0.380	0.282	0.388	0.301
Couple, no children	0.107	0.122	0.090	0.103
Couple, with children	0.139	0.173	0.134	0.198
Lone parent	0.356	0.401	0.335	0.378
Multiple occupancy	0.018	0.022	0.053	0.020
Number of children	0.942 (1.204)	1.235 (1.339)	0.846 (1.124)	1.199 (1.321)
Number of adults	1.293 (0.523)	1.355 (0.565)	1.393 (0.638)	1.535 (0.757)
Male head of household	0.508	0.471	0.536	0.490
Age 18-25	0.230	0.146	0.223	0.146
Age 26-30	0.193	0.161	0.191	0.166
Age 31-40	0.278	0.293	0.278	0.267
Age 41-50	0.154	0.176	0.155	0.192
Age 51-60	0.106	0.167	0.121	0.174
Age 61+	0.039	0.057	0.032	0.055
Log income (1996 prices)	4.529 (0.479)	4.707 (0.447)	4.377 (0.450)	4.517 (0.423)
Sample size	2155	8633	1643	7769

Sample statistics are unweighted

Workless sample excludes student and retired heads of household, heads of household under 18 and over 64

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