

## HOUSING, HEALTH AND THE LONGITUDINAL STUDY

Malcolm Williams Social Statistics Research Unit, City University.

### Introduction

The OPCS Longitudinal Study - hereafter referred to as the LS, brings together records of various events relating to 1% of the population of England and Wales, approximately 500,000 people. It began life in 1973 and answered a long standing concern about the adequacy of available statistics on occupational mortality. Although limited socio economic information was available from death registration it was realised the value of this could be enhanced by linking death records of individuals with their previous census records and those of their household (SSRU,1990). A much greater use of available data could be made by linking vital events, such as birth and death registration, with census records. By utilising subsequent censuses, data could be collected at various time points in the life of an individual.

Since 1973 the LS has been widely used for research on health inequalities, housing and socio demographic studies (Smith & Jacobson,1988:Murphy,1985: Ni Bhrolchain,1988). Additionally the LS is being increasingly used by medical schools, health authorities, and local authorities. Some research has exclusively used LS data to analyse linkages between mortality , health and housing. In this paper I will show the unique potential of the LS for researching housing and health and demonstrate how it has been used so far in this field.

I will begin by describing how the LS works. What are its unique features, what kind of housing and health related variables are available, and what are its limitations. I will illustrate this with examples from our current research in the area of housing deprivation and social change (Williams & Dale, 1991). Finally I will describe some of John Fox and Peter Goldblatt's work on mortality and housing.

## **The Longitudinal Study and its relevance to housing research.**

LS data can be linked in a variety of ways for analysis. Initially all people born on each of four dates each year were selected from information given at the 1971 Census. From 1971, as new births occur on these four dates each year and as immigrants with these birth dates register with the NHS, they are included in the LS. Other event data such as death and cancer registration, relating to LS members, are also included. A further sample of all those giving the selected birth dates was taken from the 1981 Census and their Census records were incorporated into the LS. Thus the LS represents a continuous sample of the population of England and Wales, rather than a sample taken at one time point only. Census information is also included for all people living in the same household as the LS member. OPCS plan to include the appropriate sample of records from the 1991 Census, thus giving socio economic and demographic information on many members of the Study and other members of their households for three time points. Table 1 shows the data included in the LS.

Census data in general and the Longitudinal Study in particular offer considerable scope in the study of health and housing. The LS represents a 1% sample of the population of England and Wales. Because of the method of sample selection the data is unclustered, apart from date of birth. Moreover unlike many major surveys, which are clustered geographically and omit peripheral areas, the LS has a complete coverage of England and Wales corresponding with that of the census.

The census has near-complete population coverage. In 1981, for example, the net under enumeration of persons in England and Wales was only 0.45% (OPCS,1990). Over 95,5% of the population is covered. While most sample surveys find that particular sections of the population give poor response rates, the method of obtaining the LS overcomes most of these problems. The large sample size (about 500,000) means that sub-groups of the population can be identified.

The fact that the LS links census records between 1971 and 1981 provides unique information on

change in housing characteristics, and the socio economic characteristics of individuals and households. Thus the LS enables not only the identification of those in particular housing circumstances, but also how the situation changed between 1971 and 1981, and the factors associated with such a change. Standardised Mortality Ratios (SMRs) can be analysed for a variety of housing and socio economic circumstances as can infant mortality and long term sickness.

### **Housing Information in the LS**

The census offers several variables which relate directly to housing circumstances and other variables which can be combined, to give further housing information.

**Tenure** Information on the tenure of the LS member's household is available for 1971 and 1981 and though a more detailed tenure breakdown is available for 1981, categories can be standardised to 1971 to allow direct comparison.

**Density of Occupation** The census records the number of persons usually resident in a household, and the number of rooms available to a household. From this the number of persons per room/ rooms per person in the household can be computed for each LS member. This can be used to establish a measure of overcrowding.

**Sharing** Information is available (though differently recorded in 1971 and 1981) on whether or not accommodation, or access to accommodation, is shared with members of a different household. In 1971 the census records details of shared access, circulation space, or rooms and in 1981 details of whether access from the street is shared and whether the accommodation itself is self contained behind its own front door. Though not directly comparable between years, census information on sharing at least uses the same definitions for the whole population within each year. It is the only dataset of this magnitude to do so. Other studies of sharing, or of Houses in Multiple Occupation, are considerably smaller and there has

been little continuity of definitions of sharing/HMOs between studies (Kirby & Sopp,1986).

**Amenities** Information on access to amenities included in both years are sole or shared access to bath/ shower and WC. In 1971 sink, hot water and cooker were also included.

**Mobility** Data on housing mobility is especially good in the LS. Linkages for individuals over time can be made between a move from one address to another, or between regions, counties, county districts and tenures.

Additionally each LS member has variables attached which classify the ward in which they live according to the residential neighbourhood characteristics:

The Craig Webber classification, using 1971 census data, clusters local authority districts according to their social and economic characteristics (SSRU,1990). In 1981 OPCS developed a ward based classification of neighbourhood types based on the ACORN classification of residential neighbourhoods (developed by CACI Market Analysis). The address of every LS member was classified into one of thirty nine neighbourhood types according to the characteristics of the ward in which they lived.

Though the number of housing variables are small their combination with other data such as social class, occupation and education provides a powerful research tool.

Tables 2 and 3 are taken from a current study of housing deprivation and social change (Williams & Dale,1991).

The first of these tables (Table 2) simply compares the housing tenure of heads of household in 1971 and 1981.

The second table (Table 3) is much more interesting and typical of the kind of longitudinal comparisons that can be made in the LS. The table links the records of LS members from 1971

to 1981 and shows the housing tenure of LS members who were heads of household (or spouses of HoHs) in 1981. The linkage to 1971 gives a tenure history of LS members who became householders, or who were married to householders in 1981. It compares those who were already HoHs/Spouses in 1971 with those who were not.

