RETIREMENT AND THE ECONOMIC WELL-BEING OF THE ELDERLY: A BRITISH PERSPECTIVE

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Abstract

Little is known about the income dynamics and retirement in Britain, in part because of a lack of data. The information is of some topical interest given the growing number of elderly people, the trend towards earlier retirement, the decline in the value of the basic state pension and the growing reliance on occupational and private pensions, and continuing relatively high poverty rates among the elderly. This paper considers the important question of income and retirement and, in particular, the association between transitions into retirement and the probability of becoming poor. It is based on longitudinal data from the British Household Panel Survey waves 1-7, covering 1991-1997. We also aim to relate differences in poverty entry probabilities among the retired to differences in factors such as a retiree's health, housing tenure, age and sex, education, labour market status and history (and hence 'routes' into retirement), household composition and spouse's characteristics.

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Non-Technical Summary

Much is known in Britain about the association between old age, retirement, and low income, but little research has been done examining the relationship between the onset of retirement and the probability of becoming poor. To a large extent this reflects data availability: most research to date has relied on cross-sectional data sources rather than genuine longitudinal data. In this paper we use the British Household Panel Survey data covering 1991-1997 to provide new longitudinal evidence about the association between entering retirement and beginning a low income spell.

The relationship between low income and retirement is of interest for several reasons. First there have been marked increases in the numbers of elderly people in all western societies including the UK, as life expectancy has increased. An important question is therefore whether the increasing number of retired people is at risk of being poor and, from a dynamic perspective, whether the transition into retirement is associated with a greater probability of becoming poor. Moreover in Britain the decline in the value of the basic state pension (relative to the incomes of the working population), and the growing reliance on occupational and private pensions, are likely to change the risks of becoming poor for different groups of individuals, for example of people with 'irregular' working patterns more than for people who have been continuously in employment in good jobs.

Our empirical analysis exploits these features of the BHPS in analysing income changes around the time of retirement. Whereas previous research has shown that old and retired people are poorer than the rest of the population at a point in time, we consider how the process of becoming retired is associated with an increased risk of having a low income. In particular, we focus our attention on changes in the economic well-being in the years immediately before and immediately after retirement for people who retire.

Preliminary cross-sectional analysis of the first 7 waves of the BHPS (1991-97) confirms that retired people are indeed poorer than the rest of the population, irrespective of which 'low income' definition is adopted (either the bottom third or the bottom fifth of the income distribution). However, over the period 1991-97 a decrease in the proportion of retired people in low-income did occur. This was not solely due to younger, better-off, newly retirees joining the group of older retired, but to a real increase in income of all retired people relative to the rest of the population.

The longitudinal analysis shows that retirement is strongly associated with a decline in individuals' economic well-being. This is observed not only for the year of retirement, but also in the years around retirement, in particular the years before. Retirement may therefore be described more appropriately as a 'process' rather than a discrete change in status at one point in time. The increased risk of low income incidence associated with retirement differs between men and women, and varies according to the working status of the individual before retirement. Different paths into retirement produce different outcomes in terms of household income. For example, retirement represents a marked change in status and in income for full-time workers, less so for part-time workers and for people in other work status (unemployed, disabled, family carers).

Our multivariate analysis shows that, for men, having worked full-time has by far the strongest association with lower probabilities of entering the poorest third of the income distribution on retirement. By contrast, the previous work status is not as relevant for women, but a different and broader set of variables appear to be significantly associated with the probability of having low income on retirement. In particular, living in social housing, not being a member of an occupational pension scheme, retiring before the state pension age are all factors that are associated with a higher risk of becoming poor.

1. INTRODUCTION

Much is known in Britain about the association between old age, retirement, and low income, but little research has been done examining the relationship between the onset of retirement and the probability of becoming poor. To a large extent this reflects data availability: most research to date has relied on cross-sectional data sources rather than genuine longitudinal data. In this paper we use the British Household Panel Survey data covering 1991-1997 to provide new longitudinal evidence about the association between entering retirement and beginning a low income spell.

The relationship between low income and retirement is of interest for several reasons. First there have been marked increases in the numbers of elderly people in all western societies including the UK, as life expectancy has increased. An important question is therefore whether the increasing number of retired people is at risk of being poor and, from a dynamic perspective, whether the transition into retirement is associated with a greater probability of becoming poor. Moreover in Britain the decline in the value of the basic state pension (relative to the incomes of the working population), and the growing reliance on occupational and private pensions, are likely to change the risks of becoming poor for different groups of individuals, for example of people with 'irregular' working patterns more than for people who have been continuously in employment in good jobs.

A large literature exists in Britain about poverty in old age, mainly based on cross-sectional survey data (Johnson and Stears, 1995; Johnson and Stears, 1998). By contrast, very little dynamic analysis has been produced using panel data. Moreover, the existing studies which have used a longitudinal perspective have largely focused on other topics, for example documenting labour force transition paths into retirement, and the determinants of early retirement. Meghir and Whitehouse (1997), for example, model the transitions in and out of work for men born between 1919 and 1933. Oswald (1999) analyses early retirement patterns of German and British workers.

One important reason for the lack of emphasis on longitudinal aspects of retirement-related issues was a lack of data. The Retirement Survey, the first British survey specifically designed for research on retirement, was undertaken in 1988/89, and a second wave in 1994 re-interviewed respondents. The survey is a major new British resource for research on retirement and its correlates. See Disney et al. (1997) for a description of the survey and extensive research findings. The principal advantage of the Retirement Survey is its specialist focus on the group of interest, the large sample, and depth of detail for a wide range of

relevant topics (including disability and health status, incomes especially pensions, and housing and financial assets). The number of wave 1 respondents was some 3,500 individuals aged 55-69 years at the time of the interview (plus 600 spouses outside this age range). Sample attrition was substantial however, and only two-thirds of the original sample were re-interviewed (a quarter due to non-response; the remainder had died).

Research about income dynamics using the Retirement Survey has mostly focused on income changes during the period of retirement (rather than around the transition into retirement). Johnson et al (1998) examined the changes in incomes of men aged 65-69 and women aged 60-69 in 1988-89 over the subsequent five years. The main focus was on individual's own incomes rather the incomes of the family or household to which the person belonged—they were mostly interested in the evolution of various income sources rather than in changes in living standards. Webb (1997) examined both individual and benefit unit (family) income in his study of income dynamics, relating income changes between 1988-89 and 1994 to pre-retirement characteristics (such as work status), pension receipt etc. Neither study examined in detail the relationship between the retirement process and changes in living standards, and low income incidence in particular (as we do).

The British Household Panel Survey (BHPS), a general purpose household panel survey with seven waves of data currently available (covering 1991-7), has been relatively unexploited for studies of retirement. Although the sample includes fewer retired people than the Retirement Survey, and an even smaller sample of people observed to retire during the panel, it is an important complementary source. First, it is representative of the whole British population, which facilitates comparisons of the experiences of retiring, retired and non-retired people. Second, the BHPS covers a wide range of topics concerning individual, family and household circumstances, many in great detail. One particular advantage of the BHPS relative to the Retirement Survey is that interviews are of a higher frequency: for example year on year income changes can be tracked (for up to seven years in many cases), so that a more detailed picture about the relationships with retirement can be derived.

Our empirical analysis exploits these features of the BHPS in analysing income changes around the time of retirement. Whereas previous research has shown that old and retired people are poorer than the rest of the population at a point in time, we consider how the process of becoming retired is associated with an increased risk of having a low income. In particular, we focus our attention on changes in the economic well-being in the years immediately before and immediately after retirement for people who retire.

The structure of the paper is as follows. In the reminder of this section we provide some information about the UK pension system. In Section 2, we introduce the BHPS and discuss our sample selection criteria. We explain our choice of definitions of 'retirement', 'income', and 'low income'—concepts that are central to our analysis. In Section 3 we present evidence comparing low income incidence among retired people and the rest of the population, drawing on cross-section data from the BHPS. The remainder of the paper takes a longitudinal perspective. In Section 4 we show that retirement is a gradual process for most individuals rather a discrete even occurring at a single date. We examine some of factors associated with the changes in individuals' economic well-being over a number of years around retirement. The dynamics of household income changes for people who retire are presented in Section 5. We also analyse which personal and household characteristics are associated with a higher risk of having low income in the years around retirement (where low income refers to the poorest third of the income distribution). Section 6 discusses the estimates of a multivariate probit model of the probability of entering low income at the time of retirement conditional on not having a low income before retirement, estimated separately for men and women. Section 7 concludes and discusses some directions for future research.

The UK pension system[1]

The UK pension system is based on two pillars, a public component and a private component whose importance has been growing more and more in the last thirty years. The public pension consists of two elements, the basic state pension and the state earnings related pension (SERPS). The basic state pension is a flat-rate payment that is paid to men aged sixty-five and over and women aged sixty and over. Entitlement to a full benefit requires forty-four years of contributions for men and thirty-nine for women. Coverage is almost universal because time spent in unemployment, illness, or disability counts in the same way as a contributory period (since 1978 the same is true for time spent looking after children).[2] SERPS was introduced in 1978 and provides an additional pension whose level is related to earnings during an individual's working life. The private element of the UK pension system is made up by occupational pensions and private pensions. Approved occupational pension schemes are provided by employers and typically represent a better alternative to SERPS for

[1] The description and the statistics that follow are taken from Blundell and Johnson (1999) and Department of Social Security Web site (http://www.dss.gov.uk).

