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WORKING PAPER 82-50
HEADSHIP RATES AND THE HOUSEHOLD FORMATION PROCESS IN GREAT BRITAIN
BY
ANIL MARKANDYA

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HEADSHIP RATES AND THE HOUSEHOLD
FORMATION PROCESS IN GREAT BRITAIN

by

Anil Markandya

Working Paper 82-50

June, 1982

I would like to thank Ken Rosen for initiating my interest in this question and Pierre Ullmo for interesting discussions on related work with French data. Rosen has done a similar study with U.S. data and comparative discussions included in here refer to their work.
ABSTRACT

HEADSHIP RATES AND THE HOUSEHOLD FORMATION PROCESS IN GREAT BRITAIN

by

Anil Markandya

This paper looks at the changes in headship rates in Great Britain over the period 1960-1979, and attempts to explain them in terms of economic variables, such as real income and the real cost of housing. Such variables are found to be significant for some household types, but not for others. Notably, young single person household formation appears to be more supply constrained and to respond to appropriate supply variables.

Finally, some comparisons are made with similar studies done on similar data from the U.S. and France. These studies reveal a number of features in common, but also some differences, and these are commented upon.
HEADSHIP RATES AND THE HOUSEHOLD FORMATION PROCESS IN GREAT BRITAIN

1. Introduction

One important ingredient in the modelling of the housing market in any developed country is the analysis of the headship rate in different household categories. The headship rate is the ratio of the number of persons in any sub-group of the population who are head of household to the total number in that population. The main categories by which people are grouped for this purpose depends on the main social divisions of household type and on the extent to which the demand for housing differs from one category to another. In the U.S., for example, headship rates are defined by age and by individual and family households. Family households consist of married couples with children and lone parents. Individual households consist of single people, unrelated people sharing common housekeeping facilities and unmarried couples. In that country the main growth in housing demand over the last decade has come from non-family single person households, and from female headed lone parent households. For example, between 1970 and 1980, these two categories accounted for 62% of the increase in the total number of households. Moreover, the relatively low headship rate levels, and their fast rate of growth, for some age groups within those categories indicates the great potential for future household demand that they represent. Within the category of female lone parent household the main increase
came from divorced women who were up 139% over the decade. Apart from the implications for overall growth of household demand, such figures are also indicative of a changed structure of demand; not only is the kind of dwelling unit demand demanded by single individuals, sharers and divorcees likely to be different in structure and location from that demand by families, but it also implies a different household demand by income category. In the non-family single person household category the main growth areas for headship rates has been the young. The under 24 age group headship rate went up 160% from 1970 to 1980 and probably translates itself into higher demand for small flats in urban areas. In fact if such growth is sustained over the next decade it could very well imply a different future for city housing, compared to what is conventionally expected to happen, by simply projecting current suburbanization trends.

Given past data on headship rates one attempts to predict their future evolution in some way or other. Such predictions are then combined with demographic projections of the population by age group and marital status to give overall household demand by different social categories. In general in the past, estimates of headship rates has been done by trend analysis alone. Such a procedure ignores, however, the social and economic forces that impinge on the decision to form a household and could, in consequence, give misleading results over the medium and long term. Moreover, past household formation decisions may have been supply constrained. If the excess demand that prevailed in the
past is eliminated these headship rates could shoot ahead and a time trend analysis of future demand could be misleading. The main social variable that determined household formation in the past was the marriage rate. As far as the U.S. evidence is concerned this is beginning to look untrue. The divorce rate and the length of time that a person remains divorced are clearly of great importance in explaining the household formation figures quoted above. In addition, the propensity of young people to live apart from their parents and to postpone marriage, and of old people who are inclined to maintain their own home, have had an increasingly important role to play. On the economic side, the real incomes of such households and the relative price of housing would be expected to have a role to play. Real incomes are influenced not only by earnings but also by social security benefits and it is the rise in their real levels among pensioners that could explain an increased headship rate in that group. On the price side, the U.S. evidence shows a drop of nearly 20 percent in the real price of rental housing. Such a significant reduction would be expected to result in increased household space consumption and indirectly into household formation.