Both tables show the increase in owner occupation in the period, but Table 3 additionally shows who became owner occupiers between 1971 and 1981. From this it can be seen, for example, that 62% of LS members who were heads of household/ joint heads, or spouses in 1971, were owner occupiers in 1981, whilst 60% of those who were not heads of household/ joint heads/ spouses, in 1971, were also lived in owner occupation in 1981. What is important to note is the shift to owner occupation both from council and private rented tenures. Of the 1971 'heads of household' group 55% of those who were in rented furnished housing in 1971 lived in owner occupation in 1981, as did 31% of those in unfurnished housing. Likewise of the 1971 'non heads of household' group of those in unfurnished and furnished accommodation, in 1971, 35% and 48% respectively, lived in owner occupation in 1981, as did 21% of those in council housing. Though the shift to owner occupation is the most notable feature there were also significant shifts from private renting to council tenures. For example 34% of the 1971 'non heads of household' group living in furnished rented accommodation then lived in council housing in 1981. In either group there was little migration from owner occupation to other tenures.

### **Limitations of housing data in the LS**

These fall into two groups:

- i) lack of data on certain topics
- ii) the nature of the data collection.



Lack of data: The census does not collect data on the state of repair of property, its age, or the nature of its construction. This has particular implications for identifying and assessing the quality of post war high rise or system built housing. Persons living in this type of housing are likely to have access to amenities, to have self contained accommodation, and not to be overcrowded and yet, because of poor repair or standard of construction, they may be badly housed.

Data is also unavailable on income and in the case of owner occupied property, whether or not the property is mortgaged. The financial implications of housing costs, or living in one tenure or another cannot be assessed. Other research (Maclennan, Gibb & More, 1990; Forrest, Murie & Williams, 1990) has established that wide differences exist in ability to pay for housing, within the owner occupied sector.

The census is not able to provide adequate information on homelessness. Although the 1991 census made an attempt to collect data from those who were 'sleeping rough' (OPCS, 1991) there was no systematic enumeration of those without permanent shelter in 1971 or 1981. Though those living in less settled conditions were often enumerated in communal establishments, the data for those in accommodation such as hostels or 'lodging houses' is likely to be less complete, and of poorer quality than for people in private households.

The nature of data collection: The census applies the same criteria of assessment to everyone and though this brings major benefits in many respects it is not possible to evaluate the subjective criteria of a person's housing situation. For example though information on sharing is available, individual circumstances, or the way individuals feel about their circumstances when sharing may be a deciding factor in whether or not they are badly housed.

Though the LS provides excellent longitudinal linkage, censuses are 'snapshots' in time and a person's housing (or health) may have undergone a number of changes in the intervening period

that cannot be recorded. This is often the case for women who leave relationships. For example, within a ten year period a woman's marriage may breakdown with subsequent loss of housing. However before the next census she may have been rehoused, or established a new relationship (Sullivan, 1986). For many women a major housing crisis occurs in the first year or two after relationship breakdown. After ten years this crisis may well be resolved as a result of rehousing, the commencement of a new relationship, or children leaving home.

### **Event data and sickness in the LS**

**Event Data:** Full information is recorded from birth and death records and from cancer registration. This includes occupation at the time of registration as well as geographical location. Deaths are recorded not just for LS members, but for their spouses and children under one year of age.

**Sickness:** In both the 1971 and 1981 census, within the context of economic activity, information exists on sickness, both short term and long term. Respondents were asked to indicate whether or not they had a job last week. In 1971 if respondents were not working they were asked to indicate whether they were unemployed and seeking work, temporarily sick and therefore not seeking work, or retired. If they were none of these they were asked to write in the reason that they were not seeking work. One possible response was that of sickness or disability. In 1981 a box was provided that could be ticked if the person was permanently sick/ disabled.

This slight change in the census question, whereby a separate box was provided on the census form in 1981, but not 1971, may have been partly responsible for an increase in the numbers of long term sick/disabled recorded in 1981.

Although the category of 'long term sickness' is retained in the section on economic activity the 1991 Census has an additional question on long term chronic illness. Respondents are asked to indicate whether any person in their household has any long term illness, health problem or

handicap which limits daily activities or the work she or he can do.

The LS additionally records detailed geographic information on usual place of residence, information on employment status, occupation, industry and social class.

### **The LS and Housing Deprivation**

Our current study is concerned with the factors that are associated with movement into and out of housing deprivation over time. An essential part of our task has been to define and describe housing deprivation and its consequences for health and life chances. The consequences themselves may be a deciding factor in whether an individual is able to escape housing poverty. Often it is a vicious circle. The economic resources of an individual, family, or household will often determine the quality of housing available. The quality of housing itself is then likely to have implications for health and life chances. Murie (1983) points to the difficulty in disentangling housing, income and social class dimensions. Rarely, he says, can we point to an effect and unequivocally claim poor housing was the direct cause. He suggests, for example, that hypothermia in the elderly may not be housing problem, but one of lack of adequate income to provide heating. Yet of course one could respond that the heating available was itself a characteristic of the dwelling, as would be adequate insulation and lack of damp. Indeed the 1991 Census includes, amongst its housing questions, whether or not a dwelling is equipped with central heating.

The difficulty in establishing cause and effect in housing deprivation is accentuated by the problem of identifying characteristics of housing and describing these as indicating that the inhabitants live in housing deprivation. This is especially so when the perceptions of adequate and inadequate housing change over time.

Yet it is necessary to break into this circle. Our strategy has been firstly to define indicators of housing deprivation, using the variables available in the LS. Secondly, using bivariate analysis we have described the association of these indicators of deprivation with other characteristics



such as tenure, social class, ethnicity, geography and gender. The next stage of the research will use multi-variate analysis to assess the independent effect of tenure, class, household structure etc. on each indicator of housing deprivation.