[2] Older women are the exception. Blundell and Johnson (1999, p. 416) report that "fewer than 60 percent [of women over sixty] receive a full pension, and the majority of them do so only on the basis of contributions made by their deceased husband."

the worker, who has the option either to stay into SERPS or to contract out of the state scheme. Private pension schemes, sometimes known as personal pension schemes, may be joined by individuals who cannot contribute to an occupational pension. Since 1988, individuals who make enough contributions into a personal pension plan have been allowed to opt out of SERPS.

Currently about half of total income in retirement is made up by private pensions (occupational and personal pensions), on average. Moreover, of all workers with earnings above the level that makes them eligible to SERPS, more than three-quarters have contracted out into occupational and personal pension schemes, which offer higher earnings in retirement than the combined basic and SERPS pensions. In 1996, the mean occupational pension was about £90.00 per week, 50 percent higher than the basic state pension of £61.15 per week, which represented only 16 percent of average male earnings. Because the basic state pension is indexed to prices and not to earnings, its level relative to earnings is expected to decrease even further.[3] Access to occupational and personal pensions is therefore of crucial importance to secure a higher level of earnings in retirement than the one guaranteed by the social security system.

2. DATA AND DEFINITIONS

Our analysis is carried out using data drawn from the first seven waves of the British Household Panel Survey (BHPS) covering 1991-1997. The first wave of the BHPS was designed as a nationally representative sample of the population of Great Britain living in private households in 1991.[4] Original sample respondents (including both partners from a dissolved wave 1 partnership) have been followed and they, and their co-residents, interviewed at approximately one year intervals subsequently.[5] Children in original sample households are also interviewed when they reach the age of 16 years. Thus the sample remains broadly representative of the population of Britain as it changes through the 1990s.

[3] The minimum amount of income support (means-tested benefit) is higher than the basic pension. The poorest pensioners rely therefore on income support (plus housing benefits) instead of on the basic pension income.

[4] 'Great Britain' refers to England, Wales and Scotland. 'United Kingdom' refers to Great Britain and Northern Ireland.

[5] The achieved wave-1 sample comprises about 5,500 households, reflecting a response rate of about 65 per cent of effective sample size. At wave 1 over 90 percent of eligible adults, approximately 10,000 individuals, provided full interviews. The wave on wave response rate was about 88 percent for wave 1 to wave 2, over 90 percent thereafter, and 95 percent or more in the last couple of waves. For a detailed discussion of BHPS methodology, representativeness, and weighting and imputation procedures, see Taylor (1994) and Taylor (1996).

For the dynamic analysis, the subsample we focus on consists of the 720 individuals (321 men, 399 women) aged 50-69 years at the time of entering the panel (contributing 4,635 person-wave observations) who are observed to retire during the panel More specifically, these individuals were in a state other than 'retirement' when they entered the panel and are observed to make a transition into retirement. For our cross-section analysis in section 3, we consider instead all individuals who, in each wave, define themselves as 'retired'.

The definition of 'retirement' adopted in this paper is based on each individual's own assessment of his or her labour market status.[6] This is the definition adopted in many other studies, both in Britain (see e.g. the studies based on the Retirement Survey such as Tanner, 1997) and for other nations (see e.g. Oswald, 1999). The definition of retirement (and when retirement occurs) is of course not clear cut. At least three definitions of retirement have been used in the literature. One is to analyse individuals' self-reported job status (as we have). A second type of definition is a composite one, derived by looking, for example, at the number of hours worked and the job search activity. A third type of definition uses data about receipt of retirement pensions.

Each definition of retirement has advantages and drawbacks. The one based on self-reported working status does not take account of the fact that one person may be keen to define him or herself as 'retired', whereas other persons in the same circumstances might prefer to describe themselves as a 'family carer' or 'disabled'. The second type of definition also has some drawbacks. The definition of 'retired' as somebody who is working zero hours and/or is not looking for a job is a quite restrictive one (Tanner, 1997, reports that 24 percent of men and 26 percent of women who were working in 1994 considered themselves to be retired). Finally, information about pension receipt is potentially problematic if only because there may be delays between the time an individual retires and when s/he starts receiving the pension.

A further complication arises from the fact that 'retirement' need not be a discrete event happening at a single date, but may be a process that takes place over a period of time. This interpretation has been stressed by Quinn (1998) and is consistent with evidence that we provide later. Two main reasons underlie it. First, there may be a 'pre-retirement' transition period during which individuals voluntarily or involuntarily modify their job status. This may involve, for example, moving from a regular full-time job to a part-time job, or becoming

[6] We use BHPS variable wJBSTAT which classifies individuals' self-reported job status into the following categories: employed, self-employed, unemployed, family carer, retired, long-term sick or disabled, on maternity leave, full-time student, on a government training scheme, or 'other'.

unemployed or disabled and, as a consequence, opting for entering (early) retirement. Second, persons living together as partners may synchronise their retirement decisions, i.e. one person may retire and his partner then retires also within a short delay (because, for example, of complementarity in their leisure times). Even when, strictly speaking, retirement is a discrete change of status for both partners, it need not be for the household as a whole.

The economic well-being of individuals is measured throughout the paper in terms of income. More specifically, and following conventional practice, each person's economic well-being is measuring by the equivalised real annual net household income of the household to which she or he belongs ('income' for short). Household income is defined as the sum of cash income from all sources: labour market earnings from employment and self-employment, investment and savings income, occupational and private pensions, plus all cash benefits from the government (including retirement pensions), minus direct income taxes and social security contributions. Income refers to annual income, for which the reference period is the twelve months interval up to September 1st of the year of the relevant interview.[7] Net annual income data are not directly available: the focus of the BHPS's questions is current incomes. Annual incomes have been estimated from this information combined with monthly data about the receipt of different income components and the work status of each household member during the reference period. Income taxes and the National Insurance contributions paid in the reference period have been estimated from a simulation model. For further details about the derivation of BHPS net household income variables, see Bardasi et al. (1999).

To take account of differences in household size and composition, all incomes have been adjusted using the 'McClements Before Housing Costs' equivalence scale (the semi-official UK one—see Department of Social Security, 1998). For real income comparisons over time, income has also been adjusted to a common date using a suitable monthly price index.

3 THE INCOMES OF THE RETIRED: CROSS-SECTIONAL EVIDENCE

Being retired is clearly associated with a higher probability of being in a low-income group. Table 1 reports the percentages of retired people who are in the bottom part of the income distribution in the years covered by the BHPS (1991 to 1997) and compares them with the corresponding estimates for non-retired adults and workers.

[7] For example, annual income for wave 7 refers to the period 01.09.1996 until 31.08.1997.

We used three different definitions of a 'low income' threshold: the bottom quintile and the 33rd percentile of the distribution, and the two-thirds of median 1991 real income. The first definitions change in value over time with secular growth in real incomes, whereas the third definition is fixed in value. The percentiles refer to the distribution of annual net household income among all persons in the population (including children).

The top panel of Table 1 shows the percentage of persons in each low income group for the pooled sample (men and women combined). Regardless of which of the three definitions is used, the percentage of retired people who are in the low income group is much higher than the corresponding percentages for the non-retired and (especially) for the workers. In 1997, for example, 23 percent of the retired people are in the poorest fifth, compared with 16 percent of the non-retired adults and 8 percent of the workers. The figures are very similar if we look at the two-thirds of 1991 median real income. Taking instead the bottom third of the distribution as a definition of low-income, 45 percent of retired are 'poor' compared with 26 percent of the non-retired and 17 percent of the workers. In general, the relative position of the retirees with respect to the other groups appears to improve slightly over the seven years.

<Table 1 near here>

In the second and third panel of Table 1 separate percentages for men and women are reported. The percentages computed using the first two definitions of 'low income' are illustrated in Figure 1. The proportion of retired people in the bottom group of the income distribution decreases over time whether one considers the bottom fifth or the bottom third, for both sexes.[8] A higher percentage of retired women live in poor households than men; however, women have experienced a more constant downward trend in low income incidence over the period 1991-97.[9]

Two not necessarily rival explanations are compatible with the decrease in the proportion of retired among low-income people. On the one hand, there might have been a genuine increase in the living standards of retired people relative to the rest of the population.

[8] The decrease in the percentage of retired people—as well as not retired and workers—below 2/3 of 1991 median is expected as a result of the growth of real income over time. However, even when adopting this fixed low income threshold, the percentage of retired who are poor decreases faster than for the other groups.

[9] The decrease in the percentage of retired people in the bottom group of the income distribution is significant for both men and women. The percentage of retired men is significantly lower in 1997 than in 1991 at the 10% confidence level if we consider the poorest fifth, and at the 5% confidence level if we consider the poorest third. The analogous differences for women are significant at the 5% and 1% confidence level respectively.

On the other hand, cohort effects may have been at work. If the inflow of youngest retirees enjoyed better retirement conditions than the older cohorts we would expect to observe a downward trend in the percentage of retired people in the poorest group as the one displayed in Figure 1 without any 'real' improvement occurs for the oldest cohorts. In order to assess the two explanations, we computed the percentages of retired people in the bottom fifth and in the bottom third of the income distribution for four separate cohorts.[10] The results are shown in Figure 2. Older cohorts were always poorer than younger cohorts, irrespective of the choice of the 'low income' definition. This is true for both men and women. However, the income of older cohorts appears to have improved over 1991-1997, more than it did for younger cohorts. Even if cohort effects are part of the explanation of the observed downward trend in poverty incidence among retired, an increase in income of all retired people relative to the rest of the population did occur.