In this paper we examine similar evidence on headship rates and related variables in the U.K. The information available is pieced together from various sources and is of varying degrees of reliability, ranging from census data to data gathered by the General Household Survey. Although somewhat unsatisfactory, it nevertheless presents us with some insight into the changing
structure of households in this country and offers an opportunity of comparison with the U.S. One major difference with the U.S. that would be expected to influence observed household formation in Great Britain is the fact that the pricing mechanism is only marginally relevant to about half the dwelling units in this country, namely the private and publicly rented accommodation. This implies that household formation, insofar as it is constrained by those sectors, is likely to be supply constrained. In that case headship rates for some categories will be influenced not especially by real income and prices, but also by variables that reflect their relative market power. Such variables are tried in some regressions of headship rates for categories that form households, particularly in the private rental sector, and some success is achieved with them. For the rest of this paper we proceed as follows: in the section below we present a picture of the household formation process in Great Britain over the last two decades, and compare it with similar data from the U.S. In Section Three, a headship rates series for Great Britain is constructed by interpolating between census points and regressed on some of the variables discussed above for which data is available. The results are quite encouraging and have a number of implications for housing policy which are discussed in the final section.

2. Household Formation in the U.K.

Table One below gives the number of households in Great Britain for the years 1961, 66, 71 and 79. We observe that the largest growth in households occurred in single person households over
retirement age (up 147% from 61 to 79) followed by single person households under retirement (up 117%) and lone parent households with dependent children (up 114%). Multiple non-family households fell considerably in number, while family households with children fell slightly and childless married couple households increased slightly. These developments are broadly quite similar to those experienced in the U.S., except that whereas in the U.S. the growth of single person households has been more evenly spread out over all age groups, in Great Britain it has been concentrated considerably among retired households. The difference between the two countries is seen more clearly in Table Three where headship rates are given for 1970 (US) and 1971 (GB) for different age groups. Unfortunately, the figures are not directly comparable as the age groups differ and the classification of men and women is not uniform in Britain as it is in the U.S. Nevertheless, there are major differences in headship rates at both ends of the age distribution. The under 30 age group in Britain probably has quite a similar headship rate as the same age group in the U.S. As the headship rates rise sharply with age, and as the under 30 age group in Britain has about the same headship rate as the under 24 age group in the U.S., the British figures for comparable age groups are likely to be slightly lower. On the other hand, the bottom G.B. group is divided by the total population between 15-30, whereas the U.S. group is divided by the total population between 18-30. This would tend to give relatively higher G.B. figures for comparative base populations. Looking at the figures
in greater detail indicates that these two factors cancel each other out sufficiently for the comparable headship rates not to be dis-similar. For the middle age groups (25-64), the U.S. figures appear to be significantly higher than in G.B.. This is especially true of the 30-44 age group. Finally, for the higher age group the ranking of the two countries is reversed again, with the British figures being considerably greater than the American ones. For married households, headship rates are generally higher in the U.S.. The only possible exception is the youngest age group. The under 24s in the U.S. have a considerably lower rate than the under 30s in Britain. A major part of this is accounted for, of course, by the higher headship rates within the 24-30 population. Indeed, interpolating headship rates linearly between age groups indicates only slightly lower figures in the U.S. for comparable populations.

It is hard to account for all these comparative differences without further study, but the main features probably arise from the different income and housing market conditions in the two countries. It is generally believed that household formation in Britain, particularly among young single persons, is greatly constrained by the lack of private rental accommodations and the long queuing time for public housing. By itself this should result in less household formation than an equilibrium situation would warrant. Since this equilibrium itself is likely to be lower than that in the U.S., as real incomes in the latter are higher and relative real housing costs probably lower, the implication is that we should
TABLE ONE