The way in which we have defined housing deprivation, using the LS, is quite specific and extends only to certain physical characteristics of the dwelling and how the dwelling is used by its inhabitants. The following have been identified as indicators of deprivation:

- \* to be living in occupational density of less than one room per person.
- \* to be sharing accommodation, or internal access to one's accommodation with another household.
- \* to lack either a bathroom or inside WC, or to share either.

In certain analyses these indicators of deprivation are supplemented by information drawn from the neighbourhood classifications referred to above. These indicators constitute a very limited view of 'housing deprivation' and given the data one would wish to extend it further.

Though the number of census housing variables is small much can be learned of a person's housing situation through linkages with other socio economic or demographic variables. For example Table 4 shows how access to amenities differs by age. It can be seen that elderly people are less likely to have sole access to a bathroom or inside WC. Table 5 uses a classification of households based upon the Minimum Household Units developed by Overton and Ermisch (1984) and shows that not only were there more women than men, recorded in the LS, in both 1971 and 1981, but that those living alone were mainly women. If we then look at Table 6 - household structure by deprivation we can confirm that elderly people are over represented in accommodation where amenities (inside WC and bath/shower) are lacked or must be shared.

Although matters improved between 1971 and 1981 elderly people were more likely to live in housing lacking amenities; women living alone constituted a large proportion of these people.

Other research in particular the English House Condition Survey (DOE, 1986) has shown that housing lacking amenities is often in poor repair. It may therefore be reasonable to assume that lack of access to amenities amongst the elderly is an indicator of property in poor condition. Indeed our own research has shown that people lacking or sharing amenities are more likely to be living in neighbourhoods characterised by poor quality housing or with social disadvantage.

**LONGITUDINAL LINKAGE:** The above examples merely serve to indicate that data from the LS replicates data from other sources. Cross sectional data from 1971 and 1981 is in agreement with findings from other research.

Large scale longitudinal linkage of housing data in Britain is virtually unique to the LS and the following examples demonstrate how LS data can follow the housing history of individuals. Table 7 continues the same theme of access to amenities. It is broken down into tenure groups so that comparisons between tenure groups can be made. We could instead have substituted, social class, household type, region, county district or many other variables. Unlike cross sectional data it shows how many people with or without sole access to amenities in 1971 were in the same or different situation in 1981. Though we did not here we could have controlled for those who moved to a new address, those who moved between tenures, changed their social class or occupation.

The table shows that though large numbers of people lacking, or sharing amenities in 1971 had acquired them by 1981 a substantial proportion of those living in private renting continued to lack, or share, amenities in 1981. Moreover 15% of those in rented furnished accommodation lacking or sharing amenities in 1981 had sole access to amenities in 1971, thus indicating a decline in the standard of housing conditions for these LS members.

In the current research health is just one of the outcomes and potential causal factors that interest

us and our analysis so far of this topic has been rudimentary. Nevertheless Tables 8 and 9 demonstrate interesting changes between 1971 and 1981.

Both tables compare the situation of those in full time work with those unemployed and those permanently sick. The first table, Table 8, is a cross sectional comparison of deprivation in 1971 and 1981. Though those who were unemployed or temporarily sick were most likely to record one or indicator in both years, those who were permanently sick in 1971 had very much higher levels of deprivation than those in work. By 1981 the gap between the unemployed and permanently sick was greatly narrowed. In both years the employed and the permanently sick exhibited similar levels of multiple deprivation to each other.

Tables 9 and 9a compares the 1981 situation of LS members, all of whom were employed in 1971. We can see from Table 9 that those who experienced no deprivation in 1971 and were both working in 1971 and 1981 were less likely to record housing deprivation in 1981 than either those who were permanently sick or unemployed in 1981. Table 9a presents the same data in column percentages and shows that of LS members living in deprivation in 1981 those who were permanently sick in 1981 were more likely to have lived in deprivation in 1971 than either the employed or unemployed groups.

The question that must be addressed here was there anything about the housing conditions of the sick in 1981, who were living in deprivation in 1971, that might be considered a causal factor in their later illness or disability ? It should be pointed out that the table excludes those living in 'communal establishments' which include hospitals and retirement homes.

### **Mortality and Housing - the work of Fox and Goldblatt**

The foregoing has been essentially a description of work in progress on the wider topic of housing deprivation and is intended to show the potential for analysis of associations between housing and sickness/ disability. Though the work of Fox and Goldblatt (1982) used data drawn only from the 1971 census and event data until 1975, it nevertheless contained an important

section on mortality differentials and housing.

Mortality and housing was just one part of a wider study of socio-demographic mortality differences undertaken by Fox and Goldblatt. In the housing component of their research they were principally concerned to examine how individuals' probabilities of death from 1971 to 1975 were related to their housing circumstances in 1971.

The same housing variables, described above, were used in the Fox and Goldblatt study - tenure, sharing, rooms, amenities and additionally access to cars/vans. Each of these variables was analysed against the Standardised Mortality Ratios (SMR) for different groups.

The SMR indicates whether a particular social group, for example those living in council housing, have a higher or lower level of mortality than the comparison population, after standardising on age and sex. It is calculated by comparing observed deaths for the particular group with the number expected from standard death rates. The LS uses 'internal' death rates from the LS population.

## TENURE

Fox and Goldblatt found a marked gradient in standardising mortality rates by tenure, ranging from 91 for men in owner occupation to 105 for men in private rented housing, to 114 for local authority tenants. (93, 100, 113) for women). Men of 15 - 64 in owner occupation had the lowest SMRs of any comparable social group. It was found that for elderly people there was less of a gradient between tenures. (Table 10 )

## SHARING

In shared accommodation there was a significant difference between the SMRs of males and females. Females living in permanent buildings exhibited SMRs under 100 whereas the SMRs of males was mostly well over this. Females in non self contained housing with exclusive use of

sink/ stove had a particularly low SMR of 86. Fox and Goldblatt explained this by the likelihood of proportionally larger numbers of females over 75 living in bedsits. In a tenure analysis women over 85, living in rented accommodation, had the lowest SMRs of their age group. Thus they concluded it was likely that elderly women living in bedsits had greater 'independence' and therefore a lower overall mortality.