<Figures 1 and 2 near here>

Not only do retired people have lower incomes that the rest of the population on average, but the composition of their income also differs. Table 2 shows the shares in total household income of various income sources, contrasting the retired, non-retired and workers. (The numbers reported in the table are averages derived from pooling data for seven waves.)[11] Pensions and benefits make up more than 80 percent of the household income of retired people.[12] Investment income is also important for the retired, representing 9 percent of their total household income. Not surprisingly, the pattern is reversed for workers, among whom for example labour earnings comprise 86 percent of total household income on average. For retired women benefit income represents a bigger share of household income than it does for retired men (64 percent vs. 55 percent); on the other hand retired men rely on pension income more than women do (27 percent vs. 21 percent). This is because men are more likely than women to be entitled to an occupational or private pension. Investment income is also more important for men (10 percent) than for women (8 percent).

<Table 2 near here>

[10] Because of sample size limitations we were only able to divide the sample in four cohorts, those born before 1915, between 1915 and 1924, between 1925 and 1934, and those born after 1934.

[11] Earnings are net of social security contribution and income taxes. Patterns are very similar if gross earnings and net taxes (income taxes *minus* social security contributions) are separately considered.

[12] Occupational and private pensions are recorded under 'pension income', while National Insurance (public)

4. RETIREMENT AS AN EVOLVING PROCESS: LONGITUDINAL EVIDENCE

Moving now to a longitudinal perspective, we wish to assess how much the event of 'becoming retired' is associated with a greater risk of being in the bottom part of the distribution. In other words, we address the issue of the short-run effects of retirement on the position of the individual in the income distribution. In particular, we want to find out which individual and household characteristics are more likely to increase the risk of 'becoming poor' following retirement.

Figures 3 shows how the composition of household income of people who retire evolves in the years around retirement.[13] For both men and women, the decrease in the mean, the median and the 33rd percentile of the distribution—prior to the year of retirement (year '0')—indicates that the incomes of retirees worsens progressively rather than via a discrete change. The largest income fall occurs between the year before retirement (year '-1') and the retirement year (this is true especially for men), followed by another substantial decrease in the subsequent year. Thereafter, income appears to stabilise at a lower level.[14]

<Figure 3 near here>

The movement into retirement is also accompanied by changes in household income composition: see Figure 4. Entry into retirement involves for both sexes a progressive replacement of labour earnings with income from pensions, benefits and investments and saving. The decrease over several years of the importance of earnings and their replacement with pensions and benefits supports the interpretation of retirement as an evolving process, rather than a discrete change in status at one date. The patterns reported, however, differ for men and women. Although income packaging is similar both four to five years prior to retirement and four to five years after retirement, the evolution in between is different. For men, there is a sharp decrease in the earnings share that occurs between one year before and one year after retirement. For women, the falling in the earnings share begins some years before retirement, is more gradual, and lasts longer.

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pensions are included among 'benefit income'.

[13] Of those individuals who make a transition into retirement, only 291 men and 350 women have a non-missing income in the year of retirement and 273 men and 336 women in the year before. In the other years, in addition to the problem of missing values for income, some individuals may not be observed.

[14] A stable real income corresponds to a decline in income relative to the population as a whole, because the real incomes of the working population continue to grow as national income grows.

<Figure 4 near here>

What explains the difference between men and women in the changes in income composition around retirement? There are several potential answers. First we can investigate what happens to individuals' work status in the years immediately before retirement. It might be that a transition directly from a full-time job into retirement—which would characterise retirement as a strong and dramatic change in status—is only one of many different options available to the individual. For example, it is possible that, when approaching retirement, workers voluntarily decrease their working hours, moving from full-time jobs to part-time ones. Or it may be that retirement is involuntary, and the consequence of, say, becoming unemployed or disabled late in life, when chances of re-employment are low.

Figure 5 investigates this issue by contrasting the changes in work status in the three years before retirement for men and women. To provide a reference point, the proportions of non-retired adults in each of the work status groups are represented in the first group of bars of each graph.

Three years before retirement, 53 percent of men were full-time employees. This percentage sharply decreased in the subsequent two years, and one year before retirement only 37 percent of men were in full-time paid work. At the same time, the percentage of men close to retirement who worked part-time is three times larger that the proportion working part-time among the population as whole. This suggests that a movement into part-time work might have already occurred in the earlier years (if we rule out cohort effects, and they are unlikely). Moreover the proportion working part-time was still increasing immediately before retirement. Interestingly the unemployment rate amongst those who retire was also particularly high in the year before retirement (some 10 percentage points higher than the preceding year). Also high in that year was the percentage of individuals who reported themselves to be disabled (more than 25 percent, 6 percentage points higher than the preceding year). In sum, for men, there is evidence of both a voluntary reduction in hours and of an involuntary change in status towards unemployment and disability that is likely to motivate the decision to retire.

<Figure 5 near here>

For women, the situation is similar, but there are interesting differences. Three years before retirement only 22.5 percent of women were full-time employees, compared with 36

percent of the non-retired female population. However, the percentage working part-time was very high, 31 percent, indicating that, even for women, a progressive movement into part-time is likely to have taken place in earlier years (again, if we exclude the existence of cohort effects). However, the incidence of unemployment and disability does not appear to have been particularly higher for women approaching retirement compared to non-retired women, nor did these rates display a clear increase in the years immediately before retirement.

The main pre-retirement status for women is 'family carer'. About 28 percent of women are out of the labour market as family carer three years before retirement. By one year before retirement this percentage increased to more than 42 percent, about twice as much higher than for the non-retired women. This change in status is likely to be involuntary (women losing their job are probably exiting directly the labour market before entering retirement). At the same time, the status of 'family carer' does not entitle women to get the same benefits as received by the unemployed and disabled men, and therefore places them in a weaker financial position immediately before retirement.

A second hypothesis about what causes a decrease in income prior to retirement is related to the 'synchronisation' of retirement of husbands and wives. Since we summarise each individual's economic well-being in terms of the total income of the household to which he or she belongs, individual well-being is affected not only by direct changes each person's own status, but also by what happens to other individuals inside the household. In particular, there are reasons to believe that the retirement decisions of marital partners are linked. This may be because husbands and wives are likely to be approximately the same age (the man is older on average, but the retirement age for men is higher than for women—65 for men and 60 for women). Or because the decision to retire by one partner may influence the other partner's decision to retire.[15]

Evidence of synchronisation of the retirement decisions of the couple is presented in Figure 6. The top graph represents how the working status of the wives of all married men who retire at time 0 changes in the years around husbands' retirement year. The bottom graph looks instead at the husbands' working status around the retirement year of all married women. Wives retire later than husbands on average. By the time men retired, only 36 percent of their wives had already retired (top graph, percentage of retired wives at time 0), whereas by the time women retired, 59 percent of their husbands has already done so (bottom graph, percentage of retired husbands at time 0). This may result not only from the wife being younger than her husband on the average, but also from wives following the decision of their

husbands. In the two years that precede women's retirement, more than 20 percent of their husbands entered retirement (see bottom graph: the percentage of husbands who are retired goes from less than 40 percent in the second year preceding retirement to 59 percent in the retirement year). In general, although it is not possible to distinguish between 'age effects' and true 'co-ordination effects', the Figure shows that for both men and women a high degree of synchronisation of retirement exists and that husbands are more likely to retire slightly before their wives.[16]

<Figure 6 near here>

5. CHANGES IN LOW INCOME INCIDENCE AMONG PEOPLE WHO RETIRE

Decisions about retirement timing and synchronisation by people who retire also affect the evolution of their incomes, and in particular their risk of having a low income. Evidence about changes in low income incidence over the years before and after retirement is presented in Figure 7.

The top graph shows the percentage of all who retire (in year '0') that were in the poorest third of the income distribution each year, from five years before retirement until five years after retirement (year '-5' through year '+5'). The 'poorest third' is defined with reference to distribution for all persons in the relevant year. Five years before retirement, 27 percent of retirees were in the bottom third of the distribution. This percentage increased substantially over the period between the year before retirement and the year of retirement. After retirement, the percentage of 'just-retired' people with low income increases progressively, so that five years after retirement 43 percent of retirees were in the poorest third of the population. This result is consistent with the cross-sectional evidence reported in Table 1, namely that, at a point in time, being retired is associated with a higher probability of being in the bottom third of the income distribution. Moreover, the rate of low income incidence five years after retirement, 43 percent, is in line with low income incidence percentage among all retired people (without conditioning on timing of entry into retirement).

[15] Tanner (1997) finds some evidence supporting a joint retirement behaviour of the two partners.

[16] The robustness of the results presented in both Figure 5 and Figure 6 has been assessed using only a sample of individuals always present in all years (from -3 to 0 in case of Figure 5 and from -2 to +2 in case of Figure 6). Given that no substantial differences arise when restricting the sample in such a way, the results based on the broader sample have been presented.

<Figure 7 near here>

The remaining two graphs in Figure 7 provide breakdowns by work status before retirement and sex. As far as work status before retirement is concerned, we classified individuals into three groups according to their status in the year prior to retirement (year '-1'): full-time employment, part-time employment, and 'other', where the latter group includes people who were unemployed, disabled, or family carers.

Among those who were full-time workers in the year prior to retirement, only a small percentage had a low income prior to retirement. Retirement for this group is a discrete change in status and is associated with a large increase in the probability of falling into the bottom third of the distribution in the year of retirement and immediately thereafter. However, low income incidence for the formerly full-time workers is always lower than for individuals that were in other work statuses before retirement.