Households in Great Britain 1961 - 1979
Total Thousands

<table>
<thead>
<tr>
<th>Household Type</th>
<th>Year</th>
<th>1961</th>
<th>1966</th>
<th>1971</th>
<th>1979</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One person under retirement</td>
<td>726</td>
<td>890</td>
<td>1122</td>
<td>1576</td>
<td></td>
</tr>
<tr>
<td>2 or more under retirement (1)(2)</td>
<td>536</td>
<td>463</td>
<td>444</td>
<td>394</td>
<td></td>
</tr>
<tr>
<td>One person over retirement (1)</td>
<td>1193</td>
<td>1682</td>
<td>2198</td>
<td>2955</td>
<td></td>
</tr>
<tr>
<td>2 or more over retirement (1)(2)</td>
<td>268</td>
<td>251</td>
<td>304</td>
<td>197</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married couple only</td>
<td>4147</td>
<td>4377</td>
<td>4890</td>
<td>5319</td>
<td></td>
</tr>
<tr>
<td>Married couple with dependent children</td>
<td>6117</td>
<td>6054</td>
<td>6305</td>
<td>6107</td>
<td></td>
</tr>
<tr>
<td>Married couple with independent children only</td>
<td>1673</td>
<td>1746</td>
<td>1565</td>
<td>1379</td>
<td></td>
</tr>
<tr>
<td>Lone parent with dependent children</td>
<td>367</td>
<td>400</td>
<td>515</td>
<td>788</td>
<td></td>
</tr>
<tr>
<td>Lone parent with independent children</td>
<td>721</td>
<td>755</td>
<td>712</td>
<td>788</td>
<td></td>
</tr>
</tbody>
</table>

Source: Social Trends

(1) retirement is defined as 60 for women and 65 for men.

(2) The household is classified as a retirement household if it has at least one person over retirement age.

The 1961 and 1971 figures are census figures, the 1966 figures are from the mid-census sample and the 1979 figures are constructed by multiplying the distribution of households by marital status as given in the general household survey by the estimated total number of households in 1979.
TABLE TWO

Headship Rates in Great Britain
Per 100 Households

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-Family Households</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>under retirement(1) age</td>
<td>10.00</td>
<td>11.76</td>
<td>15.51</td>
<td>14.57</td>
</tr>
<tr>
<td>over retirement age</td>
<td>43.61</td>
<td>56.04</td>
<td>60.84</td>
<td>75.05</td>
</tr>
<tr>
<td><strong>Family Households</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all households</td>
<td>49.57</td>
<td>49.01</td>
<td>51.50</td>
<td>52.86</td>
</tr>
</tbody>
</table>

Source: Social Trends and Annual Abstract of Statistics

(1) The base population is taken as the non-married population under 65.

TABLE THREE

A. Comparison of U.S. and G.B. age specific headship rates in 1970-71
Per 100 Households

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;24 25-34 35-64 65+</td>
<td>&lt;30 30-44 45-64(1) 65+(2)</td>
</tr>
<tr>
<td>4.2 25.9 42.9 54.1</td>
<td>4.3 19.6 40.3 66.0 non family</td>
</tr>
<tr>
<td>24.4 51.5 56.3 69.1</td>
<td>39.6 45.9 53.6 52.3 family</td>
</tr>
</tbody>
</table>


(1) Women are excluded from this group if they are over 60 and head of household. They are excluded from the population if they are over 60.

(2) Women are included in this group if they are over 60 and head of household. They are included in the population if they are over 60.
see lower headship rates in Britain. In general, this appears to be so, with the exception of non-family households over 65. The figures for such households are not directly comparable as in the British data they include women over 60 and men over 65, whereas in the U.S. they include both groups over 65. The effect of this statistical difference will depend on how the headship rate for 60-65 year old unmarried women compares with the rest of the group. No clear answer is available for this, although the figures do indicate that headship rates for males and females combined rise with age. This would suggest then that the G.B. figure of 66 percent is an underestimate of the headship rates for a group comparable to the U.S. one and that the difference between the two countries is even more exaggerated. The main reason for this is probably the priority given to such people in public sector housing in Great Britain. As the General Household Survey indicates, the proportion of housing accounted for by the public sector increases with age for single person households. This lends some support to the above argument.

The other notable difference between the two sets of figures is very much lower headship rates in Britain among 65+ married households. This difference is, however, largely statistical. As married women are never classified as heads of households when their husbands are present, the inclusion of women from 60-65 merely increases the denominator of the headship rate without affecting the numerator. In fact, removing this group entirely raises the headship rate from 62.3 to 68.3 percent. This makes the relative set of figures for
family households very similar and suggests that on the whole, family household headship rates are only slightly lower in Britain than in the U.S., with the lowest age group having almost the same figures.