## ROOMS - OVERCROWDING

Though rooms on their own are not a good indicator of the size or quality of a dwelling Fox and Goldblatt nevertheless discovered a high mortality, for males and females, living in smaller accommodation. It remains, however, that the best measure of amount of accommodation space available to households is density of occupation obtained from the numbers of rooms available to the household and the number of people living in them. Household structure is a factor in whether a household lives in overcrowding. For example a nuclear family of two adults and two children living in four rooms would not be overcrowded, whereas four adults may well be. These considerations should be made when looking at data obtained in this way. Table 11 does however show a gradient of SMRs and occupation density. The more overcrowded the higher the SMR.

Differences were again observed by age with a steep gradient in mortality for males and females of 45 to 64 and 65 to 74. Again an explanation is offered by Fox and Goldblatt. Firstly children of married couples would normally not be living with parents in the first of these agegroups. Thus most people of this agegroup who were overcrowded would be living with other adults and these are likely to be their own parents in the second agegroup. Moreover the latter are likely to have moved in with their children as a result of ill health.

## AMENITIES

In 1971 there were considerably more people lacking access to amenities (inside WC, bath/shower) than in 1981. By 1981 and later those without sole access to amenities comprise



only a small proportion of the population. Our own analyses have shown a strong relationship, for this group in 1981, with social classes IV and V and with persons over 65. It can be assumed that such people are amongst the poorest in the population and living in some of the worst housing.

In 1971, Fox and Goldblatt point out that property without amenities was commonplace throughout the population, though it should be added that those living in private rented accommodation were very much more likely to lack or share amenities (Williams & Dale, 1991) than those in other groups.

Fox and Goldblatt found that men without sole access to cookers, sinks, hot water (1), bath/shower, and inside WC showed higher SMRs. This was generally true for females too though differences between those with and those without amenities was less pronounced. (Table 12)

An interesting exception to this was elderly people. Those with shared access to bath/shower had a lower mortality rate. This would appear to offer more evidence for the view that elderly people, particularly women, living alone, without support, in rented flats were healthier, though the evidence must be weighed against the fact that this group must be seen as 'self selected'.

Of all deaths respiratory diseases appeared to be more closely associated with lack of bath/shower, though for elderly people in these circumstances there was a deficit of deaths from circulatory diseases.

Finally Fox and Goldblatt found that whilst different social groups often lacked different amenities where there was overlap and there was 'multiple deprivation' in terms of amenities SMRs were higher. For example the SMRs of those lacking an inside WC (and with sole/shared access to an outside WC) was lower where there was access to bath, shower, or hot running water than when there was not (Table 13).

## CAR OWNERSHIP

It was found that, despite age dependence features, those lacking access to a car in 1971 were likely to be in a socially disadvantaged group. Furthermore access to two cars could be considered a measure of social advantage. Thus between ages of 15 to 64 lack of access to a car was a significant indicator of mortality difference. (Table 14). This was true of both males and females and true of deaths from cancer, respiratory and circulatory diseases. Differences were further accentuated for those with access to more than one car.

It may be that car access is a less good indicator of mortality now than in 1971. Households lacking cars are possibly more likely to do this from choice, particularly in urban areas with adequate public transport networks. Moreover in rural areas, where public transport is poor, a car is likely to be a necessity even for the poorest.

Fox and Goldblatt's conclusions can be summarised as follows.

Those in local authority housing were found to have higher SMRs than other tenures. This was true of those dying of respiratory diseases, circulatory diseases and cancer, though in the last case females in private rented tenure exhibited higher SMRs. Across all causes of death, males in council housing had higher SMRs than females. LS members of both sexes had higher SMRs when there was no car access. Conversely those living in owner occupation had the lowest SMRs for each of the above diseases.

### **Conclusion - The relationship between health and housing.**

A major principle in the determination of adequate housing conditions has been a concern with health. Early housing legislation was primarily motivated by public health issues (Byrne, et al, 1986) and although the kind of housing conditions that prompted this concern have largely

been removed, the association between health and housing remains. Overcrowding, poor repair, lack of adequate heating, lighting, ventilation, and lack of amenities (inside WC, bath etc) have all been cited as contributing to poor health (Schorr, 1964).

Whilst it has been acknowledged above that such physical considerations cannot provide a complete description of poor housing they can be considered very good indicators not just of housing poverty, but of wider poverty. Other research has demonstrated, for example, that lack of amenities and 'unfit housing' is frequently associated with wider poverty. For example the 1986 English House Condition Survey (DOE, 1988) found that half the households lacking amenities had net incomes under £3000.

Tenure on its own and in association with other factors, might be seen as an indicator of housing poverty or unhealthy housing. Whilst it is quite possible to be housed badly in owner occupied property and well housed in rented accommodation there remains an association between tenure and mortality and tenure and deprivation. Fox and Goldblatt found evidence for high mortality rates amongst those in council housing and, even though the relationship between tenure and social class is complex, our own research has shown that those in Classes IV and V are over represented in council housing. Separate analyses have shown that members of these classes are more likely to be living in housing deprivation. The census gives no information on income, but generally those in Classes IV and V have lower incomes.

Whilst private renting is more widely distributed across class this is probably due to a wide difference in the quality of property for rent and the likelihood is that those in manual classes will live in poorer quality accommodation. In 1981 22% of those living in rented furnished properties lived in 'multiple housing deprivation' (Williams & Dale, 1991). Whilst many of those living in shared furnished accommodation are likely to be younger single people, often students using this tenure as an 'interim' one, other research has established that there is also a large proportion from manual classes who are likely to have low incomes and no other tenure options available (Morris & Winn, 1990).