The incomes of those who worked part-time in the year prior to retirement deteriorated in a more steady and gradual way, beginning from the years preceding retirement. The 'other' group did not experience an increase in low income incidence following retirement. More than 46 percent of them were already in the bottom third of the distribution before retirement, so it is difficult for retirement to make matters worse.

Contrast now the experience of men and women. For men there was a sharp increase (of 10 percentage points) in the proportion in the bottom third of the distribution between the year prior to retirement and the year of retirement.[17] For women the increase is instead more gradual over the interval before and after retirement (of 3-5 percentage points in each year from year '-2' until year '1').

The different patterns for men and women are coherent with the findings reported earlier. Since men typically retire before women do, the decrease in the household income for women occurs before their own retirement, whereas for men this is less likely to be the case. Moreover, because women are more likely than men to work part-time or to be family carers, the retirement of a wife generally has a smaller impact on household income than the retirement of the husband does. Another reason why we expect retirement of a wife to decrease household income less on average than does a husband's retirement is the fact that women—even if they work full-time—are likely to earn less than men. Finally we have also

[17] This is consistent with Webb's (1997) finding of a discrete change in male earnings in the run-up to retirement.

seen that immediately before retirement, men are more likely than women to move into work statuses (e.g. unemployed and disabled instead of family carer), that are more 'rewarding' in terms of benefit eligibility. In sum men who retire are in general less likely to be poor than women who retire, and retirement has a larger association with a rise in low income propensity.

There is of course a whole range of personal and household characteristics that are related to the probability of becoming poor following retirement in addition to work status and sex. Table 3 contrasts low income incidence rates, in the years before retirement and in the retirement year, across various groups of individuals classified according to a range of attributes that are likely to be associated with different probabilities of becoming poor following retirement.

<Table 3 near here>

The numbers reported in Table 3 correspond to the ones reported in the top graph of Figure 7 for the year before retirement (year '-1': 26 percent of all those who retire are poor the year before retirement) and the retirement year (year '0': 33 percent of all those who retire are poor in retirement year), except that in Table 3 the sample is restricted to those people who were present both at time -1 and at time 0.[18] The interpretation of the estimates is exactly the same as in Figure 7, i.e. these are percentages of individuals of each respective group that are in the bottom third of the annual net household income distribution for the whole population in the year before and the year of retirement. The third column of Table 3 shows the 'flow' into low income, where this is defined as the percentage of individuals who were not in the poorest third the year before retirement who were in the poorest third at time 0.

The analysis reported in Table 3 is restricted to what happened from one year before retirement to the retirement year. We are aware—and presented evidence in Figures 3 to 7—that income changes occur over a period around retirement that is longer than one year. However, for the purposes of the multivariate analysis (reported below), we need to define the period over which people are at risk of becoming poor following retirement, and the most appropriate interval to us was that from time –1 (one year before retirement) to time 0 (the retirement year). This choice allows us to use a larger sample and, in any case, the results do

[18] This restriction, needed to undertake the multivariate analysis (reported below), does not seem to affect the results in any way. There are similar results compared to Table 3 computed using the whole sample of people who retire. Compare for example the percentages 23 and 29 at time -1 and 33 and 32 at time 0 for men and women respectively reported in Figure 7 with the analogous figures of 23 and 28 one year before retirement and 32 and 32 in retirement year reported in Table 3.

not change substantially if we analyse the changes between e.g. time -1 and time +1.

In Table 3 we compare individuals classified by characteristics such as age, membership of an occupational pension scheme, partnership status and whether the partner is in employment or not, disability status, and housing tenure.

The association between age at the time of retirement and the probability of becoming poor following retirement is unclear a priori. Because our sample of people who retire is already restricted to those aged 50-69 years, the most interesting distinction is between those who retire early, i.e. before the age of entitlement for the state retirement pension (60 for women and 65 for men), and those who retire at this age or later. Earlier research has shown that those who retire significantly before state pension age are more unlikely to have an occupational pension scheme. However persons with an occupational pension scheme tend to retire a little before the official retirement age (Oswald, 1999). Moreover early retirement does not necessarily indicate that retirement was a voluntary choice. On the contrary, individuals who experience periods of unemployment or disability may retire 'involuntarily' before retirement pension age. From Table 3, it appears that those who retired early were less likely to be in the poorest third of the distribution before and after retirement. (Observe however that the increase in the percentage with low income between the two time periods is similar for both the early and non-early retired.)

Current or past membership of an occupational pension scheme is associated with a considerable reduction in the probability of having a low income, both before and after retirement.[19] This variable is an indicator of the 'quality' of the pre-retirement job. Jobs that offer an occupational pension scheme are usually good quality jobs. Also an occupational pension generally guarantees a higher income after retirement than reliance on the state retirement pension alone would.

Not surprisingly the presence of an employed partner in employment is associated with a considerable decrease in the percentage of retirees in the poorest third of the income distribution. And the absence of the partner is associated with dramatically higher chances of being poor. Those people with a partner but not one who is in employment have an in-between low income incidence. (The non-working partner may be retired or entitled to

[19] The occupational pension variable has been derived from responses to two questions. Workers are asked if they have contributed to an occupational pension scheme. This information is available for every individual who worked at least once while observed in the panel. Moreover, once the individual has retired, the source of his or her pension is recorded. Hence individuals who declare that they are receiving an occupational pension must have been members of an occupational pension scheme. The only case in which an individual may erroneously not be detected as a member of an occupational pension scheme is when she or he was never observed as working during the panel and does not receive the occupational pension immediately after retirement.

benefits.) Individuals living in owner-occupied housing have lower rates of low income incidence than do people in rented accommodation, especially compared to people living in social housing. This latter group is more likely than any other group to be in the bottom part of the distribution, before and after retirement. Disabled people—those who report having an impairment that limits their daily activities—are more likely to be in the poorest third of the income distribution than the non-disabled before retirement, but there are no substantial differences after retirement.

6. THE PROBABILITY OF BECOMING POOR ON RETIREMENT: MULTIVARIATE ANALYSIS

We have estimated probit models of the probability of becoming poor (being in the poorest third of the distribution) in the retirement year (year '0') conditional on not being poor in the previous year ('-1'). These multivariate models have been estimated separately for men and women, and the results are presented in Table 4.[20] The table reports the estimated marginal effects of each regressor variable, defined as percentage point change in the poverty entry probability associated with a ceteris paribus change in the value of the relevant binary regressor variable from 0 to 1, plus their associated standard errors and level of statistical significance.

The explanatory variables in the models are the characteristics which were presented in Table 3, plus categorical variables summarising an individual's highest educational qualification (which may also be a proxy for previous occupation and skill level), and the geographical region within which the individual lives. The values of each variable refer to those for the year prior to retirement ('-1').

<Table 4 near here>

The set of statistically significant associations differs for men and women. In the model for men, only a few variables are statistically significant, namely pre-retirement work status and partner's work status. Having been a full-time employee in the year before retirement is associated with a large decrease in the probability of becoming poor following retirement (25 percent points smaller). By contrast, individuals whose partner was not in

[20] The same specification as presented in Table 4 was also estimated for the pooled sample of men and women. We rejected this in favour of the model stratifying by sex using a standard likelihood ratio test.

employment have probability of becoming poor some 16 percentage points larger than otherwise individuals with an employed partner. For a man, a partner who is not in employment is likely to be a family carer, and less likely to be entitled to benefits in their own right (which may explain the higher entry probability). Finally, having educational qualifications to O-level standard is associated with a reduction in the probability of becoming poor (though statistically significant only at the 10 percent level) relative to individuals with no qualifications. These results for men are broadly in line with expectations. As the earlier analysis suggested, it is being in full-time employment which is, for men, of crucial relevance to becoming poor.

For women, there is a greater number of regressors that are statistically significant, and these differs from those in the model for men. Living in social housing is associated with a large increase in the probability of becoming poor following retirement (some 22 percentage points higher than owner-occupiers). This is not surprising, given that social housing is likely to be a general proxy for a weak household income potential. Members of an occupational pension scheme have lower chances of becoming poor on retirement that non-members (coefficient significant at the 10 percent level). One needs to remember however that occupational pension membership is much less common for women than for men.

Women who retired before the state pension age have a more than 10 percentage point higher chance of becoming poor compared to those retiring at or after that age. This result is the opposite of what our earlier bivariate analysis suggested (see Table 3). However, Table 4 controls for other factors such as occupational pension scheme membership, and the effect of age is strictly related to this other variable. The 'genuine' effect of age revealed in the multivariate analysis may reflect some involuntary mechanisms that push women to retire earlier than the official age (when the amount of pension is lower than could potentially be). There are statistically significant differences in the chances of becoming poor on retirement which are related to the region in which women live. Compared to women who live in London, those living in the South-East, in the East and West Midlands and in the North-West, Yorkshire and the North-East all have lower probabilities of becoming poor.

7. SUMMARY AND CONCLUSIONS

The existence of high poverty rates among the elderly has been broadly documented in the British literature, but mainly on the basis of cross-sectional data sources. By contrast, income

dynamics around the time of retirement have received little attention. This paper has gone some way towards filling this shortfall.

We have shown that, on average, retirement is strongly associated with a decline in individuals' economic well-being. This was observed not only for the year of retirement, but also in the years around retirement, in particular the years before. Retirement may therefore be described more appropriately as a 'process' rather than a discrete change in status at one point in time. The increased risk of low income incidence associated with retirement differs between men and women, and varies according to the working status of the individual before retirement. Different paths into retirement produce different outcomes in terms of household income. We have seen, for example, that retirement represents a marked change in status and in income for full-time workers (even though this group experiences a smaller low income risk than other groups, both before and after retirement).