In Table Two, we present some data on headship rates over time. Looking at headship rates rather than household numbers, the increase in single retired person dwellings is not so marked. The reason, of course, is the aging of the population. Between 1961 and 1981, persons within the retirement ages used in these tables are estimated to have increased from 14.6% to 16.5% of the population, while the working ages (from 15 to 56/64 for women and men respectively) are estimated to have declined from 62.1% to 59.6% of the population. Between 1971 and 1979 Table Two indicates a drop in the headship rate for households under retirement age. However, it should be remembered that the 1979 figures are based on an estimate of the overall number of households and should therefore be treated with caution.  

Table Four lists the values of some of the variables which are likely to influence the headship rate. Firstly, the stock of divorced persons has increased more than fourfold between 1961 and 1979. The effect of this on headship rates, however, is complex. During the tenure of their divorce, individuals are likely to add to household demand by occupying separate dwellings. The party that has children is classified as a lone parent while the party that does not is classified as a non-family household. Unfortunately a breakdown of the divorced population into these cat-
egories is not available. Hence, one can only try the aggregates variable in explaining both "family" and "non-family" household formation. Secondly, we consider the real cost of housing. With minor exceptions, this rose gradually over the sixties, until 1973, and fell sharply between 1974 and 1978. In 1979 it rose again. One would expect this to influence household formation mainly in the owner occupied sector. Although the housing price index combines owner-occupied costs and rental costs, the latter have had little influence on the variations in the index. Moreover, as stated earlier, both the private and public rental housing markets are in excess demand at the current price and so changes in price are unlikely to reveal anything about the demand for households. Where there is rationing, household formation will probably be influenced by the relative market power of different groups in the private sector and by the relative social priorities accorded to them in the public sector. As far as the former is concerned, one might be able to pick this up by looking at the relative incomes of different groups. In the fourth and fifth columns we have the average net relative household incomes of single person households under and over retirement age respectively. This is obtained from the Family Expenditure survey and includes benefits paid. We see that both these groups have improved their position relative to all households between 1961 and 1979. For the younger age group this might increase their ability to acquire housing in the private rental sector, relative to other households. In the public
### TABLE FOUR
Social and Economic Variables Influencing Headship Rates

<table>
<thead>
<tr>
<th>Year</th>
<th>Divorced Population Stock (000)</th>
<th>Average real cost of housing (index)</th>
<th>Average net-real income of all households</th>
<th>Average income of all single person households under retirement age ÷ Avg. inc. of all households</th>
<th>Average income of all single person households over retirement age ÷ Avg. inc. of all households</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>285.0</td>
<td>1.000</td>
<td>847</td>
<td>.48</td>
<td>.24</td>
</tr>
<tr>
<td>1962</td>
<td>296.4</td>
<td>0.996</td>
<td>853</td>
<td>.45</td>
<td>.23</td>
</tr>
<tr>
<td>1963</td>
<td>306.9</td>
<td>1.024</td>
<td>889</td>
<td>.51</td>
<td>.23</td>
</tr>
<tr>
<td>1964</td>
<td>318.5</td>
<td>1.044</td>
<td>910</td>
<td>.54</td>
<td>.23</td>
</tr>
<tr>
<td>1965</td>
<td>329.0</td>
<td>1.052</td>
<td>900</td>
<td>.52</td>
<td>.25</td>
</tr>
<tr>
<td>1966</td>
<td>342.0</td>
<td>1.080</td>
<td>942</td>
<td>.48</td>
<td>.24</td>
</tr>
<tr>
<td>1967</td>
<td>386.6</td>
<td>1.103</td>
<td>944</td>
<td>.52</td>
<td>.26</td>
</tr>
<tr>
<td>1968</td>
<td>432.1</td>
<td>1.106</td>
<td>949</td>
<td>.51</td>
<td>.26</td>
</tr>
<tr>
<td>1969</td>
<td>480.4</td>
<td>1.092</td>
<td>955</td>
<td>.51</td>
<td>.28</td>
</tr>
<tr>
<td>1970</td>
<td>515.5</td>
<td>1.105</td>
<td>978</td>
<td>.51</td>
<td>.27</td>
</tr>
<tr>
<td>1971</td>
<td>517.0</td>
<td>1.101</td>
<td>997</td>
<td>.57</td>
<td>.28</td>
</tr>
<tr>
<td>1972</td>
<td>600.0</td>
<td>1.136</td>
<td>1063</td>
<td>.59</td>
<td>.28</td>
</tr>
<tr>
<td>1973</td>
<td>700.0</td>
<td>1.163</td>
<td>1129</td>
<td>.60</td>
<td>.29</td>
</tr>
<tr>
<td>1974</td>
<td>779.0</td>
<td>1.120</td>
<td>1166</td>
<td>.64</td>
<td>.30</td>
</tr>
<tr>
<td>1975</td>
<td>871.0</td>
<td>1.070</td>
<td>1148</td>
<td>.65</td>
<td>.33</td>
</tr>
<tr>
<td>1976</td>
<td>969.0</td>
<td>1.047</td>
<td>1102</td>
<td>.59</td>
<td>.34</td>
</tr>
<tr>
<td>1977</td>
<td>1037.0</td>
<td>1.021</td>
<td>1080</td>
<td>.61</td>
<td>.34</td>
</tr>
<tr>
<td>1978</td>
<td>1146.0</td>
<td>1.011</td>
<td>1154</td>
<td>.61</td>
<td>.34</td>
</tr>
<tr>
<td>1979</td>
<td>1243.0</td>
<td>1.074</td>
<td>1154</td>
<td>.60</td>
<td>.34</td>
</tr>
</tbody>
</table>