The pattern is familiar. Those who live in the worst housing conditions are usually poor and have worse health.

The LS has value in demonstrating associations between poor housing and ill health over a very large sample. A very much greater value however, and one that is only just beginning to be explored, is how long term housing changes relate to ill health. In particular are those who remain in poor housing over a long period, or move into housing deprivation more likely to exhibit higher mortality rates than those who have not lived in poor housing or have escaped deprivation ?

## Note

(1) The 1971 Census provides information on access to Cooker, Sink and Hot Water whereas the 1981 Census does not.

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Sources of Tables: Table 1 SSRU, 1990; Table 2 - 9 OPCS Longitudinal Study;  
Table 10 - 14 Fox & Goldblatt, 1982.

**TABLE 1 DATA INCLUDE IN THE LS**

**Census of Population 1971**

**Census of Population 1981**

**New births, registrations** from 1971 (babies born on LS dates)

**Immigrants**, from 1971 (as identified at NHSCR)

**Births registered to women** in the LS sample, from 1971 (but events to the baby are not linked except for deaths at under 1 year of age)

**Births registered to men** in the LS sample, from 1971 to 1978, and 1981.

**Infant deaths** Registered deaths at under 1 year of babies born to women in the LS sample - see above.

**Embarkations**, from 1971 (people leaving the country as notified to NHSCR)

**Cancer registrations**, from 1971 (as notified to Cancer Registeries)

**Widowhoods and Widowerhoods** as identified from death registrations from 1971 (ie people in the LS sample who became widow(er)s.

**Deaths**, registrations from 1971 (deaths to LS sample members)

**Entry into long stay psychiatric hospital** (1971-83 inclusive) ie 2 years stay plus.

**Entry into the Armed Forces**

**Re-entrants**, from 1971 (as identified by NHSCR - LS members who have emigrated but then returned; left the Armed Services, left a long stay psychiatric hospital - 1971 to 1983 inclusive.)

**TABLE 2: HOUSING TENURE IN ENGLAND AND WALES 1971 AND 1981**

	1971 %	1981 %
Owner Occ.	51.5	61.0
Freehold	-	(52.8)
Leasehold	-	(8.2)
Council /CNT	30.4	28.2
Rented Unfurnished	14.6	8.6
Rented Unfurnished Housing Association	-	(4.4)
Rented with job	-	(1.6)
Rented with job	-	(2.5)
Rented Furnished	3.5	2.2
	<u>100.0</u>	<u>100.0</u>
	(515,654)	(524,094)

**TABLE 3: TENURES OF LS MEMBERS WHO ARE HOH OR SPOUSE 1981**

Row %	1981 Owner Occ.	Council / CNT	Rented Unfurn.	Rented Furn	All (100%)
1971					
LSM= HOH, JOINT HOH, SPOUSE	62.2	28.2	8.8	0.7	(214528)
Owner Occ	94.3	3.1	2.1	0.4	(117019)
Council	16.4	79.9	3.3	0.4	(59936)
Rent.Unfurn	30.9	23.8	43.9	1.3	(31178)
Rent Furn	55.1	24.1	13.0	7.7	(6395)
LSM=NOT HOH, JOINT HOH, SPOUSE	59.8	31.6	6.9	1.6	(109274)
Owner Occ.	90.9	4.7	2.5	1.9	(57249)
Council	20.7	74.7	3.5	0.9	(36384)
Rent.Unfurn	34.7	29.1	34.6	1.6	(13345)
Rent.Furn	48.8	33.6	12.4	5.2	(2296)

**TABLE 4: ACCESS TO AMENITIES, BY AGE 1981**

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	0-16	17-24	25-44	45-60	61-74	75-99	All
Sole Use Bath/ Inside WC	97.9	96.3	97.4	96.9	94.8	91.5	96.6
One/both lacked or shared	2.1	3.7	2.6	3.1	5.2	8.5	3.4
No amens.	(0.5)	(0.6)	(0.6)	(0.9)	(1.9)	(3.6)	(0.9)
100%=	125434	63835	140416	98105	68762	27541	524093



**TABLE 5: SEX AND HOUSEHOLD STRUCTURE 1971 & 1981 \***

Row %	Male 1971	Male 1981	Female 1971	Female 1981
1. 1 person ge 65	13.3	20.9	86.7	79.1
2. Elderly couple	38.4	49.9	61.6	50.1
3. 1 person < 65	38.7	47.5	61.3	52.5
4. 2+adults,no eld.	45.8	50.0	54.2	50.0
5. Cple, no dep ch.	48.4	50.1	51.6	49.9
6. Cple +dep.ch	49.3	49.9	50.6	50.1
7. Cple,+dep.ch.+adt.	51.0	52.8	49.0	47.2
8. Cple,no dep.ch.+adlt	53.0	54.5	47.0	45.5
9. 1 parent + dep.ch.	15.5	14.2	84.5	85.8
10.1 part + dep.ch+adt	29.6	33.0	70.4	67.0
11. 2+ families	48.4	51.4	51.6	48.6
12. Complex hhlds,1+eld.	44.0	44.9	56.0	55.1

Males 1971 = 132459

Males 1981 = 163272

Females 1971 = 148276

Females 1981 = 177264

\*Excludes all household members under 15, (16 in 1981) or 18 if in full time education.