Changes in work status in the years before retirement are a common experience for many individuals. Moves from full-time to part-time work or from full-time to unemployment or disability prior to retirement are associated with subsequent income changes. Low income incidence among those who are unemployed or disabled immediately before retirement is higher than among part-time and especially full-time workers.

Moreover outcomes for women and men differ because of differences in pre-retirement work experience and work status changes. Our multivariate analysis has shown that, for men, having worked full-time has by far the strongest association with lower probabilities of entering the poorest third of the income distribution on retirement. By contrast, the previous work status is not as relevant for women, but a different and broader set of variables appear to be significantly associated with the probability of having low income on retirement. In particular, living in social housing, not being a member of an occupational pension scheme, retiring before the state pension age are all factors that are associated with a higher risk of becoming poor.

This paper has shown that analysis of the 'paths' or 'routes' into retirement is informative in understanding movements into low-income following retirement. However we have only examined this over a few years prior to retirement (utilising BHPS panel data). One promising direction for future research would be to also utilise the BHPS retrospective work and job history to extend our observation window on individuals' working lives back over much longer periods.

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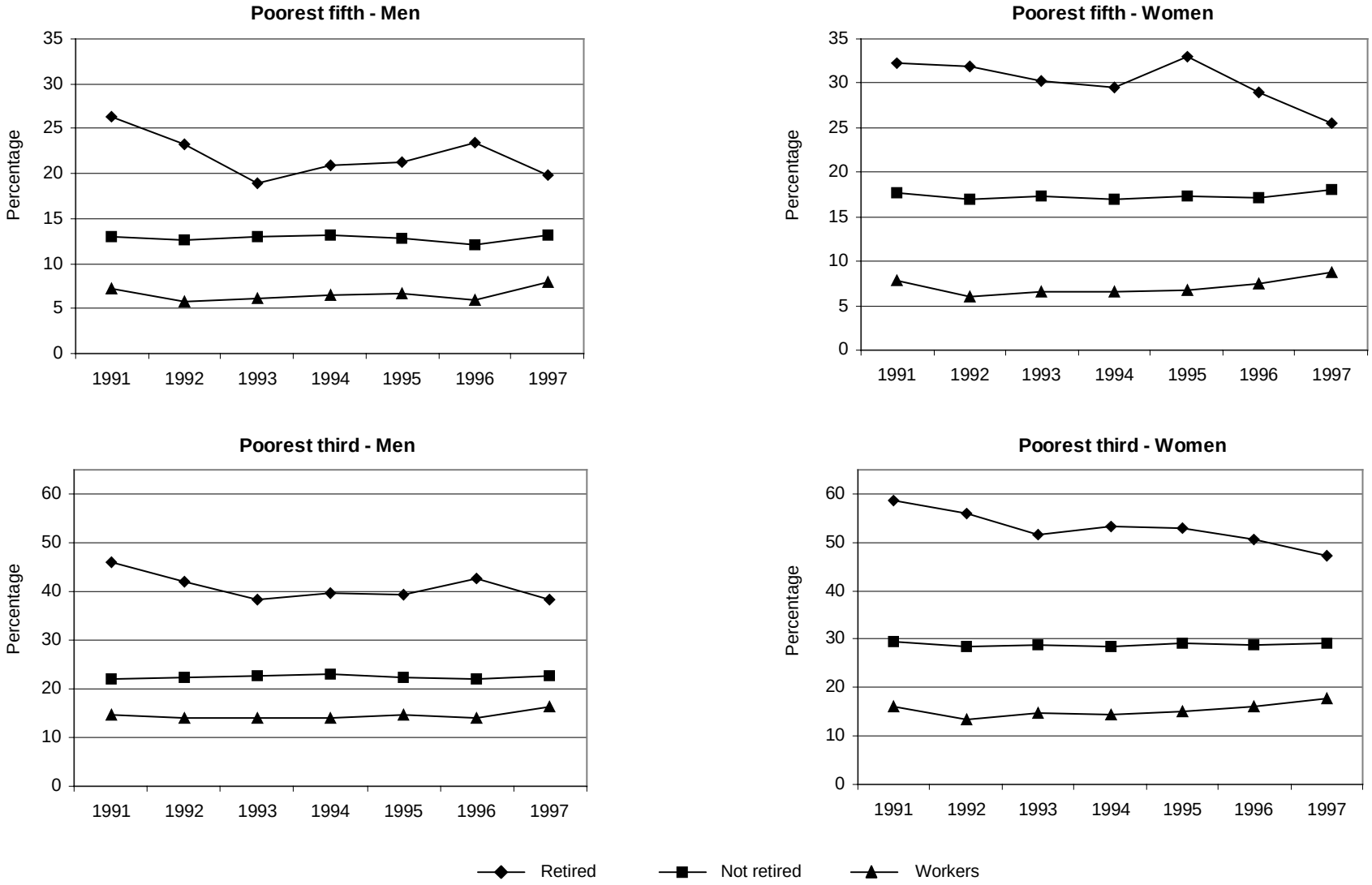
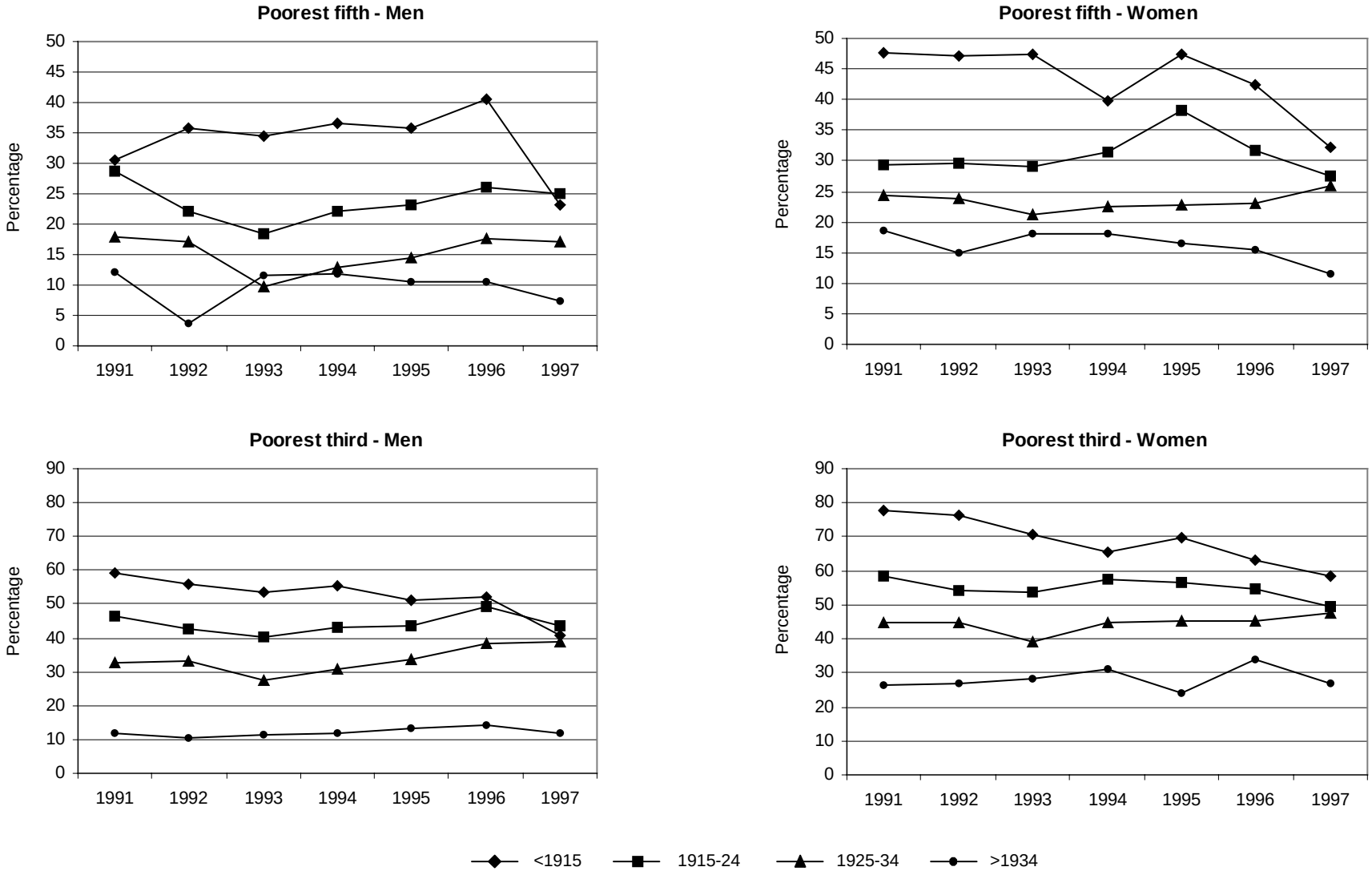
Figure 1. Low income incidence – cross-sectional comparisons of retired people with non-retired adults and workers