**Sources:**

(1) **Social Trends**, various issues
From 1971 onwards the divorced population is estimated and reported by the Census of Population office. Prior to that they only report the divorced and widowed population for intercensus years. This series is constructed by linearly interpolating the ratio of divorced to widowed between census years.

(2) This is the ratio of the housing component of the CPI to the total CPI. **Annual Abstract of Statistics**.

(3) **Annual Abstract of Statistics**. Data is taken from the Family Expenditure Survey and reports income net of taxes and inclusive of benefits paid.
rental sector, higher relative incomes are not likely to help in acquiring housing; in fact the reverse is more likely to be the case. There appears to be no straightforward way of identifying an index of priorities for public sector rental housing, but it is likely to favor older persons, lone parents and large low-income households and pay little attention to small variations in relative incomes.

Looking at the average real income of all households (Column 3 in Table Four), we see a fairly steady increase over the last two decades, with households in 1979 having incomes 36% higher than in 1961. As the average size of households has decreased marginally over this period, this reflects a slightly higher increase in real per-capita income. On both counts then, we would expect the demand for household formation to increase over this time and observed household formation to be related to the change in incomes when the market is not constrained on the supply side.

In the next section we report some econometric results in headship rates over this period for family households, non-family retirement households and non-family non-retirement households.

3. **Econometric Evidence on Headship Rates**

Annual headship rates from 1961 to 1979 were obtained for the household categories given in Table Two and log linear regressions were performed on the lagged value of the headship rate, along with various combinations of income, relative income, price, and other demographic and economic variables. The lagged value
Econometric Estimates of Headship Ratio in Great Britain

1. \[ \log(\text{NFHORA}) = -0.64 + 0.42 \log(\text{NFHORA-1}) + 0.31 \log(\text{RCDH}) \]
   \[ (4.3) \quad (3.4) \quad (2.7) \]
   \[ + 0.32 \log(\text{YNFHORA}) \]
   \[ (4.0) \]
   \[ \text{CRSQ} = 0.984 \quad \text{F}(3/14) = 345.42 \quad \text{DW}(0) = 2.06 \]

2. \[ \log(\text{FHALL}) = -0.41 + 0.46 \log(\text{FHALL-1}) - 0.13 \log(\text{RCOH}) \]
   \[ (2.4) \quad (2.1) \]
   \[ + 0.03 \log(\text{YZA}) \]
   \[ (0.7) \]
   \[ \text{CRSQ} = 0.940 \quad \text{F}(3/14) = 89.28 \quad \text{DW}(0) = 1.82 \]