**TABLE 6: HOUSEHOLD STRUCTURE OF LS MEMBER BY INDICATORS OF HOUSING DEPRIVATION 1981**

Row %	No depr	O/crowdd no oth	Shared no oth	No/shr Bath/WC no oth	Multi depr.	
1. 1 person ge 65	86.0	0.0	4.1	8.0	1.8	(24484)
2. Elderly couple	93.3	0.1	2.0	4.1	0.5	(36195)
3. 1 person < 65	78.7	0.1	9.8	4.5	6.8	(18267)
4. 2+adults,no eld.	84.7	1.2	7.7	3.1	3.3	(21615)
5. Cple, no dep ch.	95.0	0.1	2.3	1.8	0.7	(58038)
6. Cple +dep.ch	90.0	7.3	0.7	1.0	0.9	(203185)
7. Cple,+dep.ch.+adt.	71.3	25.3	0.6	1.1	1.7	(43743)
8. Cple,no dep.ch.+adlt	94.9	2.1	0.8	1.8	0.3	(45400)
9. 1 parent + dep.ch.	90.3	3.6	2.5	2.1	1.5	(16000)
10.1 part + dep.ch+adt	78.1	15.3	1.8	2.4	2.3	(15433)
11. 2+ families	43.7	50.0	0.8	0.9	5.6	(7695)
12. Complex hhlds,1+eld.	89.9	2.9	1.6	4.8	0.8	(32977)

**TABLE 7: THE ACQUISITION OF AMENITIES, BY TENURE, 1971 - 1981**

LS members who were householders/joint householders/spouses in 1971 and remained in the same tenure.

Row %	1981		
	Sole Use	Lacked/shared, one/both	Total
OWNER OCC			
Sole Use	99.5	0.5	(102547)
Lacked/shared, One/both	73.2	26.7	(8093)
	Sole Use	Lacked/shared, one/both	Total
COUNCIL			
Sole Use	99.1	0.9	(45019)
Lacked/shared, One/both	83.9	16.1	(3092)
	Sole Use	Lacked/shared, one/both	Total
RENTED UNFURNISHED			
Sole Use	97.6	2.4	(9392)
Lacked/shared, One/both	51.1	48.9	(4137)
	Sole Use	Lacked/shared, one/both	Total
RENTED FURNISHED			
Sole Use	84.6	15.4	(227)
Lacked/shared, One/both	47.8	52.2	(268)

**TABLE 8: HOUSING DEPRIVATION AND ECONOMIC ACTIVITY OF LS MEMBERS WHO ARE HEADS OF HOUSEHOLD**

1971			
	% recording any indicator of deprivation	% recording more than 1 indicator of multiple deprivation	(100%)
In employment	20.8	4.9	(123217)
Out of employment - sick	38.4	10.1	(1540)
Out of employment - other	38.9	11.4	(3996)
Permanently sick	31.8	4.7	(1934)
1981			
	% recording any indicator of deprivation	% recording more than 1 indicator of multiple deprivation	(100%)
In full time job	9.8	1.5	(110996)
In part time job	11.6	1.9	(7338)
Waiting to take up a job	20.9	5.6	(373)
Seeking a job	21.2	4.3	(10062)
Temporarily sick	16.3	3.0	(1381)
Perm. sick	13.1	1.4	(4552)

**TABLE 9 HOUSING DEPRIVATION 1971 - 1981**

LS Members who were HoHs 1971 / 1981 and working full time 1971.

ROW %

WORKING F/T 1981			
	1981		
	No Deprivation	Deprivation	Total
1971			
No deprivation	96.6	3.4	(51645)
Deprivation	75.6	24.4	(11715)
PERM. SICK 1981			
	1981		
	No Deprivation	Deprivation	
1971			
No deprivation	95.5	4.5	(2302)
Deprivation	71.0	29.0	(1018)
UNEMPLOYED 1981			
	1981		
	No Deprivation	Deprivation	
1971			
No deprivation	93.3	6.7	(3011)
Deprivation	66.6	33.4	(1308)

**TABLE 9a HOUSING DEPRIVATION 1971 - 1981**

LS Members who were HoHs 1971 / 1981 and working full time 1971.