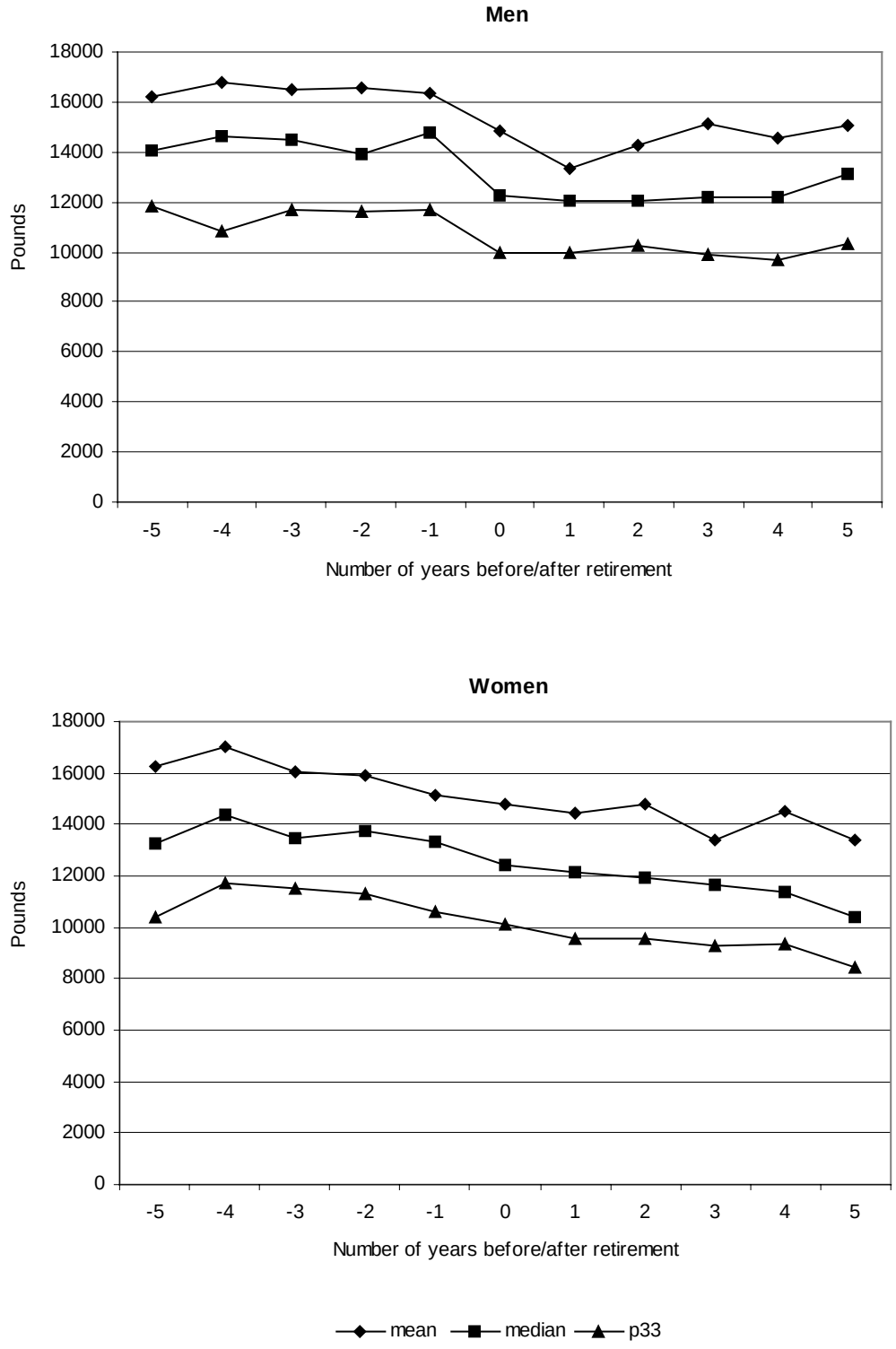
The graphs show the percentages of retired, non-retired, and working adults in the bottom fifth and the bottom third of the income distribution in each year.

Figure 2. Low income incidence – percentage of retired people in the poorest fifth and the poorest third of the income distribution, by age cohort.



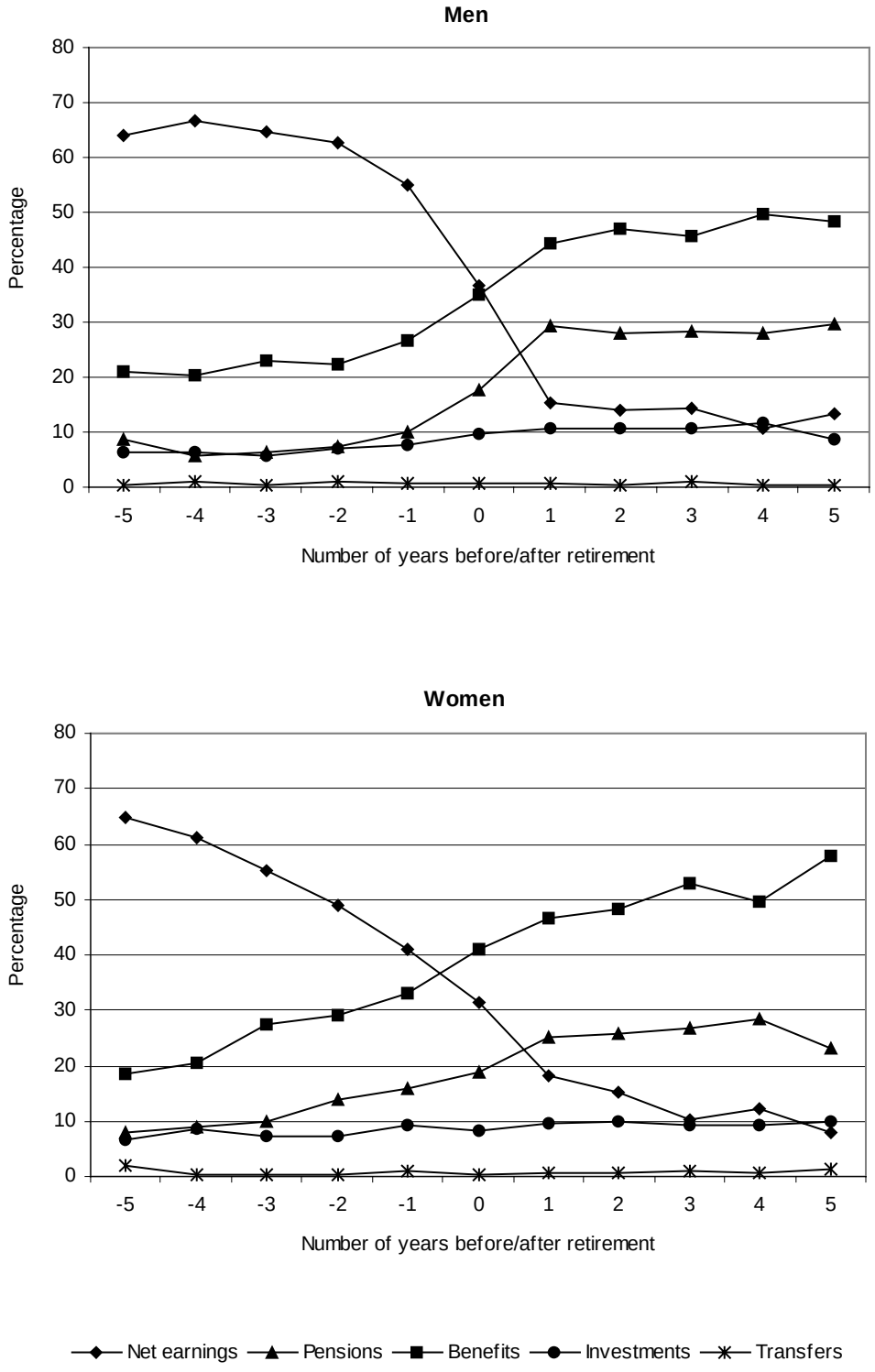
The graphs show the percentage of retired people of each cohort that are in the bottom fifth and the bottom third of the income distribution in each year.

Figure 3. Income by year, relative to retirement year: mean, median and 33rd percentile.