Error term assumed to be a first order autoregressive process: \( e_t = \rho e_{t-1} + \epsilon_t \)

estimate of \( \rho = 0.9 \)

3. \[ \log(\text{NFHURA}) = -19.69 + 0.44 \log(\text{NFHURA-1}) + 0.65 \log(\text{YFHURA}) \]
   \[ (3.1) \quad (2.4) \quad (1.7) \]
   \[ \frac{\text{YALL}}{} \]
   \[ + 2.03 \log(\text{HGBSTOK}) + 0.79 \log(\text{RCOH}) \]
   \[ (3.1) \]
   \[ (\text{YNFHURA}) \]
   \[ \text{CRSQ} = 0.919 \quad \text{F}(4/13) = 49.28 \quad \text{DW}(0) = 1.98 \]

\( t \)-statistics are given in parenthesis

Definitions of Variables:

NFHORA = headship rate among non-family households over retirement age (60 for women, 65 for men)

NFHURA = headship rate among non-family households under retirement age

FHALL = headship rate among family households (married couples and lone parents)

RCOH = index of the real cost of housing

YNFHORA = net real income of single person households over retirement age

YNFHURA = net real income of single person households under retirement age

YZA = net real income of households consisting of two adults only

YALL = net real income of all households

HGBSTOK = stock of dwellings in Great Britain

CRSQ = \( R^2 \) corrected for number of variables

DW(0) = Durbin Watson Statistics

F(3/14) = \( f \) statistic for three exogenous variables and 14 degrees of freedom.
of the headship rate is included to indicate partial adjustment of the actual rate to the desired rate. On the assumption of a geometric distributed lag, its coefficient is simply related to the average lag in the adjustment of the headship rate to the exogenous variables. A number of interesting findings emerged from this exercise. Firstly, the divorce population, or its rate of change was not significant in affecting the headship rate in any of the equations, although it had the expected sign (positive) in the regressions on FHALL (the headship rate for family households) and on NFHURA (the headship rate for non-family households under retirement age). Secondly, the regressions of NFHURA on the real price of housing and on real single-person-household income gave poorly determined coefficients for those variables. This is what one would expect given the excess demand state of the private rental market, which is the main source of additional dwellings for that group. Instead it was found that using relative income and the existing stock of housing performed considerably better in regressions in NFHURA. For FHALL and NFHORA (non-family households over retirement age) on the other hand, real income and the real house price were generally better explanatory variables than relative income and the stock of housing. This suggests that for these groups a supply constrained view of the household formation process is possibly not so relevant. A summary of the regression results is given in Table Five below. The main points worth noting are:

a) The rate of adjustment towards the desired headship rate
is remarkably similar for all three groups. The coefficient in the lagged value of the dependent variable lies between 0.42 and 0.46, indicating that half the adjustment takes place within 0.7 to 0.9 of one year.\textsuperscript{7} Given such values of this coefficient the long run elasticities are roughly double the estimated elasticities for the other variables.

b) For the over retirement age group both price and income variables are highly significant but the price variable has a positive sign. It is hard to account for this, except perhaps to suggest that there is a wealth effect associated with house prices which is being picked up here. If house ownership is a significant source of wealth for older people, then their decision to maintain a separate household after retirement may be linked to the realization of part of their wealth as they "trade down" into smaller housing units. Undoubtedly the variable RCOH is strongly correlated to the movement in house prices and this might be what we are picking up. An income elasticity of 0.3 seems plausible.

c) For married couples household formation is significantly affected by the real cost of housing but not by real income. Perhaps, the income variable used is not appropriate. However, other ones were tried but with no appreciable success. One generally finds that the income variable has the right sign but is insignificant. It is possible that within the range of variation of real incomes experienced by family households, the household formation decision is insensitive to such variations. It should
also be noted that the divorced population came closest to being significant for this group, with a short run elasticity of 0.02.