COLUMN %

**WORKING F/T 1981**

	1981	
	No Deprivation	Deprivation
1971		
No deprivation	84.8	38.5
Deprivation	15.2	61.5
100%=	58823	4537

**PERM. SICK 1981**

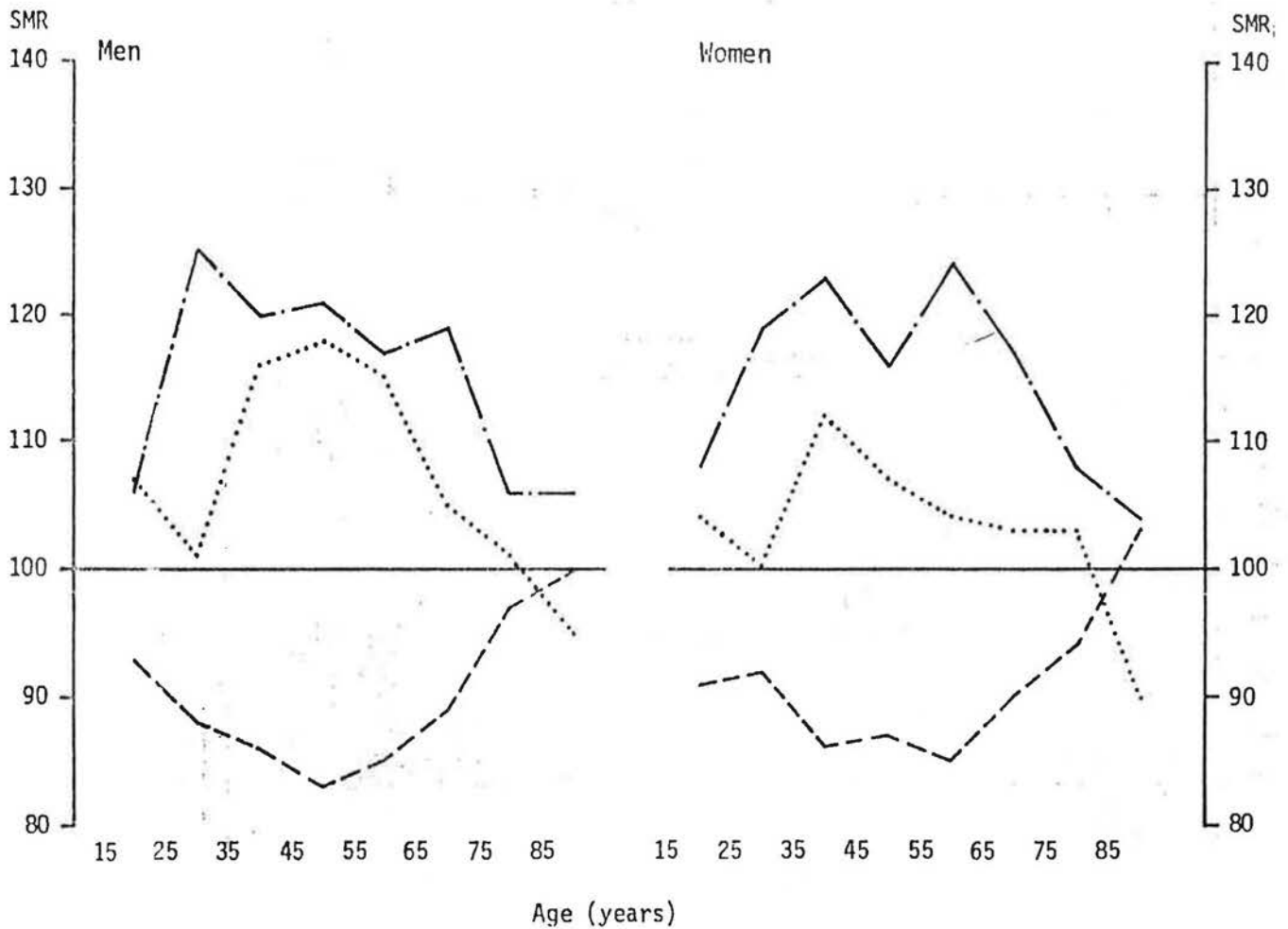
	1981	
	No Deprivation	Deprivation
1971		
No deprivation	75.2	26.1
Deprivation	24.8	73.9
100%=	2921	399

**UNEMPLOYED 1981**

	1981	
	No Deprivation	Deprivation
1971		
No deprivation	76.3	31.2
Deprivation	23.7	68.7
100%=	3683	636

TABLE 10:

**Mortality of persons aged 15 years and over by sex, age and tenure**



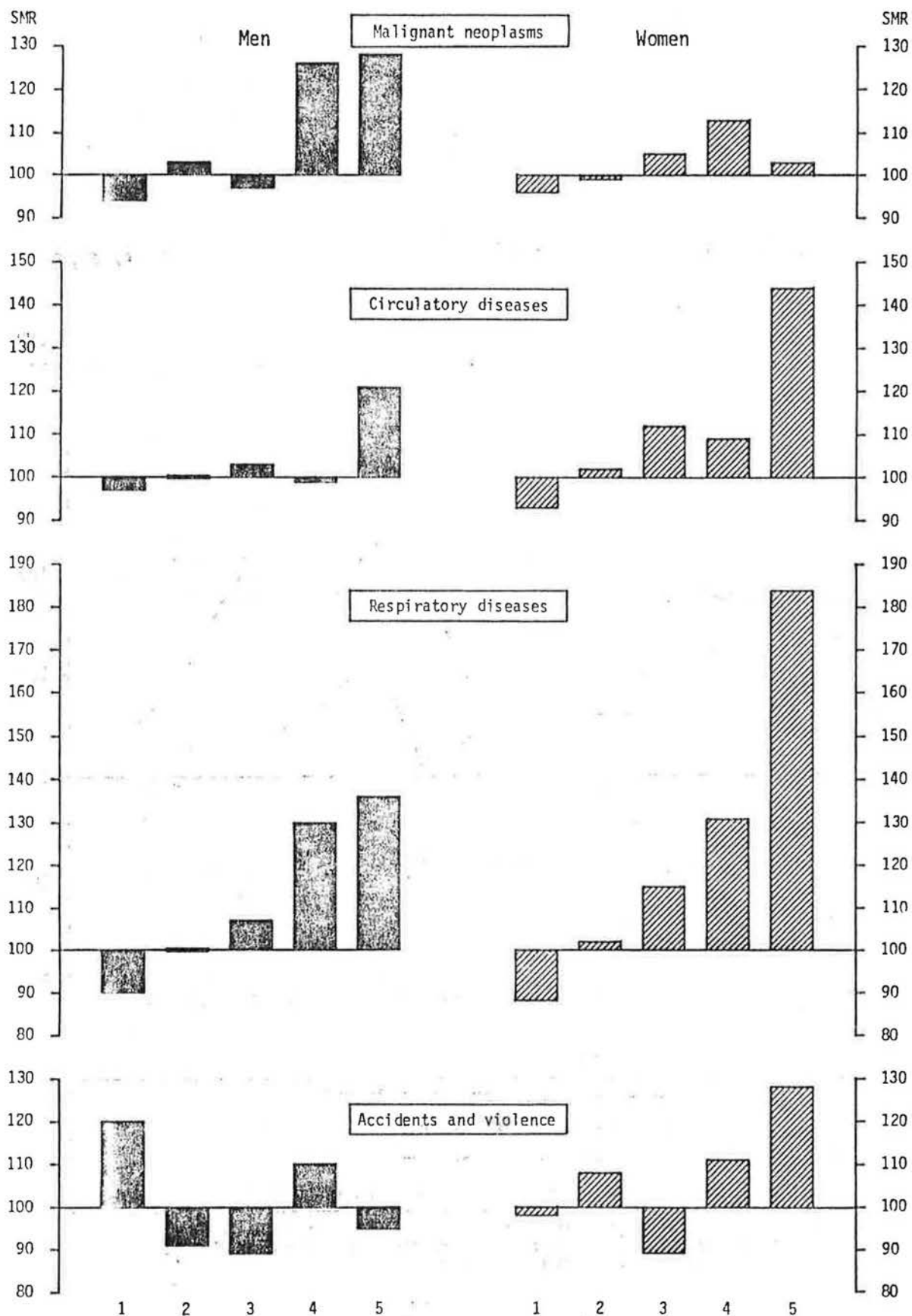
— · — Local authority tenants  
 ····· Private renters\*  
 - - - Owner occupiers  
 \* Includes a small number whose tenure was not stated