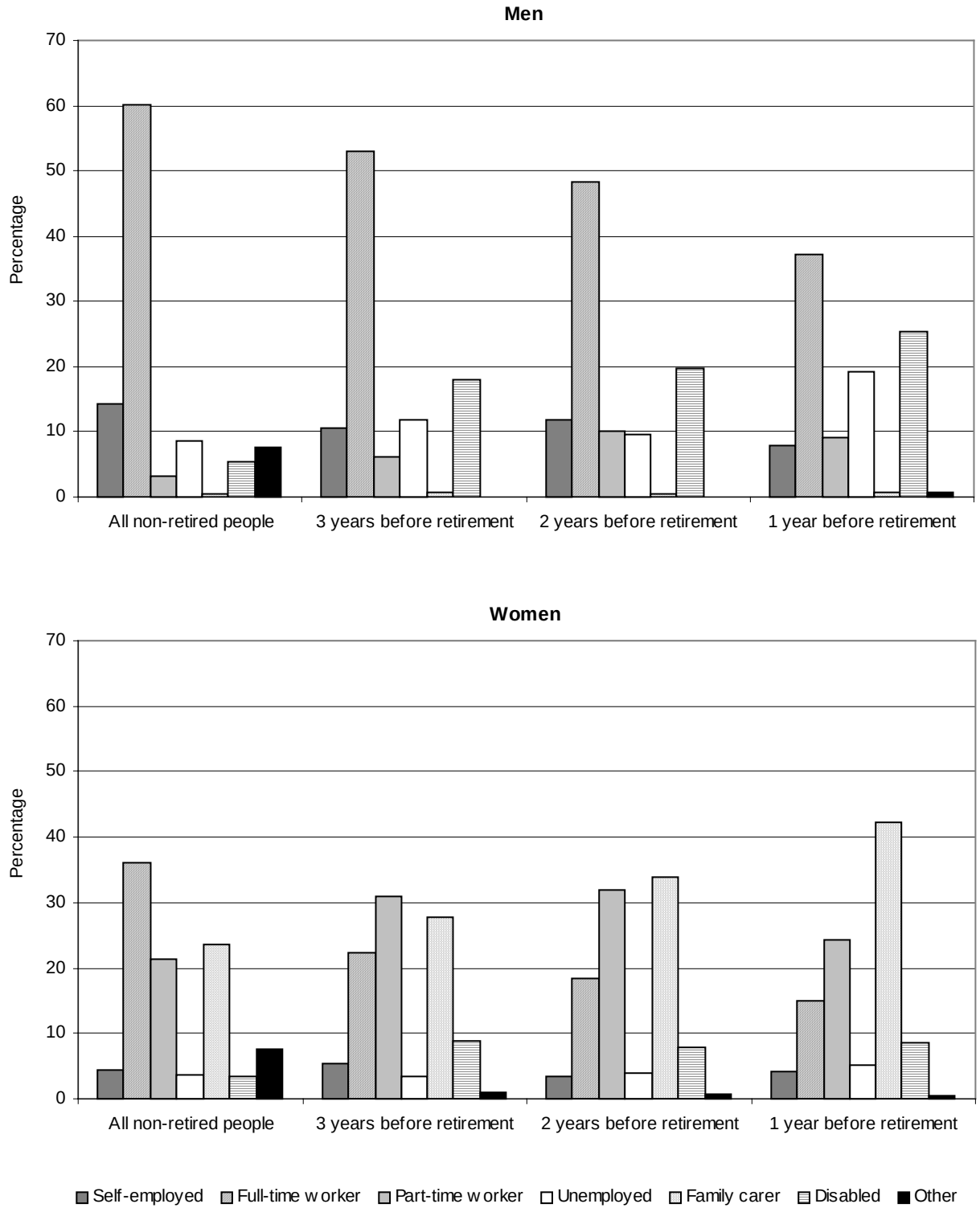
The year of retirement is year '0'. Income is needs-adjusted annual net household income (using the McClements Before Housing Costs equivalence scale). Mean, median, and 33rd percentile refer to the distribution of annual net household income of all persons in the population (adults and children) and are calculated for each year separately.

Figure 4. Composition of income by year relative to retirement year.



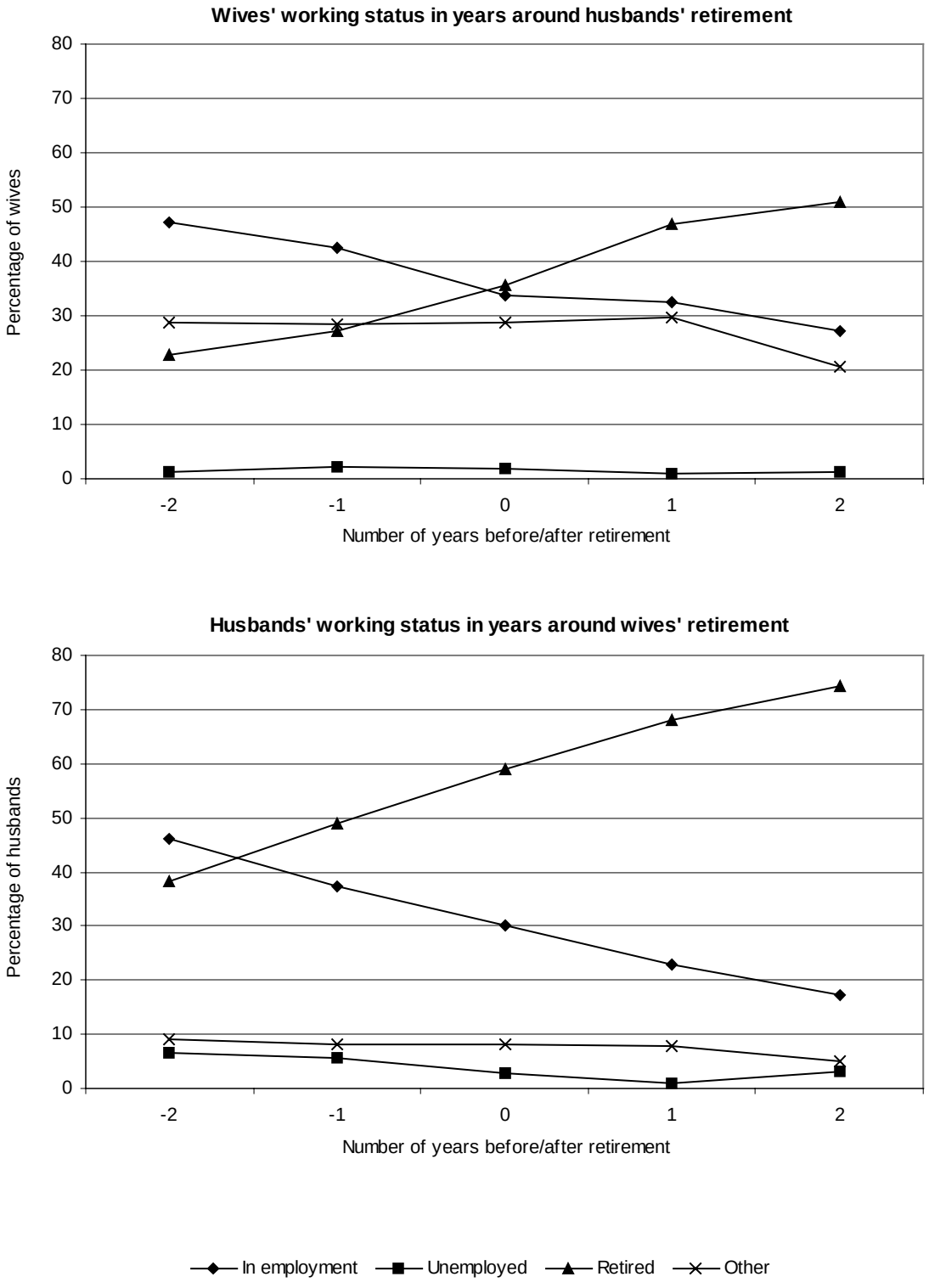
The year of retirement is year '0'. Income is needs-adjusted annual net household income (using the McClements Before Housing Costs equivalence scale). Percentages are computed over total income for each year separately. Net earnings are defined as gross earnings *minus* income taxes *minus* social security contributions. Occupational and private pensions are included in "pension income". National insurance pensions are included in "benefit income".

Figure 5 – Working status of people who retire in the three years before retirement, compared with working status in the overall population, by gender



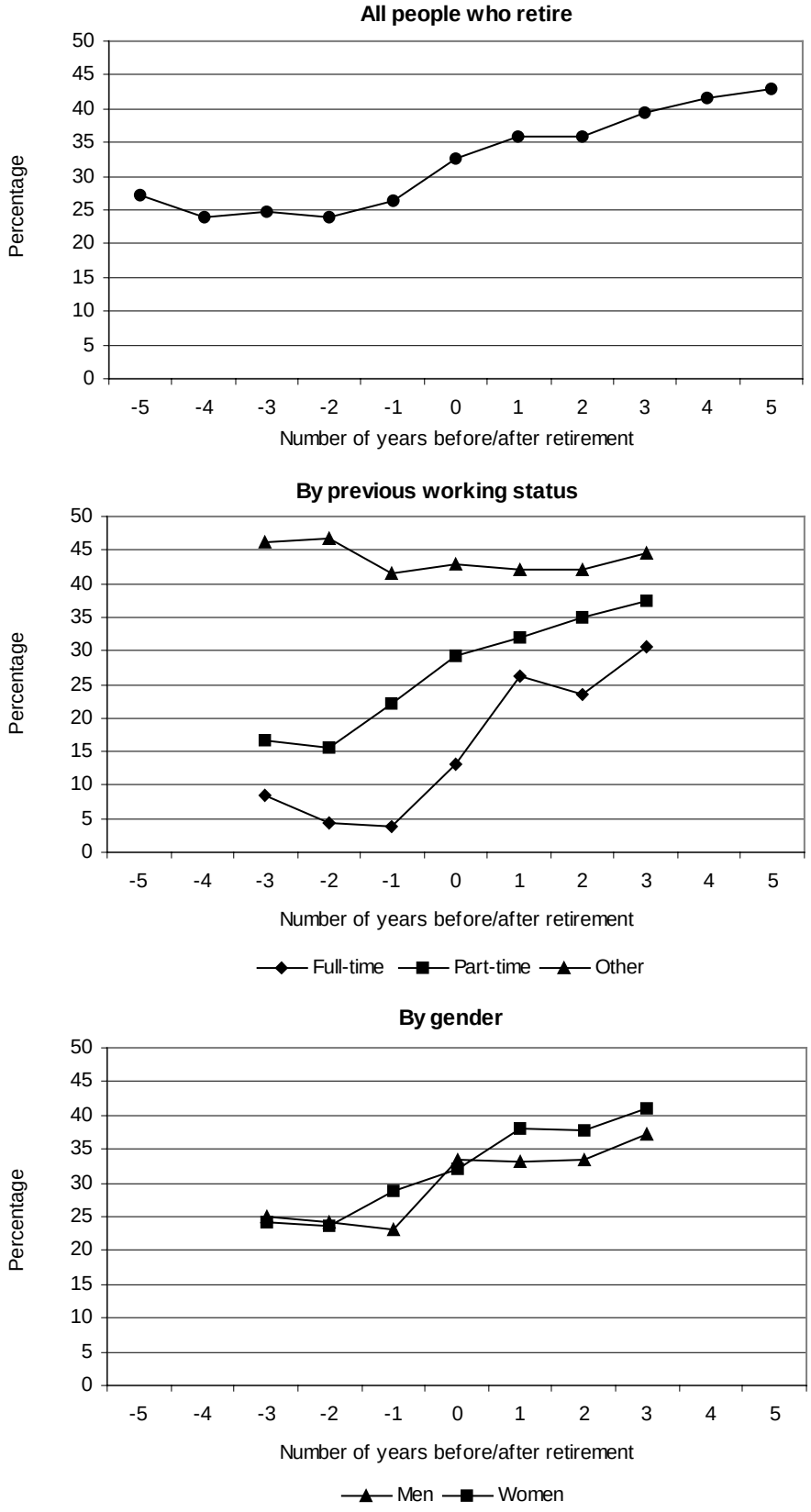
For each subgroup ('All non-retired people', '3 years before retirement', '2 years before retirement', '1 year before retirement'), the height of a bar indicates the percentage of the group with the specified work status.