d) For non-family households under retirement age, two rationing type variables were tried: the relative income of single person households and the real cost of housing relative to the incomes of such households. At the same time the stock of houses was included to pick up the effects of a changed allocation of an expanded stock to young non-family households. All variables are significant and all have the expected sign with the exception of the relative cost of housing which is positive. This suggests that a rise in the cost of such housing relative to income results in increased household formation in this group. As stated earlier, RCOH picks up the movements in real house prices and has little to do with private sector rents. A rise in such prices relative to incomes could induce owner occupied household formation. The quicker one can get on the house price escalator, the better it is, and the attractions of owning increase as real prices are observed to rise. Finally for this group, a one percent increase in the stock of housing results in a two percent increase in household formation. Such an effect is included to pick up the changed "ration" of housing accorded to young non-family households and the value, though high, seems plausible.
Conclusions

In this paper we have examined household formation as a social and economic process and tried to identify some of the relevant variables that could influence it. In this we have been fairly successful. What this paper suggests is that one should be careful in interpreting observed household formation in a disequilibrium market. For some groups headship rates are supply constrained and for others they are not. The observed rates for both groups are useful in prediction only as long as the appropriate market regime remains in force. Once we move from equilibrium to supply constraint and vice versa, the behavior of headship rates will change. In addition to price and income effects there are also wealth effects at work, and separating these from the price effects is a task for further study. It should also be noted that similar studies on French and U.S. data reveal some similar features: confusing price coefficients, plausible distributed lag coefficients and income coefficients and, in the case of France, similar difficulties with using price and income variables for young households.
FOOTNOTES

1. The U.S. headship figures in Rosen and Jaffee are not directly comparable with the British or French data. This is because Rosen and Jaffee define the headship rate for a particular group, say single people between 25-34, as the total number of households headed by a single person in that age group divided by the total population in that age group. In official British and French data, the headship rate is obtained by dividing the total number of households in the relevant age group by the population within the same age group and with the same characteristics as the head of the household -- i.e. by the total number of single people between 25-34 in the above example. Although the levels of headship rates will clearly differ according to which method is used, the relative movements are very similar, and the econometric estimates using one rather than the other as the dependent variable do not appear to vary widely. In Table Three, where we compare U.S. and G.B. headship rates, we have adjusted the U.S. figures to make them comparable to our own.

2. One works with headship rates rather than actual households per category because the former is less susceptible to forecasting error than the latter. Given headship rates, these can be used in a full housing market model to estimate the demand for different types of dwelling units, housing starts, and other variables in the housing market.

3. If future supply is based on such predictions, it could, of course, look as if the prediction was correct! Such self fulfillment ignores the fact that the demand for housing is unsatisfied at the current price.

4. It is perhaps worth noting that the French data on headship rates is more similar to the U.K. than to the U.S.

5. There is an element of circularity about the method by which the headship rates for 1979 are calculated. We take $P_i$, the proportion of households of type $i$ in the General Household Survey and multiply it by $\Sigma h_j x_j$, which is an estimate of the total number of households; $h_j$ being the headship rate for group $j$ and $x_j$ the total population of that group. Hence, our estimate of $h_j$, call it $\hat{h}_j$ is

\[
\hat{h}_j = \frac{P_i \sum h_i x_j}{x_i}
\]
Although it should be remembered that the $h_j$s themselves are estimates, there is a likelihood of a smaller error in $\hat{h}_i$ than in $h_i$. For example if $h_i$ is wrong by 10%, but the other $h_j$s and $p_i$ are correct, then

$$\hat{h}_i = \frac{h_ix_i}{\Sigma h_jx_j} \cdot \frac{\Sigma h_jx_j + 0.1 h_ix_i}{x_i}$$

$$= h_i \{1 + 0.1 \frac{h_ix_i}{\Sigma h_jx_j}\} = h_i\{1 + 0.1p_i\}$$

For a small group (say around 10% of the total population, the error in $\hat{h}_i$ is around 1%. This argument applies more generally if the error in the $h_j$s tend to cancel each other out and if the errors in the $f_i$s are small.

6. Ideally we should deflate their nominal incomes by different price indices corresponding to their consumption patterns. Unfortunately such indices are not available for the time period in question.

7. If the dependent variable is $H_t$ and the co-efficient on $H_{t-i}$ is $B_1$, then $B_1 = \frac{1-B_1}{1-B_1}$ is the average lag in the adjustment of $H_t$ to the exogenous variables.
References


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