*In this figure, SMR's are based on expected deaths calculated separately for each sex using death rates for 1971-75 (in 5-year age groups) for all males or females in the Longitudinal Study 1971 Census sample who were enumerated in private households*



TABLE 11:

Mortality by density of occupation and cause of death



Density of occupation  
 1: ppr < 1/2    2: ppr = 1/2    3: 1/2 < ppr < 1    4: ppr = 1    5: ppr > 1  
 ppr: persons per room

In this figure, SMR's are based on expected deaths calculated separately for each sex using death rates for 1971-75 (in 5-year age groups) for all males or females in the Longitudinal Study 1971 Census sample who were enumerated in private households

TABLE 12:

Distribution and mortality in private households by access to amenities								
Amenities	Males				Females			
	Distribution in 1971(%)	Observed deaths	Expected deaths†	SMR	Distribution in 1971(%)	Observed deaths	Expected deaths†	SMR
<b>Cooker</b>								
Sole use	99.0	12,603	12,620.5	100	99.2	11,679	11,681.5	100
Shared use	0.7	52	55.2	94	0.5	53	53.1	100
None	0.4	101	80.3	126	0.3	77	74.4	103
<b>Sink</b>								
Sole use	98.7	12,561	12,567.3	100	98.9	11,627	11,692.6	100
Shared use	0.8	68	68.6	99	0.6	78	74.6	105
None	0.5	127	120.1	106	0.4	104	104.8	99
<b>Bath or shower</b>								
Sole use	91.0	10,872	1,148.5	98	90.7	9,883	10,014.5	99
Shared use	2.1	239	242.2	99	2.3	301	333.1	90
None	6.9	1,645	1,365.3	120	7.1	1,625	1,461.4	111
<b>Hot water</b>								
Sole use	93.8	11,363	11,576.1	98	93.7	10,358	10,423.3	99
Shared use	1.4	153	148.9	103	1.3	170	186.0	91
None	4.8	1,241	1,032.0	120	5.0	1,281	1,199.7	107
<b>Inside WC</b>								
Sole use	87.3	10,286	10,609.0	97	87.3	9,537	9,667.6	99
Shared use	2.0	220	210.9	104	2.0	257	279.3	92
None	10.7	2,251	1,937.1	116	10.7	2,015	1,862.1	108
<b>Outside WC</b>								
Sole use	25.8	4,077	3,837.5	106	25.5	3,559	3,481.7	102
Shared use	1.1	144	128.3	112	1.0	136	131.9	103
None	73.1	8,536	8,791.2	97	73.5	8,114	8,195.4	99
<b>Total in private households</b>	<b>100.0</b>	<b>12,756</b>	<b>12,756.0</b>	<b>100</b>	<b>100.0</b>	<b>11,809</b>	<b>11,809.0</b>	<b>110</b>

† In this table expected deaths are calculated separately for each sex using death rates for 1971-75 (in five-year age-groups) for all males/females in the LS 1971 Census sample who were enumerated in private households.

TABLE 13:

Mortality of persons in private households lacking a number of amenities						
Sex and age	No inside WC, shared or sole use of outside WC					
	Bath, shower or running hot water			Neither bath, shower nor running hot water		
	Observed	Expected†	SMR	Observed	Expected†	SMR
<b>Males</b>						
0-64 years	336	280.0	120	157	108.9	144
65 years and over	923	842.7	110	611	482.2	127
<b>Females</b>						
0-64 years	206	108.4	114	85	66.9	127
65 years and over	839	825.3	102	688	606.6	113

† In this table expected deaths are calculated separately for each sex using death rates for 1971-75 (in five-year age-groups) for all males/females in the LS 1971 Census sample who were enumerated in private households.

TABLE 14:

## Mortality in private households by car ownership and age

Age	Number of cars	Males			Females		
		Observed	Expected <sup>†</sup>	SMR	Observed	Expected <sup>†</sup>	SMR
0-14	0	45	39.7	113	26	25.4	102
	1	53	56.9	93	34	36.0	94
	2	8	9.6	83	8	6.0	133
	3+	1	0.8	125	—	0.6	—
15-64	0	1,719	1,385.9	124	1,176	1,021.9	115
	1	1,627	1,826.2	89	978	1,051.4	93
	2	335	448.5	75	166	243.6	68
	3+	50	70.2	71	35	38.1	92
65-84	0	5,226	4,838.8	108	5,226	5,162.4	101
	1	2,135	2,453.5	87	1,482	1,568.1	95
	2	276	338.6	82	225	208.8	103
	3+	42	48.1	87	30	23.7	127
85 and over	0	939	892.8	105	1,801	1,823.2	99
	1	275	312.8	88	528	510.3	103
	2	38	41.9	91	84	82.5	102
	3+	5	9.5	53	20	17.0	118

<sup>†</sup> In this table expected deaths are calculated separately for each sex using death rates for 1971-75 (in five-year age-groups) for all males/females in the LS 1971 Census sample who were enumerated in private households.