Figure 6. Partner's working status in the years around retirement



The year of retirement is year '0'. The sample for the top graph is restricted to all married men who retire at 0. The sample for the bottom graph is restricted to all married women who retire at 0.

Figure 7. Low income incidence in the years around retirement – all retirees, and by previous working status and by gender.



The year of retirement is year '0'. The graphs show the percentage of persons with low income within each group. Low income is defined as being in the poorest third of the income distribution.

Table 1. Cross sectional comparisons of low income incidence: retired people, non-retired adults, and workers

	Poorest fifth			Poorest third			Below 2/3 of 1991 median		
	Retired	Not retired	Workers	Retired	Not retired	Workers	Retired	Not retired	Workers
All									
1991	29.9	15.4	7.6	53.5	25.9	15.4	36.8	17.8	9.1
1992	28.1	15.0	5.9	50.0	25.6	13.7	34.2	17.7	7.8
1993	25.7	15.2	6.3	46.1	25.8	14.4	31.2	18.1	8.1
1994	26.0	15.1	6.5	47.7	25.9	14.2	31.9	17.4	7.9
1995	28.3	15.1	6.7	47.3	26.0	15.0	29.7	16.0	7.4
1996	26.7	14.7	6.7	47.4	25.5	15.0	30.0	15.8	7.4
1997	23.2	15.7	8.4	43.7	26.0	16.9	23.8	15.9	8.5
Men									
1991	26.4	12.9	7.3	46.1	22.1	14.7	31.5	15.0	8.8
1992	23.3	12.7	5.8	42.0	22.3	14.0	27.8	15.2	8.0
1993	19.0	12.9	6.1	38.2	22.6	14.1	24.0	15.5	7.8
1994	21.0	13.2	6.5	39.6	23.0	14.1	26.2	15.3	7.8
1995	21.3	12.8	6.6	39.4	22.5	14.7	22.7	13.6	7.3
1996	23.5	12.1	6.0	42.6	22.0	13.9	26.8	13.0	6.7
1997	19.8	13.1	8.0	38.5	22.7	16.3	20.3	13.2	8.1
Women									
1991	32.3	17.7	7.9	58.7	29.4	16.1	40.6	20.4	9.4
1992	31.9	17.0	6.1	56.1	28.6	13.4	39.1	20.0	7.7
1993	30.2	17.3	6.5	51.5	28.7	14.8	36.1	20.5	8.6
1994	29.5	16.9	6.5	53.4	28.4	14.4	36.0	19.3	8.1
1995	33.0	17.3	6.8	52.8	29.1	15.2	34.6	18.3	7.4
1996	28.9	17.1	7.5	50.6	28.7	16.2	32.1	18.4	8.2
1997	25.5	18.1	8.8	47.1	29.1	17.7	26.1	18.4	9.1

Figures indicate the percentage of retired, non-retired and working adults in the bottom part of the income distribution. Income is needs-adjusted annual net household income (using the McClements Before Housing Costs equivalence scale). The percentiles refer to the distribution of annual net household income of all persons in the population (adults and children). They have been calculated using the BHPS cross-sectional enumerated individual weights. Definition of "retired" and "worker" is based on self-assessment (variable JBSTAT). The sample includes everybody who is in the relevant categories in the corresponding year. 1991 median income (equivalised and deflated to Jan 1998 prices) is £12468.

Table 2. Composition of income for retired, not retired and working adults (row percentages)

	Net earnings	Pension income	Benefit income	Investment income	Transfer income	
All						
Retired	7.7	23.1	59.8	9.0	0.4	100.0
Not retired	73.3	2.8	18.1	3.8	2.0	100.0
Workers	85.8	2.0	7.8	3.5	0.9	100.0
Men						
Retired	8.3	26.5	54.6	10.3	0.3	100.0
Not retired	78.0	2.1	14.4	3.7	1.8	100.0
Workers	87.1	1.8	6.7	3.7	0.7	100.0
Women						
Retired	7.4	20.5	63.7	7.9	0.5	100.0
Not retired	69.1	3.5	21.4	3.8	2.2	100.0
Workers	84.2	2.3	9.0	3.3	1.2	100.0

Average percentages over all individuals and all years (1991 to 1997). Income is needs-adjusted annual net household income (using the McClements Before Housing Costs equivalence scale). Net earnings are defined as gross earnings *minus* income taxes *minus* social security contributions.

Table 3. Low income incidence among persons who retire in the year before retirement, the retirement year and inflow into low income.

	Percentage of persons who retire:		Percentage of persons who retire and are not poor in year before retirement who become poor in retirement year	N
	with low income in year before retirement	with low income in retirement year		
All retired (longitudinal sample)	26	32	16	595
Men	23	32	17	270
Women	28	32	15	325
Under retirement age	23	30	17	375
Over retirement age	30	34	14	220
Occupational pension	12	19	11	243
No occupational pension	35	41	21	352
Partner not present	40	48	24	143
Partner in employment	10	15	11	186
Partner not in employment	29	35	17	266
Owner occupier	21	25	13	445
Social housing	44	55	29	121
Other (renter, etc.)	24	41	27	29
Self-employed	29	23	12	35
Full-time employee	5	12	7	147
Part-time employee	19	32	19	104
Other (disabled, UE, fam. care)	38	42	21	297
Disabled	32	33	14	147
Not disabled	24	32	16	448

All variables refer to status in year before retirement. ‘Under retirement age’ is below 60 for women and 65 for men. ‘Disabled’ has been defined as ‘having an impairment that limits daily activities’. ‘Low income’ is defined as the bottom third of the income distribution, where ‘income’ is annual net household income. The first two columns indicate the percentage of individuals in each group (as defined in the first column) who are in the bottom third of the distribution. The third column indicates the percentage of those in each group who are not poor in year before retirement who become poor in retirement year. For the whole population the inflow into poverty from one year to the next is 10 percent.

Table 4. Probit model of mobility into low income for people who retire

	Men			Women		
	Marginal effect	Standard error	Mean of regressors	Marginal effect	Standard error	Mean of regressors
Partner not employed	0.161	0.064 **	0.422	-0.011	0.053	0.403
No partner	0.149	0.119	0.156	0.083	0.075	0.231
Disabled	-0.079	0.048	0.260	-0.048	0.049	0.194
Renter of social housing	0.035	0.080	0.161	0.220	0.100 **	0.162
Other (renter, etc.)	0.139	0.157	0.057	0.072	0.142	0.046
Early retired	0.093	0.052	0.828	0.103	0.047 **	0.500
Occupational pension	-0.066	0.069	0.677	-0.091	0.043 *	0.306
Self-employed	-0.028	0.089	0.073		(a)	
Full-time employee	-0.255	0.061 **	0.469	-0.099	0.046	0.204
Part-time employee	-0.026	0.078	0.104	0.017	0.051	0.273
Vocational education	0.013	0.086	0.125	-0.072	0.056	0.111
O level	-0.111	0.044 *	0.135	-0.060	0.049	0.130
A level	-0.084	0.064	0.083	0.007	0.110	0.046
Higher education	0.040	0.072	0.214	-0.035	0.057	0.167
Degree	0.035	0.152	0.047		(a)	
South-East	-0.029	0.088	0.245	-0.102	0.047 *	0.208
South-West	0.117	0.159	0.099	0.051	0.102	0.120
East & West Midlands	0.012	0.101	0.219	-0.104	0.043 *	0.162
North-West, Yorkshire, North-East	0.083	0.114	0.250	-0.110	0.050 *	0.264
Wales		(a)		-0.072	0.054	0.074
Scotland	0.111	0.171	0.078	-0.081	0.046	0.093
N (individuals)		192			216	
Log-likelihood		-71.500			-75.002	
Pseudo-R^2		0.2158			0.2162	
Observed probability		0.182			0.162	
Predicted probability at means		0.118			0.102	

The marginal effect is computed at the mean of regressors. For dummy variables it is given for a discrete change from 0 to 1. (a): dropped because of insufficient variation. *: significant at the 10 percent level. **: significant at the 5 percent level. 'Low income' is defined as the bottom third of the income distribution, where 'income' is annual net household income. The reference categories are: partner employed, owner-occupier, non-working (disabled, unemployed, family carer), has no educational qualifications, lives in London.